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FUNCTIONAL SERVICING REPORT 210, 256 & 276 QUAKER ROAD

CITY OF WELLAND October 2024

INTRODUCTION

The purpose of this Functional Servicing Report (FSR) is to address the municipal servicing requirements for the proposed subdivision development located at 210, 256 & 276 Quaker Road in the north-eastern portion of the Northwest Welland Secondary Plan (NWWSP) Area in the City of Welland, north of Quaker Road, west of Niagara Street, east of First Avenue, and south of the municipal boundary with the City of Thorold.

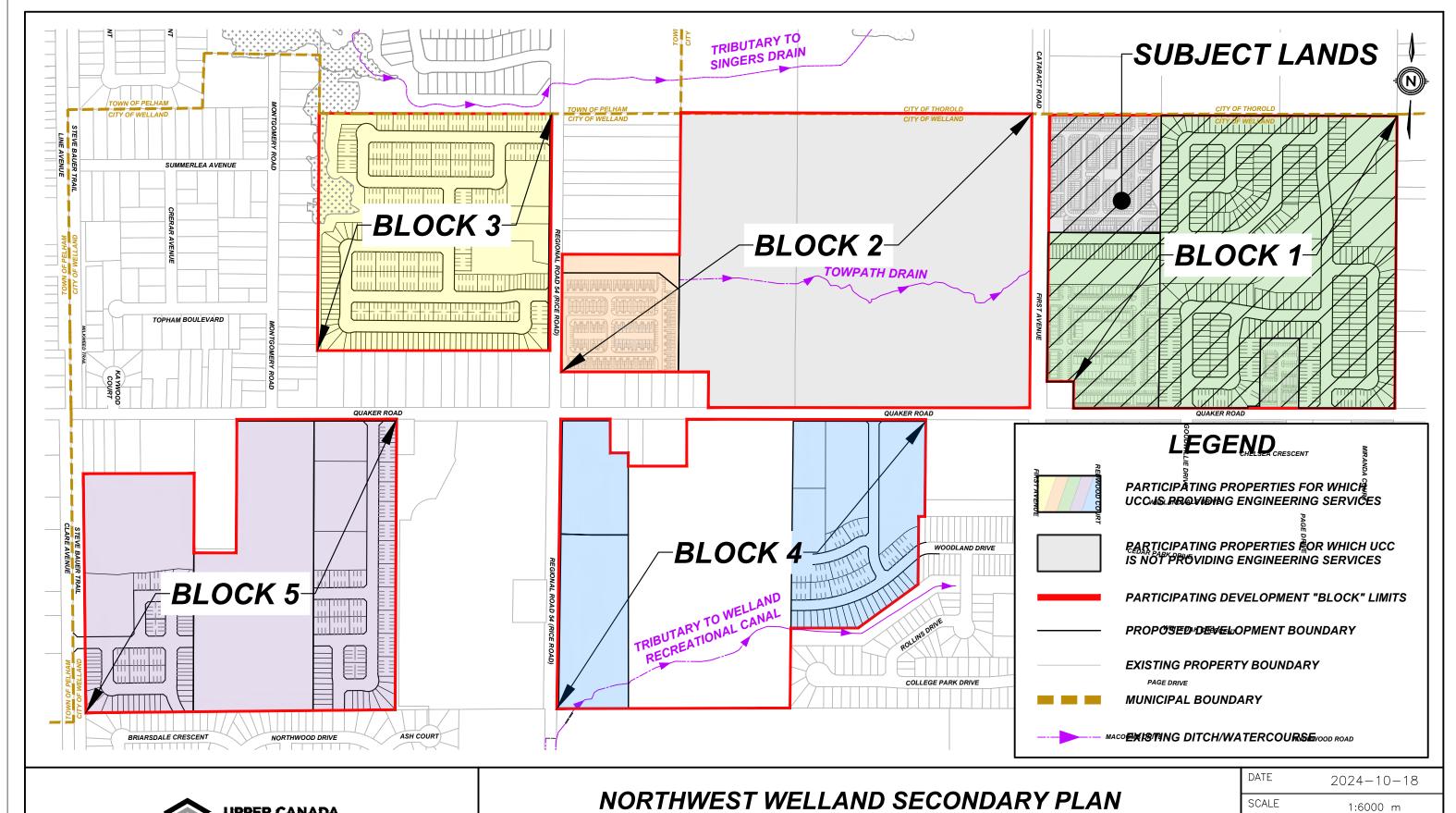
The following FSR will assess the available municipal servicing capacity for the entire 'Block' of development area bound by Quaker Road on the south, First Avenue on the west, to the eastern limit of 210 Quaker Road, and south of the municipal boundary with the City of Thorold as shown in Figure 1 as Block 3. Therefore, this Block (Block 3) will hereafter be referred to as 'subject lands' in this report.

The subject lands are approximately 28.99 hectares and will consist of a mix of subdivision and condominium developments, comprising of an overall mix of residential single detached, street townhouse, stacked townhouse, and apartment dwellings. The subject lands will be developed to include associated asphalt roadways, concrete curb, catch basins, storm sewers, sanitary sewers, and watermain.

The objectives of this report are as follows:

- 1. Identify domestic and fire protection water servicing needs for the site;
- 2. Identify sanitary servicing needs for the site; and,
- 3. Identify stormwater management needs for the site.

As part of the Northwest Welland Secondary Plan (NWWSP), a Conceptual Municipal Servicing Design Report was prepared by Associated Engineering on behalf of the City of Welland This design report assessed the existing municipal infrastructure (water, sanitary, and storm) to service the Secondary Plan Area, and provided a conceptual framework to identify the locations where new or upgraded infrastructure will be required to support future development. The updated report (June 2024) has been included in Appendix A.





NORTHWEST WELLAND SECONDARY PLAN
CITY OF WELLAND
SITE LOCATION PLAN - BLOCK 1

DATE	2024-10-18
SCALE	1:6000 m
REF No.	-
DWG No.	FIGURE 1



WATER SERVICING

There is an existing 300mm diameter municipal watermain located on Quaker Road, in front of the subject lands and no existing watermain on First Avenue.

The Conceptual Municipal Servicing Design Report assessed the City of Welland watermain model to determine the required watermain sizes to provide adequate domestic water supply and fire protection to a minimum fire flow of 133 L/s within the Secondary Plan Area.

It was determined in the Design Report that a new 300mm diameter trunk watermain would be required within the subject lands and on First Avenue, extending from the existing 300mm watermain on Quaker Road. Smaller diameter mains connecting the new 300mm diameter trunk watermains can provide domestic water supply and fire protection within the proposed local roads and a new 250mm diameter watermain connecting to the existing 200mm watermain on Niagara Street may be required following further modelling at the detailed engineering design stage.

A Watermain Distribution Plan has been prepared by Upper Canada Consultants which shows the watermain locations within the "Block 3" in accordance with Figure 3-4 in the Conceptual Municipal Design Report and is enclosed in Appendix B. As shown in this Plan:

- A 300mm diameter looped watermain will be provided on First Avenue, Street G and Street C extending from the existing 300 watermain on Quaker Road;
- A 200mm diameter watermain will be provided on Street E connecting to the new 300mm trunk on Street G;
- A 200mm diameter watermain will be provided on Street A connecting the new 300mm trunk on Street C and existing 300mm trunk on Quaker Road; and,
- The remaining streets will be serviced with local 150mm diameter watermains.

The subject lands are expected to consist of a total population of 2,929 persons, divided as follows:

- 1,071 persons within 744 First Avenue;
- 874 persons within 294 Quaker Road;
- 159 persons within 232 238 Quaker Road; and,
- 825 persons within 210, 256 & 276 Quaker Road.

The estimated peak domestic water demands have been summarized in Table 1 below using an average residential flow rate of 270 L/capita/day. Peaking factors for the maximum daily demand and maximum hourly demand were taken from the Table 3-1 of the Ministry of Environment Design Guidelines for Drinking Water Systems for a population between 2,001 – 3,000. The peak demands will be confirmed as part of the detailed engineering design.



Table 1. Estimated Peak Domestic Water Demand		
Average Domestic Demand		
270 L/cap/day; 2,929 persons	9.15 L/s	
Maximum Day Peaking Factor		
	2.25	
Maximum Day Domestic Demand		
	20.59 L/s	
Peak Hour Peaking Factor		
	3.38	
Peak Hour Domestic Demand		
	30.93 L/s	

The fire hydrants located within the development site will be prepared to provide fire protection for the proposed dwellings. The spacing and location of the proposed fire hydrants will be provided in accordance with the City of Welland design standards as part of the detailed engineering design.

Therefore, there is expected to be adequate capacity to provide domestic water supply and fire protection within the subject lands and adjacent development lands.

SANITARY SERVICING

There is presently a 750mm diameter Regional trunk sanitary sewer flowing easterly on Quaker Road, in front of the subject site which ultimately outlets to Towpath Road Sanitary Pumping Station.

A Sanitary Drainage Area Plan for the subject lands, enclosed in Appendix C, shows a total sanitary drainage area (including the subject lands as Drainage Area A1 and A5) of approximately 24.84 ha and a population of 2,929.

It is proposed to provide a single sanitary connection for the subject lands to the existing 750mm diameter Regional sanitary sewer on Quaker Road. As shown in the Sanitary Drainage Area Plan, it is proposed to extend a new 300mm diameter sanitary sewer within the subject lands from Street 'C'.

The existing 750mm diameter Regional trunk sanitary sewer on Quaker Road in front of the subject lands has a capacity of 556.99 L/s. The future peak sanitary flow from the subject lands will is calculated to be 36.94 L/s, which will occupy 6.6% of the existing 750mm diameter sanitary sewer on Quaker Road. Therefore, the receiving sanitary sewer system is expected to have adequate capacity to receive future sanitary flows from the subject lands. The sanitary sewer design is attached in Appendix C for reference.

The Conceptual Municipal Servicing Design Report assessed the City of Welland InfoSWMM sanitary sewer model and the available capacities in the Towpath SPS and associated forcemain and the Welland WWTP.



Per the conclusions in the Design Report, there is expected to be adequate capacity in the existing Towpath SPS and associated forcemain following upgrades planned to this infrastructure by the Niagara Region, and Welland WWTP without upgrades for the entire NWWSP Area. The Design Report indicates that the capacity in the downstream sanitary sewer system will need to be reevaluated as part of detailed engineering design, prior to build-out of the NWWSP Area.

Therefore, there is expected to be adequate capacity in the receiving sanitary network for the subject lands.

STORMWATER MANAGEMENT

A Storm Servicing Plan has been included in Appendix D showing a preliminary layout of the proposed internal storm sewers discharging to the proposed stormwater management facilities (P30 and P31).

A separate Stormwater Management Plan has been prepared by Upper Canada Consultants (UCC) which includes the future Storm Drainage Areas for the subject lands and detailed calculations for each proposed stormwater management facility. The Stormwater Management Plan has been enclosed in Appendix E for reference.

CONCLUSIONS AND RECOMMENDATIONS

Therefore, based on the above comments and design calculations provided for this site, the following summarizes the servicing for this site:

- 1. The existing municipal watermain system is expected to have adequate capacity to provide both domestic and fire protection water supply for the subject lands.
- 2. The receiving 750mm diameter Regional sanitary sewer on Quaker Road, the Towpath SPS and associated forcemain, and Welland WWTP are expected to have adequate capacity for the subject lands upon full build-out of the NWWSP Area.
- 3. Detailed calculations, conclusions, and recommendations regarding Stormwater Management can be found in the Stormwater Management Plan found in Appendix E.



Based on the above and the accompanying calculations, there exists adequate municipal infrastructure for this development. We trust the above comments and enclosed calculations are satisfactory for approval. If you have any questions or require additional information, please do not hesitate to contact our office.

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Respectfully Submitted,

Brendan Kapteyn, P.Eng.

Reviewed By:

Page 6



APPENDICES



APPENDIX A

NW Welland Secondary Plan Municipal Servicing Conceptual Design Report (Associated Engineering, June 2024)



REPORT

City of Welland

Northwest Welland Secondary Plan Municipal Servicing Conceptual Design Report

JUNE 2024





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REVISIONS PAGE

Northwest Welland Secondary Plan Municipal Servicing Conceptual Design Report

Client: Engineer:

Upper Canada Consultants

Associated Engineering (Ont.) Ltd.

Revision/ Issue	Date	Description	Prepared by/ Reviewed by	Client Review
1	2023-11-22	Municipal Servicing Report_v1	AL & BB/ RC & MG	
3	2024-03-26	Municipal Servicing Report_v3	AL & BB/ RC & MG	
5	2024-06-24	Municipal Servicing Report_v5	AL & BB/ RC & MG	
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TABLE OF CONTENTS

SECT	ION		PAGE NO
Table	e of Con	tents	i
List c	of Tables	S	ii
List c	of Figure	es ·	iii
1	Intro	oduction	1
	1.1	Study Area	1
	1.2	Proposed Secondary Plan	2
2	Back	ground information	3
	2.1	Sources	3
	2.2	Data Gaps	4
3	Wate	er	4
	3.1	Design Criteria	5
	3.2	Model Updates and Existing System Conditions	7
	3.3	Proposed System Requirements	11
4	Sanit	tary	14
	4.1	Design Criteria	15
	4.2	Existing System Capacity	15
	4.3	Proposed System Requirements	16
5	Storr	m	20
	5.1	Design Criteria	21
	5.2	Existing System Capacity	21
	5.3	Proposed System Requirements	22
6	Preli	minary Costing	24
7	Cond	clusions	25
Appe	endix A -	- Water	
Appe	endix B -	Sanitary	
Appe	endix C -	Storm	
Appe	endix D -	- Cost Estimate Detail	

İ

LIST OF TABLES

	PAGE NO.
Table 1-1: NWSP Population and Unit Numbers	2
Table 2-1: Water, Sanitary and Storm Data Sources	3
Table 2-2: Data Gaps	4
Table 3-1: New NWSP Demands	6
Table 3-2: Existing and Future WTP Pump Settings – City's InfoWater Model	7
Table 3-3: Identified Previous NWSP Demands from the City's Model	9
Table 3-4: Available and Required Water Storage	13
Table 5-1: Required Outlet Size	24
Table 6-1: Preliminary Cost Estimate for Municipal Servicing	24

LIST OF FIGURES

	PAGE NO
Figure 1-1: Northwest Welland Secondary Plan Study Area	1
Figure 1-2: NWSP Proposed Population and Unit Plan	2
Figure 3-1: Existing Watermains Configuration in Study Area	5
Figure 3-2: Shoalt's Tank Head – Existing and Future MDD Scenarios (without NWSP)	10
Figure 3-3: Bemis Tank Head – Existing and Future MDD Scenarios (without NWSP)	11
Figure 3-4: Proposed Infrastructure for NWSP Development	12
Figure 4-1: Schematic of Existing Sanitary System in NWSP Study Area	15
Figure 4-2: Proposed Sanitary System and Drainage Areas – Option 1	17
Figure 4-3: Proposed Sanitary System and Drainage Areas – Option 2	18
Figure 5-1: Schematic of Existing Stormwater Drainage Path	21
Figure 5-2: Proposed Storm System and Drainage Areas	23

1 INTRODUCTION

The City of Welland identified the development of the Northwest Secondary Plan as a priority to provide for detailed land use planning policies for a mix of uses, including policies that address infrastructure requirements, and natural and cultural heritage considerations. The Northwest Welland Secondary Plan (NWSP) will guide future growth and development within the study area. This report (previously issued May 2021) reviews background information and provides capacity analysis for existing water, sanitary, and storm sewer servicing in the study area. In addition, an initial assessment was completed for proposed conceptual water, sanitary, and storm servicing. These analyses were used to develop general recommendations for municipal water, sanitary, and storm servicing requirements in the Secondary Area.

1.1 Study Area

The study area (Figure 1-1) includes the land within the urban area boundary of Welland that is bounded by Clare Avenue to the west, Niagara Street to the east, land on the south side of Quaker Road to a depth of approximately 500m to the south and 500m to the north and comprises approximately 190ha. Quaker Road bisects through the Study Area and is identified as an arterial road and all other streets are considered local roads.

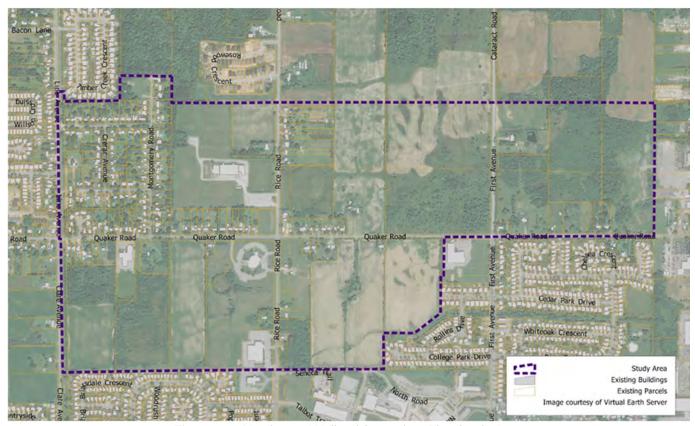


Figure 1-1: Northwest Welland Secondary Plan Study Area

Existing land uses are primarily residential, institutional, agricultural, and open space. Currently, municipal services for water, sanitary and storm exist in parts of the NWSP area, which will be leveraged to accommodate the NWSP area.

1.2 Proposed Secondary Plan

Figure 1-2 shows the proposed NWSP layout provided by Upper Canada Consultants (September 2023). Based on the proposed layout, population and unit numbers for each development block were also provided by Upper Canada Consultants. Projected units and populations are summarized in Table 1-1.

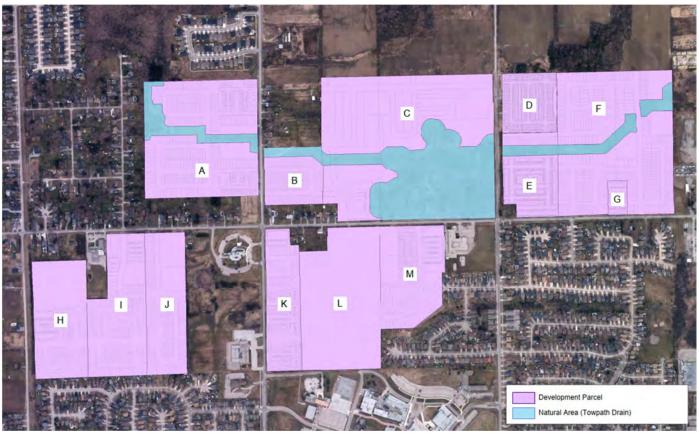


Figure 1-2: NWSP Proposed Population and Unit Plan

Table 1-1: NWSP Population and Unit Numbers

Block Number	Area (ha)	Units	Population (+/-)
А	13.25	386	1,081
В	3.36	114	319
С	18.15	800	2,240
D	4.05	360	1,008
Е	4.77	401	1,123
F	17.71	403	1,128
G	0.80	96	269

Block Number	Area (ha)	Units	Population (+/-)
Н	8.40	226	633
I	8.79	227	636
J	7.04	162	454
K	5.73	439	1,229
L	13.02	500	1,400
M	7.05	236	661

2 BACKGROUND INFORMATION

2.1 Sources

Table 2-1 provides a list of sources used to aid in completing the analysis of water, wastewater, and stormwater servicing for the NWSP area.

Table 2-1: Water, Sanitary and Storm Data Sources

System	Description	File Type(s)	Author(s)
All	City of Welland Northwest Area Planning and Servicing Study Municipal Class EA	PDF	Earth Tech
All	1m Elevation Contours	SHP	City of Welland
All	City of Welland GIS Data	GIS	City of Welland
All	City of Welland Official Plan	PDF	Dillon Consulting
All	Key Directions Report for the Northwest Welland Secondary Plan Area	PDF	SGL
All	City of Welland Municipal Standards, 2013	PDF	City of Welland
Water/Wastewater	2016 Water and Wastewater Master Servicing Plan Update Hydraulic Model for City of Welland, May 2017	PDF	GM Blue Plan
Water	Welland Water Model (part of the Niagara Region Water Model for the 2017 Niagara Region Master Servicing Plan), 2017	InfoWater	Niagara Region
*Water	City of Welland All Pipe Water Model	InfoWater	City of Welland
Water	Design Guidelines for Drinking-Water Systems, 2008	PDF	MECP
Water	City of Welland Fire Flow Requirements – By Building Zone	PDF	AE

System	Description	File Type(s)	Author(s)
*Wastewater	Welland All Pipe Wastewater Model	InfoSWMM	City of Welland/ Niagara Region
*Wastewater	City of Welland Pollution Prevention Control Plan Update & Wastewater Master Servicing Plan, 2020	PDF	GM Blue Plan
*Storm	Northwest Welland Stormwater Management Implementation Plan, 2022	PDF	Upper Canada Consultants

^{*}additional/updated data sources since May 2021 Report

2.2 Data Gaps

Data gaps are presented in Table 2-2, which summarizes missing, relevant information that would provide a clearer picture of the existing and future needs of the systems in future steps of this process (i.e. confirmation of criteria to be used in future design of systems).

Table 2-2: Data Gaps

System	Data Gaps	Justification
All	Detailed topographic survey	To confirm elevations for servicing

3 WATER

Water servicing in the Niagara Region is a two-tiered approach; Niagara Region has jurisdiction over the drinking water supply for homes and businesses throughout the Region and is responsible for treatment, storage, pumping, and trunk watermains. The City of Welland is responsible for the local distribution system.

Currently, the area surrounding the proposed development is pipe fed from the Welland Water Treatment Plant (WTP) to the Shoalt's Drive Reservoir and surrounding area. During periods where the WTP is offline, the area is predominately supplied by gravity from the Shoalt's Reservoir. The Welland system also has an elevated storage tank (Bemis) located in the southern portion of the distribution system.

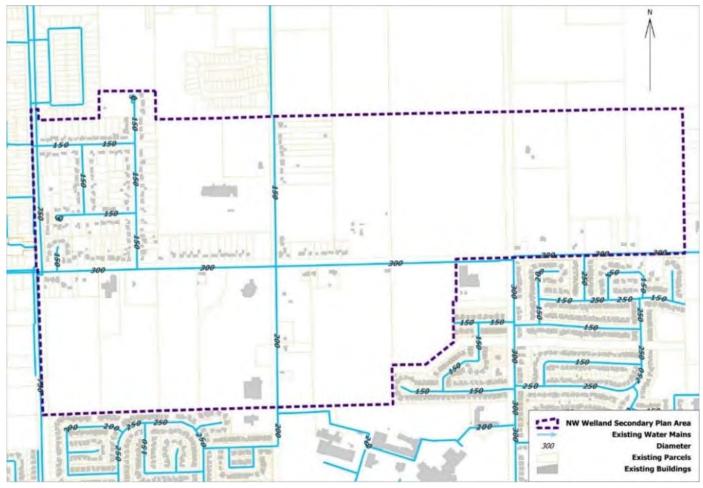


Figure 3-1: Existing Watermains Configuration in Study Area

The existing system configuration within the study area, including existing pipe diameters, is shown in

Figure 3-1. Within this area there is a small existing development east of Line Avenue and north of Quaker Road. This area, which was built in 2002, consists of 150mm PVC watermain connecting to both the 750mm CPP on Line Avenue to the west and the 300mm CI on Quaker Road to the south. In addition, there is a 150mm existing main on Rice Road (north of Quaker Road) which appears to serve few properties. There are also existing properties along Quaker Road, which are serviced off the 300mm main.

3.1 Design Criteria

The design criteria used for the analysis of the water distribution system includes the following:

- Target normal operating pressures:
 - Preferred system pressure between 350 kPa to 550 kPa (50 to 80 psi)
 - Minimum system pressure to be greater than 275 kPa (40 psi)
 - Maximum system pressure to be less than 700 kPa (100 psi)
- Fire flow requirements during MDD with 140 kPa (20 psi) residual system pressure:

- Parks: 67 L/s
- Low Density Residential (Single Family Residential): 67 L/s
- Medium Density Residential (Townhomes): 133 L/s
- Multi-Use: 133 L/s
- Per capita demand: 240 L/cap-day (Based on City design criteria)
- Peaking factors as per the City of Welland Model, as follows:
 - Maximum Day Demand peaking factor: 1.5
 - Peak Hour Demand peaking factor: 1.87 (2.81 x Average Day Demand)
- ADD and MDD demand patterns as per City of Welland Model
- C-Factor for new pipes: 135 (Based on the City design standard)

3.1.1 Water Demands

Table 3-1 summarizes the new demands assigned within the model for the NWSP area. These demands were calculated based on the newly proposed populations/units previously identified in Table 1-1 and design criteria noted in Section 3.1.

Table 3-1: New NWSP Demands

Junction ID	ADD (L/s)	MDD (L/s)	PHD (L/s)
814	0.89	1.33	2.49
951	3.89	5.83	10.93
1700	0.75	1.12	2.10
3952	1.76	2.64	4.94
8338	1.50	2.25	4.22
8622	3.41	5.12	9.59
8623	2.07	3.11	5.83
J-FUT-47	2.80	4.20	7.87
J_NWSP_4	1.26	1.89	3.55
J_NWSP_6	1.50	2.25	4.22
J_NWSP_8	2.07	3.11	5.83
J_NWSP_9	2.07	3.11	5.83
J_NWSP_10	3.12	4.68	8.77
J_NWSP_15	1.84	2.76	5.16
J_NWSP_20	3.13	4.70	8.81
J-FUT-49	1.77	2.65	4.97

Junction ID	ADD (L/s)	MDD (L/s)	PHD (L/s)
Total Demand	33.84	50.77	95.11

3.2 Model Updates and Existing System Conditions

An InfoWater Model (WELLAND_WATER_2023, dated October 23, 2023) provided by the City was used for the analysis. The City's model includes both existing and future Average Day Demand (ADD) and Maximum Day Demand (MDD) extended period simulation scenarios. Model data sets suggest that the existing demand scenarios in the model were last reviewed and updated in 2022. The earlier study completed for this development reviewed and commented on the Niagara Region & City of Welland InfoWater models for their future development growth, providing an insight into the future development areas of the region. It has been assumed that this information still applies despite the time passed since that report.

During the development of this study, City noted that there were two errors in the existing model scenarios that should be rectified and therefore, the analysis was updated with the following changes/corrections.

- The size of the watermain, dead end on Montogomery Road where hydrant was connected, was changed from 50mm to 150mm pipe.
- The connection to the intersection of the Regional trunk main at Line Avenue and Summerlea Avenue was opened in the model.
- Recent discussions with the City indicated that the watermain along Quaker Road from Clare Avenue
 to Rice Road is currently being replaced with a new 300mm watermain and therefore, this portion of
 pipe was upsized and a C-factor of 135 was assigned in the model to reflect the upgrade.
- The connection (IW pipe ID 2377) between the 750mm Region trunk main on Clare Avenue N and the 300mm watermain on Quaker Road was opened in the model.

Other than the above noted model updates, no quality control checks were conducted on the City's model; it was assumed that the model is sufficiently calibrated for the purpose of this analysis and is indicative of the current system.

Figures for this section can be found in Appendix A. Table 3-2 shows the existing and current future pumping schemes from the City's model (on/off settings) at the WTP for both ADD and MDD scenarios. No changes were made to these settings for the development analysis.

Table 3-2: Existing and Future WTP Pump Settings – City's InfoWater Model

Pump	Existing ADD	Existing MDD	Future ADD	Future MDD
Low Flow Pump #1	On at 0:00 Off at 6:00	Off at 0:00	Off at 0:00 On at 11:00	Off at 0:00 On at 20:00 Off at 22:00
Low Flow Pump #2	Off at 0:00	Off at 0:00	Off at 0:00 On at 20:00	Off at 0:00

Pump	Existing ADD	Existing MDD	Future ADD	Future MDD
High Flow Pump #1	Off at 0:00 On at 13:00	On at 0:00 Off at 7:00	On at 0:00	On at 0:00 Off at 2:00 On at 5:00
High Flow Pump #2	Off at 0:00	Off at 0:00 On at 12:00	On at 0:00 Off at 3:00 On at 6:00 Off at 20:00	On at 0:00 Off at 2:00 On at 5:00

3.2.1 Current Hydraulic Conditions

A hydraulic analysis of the existing system was completed to provide a baseline level of service to compare to the future development scenarios.

Figures A-1 and A-2 show the minimum pressure during existing ADD and MDD in the study limits and surrounding area. At certain locations within the study area, pressures are lower than the required minimum pressure of 275 kPa (40 psi). These low-pressure nodes are in proximity to the Shoalt's reservoir and occur during peak periods; simulation time 11am to 12 noon for ADD and 10am to 11am for MDD. The observed minimum pressures in this portion of the study area for ADD and MDD are 239 kPa and 234 kPa respectively and are thought to be due to high ground elevations (maximum of 193m) and fluctuations of the Shoalt's Drive Reservoir head (between 217.5m and 219.0m). As to be expected during higher demands, more low-pressure nodes were observed in the surrounding study area during MDD scenario than ADD. There were also few low-pressure nodes observed in the other future growth areas of the system.

Figure A-3 shows the available fire flow during MDD at a residual pressure of 140 kPa (20 psi). Certain portions of the study area, specifically watermains along the Rice Road and Topham Boulevard have available fire flows less than 67 L/s (the City standard for single family residential). However, the new 300mm watermain upgrade along Quaker Road (from Clare Avenue to Rice Road) improves fire flows along Quaker Road, Montgomery Road and in Summerlea Avenue. The dead ends of the watermains in this portion of the area still indicated low fire flows (< 67 L/s).

The low availability of fire flows is due to both the high ground elevation and the size of the watermains supplying these hydrants.

3.2.2 Future Conditions without NWSP Development

In the existing model from the City, it was observed that the future model scenario included NWSP infrastructure and demands based on the previous study. A total of 48.7 L/s for future ADD and 73.1 L/s for future MDD was allocated in the NWSP region at the model junctions summarized below in Table 3-3.

Table 3-3: Identified Previous NWSP Demands from the City's Model

Junction ID	Future ADD (L/s)	Future MDD (L/s)
3952	1.00	1.07
567	3.15	4.72
812	2.52	3.77
815	3.86	5.79
818	4.01	6.02
8622	1.18	1.77
8623	5.35	8.03
J-FUT-47	10.10	15.16
J-FUT-48	2.14	3.21
J-FUT-49	5.58	8.37
J-FUT-50	6.08	9.12
J-FUT-51	4.03	6.05
Total Demand	49.00	73.08

To prevent "doubling up" on NWSP demands, the previously proposed infrastructure for NWSP has been removed from the future analysis.

Figures A-4 and A-5 show the minimum pressure during future ADD and MDD, without the NWSP development. As these figures show, a significant improvement in pressures was noted in the surrounding study area when compared to the existing scenarios, with only a small number of low-pressure nodes noted. This is due to the change in the pumping procedure at the WTP for the future scenario.

Figures 3-2 and 3-3 below show the hydraulic grade (HG) for Shoalt's and Bemis tanks for the existing and future MDD Scenarios. The pumping operating procedure at the WTP for the existing scenario shuts down the pumps midmorning, coinciding with periods of higher system demand. During this mid-morning WTP shutdown, both the Shoalt's Drive Reservoir and the Bemis Elevated Tank levels are drawn down; this draw down is sharp and reaches its lowest hydraulic grade level (HG) around noon. However, with the current future pumping scheme at WTP, the HG at Shoalt's and Bemis shows a sustained hydraulic head after 6 am showing improved pressures in the surrounding study area.

The future pumping schemes in the model for ADD and MDD scenarios showed improved pressures surrounding the study area which appeared to resolve most of the low-pressure nodes that were highlighted in existing scenarios. A few low-pressure nodes (250 kPa to 261kPa) still persisted surrounding the study area particularly nodes close to the Shoalt's reservoir.

An attempt was made to assess the future system by changing the current future pumping scheme for MDD scenario by altering the pumping hours at pump H-1 (On at 0:00 and Off at 2:00) which showed improved pressures in the reservoir area but not completely eliminated. As modification of pumping schemes is outside of the scope of this analysis, this would need to be confirmed by the City when adjusting the overall system configuration and settings.

Figure A-6 shows the available fire flow during future MDD prior to the proposed development. Parts of the surrounding study area on the south and east sides showed sufficient fire flows as required for multi-family residential housing (133 L/s) however, the nodes on the Rice Road watermain have less than the design standard of 133 L/s. Most of the Shoalt's reservoir area showed adequate fire flows with the new 300mm watermain upgrade in Quaker Road and by opening the 750mm Region trunk main interconnection in Clare Avenue N with the exception of the dead-end locations.

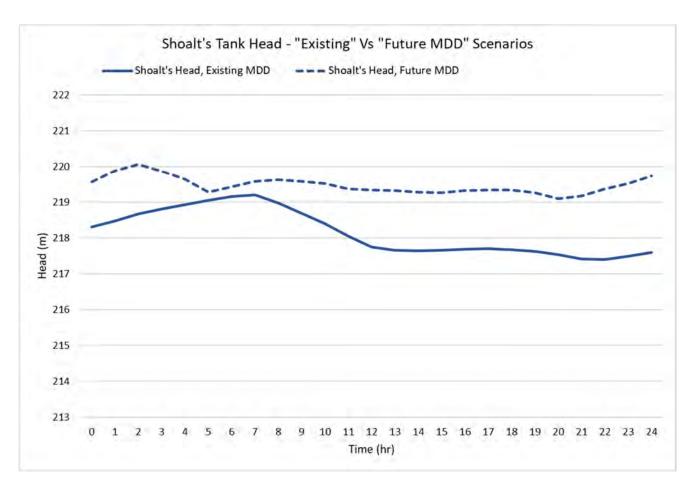


Figure 3-2: Shoalt's Tank Head – Existing and Future MDD Scenarios (without NWSP)

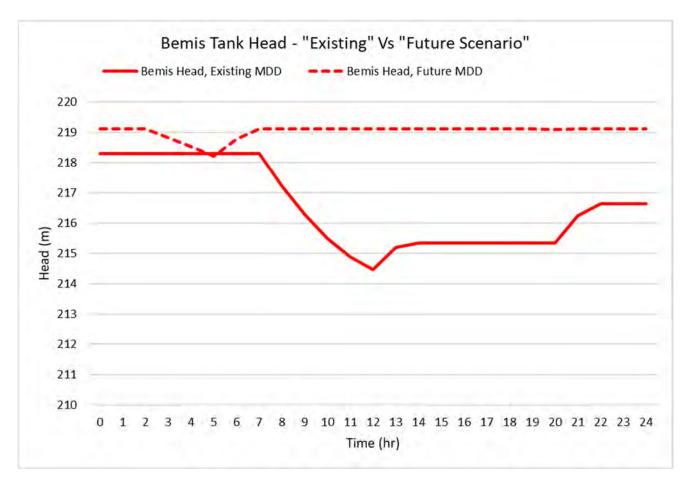


Figure 3-3: Bemis Tank Head – Existing and Future MDD Scenarios (without NWSP)

3.3 Proposed System Requirements

Several pipes and junctions were added to the City of Welland InfoWater model to represent future servicing of the NWSP area. The proposed pipe routing is laid based on the new NWSP site layout as shown in Figure 1-2 in Section 1.0 of this report. As the existing 300mm main on Quaker Road acts as a main supply line for this study area, the proposed mains for NWSP were mainly branched and looped out from this main to service the proposed development. Note that only significant pipes that will connect the NWSP site were included in the model. There will be additional future piping required along local roads upon finalization of the site layout.

Junction elevations for the newly added nodes in the study area were assigned based on the City of Welland 1 m contours. Pipe sizing for the major loops shown in Figure 3-4 was established as part of the hydraulic analysis to achieve the required fire flow of 133 L/s as needed for the medium density residential. New piping is shown in bold red; existing piping in blue.

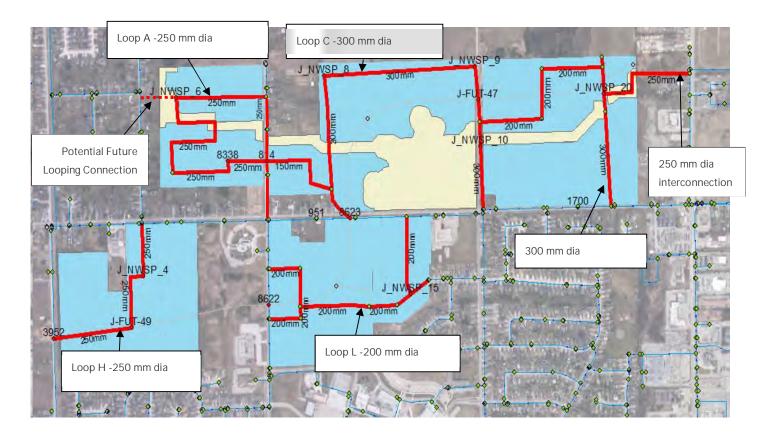


Figure 3-4: Proposed Infrastructure for NWSP Development

3.3.1 Hydraulic Analysis

The development demands for the proposed NWSP development were added to the Futures ADD and MDD scenarios in the model. The hydraulic analysis then was carried out with NWSP future demands to identify the impact of this proposed development on the future system and to confirm the pipe sizing and servicing requirements to support the future NWSP development.

Figures A-7 and A-8 show the minimum available pressures during ADD and MDD EPS, and Figure A-9 shows the available fire flows, with the NWSP area serviced with the proposed watermain sizes identified.

As these figures show, the addition of NWSP area to the future system does not significantly impact the surrounding system pressures, instead the proposed servicing has shown improved pressures over Future ADD and MDD when no NWSP development was added. As with the other modelled scenarios, there are existing low-pressure nodes near Shoalt's Drive Reservoir area, however no exacerbation of low pressures was noted when the NWSP development was added.

Figure A-9 shows most of the NWSP study area meets fire flow requirements of 133 L/s that is required for medium density housing with the following pipe servicing requirements.

The major watermain loops (Loop A, C, H and L) that are proposed to service the future NWSP development are shown in Figure 3-4 above. The pipe routing and sizing was identified based on the current site layout provided by the

developers and to achieve the design fire flow of 133 L/s throughout the study area. Should a change in the NWSP site layout occur in the future, a review of the analysis may be required to re-confirm the pipe sizes and servicing options. Furthermore, additional modelling may be required in the future to assess the extent of the overall system that is required to be constructed to facilitate each development block on a project-by-project basis.

To supply the required fire flow (133 L/s) to the northwest portion of the NWSP, specifically, the development that is planned west of Rice Road, an upgrade of Rice Road watermain and as well as the new water mains installed in this area should be a minimum of 250mm as shown as Loop A. With this upgrade, the fire flows in the area were improved and vary from 138 L/s to 213 L/s. It is also noted that a potential future looping connection between the northwest portion of the NWSP and the existing watermain on Montgomery Road can be considered based on final development details and servicing requirements within the area.

A new 300mm watermain loop, Loop C will be required to supply the C-block of the NWSP planned development. In addition, a new interconnection with 250mm watermain connecting the NWSP development to the watermain in Niagara Street on the eastern side is also made to improve the fire flows in the area.

Two major watermain loops with 200mm and 250mm, Loop L and Loop H respectively will be required for the southern portion of the NWSP, to provide the required fire flow of 133 L/s in this area. Without the Loop L, the development blocks K and M were not able to achieve the design fire flows of 133 L/s.

Overall, the proposed NWSP development shows improved operating pressures except in the low-pressure areas previously identified. Improved fire flows were also noted around the NWSP study area with the proposed pipe servicing, both within and outside the development boundaries.

3.3.2 Storage Requirements Review

A review of the City of Welland's overall storage capacity and existing and future storage requirements was conducted to determine the impact of the NWSP area on future storage needs. As per the MECP Design Guidelines for Drinking Water Systems, storage requirements for a water distribution system are as follows:

- Equalization Storage (A) = 25% of Maximum Day Demand
- Fire Storage (B) = 378 L/s for 6 hours (Based on MECP Equivalent Population Fire Flow Requirement)
- Emergency Storage (C) = 25% of A +B

Table 3-4 summarizes the total available storage identified in the Region Master Plan (as used in the previous report) and the calculated existing and future storage needs for the system based on the City of Welland model demands. As shown, there is sufficient storage in the Welland system to allow for the addition of the NWSP area. The total additional storage required for the addition of the NWSP area is 1.4 ML.

DescriptionStorage (ML)Total Available Storage37.0Existing Required Storage19.7Future Required Storage without NWSP (a)26.5

Table 3-4: Available and Required Water Storage

Description	Storage (ML)
Future Required Storage with NWSP (b)	27.9
Required Additional Storage for NWSP (b-a)	1.4

4 SANITARY

Sanitary servicing in Niagara Region is based on a two-tiered approach. The Region is responsible for the wastewater treatment plants, trunk sewers, pumping stations and forcemains. The City of Welland is responsible for the local gravity sewer system.

The sanitary sewage from the NWSP area will ultimately be treated at the Welland Wastewater Treatment Plant (WWTP). This WWTP services the City of Welland, Town of Pelham, and the Port Robinson area of the City of Thorold.

The existing sanitary services in the NWSP area includes a regional main down Rice Road, local main in the Montgomery subdivision, and local and regional (trunk) sanitary sewer along Quaker Road. Primary sanitary sewage flows south down Rice Road, and then east down Quaker Road to Towpath Road. Sanitary sewage then flows northeast along Towpath Road to Towpath Sewage Pumping Station (SPS). Towpath SPS receives gravity flow from the regional trunk sanitary sewer along Quaker Road and flows from Hurricane Road SPS (Rice Road). Sewage from Towpath SPS is pumped through a forcemain across the Welland River to a gravity system, which ultimately flows to the Welland WWTP. A schematic of the existing sanitary servicing within the NWSP study area is provided in Figure 4-1.



Figure 4-1: Schematic of Existing Sanitary System in NWSP Study Area

4.1 Design Criteria

Existing and future peak flows conveyed by the trunk sewer on Quaker Road to the Towpath SPS were assumed to be equivalent to the flows represented in the City's all-pipe InfoSWMM model.

Additional flows contributed to the Quaker Road trunk sewer, and ultimately the Towpath SPS, by the NWSP area were calculated using the following design criteria:

- Extraneous flows = 0.286 L/s/ha
- Roughness coefficient = 0.013
- Residential per capita flow rate (for sewage generation) = 275 L/cap/day
- Peaking factor = Calculated based on Harmon formula with values between 2.0 and 4.0

4.2 Existing System Capacity

4.2.1 Trunk Sewer

The available capacity of the existing trunk sewer along Quaker Road from Rice Road to the Towpath SPS was reviewed using the City's all pipe InfoSWMM model.

Currently Line Avenue is the break point in the collection system, with areas west of Line Avenue flowing west and then south, contributing to the Welland WWTP drainage area. However, the Region Master Servicing Plan Update (MSPU) identified a new 600mm diameter connection (WW-SS-002) along Quaker Road from Line Avenue to Rice Road, which would redirect approximately 130L/s of flows from Pelham (north-west of Line Avenue) to the Quaker Road trunk sewer, and ultimately the Towpath SPS. Given this change in flows through the Quaker Road trunk sewer, the available capacity of this sewer was reviewed with this new connection. This completed available capacity assessment, based on the InfoSWMM model outputs, is attached in Appendix B. In general, the Quaker Road trunk sewer has significant available capacity – with future available capacity ranging from 100L/s to 3,194L/s with the new Line Avenue connection.

4.2.2 Towpath SPS and Forcemain

The Region MSPU identified that Towpath SPS has existing and future deficiencies based on existing and design peak wet weather flows. As such, the Region MSPU identified a capital project to upgrade the Towpath SPS during the timeframe of 2022 – 2026 from 118L/s to 600L/s (WW-SPS-037).

The Region MSPU also indicates that the existing Towpath SPS forcemain has current capacity; however, will have a projected capacity deficit for 2051 growth. There is already a constructed 600mm diameter forcemain that can be commissioned in line with Towpath upgrades, as identified in the Region MSPU capital projects during the timeframe of 2032-2036 (WW-FM-022).

4.2.3 Welland WWTP

The Region MSPU identified that the existing Welland WWTP has surplus capacity available to treat existing and future flows at the plant, with the plant reaching 80% capacity around the 2041 time horizon.

4.3 Proposed System Requirements

4.3.1 NWSP Sanitary Drainage Areas and Proposed Collection System

As requested, two sanitary servicing options were prepared and reviewed for feasibility for the NWSP area, including:

1) development blocks on the east and west side of First Avenue are connected to a new city trunk located on First Avenue and 2) development blocks on the east and west side of First Avenue are connected through the development blocks to a new city trunk located on Quaker Road.

Figure 4-2 and Figure 4-3 (also provided in Appendix B as Figure B-1 and B-2, respectively) show the approximate location of future city trunk sanitary gravity sewers within the NWSP area and the location where the city trunks will connect to the existing Region trunk sewer on Quaker Road for each servicing option. Figure 4-2 and Figure 4-3 also show identifying numbers for the individual NWSP drainage areas, which are referenced in the sewer design sheets provided in Appendix B.

The design sheets for the proposed sanitary sewers have been prepared with the new Line Avenue connection included. Note that the inverts and pipe lengths assigned to the existing trunk sewer in the proposed design sheets are from the City's InfoSWMM model. Existing peak flows into the trunk sewer, input at existing manhole locations in the design sheets, are also as per the City's InfoSWMM model. All inverts and pipe lengths of the proposed city trunk sewers have been assigned based on preliminary modeling and the existing ground contours of the area. Note that, it is assumed that any other sanitary sewer required on future local roads servicing the NWSP area, will be 200 mm diameter.

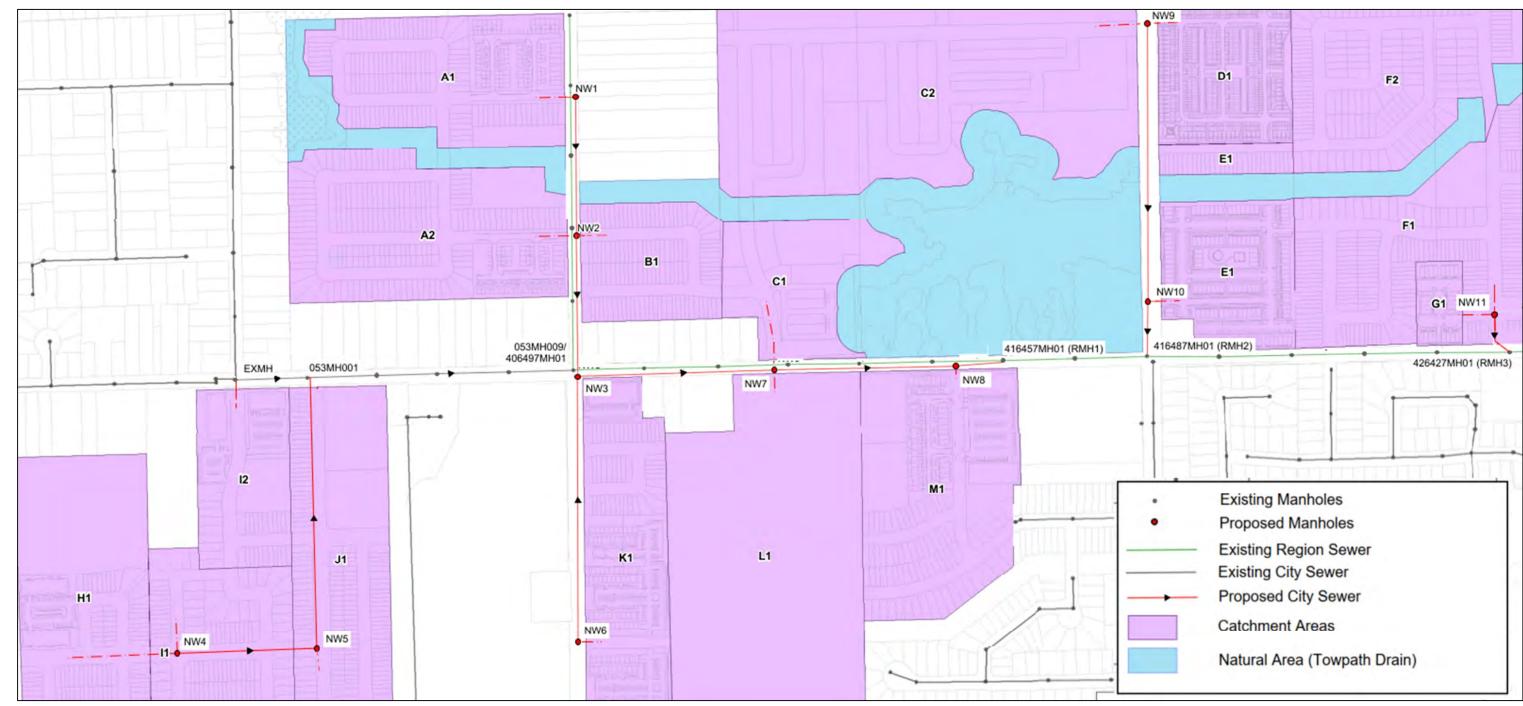


Figure 4-2: Proposed Sanitary System and Drainage Areas – Option 1

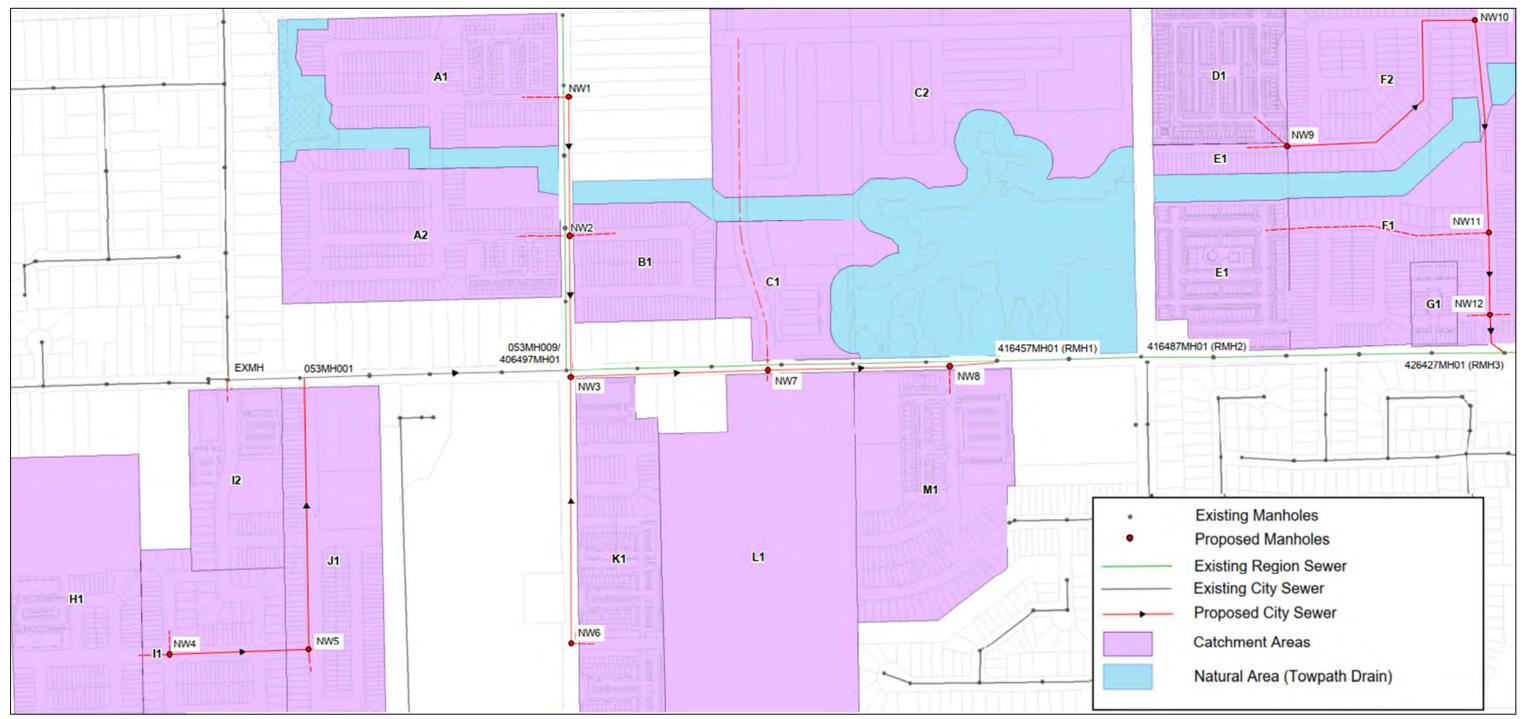


Figure 4-3: Proposed Sanitary System and Drainage Areas – Option 2

For servicing Option 2, the proposed trunk sewer within the quadrant east of First Avenue and north of Quaker Road (from NW10 to NW11) must cross the proposed Towpath Drain. For this preliminary assessment, using the existing ground contours and referencing the Towpath Drain Re-Alignment drawing package (Upper Canada Consultants, 2022) it appears that the proposed trunk sewer will be in direct conflict with the proposed box culvert and new creek bottom, making this servicing option not achievable. Further review and confirmation, based on proposed development details, will be required to determine viability of this servicing option moving forward.

As shown in the appended design sheets, the NWSP drainage area contributes overall an additional 143.3L/s of peak flow to the Quaker Road trunk sewer. Based on the capacity review of the existing trunk sewer on Quaker Road (provided in Appendix B), there are two (2) pipe segments that have an available capacity below 143L/s. The first pipe segment (19001376) is located between Rice Road and RMH1 (as shown on Figures 4-2 and 4-3 above). Since this segment will only receive an additional 27L/s sanitary flow from the NWSP area, this segment is not a concern. The second pipe segment (19001405) is located further downstream on Towpath Road between Grisdale Road and the Towpath Road SPS. Model analysis indicates this segment has 100L/s of available capacity with the Line Avenue trunk sewer connection. Further review and confirmation of available capacity within this segment should be completed prior to full build out of the NWSP area.

Although the phasing of future development within the NWSP area is not currently known, the proposed layout of this area and the associated sanitary design is such that the individual quadrants (defined as: areas west of Rice Road and north of Quaker Road (catchment area A); areas west of Rice Road and south of Quaker Road (catchment areas H, I, J); areas east of Rice Road and south of Quaker Road (catchment areas K, L, M); areas east of Rice Road and north of Quaker Road (catchment areas B, C1); areas east of First Avenue and north of Quaker Road (catchment areas D, E, F, G); and areas west of First Avenue (catchment area C2)) can mostly be developed independently of each other. Several exceptions to this include:

- the proposed city trunk sewer on Quaker Road (from NW3 to RMH1) must be constructed prior to development of catchment area A, catchment area B and catchment area K occurring;
- a portion of the proposed city trunk sewer on Quaker Road (from NW7 to RMH1) must be constructed prior to any development occurring within catchment areas C1 (and C2 for servicing Option 2), L, and M.
- for servicing Option 1, the proposed city trunk sewer on First Avenue (from NW9 to RMH2) must be constructed prior to development within catchment areas C2, D, and E.

The remainder of the city trunk sewers within each development quadrant should be constructed as development occurs in that quadrant starting from the downstream end.

Alternatively, to eliminate duplication of trunk infrastructure along Quaker Road and Rice Road, additional connections can be considered directly to the regional trunk main in order to eliminate the need for a 'local' trunk system. This approach would also eliminate most of the phasing exceptions noted above, as the local trunk would not need to be constructed.

4.3.2 Towpath SPS and Forcemain

The Welland NWSP area will contribute an additional 143.3L/s of peak flow to the Towpath SPS. As previously noted, the Region MSPU identified a planned upgrade to this SPS. The SPS upgrades will be required to address existing and future capacity and will be required to be completed before significant development can occur within the NWSP area.

The Towpath SPS forcemain has sufficient existing and future capacity to accommodate flows from the Welland NWSP area, provided the constructed 600mm diameter forcemain is commissioned prior to 2051 flows and build-out.

4.3.3 Welland WWTP and Downstream System

As previously noted, the Welland WWTP currently has a capacity surplus, and the NWSP area can be added. The Region MSPU did indicate the plant will reach 80% capacity around 2041. The post-2051 flows are expected to exceed the plant capacity; however, the plant can accommodate flows to 2051.

Additionally, the trunk sewer that the Towpath SPS forcemain discharges to has available capacity between the discharge point and the WWTP to accept an increase in flow. The design of the future Towpath SPS upgrade should confirm the capacity of the downstream trunk sewer when determining SPS outflow rates.

5 STORM

The existing NWSP area topography is quite flat and drains in a west to east direction. The land use is mainly pasture/ agricultural land interspersed with country residential homes. The plan area is significantly developed all around the boundary as well as within the plan area itself. The west side of the study area is already developed with country residential homes. There are two (2) major drainage channels that flow through the site – Towpath Drain within the northern portion of the development area and a tributary to Welland Recreational Canal within the southern portion of the development area. These two (2) channels are identified by the Niagara Peninsula Conservation Authority (NPCA) as requiring approval for any development draining to the channels. The existing stormwater drainage paths are shown in Figure 5-1.

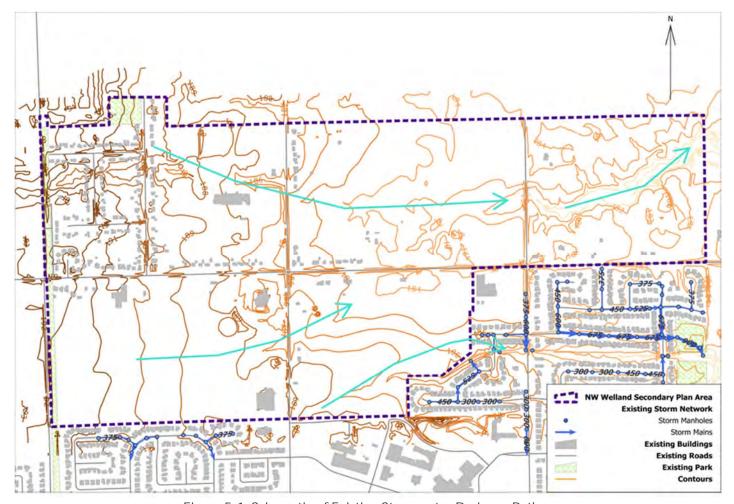


Figure 5-1: Schematic of Existing Stormwater Drainage Path

5.1 Design Criteria

The overall stormwater management plan for the NWSP area was initially developed by Aquafor Beech (2020) and updated and refined by Upper Canada Consultants (2022). The focus of this report is the identification of gravity sewer servicing requirements. The following design criteria were used in identifying these servicing requirements:

- Pipes were sized using the rational method with the City of Welland's 5-Year IDF curve values (a = 830, b = 0.777, c = 7.3)
- Friction factor = 0.013
- Run-off coefficients (as per City of Welland's Design Standards) of:
 - o Low Density Residential (i.e.: Single Family) = 0.40
 - o Medium Density Residential (i.e.: Semi-Detached) = 0.50
 - o High Density Residential (i.e.: Townhouses) = 0.60

5.2 Existing System Capacity

Since the proposed servicing, which is the focus of this report, will not leverage any existing gravity storm sewers in the area, no review of existing system capacity was conducted.

5.3 Proposed System Requirements

5.3.1 Proposed Stormwater Management Pond Locations

The stormwater management plan developed by Upper Canada Consultants identified approximate locations for eight (8) storm ponds, which will outlet to the Towpath Drain (channel north of Quaker Road), while one (1) storm pond will outlet to the tributary to Welland Recreational Canal (channel south of Quaker Road). The intent of the stormwater management plan is that all runoff from the proposed NWSP area will be directed to these storm pond locations through new gravity sewers installed on existing and future roads.

The approximate location of these proposed storm ponds is shown on the Ultimate Stormwater Management Plan figure from the Upper Canada Consultants Stormwater Management Implementation Plan (October 2022), which is included in Appendix C for reference. These pond locations were used to identify approximate outlet locations for the gravity sewers that will be required to service the NWSP area.

5.3.2 Proposed Gravity Sewers

Figure 5-2 (also provided in Appendix C as Figure C-2) shows the approximate location of future trunk storm gravity sewer outlets to the proposed storm ponds within the NWSP area. Figure 5-2 also shows identifying numbers for the individual NWSP drainage areas, which are referenced in the sewer design sheet found in Appendix C. Note, the design sheet was used primarily to identify outlet pipe sizing. Pipe sizes/lengths for the remainder of the future system were also approximated for preliminary costing (see Section 6), with a conservative assumption of a minimum pipe size of 450mm.

Based on the results of the completed sewer design sheet found in Appendix C, Table 5-1 shows the identified required outlet sizes for each approximate pond location.



Figure 5-2: Proposed Storm System and Drainage Areas

Table 5-1: Required Outlet Size

Outlet #	Size (mm)
SWM1	900
SWM2	900
SWM3	1050
SWM4	1200
SWM5	1350
SWM6	750
SWM7	1350
SWM8	1200
SWM9	1200

Note that pipe slopes identified in the design sheet were assigned based on the existing ground contours for the area and the required outlet elevations, with the intent of ensuring suitable cover over all proposed pipes.

6 PRELIMINARY COSTING

Preliminary costing for the conceptual water, sanitary, and stormwater servicing is provided in Table 6-1. Note – neither road works, utilities (including hydro, gas and communications servicing), nor restoration cost (asphalt) for works proposed on existing roads (Rice Road, Quaker Road, and First Avenue) are included in this estimate. A more detailed breakdown of these preliminary cost estimates can be found in Appendix D.

Table 6-1: Preliminary Cost Estimate for Municipal Servicing

Item	Scope of Work	Cost
Water Distribution System	Watermain (150mm to 300mm) including services, valves, and hydrants	\$26,366,775
Sanitary Collection Servicing	Sanitary Sewer (200mm to 450mm), including laterals and structures	\$36,657,195
Storm Collection Servicing	Storm Sewer (450mm to 1350mm), including structures	\$19,136,475
Sub-total	Water/Sanitary/Storm	\$82,160,445
Engineering	10% of Capital	\$8,216,200
Contingency	15% of Capital	\$12,324,200
TOTAL		\$102,700,845

7 CONCLUSIONS

The conclusions from the water, sanitary, and storm servicing capacity assessments are as follows:

Water:

- Proposed pipe servicing for the NWSP development is sized based on the design fire flow criteria of 133 L/s which are provided in Section 3. These include:
 - To supply fire flows for the northwest portion of NWSP development, the existing Rice Road watermain and the new infrastructure west of Rice Road (Loop A), should be a minimum of 250mm in diameter.
 - o To supply water and adequate fire flows to the south-west portion of the development, a new 250mm diameter interconnection (Loop-H) is required to connect the existing 750mm regional trunk main on Clare Avenue to the new 300mm main on Quaker Road.
 - o Loop C (300mm dia) for block C of NWSP and Loop L (200mm dia) for blocks K, L and M are required to provide the adequate fire flows.
 - o A new 250mm watermain interconnection connecting the NWSP development to the Niagara Street Watermain on the east side will also be required to support the required fire flows.
- The addition of the NWSP development to the City's system does not negatively impact the surrounding system, and instead should improve pressures and fire flows in the area.
- The existing system has sufficient storage to support the future NWSP development.
- The proposed development does not negatively impact the existing low-pressure areas identified near Shoalt's Reservoir.

Sanitary:

- The existing trunk along Quaker Road, which conveys flows to the Towpath SPS, has sufficient capacity to
 accept the additional 143.3 L/s peak flow generated by the NWSP area, with the exception of pipe segment
 19001405 on Towpath Road between Grisdale Road and the Towpath Road SPS. Model results indicate this
 segment has only 100L/s of available capacity.
- The Towpath SPS was identified in the Region MSPU as requiring an upgrade due to both growth north of the study area and the redirection of a portion of the flows from Pelham (north-west of Line Avenue) to the Towpath SPS through the Quaker Road trunk sewer. The timing of the Towpath SPS upgrade is 2022-2026 and will be required to be completed before significant development can occur within the NWSP area.
- The Towpath SPS forcemain has sufficient existing capacity; however, will have a projected capacity deficit for 2051 growth. There is already a constructed 600mm diameter forcemain that will require commissioning in line with Towpath SPS upgrades during the timeframe of 2032-2036 (WW-FM-022).
- The trunk sewer that the Towpath SPS forcemain discharges to has available capacity between the discharge point and the WWTP to accept an increase in flow.
- The WWTP has sufficient capacity to allow for the addition of the NWSP area.
- Future sanitary sewer sizing will range from 200 mm diameter to 450 mm diameter. Sizing to be confirmed during design.
- The phasing of future development within the NWSP area is not currently known; however, the proposed layout of this area is such that the individual quadrants (defined as: areas west of Rice Road and north of Quaker Road; areas west of Rice Road and south of Quaker Road; areas east of Rice Road and north of Quaker Road; areas east of First Avenue and north of

Quaker Road; and areas west of First Avenue) can mostly be developed independently of each other, with exceptions noted below.

- The proposed city trunk sewer on Quaker Road (from NW3 to RMH1) must be constructed prior to development west of Rice Road, north of Quaker Road, and lands fronting the east side of Rice Road both north and south of Quaker Road.
- A portion of the proposed city trunk sewer on Quaker Road (from NW7 to RMH1) must be constructed prior to any development occurring east of Rice Road and west of First Avenue.
- o For servicing Option 1, the proposed city trunk sewer on First Avenue (from NW9 to RMH2) must be constructed prior to development occurring immediately east and west of First Avenue.
- Alternatively, to eliminate duplication of trunk infrastructure along Quaker Road and Rice Road, additional
 connections can be considered directly to the regional trunk main in order to eliminate the need for a 'local'
 trunk system and most of the phasing exceptions noted above.

Storm:

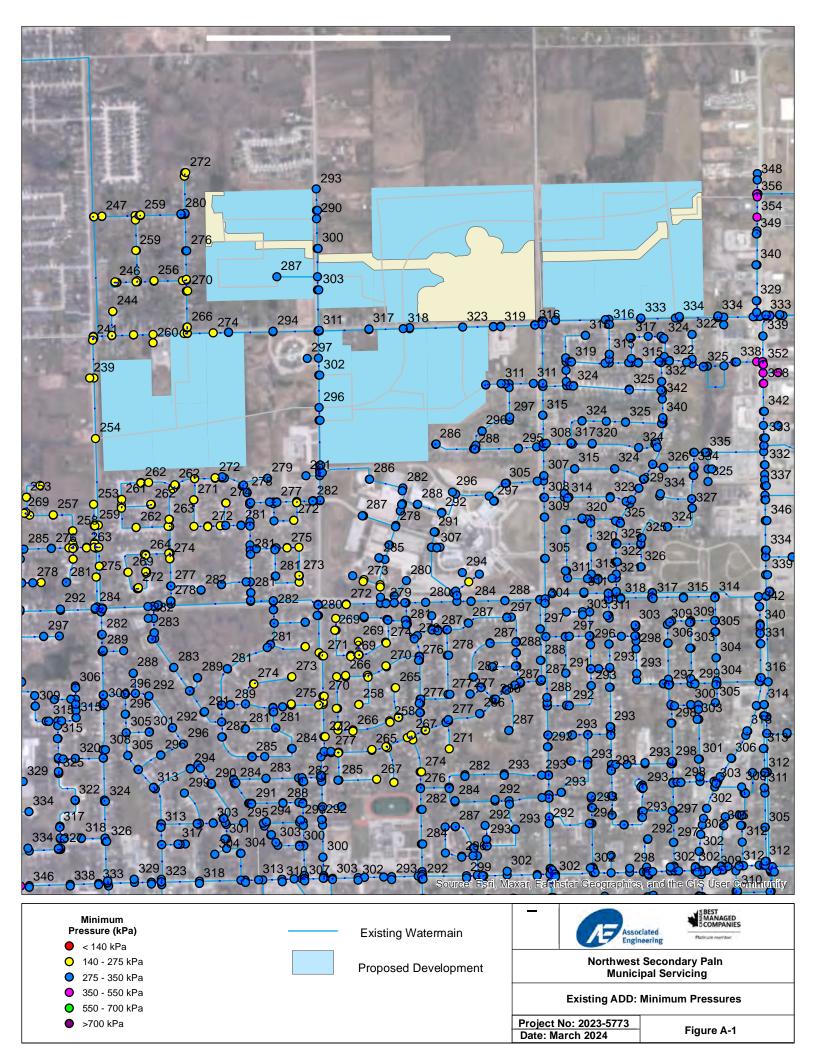
• The stormwater management plan developed by Upper Canada Consultants identified approximate locations for nine (9) new storm water ponds to service the NWSP area. Gravity sewers along the existing and future roads will direct runoff to these pond locations. Outlet sizing for the ponds will range from approximately 750 mm diameter to 1350 mm diameter. Sizing to be confirmed during design.

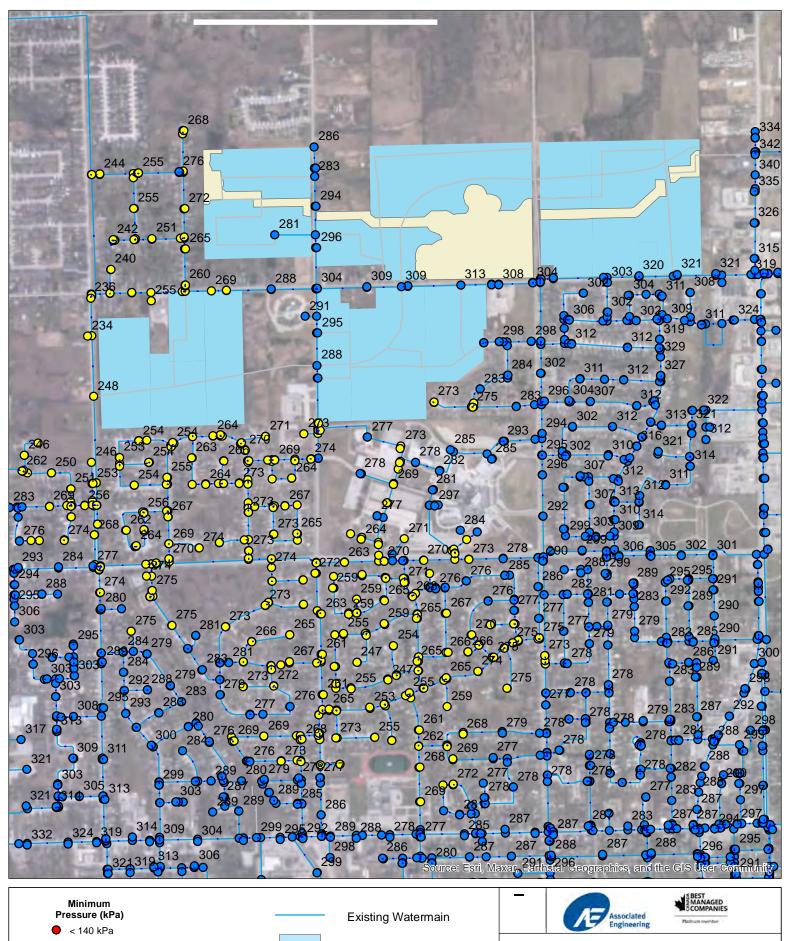
Respectfully Submitted by,

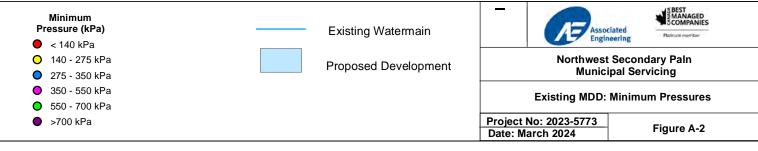
Andrea LaPlante, P.Eng. Project Manager

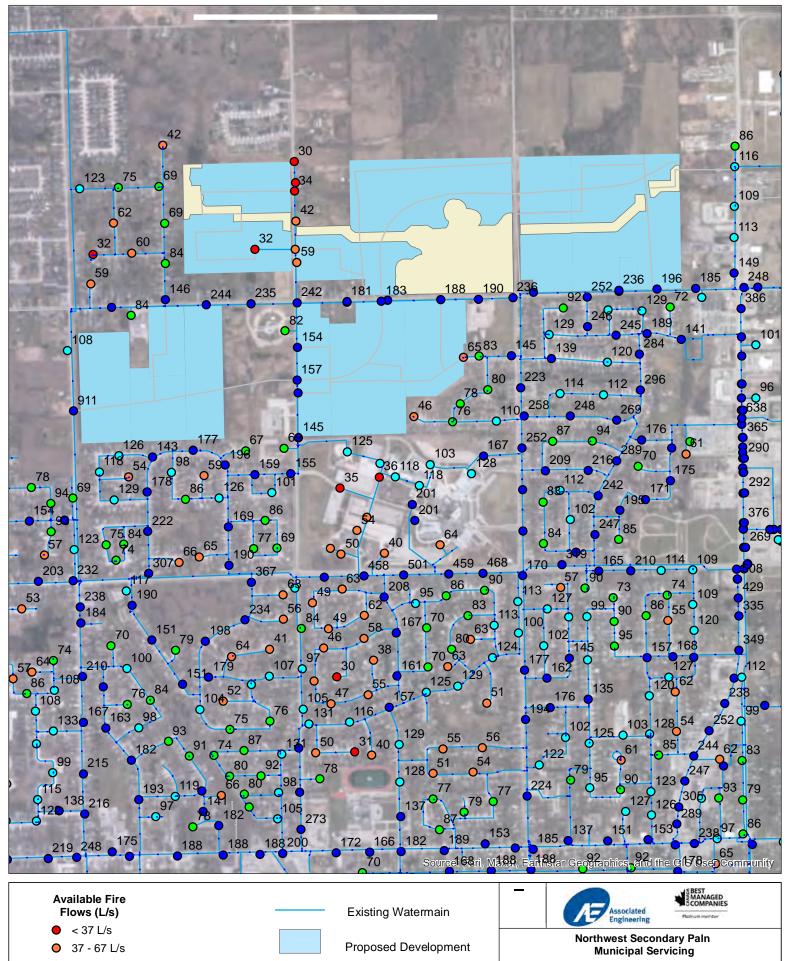


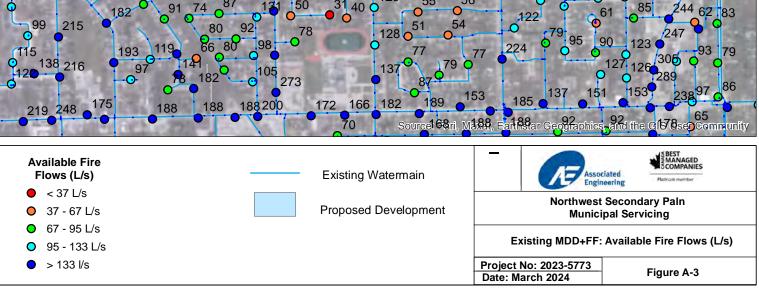
APPENDIX A - WATER

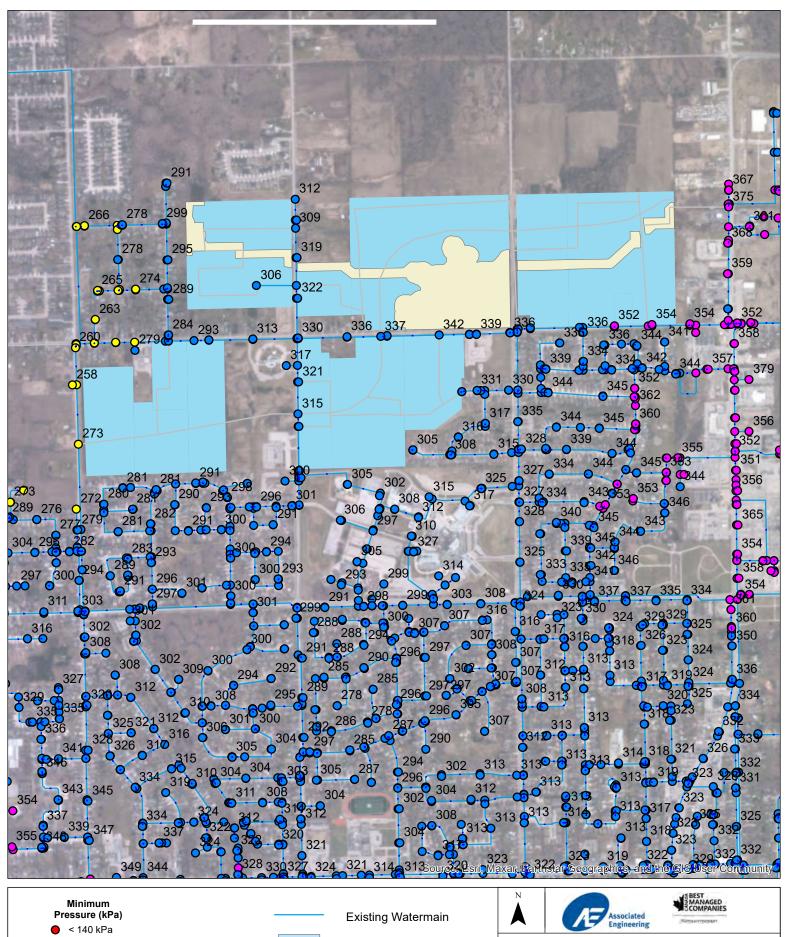


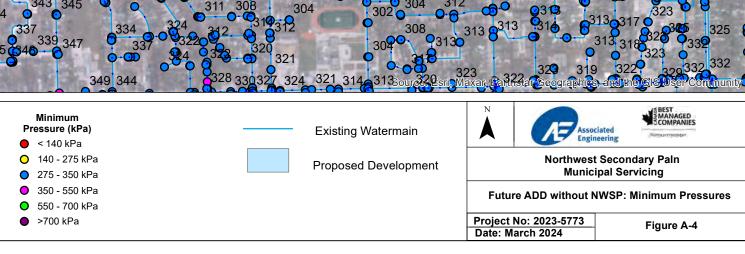


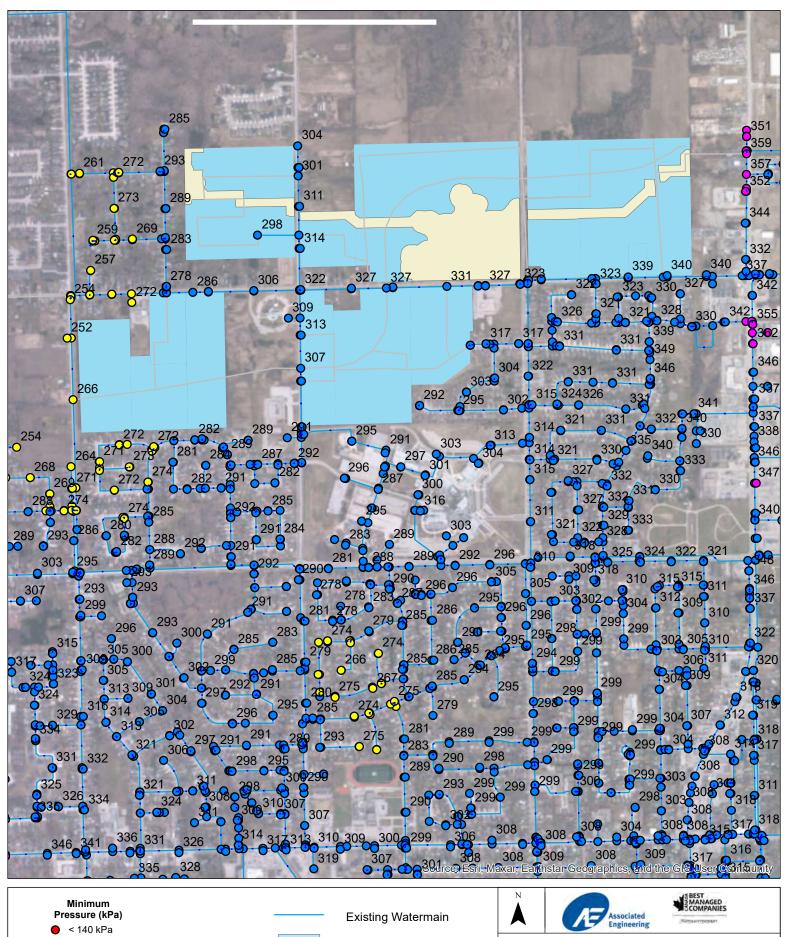


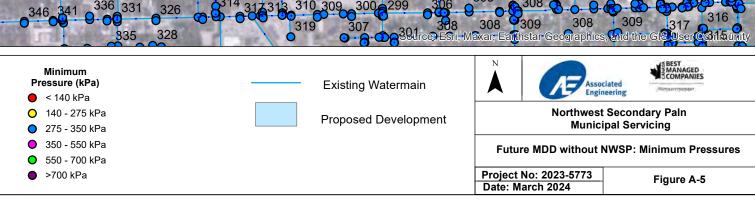


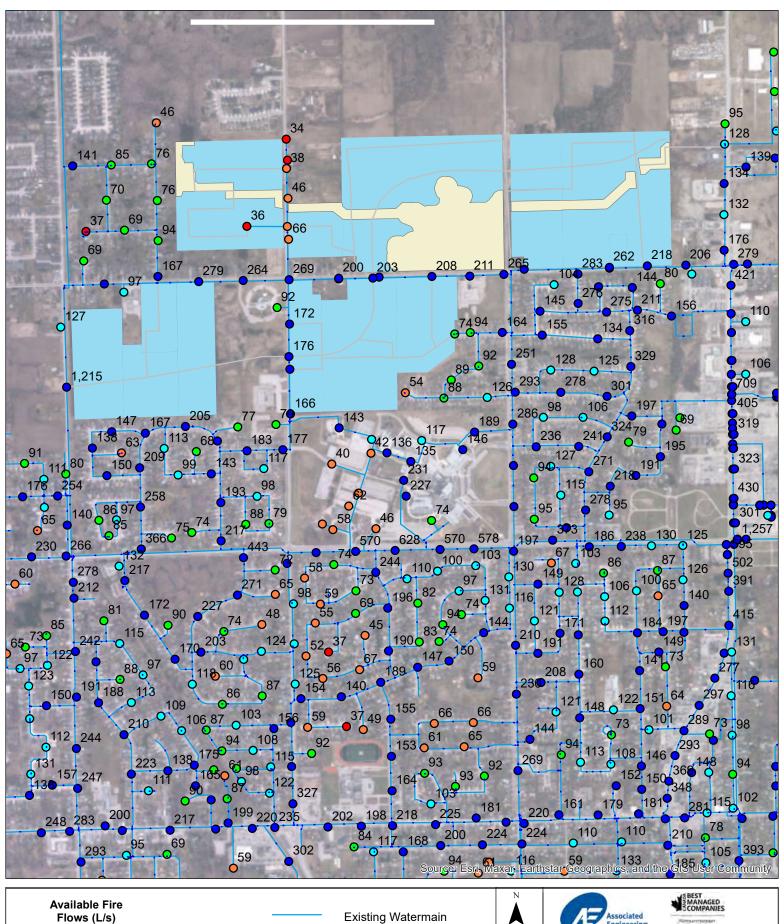














> 133 l/s

Proposed Development

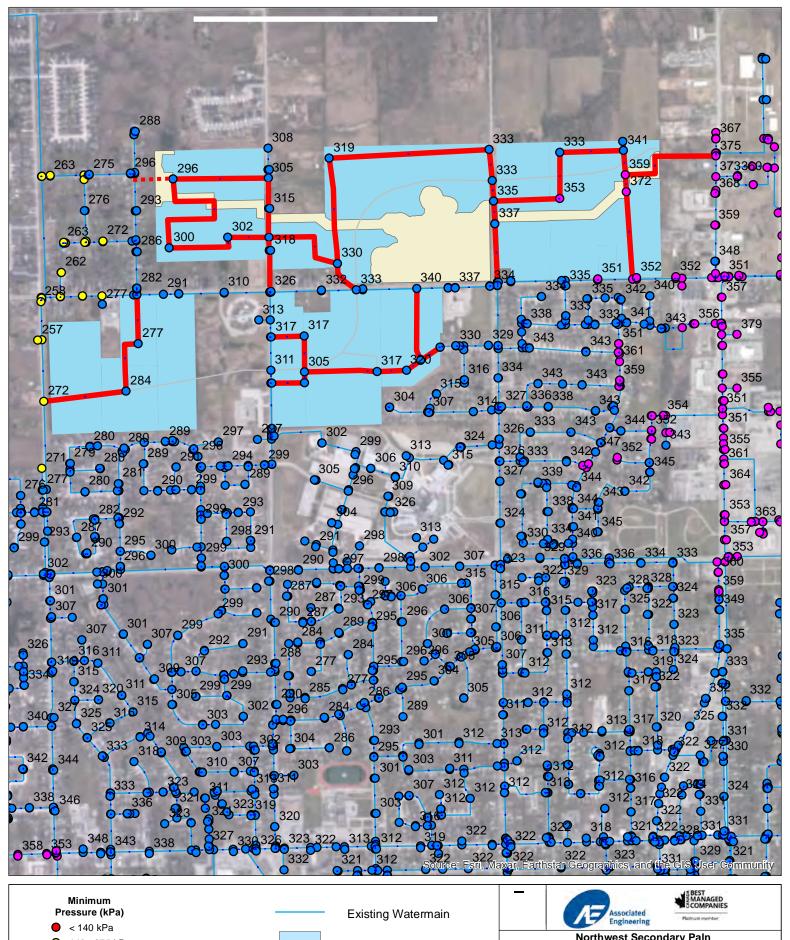


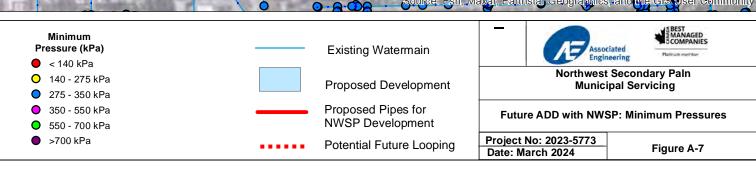
Northwest Secondary Pain Municipal Servicing

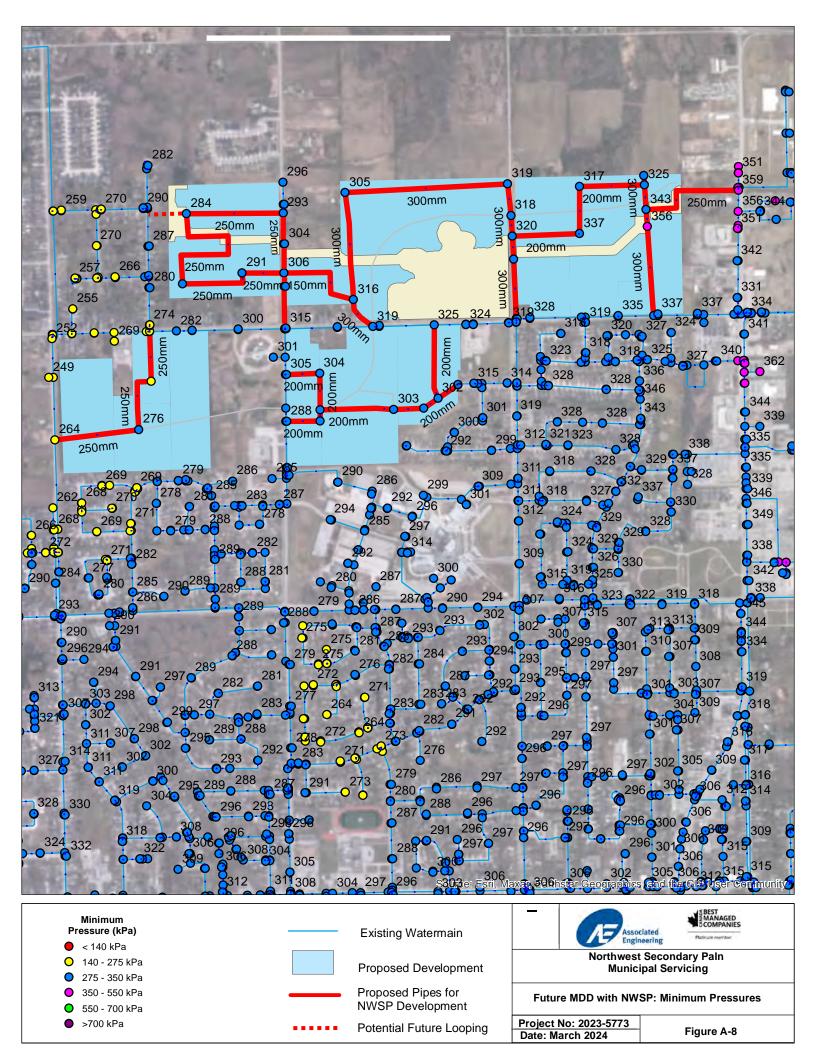
Future MDD+FF without NWSP: Available Fire

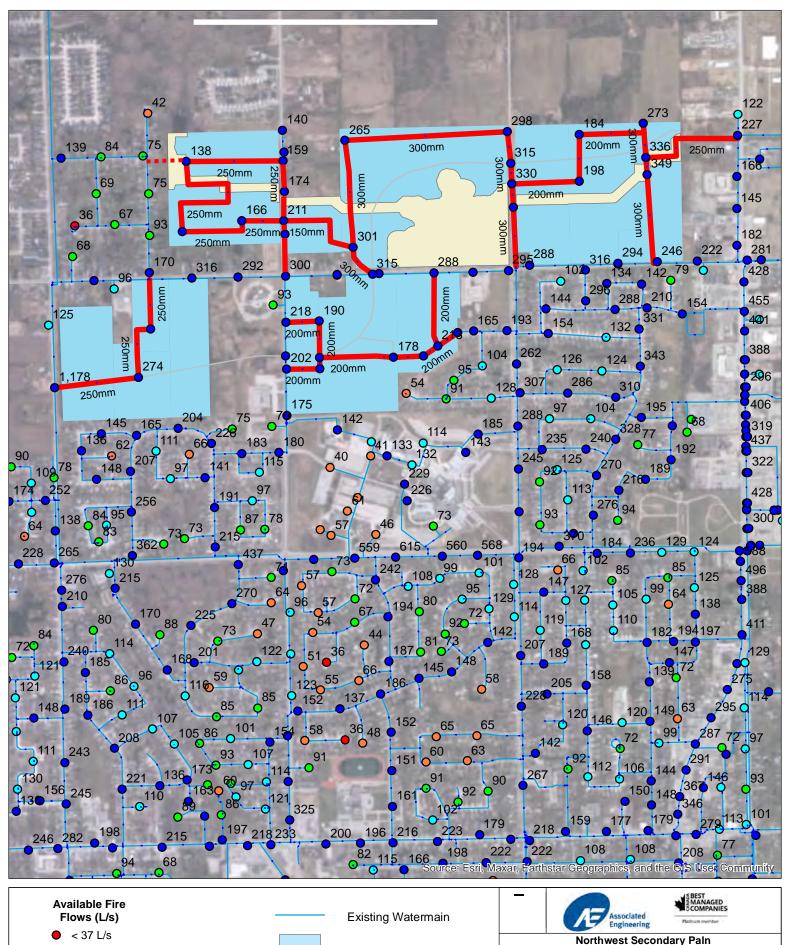
Flows Project No: 2023-5773 Date: March 2024

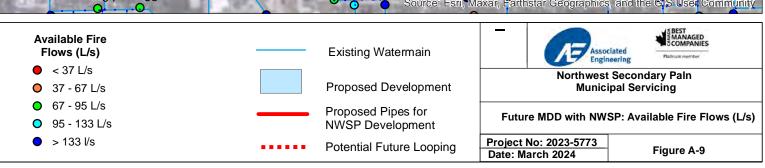
Figure A-6







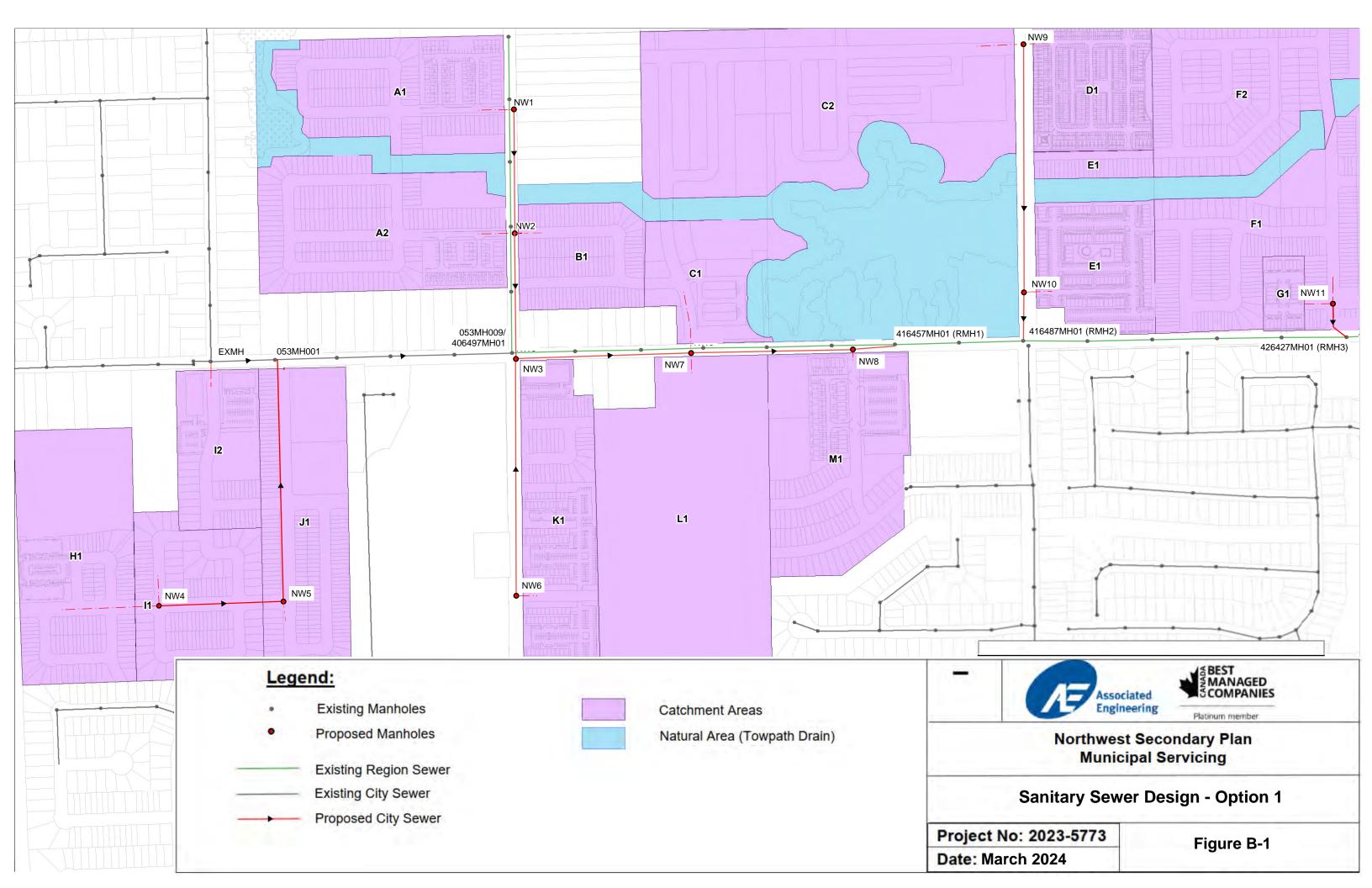


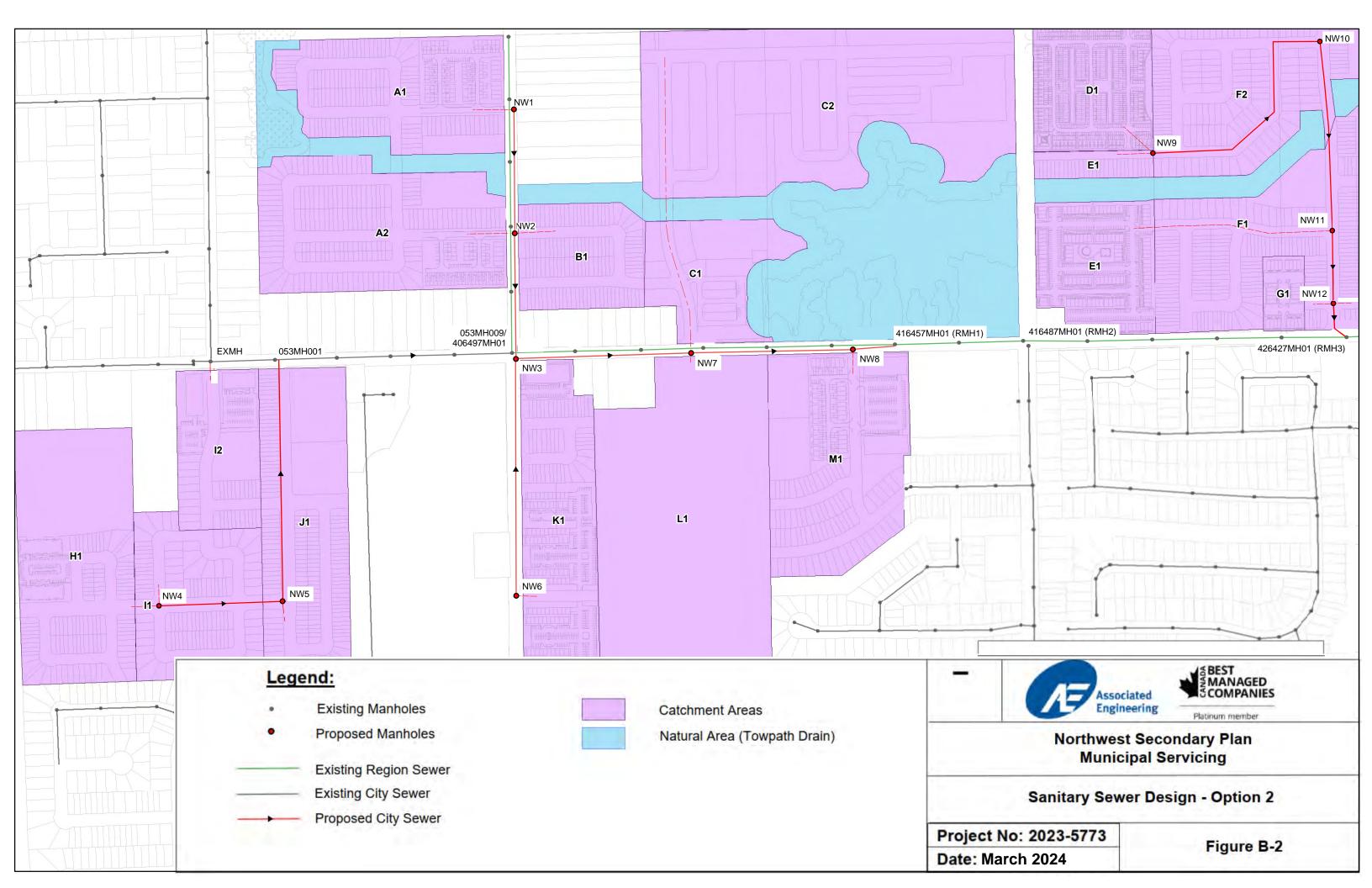


APPENDIX B - SANITARY

Northwest Secondary Plan Municipal Servicing 2041 Quaker Road to Towpath SPS Trunk Sewer Available Capacity

	Full Flow Capacity	2041 without Line A	Avenue Connection	2041 with Line Av	renue Connection
Pipe Segment ID	(L/s)	Peak Flow 2041 (L/s)	Available Capacity	Peak Flow 2041 (L/s)	Available Capacity
	(L/ 3)	Peak Flow 2041 (L/S)	(L/s)	Peak Flow 2041 (L/S)	(L/s)
19001374	608	146	462	276	332
19001375	547	146	401	276	271
19001376	383	147	236	277	106
19001377	495	147	348	277	218
19001378	446	147	299	277	169
19001366	282	125	157	124	158
19001367	327	126	201	125	202
19001365	313	124	189	124	189
19001364	370	124	246	123	247
19001363	353	123	230	122	231
19001379	639	147	492	277	362
19001380	623	147	476	277	346
19001381	540	148	392	278	262
19001382	729	148	581	278	451
19001383	452	148	304	278	174
19001384	720	149	571	279	441
19001385	747	149	598	279	468
19001386	638	149	489	279	359
19001387	588	149	439	279	309
19001388	638	150	488	280	358
19001389	816	150	666	280	536
19001390	671	170	501	300	371
19001391	731	170	561	300	431
19001392	718	170	548	300	418
19001393	731	170	561	300	431
19001394	717	170	547	300	417
19001395	714	170	544	300	414
19001396	733	170	563	300	433
19001397	844	170	674	300	544
19001377	708	170	538	300	408
19001399	740	170	570	300	440
19001400	718	170	548	300	418
19001400	718	170	548	300	418
19001401	918	170	748	300	618
19001403	917	170	747	300	617
19001404	907	170	737	300	607
19001405	401	171	230	301	100
19001406	923	171	752	301	622
19001407	1143	177	966	307	836
19001407	914	177	737	307	607
19001409	914	177	737	307	607
19001410	912	177	737	307	605
19001410	914	177	737	307	607
19001411	1125	220	905	350	775
19001412	889	220	669	350	539
19001413	3470	220	3250	350	3120
19001519	3544	220	3324	350	3120
19001520	3344	220	3324	330	J194





SANITARY SEWER DESIGN SHEET Design Option - 1

Project: Welland Northwest Secondary Plan Location:

Roughness Coefficient (n) = 0.013

Residential Per Capita Flow Rate = 0.00318287 L/cap/s (275 L/cap/day)
Infiltration Rate = 0.286 L/s/ha



	LOCATION								NWS	P POPUL AT	TION AND FLOW D	ATA			EX TRU	JNK FLOW	TOTAL (NWSP + EX)						SEWER I	DESIGN					
DESCRIPTION	DRAINAGE AREA	M	ANHOLE	INVERTS	LENGTH	AREA	POP	CUMULA	TIVE AVG. DA	AILY FLOW	PEAKING FACTOR	PEAK FLOW (NO INFIL.)	INFILT. FLOW	PEAK FLOW (W/ INFIL.)	ADDITIONAL	CUMULATIVE	TOTAL PEAK FLOW	PIPE SIZE	ACTUAL		DESIGN SLOPE	Act. Dia.		HYD. RAD.	FULL FLOW VELOCITY	FULL FLOW CAPACITY	PERCENT	CAPACITY	ACTUAL
									POP. Served	'	(PF = 1+14/(4+P^1/2))			(VV/ INFIL.)		PEAK FLOW (FROM MODEL)			SLOPE	CRITICAL SLOPE					VELOCITY	CAPACITY	FULL	CHECK	VELOCITY
STREET	D	FROM	то	U/S D/S	m	(ha)	(mml)	(ha)	(ppl)	(l/s)	(dmnl)	(L/s)	(L/s)	0.60	(L/s)		(L/s)	(mm)	(%)	(%)	(%)	(mm)	(m ²)	(m)	(m/s)	(L/s)	(%)		((-)
SIRCEI	ID ID	FROM	10		- "	(fid)	(ppl)	(ria)	(ppi)	(VS)	(drifti)	(DS)	(US)	(L/s)	(08)		(US)	(mm)	(76)	(70)	(76)	(11111)	()	(111)	(111/3)	(03)	(70)		(m/s)
Rice Road (N of Quaker)	A1	NW1	NW2	182.30 181.02		6.0	532	6.0		1.69	3.96	6.71	1.72	8.43	0.0	0.0	8.4	200	0.64	1.54	0.64	203.2	0.032	0.051	0.84	27.4	30.8	OK	0.65
Rice Road (N of Quaker)	A2, B1	NW2	NW3	181.02 180.10	197	10.6	868	16.6	1400 4	4.46	3.70	16.49	4.76	21.25	0.0	0.0	21.2	250	0.47	1.43	0.47	254.0	0.051	0.064	0.84	42.5	50.0	OK	0.74
Kaywood Crt.				188.89 188.47	65	0.5	15	0.5	15 0	0.05	4.00	0.19	0.14	0.33	0.0	0.0	0.3	200	0.65	1.54	0.65	203.2	0.032	0.051	0.85	27.6	1.2	OK	0.20
Quaker Road (School/Daycare)						1.6	500	1.6	500 0	0.36	3.97	1.41	0.47	1.88	0.0	0.0	1.9												
Montgomery (end to Summerlea)				186.53 186.10	179	3.0	25	3.0	25 0	0.08	4.00	0.32	0.86	1.18	0.0	0.0	1.2	250	0.24	1.43	0.24	254.0	0.051	0.064	0.60	30.4	3.9	OK	0.24
Topham/Crerar/Summerlea				188.66 186.12	420	10.9	148	10.9	148 0	0.47	4.00	1.88	3.12	5.00	0.0	0.0	5.0	250	0.60	1.43	0.60	254.0	0.051	0.064	0.95	48.1	10.4	OK	0.53
Montgomery (Summerlea to Quaker)			EXMH	186.08 185.03	423	5.7	78	19.6	250 0	0.80	4.00	3.18	5.61	8.79	0.0	0.0	8.8	250	0.25	1.43	0.25	254.0	0.051	0.064	0.61	31.0	28.3	OK	0.46
Quaker Road (Line to Kaywood)				188.89 188.42	53	0.7	13	0.7	13 (0.04	4.00	0.16	0.20	0.36	0.0	0.0	0.4	200	0.89	1.54	0.89	203.2	0.032	0.051	1.00	32.3	1.1	OK	0.21
Quaker Road (Kaywood to Montgomery)			EXMH	188.41 184.55	270	3.4	38	4.6	565 2	2.15	3.95	8.50	1.32	9.82	0.0	0.0	9.8	250	1.43	1.43	1.43	254.0	0.051	0.064	1.46	74.2	13.2	OK	0.88
Quaker Road (W of Rice)	12	EXMH	053MH001	184.52 183.93	3 104	3.4	330	27.6	1145 4	4.00	3.76	15.05	7.90	22.95	0.0	0.0	22.9	300	0.57	1.34	0.57	304.8	0.073	0.076	1.04	76.2	30.1	OK	0.80
NWSP (W of Rice, S of Quaker)	H1, I1	NW4	NW5	186.40 185.40	210	13.8	938	13.8	938 2	2.99	3.82	11.40	3.94	15.34	0.0	0.0	15.3	200	0.48	1.54	0.48	203.2	0.032	0.051	0.73	23.7	64.7	OK	0.69
NWSP (W of Rice, S of Quaker)	J1	NW5	053MH001	185.40 183.90		7.0	454			4.43	3.70	16.41	5.96	22.36	0.0	0.0	22.4	250	0.39	1.43	0.39	254.0	0.051	0.064	0.76	38.7	57.7	OK	0.70
Quaker Road (W of Rice)	-	053MH001	053MH009 / 406497MH01	183.88 181.64	385	3.5	33	51.9	2570 8	8.54	3.50	29.87	14.86	44.72	0.0	0.0	44.7	300	0.58	1.34	0.58	304.8	0.073	0.076	1.05	76.8	58.2	OK	0.97
Rice Road (S of Quaker)	K1	NW6	NW3	184.50 180.10	387	5.7	1229	5.7	1229 3	3.91	3.74	14.63	1.64	16.27	0.0	0.0	16.3	200	1.14	1.54	1.14	203.2	0.032	0.051	1.13	36.5	44.5	OK	0.96
Quaker Road (Rice to W of First) Quaker Road (Rice to W of First)	C1, L1	NW3 NW7	NW7 NW8	180.10 179.24 179.24 178.72		16.6	1842			8.37 4.23	3.49 3.29	29.21 46.81	6.40 11.15	35.60 57.96	0.0	0.0	35.6 58.0	300 375	0.30 0.20	1.34	0.30	304.8 381.0	0.073	0.076	0.76 0.72	55.3 81.8	64.4 70.9	OK OK	0.71
Quaker Road (Rice to W of First)	M1	NW8	416457MH01 (RMH1)	178.72 178.58		7.1	661			6.33	3.23	52.83	13.17	66.00	0.0	0.0	66.0	450	0.20	1.17	0.20	457.2	0.114	0.093	0.72	133.0	49.6	OK	0.09
Flows from Hurricane SPS/Rice Road (North)	-	-	053MH009 / 406497MH01		-	-	-	-	-	-	-	-	-	-	97.7	97.7	97.7	-	-	-		-	-	-			-	-	
Flows from West of Quaker and Rice (from Line Ave)	-	_	053MH009 / 406497MH01			-		-	-	-	-	=	-	-	79.1	79.1	79.1	-		-			-	-	-	-	-	-	-
Quaker Road (Region Trunk E of Rice)	- 1	053MH009 / 406497MH01	416457MH01 (RMH1)	179.94 178.58	618	-		51.9	2570 8	8.54	3.50	29.87	14.86	44.72	0.0	176.8	221.5	750	0.22	0.99	0.22	762.0	0.456	0.191	1.19	544.8	40.7	OK	1.00
Quaker Road (W of First to First)	-	416457MH01 (RMH1)	416487MH01 (RMH2)	178.58 178.25	207	-	<u> </u>	98.0	7702 2	4.87	3.07	76.26	28.02	104.29	0.0	176.8	281.1	750	0.16	0.99	0.16	762.0	0.456	0.191	1.02	464.6	60.5	OK	0.95
First Ave (N of Quaker)	C2, D1, F2	NW9	NW10	179.40 178.41	393	26.1	3223	26.1	3223 1	0.26	3.42	35.04	7.47	42.51	0.0	0.0	42.5	375	0.25	1.25	0.25	381.0	0.114	0.095	0.80	91.5	46.5	OK	0.69
First Ave (N of Quaker)	E1	NW10	416487MH01 (RMH2)	178.41 178.25		4.8	1123			3.83	3.30	45.66	8.83	54.49	0.0	0.0	54.5	375	0.20	1.25	0.20	381.0	0.114	0.095	0.72	81.8	66.6	OK	0.68
Quaker Road (First to W of Niagara)	-	416487MH01 (RMH2)	426427MH01 (RMH3)	178.25 177.07	521	-	-	128.9	12048 3	8.70	2.87	111.23	36.86	148.09	3.0	179.8	327.9	750	0.23	0.99	0.23	762.0	0.456	0.191	1.22	557.0	58.9	OK	1.13
NWSP (N of Quaker, E of First)	F1, G1	NW11	426427MH01 (RMH3)	177.29 177.07	50	10.9	980	10.9	980 3	3.12	3.81	11.87	3.13	15.00	0.0	0.0	15.0	200	0.44	1.54	0.44	203.2	0.032	0.051	0.70	22.7	66.1	OK	0.67
Quaker Road (W of Niagara to Towpath)	-	426427MH01 (RMH3)	436437MH03	177.07 171.78	1320	-	-	139.8	13028 4	1.82	2.84	118.77	39.99	158.76	28.8	208.6	367.4	750	0.40	0.99	0.40	762.0	0.456	0.191	1.61	734.5	50.0	OK	1.42
Towpath (to SPS)	-	436540MH01	446525MH01	171.05 169.40	1002		-	139.8	13028 4	1.82	2.84	118.77	39.99	158.76	98.1	306.7	465.5	900	0.16	0.93	0.16	914.4	0.657	0.229	1.15	755.4	61.6	OK	1.07
	-				-									-					ļ	4			-			-			

- Notes:

 1. Residential design flows as per UCC

 2. Slopes approximate; calculated based on length
 3. Infiltration rate is 0.286 as per Region Master Plan Update 2021

 4. Peak Factors for NWSP as per Harmon's Formula
 5. Population for NWSP as per UCC
 6. All other peak flows as per All Pipe Model
 7. Assume population density for existing residential single family home is 2.5p/household
 8. School and daycare flows as per Building Code Table 8.2.1.3.B

SANITARY SEWER DESIGN SHEET Design Option - 2

Project: Welland Northwest Secondary Plan Location:

Roughness Coefficient (n) = 0.013

Residential Per Capita Flow Rate = 0.00318287 L/cap/s (275 L/cap/day)
Infiltration Rate= 0.286 L/s/ha

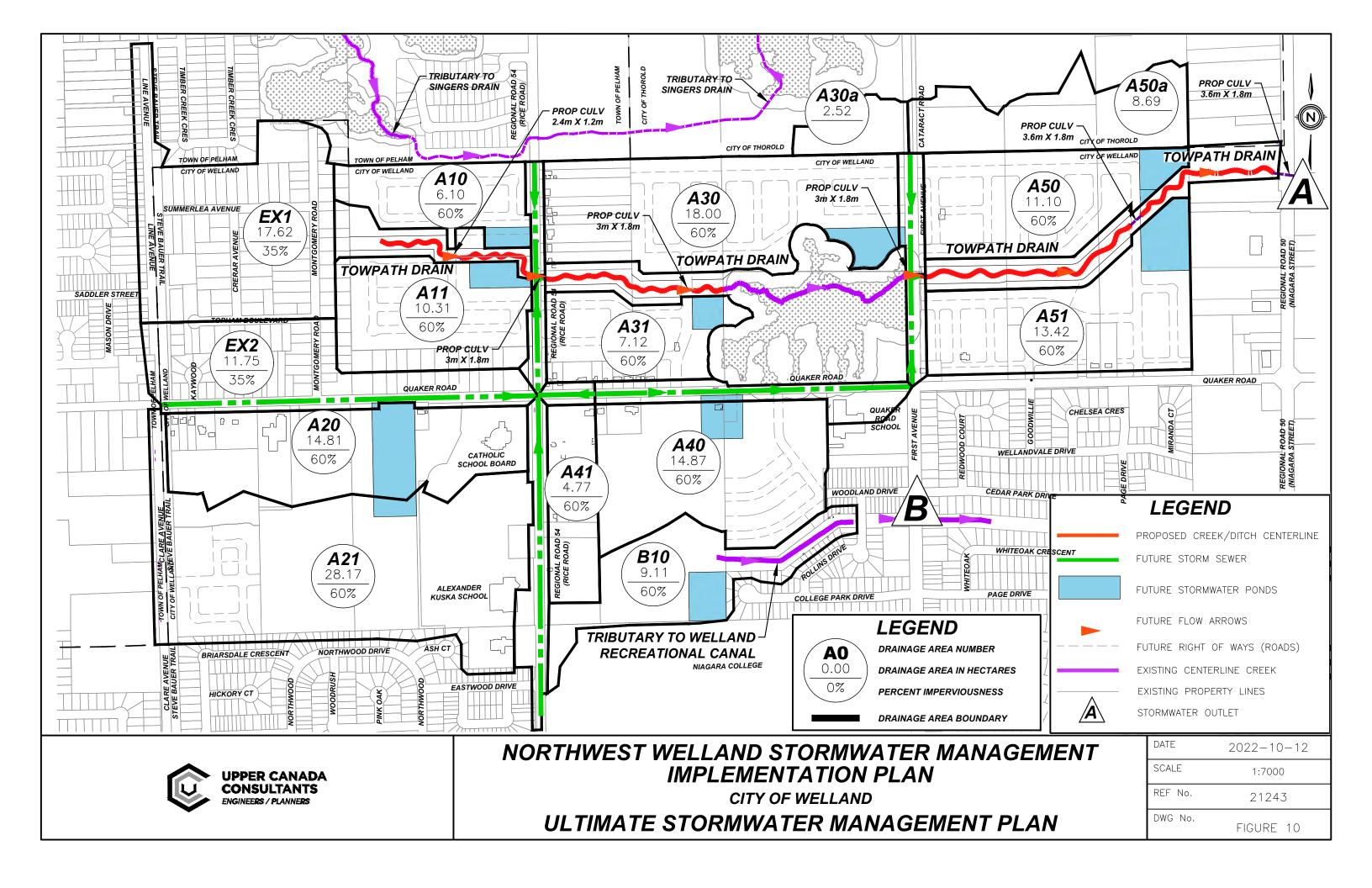


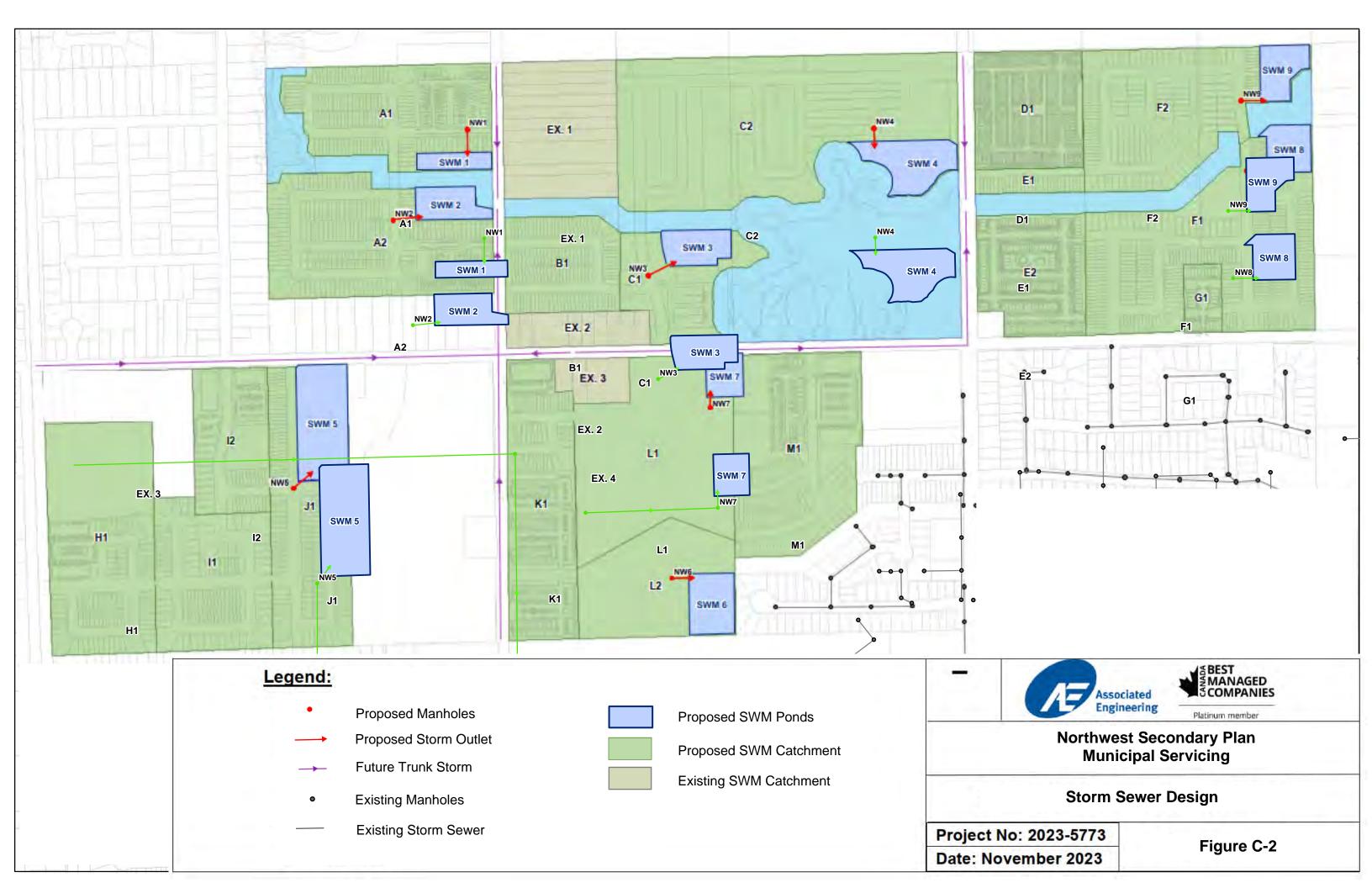
	LOCATION										NWSP POPUL	ATION AND FLOW I	DATA			EX TR	UNK FLOW	TOTAL (NWSP + EX)						SEWER I	DESIGN					
DESCRIPTION	DRAINAGE AREA	MAI	NHOLE	INV	ERTS	LENGTH	AREA	POP	CUM	ULATIVE	AVG. DAILY FLOW	PEAKING FACTOR	PEAK FLOW (NO INFIL.)	INFILT. FLOW	PEAK FLOW	ADDITIONAL	L CUMULATIVE	TOTAL PEAK FLOW	PIPE SIZE	ACTUAL	APPROX.	DESIGN SLOPE	Act. Dia.	PIPE AREA		FULL FLOW	FULL FLOW	PERCENT	CAPACITY	ACTUAL
					T		i		AREA	POP.		(PF = 1+14/(4+PM/2))			(W/INFIL.)	PEAK FLOW				SLOPE	CRITICAL SLOPE	4				VELOCITY	CAPACITY	FULL	CHECK	VELOCITY
				U/S	D/S					Served						(FROM MODE	EL) (FROM MODEL))										, '		ļ
STREET	ID	FROM	TO	0/3	D/S	m	(ha)	(ppl)	(ha)	(ppl)	(I/e)	(dmnl)	(L/s)	(L/s)	(L/s)	(L/s)		(L/s)	(mm)	(%)	(%)	(%)	(mm)	(m ²)	(m)	(m/s)	(L/s)	(%)		(m/s)
STREET	ID ID	PROW	10			- "	(na)	(ppi)	(ria)	(ppi)	(I/S)	(driffi)	(08)	(L/8)	(L/S)	(L/S)		(US)	(11111)	(70)	(70)	(76)	(11111)	()	(111)	(1103)	(00)	(70)		(III/S)
Rice Road (N of Quaker)	A1	NW1	NW2	182 30	181.02	200	6.0	532	6.0	532	1.69	3.96	6.71	1.72	8.43	0.0	0.0	8.4	200	0.64	1.54	0.64	203.2	0.032	0.051	0.84	27.4	30.8	OK	0.65
Rice Road (N of Quaker)	A2, B1	NW2	NW3		180.10		10.6	868	16.6	1400	4.46	3.70	16.49	4.76	21.24	0.0	0.0	21.2	250	0.47	1.43	0.47	254.0	0.051	0.064	0.84	42.5	50.0	OK	0.74
THOU THOU (IT OF QUARTE)	74,51	11112	11110	101.02	100.10	1	10.0		10.0	1-100	10	0.70	10.10	1.70		0.0	0.0			0.11	1.40	1	201.0	0.001	0.001	0.01	72.0	00.0	- Oil	
Kaywood Crt.				188.89	188.47	65	0.5	15	0.5	15	0.05	4.00	0.19	0.14	0.33	0.0	0.0	0.3	200	0.65	1.54	0.65	203.2	0.032	0.051	0.85	27.6	1,2	OK	0.20
						1										1												,		
Quaker Road (School/Daycare)						1	1.6	500	1.6	500	0.36	3.97	1.41	0.47	1.88	0.0	0.0	1.9								1	1	,		
						1																				Î		1		
Montgomery (end to Summerlea)				186.53	186.10	179	3.0	25	3.0	25	0.08	4.00	0.32	0.86	1.18	0.0	0.0	1.2	250	0.24	1.43	0.24	254.0	0.051	0.064	0.60	30.4	3.9	OK	0.24
Topham/Crerar/Summerlea				188.66	186.12	420	10.9	148	10.9	148	0.47	4.00	1.88	3.12	5.00	0.0	0.0	5.0	250	0.60	1.43	0.60	254.0	0.051	0.064	0.95	48.1	10.4	OK	0.53
Montgomery (Summerlea to Quaker)			EXMH	186.08	185.03	423	5.7	78	19.6	250	0.80	4.00	3.18	5.61	8.79	0.0	0.0	8.8	250	0.25	1.43	0.25	254.0	0.051	0.064	0.61	31.0	28.3	OK	0.46
						1																								
Quaker Road (Line to Kaywood)					188.42		0.7	13	0.7	13	0.04	4.00	0.16	0.20	0.36	0.0	0.0	0.4	200	0.89	1.54	0.89	203.2	0.032	0.051	1.00	32.3	1.1	OK	0.21
Quaker Road (Kaywood to Montgomery)			EXMH	188.41	184.55	270	3.4	38	4.6	565	2.15	3.95	8.50	1.32	9.82	0.0	0.0	9.8	250	1.43	1.43	1.43	254.0	0.051	0.064	1.46	74.2	13.2	OK	0.88
0 1 0 100 (8:1)		FXMH	053MH001	40450	400.00	404					100	0.70	45.05	7.00	00.05	0.0		20.0	000		101	0.53			0.070				01/	
Quaker Road (W of Rice)	12	EXMH	U53MH001	184.52	183.93	104	3.4	330	27.6	1145	4.00	3.76	15.05	7.90	22.95	0.0	0.0	22.9	300	0.57	1.34	0.57	304.8	0.073	0.076	1.04	76.2	30.1	OK	0.80
NIMOD AN (Pic. O (O - L -)	H1. I1	NW4	N1045	400.40	405.40	040	40.0	000	100		2.99	0.00	11.40	0.05	45.05			45.0	000		1.54				0.054	0.70			01/	
NWSP (W of Rice, S of Quaker) NWSP (W of Rice, S of Quaker)	J1	NW5	NW5 053MH001		185.40 183.90		13.8 7.0	938 454	13.8	938 1392	4.43	3.82	16.41	3.95 5.96	15.35 22.37	0.0	0.0	15.3 22.4	200 250	0.48	1.43	0.48	203.2 254.0	0.032	0.051	0.73	23.7 38.7	64.7 57.7	OK OK	0.69
WOF (W OF RICE, 3 OF QUARE)	JI	INVIS	033WF1001	100.40	103.50	309	7.0	404	20.6	1392	4.43	3.10	10.41	5.50	22.31	0.0	0.0	22.4	230	0.39	1.43	0.39	234.0	0.001	0.004	0.76	30.1	37.7	- OK	0.70
Quaker Road (W of Rice)	-	053MH001	053MH009 / 406497MH01	183.88	181.64	385	3.5	33	52.0	2571	8.54	3.50	29.87	14.86	44.73	0.0	0.0	44.7	300	0.58	1.34	0.58	304.8	0.073	0.076	1.05	76.8	58.2	OK	0.97
Quaker road (W or rice)		033WI 1001	0000011000374004371011101	100.00	101.04	303	3.3	35	32.0	23/1	0.54	3.30	23.01	14.00	77.73	0.0	0.0	77./	300	0.50	1.54	0.30	304.0	0.073	0.070	1.00	70.0	50.2	- OIC	0.37
Rice Road (S of Quaker)	K1	NW6	NW3	184.50	180.10	387	5.7	1229	5.7	1229	3.91	3.74	14.63	1.64	16.27	0.0	0.0	16.3	200	1.14	1.54	1.14	203.2	0.032	0.051	1.13	36.5	44.5	OK	0.96
						1	***************************************	<u> </u>	1													1					1			
Quaker Road (Rice to W of First)	-	NW3	NW7	180.10	179.24	287	-	T -	22.4	2629	8.37	3.49	29.21	6.39	35.60	0.0	0.0	35.6	300	0.30	1.34	0.30	304.8	0.073	0.076	0.76	55.3	64.4	OK	0.71
Quaker Road (Rice to W of First)	C1, C2, L1	NW7	NW8		178.72		31.2	3640	53.5	6269	19.95	3.15	62.90	15.31	78.21	0.0	0.0	78.2	450	0.20	1.17	0.20	457.2	0.164	0.114	0.81	133.0	58.8	OK	0.75
Quaker Road (Rice to W of First)	M1	NW8	416457MH01 (RMH1)	178.72	178.58	69	7.1	661	60.6	6930	22.06	3.11	68.61	17.32	85.94	0.0	0.0	85.9	450	0.20	1.17	0.20	457.2	0.164	0.114	0.81	133.0	64.6	OK	0.77
						1																								
Flows from Hurricane SPS/Rice Road (North)	-	-	053MH009 / 406497MH01	-	-	-	-	-	-	-	-			-	-	97.7	97.7	97.7	-	-	-		-	-	-	-	-	'	-	
						1																								
Flows from West of Quaker and Rice (from Line Ave)	-	-	053MH009 / 406497MH01	-		<u> </u>		<u> </u>	<u> </u>	-	-		-	-	-	79.1	79.1	79.1	-	-	-		-	-	-	-	-		-	-
								ļ												ļ		-					ļ			
Quaker Road (Region Trunk E of Rice)	-	053MH009 / 406497MH01	416457MH01 (RMH1)	179.94	178.58	618	-	-	52.0	2571	8.54	3.50	29.87	14.86	44.73	0.0	176.8	221.5	750	0.22	0.99	0.22	762.0	0.456	0.191	1.19	544.8	40.7	OK	1.00
0 1 5 100 (5 11 W (15		440457141104 (7)14114)	400 407141 104 (75141 10)	470.50	477.07	700		ļ		0500	00.50	0.00	04.07	00.40	400.00		470.0	200.4	750				7000			1.17				4.07
Quaker Road (W of First to W of Niagara)	-	416457MH01 (RMH1)	426427MH01 (RMH3)	1/8.58	177.07	128	-	 	112.5	9500	30.59	2.98	91.07	32.18	123.26	3.0	179.8	303.1	750	0.21	0.99	0.21	762.0	0.456	0.191	1.17	532.2	56.9	OK	1.07
NWSP (N of Quaker, E of First)	D1, E1	NW9	NW10	170.00	178.32	408	4.9	1089	4.9	1089	3.47	3.78	13.09	1.40	14.49	0.0	0.0	14.5	200	0.41	1.54	0.41	203.2	0.032	0.051	0.68	21.9	66.1	OK	0.64
NWSP (N of Quaker, E of First)	F2	NW10	NW10 NW11		177.40		7.4	417	12.3	1506	4.79	3.68	17.64	3.53	21.17	0.0	0.0	21.2	250	0.41	1.43	0.41	254.0	0.032	0.064	0.68	34.0	62.3	OK	0.63
NWSP (N of Quaker, E of First)	E2, F1	NW11	NW12		177.17		14.2	1753	26.5	3259	10.37	3.41	35.39	7.58	42.97	0.0	0.0	43.0	375	0.20	1.45	0.20	381.0	0.031	0.004	0.07	81.8	52.5	OK	0.63
NWSP (N of Quaker, E of First)	G1	NW12	426427MH01 (RMH3)		177.07		0.8	269	27.3	3528	11.23	3.38	37.97	7.81	45.78	0.0	0.0	45.8	375	0.20	1.25	0.20	381.0	0.114	0.095	0.72	81.8	56.0	OK	0.65
Troi quanti, E oi i list)	- 01		120121111101 (RWI10)			1 30	0.0	200	1-7.5	5520	.1.25	0.00	01.01	7.01	.5.70	0.0	0.0		0.0	0.20	25	1 5.20	1 201.0	0.114	0.000	J	01.0	J J	JI.	0.00
Quaker Road (W of Niagara to Towpath)	-	426427MH01 (RMH3)	436437MH03	177.07	171.78	1320	-	1 .	139.8	13029	41.82	2.84	118.77	39.99	158.77	28.8	208.6	367.4	750	0.40	0.99	0.40	762.0	0.456	0.191	1.61	734.5	50.0	OK	1.42
Towpath (to SPS)	-	436540MH01	446525MH01		169.40		-	-	139.8	13029	41.82	2.84	118.77	39.99	158.77	98.1	306.7	465.5	900	0.16	0.93	0.16	914.4	0.657	0.229	1.15	755.4	61.6	OK	1.07
				1		1					1				1	1						1		1		l	1	,		
						1									1	1									1	l		,		

- Notes:

 1. Residential design flows as per UCC
 2. Slopes approximate; calculated based on length
 3. Infiltration rate is 0.286 as per Region Master Plan Update 2021
 4. Peak Factors for NWSP Flows as per Harmon's Formula
 5. Population for NWSP as per UCC
 6. All other peak flows as per All Pipe Model
 7. Assume population density for existing residential single family home is 2.5p/household
 8. School and daycare flows as per Building Code Table 8.2.1.3.B

APPENDIX C - STORM





STORM SEWER DESIGN SHEET



Associated GLOBAL PERSPECTIVE. LOCAL FOCUS. Q=2.78AiR Storm Event = 5.00 Years **Northwest Secondary Plan** b а С A = Area (ha) **Municipal Servicing** 830 0.777 7.3 JOB No.: 2023-5773 R = Runoff Coefficient T_c = Time of Concentration n = 0.013= Avg Rainfall Intensity (mm/hr) = a / (T_c+c)^b DEVELOPMENT DATA DESIGN DATA PIPE DATA FROM INTENSITY LENGTH AREA TO AREA RUNOFF A * R **ACCUM** TIME OF PEAK PIPE SLOPE CRITICAL **DESIGN** FLOW VEL TRAVEL % COEFF. CONC. SLOPE FULL NO (ha) **FLOW** DIA SLOPE **FULL** TIME **FULL** R (min) (mm/hr) (mm) (%) (I/s) (m/s) (l/s) (%) (%) (min) Pond 1 NW1 SWM 1 3.006 695.399 809.60 Α1 5.70 0.53 3.006 12.00 83.21 900 0.20 0.93 0.20 40 1.27 0.52 85.89 Pond 2 Α2 NW2 SWM2 7.33 0.52 3.775 3.775 12.00 83.21 873.297 900 0.30 0.93 0.30 40 991.55 1.56 0.43 88.07 Pond 3 B1, Ex.2, C1 NW3 SWM3 8.50 0.49 4.193 4.193 12.00 83.21 969.880 1050 0.30 0.30 1495.68 1.73 0.39 64.85 0.89 40 Pond 4 Ex. 1, C2 NW4 SWM4 18.00 0.50 9.034 9.034 15.00 74.38 1867.971 1200 0.30 0.85 0.30 2135.42 1.89 87.48 Pond 5 H1, I1, I2, J1 NW5 SWM5 21.77 0.51 11.131 11.131 15.00 74.38 2301.570 1350 0.30 0.81 0.30 40 2923.42 2.04 0.33 78.73 Pond 6 L2 NW6 SWM6 3.88 12.00 448.794 0.30 1.38 73.60 0.50 1.940 1.940 83.21 750 0.30 0.99 40 609.77 0.48 Pond 7 K1, Ex.3, L1, M1 NW7 SWM7 22.90 0.53 12.041 12.041 15.00 74.38 2489.732 1350 0.30 0.81 0.30 40 2923.42 2.04 0.33 85.17 Pond 8 E2, F1, G1 NW8 SWM8 14.31 0.53 7.634 7.634 15.00 1578.491 0.30 2135.42 74.38 1200 0.30 0.85 116 1.89 1.02 73.92

Pond 9

D1, E1, F2

NW9

SWM9

13.14

0.53

6.975

6.975

15.00

74.38

1442.229

0.30

0.85

1200

0.30

116

2135.42

1.89

1.02

67.54

APPENDIX D - COST ESTIMATE DETAIL

Northwest Welland Secondary Plan Municipal Servicing

Preliminary Cost Estimate

Watermain				
Item	Quantity	Unit	Unit Price	Cost
150mm PVC DR18 Watermain	8420	m	\$455	\$3,831,100
150mm Gate Valve & Box	92	each	\$3,250	\$299,000
200 mm PVC DR18 Watermain	1645	m	\$520	\$855,400
200mm Gate Valve & Box	20	each	\$4,225	\$84,500
250 mm PVC DR18 Watermain	2480	m	\$620	\$1,537,600
250mm Gate Valve & Box	24	each	\$5,200	\$124,800
300mm PVC DR18 Watermain	1985	m	\$845	\$1,677,325
300mm Gate Valve & Box	22	each	\$7,150	\$157,300
Water Services	4350	each	\$2,600	\$11,310,000
Hydrants	97	each	\$9,750	\$945,750
Connect to Existing	13	each	\$6,500	\$84,500
Granular A	87500	t	\$35	\$3,062,500
Other General Construction	1	LS	\$2,397,000	\$2,397,000
Subtotal				\$26,366,775
Contingency (15% of subtotal)				\$3,955,100
Engineering (10% of subtotal)				\$2,636,700
Total				\$32,958,575
Rounded Total				\$33,000,000

Sanitary Sewer				
Item	Quantity	Unit	Unit Price	Cost
200mm PVC DR35	13,620	m	\$490	\$6,673,800
250mm PVC DR35	586	m	\$585	\$342,810
375mm PVC DR35	734	m	\$975	\$715,650
450mm PVC DR35	69	m	\$1,175	\$81,075
Maintenance Hole Structure	134	each	\$13,000	\$1,742,000
Sanitary Laterals	4,350	each	\$3,900	\$16,965,000
Connect to Existing Trunk	3	each	\$6,500	\$19,500
Granular A	176,700	t	\$35	\$6,184,500
Flush & CCTV (end of construction)	15,009	m	\$20	\$300,180
Flush & CCTV (end of maintenance)	15,009	m	\$20	\$300,180
Other General Construction	1	LS	\$3,332,500	\$3,332,500
Subtotal				\$36,657,195
Contingency (15% of subtotal)				\$5,498,600
Engineering (10% of subtotal)				\$3,665,800
Total				\$45,821,595
Rounded Total				\$45,900,000

Northwest Welland Secondary Plan Municipal Servicing

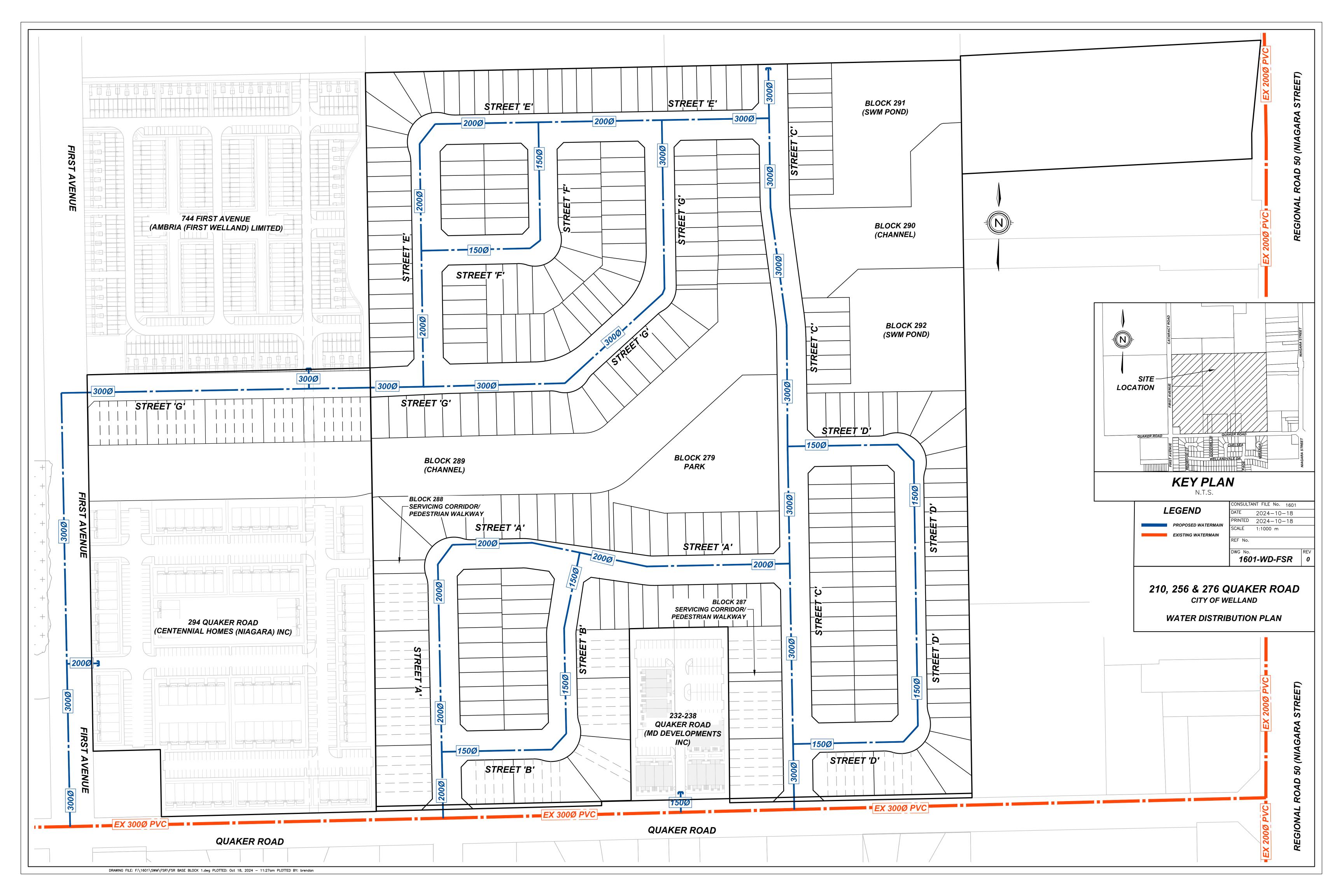
Preliminary Cost Estimate

Storm Sewer				
450mm PVC DR35 Ultra Rib	2204	m	\$455	\$1,002,820
525mm PVC DR35 Ultra Rib	2515	m	\$520	\$1,307,800
600mm CONC	2661	m	\$585	\$1,556,685
675mm CONC	81	m	\$815	\$66,015
750mm CONC	902	m	\$1,025	\$924,550
825mm CONC	554	m	\$1,175	\$650,950
900mm CONC	1015	m	\$1,380	\$1,400,700
1050mm CONC	941	m	\$1,775	\$1,670,275
1200mm CONC	332	m	\$2,190	\$727,080
1350mm CONC	80	m	\$2,795	\$223,600
1200mm Diameter MH	68	each	\$13,000	\$884,000
1500mm Diameter CBMH	13	each	\$18,200	\$236,600
1800mm Diameter CBMH	18	each	\$20,800	\$374,400
2400mm Diameter CBMH	2	each	\$24,700	\$49,400
Catchbasin	380	each	\$4,175	\$1,586,500
Catchbasin leads	1900	m	\$490	\$931,000
Granular A	95800	t	\$35	\$3,353,000
Flush & CCTV (end of construction)	11285	m	\$20	\$225,700
Flush & CCTV (end of maintenance)	11285	m	\$20	\$225,700
Other General Construction	1	LS	\$1,739,700	\$1,739,700
Subtotal	-	-		\$19,136,475
Contingency (15% of subtotal)				\$2,870,500
Engineering (10% of subtotal)				\$1,913,700
Total				\$23,920,675
Rounded Total				\$24,000,000



APPENDIX B

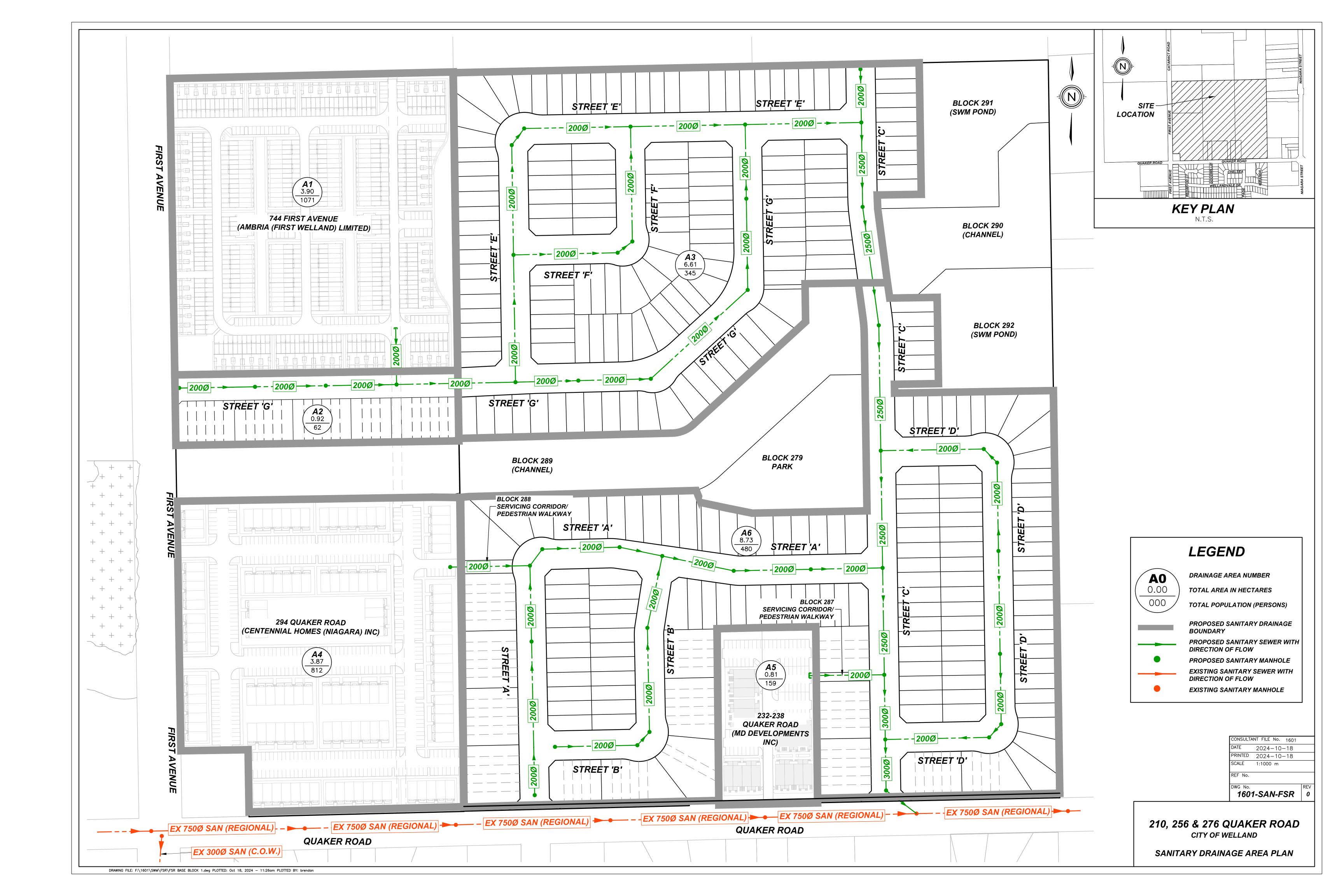
Water Distribution Plan (DWG#: 1601-WD-FSR)





APPENDIX C

Sanitary Drainage Area Plan (DWG#: 1601-SAN-FSR)
Sanitary Sewer Calculation Sheet



UPPER CANADA CONSULTANTS 30 HANNOVER DRIVE, UNIT 3 ST.CATHARINES, ON, L2W 1A3

DESIGN FLOWS SEWER DESIGN

RESIDENTIAL: 255 LITRES/PERSON/DAY (AVERAGE DAILY FLOW) PIPE ROUGHNESS: 0.013 FOR MANNING'S EQUATION

INFILTRATION RATE: 0.286 LITRES/HECTARE PIPE SIZES: 1.016 IMPERIAL EQUIVALENT FACTOR

POPULATION DENSITY: 2.5 PERSONS / UNIT (SINGLE FAMILY DWELLING PERCENT FULL: TOTAL PEAK FLOW / CAPACITY 2.2 PERSONS / UNIT (TOWNHOUSE DWELLING)

MUNICIPALITY: CITY OF WELLAND

PROJECT: 210, 256 & 276 QUAKER ROAD SANITARY SEWER DESIGN SHEET

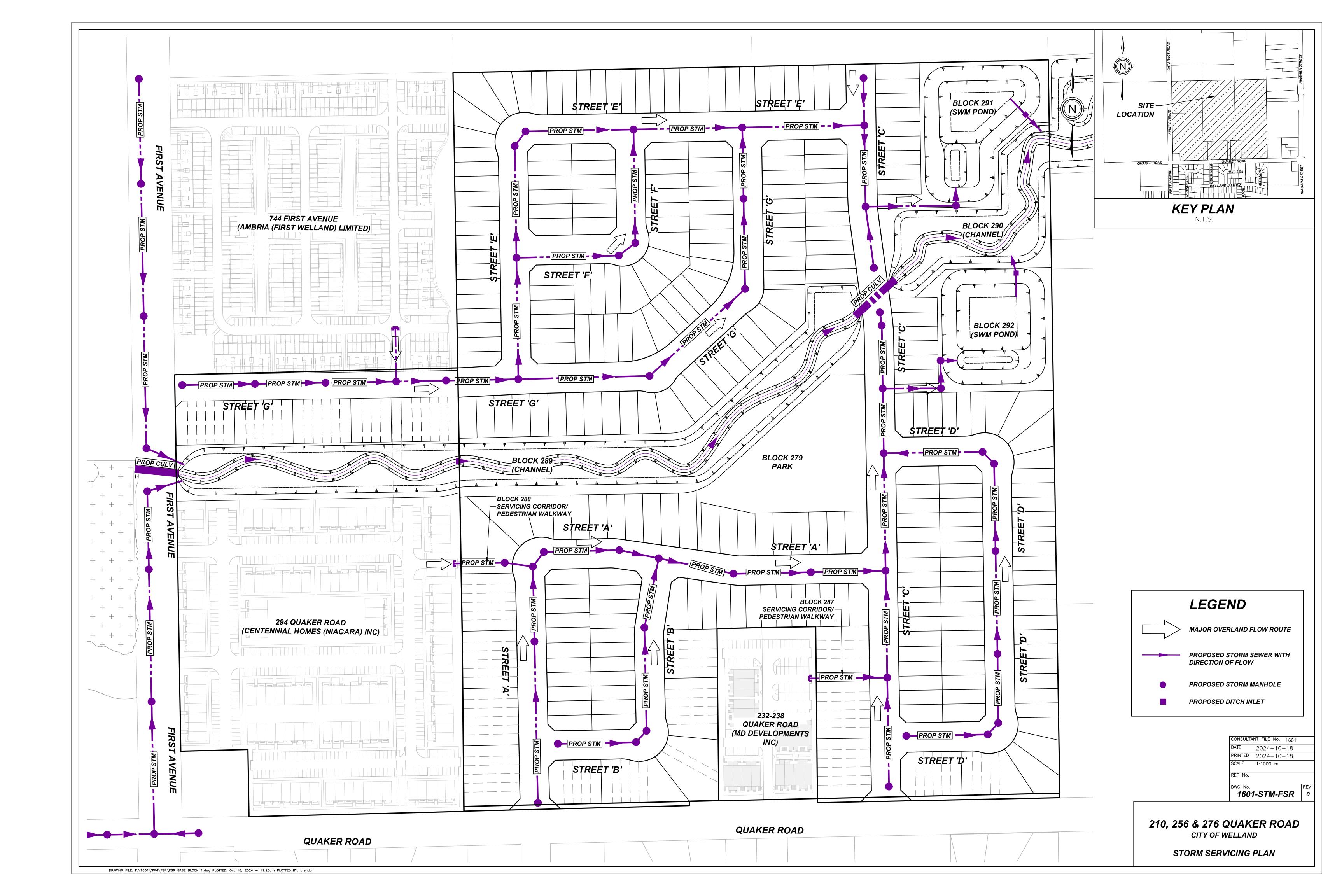
PROJECT NO: 1601

LOCATION			AREA		A	CCUMUL	ATED PEAK F	LOW		DE	SIGN FLO	W	
				Total	Peaking		Infiltration	Total	Pipe	Pipe	Full Flow	Full Flow	
Description	Increment	Accumulated	Population	Population	Factor	Flow	Flow	Peak Flow	Diameter	Slope	Velocity	Capacity	Percent
	(hectares)	(hectares)	Increment	Served (P)	(PF)	(L/s)	L/s	(L/s)	(mm)	(%)	(m/s)	(L/s)	Full
			Area A1 Popula	ation per 744 Firs	st Avenue Fu	nctional S	ervicing Report	(1,071 persons)					
A1 - 744 First Avenue	3.90	3.90	1071	1071	3.78	11.95	1.12	13.07	200	0.40	0.7	21.64	60.4%
A2 - 294 Quaker Road	0.92	0.92	62	62	4.29	0.79	0.26	1.05	200	0.40	0.7	21.64	4.8%
A3 - 210, 256 & 276 Quaker Road	6.61	11.43	345	1478	3.68	16.07	3.27	19.34	250	0.28	0.6	32.83	58.9%
A4 - 294 Quaker Road	3.87	3.87	812	812	3.86	9.24	1.11	10.35	200	0.40	0.7	21.64	47.8%
A5 - 232 - 238 Quaker Road	0.81	0.81	159	159	4.18	1.96	0.23	2.19	200	0.40	0.7	21.64	10.1%
A6 - 210, 256 & 276 Quaker Road	8.73	24.84	480	2929	3.45	29.83	7.10	36.94	300	0.22	0.6	47.32	78.1%
Quaker Road (Ex. 750mm dia.)		24.84		2929	3.45	29.83	7.10	36.94	750	0.23	1.2	556.99	6.6%



APPENDIX D

Storm Servicing Plan (DWG#: 1601-STM-FSR)





APPENDIX E

210, 256 & 276 Quaker Road Stormwater Management Plan (UCC, October 2024)

STORMWATER MANAGEMENT PLAN 210, 256 & 276 QUAKER ROAD CITY OF WELLAND

Prepared For:

Ashton Homes (Western) Limited 17 Rancine Road Etobicoke, ON M9W 2Z4

Prepared by:

Upper Canada Consultants 3-30 Hannover Drive St. Catharines, Ontario L2W 1A3

October 2024

TABLE OF CONTENTS

1.0	INTI	RODUC	TION	1
	1.1	Study	Area	1
	1.2	Objec		2
	1.3	Existi	ing & Proposed Conditions	4
2.0	STO	RMWA'	TER MANAGEMENT CRITERIA	5
3.0	STO	RMWA'	TER ANALYSIS	5
	3.1	Design	n Storms	ϵ
	3.2		ing Conditions	ϵ
	3.3	Propo	osed Conditions	8
4.0	STO	RMWA'	TER MANAGEMENT ALTERNATIVES	13
	4.1	Screen	ning of Stormwater Management Alternatives	13
	4.2	Select	tion of Stormwater Management Alternatives	15
5.0	STO	RMWA'	TER MANAGEMENT PLAN	15
	5.1	North	nern Stormwater Management Facility 'P30'	15
			Stormwater Quality Control	15
		5.1.2	Erosion Control	16
		5.1.3	Stormwater Management Facility 'P30' Configuration	16
	5.2	South	ern Stormwater Management Facility 'P31'	21
		5.2.1	Stormwater Quality Control	21
		5.1.2	Erosion Control	21
		5.1.3	Stormwater Management Facility 'P31' Configuration	22
	5.3	Overa	all Stormwater Management Plan	26
		5.3.1	Block 2	26
		5.3.2	Block 3	26
		5.3.3	Block 4	28
		5.3.4	Block 5	30
		5.3.5	Existing and Future Peak Flow Comparison	31
6.0	SED	IMENT	AND EROSION CONTROL	33
7.0	STO	RMWA'	TER MANAGEMENT FACILITY MAINTENANCE	33
8 N	CON	CLUSI	ONS AND RECOMMENDATIONS	35

LIST OF TABLES

Table 1.	Rainfall Data	6
Table 2.	Existing Peak Stormwater Flows – Towpath Drain	8
Table 3.	Hydrologic Parameters for Future Conditions	9
Table 4.	Evaluation of Stormwater Management Practices	14
Table 5.	SWM Facility 'P30' - Stormwater Quality Volume Calculations	15
Table 6.	SWM Facility 'P30' – Stormwater Quality Volume Requirements	16
Table 7.	Stormwater Management Facility 'P30' Forebay Sizing	18
Table 8.	Stormwater Management Wet Pond Facility 'P30' Characteristics	20
Table 9.	SWM Facility 'P30' – MECP Quality Requirements Comparison	20
Table 10.	SWM Facility 'P31' - Stormwater Quality Volume Calculations	21
Table 11.	SWM Facility 'P31' – Stormwater Quality Volume Requirements	21
Table 12.	Stormwater Management Facility 'P31' Forebay Sizing	23
Table 13.	Stormwater Management Wet Pond Facility 'P31' Characteristics	25
Table 14.	SWM Facility 'P31' – MECP Quality Requirements Comparison	25
Table 15.	Stormwater Management Dry Pond Facility 'P10' Characteristics	27
Table 16.	Stormwater Management Wet Pond Facility 'P11' Characteristics	27
Table 17.	SWM Facility 'P11' – MECP Quality Requirements Comparison	27
Table 20.	Stormwater Management Wet Pond Facility 'P50' Characteristics	28
Table 21.	SWM Facility 'P50' – MECP Quality Requirements Comparison	29
Table 18.	Stormwater Management Wet Pond Facility 'P40' Characteristics	30
Table 19.	SWM Facility 'P40' – MECP Quality Requirements Comparison	31
Table 22.	Impacts of SWM Facilities on Peak Flows at Outlets A through D	32

LIST OF FIGURES

Figure 1.	Site Location Plan – Block 1	3
Figure 2.	Existing Stormwater Drainage Area Plan	7
Figure 3.	Future Stormwater Drainage Area Plan	11
Figure 4.	Future Hydraulic Modelling Schematic	12
Figure 5.	Stormwater Management Pond P30	19
Figure 6.	Stormwater Management Pond P31	24

APPENDICES

- Appendix A Existing Conditions MIDUSS Output File
- Appendix B Stormwater Management Facility Calculations (P30)
- Appendix C Stormwater Management Facility Calculations (P31)
- Appendix D Future Conditions MIDUSS Output File

REFERENCES

- 1. Stormwater Management Planning and Design Manual Ontario Ministry of Environment (March 2003)
- 2. Soils of the Regional Municipality of Niagara Soil Survey Report No. 60 of the Ontario Institute of Pedology. (1989)
- 3. Northwest Welland Stormwater Management Implementation Plan Upper Canada Consultants (October 2022)

STORMWATER MANAGEMENT PLAN

210, 256 & 276 Quaker Road

CITY OF WELLAND

1.0 INTRODUCTION

1.1 Study Area

Upper Canada Consultants (UCC) has been retained by landowner of the 210, 256, & 276 Quaker Road properties to prepare a stormwater management plan to address the stormwater management needs for the proposed subdivision development located within the aforementioned properties.

The proposed subdivision is located in the north-eastern portion of the Northwest Welland Secondary Plan (NWWSP) area in the City of Welland, north of Quaker Road, west of Niagara Street, east of First Avenue, and south of the municipal boundary with the City of Thorold.

UCC has previously prepared a Stormwater Management Implementation Plan for the entirety of the NWWSP Area. This Plan identified the preferred locations of future stormwater management (SWM) Facilities within the developable areas in the Secondary Plan in support of the realignment of the Towpath Drain, which flows through the proposed subdivision lands, and identified the existing stormwater flows through each segment of the existing watercourse.

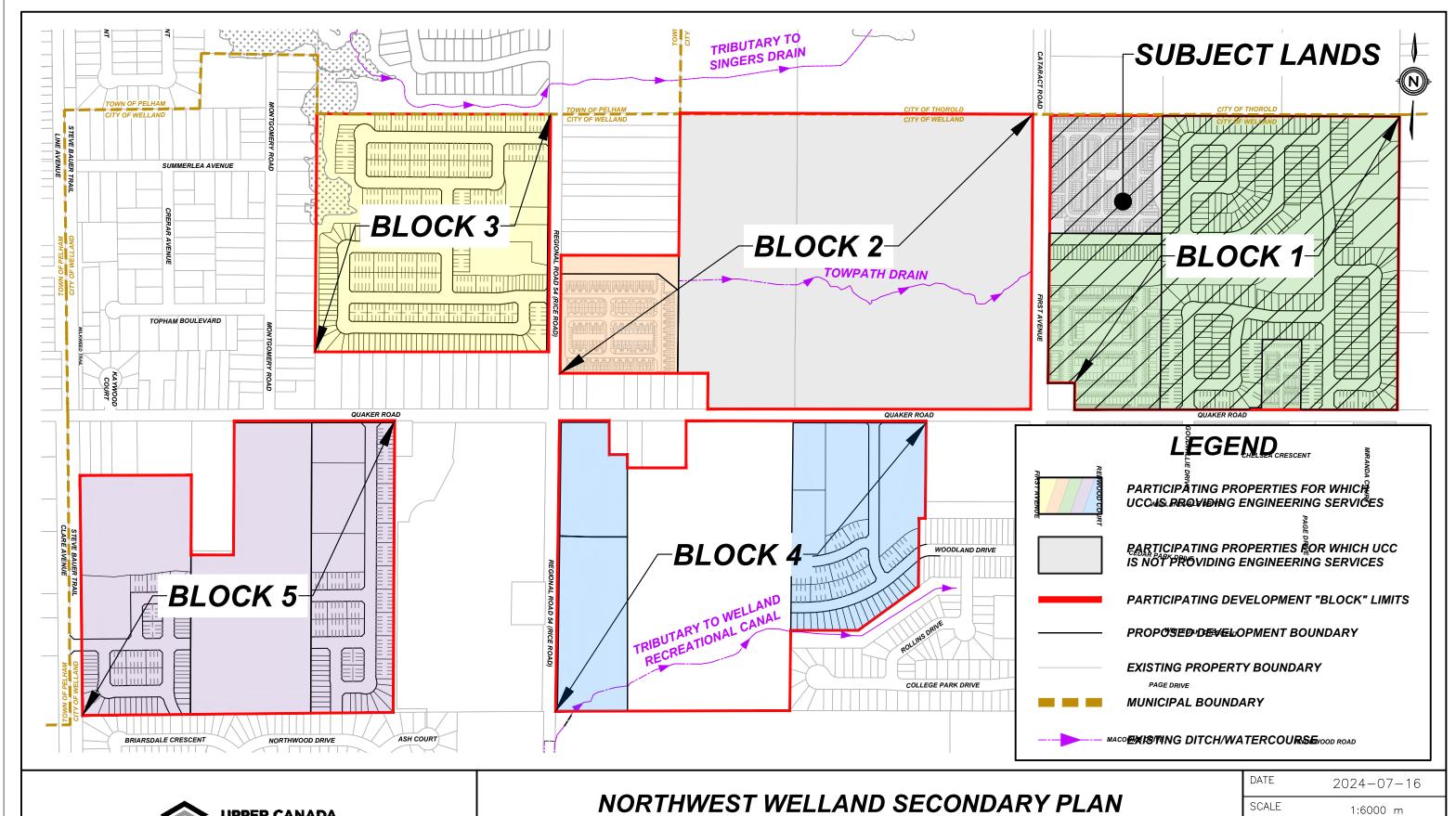
It was identified in the Implementation Plan that two SWM Facilities are to be constructed in the eastern limit of the proposed subdivision lands to provide stormwater management quality and quantity controls the entire 'Block' of development area, bound by Quaker Road on the south, First Avenue on the west, to the eastern limit of 210 Quaker Road, and south of the municipal boundary with the City of Thorold as shown in Figure 1 as Block 1. Therefore, this Block (Block 1) will hereafter be referred to as 'subject lands' in this report.

The subject lands are approximately 28.99 hectares and will consist of a mix of subdivision and condominium developments, comprising of an overall mix of residential single detached, street townhouse, stacked townhouse, and apartment dwellings. The subject lands will be developed to include associated asphalt roadways, concrete curb, catch basins, storm sewers, sanitary sewers, and watermain.

1.2 Objectives

The objectives of this study are as follows:

- 1. Establish specific criteria for the management of stormwater from this site.
- 2. Determine the impact of development on the stormwater peak flow & volume of stormwater from the drainage area.
- 3. Investigate alternatives for controlling the quality of stormwater discharging from the site.
- 4. Establish the property requirements to construct stormwater management facilities for the Draft Plan of Subdivision.





NORTHWEST WELLAND SECONDARY PLAN
CITY OF WELLAND
SITE LOCATION PLAN - BLOCK 1

DATE	2024-07-16
SCALE	1:6000 m
REF No.	-
DWG No.	FIGURE 1

1.3 Existing & Proposed Conditions

a) Existing Conditions

The topography of the subject lands is relatively flat with a general slope towards the Towpath Drain, which flows through the middle of the site from west to east direction. The Towpath Drain conveys stormwater flows through the City of Welland and the City of Thorold, prior to ultimately outletting into the Welland Canal, with multiple crossings at Municipal and Regional roads, and Highway 406.

Existing stormwater flows and the delineation of existing stormwater drainage areas for the Towpath Drain were assessed as part of the Implementation Plan to the culvert crossing at Regional Road 50 (Niagara Street) and will be the basis for future peak flow targets for all stormwater management facilities constructed within the Secondary Plan Area.

As part of the realignment of the Towpath Drain, twin 2.4 x 1.8m concrete box culverts will be constructed crossing Regional Road 50 (Niagara Street), a 1.8 x 1.2m concrete box culvert will be constructed crossing Regional Road 54 (Rice Road), and the existing 1800mm diameter culvert crossing First Avenue will remain. Upgrades to the First Avenue Culvert will be subject to a future NPCA Work Permit.

b) Proposed Conditions

The subject lands are approximately 28.99 hectares and will consist of a mix of subdivision and condominium developments, comprising of an overall mix of residential single detached, street townhouse, stacked townhouse, and apartment dwellings.

The subject lands will include associated asphalt roadways, concrete curb, catch basins, storm sewers, sanitary sewers, and watermain.

It is proposed to convey all future Stormwater flows from the subject lands to the Towpath Drain as identified in the Implementation Plan.

UCC has been retained as the engineering consultant for the majority of the developing landowners in the NWWSP, as shown in Figure 1. For the purpose of maintaining consistency between the various Draft Plan of Subdivision submissions within the Secondary Plan Area, the "Proposed Conditions" stormwater modelling will include the future SWM Facilities designed for each respective Block in the NWWSP.

For lands where Planning Act Applications are not expected to be submitted in the near future as of the writing of this stormwater management plan, where UCC has not been retained as the engineering consultant, or a stormwater management alternative has not yet been selected, future stormwater flows have been allocated to the Towpath Drain at the existing levels identified in the Implementation Plan.

The existing conditions MIDUSS modelling output file provided in the Implementation Plan has been included in Appendix A for reference.

2.0 STORMWATER MANAGEMENT CRITERIA

New developments are required to provide stormwater management in accordance with provincial and municipal policies including:

- Stormwater Quality Guidelines for New Development (MECP/MNRF, May 1991)
- Stormwater Management Planning and Design Manual (MECP, March 2003)

Based on the comments and outstanding policies from the City of Welland, Regional Municipality of Niagara, Niagara Peninsula Conservation Authority (NPCA), and the Ministry of the Environment, Conservation and Parks (MECP), the following site-specific considerations were identified:

- Per City of Welland requirements, stormwater **quality** improvements must be provided to a minimum of Enhanced Protection (80% TSS Removal).
- Per the Northwest Welland Stormwater Management Implementation Plan
 prepared by Upper Canada Consultants, future stormwater management facilities
 within the Secondary Plan Area will be required to provide quantity controls up to
 and including the 100 year design storm event before outletting to the Towapth
 Drain.
- **Erosion control** to be provided in accordance with MECP guidelines. The guidelines require an extended detention volume to be detained for 24 hours.

Based on above policies and site specific considerations, the following stormwater management criteria have been established for this site:

- Stormwater **quality** controls are to be provided for the more frequent storm events to provide Enhanced Protection (80% TSS Removal), prior to discharging to the receiving watercourse (Towpath Drain).
- To maintain existing water surface elevations in the Towpath Drain, stormwater **quantity controls** will be provided up to and including the 100 year design storm event.
- **Erosion protection** will be provided in accordance with MECP guidelines. The quidelines require an extended detention volume to be detained for 24 hours.

3.0 STORMWATER ANALYSIS

Stormwater for the existing and proposed conditions was estimated using the MIDUSS computer modelling program. This program was selected because it is applicable to both urban and rural drainage areas like the study area. It is relatively easy to use and modify for the future drainage conditions and control facilities. It readily allows for design storm hyetographs for the various return periods being investigated.

3.1 Design Storms

Design storm hyetographs for the storm system design uses a Chicago distribution based on the City of Welland Intensity-Duration-Frequency (IDF) curves. Hyetographs for the 25mm, 2, 5, 10, 25 and 100 year events were developed using a 4 hour Chicago distribution. The 25mm design storm event parameters were derived using the IDF curve and a 4-hour Chicago distribution. Table 1 summarizes the rainfall data applied in the stormwater modelling.

Table 1. Rainfall Data					
Design Storm (Return Period)	Chicago	Duration (minutes)			
(Hetarii Terrou)	a	b	c	(IIIII dees)	
25mm	512	6.0	0.800	240	
2 Year	755	8.0	0.789	240	
5 Year	830	7.3	0.777	240	
10 Year	860	6.5	0.763	240	
25 Year	900	5.2	0.745	240	
100 Year	1020	4.7	0.731	240	

3.2 Existing Conditions

Existing conditions within the Towpath Drain were assessed as part of the Implementation Plan to determine the existing the peak flows within the watercourse at existing and future roadway crossings. The existing catchment areas as provided in Figure 2 of the Implementation Plan have been included as Figure 2 in this stormwater management plan for reference.

For consistency between the stormwater management plans submitted by UCC in the NWWSP, Outlets A through D have been identified at specific locations along the Towpath Drain to demonstrate that the existing flows identified in the Implementation Plan are maintained at all locations within the watercourse under future conditions. The locations of Outlets A through D can be found on Figure 3 and the summary of the existing flows at each Outlet have been summarized in Table 2 below.

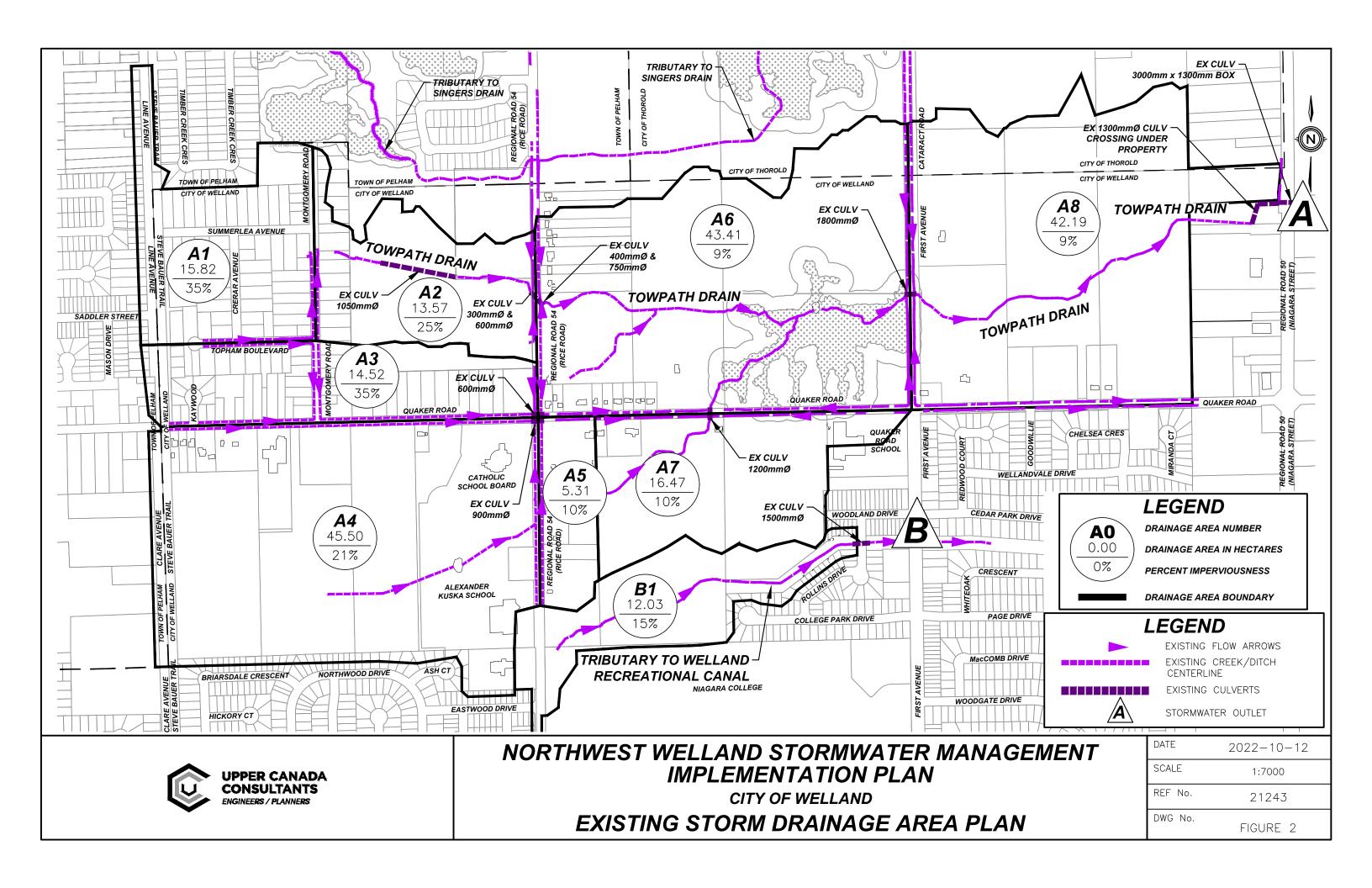


Table 2. Existing Peak Stormwater Flows – Towpath Drain									
T4'	Peak Flow (m ³ /s)								
Location	2 Year	5 Year	10 Year	25 Year	100 Year				
Outlet A1	1.317	1.589	1.800	2.099	2.558				
Outlet A2	3.301	4.194	4.777	5.619	6.987				
Outlet B (*)	3.425	4.367	4.977	5.863	7.305				
Outlet C	4.035	5.176	5.914	7.005	8.781				
Outlet D	4.509	5.835	6.678	7.938	9.995				

Note (*): Outlet B was not specified as a location where peak flows were evaluated within the Implementation Plan.

Therefore, the change in existing peak flow across the 803m width of Drainage Area A6 (between Rice Road and First Avenue) was prorated to the location of Outlet B (at 205m east of Rice Road) for the peak flow at Outlet B for each design storm event.

3.3 Proposed Conditions

For the purpose of maintaining consistency between the various Draft Plan of Subdivision submissions within the NWWSP Area, the "Proposed Conditions" stormwater modelling will include the future SWM Facilities designed for each respective Block in the NWWSP.

For lands where Planning Act Applications are not expected to be submitted in the near future, as of the writing of this stormwater management plan, or where UCC has not been retained as the engineering consultant, future stormwater flows have been allocated to the Towpath Drain at the existing levels identified in the Implementation Plan.

The future stormwater drainage areas for the NWWSP Area are shown in Figure 3, and a schematic of the future hydrologic modelling is provided as Figure 4.

As shown in Figure 3, there is an existing drainage area (A30) which is entirely within the City of Thorold and conveys existing stormwater flows through the subject lands to the Towpath Drain. For the purposes of this SWM Plan, this area will be included within the proposed SWM Facility at existing conditions. Should a Planning Act Application be submitted within this area, a separate SWM Facility on the adjacent property is to be constructed with a new outlet to the Towpath Drain.

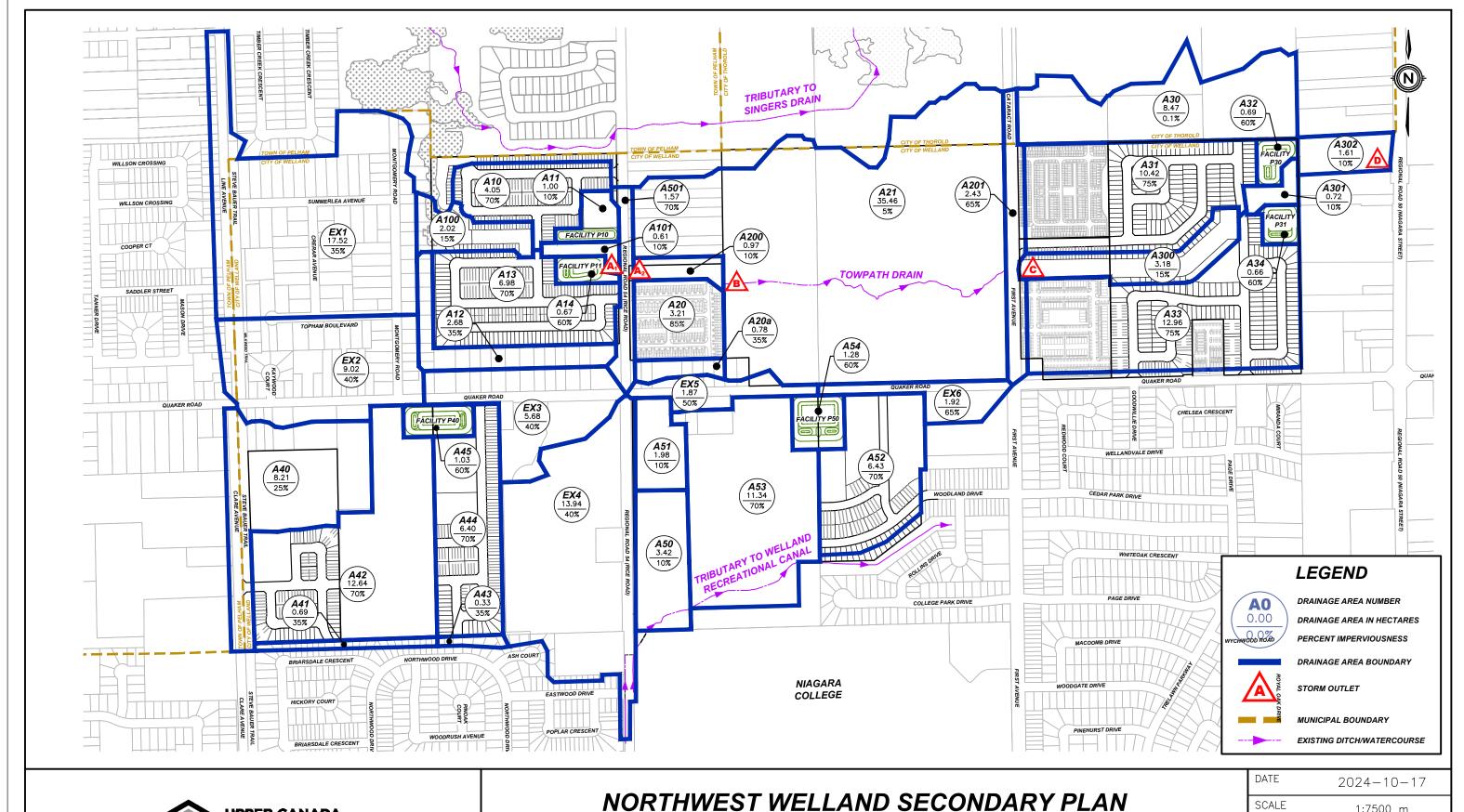
Table 3 below provides a summary of the catchment areas shown in Figure 3 and associated hydrological parameters used for the MIDUSS software model.

The future conditions MIDUSS modelling output file has been enclosed in Appendix D for reference.

	Table 3. Hydrologic Parameters for Future Conditions							
Area	Area	Length	Slope	Mannii	ng – "n"	Soil	SCS	Percent
No.	(ha)	(m)	(%)	Perv.	Imperv.	Type	CN	Impervious
EX1	17.52	343	1.0	0.25	0.015	CD	74	35%
A100	2.02	116	0.4	0.25	0.015	CD	74	15%
A10	4.05	164	1.0	0.25	0.015	CD	74	70%
A11	1.00	82	1.0	0.25	0.015	CD	74	10%
A101	0.61	64	1.0	0.25	0.015	CD	74	10%
A12	2.68	134	1.0	0.25	0.015	CD	74	35%
A13	6.98	216	1.0	0.25	0.015	CD	74	70%
A14	0.67	67	1.0	0.25	0.015	CD	74	60%
A40	8.21	234	1.0	0.25	0.015	CD	74	25%
A41	0.69	68	1.0	0.25	0.015	CD	74	35%
A42	12.64	290	1.0	0.25	0.015	CD	74	70%
A43	0.33	47	1.0	0.25	0.015	CD	74	35%
A44	6.40	207	1.0	0.25	0.015	CD	74	70%
A45	1.03	83	1.0	0.25	0.015	CD	74	60%
EX2	9.02	245	1.0	0.25	0.015	CD	74	40%
EX3	5.68	195	1.0	0.25	0.015	CD	74	40%
EX4	13.94	305	1.0	0.25	0.015	CD	74	40%
A50	3.42	151	1.0	0.25	0.015	CD	74	10%
A51	1.98	115	1.0	0.25	0.015	CD	74	10%
A501	1.57	102	1.0	0.25	0.015	CD	74	70%
A20a	0.78	72	1.0	0.25	0.015	CD	74	35%
A20	3.21	146	1.0	0.25	0.015	CD	74	85%
A200	0.97	80	1.0	0.25	0.015	CD	74	10%
A21	35.46	487	0.2	0.25	0.015	CD	74	5%
A52	6.43	207	1.0	0.25	0.015	CD	74	70%
A53	11.34	275	1.0	0.25	0.015	CD	74	70%
A54	1.28	92	1.0	0.25	0.015	CD	74	60%
EX5	1.87	112	1.0	0.25	0.015	CD	74	50%
EX6	1.92	113	0.2	0.25	0.015	CD	74	65%

Stormwater Management Plan 210, 256 & 276 Quaker Road, City of Welland

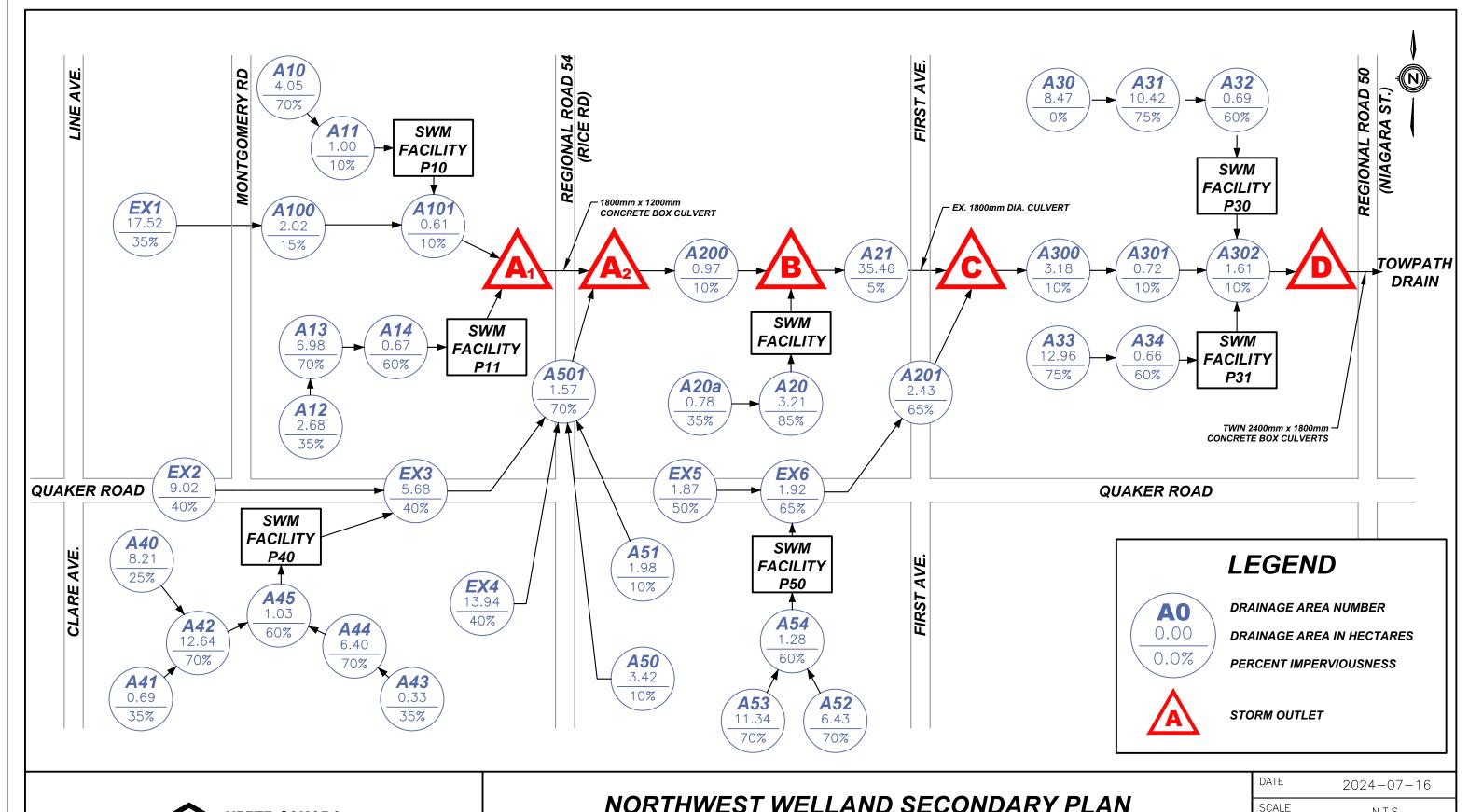
A30 A31	8.47	238 264	1.0	0.25	0.015	CD CD	74 74	0.1% 75%
A32	0.69	68	1.0	0.25	0.015	CD	74	60%
A33	12.99	294	1.0	0.25	0.015	CD	74	75%
A34	0.66	66	1.0	0.25	0.015	CD	74	60%
A302	1.61	104	0.2	0.25	0.015	CD	74	10%
	204.87 Total Area (ha)							





NORTHWEST WELLAND SECONDARY PLAN CITY OF WELLAND FUTURE STORM DRAINAGE AREAS

DATE	2024-10-17
SCALE	1:7500 m
REF No.	-
DWG No.	FIGURE 3





NORTHWEST WELLAND SECONDARY PLAN

CITY OF WELLAND
FUTURE HYDROLOGICAL MODELLING SCHEMATIC

DATE	2024-07-16
SCALE	N.T.S.
REF No.	-
DWG No.	FIGURE 4

4.0 STORMWATER MANAGEMENT ALTERNATIVES

4.1 Screening of Stormwater Management Alternatives

A variety of stormwater management alternatives are available to control the quantity and quality of stormwater, most of which are described in the Stormwater Management Planning and Design Manual (MECP, March 2003). Alternatives for the proposed and ultimate developments were considered in the following broad categories: lot level, vegetative, infiltration, and end-of-pipe controls. General comments on each category are provided below. Individual alternatives for the proposed development are listed in Table 4 with comments on their effectiveness and applicability to the proposed outlet.

a) Lot Level Controls

Lot level controls are not generally suitable as the primary control facility for quality control. They are generally used to enhance stormwater quality in conjunction with other types of control facilities.

b) <u>Vegetative Alternatives</u>

Vegetative stormwater management practices are not generally suitable as the primary control facility for quality control. They are generally used to enhance stormwater quality in conjunction with other types of control facilities.

c) Infiltration Alternatives

Where soils are suitable, infiltration techniques can be very effective in providing quantity and quality control. However, the very small amount of surface area on this site dedicated to permeable surfaces such as greenspace and landscaping make this an impractical option. Therefore, infiltration techniques will not be considered for this development.

d) End-of-Pipe Alternatives

Surface storage techniques can be very effective in providing quality and quantity control. Wet facilities are effective practices for stormwater erosion, quality and quantity control for large drainage areas (>5 ha).

Table 4. Evaluation of Stormwater Management Practices								
210, 256 & 276			or Implementation					
Quaker Road	Topography	Soils	Bedrock	Groundwater	Area	Technical	Recommend	
	Flat	Variable	Shallow	At Considerable	± 28.99ha	Effectiveness	Implementation	
Site Conditions	±1%	±15 mm/hr		Depth		(10 high)	Yes / No	Comments
Lot Level Controls								
Lot Grading	<5%	nlc	nlc	nlc	nlc	2	Yes	Quality/quantity benefits
Roof Leaders to Surface	nlc	nlc	nlc	nlc	nlc	2	Yes	Quality/quantity benefits
Roof Ldrs.to Soakaway Pits	nlc	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	< 0.5 ha	6	Yes	Quality/quantity benefits
Sump Pump Fdtn. Drains	nlc	nlc	nlc	nlc	nlc	2	No	Unsuitable site conditions
Vegetative								
Grassed Swales	< 5 %	nlc	nlc	nlc	nlc	7	Yes	Quality/quantity benefits
Filter Strips(Veg. Buffer)	< 10 %	nlc	nlc	>.5m Below Bottom	< 2 ha	5	No	Unsuitable site conditions
Infiltration								
Infiltration Basins	nlc	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	< 5 ha	2	No	Unsuitable site conditions
Infiltration Trench	nlc	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	< 2 ha	4	No	Unsuitable site conditions
Rear Yard Infiltration	< 2.0 %	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	< 0.5 ha	7	No	Unsuitable site conditions
Perforated Pipes	nlc	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	nlc	4	No	Unsuitable site conditions
Pervious Catch basins	nlc	loam, infiltr. > 15 mm/hr	>1m Below Bottom	>1m Below Bottom	nlc	3	No	Unsuitable site conditions
Sand Filters	nlc	nlc	nlc	>.5m Below Bottom	< 5 ha	5	No	High maintenance/poor aesthetics
Surface Storage								
Dry Ponds	nlc	nlc	nlc	nlc	> 5 ha	7	No	No quality control
Wet Ponds	nlc	nlc	nlc	nlc	> 5 ha	9	Yes	Very effective quality/quantity control
Wetlands	nlc	nlc	nlc	nlc	> 5 ha	6	No	Very effective quality control
Other								
Oil/Grit Separator	nlc	nlc	nlc	nlc	<2 ha	3	No	Limited benefit/area too large

Reference: Stormwater Management Practices Planning and Design Manual - 2003 nlc - No Limiting Criteria

4.2 Selection of Stormwater Management Alternatives

Stormwater management alternatives were screened based on technical effectiveness, physical suitability for this site, and their ability to meet the stormwater management criteria established for proposed and future development areas. The following stormwater management alternatives are recommended for implementation on the proposed development:

- Lot grading to be kept as flat as practical in order to slow down stormwater and encourage infiltration.
- Roof leaders to be discharged to the ground surface in order to slow down stormwater and encourage infiltration.
- **Grassed swales** to be used to collect rear lot drainage. Grassed swales tend to filter sediments and slow down the rate of stormwater.
- Two **wet pond facilities** on either side of the Towpath Drain are to be constructed to provide stormwater quality and quantity controls.

5.0 STORMWATER MANAGEMENT PLAN

A MIDUSS model was created to assess existing and future flows generated by the proposed subdivision. The stormwater management facility was sized according to MECP Guidelines (MECP, March 2003) as follows:

5.1 Northern Stormwater Management Facility 'P30'

5.1.1 Stormwater Quality Control

The stormwater drainage outlet for the proposed Wet Pond 'P30' is the Towpath Drain, where *Enhanced* protection will be provided. Based on Table 3.2 of SWMP & Design Manual, the Enhanced water quality storage requirement for wet pond facilities in a development with 75% impervious area is approximately 233 m³/ha. The wet pond facility will provide stormwater quality controls for a drainage area of approximately 10.42 hectares (Area 31) as shown in Table 5.

Table 5. SWM Facility 'P30' - Stormwater Quality Volume Calculations					
Total Water Quality Volume = 10.42 ha x 233 m ³ /ha = 2,428 m ³	Reference: Table 3.2, SWMP & Design Manual (MECP 2003)				
Permanent Pool Volume = 10.42 ha x 193 m ³ /ha = 2,011 m ³	Extended Detention Volume = 10.42 ha x 40 m ³ /ha = 417 m ³				

5.1.2 Erosion Control

Using the MIDUSS hydrological model, the stormwater volume from the 25mm - 4 hour design storm event for the overall 19.58 hectare drainage area (Areas A30. A31, and A32) to the proposed facility is 1,924 m³.

The following table shows the stormwater storage volumes required using both the water quality and erosion control guidelines.

Table 6. SWM Facility 'P30' – Stormwater Quality Volume Requirements					
A. Permanent Pool Volume	2,011 m ³				
B. Extended Detention Volume	417 m ³				
C. Stormwater Volume from 25mm – 4-hour rainfall event	1,924 m ³				
D. Minimum Extended Detention Volume (greater of B & C)	1,924 m ³				
Total Quality and Extended Detention Volume (A + D)	3,935 m ³				

5.1.3 Stormwater Management Facility 'P30' Configuration

As shown in Figure 5, it is proposed to construct a three-stage control outlet for the proposed stormwater management facility. The first stage of control consists of a reverse slope pipe acting as a tubular control orifice to detain the extended detention volume and release it slowly over an extended period of time. The second stage of control consists of a ditch inlet catch basin and outlet pipe which provides an outlet for flows exceeding the extended detention volume. The third stage consists of an emergency spillway to provide an outlet for greater storm events.

The proposed bottom elevation of the facility is 177.20 m, and the permanent pool water level is proposed at 178.80 m, for a permanent water depth of 1.6 metre. The configuration of the facility provides 2,221 m³ of permanent pool volume, which is more than the required 2,011 m³. The proposed top of pond is at an elevation of 180.80 m which provides a total active volume of 8,137 m³ with 5:1 side slopes.

Based on the configuration of the proposed facility, it was determined that a 135 mm diameter (5 inch) quality orifice at an invert of 178.80 m can provide 29 hours of extended detention for the 25mm design storm event, which has a corresponding water surface elevation of 179.28m within the proposed facility.

The proposed ditch inlet catchbasin will be constructed with the rim at an elevation of 180.10 m which will provide an extended detention volume of 4,649 m³, which is greater than the minimum volume of 1,924 m³ specified in Table 6.

The outflow pipe from the stormwater management facility is to be 450mm in diameter and will convey the stormwater flows from the ditch inlet to the proposed headwall structure outletting to Towpath Drain. A stage-storage-discharge relationship was determined for the facility and is included in Appendix B for reference purposes.

Major overland flows within the northern portion of the subject lands directed to the proposed wetpond facility, and then to the Towpath Drain.

A sediment forebay has been sized for this facility to minimize the transport of heavy sediment throughout the facility and to localize maintenance activities. Calculations for the forebay sizing follow MECP Guidelines and is shown in Table 7.

Table 7	Table 7. Stormwater Management Facility 'P30' Forebay Sizing					
a) Forebay Settling Length	(MOE	SWMI	P&D, Equ	uation 4.5	5)	
()	. 0)		r=	3.5	:1	(Length:Width Ratio)
Settling Length = $\sqrt{\frac{r \times \sqrt{r \times V}}{V}}$	$\left(\frac{Q}{I}\right)$		$Q_p =$	0.025	m^3/s	(25mm Storm Pond Discharge)
\	's /			0.0003		(Settling Velocity)
Settling Length = 1	17.08	m				
b) Dispersion Length (MOF	E SW M	IP&D,	Equation	4.6)		
0	v 0		Q =	1.401	m^3/s	(5 Yr Stm Sew Design Inflow)
Dispersion Length = $\frac{8}{D}$	$\frac{\times V_c}{\times V_c}$		D =	1.50	m	(Depth of Perm. Pool in the Forebay)
	, ,		V_f =	0.5	m/s	(Desired Velocity)
Dispersion Length = 1	14.94	m				
c) Minimum Forebay Deep	Zone I	Bottom	Width (I	MOE SW	MP&D)	, Equation 4.7)
$Width = \frac{Min.Forebay}{8}$	Lengt	: <u>h</u>				
8				17.08	m	(minimum required length)
	2.13	m (minimun	n required	d width)	
d) Average Velocity of Flow	W					
			Q =	0.760	m^3/s	(25mm Storm Design Inflow)
0			A =	15.75	m^2	(Cross Sectional Area)
$Average\ Velocity = \frac{Q}{A}$			D =	1.50	m	(Depth of Forebay)
			$\mathbf{W} =$	6.00	m	(Proposed Bottom Width)
			SS =	3	:1	(Side Slopes - Minimum)
Average Velocity =	0.05	m/s				
^	Yes	(Maximuı	n velocit	y of flow	v = 0.15 m/s
e) Cleanout Frequency						
Is this Acceptable?	Yes		L=	21.0	m	(Proposed Bottom Length)
			ASL =	3.13	m ³ /ha	(Annual Sediment Loading)
			A =	10.42	ha	(Drainage Area)
			FRC =	80	%	(Facility Removal Efficiency)
			FV =	432.0	m^3	(Forebay Volume)
1 1	10.6	Years				
Is this Acceptable?	Zes	(10 Year Minimum Cleanout Frequency)				

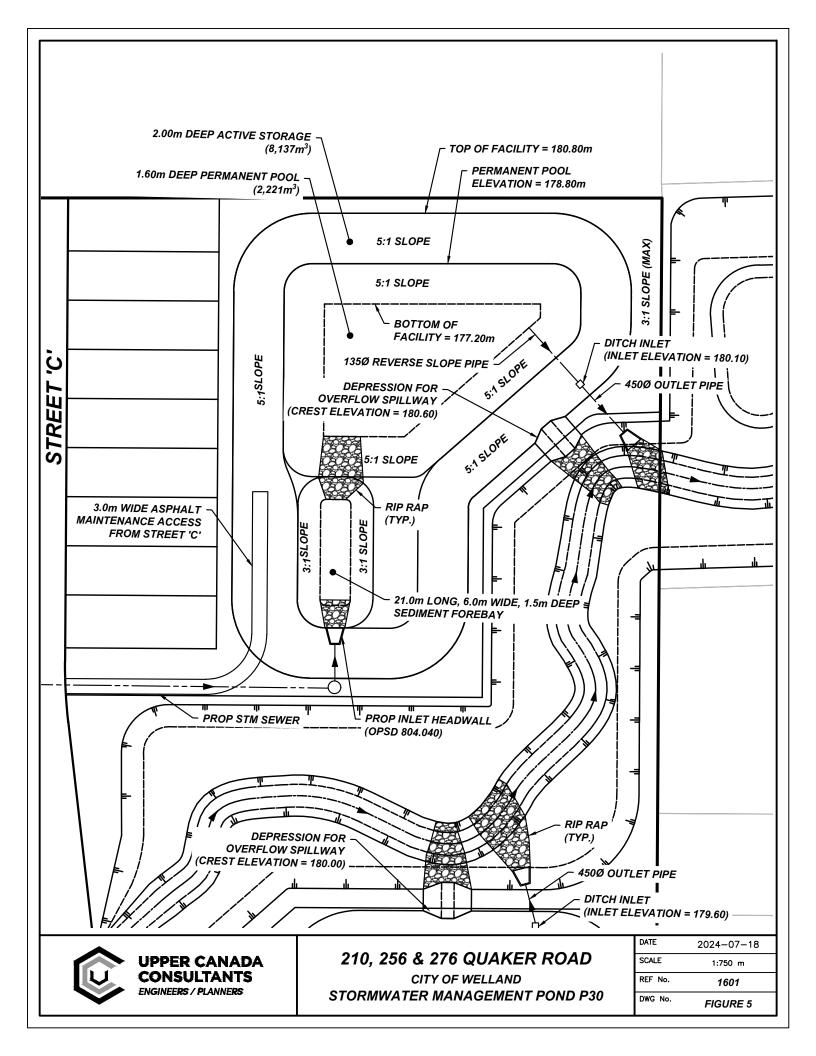


Table 8 summarizes the peak inflows and outflows for the stormwater management facility along with corresponding pond elevations. Based on the MIDUSS model, the maximum wet pond elevation is 180.38 m, and an active storage volume is 5,999 m³ for the 100-year design storm event.

Table 8.	Table 8. Stormwater Management Wet Pond Facility 'P30' Characteristics					
Design	Peak Flo	Peak Flows (L/s)		Maximum		
Storm	Inflow	Outflow	Elevation (m)	Storage (m3)		
25mm	760	25	179.28	1,460		
2 Year	1,210	34	179.64	2,856		
5 Year	1,401	38	179.85	3,675		
10 Year	1,576	42	180.03	4,365		
25 Year	1,840	114	180.19	5,104		
100 Year	2,246	250	180.38	5,999		

Table 9. SWM Facility 'P30' – MECP Quality Requirements Comparison						
SWM Facility Characteristic	MECP Requirement	Provided by SWM Facility				
Permanent Pool Volume (m ³) - minimum	2,011 (min)	2,221				
Extended Detention Volume (m ³) – <i>minimum</i>	1,924 (min)	4,649				
Total Quality + Detention Storage (m ³) – <i>minimum</i>	3,935 min)	6,870				
Drawdown Time (hr) – minimum	24 (min)	29				
Forebay Length (m) – minimum	17.08 (min)	21.00				
Forebay Width (m) – minimum	2.13 (min)	6.00				
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.05				
Cleanout Frequency (years) - minimum	10 (min)	11				

As shown in Table 9, the proposed stormwater management facility configuration satisfies the quality control requirements for the associated drainage area.

5.2 Southern Stormwater Management Facility 'P31'

5.2.1 Stormwater Quality Control

The stormwater drainage outlet for the proposed Wet Pond 'P31' is the Towpath Drain, where *Enhanced* protection will be provided. Based on Table 3.2 of SWMP & Design Manual, the Enhanced water quality storage requirement for wet pond facilities in a development with 75% impervious area is approximately 233 m³/ha. The wet pond facility will provide stormwater quality controls for a drainage area of approximately 12.96 hectares (Area A33) as shown in Table 10.

Table 10. SWM Facility 'P31' - Stormwater Quality Volume Calculations					
Total Water Quality Volume = 12.96 ha x 233 m³/ha = 3,020 m³ Reference: Table 3.2, SWMP & Design Manual (MECP 2003)					
Permanent Pool Volume = 12.96 ha x 193 m ³ /ha = 2,501 m ³	Extended Detention Volume = 12.96 ha x 40 m ³ /ha = 518m ³				

5.1.2 Erosion Control

Using the MIDUSS hydrological model, the stormwater volume from the 25mm - 4 hour design storm event for the overall 13.62 hectare area (Areas A33 and A34) is 2,114 m³.

The following table shows the stormwater storage volumes required using both the water quality and erosion control guidelines.

Table 11. SWM Facility 'P31' – Stormwater Quality Volume Requirements					
A. Permanent Pool Volume (m ³)	2,501 m ³				
B. Extended Detention Volume (m ³)	518 m ³				
C. Stormwater Volume from 25mm – 4-hour rainfall event	2,114 m ³				
D. Minimum Extended Detention Volume (greater of B & C)	2,114 m ³				
Total Quality and Extended Detention Volume (A + D)	4,615 m ³				

5.1.3 Stormwater Management Facility 'P31' Configuration

As shown in Figure 6, it is proposed to construct a three-stage control outlet for the proposed stormwater management facility. The first stage of control consists of a reverse slope pipe acting as a tubular control orifice to detain the extended detention volume and release it slowly over an extended period of time. The second stage of control consists of a ditch inlet catch basin and outlet pipe which provides an outlet for flows exceeding the extended detention volume. The third stage will consist of an emergency spillway to provide an outlet for greater storm events.

The proposed bottom elevation of the facility is 176.50 m, and the permanent pool water level is proposed at 178.30 m, for a permanent water depth of 1.80 metres. The configuration of the facility provides 2,733 m³ of permanent pool volume, which is more than the required 2,501 m³. The proposed top of pond is at an elevation of 180.30 m which provides a total active volume of 8,059 m³ with 5:1 side slopes.

Based on the configuration of the proposed facility, it was determined that a 150 mm diameter quality orifice at an invert of 178.30 m can provide 26 hours of extended detention for the 25mm design storm event, which has a corresponding water surface elevation of 178.84m within the proposed facility.

The proposed ditch inlet catchbasin will be constructed with the rim at an elevation of 179.60 m which will provide an extended detention volume of 4,692 m³, which is greater than the minimum volume of 2,114 m³ specified in Table 11.

The outflow pipe from the stormwater management facility is to be 450mm in diameter and will convey the stormwater flows from the ditch inlet to the proposed headwall structure outletting to Towpath Drain. A stage-storage-discharge relationship was determined for the facility and is included in Appendix C for reference purposes.

Major overland flows within the southern portion of the subject lands directed to the proposed wetpond facility, and then to the Towpath Drain.

A sediment forebay was included in this stormwater management facility to minimize the transport of heavy sediment from the storm sewer outlet throughout the facility and to localize maintenance activities. Calculations for the forebay sizing follow MECP Guidelines and is shown in Table 12.

Table	Table 12. Stormwater Management Facility 'P31' Forebay Sizing					
a) Forebay Settling Leng	a) Forebay Settling Length (MOE SWMP&D, Equation 4.5)					
(0)			r =	8.0	:1	(Length:Width Ratio)
Settling Length = $\sqrt{\frac{1}{2}}$	$\left(\frac{r \times Q}{V}\right)$		$Q_p =$	0.032	m^3/s	(25mm Storm Pond Discharge)
\	v_s)			0.0003		(Settling Velocity)
Settling Length =	29.30	m				
b) Dispersion Length (M	OE SWN	MP&D	, Equation	4.6)		
	0 v 0		Q =	1.765	m^3/s	(5 Yr Stm Sew Design Inflow)
$Dispersion\ Length =$	$\frac{o \times V}{D \times V_c}$		D =	1.50	m	(Depth of Perm. Pool in the Forebay)
	DAV		$V_{\rm f}\!=\!$	0.5	m/s	(Desired Velocity)
Dispersion Length =	18.83	m				
c) Minimum Forebay De	ep Zone	Bottor	m Width (1	MOE SW	MP&D),	Equation 4.7)
$Width = \frac{Min.Forebox{8}}{8}$	ay Leng	th				
8				29.30	m	(minimum required length)
Width =	3.66	m	(minimun	n required	d width)	
d) Average Velocity of F	low					
			Q =	0.922	m^3/s	(25mm Storm Design Inflow)
	0		A =	12.90	m^2	(Cross Sectional Area)
Average Velocity =	$\frac{\mathcal{L}}{A}$		D =	1.50	m	(Depth of Forebay)
			$\mathbf{W} =$	4.10	m	(Proposed Bottom Width)
			SS =	3	:1	(Side Slopes - Minimum)
Average Velocity =	0.07	m/s				
Is this Acceptable?	Yes		(Maximus	m velocit	y of flow	= 0.15 m/s
e) Cleanout Frequency						
Is this Acceptable?	Yes		L =	33.0	m	(Proposed Bottom Length)
			ASL =	3.13	m ³ /ha	(Annual Sediment Loading)
			A =	12.96	ha	(Drainage Area)
			FRC =	80	%	(Facility Removal Efficiency)
			FV =	514.1	m^3	(Forebay Volume)
Cleanout Frequency =	10.1	Year				
Is this Acceptable?	Yes	(10 Year Minimum Cleanout Frequency)				

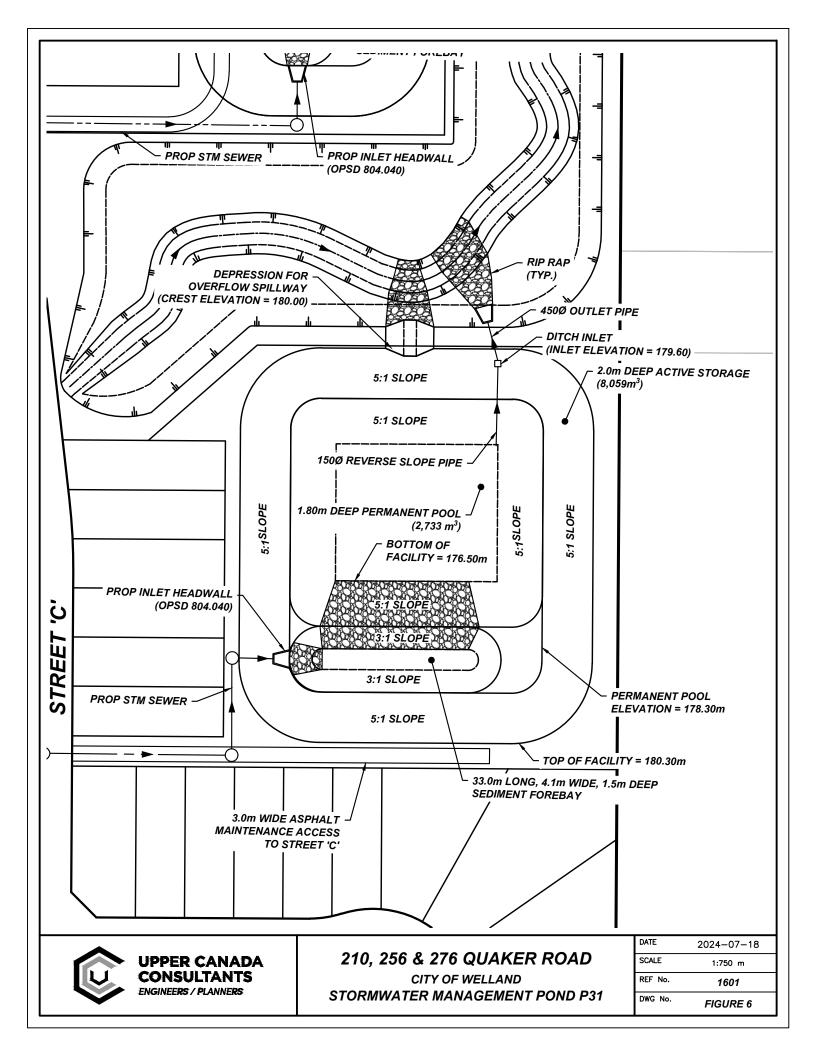


Table 13 summarizes the peak inflows and outflows for the stormwater management facility along with corresponding pond elevations. Based on the MIDUSS model, Table 13 shows the maximum wet pond elevation of 179.88 m, and an active storage volume of 5,982 m³ for the 100-year design storm event.

Table 13. Stormwater Management Wet Pond Facility 'P31' Characteristics					
Design	Peak Flo	ws (L/s)	Maximum Elevation (m)	Maximum	
Storm	Future Inflow	Future Outflow		Storage (m3)	
25mm	922	32	178.84	1,746	
2 Year	1,478	43	179.20	3,116	
5 Year	1,765	48	179.39	3,856	
10 Year	1,983	52	179.54	4,465	
25 Year	2,245	107	179.71	5,183	
100 Year	2,731	221	179.88	5,982	

Table 14. SWM Facility 'P31' – MECP Quality Requirements Comparison						
SWM Facility Characteristic	MECP Requirement	Provided by SWM Facility				
Permanent Pool Volume (m ³) - minimum	2,497 (min)	2,733				
Extended Detention Volume (m ³) – <i>minimum</i>	2,114 (min)	4,692				
Total Quality + Detention Storage (m ³) – <i>minimum</i>	4,615 (min)	7,425				
Drawdown Time (hr) – minimum	24 (min)	26				
Forebay Length (m) – minimum	29.30 (min)	33				
Forebay Width (m) – minimum	3.66 (min)	4.10				
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.07				
Cleanout Frequency (years) - minimum	10 (min)	10				

As shown in Table 14, the proposed stormwater management facility configuration satisfies the quality control requirements for the associated drainage area.

5.3 Overall Stormwater Management Plan

As previously discussed, UCC has prepared a comprehensive Future conditions MIDUSS model to include all of the proposed stormwater management facilities to be constructed within the properties for which UCC is providing engineering services. The facilities included in the model are SWM Facilities P10 through P50, as shown in Figures 3 and 4.

Within properties where there are no Planning Act Applications forthcoming at the time of writing this report, that UCC is not providing engineering services, or a stormwater management alternative has not been selected, existing conditions were assumed in accordance with the Implementation Plan (see Figure 2).

As part of the Planning Act Applications on the properties where UCC is providing engineering services, separate Stormwater Management Reports will be submitted to outline the detailed calculations for each proposed facility. For the purposes of this Stormwater Management Plan, Tables 15 through 21 have been including providing the summary of the characteristics of each SWMF designed by UCC in the NWWSP Area.

5.3.1 Block 2

As shown in Figure 1, Block 2 consists of a property where UCC is providing the engineering services (450 Rice Road) and the remaining property where UCC is not providing engineering services.

The 450 Rice Road will provide only stormwater management quality controls (Facility P20) which will be via an Oil/Grit Separator as the tributary drainage area (Areas A20 and A20a) is below 5.0 hectares. A separate SWM Plan will be submitted outlining the detailed calculations for this Block.

The adjacent lands where UCC is not providing engineering services have been assumed at existing conditions for the purposes of identifying future stormwater flows within the realigned watercourse. A separate SWM Plan will be submitted by the owner's engineering consultant addressing the future stormwater management within this property.

5.3.2 Block 3

As shown in Figure 1, Block 3 consists of lands owned by a single owner for which UCC is providing engineering services and will include two stormwater management facilities (P10 and P11). Facility P10 will be comprised of a dry pond and Oil/Grit Separator as the tributary drainage area to the Oil/Grit Separator (Areas A10) is below 5.0 hectares, and Facility P11 will be comprised of a single wet pond providing quality and quantity controls for areas A12, A13, and A14. A separate SWM Plan will be submitted outlining the detailed calculations for this Block.

Table 15, 16, and 17 below summarize the design characteristics for Facilites P10 and P11.

Table 15. Stormwater Management Dry Pond Facility 'P10' Characteristics					
Design	Peak Flo	ws (L/s)	Maximum Elevation (m)	Maximum	
Storm	Future Inflow	Future Outflow		Storage (m3)	
25mm	273	23	185.94	390	
2 Year	422	25	186.13	803	
5 Year	497	26	186.26	1,035	
10 Year	1,229	26	186.30	1,229	
25 Year	0.644	27	186.41	1,531	
100 Year	0.783	105	186.51	1,804	

Table 16. Stormwater Management Wet Pond Facility 'P11' Characteristics					
Design	Peak Flo	ws (L/s)	Maximum	Maximum	
Storm	Future Inflow	Future Outflow	Elevation (m)	Storage (m3)	
25mm	584	14	185.31	1,163	
2 Year	889	18	185.63	2,132	
5 Year	1,052	20	185.81	2,641	
10 Year	1,177	22	185.95	3,066	
25 Year	1,367	48	186.14	3,650	
100 Year	1,659	143	186.28	4,180	

Table 17. SWM Facility 'P11' – MECP Quality Requirements Comparison						
SWM Facility Characteristic	MECP Requirement	Provided by SWM Facility				
Permanent Pool Volume (m³) - minimum	1,565 (min)	1,616				
Extended Detention Volume (m ³) – <i>minimum</i>	1,350 (min)	3,519				
Total Quality + Detention Storage (m ³) – <i>minimum</i>	2,915 (min)	5,135				
Drawdown Time (hr) – minimum	24 (min)	40				
Forebay Length (m) – minimum	19.80 (min)	21.00				
Forebay Width (m) – minimum	2.41 (min)	2.50				
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.06				
Cleanout Frequency (years) - minimum	10 (min)	11				

As shown in the above tables, Facilities P10 and P11 have adequate capacity to provide stormwater management quantity and quality controls in accordance with MECP requirements and the requirements of the Implementation Plan.

5.3.3 Block 4

As shown in Figure 1, Block 4 consists of multiple properties owned by a single owner for which UCC is providing engineering services separated by a property for which there is not expected to be a future Planning Act Application submitted in the near future.

The area fronting on Rice Road will be consolidated into multiple properties that will be subject to separate applications for Site Plan Approval. The stormwater management facility characteristics for quantity control (storage) within these areas are not presently known and have therefore been included at existing conditions. Stormwater management quality controls will also be provided in accordance with the Implementation Plan.

For the area fronting onto Quaker Road, it is proposed to constuct a single communal wet pond SWM Facility (P50) to provide quality and quantity controls for Areas A52, A53, and A54 prior to discharging to the Towpath Drain.

Additionally, there is an existing catchment area within these lands that drain to the existing unnamed tributary to the Welland Recreational Canal that was constructed as part of the College Park Subdivision.

For the purposes of this Stormwater Management Plan, it was assumed that the majority of this area will convey future stormwater flows to the Towpath Drain. However, a separate SWM Plan will be submitted outlining the detailed calculations for this Block to ensure that future stormwater flows to each watercourse are controlled to existing levels.

Table 20 and 21 below summarize the design characteristics for Facility P50.

Table 18. Stormwater Management Wet Pond Facility 'P50' Characteristics				
Design Storm	Peak Flows (L/s)		Maximum	Maximum
	Future Inflow	Future Outflow	Elevation (m)	Storage (m3)
25mm	1,227	9	182.40	2,607
2 Year	1,923	17	182.70	4,589
5 Year	2,285	20	182.85	5,617
10 Year	2,514	21	182.96	6,474
25 Year	2,924	23	183.13	7,762
100 Year	3,539	132	183.33	9,342

Table 19. SWM Facility 'P50' – MECP Quality Requirements Comparison			
SWM Facility Characteristic	MECP Requirement	Provided by SWM Facility	
Permanent Pool Volume (m³) - minimum	3,287 (min)	5,743	
Extended Detention Volume (m ³) – <i>minimum</i>	2,782 (min)	7,895	
Total Quality + Detention Storage (m ³) – minimum	6,072 (min)	13,638	
Drawdown Time (hr) – minimum	24 (min)	99	
West Forebay			
Forebay Length (m) – minimum	12.42 (min)	18.50	
Forebay Width (m) – minimum	1.55 (min)	3.80	
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.04	
Cleanout Frequency (years) - minimum	10 (min)	11	
East Forebay			
Forebay Length (m) – minimum	6.98 (min)	18.50	
Forebay Width (m) – minimum	0.87 (min)	3.80	
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.03	
Cleanout Frequency (years) - minimum	10 (min)	20	

As shown in the above tables, Facility P50 has adequate capacity to provide stormwater management quantity and quality controls in accordance with MECP requirements and the requirements of the Implementation Plan.

5.3.4 Block 5

As shown in Figure 1, Block 5 consists of lands owned by multiple owners for which UCC is providing engineering services and will include a single communal wet pond SWM Facility (P40) providing quality and quantity controls for the Areas A40 to A45. A separate SWM Plan will be submitted outlining the detailed calculations for this Block.

Table 18 and 19 below summarize the design characteristics for Facility P40.

Table 20.	Table 20. Stormwater Management Wet Pond Facility 'P40' Characteristics			
Design Storm	Peak Flows (L/s)		Maximum	Maximum
	Future Inflow	Future Outflow	Elevation (m)	Storage (m3)
25mm	1,513	41	186.59	3,005
2 Year	2,374	64	187.04	5,502
5 Year	2,832	72	187.27	6,887
10 Year	3,124	129	187.42	7,854
25 Year	3,648	198	187.60	9,121
100 Year	4,453	430	187.86	10,981

Table 21. SWM Facility 'P40' – MECP Quality Requirements Comparison		
SWM Facility Characteristic	MECP Requirement	Provided by SWM Facility
Permanent Pool Volume (m ³) - minimum	4,297 (min)	4,612
Extended Detention Volume (m ³) – <i>minimum</i>	3,593 (min)	7,091
Total Quality + Detention Storage (m ³) – <i>minimum</i>	7,890 (min)	11,703
Drawdown Time (hr) – <i>minimum</i>	24 (min)	30
West Forebay		
Forebay Length (m) – minimum	23.34 (min)	25.00
Forebay Width (m) – minimum	2.92 (min)	5.20
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.07
Cleanout Frequency (years) - minimum	10 (min)	10
East Forebay		
Forebay Length (m) – minimum	14.14 (min)	25.00
Forebay Width (m) – minimum	1.77 (min)	5.00
Average Forebay Velocity (m/s) – maximum	0.15 (max)	0.05
Cleanout Frequency (years) - minimum	10 (min)	10

As shown in the above tables, Facility P40 has adequate capacity to provide stormwater management quantity and quality controls in accordance with MECP requirements and the requirements of the Implementation Plan.

5.3.5 Existing and Future Peak Flow Comparison

As summarized in Table 22 below, the proposed SWM Facilities (P10 through P50) can provide adequate stormwater quantity controls to control future flows to the existing levels identified in the Implementation Plan at each identified outlet along the Towpath Drain during each storm event.

Table 22. Im	pacts of SWM Facili	ities on Peak Flows at O	utlets A through D	
Dogion Storm	Peak Flow (m³/s)			
Design Storm	Existing	Future with SWM	Change	
Up	ostream of Rice Road	d Culvert Crossing – Ou	tlet A1	
2 Year	1.317	0.983	-25.4%	
5 Year	1.589	1.185	-25.4%	
10 Year	1.800	1.344	-25.3%	
25 Year	2.099	1.583	-24.6%	
100 Year	2.558	1.908	-25.4%	
Dov	vnstream of Rice Ro	ad Culvert Crossing – O	utlet A2	
2 Year	3.301	2.916	-11.7%	
5 Year	4.194	3.502	-16.5%	
10 Year	4.777	3.959	-17.1%	
25 Year	5.619	4.621	-17.8%	
100 Year	6.987	5.662	-19.0%	
To	wpath Drain Upstre	am of Existing PSW – O	outlet B	
2 Year	3.425	3.353	-2.1%	
5 Year	4.367	4.015	-8.1%	
10 Year	4.977	4.532	-8.9%	
25 Year	5.863	5.284	-9.9%	
100 Year	7.305	6.464	-11.5%	
Dow	nstream of First Ave	enue Culvert Crossing –	Outlet C	
2 Year	4.035	4.031	-0.1%	
5 Year	5.176	4.834	-6.6%	
10 Year	5.914	5.467	-7.6%	
25 Year	7.005	6.402	-8.6%	
100 Year	8.781	7.881	-10.2%	
Ups	tream of Niagara St	reet Culvert Crossing –	Outlet D	
2 Year	4.509	4.177	-7.4%	
5 Year	5.835	5.016	-14.0%	
10 Year	6.678	5.677	-15.0%	
25 Year	7.938	6.649	-16.2%	
100 Year	9.995	8.188	-18.1%	

6.0 SEDIMENT AND EROSION CONTROL

Sediment controls are required during construction. The proposed extended detention facility can be used for this purpose. Therefore, the proposed constructed wet pond facility should be constructed prior to the facility for sediment control during construction.

The following additional erosion and sediment controls will also be implemented during construction:

- Install silt control fencing along the limits of construction where overland flows will flow beyond the limits of the development or into downstream watercourse.
- Re-vegetate disturbed areas as soon as possible after grading works have been completed.
- Lot grading and siltation controls plans will be provided with sediment and erosion control measures to the appropriate agencies for approval during the final design stage.
- The Stormwater management facility be cleaned after construction prior to assumption by municipality.

7.0 STORMWATER MANAGEMENT FACILITY MAINTENANCE

Maintenance is a necessary and important aspect of urban stormwater quality and quantity measures such as constructed wetlands. Many pollutants (i.e. nutrients, metals, bacteria, etc.) bind to sediment and therefore removal of sediment on a scheduled basis is required.

The wet pond for this development is subject to frequent wetting and deposition of sediments as a result of frequent low intensity storm event. The purpose of the wet pond is to improve post development sediment and contaminant loadings by detaining the 'first flush' flow for a 24 hour period. For the initial operation period of the stormwater management facility, the required frequency of maintenance is not definitively known and many of the maintenance tasks will be performed on an 'as required' basis. For example, during the home construction phase of the development there will be a greater potential for increased maintenance frequency, which depends on the effectiveness of sediment and erosion control techniques employed.

Inspections of the wet pond will indicate whether or not maintenance is required. Inspections should be made after every significant storm during the first two years of operation or until all development is completed to ensure the wet pond is functioning properly. This may translate into an average of six inspections per year. Once all building activity is finalized, inspections shall be performed annually. The following points should be addressed during inspections of the facility.

- a) Standing water above the inlet storm sewer invert a day or more after a storm may indicate a blockage in the reverse slope pipe or orifice. The blockage may be caused by trash or sediment and a visual inspection would be required to determine the cause.
- b) The vegetation around the wet pond should be inspected to ensure its function and aesthetics. Visual inspections will indicate whether replacement of plantings are required. A decline in vegetation habitat may indicate that other aspects of the constructed wet pond are operating improperly, such as the detention times may be inadequate or excessive.
- c) The accumulation of sediment and debris at the wet pond inlet sediment forebay or around the high water line of the wet pond should be inspected. This will indicate the need for sediment removal or debris clean up.
- d) The wet pond has been created by excavating a detention area. The integrity of the embankments should be periodically checked to ensure that it remains watertight and the side slopes have not sloughed.

Grass cutting is a maintenance activity that is done solely for aesthetic purposes. It is recommended that grass cutting be eliminated. It should be noted that municipal by-laws may require regular grass maintenance for weed control.

Trash removal is an integral part of maintenance and an annual clean-up, usually in the spring, is a minimum requirement. After this, trash removal is performed as required basis on observation of trash build-up during inspections.

To ensure long term effectiveness, the sediment that accumulates in the forebay area should be removed periodically to ensure that sediment in not deposited throughout the facility. For sediment removal operations, typical grading/excavating equipment should be used to remove sediment from the inlet forebay and detention areas. Care should be taken to ensure that limited damage occurs to existing vegetation and habitat.

Generally, the sediment which is removed from the detention pond will not be contaminated to the point that it would be classified as hazardous waste. However, the sediment should be tested to determine the disposal options.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study, the following conclusions are offered:

- Infiltration techniques are not suitable for this site as the primary control facility due to the low soil infiltration rates.
- Two proposed stormwater management wet pond facilities will provide stormwater quality, quantity and erosion controls to the proposed development.
- Multiple stormwater management facilities external to the subject lands will provide stormwater quality, quantity and erosion controls for the respective catchment areas, to be addressed in separate SWM Reports as part of forthcoming Planning Act Applications.
- Various lot level vegetative stormwater management practices can be implemented to enhance stormwater quality.
- This report was prepared in accordance with the provincial guidelines contained in "Stormwater Management Planning and Design Manual, March 2003".

The above conclusions lead to the following recommendations:

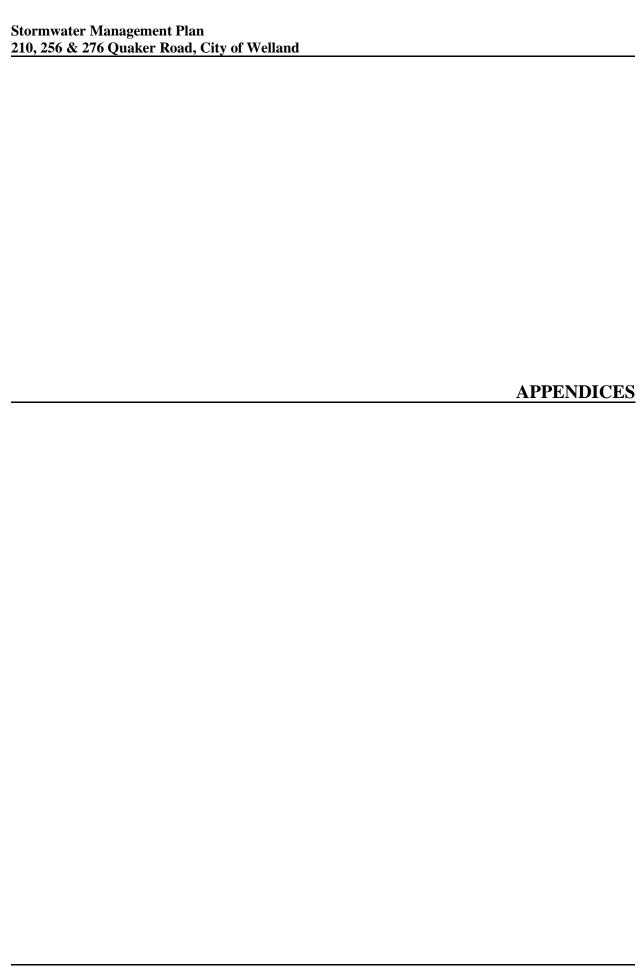
- That the stormwater management criteria established in this report be accepted.
- That two stormwater management wet pond facilities be constructed to provide stormwater quality protection to MECP *Enhanced* Protection levels and quantity controls as outlined in this report.
- That the external SWM Facilities be constructed to the criteria established in the separately submitted SWM Reports.
- That additional lot level controls and vegetative stormwater management practices as described previously in this report be implemented.
- That sediment and erosion controls during construction as described in this report be implemented.

Respectfully Submitted,

B. Kaptuyn

B. J. KAPTEYN
100509155

Brendan Kapteyn, P.Eng.



Stormwater Management Plan	
210, 256 & 276 Quaker Road, City of Welland	
	A POPUL PARK
	APPENDIX A Existing Conditions MIDUSS Output Fil
	Existing Conditions MIDOSS Output Fit

	Output File (4.7) EX.OUT opened 2024-04-03 15:59 Units used are defined by G = 9.810	4 CATCHMENT 5.000 ID No. 99999
	24 144 10.000 are MAXDT MAXHYD & DTMIN values	5.310 Area in hectares
35	Licensee: UPPER CANADA CONSULTANTS COMMENT	188.000 Length (PERV) metres 1.000 Gradient (%)
-	4 line(s) of comment	10.000 Per cent Impervious
	STORMWATER MANAGEMENT PLAN QUAKER ROAD	188.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	CITY OF WELLAND	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
35	EXISTING CONDITIONS COMMENT	.250 Manning "n" 74.000 SCS Curve No or C
	<pre>3 line(s) of comment</pre>	.100 Ia/S Coefficient
	************ 25mm STORM EVENT	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	******	.051 1.879 .000 .000 c.m/s
2	STORM 1 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic	.098 .806 .169 C perv/imperv/total 15 ADD RUNOFF
	512.000 Coefficient a	.051 1.930 .000 .000 c.m/s 4 CATCHMENT
	6.000 Constant b (min) .800 Exponent c	4 CATCHMENT 6.000 ID No. 99999
	.450 Fraction to peak r 240.000 Duration 240 min	43.410 Area in hectares 538.000 Length (PERV) metres
	25.035 mm Total depth	1.000 Gradient (%)
3	<pre>IMPERVIOUS 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	9.000 Per cent Impervious 538.000 Length (IMPERV)
	.015 Manning "n"	.000 %Imp. with Zero Dpth
	98.000 SCS Curve No or C .100 Ia/S Coefficient	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	.518 Initial Abstraction	74.000 SCS Curve No or C
35	COMMENT 3 line(s) of comment	.100 Ia/S Coefficient 8.924 Initial Abstraction
	******	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	AREA NORTH OF QUAKER	.255
4	CATCHMENT	35 COMMENT
	1.000 ID No. 99999 15.820 Area in hectares	<pre>3 line(s) of comment ************************************</pre>
	325.000 Length (PERV) metres	TOTAL FLOW AT FIRST AVENUE
	1.000 Gradient (%) 35.000 Per cent Impervious	**************************************
	325.000 Length (IMPERV)	.255 2.185 .000 .000 c.m/s
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	9 ROUTE .000 Conduit Length
	.250 Manning "n"	.000 No Conduit defined
	74.000 SCS Curve No or C .100 Ia/S Coefficient	.000 Zero lag .000 Beta weighting factor
	8.924 Initial Abstraction Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	.000 Routing timestep
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .499 .000 .000 .000 c.m/s</pre>	0 No. of sub-reaches .255 2.185 2.185 .000 c.m/s
15	.098 .805 .346 C perv/imperv/total ADD RUNOFF	17 COMBINE 1 Junction Node No.
13	.499 .499 .000 .000 c.m/s	1 Junction Node No. .255 2.185 2.185 2.185 c.m/s
4	CATCHMENT 2.000 ID No. 99999	14 START 1 1=Zero; 2=Define
	13.570 Area in hectares	1 = Zero; Z=Deline 35 COMMENT
	301.000 Length (PERV) metres 1.000 Gradient (%)	<pre>3 line(s) of comment ************************************</pre>
	25.000 Per cent Impervious	AREA SOUTH OF QUAKER
	301.000 Length (IMPERV) .000 %Imp. with Zero Dpth	4 CATCHMENT
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	7.000 ID No. 99999
	.250 Manning "n" 74.000 SCS Curve No or C	16.470 Area in hectares 331.000 Length (PERV) metres
	.100 Ia/S Coefficient	1.000 Gradient (%)
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	10.000 Per cent Impervious 331.000 Length (IMPERV)
	.309 .499 .000 .000 c.m/s	331.000 Length (IMPERV) .000 %Imp. with Zero Dpth
35	.098 .802 .274 C perv/imperv/total	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
,,	<pre>3 line(s) of comment</pre>	74.000 SCS Curve No or C
	******************************** FLOW AT RICE ROAD	.100 Ia/S Coefficient 8.924 Initial Abstraction
	************	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
15	ADD RUNOFF .309 .808 .000 .000 c.m/s	.149 .000 2.185 2.185 c.m/s .098 .805 .169 C perv/imperv/total
4	CATCHMENT	15 ADD RUNOFF
	3.000 ID No. 99999 14.520 Area in hectares	.149 .149 2.185 2.185 c.m/s 9 ROUTE
	311.000 Length (PERV) metres	.000 Conduit Length
	1.000 Gradient (%) 35.000 Per cent Impervious	.000 No Conduit defined .000 Zero lag
	311.000 Length (IMPERV)	.000 Beta weighting factor
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	.000 Routing timestep 0 No. of sub-reaches
	.250 Manning "n"	.149 .149 .149 2.185 c.m/s
	74.000 SCS Curve No or C .100 Ia/S Coefficient	17 COMBINE 1 Junction Node No.
	8.924 Initial Abstraction	.149 .149 .149 2.334 c.m/s
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .461 .808 .000 .000 c.m/s</pre>	18 CONFLUENCE 1 Junction Node No.
15	.098 .803 .345 C perv/imperv/total ADD RUNOFF	.149 2.334 .149 .000 c.m/s
10	.461 1.269 .000 .000 c.m/s	4 CATCHMENT 8.000 ID No. 99999
4	CATCHMENT	42.190 Area in hectares
	4.000 ID No. 99999 45.500 Area in hectares	530.000 Length (PERV) metres 1.000 Gradient (%)
	551.000 Length (PERV) metres 1.000 Gradient (%)	9.000 Per cent Impervious 530.000 Length (IMPERV)
	21.000 Per cent Impervious	.000 %Imp. with Zero Dpth
	551.000 Length (IMPERV) .000 %Imp. with Zero Dpth	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	74.000 SCS Curve No or C
	.250 Manning "n" 74.000 SCS Curve No or C	.100 Ia/S Coefficient
	.100 Ia/S Coefficient	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	.250 2.334 .149 .000 c.m/s .098 .803 .162 C perv/imperv/total
	.611 1.269 .000 .000 c.m/s	35 COMMENT
15	.098 .804 .247 C perv/imperv/total ADD RUNOFF	<pre>3 line(s) of comment ************************************</pre>
	.611 1.879 .000 .000 c.m/s	TOTAL FLOW AT NIAGARA STREET
35	COMMENT 3 line(s) of comment	**************************************
	******	.250 2.584 .149 .000 c.m/s
	AREA SOUTH OF QUAKER	27 HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen
		Volume = .1074966E+05 c.m
		14 START 1 1=Zero; 2=Define

35	COMMENT					4	CATCHMEN	orr .				
55		e(s) of comment				1	5.000	ID No.	99999			
	******						5.310	Area in	hectares			
		FORM EVENT					188.000		(PERV) metr	res		
	******	***					1.000	Gradien				
2	STORM 1	1=Chicago;2=Huff;3=	TT00x:4-Cd	nlhr:E-Wigtori			188.000		t Imperviou (IMPERV)	ıs		
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	.789	Exponent c					.250	Manning	"n"			
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		Duration 240 min 38.971 mm Total					8.924		efficient Abstractio	nn.		
3	IMPERVIOU		depen				1				glr; 3=SWM HYD;	4=Lin. Reserv
_	1	Option 1=SCS CN/C;	2=Horton;	3=Green-Ampt;	4=Repeat				3.219	.149	.000 c.m/s	
	.015	Manning "n"						.194	.863	.261	C perv/imperv/	total
	98.000	SCS Curve No or C				15	ADD RUNG					
	.100	Ia/S Coefficient				4			3.301	.149	.000 c.m/s	
35	.518 COMMENT	Initial Abstraction				4	CATCHMEN 6.000	ID No.	00000			
-		e(s) of comment					43.410		hectares			
	******						538.000		(PERV) metr	res		
		TH OF QUAKER					1.000	Gradien	ıt (%)			
	******						9.000		t Imperviou	ıs		
4	CATCHMENT 1.000						538.000		(IMPERV)	+ h		
	15.820	ID No. 99999 Area in hectares					1		ith Zero Dp 1=SCS CN/C;		; 3=Green-Ampt;	4=Repeat
	325.000	Length (PERV) metre	s				.250	Manning				
	1.000	Gradient (%)					74.000	SCS Cur	ve No or C			
	35.000	Per cent Impervious					.100		efficient			
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	.000	%Imp. with Zero Dpt Option 1=SCS CN/C;		2-Croon Ampt:	4-Bonost		1		1=Triangir; 3.301	.149	glr; 3=SWM HYD; .000 c.m/s	4=Lin. Reserv
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	74.000	SCS Curve No or C				35	COMMENT		.000	.233	c pcrv/rmpcrv/	COCCL
	.100	Ia/S Coefficient						ne(s) of c	omment			
	8.924	Initial Abstraction						******				
	1	Option 1=Trianglr;			4=Lin. Reserv			LOW AT FIR				
			.149	.000 c.m/s	1	1.5		*******	******			
15	ADD RUNOF		.427	C perv/imperv/	total	15	ADD RUNG		2 706	1.40	000/-	
13		813 .813	.149	.000 c.m/s		9	ROUTE	.485	3.786	.149	.000 c.m/s	
4	CATCHMENT	r .013		.000 0.1111/10		,	.000	Conduit	Length			
	2.000	ID No. 99999					.000		luit defined	1		
	13.570	Area in hectares					.000	Zero la	g			
	301.000	Length (PERV) metre	s				.000	Beta we	ighting fac	ctor		
	1.000	Gradient (%)					.000		timestep			
	25.000	Per cent Impervious					0		sub-reaches			
	301.000 .000	Length (IMPERV) %Imp. with Zero Dpt	h			17	COMBINE	. 485	3.786	3.786	.000 c.m/s	
	1	Option 1=SCS CN/C;		3=Green-Ampt;	4=Repeat	17		nction Nod	le No.			
	.250	Manning "n"								3.786	3.786 c.m/s	
	74.000	SCS Curve No or C				14	START					
	.100	Ia/S Coefficient						Zero; 2=De	fine			
	8.924	Initial Abstraction				35	COMMENT					
	1	Option 1=Trianglr; 504 .813	2=Rectang	<pre>1r; 3=SWM HYD; .000 c.m/s</pre>	4=Lin. Reserv		3 lir	ne(s) of c	omment			
		194 .862		.000 C.m/s C perv/imperv/	total			JTH OF QUA	VFD			
35	COMMENT	.002	.501	c perv/imperv/	cocar		******		исыс			
		e(s) of comment				4	CATCHMEN	T				
	******	*****					7.000	ID No.	99999			
	FLOW AT F						16.470	Area in	hectares			
		******					331.000		(PERV) metr	res		
15	ADD RUNOF		140	000/-			1.000	Gradien				
4	CATCHMENT	504 1.317	.149	.000 c.m/s			10.000 331.000		t Imperviou	ıs		
-	3.000	ID No. 99999					.000		(IMPERV) with Zero Dr	oth		
	14.520	Area in hectares					1				; 3=Green-Ampt;	4=Repeat
	311.000	Length (PERV) metre	s				.250	Manning	"n"			
	1.000	Gradient (%)					74.000		ve No or C			
	35.000	Per cent Impervious					.100		efficient			
	.000	Length (IMPERV) %Imp. with Zero Dpt	h				8.924		Abstractio		alm: 3-cmm nan.	A-Tin Boson
	.000	Option 1=SCS CN/C;		3=Green-Amnt:	4=Reneat			.249		3.786	glr; 3=SWM HYD; 3.786 c.m/s	4=LIN. Reserv
	.250	Manning "n"	2-1101 00117	J-Green Amper	4-Repeat			.194	.858	.261	C perv/imperv/	total
	74.000	SCS Curve No or C				15	ADD RUNG				- P	
	.100	Ia/S Coefficient						. 249	.249	3.786	3.786 c.m/s	
	8.924	Initial Abstraction		1 2 com:	4-7:	9	ROUTE					
	1	Option 1=Trianglr;			4=Lin. Reserv		.000		Length			
		749 1.317 194 .861	.149	.000 c.m/s C perv/imperv/	total		.000	No Cond Zero la	luit defined	1		
15	ADD RUNOF			- beralimberal			.000		g ighting fac	tor		
			.149	.000 c.m/s			.000		timestep	-		
4	CATCHMENT	r					0	No. of	sub-reaches			
	4.000	ID No. 99999						.249	.249	.249	3.786 c.m/s	
	45.500 551.000	Area in hectares				17	COMBINE					
	1.000	Length (PERV) metre Gradient (%)	٥					nction Nod .249	le No. .249	. 249	4.035 c.m/s	
	21.000	Per cent Impervious				18	CONFLUEN		. 437	.447	4.030 C.III/S	
	551.000	Length (IMPERV)				10		nction Nod	le No.			
	.000	%Imp. with Zero Dpt						. 249	4.035	.249	.000 c.m/s	
	1	Option 1=SCS CN/C;	2=Horton;	3=Green-Ampt;	4=Repeat	4	CATCHMEN		00000			
	.250	Manning "n"					8.000	ID No.				
	74.000 .100	SCS Curve No or C Ia/S Coefficient					42.190 530.000		hectares (PERV) metr	-ec		
	8.924	Initial Abstraction					1.000	Gradien				
	1	Option 1=Trianglr;	2=Rectang	lr; 3=SWM HYD;	4=Lin. Reserv		9.000		ıt Imperviou	ıs		
	1.1		.149	.000 c.m/s	_		530.000	Length	(IMPERV)			
1 -			.336	C perv/imperv/	total		.000		ith Zero Dr			
15	ADD RUNOF		.149	.000 c.m/s			1			2=Horton	; 3=Green-Ampt;	4=Repeat
35	COMMENT	153 3.219	. 1 2 3	.000 C.M/S			.250 74.000	Manning SCS Cur	"n" ve No or C			
		e(s) of comment					.100		efficient			
	******	***					8.924		Abstractio	on		
		TH OF QUAKER					1	Option	1=Trianglr;	2=Rectan	glr; 3=SWM HYD;	4=Lin. Reserv
	******							. 474	4.035	.249	.000 c.m/s	
								.194	.867	.255	C perv/imperv/	total
						35	COMMENT	/-> ^				
								ne(s) of c	omment			
									GARA STREET			
									WARA SIREEI			
						15	ADD RUNG					
								. 474	4.509	.249	.000 c.m/s	
						27	HYDROGR#	APH DISPLA	Υ			
									o/Hydrograp	oh chosen		
						* *		= .23622	02E+05 c.m			
						14	START 1 1=2	Zero; 2=De	fine			
								20	-			

35	COMMENT	4	CATCHMENT	
	3 line(s) of comment		5.000 ID No. 99999 5.310 Area in hectares	
	5-YEAR STORM EVENT		188.000 Length (PERV) metres	
	******		1.000 Gradient (%)	
2	STORM 1 =Chicago; 2=Huff; 3=User; 4=Cdnlhr; 5=Histori	:_	10.000 Per cent Impervious 188.000 Length (IMPERV)	
	<pre>1 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Histori 830.000 Coefficient a</pre>	1c	.000 %Imp. with Zero Dpth	
	7.300 Constant b (min)		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	
	.777 Exponent c .450 Fraction to peak r		.250 Manning "n" 74.000 SCS Curve No or C	
	.450 Fraction to peak r 240.000 Duration 240 min		74.000 SCS Curve No or C .100 Ia/S Coefficient	
	45.874 mm Total depth		8.924 Initial Abstraction	
3	IMPERVIOUS		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .015 Manning "n"</pre>	; 4=Repeat	.101 4.093 .249 .000 c.m/s .236 .875 .300 C perv/imperv/total	
	98.000 SCS Curve No or C	15	ADD RUNOFF	
	.100 Ia/S Coefficient		.101 4.194 .249 .000 c.m/s	
2 -	.518 Initial Abstraction	4	CATCHMENT	
35	3 line(s) of comment		6.000 ID No. 99999 43.410 Area in hectares	
	******		538.000 Length (PERV) metres	
	AREA NORTH OF QUAKER		1.000 Gradient (%)	
4	**************************************		9.000 Per cent Impervious 538.000 Length (IMPERV)	
4	1.000 ID No. 99999		.000 %Imp. with Zero Dpth	
	15.820 Area in hectares		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	
	325.000 Length (PERV) metres		.250 Manning "n"	
	1.000 Gradient (%) 35.000 Per cent Impervious		74.000 SCS Curve No or C .100 Ia/S Coefficient	
	35.000 Per cent Impervious 325.000 Length (IMPERV)		8.924 Initial Abstraction	
	.000 %Imp. with Zero Dpth		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt;</pre>	; 4=Repeat	.676 4.194 .249 .000 c.m/s	
	.250 Manning "n" 74.000 SCS Curve No or C	35	.236 .885 .294 C perv/imperv/total COMMENT	
	.100 Ia/S Coefficient	33	3 line(s) of comment	
	8.924 Initial Abstraction		**************************************	
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD;</pre>	; 4=Lin. Reserv	TOTAL FLOW AT FIRST AVENUE	
	.980 .000 .249 .000 c.m/s .236 .880 .461 C perv/imperv/	/6-6-3	****************	
15	.236 .880 .461 C perv/imperv/ ADD RUNOFF	/total 15	ADD RUNOFF .676 4.870 .249 .000 c.m/s	
	.980 .980 .249 .000 c.m/s	9	ROUTE	
4	CATCHMENT		.000 Conduit Length	
	2.000 ID No. 99999		.000 No Conduit defined	
	13.570 Area in hectares 301.000 Length (PERV) metres		.000 Zero lag .000 Beta weighting factor	
	1.000 Gradient (%)		.000 Routing timestep	
	25.000 Per cent Impervious		0 No. of sub-reaches	
	301.000 Length (IMPERV)		.676 4.870 4.870 .000 c.m/s	
	.000 %Imp. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt;	: 4=Reneat	COMBINE 1 Junction Node No.	
	.250 Manning "n"	1=Repeat	.676 4.870 4.870 c.m/s	
	74.000 SCS Curve No or C	14	START	
	.100 Ia/S Coefficient		1 1=Zero; 2=Define	
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD;	: 4-Lin Pegery	COMMENT	
	.608 .980 .249 .000 c.m/s	4-Lin. Reserv	<pre>3 line(s) of comment ************************************</pre>	
	.236 .883 .398 C perv/imperv/	/total	AREA SOUTH OF QUAKER	
35	COMMENT		******	
	3 line(s) of comment	4	CATCHMENT 7.000 ID No. 99999	
	FLOW AT RICE ROAD		7.000 ID No. 99999 16.470 Area in hectares	
	*********		331.000 Length (PERV) metres	
15	ADD RUNOFF		1.000 Gradient (%)	
4	.608 1.589 .249 .000 c.m/s		10.000 Per cent Impervious	
	3.000 ID No. 99999		331.000 Length (IMPERV) .000 %Imp. with Zero Dpth	
-	14.520 Area in hectares		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	
-	311.000 Length (PERV) metres			
-			.250 Manning "n"	
	1.000 Gradient (%)		74.000 SCS Curve No or C	
	1.000 Gradient (%) 35.000 Per cent Impervious		74.000 SCS Curve No or C .100 Ia/S Coefficient	
	1.000 Gradient (%)		74.000 SCS Curve No or C	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt;	: 4=Repeat	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n"		74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth .1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n" 4.000 SCS Curve No or C	; 4=Repeat	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1-SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient	15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning 'n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD;	15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 3.00 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 % %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; .902 1.589 .249 .000 c.m/s	15 9 ; 4=Lin. Reserv	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning 'n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD;	15 9 ; 4=Lin. Reserv	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 0ption 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth .1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction .1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s	15 9 ; 4=Lin. Reserv	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined	
	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1-SCS CN/C; 2-Horton; 3=Green-Ampt; .250 Manning 'n' 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1-Trianglr; 2-Rectanglr; 3=SWM HYD; .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s .902 2.491 .249 .000 c.m/s	15 9 ; 4=Lin. Reserv	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning 'n' 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD: .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s CATCHMENT 4.000 ID No. 99999	15 9 4=Lin. Reserv	74.000 SCS Curve No or C	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1-SCS CN/C; 2-Horton; 3=Green-Ampt; .250 Manning 'n' 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1-Trianglr; 2-Rectanglr; 3=SWM HYD; .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s .902 2.491 .249 .000 c.m/s	15 9 ; 4=Lin. Reserv	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; .902 1.589 .249 .000 c.m/s .902 1.589 .249 .000 c.m/s ADD RUNOFF .902 2.491 .249 .000 c.m/s CATCHMENT 4.000 ID No. 9999 45.500 Area in hectares 551.000 Length (PERV) metres 1.000 Gradient (%)	15 9 / 4=Lin. Reserv //total	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 0ption 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE 0.00 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 5.176 c.m/s	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 % %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 74.000 ScS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD: .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s CATCHMENT 4.000 ID No. 99999 45.500 Area in hectares 551.000 Length (PERV) metres 1.000 Gradient (%) 21.000 Per cent Impervious	15 9 4=Lin. Reserv	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s CATCHIMENT 4.000 ID No. 99999 45.500 Area in hectares 551.000 Length (PERV) metres 1.000 Gradient (%) 21.000 Per cent Impervious 551.000 Length (IMPERV)	15 9 / 4=Lin. Reserv //total	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No.	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 %tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 74.000 ScS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD: .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, ADD RUNOFF .902 2.491 .249 .000 c.m/s CATCHIMENT 4.000 ID No. 9999 45.500 Area in hectares 551.000 Length (PERV) metres 1.000 Gradient (%) 21.000 Per cent Impervious 551.000 Length (IMPERV) .000 %tmp. with Zero Dpth	15 9 ; 4=Lin. Reserv /total 17	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 5.176 .306 .000 c.m/s	
15	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV) .000 % % Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD: .902 1.589 .249 .000 c.m/s .236 .882 .462 C perv/imperv, .902 2.491 .249 .000 c.m/s .DR ZEROMENT 4.000 ID No. 99999 45.590 Area in hectares 551.000 Length (PERV) metres 551.000 Gradient (%) 21.000 Gradient (%) 21.000 Fer cent Impervious 551.000 Length (IMPERV) .000 % % Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; .250 Manning "n"	15 9 ; 4=Lin. Reserv /total 17	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 0 to Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 .306 .306 .000 c.m/s CATCHMENT 8.000 ID No. 99999	
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15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 .306 .306 .000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPRV) .000 SCS Curve No or C .250 Manning 'n' 74.000 SCS Curve No or C .100 IA/S Coefficient 8.924 Initial Abstraction	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 5.176 .306 .000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPRV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s .236 .885 .294 C perv/imperv/total	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 .306 .306 5.000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s .236 .885 .294 C perv/imperv/total COMMENT 3 line(s) of comment	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 5.176 .306 .000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning 'm' 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s .236 .885 .294 C perv/imperv/total COMMENT 3 line(s) of comment	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 .306 .306 5.000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s .236 .885 .294 C perv/imperv/total COMMENT 3 line(s) of comment	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFUDENCE 1 Junction Node No306 .306 .306 .000 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 SCS Curve No or C .100 IA/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .236 .885 .294 C perv/imperv/total COMMENT 3 line(s) of comment TOTAL FLOW AT NIAGARA STREET ADD RUNDFF	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total 35	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SMM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s COMFINECE 1 Junction Node No306 .306 .306 5.176 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning 'n' 74.000 SCS Curve No or C .100 Lags (Soefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s COMMENT 3 Line(s) of comment TOTAL FLOW AT NIAGGRA STREET	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 7 4=Lin. Reserv /total 17 18 7 4=Repeat 4 7 4=Lin. Reserv /total	74.000 SCS Curve No or C 1100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNDFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s CONFLUENCE 1 Junction Node No306 .306 .306 .000 c.m/s CATCHMENT 8.000 ID No. 9999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 & %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning 'n' 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .236 .885 .294 C perv/imperv/total COMMENT 3 line(s) of comment .200 COMMENT .200 COMMENT 3 Line(s) of comment .200 COMMENT 3 Line(s) of comment .200 COMMENT .20	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total 35	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SMM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s COMFINECE 1 Junction Node No306 .306 .306 5.176 c.m/s CATCHMENT 8.000 ID No. 99999 42.190 Area in hectares 530.000 Length (PERV) metres 1.000 Gradient (%) 9.000 Per cent Impervious 530.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning 'n' 74.000 SCS Curve No or C .100 Lags (Soefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .659 5.176 .306 .000 c.m/s COMMENT 3 Line(s) of comment TOTAL FLOW AT NIAGGRA STREET	
15 4	1.000 Gradient (%) 35.000 Per cent Impervious 311.000 Length (IMPERV)	15 9 ; 4=Lin. Reserv /total 17 18 ; 4=Repeat 4 ; 4=Lin. Reserv /total 35	74.000 SCS Curve No or C 1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .306 .000 4.870 4.870 c.m/s .236 .880 .300 C perv/imperv/total ADD RUNOFF .306 .306 4.870 4.870 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches .306 .306 .306 4.870 c.m/s COMBINE 1 Junction Node No306 .306 .306 5.176 c.m/s COMFLIBECT STATE OF STATE	

35	COMMENT					4	CATCHMEN					
	3 line(s	s) of comment *					5.000 5.310	ID No.	99999 hectares			
	10-YEAR STO					1	188.000		(PERV) metre	s		
	*******	*					1.000	Gradien				
2	STORM 1	1=Chicago;2=Huff;3=U	Jser;4=Cdn	lhr;5=Historic			188.000		t Impervious (IMPERV)			
	860.000	Coefficient a					.000	%Imp. w	ith Zero Dpt			
		Constant b (min) Exponent c)				.250	Manning		Z=Horton;	3=Green-Ampt;	4=kepeat
		Fraction to peak r					74.000		ve No or C			
		Duration 240 min 1.471 mm Total o	lepth				.100 8.924		efficient Abstraction			
3	IMPERVIOUS						1	Option	1=Trianglr;	2=Rectang	lr; 3=SWM HYD;	4=Lin. Reserv
		Option 1=SCS CN/C; 2 Manning "n"	2=Horton;	3=Green-Ampt; 4	=Repeat			117 267	4.660	.306	.000 c.m/s C perv/imperv/t	otal
	98.000	SCS Curve No or C				15	ADD RUNO		.003	.520	o pervimpervie	0001
		Ia/S Coefficient Initial Abstraction				4	CATCHMEN		4.777	.306	.000 c.m/s	
35	COMMENT	INICIAL ADSCIACCION				4	6.000	ID No.	99999			
	3 line(s	s) of comment					43.410		hectares	_		
	AREA NORTH					-	1.000	Gradien	(PERV) metre	S		
	******	*					9.000	Per cen	t Impervious			
4	CATCHMENT 1.000	ID No. 99999				:	.000		(IMPERV) ith Zero Dpt	h		
	15.820	Area in hectares					1	Option	1=SCS CN/C;		3=Green-Ampt;	4=Repeat
		Length (PERV) metres Gradient (%)	3				.250 74.000	Manning SCS Cur	"n" ve No or C			
	35.000 I	Per cent Impervious					.100	Ia/S Co	efficient			
		Length (IMPERV) %Imp. with Zero Dpth					8.924		Abstraction		lr; 3=SWM HYD;	4-Lin Bosovi
	1 (Option 1=SCS CN/C; 2		3=Green-Ampt; 4	=Repeat			784	4.777	.306	.000 c.m/s	
		Manning "n"				35		267	.896	.323	C perv/imperv/t	otal
		SCS Curve No or C Ia/S Coefficient				35	COMMENT 3 lin	ne(s) of c	omment			
	8.924	Initial Abstraction					******	******	*****			
	1 (Option 1=Trianglr; 2 0 .000 .	2=Rectangl .306	r; 3=SWM HYD; 4	=Lin. Reserv		TOTAL FL	OW AT FIR	ST AVENUE			
	.26	7 .894 .		perv/imperv/to	tal	15	ADD RUNO					
15	ADD RUNOFF 1.110		. 306	000/-				784	5.561	.306	.000 c.m/s	
4	CATCHMENT	0 1.110 .	. 300	.000 c.m/s		9	ROUTE .000	Conduit	Length			
		ID No. 99999					.000	No Cond	uit defined			
		Area in hectares Length (PERV) metres					.000	Zero la Beta we	g ighting fact	or		
	1.000	Gradient (%)					.000		timestep	01		
		Per cent Impervious Length (IMPERV)					0		sub-reaches 5.561 5	.561	.000 c.m/s	
		%Imp. with Zero Dpth	1			17	COMBINE.	704	5.501	.501	.000 C.m/s	
		Option 1=SCS CN/C; 2	2=Horton;	3=Green-Ampt; 4	=Repeat			ction Nod		5.61	F F63 /	
		Manning "n" SCS Curve No or C				14	START	784	5.561 5	.561	5.561 c.m/s	
	.100	Ia/S Coefficient					1 1=Z	Zero; 2=De	fine			
		Initial Abstraction Option 1=Trianglr; 2	2=Rectandl	r: 3=SWM HVD: 4	l=I.in Reserv	35	COMMENT 3 lin	ne(s) of c	omment			
	.690		.306	.000 c.m/s			******	***	Ollilleric			
2.5	. 26	7 .896 .	.424 C	perv/imperv/to	tal		AREA SOU	TH OF QUA	KER			
35	COMMENT 3 line(s	s) of comment				4	CATCHMEN					
	******	******					7.000	ID No.				
	FLOW AT RIC	CE ROAD ******					16.470 331.000		hectares (PERV) metre	e e		
15	ADD RUNOFF					-	1.000	Gradien				
4	.690 CATCHMENT	0 1.800 .	.306	.000 c.m/s			10.000	Per cen	t Impervious			
4		ID No. 99999				-	.000	%Imp. w	(IMPERV) ith Zero Dpt	h		
		Area in hectares					1	Option	1=SCS CN/C;		3=Green-Ampt;	4=Repeat
		Length (PERV) metres Gradient (%)	3				.250 74.000	Manning SCS Cur	"n" ve No or C			
	35.000 I	Per cent Impervious					.100	Ia/S Co	efficient			
		Length (IMPERV) %Imp. with Zero Dpth	1				8.924		Abstraction		lr; 3=SWM HYD;	4=Lin Reserv
	1 (Option 1=SCS CN/C; 2		3=Green-Ampt; 4	=Repeat			353		.561	5.561 c.m/s	1-2211. 1100011
		Manning "n" SCS Curve No or C				15	ADD RUNO	267	.894	.329	C perv/imperv/t	otal
	.100	Ia/S Coefficient				15		353	.353 5	.561	5.561 c.m/s	
		Initial Abstraction		. 2 0004 0000		9	ROUTE					
	1 (Option 1=Trianglr; 2 0 1.800 .	2=Rectangl .306	r; 3=SWM HYD; 4	=LIN. Keserv		.000		Length uit defined			
	.26	7 .896 .		perv/imperv/to	otal		.000	Zero la	g			
15	ADD RUNOFF 1.020		.306	.000 c.m/s			.000		ighting fact timestep	or		
4	CATCHMENT		. 500	.000 0.111, 0			0		sub-reaches			
		ID No. 99999 Area in hectares				17	COMBINE	353	.353	.353	5.561 c.m/s	
		Length (PERV) metres	3			17		ction Nod	e No.			
		Gradient (%)						353	.353	.353	5.914 c.m/s	
		Per cent Impervious Length (IMPERV)				18	CONFLUEN 1 Jun	ICE Iction Nod	e No.			
	.000	%Imp. with Zero Dpth	1					353	5.914	.353	.000 c.m/s	
		Option 1=SCS CN/C; 2 Manning "n"	2=Horton;	3=Green-Ampt; 4	=Repeat	4	CATCHMEN 8.000	ID No.	00000			
		SCS Curve No or C					42.190		hectares			
		Ia/S Coefficient Initial Abstraction					530.000		(PERV) metre	s		
	1 (Option 1=Trianglr; 2		r; 3=SWM HYD; 4	=Lin. Reserv		1.000 9.000	Gradien Per cen	t (%) t Impervious			
	1.840	0 2.820 .	.306	.000 c.m/s		į	530.000	Length	(IMPERV)			
15	.267 ADD RUNOFF		.399 C	! perv/imperv/to	rai		.000		ith Zero Dpt 1=SCS CN/C;		3=Green-Ampt;	4=Repeat
	1.840		.306	.000 c.m/s			.250	Manning	"n"	,,	Imper	
35	COMMENT 3 line(s	s) of comment					74.000		ve No or C efficient			
	******	*					8.924	Initial	Abstraction			
	AREA SOUTH						1	Option	1=Trianglr;	2=Rectang	lr; 3=SWM HYD;	4=Lin. Reserv
								764 267		.353	.000 c.m/s C perv/imperv/t	otal
						35	COMMENT					
								ne(s) of c	omment ******			
							TOTAL FL	OW AT NIA	GARA STREET			
						15	ADD RUNO		******			
						10		764	6.678	.353	.000 c.m/s	
						27	HYDROGRA	APH DISPLA	Y.			
									o/Hydrograph 45E+05 c.m	cnosen		
						14	START					
							1 1=Z	dero; 2=De	Ilne			

35	COMMENT					4	CATCHMEN					
	3 line	(s) of comment					5.000 5.310	ID No.	99999 hectares			
		FORM EVENT					188.000		(PERV) metr	es		
	******	* *					1.000	Gradient	t (%)			
2	STORM 1	1 - 01-1 10 -11-5	£ 12 - 11 14 - 0	d., 1 b., . F . 11 d . b d	_		10.000 188.000	Per cent Length	t Imperviou	s		
	900.000	1=Chicago;2=Huf Coefficient a	::3=User:4=C	anınr;5=Histori	С		.000		(IMPERV) ith Zero Dp	th		
	5.200		(min)				1				; 3=Green-Ampt;	4=Repeat
	.745	Exponent c					. 250	Manning				
	.450 240.000	Fraction to peal Duration 240					74.000 .100		ve No or C efficient			
			tal depth				8.924		Abstractio	n		
3	IMPERVIOU						1				glr; 3=SWM HYD;	4=Lin. Reserv
	.015	Option 1=SCS CN Manning "n"	/C; 2=Horton	; 3=Green-Ampt;	4=Repeat			.146 ! .308	5.473 .892	.353	.000 c.m/s C perv/imperv/	total
	98.000	SCS Curve No or	C			15	ADD RUNG		.052	.507	c perv/imperv/	cocai
	.100	Ia/S Coefficien							5.619	.353	.000 c.m/s	
35	.518	Initial Abstrac	tion			4	CATCHMEN 6.000		00000			
35		(s) of comment					43.410	ID No. Area in	hectares			
	*****						538.000		(PERV) metr	es		
		H OF QUAKER					1.000	Gradient				
4	CATCHMENT						9.000 538.000	Per cent Length	t Imperviou	s		
4		ID No. 99999					.000		ith Zero Dp	th		
		Area in hectare	S				1				; 3=Green-Ampt;	4=Repeat
		Length (PERV) m	etres				.250	Manning				
	1.000	Gradient (%) Per cent Imperv	iona				74.000 .100		ve No or C efficient			
	325.000	Length (IMPERV)	ious				8.924		Abstractio	n		
	.000	%Imp. with Zero	Dpth				1	Option :			glr; 3=SWM HYD;	4=Lin. Reserv
	1	Option 1=SCS CN	/C; 2=Horton	; 3=Green-Ampt;	4=Repeat				5.619	.353	.000 c.m/s	_
	.250 74.000	Manning "n" SCS Curve No or				35	COMMENT	.308	.906	.362	C perv/imperv/	total
	.100	Ia/S Coefficien				33		ne(s) of co	omment			
	8.924	Initial Abstrac	tion					******	*****			
	1	Option 1=Triang			4=Lin. Reserv			LOW AT FIRS				
	1.3		.353	.000 c.m/s C perv/imperv/	1	15	ADD RUNG	********	*****			
15	ADD RUNOF		.519	C perv/Imperv/	LOLAI	15			6.576	.353	.000 c.m/s	
	1.3		.353	.000 c.m/s		9	ROUTE		0.570		.000 0.111, 0	
4	CATCHMENT						.000	Conduit	Length			
		ID No. 99999					.000		uit defined			
	13.570 301.000	Area in hectare: Length (PERV) m					.000	Zero las	g ighting fac	tor		
	1.000	Gradient (%)	CCICD				.000		timestep	COL		
	25.000	Per cent Imperv	ious				0	No. of a	sub-reaches			
	301.000	Length (IMPERV)	D 11						6.576	6.576	.000 c.m/s	
	.000	%Imp. with Zero Option 1=SCS CN		: 3=Green-Amnt:	4=Reneat	17	COMBINE 1 Jun	nction Node	a No			
	.250	Manning "n"	/C/ Z=HOICOH	/ J-GIEEN AMPE/	4-Repeat					6.576	6.576 c.m/s	
	74.000	SCS Curve No or				14	START					
	.100	Ia/S Coefficien						Zero; 2=Dei	fine			
	8.924	Initial Abstrac Option 1=Triang		alm: 3-CMM HAD:	4-Tin Bogons	35	COMMENT					
	.7		.353	.000 c.m/s	4-DIN. RESELV		3 lin	ne(s) of co	ommeric			
	.31		.459	C perv/imperv/	total		AREA SOU	UTH OF QUAR	KER			
35	COMMENT						*****					
		(s) of comment				4	CATCHMEN 7.000	NT ID No.	00000			
	FLOW AT R						16.470		hectares			
		*****					331.000		(PERV) metr	es		
15	ADD RUNOF						1.000	Gradient				
4	.79		.353	.000 c.m/s			10.000	Per cent	t Imperviou	S		
4		ID No. 99999					331.000	Length %Imp w	(IMPERV) ith Zero Dp	th		
	14.520	Area in hectare					1				; 3=Green-Ampt;	4=Repeat
	311.000	Length (PERV) m	etres				.250	Manning				
	1.000	Gradient (%) Per cent Imperv	ione				74.000 .100		ve No or C efficient			
	311.000	Length (IMPERV)	1000				8.924		Abstractio	n		
	.000	%Imp. with Zero					1	Option :			glr; 3=SWM HYD;	4=Lin. Reserv
	1	Option 1=SCS CN	/C; 2=Horton	; 3=Green-Ampt;	4=Repeat			.429		6.576	6.576 c.m/s	_
	.250 74.000	Manning "n" SCS Curve No or	C			15	ADD RUNG	.308	.909	.369	C perv/imperv/	total
	.100	Ia/S Coefficien				15		.429	.429	6.576	6.576 c.m/s	
	8.924	Initial Abstrac	tion			9	ROUTE			-		
	1	Option 1=Triang			4=Lin. Reserv		.000	Conduit	Length			
	1.1		.353 .519	.000 c.m/s C perv/imperv/	total		.000	No Condu Zero la	uit defined			
15	ADD RUNOF	F					.000		g ighting fac	tor		
	1.1	54 3.263	.353	.000 c.m/s			.000	Routing	timestep			
4	CATCHMENT	ID No. 99999					0		sub-reaches		6 576 - 1	
	4.000 45.500	Area in hectare	s			17	COMBINE		.429	.429	6.576 c.m/s	
	551.000	Length (PERV) m				11		nction Node	e No.			
	1.000	Gradient (%)						.429	.429	.429	7.005 c.m/s	
	21.000 551.000	Per cent Imperv Length (IMPERV)	LOUS			18	CONFLUED 1 Jun	NCE nction Node	e No			
		%Imp. with Zero	Dpth						7.005	.429	.000 c.m/s	
	1	Option 1=SCS CN		; 3=Green-Ampt;	4=Repeat	4	CATCHMEN	NT				
		Manning "n" SCS Curve No or	C				8.000	ID No.				
	74.000 .100	Ia/S Coefficien					42.190 530.000		hectares (PERV) metr	es		
		Initial Abstrac					1.000	Gradient				
	1	Option 1=Triang	lr; 2=Rectan		4=Lin. Reserv		9.000	Per cent	t Imperviou	s		
	2.2		.353	.000 c.m/s C perv/imperv/	total		530.000	Length		th.		
15	ADD RUNOF		. 234	c beralimberal	COCAL		.000		ith Zero Dp 1=SCS CN/C;		; 3=Green-Ampt;	4=Repeat
	2.2		.353	.000 c.m/s			.250	Manning	"n"			
35	COMMENT	(-) -6 -					74.000		ve No or C			
	3 line	(s) of comment **					.100 8.924		efficient Abstractio	n		
		H OF QUAKER					8.924				glr; 3=SWM HYD;	4=Lin. Reserv
	*****	**						.933	7.005	.429	.000 c.m/s	
								.308	.906	.362	C perv/imperv/	total
						35	COMMENT 3 lin	ne(s) of co	omment			
								******	*******			
									GARA STREET			
						1.5			******			
						15	ADD RUNG		7.938	.429	.000 c.m/s	
						27	HYDROGRA	APH DISPLA	Y		0/5	
							5 is	# of Hyeto	o/Hydrograp	h chosen		
						1.4		= .482089	93E+05 c.m			
						14	START	= .482089 Zero; 2=Dei				

35	COMMENT	4	CATCHMENT
	3 line(s) of comment **********		5.000 ID No. 99999 5.310 Area in hectares
	100-YEAR STORM EVENT		188.000 Length (PERV) metres
2	STORM		1.000 Gradient (%) 10.000 Per cent Impervious
	1 1=Chicago;2=Huff;3=User;4=Cdnlhr;5=Historic 1020.000 Coefficient a		188.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	4.700 Constant b (min)		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	.731 Exponent c .450 Fraction to peak r		.250 Manning "n" 74.000 SCS Curve No or C
	240.000 Duration 240 min		.100 Ia/S Coefficient
3	73.203 mm Total depth IMPERVIOUS		8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		.199 6.789 .429 .000 c.m/s
	.015 Manning "n" 98.000 SCS Curve No or C	15	.367 .904 .421 C perv/imperv/total ADD RUNOFF
	.100 Ia/S Coefficient .518 Initial Abstraction	4	.199 6.987 .429 .000 c.m/s CATCHMENT
35	COMMENT	-	6.000 ID No. 99999
	<pre>3 line(s) of comment ************************************</pre>		43.410 Area in hectares 538.000 Length (PERV) metres
	AREA NORTH OF QUAKER		1.000 Gradient (%)
4	**************************************		9.000 Per cent Impervious 538.000 Length (IMPERV)
	1.000 ID No. 99999		.000 %Imp. with Zero Dpth
	15.820 Area in hectares 325.000 Length (PERV) metres		.250 Manning "n"
	1.000 Gradient (%) 35.000 Per cent Impervious		74.000 SCS Curve No or C .100 Ia/S Coefficient
	325.000 Length (IMPERV)		8.924 Initial Abstraction
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.246 6.987 .429 .000 c.m/s
	.250 Manning "n"		.368 .915 .417 C perv/imperv/total
	74.000 SCS Curve No or C .100 Ia/S Coefficient	35	COMMENT 3 line(s) of comment
	8.924 Initial Abstraction		***************
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.566 .000 .429 .000 c.m/s</pre>		TOTAL FLOW AT FIRST AVENUE
1.5	.368 .924 .562 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF 1.566 1.566 .429 .000 c.m/s	9	1.246 8.233 .429 .000 c.m/s ROUTE
4	CATCHMENT 2.000 ID No. 99999		.000 Conduit Length .000 No Conduit defined
	13.570 Area in hectares		.000 Zero lag
	301.000 Length (PERV) metres 1.000 Gradient (%)		.000 Beta weighting factor .000 Routing timestep
	25.000 Per cent Impervious		0 No. of sub-reaches
	301.000 Length (IMPERV) .000 %Imp. with Zero Dpth	17	1.246 8.233 8.233 .000 c.m/s COMBINE
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		1 Junction Node No.
	.250 Manning "n" 74.000 SCS Curve No or C	14	1.246 8.233 8.233 8.233 c.m/s START
	.100 Ia/S Coefficient	35	1 1=Zero; 2=Define COMMENT
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	33	<pre>3 line(s) of comment</pre>
	.992 1.566 .429 .000 c.m/s .367 .923 .506 C perv/imperv/total		************ AREA SOUTH OF QUAKER
35	COMMENT		******
	<pre>3 line(s) of comment ************************************</pre>	4	CATCHMENT 7.000 ID No. 99999
	FLOW AT RICE ROAD		16.470 Area in hectares
15	**************************************		331.000 Length (PERV) metres 1.000 Gradient (%)
	.992 2.558 .429 .000 c.m/s		10.000 Per cent Impervious
4	CATCHMENT 3.000 ID No. 99999		331.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	14.520 Area in hectares		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	311.000 Length (PERV) metres 1.000 Gradient (%)		.250 Manning "n" 74.000 SCS Curve No or C
	35.000 Per cent Impervious 311.000 Length (IMPERV)		.100 Ia/S Coefficient
	.000 %Imp. with Zero Dpth		8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		.548 .000 8.233 8.233 c.m/s
	74.000 SCS Curve No or C	15	.368 .925 .423 C perv/imperv/total ADD RUNOFF
	.100 Ia/S Coefficient 8.924 Initial Abstraction	9	.548 .548 8.233 8.233 c.m/s
	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		.000 Conduit Length
	1.440 2.558 .429 .000 c.m/s .367 .923 .562 C perv/imperv/total		.000 No Conduit defined .000 Zero lag
15	ADD RUNOFF		.000 Beta weighting factor
4	1.440 3.998 .429 .000 c.m/s CATCHMENT		.000 Routing timestep 0 No. of sub-reaches
	4.000 ID No. 99999 45.500 Area in hectares	17	.548 .548 .548 8.233 c.m/s COMBINE
	551.000 Length (PERV) metres	17	1 Junction Node No.
	1.000 Gradient (%) 21.000 Per cent Impervious	18	.548 .548 .548 8.781 c.m/s CONFLUENCE
	551.000 Length (IMPERV)	10	1 Junction Node No.
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	4	.548 8.781 .548 .000 c.m/s CATCHMENT
	.250 Manning "n"		8.000 ID No. 99999
	74.000 SCS Curve No or C .100 Ia/S Coefficient		42.190 Area in hectares 530.000 Length (PERV) metres
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		1.000 Gradient (%) 9.000 Per cent Impervious
	2.790 3.998 .429 .000 c.m/s		530.000 Length (IMPERV)
15	.368 .916 .483 C perv/imperv/total ADD RUNOFF		.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	2.790 6.789 .429 .000 c.m/s		.250 Manning "n"
35	COMMENT 3 line(s) of comment		74.000 SCS Curve No or C .100 Ia/S Coefficient
	*********** AREA SOUTH OF QUAKER		8.924 Initial Abstraction
	AREA SOUTH OF QUAKER *********		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.214 8.781 .548 .000 c.m/s
		35	.368 .916 .417 C perv/imperv/total COMMENT
		35	<pre>3 line(s) of comment</pre>

		15	ADD RUNOFF 1.214 9.995 .548 .000 c.m/s
		27	HYDROGRAPH DISPLAY
			5 is # of Hyeto/Hydrograph chosen Volume = .6645652E+05 c.m
		14	START 1 1=Zero; 2=Define
			1 1-Belo/ A-Deline

Stormwater Management Plan 210, 256 & 276 Quaker Road, Cit	v of Welland	
-10, 10 00 1.0 Q umini 110ma, 0.10	, or	
		ADDENDAY
	Stormwater Man	APPENDIX I ragement Facility Calculations (P30
	Stormwater Wan	lagement Facinity Calculations (150

3-30 Hannover Drive

St. Catharines, ON, L2W 1A3

PROJECT NAME: 210, 256 & 276 QUAKER ROAD, CITY OF WELLAND

PROJECT NO.: 1601

PROPOSED NORTH WET POND CALCULATIONS (POND P30)									
Quality Orifice	Outlet Weir	Overflow Spillway	Outflow Pipe Orifice						
Diameter (m) = 0.135	Perimeter Length $(m) = 0.60$	Length $(m) = 2.50$	Diameter (m) = 0.450						
Cd = 0.63	Inlet Elevation $(m) = 180.10$	Slopes $(X:1) = 10.00$	Cd = 0.65						
Invert $(m) = 178.80$		Invert $(m) = 180.60$	Invert $(m) = 178.80$						
			Obvert $(m) = 179.25$						
Por	nd Drawdown Time Calculation (MC	DE, 2003)	Top of Pipe $(m) = 179.35$						
Water Surface Eleva	tion during 25mm Design Storm Event	= 179.28							
MOE Eq	uation 4.11 Drawdown Coefficient 'C2'	= 1,351							
MOE Eq	uation 4.11 Drawdown Coefficient 'C3'	= 2,711							
M	OE Equation 4.11 Drawdown Time (h)	= 29							
	Quality Orifice Diameter (m) = 0.135 Cd = 0.63 Invert (m) = 178.80 Por Water Surface Eleva MOE Equ	Quality Orifice Diameter (m) = 0.135 Cd = 0.63 Inlet Elevation (m) = 180.10 Invert (m) = 178.80 Pond Drawdown Time Calculation (MC) Water Surface Elevation during 25mm Design Storm Event MOE Equation 4.11 Drawdown Coefficient 'C2' MOE Equation 4.11 Drawdown Coefficient 'C3' MOE Equation 4.11 Drawdown Time (h)	Quality OrificeOutlet WeirOverflow SpillwayDiameter (m) = 0.135Perimeter Length (m) = 0.60Length (m) = 2.50Cd = 0.63Inlet Elevation (m) = 180.10Slopes (X:1) = 10.00Invert (m) = 178.80Invert (m) = 180.60 Pond Drawdown Time Calculation (MOE, 2003) Water Surface Elevation during 25mm Design Storm Event = 179.28 MOE Equation 4.11 Drawdown Coefficient 'C2' = 1,351 MOE Equation 4.11 Drawdown Coefficient 'C3' = 2,711 MOE Equation 4.11 Drawdown Time (h) = 29						

				Average						Max			
	Increment	Active	Surface	Surface	Increment	Permanent	Active	Quality	Ditch	Pipe	Overflow	Total	Average
Elevation	Depth	Depth	Area	Area	Volume	Volume	Volume	Orifice	Inlet	Orifice	Spillway	Outflow	Discharge
	(m)	(m)	(m2)	(m2)	(m3)	(m3)	(m3)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)
177.20		-1.60	812			0							
5:1 SLOPE	0.60			1,015	609								
177.80		-1.00	1,218			609							
5:1 SLOPE	0.50			1,410	705								
178.30		-0.50	1,602			1,314							
5:1 SLOPE	0.50			1,814	907								
178.80		0.00	2,026			2,221							
5:1 SLOPE													
178.80		0.00	2,741				0	0.000	0.000	0.000	0.000	0.000	
5:1 SLOPE	0.50			3,039	1,520								0.023
179.30		0.50	3,338				1,520	0.026	0.000	0.205	0.000	0.026	
5:1 SLOPE	0.80			3,912	3,130								0.161
180.10		1.30	4,486				4,649	0.044	0.000	0.458	0.000	0.044	
5:1 SLOPE	0.50			4,840	2,420								0.554
180.60		1.80	5,194				7,069	0.052	0.362	0.561	0.000	0.414	
5:1 SLOPE	0.20			5,341	1,068								0.809
180.80		2.00	5,488				8,137	0.055	0.599	0.597	0.607	1.204	
1													

Notes

- 1. Quality Orifice flow is the orifice controlling for the 24 hour detention period and uses an orifice formula.
- 2. Pipe Orifice flow is calcuated using an orifice formula on the pipe from the ditch inlet to the outlet and uses the total head on the orifice.
- 3. Overflow Weir flow is calculated using a trapezondial weir to convey outflow for less frequent storms through the embankment with an emergency spillway.
- 4. Total Outflow is calculated by adding the Overflow Spillway with the lowest of Quality Orifice plus Ditch Inlet or Max Pipe Orifice.

Stormwater Management Plan	
210, 256 & 276 Quaker Road, City of V	Welland
	APPENDIX C
	Stormwater Management Facility Calculations (P31)
	2001-1-11 (1001-1001-1001-1001-1001-1001-

3-30 Hannover Drive

St. Catharines, ON, L2W 1A3

PROJECT NAME: 210, 256 & 276 QUAKER ROAD, CITY OF WELLAND

PROJECT NO.: 1601

PROPOSED SOUTH WET POND CALCULATIONS (POND P31)											
Quality Requirements	Quality Orifice	Outlet Weir	Overflow Sp	illway	Ou	tflow Pipe Or	rifice				
Drainage Area (ha) = 12.96	Diameter (m) = 0.150	Perimeter Length $(m) = 0.60$	Length $(m) = 2$.	50	Ι	Diameter (m) =	0.450				
Enhanced $(m3/ha) = 233$	Cd = 0.63	Inlet Elevation $(m) = 179$	Slopes $(X:1) = 10$	0.00	Cd = 0.65						
Perm Pool $(m3/ha) = 193$	Invert $(m) = 178.30$		Invert $(m) = 18$	80.00	Invert $(m) = 178.30$						
Perm Pool Vol $(m3) = 2,501$						Obvert (m) =	178.75				
Active Vol (m3) 518	P	ond Drawdown Time Calculation	(MOE, 2003)		Top	of Pipe (m) =	178.85				
25mm MOE Volume = 2,114	Water Surface Ele	vation during 25mm Design Storm	Event = 178.84								
Water Level Elev. = 178.30 m	n MOE I	Equation 4.11 Drawdown Coefficien	1,193								
	MOE I	Equation 4.11 Drawdown Coefficien	1 'C3' = 2,819								
		MOE Equation 4.11 Drawdown Tir	ne (h) = 26								
	Average			Max							
Increment Active	Surface Surface Increme	ent Permanent Active Q	uality Ditch	Pipe	Overflow	Total	Average				
Elevation Depth Depth	Area Area Volun	ne Volume Volume O	rifice Inlet	Orifice	Spillway	Outflow	Discharge				

				Average						Max			
	Increment	Active	Surface	Surface	Increment	Permanent	Active	Quality	Ditch	Pipe	Overflow	Total	Average
Elevation	Depth	Depth	Area	Area	Volume	Volume	Volume	Orifice	Inlet	Orifice	Spillway	Outflow	Discharge
	(m)	(m)	(m2)	(m2)	(m3)	(m3)	(m3)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)
176.50		-1.80	872			0							
5:1 SLOPE	0.80			1,141	913								
177.30		-1.00	1,409			913							
5:1 SLOPE	1.00			1,821	1,821								
178.30		0.00	2,232			2,733							
178.30		0.00	2,888				0	0.000	0.000	0.000	0.000	0.000	
5:1 SLOPE	0.60			3,212	1,927								0.060
178.90		0.60	3,536				1,927	0.035	0.000	0.251	0.000	0.035	
5:1 SLOPE	0.70			3,950	2,765								0.080
179.60		1.30	4,363				4,692	0.054	0.000	0.458	0.000	0.054	
5:1 SLOPE	0.20			4,488	898								0.175
179.80		1.50	4,614				5,590	0.058	0.092	0.502	0.000	0.150	
5:1 SLOPE	0.20			4,742	948								0.798
180.00		1.70	4,870				6,538	0.062	0.259	0.542	0.000	0.321	
5:1 SLOPE	0.30			5,069	1,521								1.121
180.30		2.00	5,267				8,059	0.068	0.599	0.597	1.324	1.922	

Notes

- 1. Quality Orifice flow is the orifice controlling for the 24 hour detention period and uses an orifice formula.
- 2. Pipe Orifice flow is calcuated using an orifice formula on the pipe from the ditch inlet to the outlet and uses the total head on the orifice.
- 3. Overflow Weir flow is calculated using a trapezondial weir to convey outflow for less frequent storms through the embankment with an emergency spillway.
- 4. Total Outflow is calculated by adding the Overflow Spillway with the lowest of Quality Orifice plus Ditch Inlet or Max Pipe Orifice.

Stormwater Management Plan	
210, 256 & 276 Quaker Road, City of Welland	
	A DDENIDLY D
	APPENDIX D Future Conditions MIDUSS Output File
	Tuture conditions will cost output I in

Deve	elopment Conditions with SWM	4		.088	.088	.023	.000 c.m/s
Deve	Output File (4.7) 25MM.OUT opened 2024-10-16 18:02	4	CATCHMEN 13.000	ID No.ó	99999		
	Units used are defined by G = 9.810		6.980	Area in	hectares		
	24 144 10.000 are MAXDT MAXHYD & DTMIN values		216.000 1.000	Length (Gradient	PERV) metre	es	
35	Licensee: UPPER CANADA CONSULTANTS COMMENT		70.000		. (%) : Impervious	s	
33	4 line(s) of comment		216.000	Length (IMPERV)		
	STORMWATER MANAGEMENT PLAN		.000		th Zero Dpi		3=Green-Ampt; 4=Repeat
	QUAKER ROAD CITY OF WELLAND		.250	Manning		Z=HOI COII;	3=Green-Ampt; 4=Repeat
	FUTURE CONDITIONS		74.000		re No or C		
35	COMMENT		.100 8.924		efficient	_	
	<pre>3 line(s) of comment ************************************</pre>		1		Abstraction L=Trianglr;		lr; 3=SWM HYD; 4=Lin. Reserv
	25mm STORM EVENT			461	.088	.023	.000 c.m/s
_	************	15	ADD RUNO	.098 NEE	.804	.592	C perv/imperv/total
2	STORM 1 1=Chicago; 2=Huff; 3=User; 4=Cdn1hr; 5=Historic	13		461	.549	.023	.000 c.m/s
	512.000 Coefficient a	4	CATCHMEN				
	6.000 Constant b (min)		14.000 .670	ID No.6	99999 hectares		
	.800 Exponent c .450 Fraction to peak r		67.000		PERV) metre	es	
	240.000 Duration ó 240 min		1.000	Gradient			
3	25.035 mm Total depth IMPERVIOUS		60.000 67.000	Length (: Impervious	8	
3	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.000		th Zero Dpi	th	
	.015 Manning "n"		1			2=Horton;	3=Green-Ampt; 4=Repeat
	98.000 SCS Curve No or C .100 Ia/S Coefficient		.250 74.000	Manning SCS Curv	"n" re No or C		
	.518 Initial Abstraction		.100	Ia/S Coe	efficient		
35	COMMENT		8.924 1		Abstraction		lr; 3=SWM HYD; 4=Lin. Reserv
	3 line(s) of comment			.036	.549	.023	.000 c.m/s
	PROP DEVELOPMENT NORTH OF SEGMENT 1 - POND P10			.098	.798		C perv/imperv/total
	*******	15	ADD RUNO		504	000	000 /-
4	CATCHMENT 10.000 ID No.6 99999	27		.036 APH DISPLAY	.584	.023	.000 c.m/s
	4.050 Area in hectares		5 is	# of Hyeto	/Hydrograpl	h chosen	
	164.000 Length (PERV) metres	10		= .135028	36E+04 c.m		
	1.000 Gradient (%) 70.000 Per cent Impervious	10	POND 5 Depth -	Discharge	- Volume	sets	
	164.000 Length (IMPERV)		184.800	.00	00	.0	
	.000 %Imp. with Zero Dpth		185.300 186.100	.014			
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		186.100	.024			
	74.000 SCS Curve No or C		186.800	1.92	22 622		
	.100 Ia/S Coefficient		Peak Out	:flow = Depth =			
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv			Storage =	1163.		
	.264 .000 .000 .000 c.m/s			036	.584	.014	.000 c.m/s
15	.098 .806 .594 C perv/imperv/total ADD RUNOFF	14	START 1 1=Z	Zero; 2=Def	ine		
15	.264 .264 .000 .000 c.m/s	35	COMMENT	.010, 1-201			
4	CATCHMENT			ne(s) of co			
	11.000 ID No.6 99999 1.000 Area in hectares					AKER RD & 1	WEST OF RICE RD PON
	82.000 Length (PERV) metres		*****	*******			
	1.000 Gradient (%)	4	CATCHMEN		00000		
	10.000 Per cent Impervious 82.000 Length (IMPERV)		40.000 8.210	ID No.ó Area in	hectares		
	.000 %Imp. with Zero Dpth		234.000	Length (PERV) metre	es	
	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1.000 25.000	Gradient Per cent	: (%) : Impervious	9	
	.250 Manning "n" 74.000 SCS Curve No or C		234.000	Length (•	
	.100 Ia/S Coefficient		.000		th Zero Dp		
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		.250	Option 1 Manning		2=Horton;	3=Green-Ampt; 4=Repeat
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .009 .264 .000 .000 c.m/s		74.000	SCS Curv	re No or C		
	.098 .791 .168 C perv/imperv/total		.100		efficient Abstraction	_	
15	ADD RUNOFF .009 .273 .000 .000 c.m/s		8.924 1				lr; 3=SWM HYD; 4=Lin. Reserv
10	POND			193	.000	.014	.000 c.m/s
	6 Depth - Discharge - Volume sets	15	ADD RUNO	.098 NEE	.800	.274	C perv/imperv/total
	184.800 .000 .0 185.750 .0210 1.0	13		193	.193	.014	.000 c.m/s
	186.000 .0230 503.0	9	ROUTE				
	186.250 .0260 1091.0 186.500 .0280 1765.0		.000	Conduit No Condu	Length it defined		
	186.700 1.244 2370.0		.000	Zero lag			
	Peak Outflow = .023 c.m/s		.000		ghting fact	tor	
	Maximum Depth = 185.944 metres Maximum Storage = 390. c.m		.000		timestep sub-reaches		
	.009 .273 .023 .000 c.m/s			193	.193	.193	.000 c.m/s
14	START	17	COMBINE 2 Jun				
35	1 1=Zero; 2=Define COMMENT			nction Node .193	.193	.193	.193 c.m/s
33	3 line(s) of comment	14	START				
	******	4	1 1=Z CATCHMEN	Zero; 2=Def	ine		
	PROP DEVELOPMENT SOUTH OF SEGMENT 1 - POND P11	-	41.000	ID No.ó	99999		
4	CATCHMENT		.690		hectares		
	12.000 ID No.6 99999		68.000 1.000	Length (Gradient	PERV) metre	es	
	2.680 Area in hectares 134.000 Length (PERV) metres		35.000		: Impervious	s	
	1.000 Gradient (%)		68.000	Length (IMPERV)		
	35.000 Per cent Impervious		.000		th Zero Dpt		3=Green-Ampt; 4=Repeat
	134.000 Length (IMPERV) .000 %Imp. with Zero Dpth		.250	Manning		2-1101 (011)	J-01661 Ampe, 1-Repeat
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		74.000	SCS Curv	re No or C		
	.250 Manning "n"		.100 8.924		efficient Abstraction	n	
	74.000 SCS Curve No or C .100 Ia/S Coefficient		1	Option 1			lr; 3=SWM HYD; 4=Lin. Reserv
	8.924 Initial Abstraction			.022	.000	.193	.193 c.m/s
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	15	ADD RUNO	.098)FF	.798	.343	C perv/imperv/total
	.088 .000 .023 .000 c.m/s .098 .801 .344 C perv/imperv/total			.022	.022	.193	.193 c.m/s
15	ADD RUNOFF	4	CATCHMEN 42.000	TD No. ó	9999		

	12.640 Area in hectares 290.000 Length (PERV) metres		188.000 .880 12094.0 Peak Outflow = .041 c.m/s
	1.000 Gradient (%)		Maximum Depth = 186.594 metres
	70.000 Per cent Impervious		Maximum Storage = 3005. c.m
	290.000 Length (IMPERV)		.056 1.513 .041 .000 c.m/s
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=0	Troon-Ampt. 4-Ropost	START 1 1=Zero; 2=Define
	.250 Manning "n"	35	COMMENT
	74.000 SCS Curve No or C		3 line(s) of comment
	.100 Ia/S Coefficient		*****
	8.924 Initial Abstraction		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
	1 Option 1=Trianglr; 2=Rectanglr; .809 .022 .193 .1	3=SWM HYD; 4=Lin. Reserv L93 c.m/s 4	CATCHMENT
		erv/imperv/total	52.000 ID No.6 99999
15	ADD RUNOFF		6.430 Area in hectares
		193 c.m/s	207.000 Length (PERV) metres
9	ROUTE .000 Conduit Length		1.000 Gradient (%) 70.000 Per cent Impervious
	.000 No Conduit defined		207.000 Length (IMPERV)
	.000 Zero lag		.000 %Imp. with Zero Dpth
	.000 Beta weighting factor		<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	.000 Routing timestep		.250 Manning "n"
	0 No. of sub-reaches .809 .831 .831 .1	L93 c.m/s	74.000 SCS Curve No or C .100 Ia/S Coefficient
17	COMBINE	255 O.M., D	8.924 Initial Abstraction
	2 Junction Node No.		<pre>Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
		024 c.m/s	.426 .000 .041 .000 c.m/s
14	START 1 1=Zero; 2=Define	15	.098 .805 .593 C perv/imperv/total ADD RUNOFF
4	1 1=Zero; 2=Define CATCHMENT	15	.426 .426 .041 .000 c.m/s
-	43.000 ID No.6 99999	9	ROUTE
	.330 Area in hectares		.000 Conduit Length
	47.000 Length (PERV) metres		.000 No Conduit defined
	1.000 Gradient (%)		.000 Zero lag
	35.000 Per cent Impervious 47.000 Length (IMPERV)		.000 Beta weighting factor .000 Routing timestep
	.000 %Imp. with Zero Dpth		0 No. of sub-reaches
	1 Option 1=SCS CN/C; 2=Horton; 3=0	Green-Ampt; 4=Repeat	.426 .426 .426 .000 c.m/s
	.250 Manning "n"	17	COMBINE
	74.000 SCS Curve No or C		2 Junction Node No.
	.100 Ia/S Coefficient		.426 .426 .426 c.m/s
	<pre>8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr;</pre>	3=SWM HYD: 4=Lin. Reserv	START 1 1=Zero; 2=Define
		024 c.m/s 4	CATCHMENT
		erv/imperv/total	53.000 ID No.6 99999
15	ADD RUNOFF	- · · ·	11.340 Area in hectares
		024 c.m/s	275.000 Length (PERV) metres
4	CATCHMENT		1.000 Gradient (%)
	44.000 ID No.ó 99999 6.400 Area in hectares		70.000 Per cent Impervious 275.000 Length (IMPERV)
	207.000 Length (PERV) metres		.000 %Imp. with Zero Dpth
	1.000 Gradient (%)		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	70.000 Per cent Impervious		.250 Manning "n"
	207.000 Length (IMPERV)		74.000 SCS Curve No or C
	.000 %Imp. with Zero Dpth		.100 Ia/S Coefficient
	1 Option 1=SCS CN/C; 2=Horton; 3=0 .250 Manning "n"	Green-Ampt; 4=Repeat	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	74.000 SCS Curve No or C		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .731 .000 .426 .426 c.m/s
	.100 Ia/S Coefficient		.098 .798 .588 C perv/imperv/total
	8.924 Initial Abstraction	15	ADD RUNOFF
	<pre>1 Option 1=Trianglr; 2=Rectanglr;</pre>		.731 .731 .426 c.m/s
		024 c.m/s 9	ROUTE
15	.098 .805 .593 C pe	erv/imperv/total	.000 Conduit Length .000 No Conduit defined
13		024 c.m/s	.000 Zero lag
9	ROUTE		.000 Beta weighting factor
	.000 Conduit Length		.000 Routing timestep
	.000 No Conduit defined		0 No. of sub-reaches .731 .731 .731 .426 c.m/s
	.000 Zero lag .000 Beta weighting factor	17	.731 .731 .426 c.m/s COMBINE
	.000 Routing timestep	17	2 Junction Node No.
	0 No. of sub-reaches		.731 .731 1.157 c.m/s
		024 c.m/s 18	CONFLUENCE
17	COMBINE 2 Junction Node No.		2 Junction Node No731 1.157 .731 .000 c.m/s
		457 c.m/s 4	.731 1.157 .731 .000 c.m/s CATCHMENT
14	.424 .435 .435 1.4	T	54.000 ID No.6 99999
	1 1=Zero; 2=Define		1.280 Area in hectares
18	CONFLUENCE		92.000 Length (PERV) metres
	2 Junction Node No.	000 g m/g	1.000 Gradient (%)
4	.424 1.457 .433 .0	000 c.m/s	60.000 Per cent Impervious 92.000 Length (IMPERV)
•	45.000 ID No.6 99999		.000 %Imp. with Zero Dpth
	1.030 Area in hectares		<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	83.000 Length (PERV) metres		.250 Manning "n"
	1.000 Gradient (%)		74.000 SCS Curve No or C
	60.000 Per cent Impervious 83.000 Length (IMPERV)		.100 Ia/S Coefficient 8.924 Initial Abstraction
	.000 %Imp. with Zero Dpth		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	1 Option 1=SCS CN/C; 2=Horton; 3=0	Green-Ampt; 4=Repeat	.070 1.157 .731 .000 c.m/s
	.250 Manning "n"		.098 .786 .511 C perv/imperv/total
	74.000 SCS Curve No or C	15	ADD RUNOFF
	.100 Ia/S Coefficient 8.924 Initial Abstraction	27	.070 1.227 .731 .000 c.m/s HYDROGRAPH DISPLAY
	1 Option 1=Trianglr; 2=Rectanglr;		5 is # of Hyeto/Hydrograph chosen
		000 c.m/s	Volume = .2781534E+04 c.m
	.098 .791 .514 C pe	erv/imperv/total 10	POND
15	ADD RUNOFF		6 Depth - Discharge - Volume sets
		000 c.m/s	182.000 .000 .0
27	HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen		182.800 .0190 5251.0 183.150 .0230 7895.0
	Volume = .3593299E+04 c.m		183.500 .238 10751.0
10	POND		183.800 .396 13425.0
10			184.000 1.028 15337.0
10	6 Depth - Discharge - Volume sets		184.000 1.026 15337.0
10	6 Depth - Discharge - Volume sets 186.000 .000 .0		Peak Outflow = .009 c.m/s
10	6 Depth - Discharge - Volume sets 186.000 .000 .0 186.800 .0550 4048.0		Peak Outflow = .009 c.m/s Maximum Depth = 182.397 metres
10	6 Depth - Discharge - Volume sets 186.000 .000 .0 186.800 .0550 4048.0 187.300 .0730 7091.0		Peak Outflow = .009 c.m/s Maximum Depth = 182.397 metres Maximum Storage = 2607. c.m
10	6 Depth - Discharge - Volume sets 186.000 .000 .0 186.800 .0550 4048.0	14	Peak Outflow = .009 c.m/s Maximum Depth = 182.397 metres

```
1=Zero; 2=Define
35
         COMMENT
          line(s) of comment
         PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30
          CATCHMENT
        30.000
                      ID No.ó 99999
                       Area in hectares
Length (PERV) metres
         8.470
          .200
                       Gradient (%)
       .100
238.000
                       Per cent Impervious
Length (IMPERV)
                       **Simple tamperv)
% Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
Manning "n"
          .000
           .250
        74.000
                       SCS Curve No or C
Ia/S Coefficient
         8.924
                       Initial Abstraction
                       Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 07 .000 .009 .000 c.m/s 98 .803 .099 C perv/imperv/total
                                                              .000 c.m/s
C perv/imperv/total
                    .098
         ADD RUNOFF
                   .007
                                 .007
                                                 .009
                                                                 .000 c.m/s
         CATCHMENT
                       ID No.6 99999
        31.000
        10.420
                       Area in hectares
                       Length (PERV) metres
Gradient (%)
       264.000
         1.000
                       Per cent Impervious
        75.000
       264.000
                       Length (IMPERV)
                       Nempth (IMPERV)

**Simp. with Zero Dpth

Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
                       Manning "n"
SCS Curve No or C
Ia/S Coefficient
           .250
        74.000
           .100
                   Initial Abstraction
Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
.723 .007 .009 .000 c.m/s
                                           .009 .000 c.m/s
.623 C perv/imperv/total
                             .007
.798
15
         ADD RUNOFF
                   .723
                                  .724
                                                 . 009
                                                                 .000 c.m/s
         HYDROGRAPH DISPLAY
is # of Hyeto/Hydrograph chosen
         Volume
                   = .1834827E+04 c.m
          CATCHMENT
                       ID No.6 99999
        32,000
        .690
68.000
                       Area in hectares
Length (PERV) metres
                       Gradient (%)
Per cent Impervious
Length (IMPERV)
         1,000
        68.000
                       Simp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
Manning "n"
           .000
           .250
                       SCS Curve No or C
        74.000
          8.924
                       Initial Abstraction
                       Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 37 .724 .009 .000 c.m/s 98 .518 C perv/imperv/total
                   .098
15
         ADD RUNOFF
                   .037
                                  .760
                                                                 .000 c.m/s
27
         HYDROGRAPH DISPLAY
         is # of Hyeto/Hydrograph chosen
Volume = .1924289E+04 c.m
10
         POND
          Depth - Discharge - Volume sets
         178.800
                      .000
                                       1520.0
         179.300
180.100
                            .0440
                                            4649.0
7069.0
          180.600
                              .414
         180.600 .414 7069.0
180.800 1.204 8137.0
Peak Outflow = .025 c.m/s
Maximum Depth = 179.280 metres
Maximum Storage = 1460. c.m
                                 = 1460. c.m
.760 .025
                                                                 .000 c.m/s
                  .037
14
         START
         1 1=Zero; 2=Define
COMMENT
          line(s) of comment
         PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
          CATCHMENT
        33,000
                      ID No.ó 99999
       12.960
294.000
                       Area in hectares
Length (PERV) metres
                       Gradient (%)
Per cent Impervious
Length (IMPERV)
         1.000
       294.000
                       Simp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
Manning "n"
          .000
           .250
        74.000
                        SCS Curve No or C
                        Ia/S Coefficient
         8.924
                       Initial Abstraction
                  Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
.887 .000 .025 .000 c.m/s
.098 .801 .625 C perv/imperv/total
         ADD RUNOFF
                                  .887
                                                 .025
                                                                 .000 c.m/s
         HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .2028780E+04 c.m
27
          CATCHMENT
                       ID No.6 99999
           .660
                       Area in hectares
        66.000
                       Length (PERV) metres
```

```
1.000
                     Per cent Impervious
       60.000
       66.000
                     Length (IMPERV)
         .000
                     Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                     Manning "n"
SCS Curve No or C
          . 250
          .100
                     Ia/S Coefficient
                    Initial Abstraction
Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
        8.924
                 .036
                           .887
                                          .025
.518
                                                        .000 c.m/s
                                                       C perv/imperv/total
        .098
ADD RUNOFF
        .036
HYDROGRAPH DISPLAY
                              .922
                                           .025
                                                          .000 c.m/s
              is # of Hyeto/Hydrograph chosen
        Volume = .2114417E+04 c.m
       6 Depth - Discharge - Volume sets
                        .000
        178.300
        178.900
        179.600
                         .0540
                                       4692.0
        179.800
180.000
                         .150
                                       5590.0
                                       6538.0
                        1.922
        180.300
                                       8059.0
        180.300 1.922 8059.0

Peak Outflow = .032 c.m/s

Maximum Depth = 178.844 metres

Maximum Storage = 1746. c.m

.036 .922 .032
                                                          .000 c.m/s
14
        START
              1=Zero; 2=Define
```

35	COMMENT							82.000		(PERV) metr	es		
		e(s) of c			*****			1.000 10.000	Gradien	nt (%) nt Imperviou	_		
	2-YEAR S							82.000		(IMPERV)	s		
				******	******	*****		.000		with Zero Dp	th		
2	STORM							1			2=Horton;	3=Green-Ampt;	4=Repeat
	1			=User;4=Cd	n1hr;5=Historic			.250	Manning				
	755.000 8.000	Constan	ient a t b (mi	>				74.000 .100		rve No or C			
	.789	Exponen		.11)				8.924		Abstraction	n		
	.450		n to peak	r				1				lr; 3=SWM HYD;	4=Lin. Reserv
	240.000		n ó 240 mi						.015	.406	.941	.941 c.m/s	
		38.971 m	m Total	depth					.194	.858	.261	C perv/imperv/	total
3	IMPERVIOU						15	ADD RUNG					
	.015	Option Manning		2=Horton;	3=Green-Ampt; 4	=Repeat	10	POND	.015	.422	.941	.941 c.m/s	
	98.000		ve No or C						- Dischard	ge - Volume	sets		
	.100		efficient					184.800		000	.0		
	.518	Initial	Abstractio	on				185.750	.02		1.0		
35	COMMENT							186.000	.02		3.0		
		e(s) of c						186.250	.02				
			T OF SEGMEN	rer 1				186.500 186.700	.02 1.2				
	******							Peak Out					
4	CATCHMENT									186.128			
	1.000	ID No.6	99999						Storage =				
	17.520		hectares						.015	.422	.025	.941 c.m/s	
	343.000		(PERV) metr	es			17	COMBINE					
	1.000 35.000	Gradien	t (%) t Imperviou						nction Nod .015	1e No. .422	.025	963 a m/a	
	343.000		(IMPERV)	ıs			14	START	.015	.422	.025	.963 c.m/s	
	.000		ith Zero Dr	oth					Zero; 2=De	efine			
	1	Option	1=SCS CN/C;		3=Green-Ampt; 4	=Repeat	18	CONFLUE	NCE				
	.250	Manning							nction Nod				
	74.000		ve No or C						.015	.963	.025	.000 c.m/s	
	.100		efficient	_			35	COMMENT	(-)				
	8.924 1		Abstraction 1=Trianglr:		lr; 3=SWM HYD; 4	=Lin. Reserv			ne(s) of c ******				
		896	.000	.000	.000 c.m/s	-DIM: Kebelv		REALIGN	ED CHANNEL	- SEGMENT	1		
		194	.857	.426	C perv/imperv/to	tal		*****	******	r			
15	ADD RUNOI						4	CATCHMEN					
		896	.896	.000	.000 c.m/s			101.000	ID No.ó				
35	COMMENT	- / - > - # -						.610		hectares			
	3 line	e(s) of c						64.000		(PERV) metr	es		
			- SEGMENT	1				1.000 10.000	Gradien	ıt (%) ıt Imperviou			
	******			-				64.000		(IMPERV)	.5		
4	CATCHMENT	г						.000		with Zero Dp	th		
	100.000	ID No.6	99999					1				3=Green-Ampt;	4=Repeat
	2.020	Area in	hectares					.250	Manning				
	116.000		(PERV) metr	es				74.000		ve No or C			
	.400	Gradien						.100		efficient			
	15.000		t Imperviou	ıs				8.924		Abstraction			
	116.000							1		I=Triangir;	2=Rectang	lr; 3=SWM HYD;	4=Lin. Reserv
			(IMPERV)							0.63	005	000/-	
	.000	%Imp. w	ith Zero Dp		3=Croon-Ampt. 4	-Popost			.010	.963	.025	.000 c.m/s	total
		%Imp. w	rith Zero Dr 1=SCS CN/C;		3=Green-Ampt; 4	=Repeat	15		.194	.963 .855		.000 c.m/s C perv/imperv/	total
	.000 1	%Imp. w Option Manning	rith Zero Dr 1=SCS CN/C;		3=Green-Ampt; 4	=Repeat	15	ADD RUNG	.194				total
	.000 1 .250	%Imp. w Option Manning SCS Cur	rith Zero Dr 1=SCS CN/C; "n"		3=Green-Ampt; 4	=Repeat	15 9	ADD RUNG	.194 OFF	.855	.260	C perv/imperv/	total
	.000 1 .250 74.000 .100 8.924	%Imp. w Option Manning SCS Cur Ia/S Co Initial	rith Zero Dr 1=SCS CN/C; "n" ve No or C refficient Abstractio	2=Horton;				ADD RUNG ROUTE	.194 OFF .010 Conduit	.855 .972	.260	C perv/imperv/	total
	.000 1 .250 74.000 .100 8.924	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option	rith Zero Dr 1=SCS CN/C; "n" rve No or C refficient Abstraction 1=Trianglr;	e 2=Horton; on : 2=Rectang	lr; 3=SWM HYD; 4			ADD RUNG ROUTE .000	.194 OFF .010 Conduit No Cond	.855 .972 : Length duit defined	.260	C perv/imperv/	total
	.000 1 .250 74.000 .100 8.924 1	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option	rith Zero Dr 1=SCS CN/C; "n" ve No or C refficient Abstraction 1=Trianglr; 896	e 2=Horton; on 2=Rectang	lr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000	.194 OFF .010 Conduit No Cond Zero la	.855 .972 : Length duit defined	.025	C perv/imperv/	total
35	.000 1 .250 74.000 .100 8.924 1	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option	rith Zero Dr 1=SCS CN/C; "n" rve No or C refficient Abstraction 1=Trianglr;	e 2=Horton; on 2=Rectang	lr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNC ROUTE .000 .000 .000	.194 OFF .010 Conduit No Cond Zero la Beta we	.855 .972 : Length duit defined ag eighting fac	.025	C perv/imperv/	total
35	.000 1 .250 74.000 .100 8.924 1	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option 046	rith Zero Dr 1=SCS CN/C; "n" ve No or C efficient Abstractic 1=Trianglr; .896 .862	e 2=Horton; on 2=Rectang	lr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000	.194 OFF .010 Conduit No Cond Zero la Beta we Routing	.855 .972 : Length duit defined ag sighting fac g timestep	.260 .025	C perv/imperv/	total
35	.000 1 .250 74.000 .100 8.924 1	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option 046 194 e(s) of co	rith Zero Dr 1=SCS CN/C; """ ve No or C tefficient Abstractic 1=Trianglr; .896 .862	e 2=Horton; on 2=Rectang	lr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000 .000	.194 OFF .010 Conduit No Cond Zero la Beta we Routing	.855 .972 : Length duit defined ag eighting fac	.260 .025	C perv/imperv/	total
35	.000 1 .250 74.000 .100 8.924 1 COMMENT 3 lim ************************************	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option 046 194 e(s) of c	rith Zero Dr 1=SCS CN/C; "n" ve No or C efficient Abstractic 1=Trianglr; .896 .862 comment	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000 .000	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of	.855 .972 : Length duit defined ag eighting fac g timestep sub-reaches	.260 .025	C perv/imperv/	total
35	.000 1 .250 74.000 .100 8.924 1 	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option 046 194 e(s) of c	rith Zero Dr 1=SCS CN/C; "n" ve No or C efficient Abstractic 1=Trianglr; .896 .862 comment	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv	9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 nction Nod	.855 .972 : Length duit defined ag sighting fac g timestep sub-reaches .972	.260 .025	C perv/imperv/ .000 c.m/s	total
35	.000 1 .250 74.000 .100 8.924 1 COMMENT 3 line ************************************	%Imp. w Option Manming SCS Cur Ia/S Co Initial Option 046 194 e(s) of c ********** FFT ROADW	rith Zero Dr 1=SCS CN/C; 'n" ve No or C efficient Abstractic 1=Trianglr; .896 .862 .802	2=Horton; on 2=Rectang .000 .294	lr; 3=swm HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv	9	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of	.855 .972 : Length duit defined ag sighting fac g timestep sub-reaches .972	.260 .025	C perv/imperv/	total
15	.000 1 .250 74.000 .100 8.924 1 COMMENT 3 line ************************************	%Imp. w Option Manning SCS Cur Ia/S Co Initial Option 046 194 e(s) of c	rith Zero Dr 1=SCS CN/C; "n" ve No or C efficient Abstractic 1=Trianglr; .896 .862 comment	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv	9	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 nction Nod	.855 .972 : Length that defined to sighting fac to timestep sub-reaches .972 tle No972	.260 .025 tor	C perv/imperv/ .000 c.m/s	total
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15	.000 1 .250 74.000 .100 8.924 1	%Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment .941 Length uit defined g ighting fac timestep	on 2=Rectang .000 .294	lr; 3=swm HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 1=: COMMENT 3 1:: PROP DEW ************************************	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 Length duit defined as sighting fac timestep sub-reaches .972 de No972 effine comment	.260 .025 tor .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s	total
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15 9 17	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ********** ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	%Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	rith Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment TAY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 le No941	on 2=Rectang .000 .294	clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DPF .010 Conduit No Cond Zero la Beta we Routing No. of .010 action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 Length duit defined grighting fac grimestep sub-reaches .972 de No972 sfine comment south OF SE 6 699999 hectares (PERV) metr at (%) tt Imperviou (IMPERV)	.260 .025 tor .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s	total
15 9 17	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ************************************	%Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment WAY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 le No941 ffine	on 2=Rectang .000 .294	clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined ug sighting fac g timestep sub-reaches .972 de No972 de No972 de No972 de No972 de to timestep south of SE (FERV) metr tt (%) ut Imperviou (IMPERV) with Zero Dp	.260 .025 tor .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s	
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15 9 17 14	.000 1 .250 74.000 .100 8.924 1 COMMENT 3 line ********* ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	%Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g tighting fac timestep sub-reaches .941 te No941 fine	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined us injuting fac timestep sub-reaches .972 de No972 de No972 define comment .972 sfine comment .972 (PERV) metric (PERV) metric (NPERV) rith Zero Dp 1=SCS CN/C; y "n"	.260 .025 tor .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s	
15 9 17 14	.000 1 .250 74.000 .100 8.924 1 COMMENT 3 line ********* ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c***********************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment TAY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 the No941 fine comment	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined ug sighting fac g timestep sub-reaches .972 de No972 de No972 de No972 de in the comment south OF SE (SERV) metrate (PERV) metrate (IMPERV) at Imperviou (IMPERV) with Zero Dp 1=SCS CN/C; g "n"	.260 .025 tor .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s	
15 9 17 14	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ********** ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	%Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 a(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment TAY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 the No941 fine comment	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DOFF DOFF DOFF DOFF DOFF DOFF DOFF DOF	.855 .972 : Length duit defined us injuting fac timestep sub-reaches .972 de No972 de No972 define comment .972 sfine comment .972 (PERV) metric (PERV) metric (NPERV) rith Zero Dp 1=SCS CN/C; y "n"	.260 .025 tor .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s	
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15 9 17 14 35	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ********* AD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option V46 194 e(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length wit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3 .001 .941 .941	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 =: COMMENT 3 lii ***********************************	.194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined us sighting fac timestep sub-reaches .972 de No972 efine comment .972 south OF SE .9999 in hectares (PERV) metric (NERV) metric (NERV) metric (IMPERV) with Zero Dp 1=SCS CN/C; """ ve No or C befficient Labstractio 1=Trianglr; .000	.260 .025 tor .972 .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt;	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ********** ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 (e(s) of c***********************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 fine comment NORTH OF SE 199999 19999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 19999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 199999 1	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3 .001 .941 .941	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 1=: COMMENT 3 1:: ***********************************	194 DOFF DOFF DOFF DOFF DOFF DOFF DOFF DOF	.855 .972 Length duit defined as sighting fac g timestep sub-reaches .972 de No972 effine comment SOUTH OF SE (PERV) metrit (%) tit Imperviou (IMPERV) rith Zero Dp 1=SCS CN/C; g "n" Lesco CN/C; to coefficient Abstractio Letrianglr;	.260 .025 tor .972 .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s .972 c.m/s POND F11 3=Green-Ampt;	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ********* AD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Itis2 Co Initial Option 046 194 e(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length wit defined gighting fac timestep sub-reaches .941 fine comment NORTH OF SE	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 == COMMENT 3 lir ********* ********** 12.000 2.680 134.000 1.000 35.000 134.000 .000 1.000 34.000 1.000 34.000 1.000	.194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined gg inghting fac g timestep sub-reaches .972 de No972 efine comment south of SE	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ************************************	%IMP. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g idphting fac timestep sub-reaches .941 fine comment NORTH OF SE 199999 hectares (PERV) metr tt imperviou	on 2=Rectang .000 .294	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 1=: COMMENT 3 1:: PROP DEV ************************************	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined us sighting fac timestep sub-reaches .972 de No972 efine comment .972 south OF SE .9999 in hectares (PERV) metric (NERV) metric (NERV) metric (IMPERV) with Zero Dp 1=SCS CN/C; """ ve No or C befficient Labstractio 1=Trianglr; .000	.260 .025 tor .972 .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt;	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 1.100 8.924 1	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c **********************************	rith Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) t Impervious t imprevious	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3:tor .941 .941	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 1=: COMMENT 1 1=: COMMENT 2 1: ************************************	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 Length duit defined desighting fac g timestep sub-reaches .972 de No972 efine comment f SOUTH OF SE f G 99999 h hectares (PERV) metr tt (%) tt Imperviou (IMPERV) yith Zero Dp 1=SCS CN/C; g "n" ve No or C cefficient Abstractio 1=Trianglr; .000 .850 .134	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ********** AD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 a(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou (IMPERV) itt Zero Dr	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3 .941 .941 .941	Clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s	=Lin. Reserv	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 == COMMENT 3 lin ************************************	.194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 sfine comment . SOUTH OF SE . SOUTH OF SE . (PERV) metrit (%) tit Imperviou (IMPERV) with Zero Dp 1=SCS CN/C; """ TVE No or C befficient L Abstractio 1=Trianglr; .000 .850 .134	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 1.100 8.924 1	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 a(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fact timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (W) tt (W) terv) pil=SCS CN/C;	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3 .941 .941 .941	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 1=: COMMENT 1 1=: COMMENT 2 1: ************************************	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 Length duit defined desighting fac g timestep sub-reaches .972 de No972 efine comment f SOUTH OF SE f G 99999 h hectares (PERV) metr tt (%) tt Imperviou (IMPERV) yith Zero Dp 1=SCS CN/C; g "n" ve No or C cefficient Abstractio 1=Trianglr; .000 .850 .134	.260 .025 tor .972 .972 .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ********** ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Itis2 Co Initial Option 046 194 e(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fact timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (W) tt (W) terv) pil=SCS CN/C;	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3 .941 .941 .941	Clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s	=Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 COMBINE 1	194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 de No972 sfine comment . SOUTH OF SE . SO	.260 .025 tor .972 .972 .972 .972	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 1.100 8.924 1	*Imp. w Option Manning SCS Cur Initial Option 1046 194 e(s) of c **********************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) t Imperviou (IMPERV) citner even or C venficient	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 3:tor .941 .941 .941 .941	Clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s	=Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 Length duit defined grighting fac grimestep sub-reaches .972 de No972 sfine comment SOUTH OF SE SOUTH OF	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1 .250 74.000 .100 8.924 1 .(COMMENT 3 line ********** AD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C efficient Abstractic 1=Trianglr; .896 .862 comment Ay CULVERT .941 Length uit defined gighting fac timestep sub-reaches .941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou tt Impervi	2=Rectang .000 .294 - SEGMENT .000 .294 .000 .000 .000 .000 .000 .000 .000 .0	Alr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND P10	=Lin. Reserv tal =Repeat	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De me(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 sfine comment to timestep sub-reaches .972 de No972 sfine comment to timestep sub-reaches .972 ide No972 ide No	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ********** ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 (e(s) of c **********************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou (IMPERV) rith Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic abstractic abstractic abstractic eleficient Abstractic abstractic eleficient eleficient abstractic eleficient ele	2=Horton; 2=Rectang .000 .294 - SEGMENT .000 2:tor .941 .941 .941 .941 .941 .941 .941	Clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND P10 3=Green-Ampt; 4	=Lin. Reserv tal =Repeat	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 de No9999 de Nectares (PERV) metrit (%) de Trianglr; .000 .134 de 199999 de Nectares (PERV) metrit (%) de Timperviou (IMPERV)	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es s	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; 1r; 3=SWM HYD; .972 c.m/s C perv/imperv/ .972 c.m/s	4=Repeat 4=Lin. Reserv total
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined gighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (R) tt Imperviou (IMPERV) with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .000	2=Rectang .000 .294 - SEGMENT .000 .294 - SEGMENT .000 .001 .001 .001 .001 .001 .001 .00	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND Pl0 3=Green-Ampt; 4	=Lin. Reserv tal =Repeat =Lin. Reserv	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DPF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Coro; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 sfine :comment : SOUTH OF SE :	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es s	C perv/imperv/ .000 c.m/s .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; lr; 3=SWM HYD; .972 c.m/s C perv/imperv/	4=Repeat 4=Lin. Reserv total
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .(COMMENT 3 line ************************************	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 e(s) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou (IMPERV) rith Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic abstractic abstractic abstractic eleficient Abstractic abstractic eleficient eleficient abstractic eleficient ele	2=Rectang .000 .294 - SEGMENT .000 .294 - SEGMENT .000 .001 .001 .001 .001 .001 .001 .00	Clr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND P10 3=Green-Ampt; 4	=Lin. Reserv tal =Repeat =Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	194 DOFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De ne(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 de No.	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es s	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; 1r; 3=SWM HYD; .972 c.m/s C perv/imperv/ .972 c.m/s	4=Repeat 4=Lin. Reserv total
15 9 17 14 35	.000 1.250 74.000 1.100 8.924 1	*Imp. w Option Manning SCS Cur Ita/S CC Initial Option 046 194 ets) of c **********************************	with Zero Dr 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou (IMPERV) cith Zero Dr 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .000 .857	2=Rectang .000 .294 - SEGMENT .000 .000 .294 - SEGMENT .000 .001 .001 .001 .001 .001 .001 .00	clr; 3=swm HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND P10 3=Green-Ampt; 4 .941 c.m/s C perv/imperv/to	=Lin. Reserv tal =Repeat =Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Acro; 2=De ne(s) of c ************************************	.855 .972 Length duit defined desighting fac g timestep sub-reaches .972 de No972 sfine comment SOUTH OF SE SOUTH	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es s	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; 1r; 3=SWM HYD; .972 c.m/s C perv/imperv/ .972 c.m/s	4=Repeat 4=Lin. Reserv total
15 9 17 14 35 4	.000 1.250 74.000 1.100 8.924 1 COMMENT 3 line ************************************	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 (a(s)) of c ************************************	with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined gighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (R) tt Imperviou (IMPERV) with Zero Dr 1=SCS CN/C; "n" ve No or C tefficient Abstractic 1=Trianglr; .000	2=Rectang .000 .294 - SEGMENT .000 .294 - SEGMENT .000 .001 .001 .001 .001 .001 .001 .00	lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND Pl0 3=Green-Ampt; 4	=Lin. Reserv tal =Repeat =Lin. Reserv	9 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Zero; 2=De me(s) of c ************************************	.855 .972 : Length duit defined usighting fac timestep sub-reaches .972 de No972 sfine comment to the sub-reaches .972 sfine comment to the sub-reaches .972 sfine comment to the sub-reaches .972 significant to the sub-reaches .972 significant sub-reaches .972 significa	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang .972 .424 .972 es s th 2=Horton;	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; 1r; 3=SWM HYD; .972 c.m/s C perv/imperv/ .972 c.m/s	4=Repeat 4=Lin. Reserv total
15 9 17 14 35	.000 1.250 74.000 1.100 8.924 1	*Imp. w Option Manning SCS Cur Ia/S CC Initial Option 046 194 (a(s)) of c ************************************	with Zero Dg 1=SCS CN/C; "n" ve No or C vefficient Abstractic 1=Trianglr; .896 .862 comment AY CULVERT .941 Length uit defined g ighting fac timestep sub-reaches .941 de No941 fine comment NORTH OF SE (PERV) metr tt (%) tt Imperviou (IMPERV) reaches (PERV) metr tt (%) tt Tero Dg 1=SCS CN/C; "n" ve No or C cefficient Abstractic .900 .857 .406	2=Rectang .000 .294 - SEGMENT .000 .000 .294 - SEGMENT .000 .001 .001 .001 .001 .001 .001 .00	clr; 3=swm HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s .941 c.m/s POND P10 3=Green-Ampt; 4 .941 c.m/s C perv/imperv/to	=Lin. Reserv tal =Repeat =Lin. Reserv	9 17 14 35 4	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.194 DFF .010 Conduit No Cond Zero la Beta we Routing No. of .010 Action Nod .010 Cero; 2=De ne(s) of c ************************************	.855 .972 c Length duit defined as gidheing fac g timestep sub-reaches .972 de No972 de	.260 .025 tor .972 .972 .972 GMENT 1 - es s th 2=Horton; n 2=Rectang972 .424 .972 es s th 2=Horton;	C perv/imperv/ .000 c.m/s .000 c.m/s .972 c.m/s POND P11 3=Green-Ampt; 1r; 3=SWM HYD; .972 c.m/s C perv/imperv/ .972 c.m/s	4=Repeat 4=Lin. Reserv total 4=Repeat

15	.194 .867 .665 C perv/imperv/total ADD RUNOFF		74.000 SCS Curve No or C .100 Ia/S Coefficient
	.704 .838 .972 .972 c.m/s		8.924 Initial Abstraction
4	CATCHMENT		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	14.000 ID No.6 99999 .670 Area in hectares		1.302 .036 .300 .300 c.m/s .194 .863 .662 C perv/imperv/total
	67.000 Length (PERV) metres	15	ADD RUNOFF
	1.000 Gradient (%)	_	1.302 1.333 .300 .300 c.m/s
	60.000 Per cent Impervious 67.000 Length (IMPERV)	9	ROUTE .000 Conduit Length
	.000 %Imp. with Zero Dpth		.000 No Conduit defined
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		.000 Zero lag .000 Beta weighting factor
	74.000 SCS Curve No or C		.000 Beta weighting factor .000 Routing timestep
	.100 Ia/S Coefficient		0 No. of sub-reaches
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	17	1.302 1.333 1.333 .300 c.m/s COMBINE
	.060 .838 .972 .972 c.m/s		2 Junction Node No.
15	.194 .856 .592 C perv/imperv/total ADD RUNOFF	14	1.302 1.333 1.333 1.633 c.m/s START
	.060 .889 .972 .972 c.m/s		1 1=Zero; 2=Define
27	HYDROGRAPH DISPLAY	4	CATCHMENT
	5 is # of Hyeto/Hydrograph chosen Volume = .2406793E+04 c.m		43.000 ID No.6 99999 .330 Area in hectares
10	POND		47.000 Length (PERV) metres
	5 Depth - Discharge - Volume sets 184.800 .000 .0		1.000 Gradient (%) 35.000 Per cent Impervious
	185.300 .0140 1142.0		47.000 Length (IMPERV)
	186.100 .0240 3519.0		.000 %Imp. with Zero Dpth
	186.500 .287 4978.0 186.800 1.922 6222.0		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	Peak Outflow = .018 c.m/s		74.000 SCS Curve No or C
	Maximum Depth = 185.633 metres		.100 Ia/S Coefficient
	Maximum Storage = 2132. c.m .060 .889 .018 .972 c.m/s		8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
35	COMMENT		.018 .000 1.333 1.633 c.m/s
	3 line(s) of comment	15	.194 .858 .426 C perv/imperv/total ADD RUNOFF
	FLOW U/S OF RICE RD CULVERT - OUTLET A1	13	.018 .018 1.333 1.633 c.m/s
	*********	4	CATCHMENT
17	COMBINE 1 Junction Node No.		44.000 ID No.6 99999 6.400 Area in hectares
	.060 .889 .018 .983 c.m/s		207.000 Length (PERV) metres
14	START		1.000 Gradient (%) 70.000 Per cent Impervious
35	1 1=Zero; 2=Define COMMENT		70.000 Per cent Impervious 207.000 Length (IMPERV)
	<pre>3 line(s) of comment</pre>		.000 %Imp. with Zero Dpth
	**************************** PROP DEVELOPMENT SOUTH OF QUAKER RD & WEST OF RICE RD PON		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	***********		74.000 SCS Curve No or C
4	CATCHMENT 40.000 ID No.6 99999		.100 Ia/S Coefficient 8.924 Initial Abstraction
	40.000 ID No.6 99999 8.210 Area in hectares		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	234.000 Length (PERV) metres		.646 .018 1.333 1.633 c.m/s
	1.000 Gradient (%) 25.000 Per cent Impervious	15	.194 .866 .665 C perv/imperv/total ADD RUNOFF
	234.000 Length (IMPERV)	13	.646 .660 1.333 1.633 c.m/s
	.000 %Imp. with Zero Dpth Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat	9	ROUTE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		.000 Conduit Length .000 No Conduit defined
	74.000 SCS Curve No or C		.000 Zero lag
	.100 Ia/S Coefficient 8.924 Initial Abstraction		.000 Beta weighting factor .000 Routing timestep
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		0 No. of sub-reaches
	.300 .000 .018 .983 c.m/s		.646 .660 .660 1.633 c.m/s
15	.194 .868 .363 C perv/imperv/total ADD RUNOFF	17	COMBINE 2 Junction Node No.
	.300 .300 .018 .983 c.m/s		.646 .660 .660 2.293 c.m/s
9	ROUTE .000 Conduit Length	14	START 1 1=Zero; 2=Define
	.000 No Conduit defined	18	CONFLUENCE
	.000 Zero lag		2 Junction Node No.
	.000 Beta weighting factor .000 Routing timestep	4	.646 2.293 .660 .000 c.m/s
	0 No. of sub-reaches	-	45.000 ID No.6 99999
17	.300 .300 .300 .983 c.m/s COMBINE		1.030 Area in hectares
17	2 Junction Node No.		83.000 Length (PERV) metres 1.000 Gradient (%)
	.300 .300 .300 c.m/s		60.000 Per cent Impervious
14	START 1 1=Zero; 2=Define		83.000 Length (IMPERV) .000 %Imp. with Zero Dpth
4	CATCHMENT		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	41.000 ID No.6 99999		.250 Manning "n"
	.690 Area in hectares 68.000 Length (PERV) metres		74.000 SCS Curve No or C .100 Ia/S Coefficient
	1.000 Gradient (%)		8.924 Initial Abstraction
	35.000 Per cent Impervious 68.000 Length (IMPERV)		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .088 2.293 .660 .000 c.m/s</pre>
	.000 %Imp. with Zero Dpth		.194 .857 .592 C perv/imperv/total
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	15	ADD RUNOFF
	.250 Manning "n" 74.000 SCS Curve No or C	27	.088 2.374 .660 .000 c.m/s HYDROGRAPH DISPLAY
	.100 Ia/S Coefficient		5 is # of Hyeto/Hydrograph chosen
	8.924 Initial Abstraction	10	Volume = .6483683E+04 c.m
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .036 .000 .300 .300 c.m/s	10	POND 6 Depth - Discharge - Volume sets
	.194 .857 .426 C perv/imperv/total		186.000 .000 .0
15	ADD RUNOFF .036 .036 .300 .300 c.m/s		186.800 .0550 4048.0 187.300 .0730 7091.0
4	.036 .036 .300 .300 c.m/s CATCHMENT		187.500 .170 8424.0
	42.000 ID No.6 99999		187.800 .257 10552.0
	12.640 Area in hectares 290.000 Length (PERV) metres		188.000 .880 12094.0 Peak Outflow = .064 c.m/s
	1.000 Gradient (%)		Maximum Depth = 187.039 metres
	70.000 Per cent Impervious		Maximum Storage = 5502. c.m .088 2.374 .064 .000 c.m/s
	290.000 Length (IMPERV) .000 %Imp. with Zero Dpth	17	.088 2.374 .064 .000 c.m/s COMBINE
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	=-	2 Junction Node No.
	.250 Manning "n"		.088 2.374 .064 .064 c.m/s

14	START		.250	Manning			
25	1 1=Zero; 2=Define COMMENT		74.000		ve No or C efficient	!	
35	3 line(s) of comment		.100 8.924		Abstracti	on	
	**************************************		1				anglr; 3=SWM HYD; 4=Lin. Reserv
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.0	031	.053	.878	.878 c.m/s
	**********			194	.850	.260	C perv/imperv/total
4	CATCHMENT	15	ADD RUNO				
	2.000 ID No.6 99999	_		031	.084	.878	.878 c.m/s
	9.020 Area in hectares 245.000 Length (PERV) metres	9	ROUTE	g 3 - 4 -	T		
	245.000 Length (PERV) metres 1.000 Gradient (%)		.000	Conduit	uit define	.a	
	40.000 Per cent Impervious		.000	Zero la		u	
	245.000 Length (IMPERV)		.000		ighting fa	ctor	
	.000 %Imp. with Zero Dpth		.000	Routing	timestep		
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		0	No. of	sub-reache	s	
	.250 Manning "n"			031	.084	.084	.878 c.m/s
	74.000 SCS Curve No or C	17	COMBINE				
	.100 Ia/S Coefficient			ction Node			
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	1.4		031	.084	.084	.962 c.m/s
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .520 .000 .064 .064 c.m/s	14	START 1 1=Ze	ero; 2=De:	fino		
	.194 .868 .464 C perv/imperv/total	35	COMMENT	ero, z-be.	rine		
15	ADD RUNOFF			e(s) of c	omment		
	.520 .520 .064 .064 c.m/s			*****			
9	ROUTE		EXISTING	AREA WES	T OF RICE	RD AND S	OUTH OF QUAKER ROAD
	.000 Conduit Length		******	******	*****		
	.000 No Conduit defined	4	CATCHMENT				
	.000 Zero lag		4.000	ID No.ó			
	.000 Beta weighting factor		13.940		hectares		
	.000 Routing timestep		305.000		(PERV) met	res	
	0 No. of sub-reaches .520 .520 .520 .064 c.m/s		1.000 40.000	Gradien			
17	.520 .520 .064 C.m/s COMBINE		305.000	Length	t Impervio	ous	
1/	2 Junction Node No.		.000		(IMPERV) ith Zero D	m+h	
	.520 .520 .548 c.m/s		1				on; 3=Green-Ampt; 4=Repeat
14	START		.250	Manning		, 2-11020	on, s-orden impe, i-nopeus
	1 1=Zero; 2=Define		74.000		ve No or C		
18	CONFLUENCE		.100		efficient		
	2 Junction Node No.		8.924		Abstracti	.on	
	.520 .548 .520 .000 c.m/s		1	Option	1=Trianglr	; 2=Rect	anglr; 3=SWM HYD; 4=Lin. Reserv
35	COMMENT		.8	822	.000	.084	.962 c.m/s
	<pre>3 line(s) of comment</pre>		.1	194	.862	.461	C perv/imperv/total
	**********	15	ADD RUNO	FF			
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD			822	.822	.084	.962 c.m/s
	**********	9	ROUTE				
4	CATCHMENT		.000	Conduit		_	
	3.000 ID No.6 99999		.000		uit define	d	
	5.680 Area in hectares 195.000 Length (PERV) metres		.000	Zero la			
	1.000 Gradient (%)		.000		ighting fa timestep	CCOI	
	40.000 Per cent Impervious		0		sub-reache	s	
	195.000 Length (IMPERV)			822	.822	.822	.962 c.m/s
	.000 %Imp. with Zero Dpth	17	COMBINE				
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat			ction Node	e No.		
	.250 Manning "n"			822	.822	.822	1.784 c.m/s
	74.000 SCS Curve No or C	14	START				
	.100 Ia/S Coefficient			ero; 2=De:	fine		
	8.924 Initial Abstraction	18	CONFLUENC				
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		2 June	ction Node	e No.		
	.330 .548 .520 .000 c.m/s			822	1.784	.822	.000 c.m/s
	.194 .865 .462 C perv/imperv/total	35	COMMENT				
15	ADD RUNOFF			e(s) of c	omment		
9	.330 .878 .520 .000 c.m/s				חש מם שאג	מדייע ספי	WELLAND MUNICIPAL BOUNDA
,	.000 Conduit Length			*******	AKEK KD 10	CIII OF	WELLAND MONICIPAL BOONDA
	.000 No Conduit defined	4	CATCHMENT	т			
	.000 Zero lag		501.000	ID No.ó	99999		
	.000 Beta weighting factor		1.570		hectares		
	.000 Routing timestep		102.000	Length	(PERV) met	res	
	0 No. of sub-reaches		1.000	Gradien	t (%)		
	.330 .878 .878 .000 c.m/s		70.000		t Impervio	us	
17	COMBINE		102.000	Length			
	2 Junction Node No.		.000		ith Zero D		
1.4	.330 .878 .878 c.m/s		1			; 2=Hort	on; 3=Green-Ampt; 4=Repeat
14	START 1 1=Zero; 2=Define		.250 74.000	Manning SCS Cur	"n" ve No or C		
35	COMMENT		.100		ve no or c efficient		
	3 line(s) of comment		8.924		Abstracti	on	
	**************************************		1				anglr; 3=SWM HYD; 4=Lin. Reserv
	PROP DEVELOPMENT SOUTH OF QUAKER RD, EAST OF RICE RD		_		1.784	.822	.000 c.m/s
	***********			194	.854	.656	C perv/imperv/total
4	CATCHMENT	15	ADD RUNO	FF			
	50.000 ID No.6 99999			149	1.933	.822	.000 c.m/s
	3.420 Area in hectares	9	ROUTE				
	151.000 Length (PERV) metres		.000	Conduit			
	1.000 Gradient (%)		.000		uit define	d	
	10.000 Per cent Impervious		.000	Zero la			
	151.000 Length (IMPERV)		.000		ighting fa	ctor	
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.000		timestep sub-reache		
	.250 Manning "n"		-		sub-reacne 1.933	1.933	.000 c.m/s
	74.000 SCS Curve No or C	35	COMMENT		,,,	1.,,,,	.000 C.m/B
	.100 Ia/S Coefficient			e(s) of c	omment		
	8.924 Initial Abstraction		*****		-		
	<pre>Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		FLOW D/S	OF RICE	RD CULVERT	- OUTLE	T A2
	.053 .000 .878 .878 c.m/s		******	*****			
	.194 .854 .260 C perv/imperv/total	17	COMBINE				
15	ADD RUNOFF			ction Node			
,	.053 .053 .878 .878 c.m/s	14	START	149	1.933	1.933	2.916 c.m/s
4	CATCHMENT 51.000 ID No.6 99999	14		ero. 2-D-	fine		
	1.980 Area in hectares	35	1 1=Ze	ero; 2=De:	TIME		
	115.000 Area in hectares 115.000 Length (PERV) metres	35		e(s) of c	omment		
	1.000 Gradient (%)		******		CCII C		
	10.000 Per cent Impervious				SOUTH OF O	UAKER RD	- QUALLITY CONTROL ONLY
	115.000 Length (IMPERV)		******	******		_	
	.000 %Imp. with Zero Dpth	4	CATCHMENT	T			
	1 Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat		20.100	ID No. 6	99999		

	.780 Area in hectares	35	COMMENT
	72.000 Length (PERV) metres		<pre>3 line(s) of comment</pre>
	1.000 Gradient (%)		*********
	35.000 Per cent Impervious 72.000 Length (IMPERV)		FLOW U/S OF FIRST AVE CULVERT
	.000 %Imp. with Zero Dpth	17	COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Junction Node No.
	.250 Manning "n"		.181 3.489 3.489 c.m/s
	74.000 SCS Curve No or C	14	START
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	35	COMMENT
	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	7	<pre>3 line(s) of comment</pre>
	.040 .000 1.933 2.916 c.m/s		******
	.194 .857 .426 C perv/imperv/total		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
15	ADD RUNOFF	_	******
	.040 .040 1.933 2.916 c.m/s	4	CATCHMENT
4	CATCHMENT 20.000 ID No.6 99999		52.000 ID No.6 99999 6.430 Area in hectares
	3.210 Area in hectares		
	146.000 Length (PERV) metres		207.000 Length (PERV) metres 1.000 Gradient (%)
	1.000 Gradient (%)		70.000 Per cent Impervious
	85.000 Per cent Impervious		207.000 Length (IMPERV)
	146.000 Length (IMPERV)		.000 %Imp. with Zero Dpth
	.000 %Imp. with Zero Dpth		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		.250 Manning "n"
	.250 Manning "n"		74.000 SCS Curve No or C
	74.000 SCS Curve No or C		.100 Ia/S Coefficient
	.100 Ia/S Coefficient		8.924 Initial Abstraction
	8.924 Initial Abstraction		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	7	.649 .000 3.489 3.489 c.m/s
	.386 .040 1.933 2.916 c.m/s		.194 .866 .665 C perv/imperv/total
	.194 .854 .755 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF		.649 .649 3.489 C.m/s
	.386 .422 1.933 2.916 c.m/s	9	ROUTE
9	ROUTE		.000 Conduit Length
	.000 Conduit Length		.000 No Conduit defined
	.000 No Conduit defined		.000 Zero lag
	.000 Zero lag .000 Beta weighting factor		.000 Beta weighting factor .000 Routing timestep
	.000 Beta weighting factor .000 Routing timestep		.000 Routing timestep 0 No. of sub-reaches
	0 No. of sub-reaches		.649 .649 .649 3.489 c.m/s
	.386 .422 .422 2.916 c.m/s	17	COMBINE
17	COMBINE	1,	2 Junction Node No.
-,	1 Junction Node No.		.649 .649 .649 c.m/s
	.386 .422 .422 3.338 c.m/s	14	START
14	START		1 1=Zero; 2=Define
	1 1=Zero; 2=Define	4	CATCHMENT
18	CONFLUENCE	=	53.000 ID No.6 99999
	1 Junction Node No.		11.340 Area in hectares
	.386 3.338 .422 .000 c.m/s		275.000 Length (PERV) metres
35	COMMENT		1.000 Gradient (%)
	<pre>3 line(s) of comment</pre>		70.000 Per cent Impervious
	*******		275.000 Length (IMPERV)
	REALIGNED CHANNEL - SEGMENT 2		.000 %Imp. with Zero Dpth
	********		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
4	CATCHMENT		.250 Manning "n"
	200.000 ID No.6 99999		74.000 SCS Curve No or C
	.970 Area in hectares		.100 Ia/S Coefficient
	80.416 Length (PERV) metres		8.924 Initial Abstraction
	1.000 Gradient (%)		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	10.000 Per cent Impervious		1.171 .000 .649 .649 c.m/s
	80.416 Length (IMPERV)		.194 .865 .664 C perv/imperv/total
	.000 %Imp. with Zero Dpth	15	ADD RUNOFF
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	9	1.171 1.171 .649 .649 c.m/s
	.250 Manning "n" 74.000 SCS Curve No or C	9	ROUTE
	74.000 SCS Curve No or C .100 Ia/S Coefficient		.000 Conduit Length .000 No Conduit defined
	8.924 Initial Abstraction		.000 Zero lag
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	,	.000 Beta weighting factor
	.015 3.338 .422 .000 c.m/s	•	.000 Routing timestep
	.194 .858 .261 C perv/imperv/total		0 No. of sub-reaches
	COMMENT		
35	<pre>3 line(s) of comment</pre>		1.171 1.171 1.171 .649 c.m/s
35		17	1.171 1.171 1.171 .649 c.m/s COMBINE
35	********	17	
35	******************** FLOW D/S OF AREA A20 - OUTLET B		COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s
	*******	17	COMBINE 2 Junction Node No. 1.171 1.171 1.820 c.m/s CONFLUENCE
15	**************************************		COMBINE 2 Junction Node No. 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No.
15	**************************************	18	COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s
	**************************************		COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT
15	*************************** ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment	18	COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT 54.000 ID No.6 99999
15	**************************************	18	COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares
15	*************************** ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment	18	COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres
15 35	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment **************************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV	18	COMBINE 2 Junction Node No. 1.171 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%)
15	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ************************************	18	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment **************************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV	18	COMBINE 2 Junction Node No. 1.171 1.171 1.820 c.m/s CONFLUENCE 2 Junction Node No. 1.171 1.820 1.171 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV)
15 35	******************* ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment *********************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ************************************	18	COMBINE 2 Junction Node No.
15 35	**************************************	18	COMBINE 2 Junction Node No.
15 35	**************************************	18	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ********************* EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ************************ CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV)	18	COMBINE 2 Junction Node No.
15 35	**************************************	18	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .0.15 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ********************* EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ********************** CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; Z=Horton; 3=Green-Ampt; 4=Repeat	18	COMBINE 2 Junction Node No.
15 35	**************************************	18	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ************************* EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV *********************** CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C	18	COMBINE 2 Junction Node No.
15 35	**************************************	18	COMBINE 2 Junction Node No.
15 35	**************************************	18 4	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ************************ EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ******************** CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	18 4	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF .015	18 4	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment *********************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ********************* CATCHIMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Fer cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s .194 .867 .228 C perv/imperv/total	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35	ADD RUNOFF ADD RUNOFF ADD RUNOFF D.015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ***************************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV *********************** CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s .194 .867 .228 C perv/imperv/total ADD RUNOFF	18 4	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ********************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ************************ CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s .194 .867 .228 C perv/imperv/total ADD RUNOFF .181 3.489 .422 .000 c.m/s	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ***************************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ************************* CATCHIMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s .194 .867 .228 C perv/imperv/total ADD RUNOFF .181 3.489 .422 .000 c.m/s ROUTE	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35 4	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment ************************* EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV ************************* CATCHIMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s ROUTE .181 3.489 .422 .000 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined	18 4 15 7 27	COMBINE 2 Junction Node No.
15 35 4	**************************************	18 4 15 7 27	COMBINE 2
15 35 4	ADD RUNOFF .015 3.353 .422 .000 c.m/s COMMENT 3 line(s) of comment *********************** EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV *********************** CATCHMENT 21.000 ID No.6 99999 35.460 Area in hectares 487.000 Length (PERV) metres .200 Gradient (%) 5.000 Per cent Impervious 487.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 IA/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .181 3.353 .422 .000 c.m/s .194 .867 .228 C perv/imperv/total ADD RUNOFF .181 3.489 .422 .000 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Sero lag .000 Beta weighting factor	18 4 15 7 27	COMBINE 2 Junction Node No.

	Maximum Storage = 4589. c.m .107 1.923 .01	7 0	000 c.m/s	35	COMMENT 3 line	(a) of ac	mmont		
17	.107 1.923 .01 COMBINE	.,	700 C.M/S		*****	(s) of co **	mmeric		
	2 Junction Node No.						- SEGMENT 3	1	
	.107 1.923 .01	.0	17 c.m/s		******	**			
14	START 1 1=Zero; 2=Define			4	CATCHMENT	TD No f	00000		
35	1 1=Zero; 2=Define COMMENT				300.000	ID No.ó Area in			
33	3 line(s) of comment				146.000		PERV) metre	· g	
	******				.200	Gradient			
	EXISTING AREA ON QUAKER RD, EAST	OF RICE R	D .		15.000	Per cent	Impervious	:	
	******				146.000	Length (
4	CATCHMENT				.000		th Zero Dpt		
	5.000 ID No.6 99999				1			2=Horton;	3=Green-Ampt; 4=Repeat
	1.870 Area in hectares 112.000 Length (PERV) metres				.250 74.000	Manning	"n" e No or C		
	1.000 Gradient (%)				.100	Ia/S Coe			
	50.000 Per cent Impervious				8.924		Abstraction	1	
	112.000 Length (IMPERV)				1	Option 1	=Trianglr;	2=Rectang	lr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dpth				.01		.031	.542	.000 c.m/s
	<pre>1 Option 1=SCS CN/C; 2=H</pre>	Norton; 3=G			.19		.859	.294	C perv/imperv/total
	.250 Manning "n"			15	ADD RUNOFI		100	.542	000/-
	74.000 SCS Curve No or C .100 Ia/S Coefficient			4	.0' CATCHMENT	/1 4	.102	.542	.000 c.m/s
	8.924 Initial Abstraction			-	301.000	ID No.ó	99999		
		Rectanglr;	3=SWM HYD; 4=Lin. Reserv		.720	Area in			
	.130 .000 .01		17 c.m/s		69.000		PERV) metre	s	
	.194 .851 .52	22 C pe	erv/imperv/total		.200	Gradient	(%)		
15	ADD RUNOFF				10.000		Impervious		
•	.130 .130 .01	.0	017 c.m/s		69.000	Length (
9	ROUTE .000 Conduit Length				.000 1		th Zero Dpt		3=Green-Ampt; 4=Repeat
	.000 No Conduit defined				.250	Manning		Z=HOI COII;	3=Green-Ampt; 4=Repeat
	.000 Zero lag				74.000		e No or C		
	.000 Beta weighting factor				.100	Ia/S Coe	fficient		
	.000 Routing timestep				8.924		Abstraction		
	0 No. of sub-reaches	_			1				lr; 3=SWM HYD; 4=Lin. Reserv
17	.130 .130 .13	30 .0	17 c.m/s		.03		.102	.542	.000 c.m/s
17	COMBINE 2 Junction Node No.			15	.19		.855	.260	C perv/imperv/total
	.130 .130 .13	30 .1	36 c.m/s	13	.O.		.113	.542	.000 c.m/s
18	CONFLUENCE		.55 5111/2	9	ROUTE			.512	1000 O.M., D
	2 Junction Node No.				.000	Conduit	Length		
	.130 .136 .13	30 .0	000 c.m/s		.000		it defined		
35	COMMENT				.000	Zero lag			
	<pre>3 line(s) of comment</pre>				.000		ghting fact	or	
	***************		n		.000		timestep		
	EXISTING AREA ON QUAKER RD, EAST	OF RICE R	ש		.0:		ub-reaches	.113	.000 c.m/s
4	CATCHMENT			17	COMBINE				.000 C.M/B
	6.000 ID No.ó 99999					ion Node	No.		
	1.920 Area in hectares				.03	L1 4	.113 4	.113	4.113 c.m/s
	113.000 Length (PERV) metres			14	START				
	.200 Gradient (%)			35		ro; 2=Def	ine		
	65.000 Per cent Impervious			35	COMMENT				
				35	COMMENT	(s) of co			
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H	Norton; 3=G		35	COMMENT 3 line ********** PROP DEVEL	(s) of co ** LOPMENT N		MENT 3 - I	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n"	Horton; 3=G			COMMENT 3 line *********** PROP DEVEL	(s) of co ** LOPMENT N	mment	EMENT 3 - I	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H Manning "n" 74.000 SCS CURVe No or C	Morton; 3=G		35	COMMENT 3 line *********** PROP DEVEL ********** CATCHMENT	(s) of co ** LOPMENT N	mment	MENT 3 - I	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n"	Horton; 3=G			COMMENT 3 line *********** PROP DEVEL	(s) of co ** LOPMENT N	omment ORTH OF SEG	MENT 3 - I	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R	Rectanglr;	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv	4	COMMENT 3 line ********** PROP DEVEI ********* CATCHMENT 30.000 8.470 238.000	(s) of co ** LOPMENT N ** ID No.6 Area in Length (ORTH OF SEC 99999 hectares PERV) metre		POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13	Rectanglr;	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s	4	COMMENT 3 line ******** PROP DEVEL ********* CATCHMENT 30.000 8.470 238.000 .200	(s) of co	ORTH OF SEG 99999 hectares PERV) metre	es	POND P30
15	65.000 Per cent Impervious 113.000 Length (IMPRV) .000 % Tmp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 0ption 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63	Rectanglr;	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv	4	COMMENT 3 line ********* PROP DEVEL ********** CATCHMENT 30.000 8.470 238.000 .200 .100	(s) of co	ORTH OF SEG 99999 hectares PERV) metre : (%)	es	POND P30
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 101 c.m/s	4	COMMENT 3 line ********** PROP DEVEI ********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000	(s) of co	ORTH OF SEG 99999 hectares PERV) metre (%) : (mpervious IMPERV)	es :	POND F30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s	4	COMMENT 3 line ********* PROP DEVEL ********** CATCHMENT 30.000 8.470 238.000 .200 .100	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (%Imp. wi	omment ORTH OF SEG 99999 hectares PERV) metre : (%) Impervious IMPERV) th Zero Dpt	es :	
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 101 c.m/s	4	COMMENT 3 line ********** PROP DEVEL ********* CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .000	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (%Imp. wi	99999 hectares PERV) metre (%): Impervious IMPERV) th Zero Dpt =SCS CN/C;	es :	POND P30 3=Green-Ampt; 4=Repeat
	65.000 Per cent Impervious 113.000 Length (IMPRV) .000 %Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s	4	COMMENT 3 line ********** PROF DEVE: *********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .000 1 .250 74.000	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (%Imp. wi Option 1 Manning SCS Curv	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C	es :	
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s	4	COMMENT 3 line ********** PROP DEVE ********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .100 238.000 .100 74.000 .100	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (§Imp. wi Option 1 Manning SCS Curv Ia/S Coe	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C ffficient	s : :h 2=Horton;	
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s	4	COMMENT 3 line ********** PROF DEVE: *********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .000 1 .250 74.000	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (% Imp. wi Option I Manning SCS Curv Ia/S Coe Initial	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction	s ; ; h 2=Horton;	3=Green-Ampt; 4=Repeat
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s	4	COMMENT 3 line ********** PROP DEVE *********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .000 1 .250 74.000 .100 8.924 1	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (%Imp. wi Option 1 Manning SCS Curv Ia/S Coe Initial Option 1	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C ifficient Abstraction =Trianglr;	s; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s	4	COMMENT 3 line ********** PROP DEVE ********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .100 238.000 .100 6.250 74.000 .100 8.924 1 .00	(s) of co ** ** ** ** ID No.6 Area in Length (Gradient Per cent Length (§*Imp. wi Option 1 Manning SCS Curv Ia/S Coe Initial Option 1 55	mment ORTH OF SEC 99999 hectares PERV) metre (%) Impervious th Zero Dpt =SCS CN/C; "n" e No or C ffficient Abstraction =Trianglr; 0000 4	th 2=Horton; 2=Rectang	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 10 MUNICIPAL BOUNDA	4	COMMENT 3 line ********** PROP DEVE *********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .000 1 .250 74.000 .100 8.924 1	(s) of co ** LOPMENT N ** ID No.6 Area in Length (Gradient Per cent Length (% Imp. wi Option 1 Manning SCS Curv Ia/S Coe Initial Option 1 354	mment ORTH OF SEC 99999 hectares PERV) metre (%) Impervious th Zero Dpt =SCS CN/C; "n" e No or C ffficient Abstraction =Trianglr; 0000 4	th 2=Horton; 2=Rectang	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 10 MUNICIPAL BOUNDA	4	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .100 238.000 .100 238.000 .100 8.924 1 .00 .11 ADD RUNDEFI .00 .000	(s) of co	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 .867	th 2=Horton; 2=Rectang	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 10 MUNICIPAL BOUNDA	4	COMMENT 3 line ********** PROP DEVE *********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .100 238.000 .100 8.924 1 .00 .11 ADD RUNOFI CATCHMENT	(s) of co ** ** ** ** ** ** ID No.6 Area in Length (Gradient Per cent Length (Stamp. wi Option 1 Manning SCS Curv Ia/S Coe Initial Option 1 55 47 55 55	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .867	th 2=Horton; 2=Rectang; 1113	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s ! perv/imperv/total
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe	Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 10 MUNICIPAL BOUNDA	4	COMMENT ********** PROF DEVE** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .2550 74.000 .100 8.924 1 .01 .ADD RUNOFFI .01 CATCHMENT 31.000	(s) of co ** ** ID No.6 Area in Length (% True cent Length (% Imp. wi Option 1 Manning SCS Curv Ia/S Coe Initial Option 1 47 35 ID No.6	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C ffficient Abstraction =Trianglr; .000 .867 .035 4	th 2=Horton; 2=Rectang; 1113	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s ! perv/imperv/total
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	65.000 Per cent Impervious	Rectanglr; 10 .0 11 C pe 10 .0 10 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 d.m/s 100 d.m/s 100 MUNICIPAL BOUNDA	4	COMMENT 3 line ********** PROP DEVEI *********** CATCHMENT 30.000 8.470 238.000 .100 238.000 .100 238.000 .100 238.000 .100 8.924 1 .00 .10 ADD RUNOFI .0. CATCHMENT 31.000 10.420 264.000	(s) of co ** ** ** ** ** ** ID No.6 Area in Length (Gradient Per cent ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C ifficient Abstraction =Trianglr; .000 4.867 .035 4 99999 hectares PERV) metre	2=Rectangl :113 :113	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s ! perv/imperv/total
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15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .135 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 00 .0 30 .0 7 OF WELLAN Horton; 3=G	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 101 BOUNDA 102 Seen-Ampt; 4=Repeat 103=SWM HYD; 4=Lin. Reserv 100 c.m/s 104 Serv/imperv/total	4 15 4	COMMENT 3 line 4 line 4 line 4 line 5 line 5 line 6	(s) of co ** ** ** ** ** ** ** ** **	99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C efficient Abstraction =Trianglr; (300 4.867 .035 4 99999 hectares PERV) metre (%) Impervious Impervious th Zero Dpt =SCS CN/C; "n" e No or C efficient Abstraction =fficient Abstraction =fficient Abstraction	2=Rectangles in the control of the c	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s C perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s
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15	13.000	Rectanglr; 00 .0 30 .0 7 OF WELLAN Horton; 3=G	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 MUNICIPAL BOUNDA	4 15 4	COMMENT 3 line ********** PROP DEVE** ********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .000 1 .250 74.000 .100 8.924 1 .0: ADD RUNOR! 31.000 CATCHMENT 31.000 10.420 264.000 .100 25.000 264.000 .100 8.924 1 .250 74.000 .100 8.924 1 .250 74.000 .100 8.924 1 .250 74.000 .100 8.924 1 .1: .1:	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .867 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4	2=Rectangles in the control of the c	3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s C perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat Lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s
15	13.000	Rectanglr; 00 .0 30 .0 7 OF WELLAN Horton; 3=G	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 MUNICIPAL BOUNDA	4 15 4	COMMENT 3 line ********** PROP DEVEL *********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .100 238.000 .100 8.924 1 .0: ADD RUNOF! ADD RUNOF! 0.100 264.000 1.000 75.000 264.000 .100 8.924 1 .250 74.000 .100 8.924 1 .250 74.000 .100 8.924 1 1.1! ADD RUNOF! 1.1! HYDROGRAP!	(s) of co ** ** ** ** ** ** ** ** ID No.6 Area in Length (Gradient Per cent Length (STIMP. will Amning SCS Curv Initial Option 1 ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .867 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPRIV) .000 % Tmp, with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 .ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe 30 .0 7 OF WELLAN Morton; 3=G	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 MUNICIPAL BOUNDA	4 4 15 4 15 27	COMMENT 3 line *********** PROP DEVE* *********** CATCHMENT 30.000 8.470 238.000 .000 .100 238.000 .100 238.000 .100 8.924 1 .0: ADD RUNOFI 31.000 10.420 264.000 1.000 75.000 264.000 .100 8.924 1 .250 74.000 .11 .250 74.000 .100 8.924 1 .1: LYDROGRAPI 5 is # Volume =	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious Impervious inmerv) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4 .866 .158 4 /Hydrograph	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 31 C pe 30 .0 7 OF WELLAN Morton; 3=G	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 200 c.m/s	4 15 4	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .100 238.000 .100 8.924 1 .00 ADD RUNOFF ADD RUNOFF 1.12 ADD RUNOFF 1.15 ADD RUNOFF 1.11 ADD RUNOFF 5 is # Volume = CATCHMENT	(s) of co ** ** ** ID No.6 Area in Length (mment ORTH OF SEC 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C ffficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction -Trianglr; .035 .866 .158 4 //Hydrograph	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp, with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .100 8.924 1 .00 ADD RUNCHI 31.000 10.420 264.000 1.000 75.000 264.000 1.250 74.000 .100 8.924 1.1: .11 ADD RUNCHI 1.250 74.000 1.0000 1.0000 1.0000 1.0000 1.0000 1.000	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .867 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4 .158 4 /Hydrograph 4E+04 c.m	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 200 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROP DEVEL *********** CATCHMENT 30.000 8.470 238.000 .200 .100 238.000 .100 238.000 .100 8.924 1 .0: ADD RUNOF! ADD RUNOF! 0.110 264.000 1.000 75.000 264.000 1.000 75.000 264.000 1.000 8.924 1 1.1! ADD RUNOF! 1.1: ADD RUNOF! 5 is # Volume = CATCHMENT 32.000 .690	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .867 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4 .158 4 /Hydrograph 44e+04 c.m 99999 hectares	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .100 238.000 .100 8.924 1 .00 .100 ADD RUNOFI 131.000 10.420 264.000 1.000 264.000 1.000 264.000 1.100 8.924 1 1 .250 74.000 .100 8.924 1 1 ADD RUNOFI 1.1: AD	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious Impervious Impervious impervious th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 .866 .158 4 /Hydrograph 4E+04 c.m 99999 hectares PERV) metre	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROF DEVE: *********** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .100 238.000 .100 8.924 1 .0: ADD RUNOF! ADD RUNOF! 5.00 CATCHMENT 30.000 10.420 1.000 75.000 264.000 1.000 8.924 1 .1:I ADD RUNOF! 1.000 75.000 264.000 1.000 1.000 8.924 1 .1:I ADD RUNOF! 1.010 8.924 1 .255 74.000 .100 8.924 1 1.1:I HYDROGRAPI 5 is # # Volume = CATCHMENT 32.000 68.000 1.000 68.000 1.000	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 4 .035 4 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .035 4 .158 4 /Hydrograph 4E+04 c.m 99999 hectares PERV) metre (%)	2=Rectanglilia in	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	13.000	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.470 238.000 .000 100 238.000 .100 238.000 .100 8.924 1 .00 .100 ADD RUNOFI 131.000 10.420 264.000 1.000 264.000 1.000 264.000 1.100 8.924 1 1 .250 74.000 .100 8.924 1 1 ADD RUNOFI 1.1: AD	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEC 99999 hectares PERV) metre (%) Impervious IMPERV) e No or C ffficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious imp	2=Rectanglilia in	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	13.000	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT ********* PROF DEVE ********* CATCHMENT 30.000 8.470 238.000 .000 .100 238.000 .100 238.000 .100 8.924 1 .01 ADD RUNOFI .00 CATCHMENT 31.000 10.420 264.000 1.000 75.000 264.000 .100 8.924 1 1.11 ADD RUNOFI 1.11 HYDROGRAF 5 is # Volume = CATCHMENT 32.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000 68.000 1.000	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEC 99999 hectares PERV) metre (%) Impervious IMPERV) e No or C ffficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious imp	2=Rectang 1.113 1.195 (1.113 1.195 (1.113 1.11	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Imp. with Zero Dpth 1 option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROF DEVE: ********** CATCHMENT 30.000 8.477 238.000 .000 1.00 238.000 .100 238.000 .100 238.000 .100 238.000 .100 238.000 .100 238.000 .100 238.000 .100 8.924 1 .00 CATCHMENT 31.000 10.420 264.000 1.000 264.000 1.000 8.924 1 1.1: ADD RUNOFF 1.1: ATDROGRAPH 5 is # Volume = CATCHMENT 32.000 .650 68.000 1.000 68.000 .000 11 000 68.000 .000 11	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious Impervious inficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) 1.105 1.10	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat ir; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total
35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 % Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=H .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=R .185 .136 .13 .194 .867 .63 ADD RUNOFF .185 .321 .13 COMMENT 3 line(s) of comment ************************************	Rectanglr; 30 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 MUNICIPAL BOUNDA 3=SWM HYD; 4=Lin. Reserv 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s 100 c.m/s	4 4 15 4 15 27	COMMENT 3 line ********** PROP DEVE ********** CATCHMENT 30.000 8.470 238.000 .000 .100 238.000 .100 238.000 .100 8.924 1 .0: ADD RUNOFI 31.000 CATCHMENT 31.000 10.420 264.000 .100 8.924 1 .1: ADD RUNOFI 1.000 75.000 264.000 .100 8.924 1 .1: HYDROGRAPI 5 is # Volume = CATCHMENT 32.000 .690 68.000 1.000 60.000 60.000 60.000	(s) of co ** ** ** ** ** ** ** ** **	mment ORTH OF SEG 99999 hectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) Impervious Impervious inficient Abstraction =Trianglr; .000 .867 .035 4 99999 hectares PERV) metre (%) 1.105 1.10	2=Rectangl 1.113 1.195 (1.113 1.195 (1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113 1.113	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 4.113 c.m/s perv/imperv/total 4.113 c.m/s 2 perv/imperv/total 4.113 c.m/s

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.100
                     Ia/S Coefficient
         8.924
                     Initial Abstraction
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 61 1.158 4.113 4.113 c.m/s 94 .857 .592 C perv/imperv/total
                  .194
15
        ADD RUNOFF
        .061 1.3
HYDROGRAPH DISPLAY
                              1.210
                                           4.113
                                                          4.113 c.m/s
27
         is # of Hyeto/Hydrograph chosen
Volume = .3636135E+04 c.m
10
         POND
        POND
5 Depth - Discharge - Volume sets
178.800 .000 .0
179.300 .0260 1520.0
                           .0440
                                         4649.0
7069.0
                           .414
         180.600
         .414
1.204
Peak Outflow =
Maximum 5
        reak Outflow = 0.34 c.m/s
Maximum Depth = 179.642 metres
Maximum Storage = 2856. c.m
.061 1.210
                          4.113 c.m/s
17
               Junction Node No.
        .061
.061
START
                             1.210
                                                           4.131 c.m/s
14
               1=Zero; 2=Define
         COMMENT
35
         line(s) of comment
        PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
         CATCHMENT
                     ID No.6 99999
       33.000
       12,960
                     Area in hectares
Length (PERV) metres
      294.000
                     Gradient (%)
Per cent Impervious
Length (IMPERV)
        1.000
       75.000
      294.000
          .000
                      %Imp. with Zero Doth
          .250
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                     Manning "n"
SCS Curve No or C
       74.000
                     Ia/S Coefficient
Initial Abstraction
          .100
         8.924
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 28 .000 .034 4.131 c.m/s 94 .863 .696 C perv/imperv/total
                1.428
                 .194
        ADD RUNOFF
1.428
15
        HYDROGRAPH DISPLAY
27
        is # of Hyeto/Hydrograph chosen
Volume = .3513004E+04 c.m
CATCHMENT
                     Area in hectares
          .660
                     Length (PERV) metres
Gradient (%)
Per cent Impervious
       66.000
         1.000
       60.000
                     Length (IMPERV)
%Imp. with Zero Dpth
       66.000
          .000
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                     Manning "n"
SCS Curve No or C
          . 250
       74.000
          . 100
                      Ia/S Coefficient
                      Initial Abstraction
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                 .059
                             1.428 .034
.856 .591
                                                        4.131 c.m/s
C perv/imperv/total
        ADD RUNOFF
15
        ADD RUNOFF
.059 1.478 .034
HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .3665095E+04 c.m
                                                           4.131 c.m/s
         POND
       6 Depth - Discharge - Volume sets
                    .000
         178.300
                                        .0
1927.0
         178.900
         179.600
                          .0540
                                         4692.0
                         .150
        180.000
                            .321
                                         6538.0
                                                           4.131 c.m/s
17
             Junction Node No
        .059
START
14
               1=Zero; 2=Define
        CONFLUENCE
18
       1 Junction Node No.
                 .059 4.153
        COMMENT
         3 line(s) of comment
        REALIGNED CHANNEL - SEGMENT 3
         CATCHMENT
      302.000
                    TD No. 6 99999
                     Area in hectares
Length (PERV) metres
         1.610
      104.000
       .200
10.000
                     Gradient (%)
Per cent Impervious
                     Length (IMPERV)
      104.000
                     %Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
           . 250
                     Manning "n"
SCS Curve No or C
       74.000
```

```
.100
                Ia/S Coefficient
      8.924
                Initial Abstraction
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                                .043 .000 c.m/s
.262 C perv/imperv/total
             .194
                       .868
      COMMENT
      3 line(s) of comment
      FLOW U/S OF NIAGARA ST CULVERT - OUTLET D
15
      ADD RUNOFF
      .024
START
                       4.177
                                   .043
                                              .000 c.m/s
14
           1=Zero; 2=Define
```

35	COMMENT	82.		ength (PER		:8	
	<pre>3 line(s) of comment ************************************</pre>	1. 10.		radient (% er cent Im			
	5-YEAR STORM EVENT	82.		ength (IMP		•	
	*************		00 %I	mp. with	Zero Dpt		
2	STORM					2=Horton	; 3=Green-Ampt; 4=Repeat
	1 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic 830.000 Coefficient a	74.		nning "n" S Curve N			
	7.300 Constant b (min)			.s curve N			
	.777 Exponent c	8.		itial Abs		1	
	.450 Fraction to peak r		1 Op	otion 1=Tr	ianglr;	2=Rectan	glr; 3=SWM HYD; 4=Lin. Reserv
	240.000 Duration 6 240 min		.020	.47		.137	1.137 c.m/s
3	45.874 mm Total depth IMPERVIOUS	15 AD	.235 RUNOFF	.87	5	.299	C perv/imperv/total
3	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	15 AD.	.020	.49	7 1	.137	1.137 c.m/s
	.015 Manning "n"	10 PO		• • • •			11137 C1m, D
	98.000 SCS Curve No or C			scharge -	Volume s	ets	
	.100 Ia/S Coefficient		.800	.000		.0	
25	.518 Initial Abstraction		.750	.0210		0	
35	COMMENT 3 line(s) of comment		.000	.0230 .0260	503 1091		
	**************************************		.500	.0280	1765		
	EXISTING RES. WEST OF SEGMENT 1		.700	1.244	2370	.0	
	*******		k Outflow		.026		
4	CATCHMENT		imum Dept		.86.226 n		
	1.000 ID No.6 99999 17.520 Area in hectares	Ma	imum Stor	age = .49	1035. 0	.m .026	1.137 c.m/s
	343.000 Length (PERV) metres	17 CO	BINE	.43	' /	.020	1.137 C.M/B
	1.000 Gradient (%)	1		n Node No	٠.		
	35.000 Per cent Impervious		.020	.49	7	.026	1.160 c.m/s
	343.000 Length (IMPERV)	14 ST.					
	.000 %Imp. with Zero Dpth	1 20 20		: 2=Define	1		
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	18 CO	FLUENCE Junctic	n Node No	١.		
	74.000 SCS Curve No or C	_	.020	1.16		.026	.000 c.m/s
	.100 Ia/S Coefficient	35 CO	MENT				
	8.924 Initial Abstraction	3		of comme	nt		
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Res</pre>	L V	******				
	1.082 .000 .000 .000 c.m/s .236 .879 .461 C perv/imperv/total		LIGNED CH	IANNEL - S	EGMENT 1	•	
15	ADD RUNOFF		CHMENT				
13	1.082 1.082 .000 .000 c.m/s	101.		No.6 999	99		
35	COMMENT			ea in hec			
	<pre>3 line(s) of comment</pre>	64.		ength (PER		s	
	*******	1.		adient (%			
	REALIGNED CHANNEL - SEGMENT 1	10. 64.		er cent Im		1	
4	CATCHMENT			ength (IMF Imp. with		h	
•	100.000 ID No.6 99999	•					; 3=Green-Ampt; 4=Repeat
	2.020 Area in hectares			nning "n"			
	116.000 Length (PERV) metres	74.		CS Curve N			
	.400 Gradient (%)			a/S Coeffi			
	15.000 Per cent Impervious	8.		nitial Abs			-1 2 grat rum . 4 T-1- D-1
	116.000 Length (IMPERV) .000 %Imp. with Zero Dpth		.012	1.16		.026	glr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.235	.87	-	.299	C perv/imperv/total
	.250 Manning "n"	15 AD	RUNOFF		-		- F,
	74.000 SCS Curve No or C		.012	1.17	2	.026	.000 c.m/s
	.100 Ia/S Coefficient	9 RO					
	8.924 Initial Abstraction Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Res			onduit Len Conduit			
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Resc .055 1.082 .000 .000 c.m/s			ero lag	derined		
	.236 .874 .332 C perv/imperv/total			eta weight	ing fact	or	
	COMMENT			outing tim			
35			0 No	o. of sub-			
35	<pre>3 line(s) of comment</pre>			1.17	2 1	.172	.000 c.m/s
35	*******	17 00	.012				
35			BINE	n Node No			
	****************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ************************************	17 CO	BINE Junctio	on Node No		.172	1.172 c.m/s
35 15	******************* FLOW AT FUT ROADWAY CULVERT - SEGMENT 1		BINE Junctic .012			.172	1.172 c.m/s
	**************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055 1.137 .000 .000 c.m/s ROUTE	1 14 ST. 1	BINE Junctio .012 RT 1=Zero;		'2 1	.172	1.172 c.m/s
15	*************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ************** ADD RUNOFF .055 1.137 .000 .000 c.m/s ROUTE .000 Conduit Length	1 14 ST. 1	Junctic .012 RT 1=Zero;	1.17	2 1	.172	1.172 c.m/s
15	**************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 *************** ADD RUNOFF .055	1 14 ST. 1	Junctic .012 RT 1=Zero;	1.17	2 1	172	1.172 c.m/s
15	*************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 **************** ADD RUNOFF .055 1.137 .000 .000 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag	1 14 ST. 1 35 CO 3	BINE Junctio .012 RT 1=Zero; MENT line(s)	1.17	22 1 ent		
15	**************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 *************** ADD RUNOFF .055	1 14 ST. 1 35 CO. 3 ***	BINE Junctio .012 RT 1=Zero; MENT line(s)	1.17 2=Define of comme ****** PMENT SOUT	22 1 ent		
15	#************* FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 **************** ADD RUNOFF	1 14 ST 1 35 CO 3 ** PR ** 4 CA	BINE Junctio .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ********* CHMENT	1.17 2 = Define of comme ****** PMENT SOUT	2 1		
15 9	#************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 **************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ***	BINE Junctic .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ********* CHMENT 00 ID	1.17 ; 2=Define) of comme ***** PMENT SOUT ******	2 1 cont TH OF SEC		
15	#************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ***************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12.	BINE Junctio .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ********* CHMENT 00 II 80 Ar	1.17 : 2=Define of comme ****** PMENT SOUT ***** O No.6 999 rea in hec	nnt TH OF SEC	SMENT 1 -	
15 9	#****************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ****************** ADD RUNOFF	1 14 ST 1 35 CO 3 **	BINE Junctic .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ******** CHMENT 00 ID 80 Ar	2=Define of comme ***** PMENT SOUT ***** O No.6 999 rea in hecength (PER	ent TH OF SEC	SMENT 1 -	
15 9	#************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ***************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12.	BINE Junctic .012 RT 1=Zero; MENT line(s) ******** P DEVELOF ******** CHMENT 00 ID 80 Ar 00 Le 00 Gr	2=Define of comme ***** PMENT SOUT ***** O No.6 999 rea in hec night (PER adient (%	ent TH OF SEC	MENT 1 -	
15 9 17	#**************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ****************** ADD RUNOFF .055	1 14 ST 1 1 35 CO 3 3 *** PR 4 CA 12. 2. 134. 1.	BINE Junctic .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ********* CHMENT 00 ID 80 Ar 00 Le 00 Gr	2=Define of comme ***** PMENT SOUT ***** O No.6 999 rea in hecength (PER	ent TH OF SEC	MENT 1 -	
15 9 17	#***************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ****************** ADD RUNOFF .005	1 14 ST 1 1 35 CO 3 3 *** PR *** 4 CA 12. 2. 134. 1. 35. 134.	BINE Junctic .012 RT 1=Zero; MENT line(s) ********* P DEVELOF ********** CHMENT 00 II 80 Ar 00 Le 00 Gr 00 Pe 000 Le	2=Define of comme ****** PMENT SOUT ***** O No.6 999 rea in hec ongth (PER radient (% er cent In ength (IMF imp. with	ont TH OF SEC	EMENT 1 - es :	POND P11
15 9 17 14	**************************************	1 14 ST 1 35 CO 3 ** PR 4 4 CA 12. 2. 134. 1.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	2=Define of comme ****** PMENT SOUT ****** O No.6 999 rea in hec ength (PER ardient (% er cent Im ength (IMF cmp. with btion 1=SC	ent TH OF SEC	EMENT 1 - es :	
15 9 17 14	FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************* ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 355.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	2=Define of comme ****** MENT SOUT ****** O No.6 999 rea in hec ength (PER addient (% er cent Im ength (IMF imp. with beion 1=SC tunning "n"	ent TH OF SEC	EMENT 1 - es :	POND P11
15 9 17 14	**************************************	1 14 ST 1 35 CO 3 ** PR 4 CA 12. 2. 134. 1. 35.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	2=Define of comme ****** PMENT SOUT ****** O No.6 999 rea in hec ength (PER ardient (% er cent Im ength (IMF cmp. with btion 1=SC	nnt "H OF SEC "1999 stares "W) metres ") pervious ERV) Zero Dpt S CN/C;	EMENT 1 - es :	POND P11
15 9 17 14	FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	2=Define of comme ***** O No.6 999 rea in hec ength (PER radient (Re ength (IMF ength (IMF mp. with otion 1=SC unning "n"	ent TH OF SEC	ement 1 -	POND P11
15 9 17 14 35	FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************* *ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	1.17 2 = Define of comme ****** ****** ***** No. 6 999 rea in hecength (PER radient (% radient (% radient (%)	nnt TH OF SECURITY OF SECURIT	es s ch 2=Horton 2=Rectan	POND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv
15 9 17 14 35	FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134.	BINE Junctic .012 RT	1.17 2 = Define of comme ****** D No.6 999 ea in hece addent (% er cent In mmy "in" S Curve N //S Coeffinitial Abs stion 1=Tr .00	mnt H OF SECURITY HOF SECURI	MENT 1 - S Lh 2=Horton 2=Rectang	POND Pl1 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s
15 9 17 14 35	FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .005	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 355. 134	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	1.17 2 = Define of comme ****** ****** ***** No. 6 999 rea in hecength (PER radient (% radient (% radient (%)	mnt H OF SECURITY H OF SECURITY H OF SECURITY H OF SECURITY DEPTH OF SECURITY H OF SEC	es s ch 2=Horton 2=Rectan	POND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv
15 9 17 14 35	#************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 355. 134	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	1.17 2 = Define of comme ****** D No.6 999 ea in hecanich (PER **adient (% **r cent In imp. with toion 1=85 Anning "n" S Curve N '/S Coeffinitial Absotion 1=76 .00 .86	ent "H OF SEC 1999 ttares (V) metre) pervious ERV) Zero Dpt S CN/C; do or C cient ttraction itanglr; 106	menT 1 - ss ch 2=Horton 2=Rectan	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#***************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134 74. 8.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	1.17 2 = Define of comme ****** D No.6 999 ea in hece addent (% er cent In mmy "in" S Curve N //S Coeffinitial Abs stion 1=Tr .00	ent "H OF SEC 1999 ttares (V) metre) pervious ERV) Zero Dpt S CN/C; do or C cient ttraction itanglr; 106	MENT 1 - S th 2=Horton 2=Rectang	POND Pl1 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s
15 9 17 14 35	#**************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 ******************** ADD RUNOFF .055	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134 74. 8.	BINE Junctic .012 RT 1=Zero; MENT 1ine(s) ************************************	1.17 2 = Define of comme ****** D No.6 999 ea in hecanich (PER **adient (% **r cent In imp. with toion 1=85 Anning "n" S Curve N '/S Coeffinitial Absotion 1=76 .00 .86	nnt TH OF SECONOMIC SECON	menT 1 - ss ch 2=Horton 2=Rectan	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#****************** FLOW AT FUT ROADWAY CULVERT - SEGMENT 1 #************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 355. 134	BINE Junctic .012 RT 1=Zero; MENT 1ine(s) ************************************	1.17 2 = Define Of comme ******* ****** ***** ***** ***** ****	int TH OF SECURITY PROPERTY TO OT C. TO OT C. Threat	sement 1 - ss ch 2=Horton 2=Rectang172	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134. 2. 4 CA 13. 6. 216.	BINE Junctic .012 RT 1=Zero; MENT line(s) ************************************	1.17 2 = Define of comme ****** D No.6 999 ea in hecker addent (% ***** D No.6 999 ea in hecker in hecker cent In mpt (HEM in with toton 1 = 35 D No.6 999 D No.6 999 ea in hecker eaddent (%) S Corre in tital Abso	int "H OF SECURITY OF SECURIT	sement 1 - ss ch 2=Horton 2=Rectang172	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134. 2. 74. 8.	BINE Junctic .012 RT 1=Zerc; MENT 1=Xerc; MENT 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10 100 10	2 = Define 0 of comme 1 of comme	mnt TH OF SEC	MENT 1 - SS Ch 2=Horton 2=Rectan172456	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134	BINE Junctic .012 RT 1=Zero; MENT 1ine(s) ************************************	1.17 2 = Define 0 of comme ****** ******* ****** ***** **** ****	int TH OF SECURITY OF SECURIT	MENT 1 - SS Ch 2=Horton 2=Rectan172456	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134. 2. 74. 8. 15 AD 4 CA 13. 6. 216. 1. 70. 216.	BINE Junctic .012 RT	1.17 2 = Define 0 of comme 1****** 0 No.6 999 1****** 0 No.6 999 1****** 1***** 1***** 1***** 1***** 2 No.6 999 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1**** 1** 1*** 1*	mnt "H OF SEC 1999 stares "Ph OF SEC 1999 stares "Ph OF SEC 1999 stares "Ph OF SEC 1999 stares 1999 stares "Ph OF SEC "Ph OF	MENT 1 - 2=Horton 2=Rectan .172 .456172	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134. 2. 74. 8. 15 AD 4 CA 13. 6. 216. 1. 70. 216.	BINE Junctic .012 RT 1=Zero; MENT 1ine(s) ************************************	1.17 2 = Define Of comme ****** O No.6 999 rea in hecength (PER addient (%) reading (%) Coeffinitial Abe botion 1=Tr .00 .866 O No.6 999 rea in hecength (PER addient (%) coeffinitial Abe botion 1=Tr .15 O No.6 999 rea in hecength (PER addient (%) reading (%) reading (%) reading (%) reading (M)	mnt TH OF SEC	ment 1 - s ch 2=Horton 2=Rectan172172	FOND P11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134. 2. 74. 8. 15 AD 4 CA 13. 6. 216. 11. 70. 216.	BINE Junctic .012 RT 1=Zerc; MENT 1=Zerc; MENT 105 ************************************	1.17 2 = Define 0 of comme 1	mnt TH OF SEC 1999 ttares TW) metre 199 ttares TW) metre 199 ttares TW) metre 199 ttares TW) metre 199 ttares 199 ttar	ment 1 - s ch 2=Horton 2=Rectan172172	pond p11 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total 1.172 c.m/s
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134	BINE Junctic .012 RT 1=Zerc; MENT 1ine(s) ************************************	1.17 2 = Define Of comme ******* ****** ***** ***** ***** ****	int TH OF SEC 1999 ttares TH OF SEC 1999 ttares TH OF SEC 1999 TH OF SEC TH OF SEC 1999 TH OF SEC TH	ment 1 - s ch 2=Horton 2=Rectan172172	pond pl1 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total 1.172 c.m/s
15 9 17 14 35 4	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 13. 35. 134. 2. 14. 2. 15. 174. 2. 2. 2. 174. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	BINE Junctic .012 RT	1.17 2 = Define 0 of comme 1****** 0 No.6 999 1******* 0 No.6 999 1******* 1***** 1***** 1***** 1***** 2 No.6 999 1***** 1***** 1*** 1** 1*** 1*	int "H OF SEC 199 stares "H OF SEC 199 stares "Dervious ERV) Zero Dpt Sc CN/C; fo or C cient straction rianglr; 106 109 1199 1299 1299 1299 1200 1	MENT 1 - 2=Horton 2=Rectan172456172	pond pl1 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total 1.172 c.m/s
15 9 17 14 35	#*************************************	1 14 ST 1 35 CO 3 ** PR ** 4 CA 12. 2. 134. 1. 35. 134	BINE Junctic .012 RT	1.17 2 = Define 0 of comme 1	mnt TH OF SEC 199 stares TW) metre 10) TERV) TERV) TERV) TERV	sement 1 - ss ch 2=Horton 2=Rectang172172172	pond pl1 ; 3=Green-Ampt; 4=Repeat glr; 3=SWM HYD; 4=Lin. Reserv 1.172 c.m/s C perv/imperv/total 1.172 c.m/s

	.236 .882 .688 C perv/imperv/total	74.000 SCS Curve No or C
15	ADD RUNOFF .835 .994 1.172 1.172 c.m/s	.100 Ia/S Coefficient 8.924 Initial Abstraction
4	CATCHMENT	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	14.000 ID No.6 99999	1.556 .044 .361 .361 c.m/s
	.670 Area in hectares 67.000 Length (PERV) metres	.236 .884 .690 C perv/imperv/total 15 ADD RUNOFF
	1.000 Gradient (%)	1.556 1.594 .361 .361 c.m/s
	60.000 Per cent Impervious	9 ROUTE
	67.000 Length (IMPERV)	.000 Conduit Length
	.000 %Imp. with Zero Dpth	.000 No Conduit defined
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	.000 Zero lag .000 Beta weighting factor
	74.000 SCS Curve No or C	.000 Routing timestep
	.100 Ia/S Coefficient	0 No. of sub-reaches
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	1.556 1.594 1.594 .361 c.m/s 17 COMBINE
	.072 .994 1.172 1.172 c.m/s	2 Junction Node No.
	.235 .873 .618 C perv/imperv/total	1.556 1.594 1.594 1.955 c.m/s
15	ADD RUNOFF	14 START
27	.072 1.052 1.172 1.172 c.m/s HYDROGRAPH DISPLAY	1 1=Zero; 2=Define 4 CATCHMENT
	5 is # of Hyeto/Hydrograph chosen	43.000 ID No.6 99999
	Volume = .2954374E+04 c.m	.330 Area in hectares
10	POND	47.000 Length (PERV) metres
	5 Depth - Discharge - Volume sets 184.800 .000 .0	1.000 Gradient (%) 35.000 Per cent Impervious
	185.300 .0140 1142.0	47.000 Length (IMPERV)
	186.100 .0240 3519.0	.000 %Imp. with Zero Dpth
	186.500 .287 4978.0 186.800 1.922 6222.0	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	186.800	.250 Manning "n" 74.000 SCS Curve No or C
	Maximum Depth = 185.805 metres	.100 Ia/S Coefficient
	Maximum Storage = 2641. c.m	8.924 Initial Abstraction
35	.072 1.052 .020 1.172 c.m/s	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .022 .000 1.594 1.955 c.m/s
35	3 line(s) of comment	.022 .000 1.594 1.955 c.m/s .236 .875 .460 C perv/imperv/total
	*******	15 ADD RUNOFF
	FLOW U/S OF RICE RD CULVERT - OUTLET A1	.022 .022 1.594 1.955 c.m/s
17	**************************************	4 CATCHMENT 44.000 ID No.6 99999
17	1 Junction Node No.	6.400 Area in hectares
	.072 1.052 .020 1.185 c.m/s	207.000 Length (PERV) metres
14	START	1.000 Gradient (%)
25	1 1=Zero; 2=Define	70.000 Per cent Impervious 207.000 Length (IMPERV)
35	COMMENT 3 line(s) of comment	.000 %Imp. with Zero Dpth
	********	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	PROP DEVELOPMENT SOUTH OF QUAKER RD & WEST OF RICE RD PON	.250 Manning "n"
4	**************************************	74.000 SCS Curve No or C .100 Ia/S Coefficient
4	40.000 ID No.6 99999	8.924 Initial Abstraction
	8.210 Area in hectares	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	234.000 Length (PERV) metres	.765 .022 1.594 1.955 c.m/s
	1.000 Gradient (%) 25.000 Per cent Impervious	.236 .880 .687 C perv/imperv/total 15 ADD RUNOFF
	234.000 Length (IMPERV)	.765 .782 1.594 1.955 c.m/s
	.000 %Imp. with Zero Dpth	9 ROUTE
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	.000 Conduit Length
	.250 Manning "n" 74.000 SCS Curve No or C	.000 No Conduit defined .000 Zero lag
	.100 Ia/S Coefficient	.000 Beta weighting factor
	8.924 Initial Abstraction	.000 Routing timestep
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .361 .000 .020 1.185 c.m/s</pre>	0 No. of sub-reaches .765 .782 .782 1.955 c.m/s
	.236 .884 .398 C perv/imperv/total	17 COMBINE
15	ADD RUNOFF	2 Junction Node No.
	.361 .361 .020 1.185 c.m/s	.765 .782 .782 2.737 c.m/s
9	ROUTE .000 Conduit Length	14 START 1 1=Zero; 2=Define
	.000 No Conduit defined	18 CONFLUENCE
	.000 Zero lag	2 Junction Node No.
	.000 Beta weighting factor	.765 2.737 .782 .000 c.m/s
	.000 Routing timestep 0 No. of sub-reaches	4 CATCHMENT 45.000 ID No.6 99999
	.361 .361 1.185 c.m/s	1.030 Area in hectares
17	COMBINE	83.000 Length (PERV) metres
	2 Junction Node No.	1.000 Gradient (%) 60.000 Per cent Impervious
14	.361 .361 .361 c.m/s START	83.000 Length (IMPERV)
	1 1=Zero; 2=Define	.000 %Imp. with Zero Dpth
4	CATCHMENT	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	41.000 ID No.6 99999 .690 Area in hectares	.250 Manning "n" 74.000 SCS Curve No or C
	.690 Area in hectares 68.000 Length (PERV) metres	.100 Ia/S Coefficient
	1.000 Gradient (%)	8.924 Initial Abstraction
	35.000 Per cent Impervious	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	68.000 Length (IMPERV) .000 %Imp. with Zero Dpth	.107 2.737 .782 .000 c.m/s .236 .876 .620 C perv/imperv/total
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	.236 .876 .620 C perv/imperv/total 15 ADD RUNOFF
	.250 Manning "n"	.107 2.832 .782 .000 c.m/s
	74.000 SCS Curve No or C .100 Ia/S Coefficient	27 HYDROGRAPH DISPLAY
	.100 Ia/S Coefficient 8.924 Initial Abstraction	5 is # of Hyeto/Hydrograph chosen Volume = .8023741E+04 c.m
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.044 .000 .361 .361 c.m/s	6 Depth - Discharge - Volume sets
15	.236 .873 .459 C perv/imperv/total	186.000 .000 .0
15	ADD RUNOFF .044 .044 .361 .361 c.m/s	186.800 .0550 4048.0 187.300 .0730 7091.0
4	CATCHMENT	187.500 .170 8424.0
	42.000 ID No.6 99999	187.800 .257 10552.0
	12.640 Area in hectares 290.000 Length (PERV) metres	188.000 .880 12094.0 Peak Outflow = .072 c.m/s
	1.000 Gradient (%)	Maximum Depth = 187.266 metres
	70.000 Per cent Impervious	Maximum Storage = 6887. c.m
	290.000 Length (IMPERV)	.107 2.832 .072 .000 c.m/s
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	17 COMBINE 2 Junction Node No.
		A STATE OF THE STA

14	START		.250 Manning "n"	
2.5	1 1=Zero; 2=Define		74.000 SCS Curve No or C .100 Ia/S Coefficient	
35	COMMENT 3 line(s) of comment		.100 Ia/S Coefficient 8.924 Initial Abstraction	
	**************************************		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=I	in. Reserv
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.039 .066 1.052 1.052 c.m/s	
	**********		.236 .872 .299 C perv/imperv/tota	1
4	CATCHMENT	15	ADD RUNOFF	
	2.000 ID No.6 99999	_	.039 .104 1.052 1.052 c.m/s	
	9.020 Area in hectares 245.000 Length (PERV) metres	9	ROUTE	
	245.000 Length (PERV) metres 1.000 Gradient (%)		.000 Conduit Length .000 No Conduit defined	
	40.000 Per cent Impervious		.000 Zero lag	
	245.000 Length (IMPERV)		.000 Beta weighting factor	
	.000 %Imp. with Zero Dpth		.000 Routing timestep	
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		0 No. of sub-reaches	
	.250 Manning "n"		.039 .104 .104 1.052 c.m/s	
	74.000 SCS Curve No or C	17	COMBINE	
	.100 Ia/S Coefficient		2 Junction Node No.	
	8.924 Initial Abstraction Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Reserv	1.4	.039 .104 .104 1.156 c.m/s	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .624 .000 .072 .072 c.m/s	14	START 1 1=Zero; 2=Define	
	.236 .885 .496 C perv/imperv/total	35	1 1=Zero; 2=Define COMMENT	
15	ADD RUNOFF	33	3 line(s) of comment	
	.624 .624 .072 .072 c.m/s		*******	
9	ROUTE		EXISTING AREA WEST OF RICE RD AND SOUTH OF QUAKER ROAD	
	.000 Conduit Length		********	
	.000 No Conduit defined	4	CATCHMENT	
	.000 Zero lag		4.000 ID No.6 99999	
	.000 Beta weighting factor		13.940 Area in hectares	
	.000 Routing timestep		305.000 Length (PERV) metres	
	0 No. of sub-reaches		1.000 Gradient (%)	
	.624 .624 .624 .072 c.m/s		40.000 Per cent Impervious	
17	COMBINE 2 Junction Node No.		305.000 Length (IMPERV)	
	2 Junction Node No624 .624 .624 .660 c.m/s		.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=F	longat
14	START .024 .024 .000 C.m/S		.250 Manning "n"	epeac
	1 1=Zero; 2=Define		74.000 SCS Curve No or C	
18	CONFLUENCE		.100 Ia/S Coefficient	
	2 Junction Node No.		8.924 Initial Abstraction	
	.624 .660 .624 .000 c.m/s		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=I</pre>	in. Reserv
35	COMMENT		.988 .000 .104 1.156 c.m/s	
	<pre>3 line(s) of comment</pre>		.236 .883 .495 C perv/imperv/tota	1
	************	15	ADD RUNOFF	
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.988 .988 .104 1.156 c.m/s	
	************	9	ROUTE	
4	CATCHMENT		.000 Conduit Length	
	3.000 ID No.6 99999		.000 No Conduit defined	
	5.680 Area in hectares		.000 Zero lag	
	195.000 Length (PERV) metres		.000 Beta weighting factor	
	1.000 Gradient (%) 40.000 Per cent Impervious		.000 Routing timestep 0 No. of sub-reaches	
	195.000 Length (IMPERV)		.988 .988 .988 1.156 c.m/s	
	.000 %Imp. with Zero Dpth	17	COMBINE	
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		2 Junction Node No.	
	.250 Manning "n"		.988 .988 .988 2.144 c.m/s	
	74.000 SCS Curve No or C	14	START	
	.100 Ia/S Coefficient		1 1=Zero; 2=Define	
	8.924 Initial Abstraction	18	CONFLUENCE	
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		2 Junction Node No.	
	.392 .660 .624 .000 c.m/s		.988 2.144 .988 .000 c.m/s	
	.236 .877 .492 C perv/imperv/total	35	COMMENT	
15	ADD RUNOFF		3 line(s) of comment	
9	.392 1.052 .624 .000 c.m/s			
9	ROUTE .000 Conduit Length		RICE ROAD FROM QUAKER RD TO CITY OF WELLAND MUNICIPAL BO	DUNDA
	.000 No Conduit defined	4	CATCHMENT	
	.000 Zero lag	-	501.000 ID No.ó 99999	
	.000 Beta weighting factor		1.570 Area in hectares	
	.000 Routing timestep		102.000 Length (PERV) metres	
	0 No. of sub-reaches		1.000 Gradient (%)	
	.392 1.052 1.052 .000 c.m/s		70.000 Per cent Impervious	
17	COMBINE		102.000 Length (IMPERV)	
	2 Junction Node No.		.000 %Imp. with Zero Dpth	
	.392 1.052 1.052 c.m/s		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=F	Repeat
14	START		.250 Manning "n"	
35	1 1=Zero; 2=Define COMMENT		74.000 SCS Curve No or C .100 Ia/S Coefficient	
23	COMMENT 3 line(s) of comment		.100 Ia/S Coefficient 8.924 Initial Abstraction	
	**************************************		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=I	in Pegeru
	PROP DEVELOPMENT SOUTH OF QUAKER RD, EAST OF RICE RD		.182 2.144 .988 .000 c.m/s	Veser
	*********		.236 .874 .683 C perv/imperv/tota	1
4	CATCHMENT	15	ADD RUNOFF	
	50.000 ID No.6 99999		.182 2.317 .988 .000 c.m/s	
	3.420 Area in hectares	9	ROUTE	
	151.000 Length (PERV) metres		.000 Conduit Length	
	1.000 Gradient (%)		.000 No Conduit defined	
	10.000 Per cent Impervious		.000 Zero lag	
	151.000 Length (IMPERV)		.000 Beta weighting factor	
	.000 %Imp. with Zero Dpth		.000 Routing timestep	
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		0 No. of sub-reaches	
	.250 Manning "n" 74.000 SCS Curve No or C	35	.182 2.317 2.317 .000 c.m/s COMMENT	
	.100 Ia/S Coefficient	33	3 line(s) of comment	
	8.924 Initial Abstraction		*********	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		FLOW D/S OF RICE RD CULVERT - OUTLET A2	
	.066 .000 1.052 1.052 c.m/s		*************	
	.236 .868 .299 C perv/imperv/total	17	COMBINE	
15	ADD RUNOFF		1 Junction Node No.	
	.066 .066 1.052 1.052 c.m/s		.182 2.317 2.317 3.502 c.m/s	
4	CATCHMENT	14	START	
	51.000 ID No.6 99999		1 1=Zero; 2=Define	
	1.980 Area in hectares	35	COMMENT	
	115.000 Length (PERV) metres		3 line(s) of comment	
	1.000 Gradient (%)		**************************************	NIT V
	10.000 Per cent Impervious 115.000 Length (IMPERV)		PROP DEVELOPMENT SOUTH OF QUAKER RD - QUALLITY CONTROL (WTI
		_	CATCHMENT	
	.000 %Imp. with Zero Dpth	4		

	.780 Area in hectares	35	COMMENT
	72.000 Length (PERV) metres		<pre>3 line(s) of comment</pre>
	1.000 Gradient (%)		***********
	35.000 Per cent Impervious 72.000 Length (IMPERV)		FLOW U/S OF FIRST AVE CULVERT
	.000 %Imp. with Zero Dpth	17	COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	1,	1 Junction Node No.
	.250 Manning "n"		.229 4.202 4.202 4.202 c.m/s
	74.000 SCS Curve No or C	14	START
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	35	COMMENT
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		<pre>3 line(s) of comment</pre>
	.049 .000 2.317 3.502 c.m/s		******
	.236 .873 .459 C perv/imperv/total		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
15	ADD RUNOFF		*****
	.049 .049 2.317 3.502 c.m/s	4	CATCHMENT
4	CATCHMENT		52.000 ID No.6 99999
	20.000 ID No.ó 99999		6.430 Area in hectares
	3.210 Area in hectares		207.000 Length (PERV) metres
	146.000 Length (PERV) metres		1.000 Gradient (%)
	1.000 Gradient (%) 85.000 Per cent Impervious		70.000 Per cent Impervious 207.000 Length (IMPERV)
			207.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	- · · · · · · · · · · · · · · · · · · ·		
	.000 %Imp. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	.250 Manning "n"		74.000 SCS Curve No or C
	74.000 SCS Curve No or C		.100 Ia/S Coefficient
	.100 Ia/S Coefficient		8.924 Initial Abstraction
	8.924 Initial Abstraction		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		.768 .000 4.202 4.202 c.m/s
	.452 .049 2.317 3.502 c.m/s		.236 .880 .687 C perv/imperv/total
	.236 .866 .772 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF		.768 .768 4.202 4.202 c.m/s
	.452 .494 2.317 3.502 c.m/s	9	ROUTE
9	ROUTE	-	.000 Conduit Length
-	.000 Conduit Length		.000 No Conduit defined
	.000 No Conduit defined		.000 Zero lag
	.000 Zero lag		.000 Beta weighting factor
	.000 Beta weighting factor		.000 Routing timestep
	.000 Routing timestep		0 No. of sub-reaches
	0 No. of sub-reaches		.768 .768 .768 4.202 c.m/s
	.452 .494 .494 3.502 c.m/s	17	COMBINE
17	COMBINE		2 Junction Node No.
	1 Junction Node No.		.768 .768 .768 c.m/s
	.452 .494 .494 3.996 c.m/s	14	START
14	START		1 1=Zero; 2=Define
	1 1=Zero; 2=Define	4	CATCHMENT
18	CONFLUENCE		53.000 ID No.ó 99999
	1 Junction Node No.		11.340 Area in hectares
	.452 3.996 .494 .000 c.m/s		275.000 Length (PERV) metres
35	COMMENT		1.000 Gradient (%)
	<pre>3 line(s) of comment</pre>		70.000 Per cent Impervious
	********		275.000 Length (IMPERV)
	REALIGNED CHANNEL - SEGMENT 2		.000 %Imp. with Zero Dpth
	********		<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
4	CATCHMENT		.250 Manning "n"
	200.000 ID No.6 99999		74.000 SCS Curve No or C
	.970 Area in hectares		.100 Ia/S Coefficient
	80.416 Length (PERV) metres		8.924 Initial Abstraction
	1.000 Gradient (%)		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	10.000 Per cent Impervious		1.397 .000 .768 .768 c.m/s
	80.416 Length (IMPERV)		.236 .886 .691 C perv/imperv/total
	.000 %Imp. with Zero Dpth	15	ADD RUNOFF
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1.397 1.397 .768 .768 c.m/s
	.250 Manning "n"	9	ROUTE .000 Conduit Length
	74.000 SCS Curve No or C .100 Ia/S Coefficient		.000 Conduit Length .000 No Conduit defined
	8.924 Initial Abstraction		.000 Zero lag
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		.000 Beta weighting factor
	.019 3.996 .494 .000 c.m/s		.000 Routing timestep
	.236 .875 .299 C perv/imperv/total		0 No. of sub-reaches
35	COMMENT :255 :075 :255 C per v/ imper v/ cocar		1.397 1.397 1.397 .768 c.m/s
	3 line(s) of comment	17	COMBINE
	********		2 Junction Node No.
	FLOW D/S OF AREA A20 - OUTLET B		1.397 1.397 2.165 c.m/s
	********	18	CONFLUENCE
15	ADD RUNOFF		2 Junction Node No.
	.019 4.015 .494 .000 c.m/s		1.397 2.165 1.397 .000 c.m/s
35	COMMENT	4	CATCHMENT
	<pre>3 line(s) of comment</pre>		54.000 ID No.ó 99999
	**********		1.280 Area in hectares
	EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV		92.000 Length (PERV) metres
	**********		1.000 Gradient (%)
4	CATCHMENT		60.000 Per cent Impervious
	21.000 ID No.ó 99999		92.000 Length (IMPERV)
	35.460 Area in hectares		.000 %Imp. with Zero Dpth
	487.000 Length (PERV) metres		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.200 Gradient (%)		.250 Manning "n"
	5.000 Per cent Impervious		74.000 SCS Curve No or C
	487.000 Length (IMPERV) .000 %Imp. with Zero Dpth		.100 Ia/S Coefficient 8.924 Initial Abstraction
	.000 %Imp. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.250 Manning "n"		.131 2.165 1.397 .000 c.m/s
	74.000 SCS Curve No or C		.236 .876 .620 C perv/imperv/total
	.100 Ia/S Coefficient	15	ADD RUNOFF
	8.924 Initial Abstraction	1.7	.131 2.285 1.397 .000 c.m/s
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	27	HYDROGRAPH DISPLAY
	.229 4.015 .494 .000 c.m/s		5 is # of Hyeto/Hydrograph chosen
	.236 .884 .268 C perv/imperv/total		Volume = .5982220E+04 c.m
15	ADD RUNOFF	10	POND
	.229 4.202 .494 .000 c.m/s		6 Depth - Discharge - Volume sets
9	ROUTE		182.000 .000 .0
	.000 Conduit Length		182.800 .0190 5251.0
	.000 No Conduit defined		183.150 .0230 7895.0
	.000 Zero lag		183.500 .238 10751.0
	.000 Beta weighting factor		183.800 .396 13425.0
	.000 Routing timestep		184.000 1.028 15337.0
	0 No. of sub-reaches		Peak Outflow = .020 c.m/s

	Maximum Storage = 5617. .131 2.285	.020	.000 c.m/s	35	COMMENT 3 line(s) of comment
17	COMBINE	.020	.000 C.m/s		*********
	2 Junction Node No.				REALIGNED CHANNEL - SEGMENT 3
14	.131 2.285 START	.020	.020 c.m/s	4	************ CATCHMENT
14	1 1=Zero; 2=Define			-	300.000 ID No.6 99999
35	COMMENT				3.180 Area in hectares
	<pre>3 line(s) of comment ************************************</pre>				146.000 Length (PERV) metres .200 Gradient (%)
	EXISTING AREA ON QUAKER RD,	EAST OF RIC	E RD		15.000 Per cent Impervious
	******				146.000 Length (IMPERV)
4	CATCHMENT 5.000 ID No.6 99999				.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	1.870 Area in hectares				.250 Manning "n"
	112.000 Length (PERV) metr	es			74.000 SCS Curve No or C
	1.000 Gradient (%) 50.000 Per cent Imperviou	ıs			.100 Ia/S Coefficient 8.924 Initial Abstraction
	112.000 Length (IMPERV)				1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dr				.087 4.834 .632 .000 c.m/s
	1 Option 1=SCS CN/C; .250 Manning "n"	Z=Horton;	3=Green-Ampt; 4=Repeat	15	.236 .880 .332 C perv/imperv/total ADD RUNOFF
	74.000 SCS Curve No or C				.087 4.921 .632 .000 c.m/s
	.100 Ia/S Coefficient			4	CATCHMENT
	8.924 Initial Abstraction 1 Option 1=Trianglr:		r; 3=SWM HYD; 4=Lin. Reserv		301.000 ID No.6 99999 .720 Area in hectares
	.153 .000	.020	.020 c.m/s		69.000 Length (PERV) metres
15	.236 .873 ADD RUNOFF	.554 C	perv/imperv/total		.200 Gradient (%)
15	.153 .153	.020	.020 c.m/s		10.000 Per cent Impervious 69.000 Length (IMPERV)
9	ROUTE				.000 %Imp. with Zero Dpth
	.000 Conduit Length				1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.000 No Conduit defined	1			.250 Manning "n" 74.000 SCS Curve No or C
	.000 Beta weighting fac	tor			.100 Ia/S Coefficient
	.000 Routing timestep				8.924 Initial Abstraction
	0 No. of sub-reaches	.153	.020 c.m/s		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .014 4.921 .632 .000 c.m/s
17	COMBINE				.236 .869 .299 C perv/imperv/total
	2 Junction Node No.	150	160/-	15	ADD RUNOFF
18	.153 .153 CONFLUENCE	.153	.160 c.m/s	9	.014 4.935 .632 .000 c.m/s
	2 Junction Node No.				.000 Conduit Length
25	.153 .160	.153	.000 c.m/s		.000 No Conduit defined
35	COMMENT 3 line(s) of comment				.000 Zero lag .000 Beta weighting factor
	******				.000 Routing timestep
	EXISTING AREA ON QUAKER RD,	EAST OF RIC	E RD		0 No. of sub-reaches .014 4.935 4.935 .000 c.m/s
4	CATCHMENT			17	.014 4.935 4.935 .000 c.m/s COMBINE
	6.000 ID No.ó 99999				1 Junction Node No.
	1.920 Area in hectares 113.000 Length (PERV) metr			14	.014 4.935 4.935 c.m/s START
	.200 Gradient (%)	res		14	START 1 1=Zero; 2=Define
	65.000 Per cent Imperviou	ıs		35	COMMENT
	113.000 Length (IMPERV)	44			3 line(s) of comment
	.000 %Imp. with Zero Dr 1 Option 1=SCS CN/C;		3=Green-Ampt; 4=Repeat		PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30
	.250 Manning "n"	-			

	74.000 SCS Curve No or C			4	**************************************
		on		4	******
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr;	2=Rectangl	r; 3=SWM HYD; 4=Lin. Reserv	4	********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160	2=Rectangl	.000 c.m/s	4	************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%)
15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr;	2=Rectangl		4	********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option l=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374	2=Rectangl	.000 c.m/s	4	************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth
15 35	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT	2=Rectangl .153 .658 0	.000 c.m/s perv/imperv/total	4	******************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option l=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374	2=Rectangl .153 .658 0	.000 c.m/s perv/imperv/total	4	************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C	.000 c.m/s ! perv/imperv/total .000 c.m/s	4	**************************************
	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C	.000 c.m/s ! perv/imperv/total .000 c.m/s	4	**************************************
35	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C	.000 c.m/s ! perv/imperv/total .000 c.m/s	4	**************************************
35	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153	.000 c.m/s ! perv/imperv/total .000 c.m/s		**************************************
35	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************ FIRST AVE FROM QUAKER RD TO ************ CATCHMENT 201.000 ID No.6 99999 2.430 Area in hectares 127.000 Length (PERV) metr	2=Rectangl .153 .658 C .153	.000 c.m/s ! perv/imperv/total .000 c.m/s	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153	.000 c.m/s ! perv/imperv/total .000 c.m/s		**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEL	.000 c.m/s ! perv/imperv/total .000 c.m/s	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI	.000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI	.000 c.m/s ! perv/imperv/total .000 c.m/s	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 0 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI	.000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI	.000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI res ts th 2=Horton;	.000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .558 .153 CITY OF WEI .153 ces .153 ces .153 ces .153 ces .153	.000 c.m/s 'perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .558 .153 CITY OF WEI .153 ces .153 ces .153 ces .153 ces .153	.000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv	15	**************************************
15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .558 .153 CITY OF WEI .153 ces .153 ces .153 ces .153 ces .153	.000 c.m/s 'perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	15	**************************************
4	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI res sobth 2=Horton; con 2=Rectangl .153 .647 C	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15	**************************************
15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15	**************************************
15	74.000 SCS Curve No or C .100 Ia/S Coefficient C .8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment *********** FIRST AVE FROM QUAKER RD TO *********** CATCHMENT 201.000 ID No.6 99999 2.430 Area in hectares 127.000 Length (PERV) metr 1.000 Gradient (%) 65.000 Per cent Imperviou 127.000 Length (IMPERV) .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 1 Option 1=Trianglr; .259 .374 .236 .868 ADD RUNOFF .259 .632 ROUTE .000 Conduit Length .000 No Conduit defined .000 No Conduit defined	2=Rectangl .153 .658 C .153 CITY OF WEI res as bth 2=Horton; on 153 .647 C	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15	**************************************
15	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2=Rectangl .153 .658 C .153 CITY OF WEI res as bth 2=Horton; on 153 .647 C	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15 4	CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Mamning "n" 74.000 SCS Curve No or C .100 1a/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .057 .000 4.935 4.935 c.m/s .236 .885 .236 C perv/imperv/total ADD RUNOFF .057 .057 4.935 4.935 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.333 .057 4.935 4.935 c.m/s .236 .886 .723 C perv/imperv/total ADD RUNOFF 1.333 1.341 4.935 4.935 c.m/s
15	74.000 SCS Curve No or C .100 Ia/S Coefficient C .8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment *********** FIRST AVE FROM QUAKER RD TO *********** CATCHMENT 201.000 ID No.6 99999 2.430 Area in hectares 127.000 Length (PERV) metr 1.000 Gradient (%) 65.000 Per cent Imperviou 127.000 Length (IMPERV) .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 1 Option 1=Trianglr; .259 .374 .236 .868 ADD RUNOFF .259 .632 ROUTE .000 Conduit Length .000 No Conduit defined .000 No Conduit defined	2 = Rectangl .153 .658 C .153 CITY OF WEI .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15 4	**************************************
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 CITY OF WEI .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 d.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total	15 4 15 27	CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .057 .000 4.935 4.935 c.m/s .236 .885 .236 C perv/imperv/total ADD RUNOFF .057 .057 4.935 4.935 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.333 .057 4.935 4.935 c.m/s .236 .886 .723 C perv/imperv/total ADD RUNOFF 1.333 1.341 4.935 4.935 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .4376407E+04 c.m
15	74.000 SCS Curve No or C .100 Ia/S Coefficient C .8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************ FIRST AVE FROM QUAKER RD TO ************ CATCHMENT 201.000 ID No.6 99999 2.430 Area in hectares 127.000 Length (PERV) metr 1.000 Gradient (%) 65.000 Per cent Imperviou 127.000 Length (IMPERV) .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .259 .374 .236 .868 ADD RUNOFF .259 .632 ROUTE ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting fac .000 ROUTING timp timp timp .259 .632 COMBINE	2=Rectangl .153 .658 .153 CITY OF WEL res ss sch 2=Rectangl .153 .647 .153	.000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4	**************************************
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .153 .CITY OF WEI .153 .CITY OF WEI .153 .647 C .153 .153	.000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4 15 27	CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .057 .000 4.935 4.935 c.m/s .236 .885 .236 C perv/imperv/total ADD RUNOFF .057 .057 4.935 4.935 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.333 .057 4.935 4.935 c.m/s .236 .886 .723 C perv/imperv/total ADD RUNOFF 1.333 1.341 4.935 4.935 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .4376407E+04 c.m
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .153 .CITY OF WEI .153 .CITY OF WEI .153 .647 C .153 .153	.000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	15 4 15 27	**************************************
35 4 15 9	74.000 SCS CUTVE NO OF C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .153 .CITY OF WEI .153 .CITY OF WEI .153 .647 C .153 .153	.000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	15 4 15 27	CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .057 .000 4.935 4.935 c.m/s .236 .885 .236 C perv/imperv/total ADD RUNOFF .057 .057 4.935 4.935 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.333 .057 4.935 4.935 c.m/s .236 .886 .723 C perv/imperv/total ADD RUNOFF 1.333 1.341 4.935 4.935 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .4376407E+04 c.m CATCHMENT 32.000 ID No.6 99999 .690 Area in hectares 68.000 Length (PERV) metres 1.000 Gradient (%)
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .658 C .153 .CITY OF WEI .153 .647 C .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s .000 c.m/s	15 4 15 27	**************************************
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 0 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .658 C .153 .CITY OF WEI .153 .647 C .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s .000 c.m/s	15 4 15 27	**************************************
35 4 15 9	74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .214 .160 .236 .886 ADD RUNOFF .214 .374 COMMENT 3 line(s) of comment ************************************	2 = Rectangl .153 .658 C .153 .658 C .153 .CITY OF WEI .153 .647 C .153 .647 C .153	.000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .000 c.m/s .000 c.m/s	15 4 15 27	**************************************

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.100
                      Ia/S Coefficient
         8.924
                      Initial Abstraction
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.341 4.935 4.935 c.m/s 6.873 .618 C perv/imperv/total
                  .236
15
        ADD RUNOFF
        .074 1.4
HYDROGRAPH DISPLAY
                              1.401
                                            4.935
                                                           4.935 c.m/s
27
         is # of Hyeto/Hydrograph chosen
Volume = .4571937E+04 c.m
10
         POND
        POND
5 Depth - Discharge - Volume sets
178.800 .000 .0
179.300 .0260 1520.0
                           .0440
                                         4649.0
7069.0
                            .414
         180.600
         .414
1.204
Peak Outflow =
Maximum =
        reak Outflow = 0.38 c.m/s
Maximum Depth = 179.851 metres
Maximum Storage = 3675. c.m
.074 1.401
                                                            4.935 c.m/s
17
               Junction Node No.
        .074
START
                              1.401
                                                            4.958 c.m/s
14
               1=Zero; 2=Define
         COMMENT
35
         line(s) of comment
        PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
         CATCHMENT
                     ID No.6 99999
        33.000
        12,960
                      Area in hectares
Length (PERV) metres
      294.000
                     Gradient (%)
Per cent Impervious
Length (IMPERV)
        1.000
       75.000
      294.000
          .000
                      %Imp. with Zero Doth
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
           .250
                      Manning "n"
SCS Curve No or C
        74.000
                      Ia/S Coefficient
Initial Abstraction
          .100
         8.924
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
1.708 .000 .038 4.958 c.m/s
.236 .884 .722 C perv/imperv/total
        ADD RUNOFF
1.708
15
        HYDROGRAPH DISPLAY
27
        is # of Hyeto/Hydrograph chosen
Volume = .4291300E+04 c.m
CATCHMENT
                      Area in hectares
          .660
                      Length (PERV) metres
Gradient (%)
Per cent Impervious
        66.000
         1.000
        60.000
                      Length (IMPERV)
%Imp. with Zero Dpth
        66.000
          .000
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                      Manning "n"
SCS Curve No or C
           . 250
        74.000
           . 100
                      Ia/S Coefficient
                      Initial Abstraction
                      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                 .072
                             1.708 .038
.873 .618
                                                         4.958 c.m/s
C perv/imperv/total
        .235 .873 .618
ADD RUNGFF .072 1.765 .038
HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .4478340E+04 c.m
15
                                                            4.958 c.m/s
10
         POND
        6 Depth - Discharge - Volume sets
                    .000
         178.300
                                         .0
1927.0
         178.900
         179.600
                           .0540
                                         4692.0
                          .150
         180.000
                             .321
                                         6538.0
        4.958 c.m/s
17
             Junction Node No. .072 1.765
        .072
START
14
               1=Zero; 2=Define
        CONFLUENCE
18
       1 Junction Node No.
        .072 4.986
35
         3 line(s) of comment
        REALIGNED CHANNEL - SEGMENT 3
         CATCHMENT
      302.000
                     TD No. 6 99999
                      Area in hectares
Length (PERV) metres
         1.610
      104.000
       .200
10.000
                      Gradient (%)
Per cent Impervious
                      Length (IMPERV)
      104.000
                      %Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
           . 250
                      Manning "n"
SCS Curve No or C
       74.000
```

```
.100
                Ia/S Coefficient
       8.924
                Initial Abstraction
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                                .048 .000 c.m/s
.301 C perv/imperv/total
             .236
                        .884
       COMMENT
       3 line(s) of comment
       FLOW U/S OF NIAGARA ST CULVERT - OUTLET D
15
       ADD RUNOFF
      .030
START
                       5.016
                                              .000 c.m/s
14
           1=Zero; 2=Define
```

35	COMMENT										
	3 line	e(s) of comment	*******			1.000	Gradient				
	10 252					10.000 82.000		Impervio	us		
		STORM EVENT	******	*****		.000	Length ((IMPERV) ith Zero D	n+h		
2	STORM					1				; 3=Green-Ampt;	4=Penest
-	1	1=Chicago:2=Huff	;3=User;4=Cdn1hr;5=Hist	coric		.250	Manning		, z-Hortor	i, 3-Green-Ampc,	1-Repeat
	860.000	Coefficient a	,5-5551,1-5411111,5-1115	.0110		74.000		ze No or C			
	6.500		min)			.100		efficient			
	.763	Exponent c				8.924	Initial	Abstraction	on		
	.450	Fraction to peak	r			1	Option 1	.=Trianglr	; 2=Rectar	nglr; 3=SWM HYD;	4=Lin. Reserv
	240.000	Duration ó 240 m					.024	.531	1.290	1.290 c.m/s	
			al depth				. 267	.886	.329	C perv/imperv/	total
3	IMPERVIO				15	ADD RUNC					
	1		C; 2=Horton; 3=Green-Am	npt; 4=Repeat			.024	.555	1.290	1.290 c.m/s	
	.015	Manning "n"	a		10	POND	D				
	98.000 .100	SCS Curve No or (Ia/S Coefficient				184.800	Discharge		.0		
	.518	Initial Abstract:				185.750	.021		1.0		
35	COMMENT	Inicial Abscrace.	1011			186.000	.023		03.0		
		e(s) of comment				186.250	.026		91.0		
		*****				186.500	.028		65.0		
	EXISTING	RES. WEST OF SEGMI	ENT 1			186.700	1.24	4 23	70.0		
	*****	*****				Peak Out	tflow =	.026	c.m/s		
4	CATCHMENT					Maximum					
	1.000	ID No.ó 99999					Storage =	1229.			
	17.520	Area in hectares					.024	.555	.026	1.290 c.m/s	
	343.000	Length (PERV) met	cres		17	COMBINE 1 Jun					
	1.000 35.000	Gradient (%) Per cent Impervi					nction Node .024	.555	026	1.313 c.m/s	
	343.000	Length (IMPERV)	Jus		14	START	.024	.555	.026	1.313 C.M/S	
	.000	%Imp. with Zero I	Doth				Zero; 2=Def	ine			
	1		C; 2=Horton; 3=Green-Am	npt; 4=Repeat	18	CONFLUEN					
	.250	Manning "n"					nction Node	No.			
	74.000	SCS Curve No or (c				.024 1	L.313	.026	.000 c.m/s	
	.100	Ia/S Coefficient			35	COMMENT					
	8.924	Initial Abstract:	ion				ne(s) of co	mment			
	1		r; 2=Rectanglr; 3=SWM H				******				
		227 .000	.000 c.m/				ED CHANNEL	- SEGMENT	1		
		267 .892	.486 C perv/impe	erv/total	_		******				
15	ADD RUNOI				4	CATCHMEN					
	1.2	227 1.227	.000 c.m/	's		101.000	ID No.6				
35	COMMENT	-(a) of assument				.610		hectares			
		e(s) of comment				64.000 1.000	Gradient	(PERV) met	res		
		D CHANNEL - SEGMEN	r 1			10.000		ະ (ຈ) : Impervio	110		
		*******				64.000	Length (u.b		
4	CATCHMENT	r				.000		th Zero D	nth.		
	100.000	ID No.ó 99999				1				; 3=Green-Ampt;	4=Repeat
	2.020	Area in hectares				.250	Manning		-		-
	116.000	Length (PERV) met	tres			74.000	SCS Curv	re No or C			
	.400	Gradient (%)				.100	Ia/S Coe	efficient			
	15.000	Per cent Impervi	ous			8.924	Initial	Abstraction	on		
	116.000	Length (IMPERV)				1				nglr; 3=SWM HYD;	4=Lin. Reserv
	.000	%Imp. with Zero 1						L.313	.026	.000 c.m/s	
	1		C; 2=Horton; 3=Green-Am	npt; 4=Repeat			.266	.884	.328	C perv/imperv/	'total
	.250	Manning "n"	_		15	ADD RUNC					
	74.000 .100	SCS Curve No or (Ia/S Coefficient			9	ROUTE	.016 1	1.329	.026	.000 c.m/s	
	8.924	Initial Abstract:			,	.000	Conduit	Longth			
	1		r; 2=Rectanglr; 3=SWM H	HVD: 4=Lin. Reserv		.000		it define	đ		
		063 1.227	.000 .000 c.m/			.000	Zero lag		u		
		267 .883	.359 C perv/impe			.000		ighting fac	ctor		
35	COMMENT					.000		timestep			
	3 line	e(s) of comment				0	No. of a	sub-reaches	s		
	*****	*****						L.329	1.329	.000 c.m/s	
		FUT ROADWAY CULVER	T - SEGMENT 1		17	COMBINE					
	******						nction Node	NTO.			

15	ADD RUNO	FF						1.329	1.329	1.329 c.m/s	
	.0		.000 .000 c.m/	's	14	START	.016 1	1.329	1.329	1.329 c.m/s	
9	ROUTE	FF 063 1.290		/s		START 1 1=2		1.329	1.329	1.329 c.m/s	
	ROUTE .000	FF 063 1.290 Conduit Length	.000 c.m/	/s	14 35	START 1 1=2 COMMENT	.016 1 Zero; 2=Def	1.329 Eine	1.329	1.329 c.m/s	
	ROUTE .000 .000	FF 063 1.290 Conduit Length No Conduit define	.000 c.m/	/s		START 1 1=2 COMMENT	.016 1	1.329 Eine	1.329	1.329 c.m/s	
9	ROUTE .000	FF 063 1.290 Conduit Length No Conduit define Zero lag	.000 .000 c.m/	/s		START 1 1=2 COMMENT 3 lin *******	.016 1 Zero; 2=Def	1.329 Eine Domment			
	ROUTE .000 .000	FF 063 1.290 Conduit Length No Conduit define	.000 .000 c.m/	/s		START 1 1=2 COMMENT 3 lin ********* PROP DEV	.016 1 Zero; 2=Def ne(s) of co	1.329 Eine Domment			
	ROUTE .000 .000 .000 .000 .000	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach	.000 .000 c.m/ ed actor	/s		START 1 1=2 COMMENT 3 lin ********* PROP DEV	.016 1 Zero; 2=Def ne(s) of co	1.329 Eine Domment			
	ROUTE .000 .000 .000 .000 .000	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep	.000 .000 c.m/ ed actor		35	START 1 1=2 COMMENT 3 lin ******** PROP DEV	.016 1 Zero; 2=Def ne(s) of co ********* VELOPMENT S ********** NT ID No.6	Eine Domment GOUTH OF SI			
	ROUTE .000 .000 .000 .000 .000 .000	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290	.000 .000 c.m/ ed actor		35	START 1 1=2 COMMENT 3 lin ********* PROP DEV ********* CATCHMEN 12.000 2.680	.016 I Zero; 2=Def ne(s) of co ******** VELOPMENT S ******** NT ID No.6 Area in	Eine Comment COUTH OF SI 99999 hectares	EGMENT 1 -		
9	ROUTE .000 .000 .000 .000 .000 0 .000 0	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reache 1.290 ction Node No.	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	START 1 1=2 COMMENT 3 lin ******** PROP DEV ******** CATCHMEN 12.000 2.680 134.000	.016] Zero; 2=Def ne(s) of co ********* VELOPMENT S ********* NT ID No.6 Area in Length (Eine Domment SOUTH OF SI 99999 hectares (PERV) met:	EGMENT 1 -		
9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290	.000 .000 c.m/ ed actor	/s	35	START 1 1=2 COMMENT 3 lin ************************************	.016 Ine(s) of commerce with the commerce with t	1.329 Fine Domment SOUTH OF SI 99999 hectares (PERV) metal	EGMENT 1 -		
9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach 1.290 ction Node No. 1.290	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	START 1 = 2 COMMENT 3 1ir ************************************	Zero; 2=Def Zero; 2=Def Area; of co ********* ********* ******** ID No.6 Area in Length (Gradient Per cent	1.329 Eine Comment SOUTH OF SI 99999 hectares (PERV) met: (*) Impervious	EGMENT 1 -		
9 17 14	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reache 1.290 ction Node No.	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	START 1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Def De(s) of co ********** ********* ID No.6 Area in Length (Gradient Per cent Length (D.329 Fine Domment SOUTH OF SI 99999 hectares (PERV) met: (%) : (%) : Imperviou (IMPERV)	EGMENT 1 - res us		
9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ero; 2=Define	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	START 1 1=2 COMMENT 3 1ir ********** PROP DEV ********* 12.000 2.680 134.000 1.000 35.000 134.000 .000	Zero; 2=Def ne(s) of co ******** VELOPMENT S ******** ID No.6 Area in Length (Gradient Per cent Length (\$Imp. wi	1.329 Eine Comment SOUTH OF SI 99999 hectares (PPEV) met: (%) Impervious (IMPERV)	EGMENT 1 - res us pth	- POND P11	Appropri
9 17 14	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach 1.290 ction Node No. 1.290	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Define(s) of continuous of continuou	E.329 Fine COUTH OF SI 99999 hectares (PERV) met: : (%) : Impervious (IMPERV)	EGMENT 1 - res us pth		4=Repeat
9 17 14	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting fr Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2=Define e(s) of comment	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	1 1=2 COMMENT 3 1ii ***********************************	Zero; 2=Def ne(s) of co ********* VELOPMENT S ******** ID No.6 Area in Length (Gradient Per cent Length (% Imp. wi Option 1 Manning	L.329 Eine Domment SOUTH OF SI 99999 hectares PERV) met: (%) : Imperviou IMPERV) th Zero Dj L=SCS CN/C "n"	eGMENT 1 - res us pth ; 2=Hortor	- POND P11	4=Repeat
9 17 14	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach Conduit define Co	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Def ne(s) of co ********* ********* ******** ********	E.329 Fine COUTH OF SI 99999 hectares (PERV) met: : (%) : Impervious (IMPERV)	eGMENT 1 - res us pth ; 2=Hortor	- POND P11	4=Repeat
9 17 14	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ction Node No. 2-Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/	/s	35	1 1=Z COMMENT 3 1ir ************************************	Zero; 2=Define(s) of continuous of continuou	Eine SOUTH OF SI 99999 hectares (PERV) met: (%) Impervious IMPERV) tth Zero Di L=SCS CN/C "n" re No or C	res us pth ; 2=Hortor	- POND P11	4=Repeat
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2=Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/	/s	35	1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Def ne(s) of co ********* ******** ******* *********	Eine South OF Si 99999 hectares (PERV) metric (*) Imperviou (IMPERV) tth Zero Di =SCS CN/C "n" "o or C efficient Abstractic =Trianglr	res us pth ; 2=Hortor on ; 2=Rectar	- POND P11 n; 3=Green-Ampt;	-
9 17 14 35	ROUTE	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2=Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/	/s	35	START 1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Define(s) of commercial commercial control of commercial control of commercial control of commercial control of c	Eine Domment GOUTH OF SI 99999 hectares (*): Impervious IMPERV) ith Zero Di =SCS CN/C. "n" re No or C efficient Abstractic =Trianglr.	res us pth ; 2=Hortor on ; 2=Rectar 1.329	- POND P11 1; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s	4=Lin. Reserv
9 17 14 35	COMBINE 1 June START 1 1=2. COMMENT 3 Line ***********************************	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ction Node No. 203 1.290 aro; 2=Define (s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/	/s	35 4	START 1 1=2 COMMENT 3 1******** PROP DEV ************************************	Zero; 2=Defene(s) of continuous of continuou	Eine South OF Si 99999 hectares (PERV) metric (*) Imperviou (IMPERV) tth Zero Di =SCS CN/C "n" "o or C efficient Abstractic =Trianglr	res us pth ; 2=Hortor on ; 2=Rectar	- POND P11 n; 3=Green-Ampt;	4=Lin. Reserv
9 17 14 35	COMBINE 1 June 1 START 1 1=ZC COMMENT 3 line 1 START 1 1-ZC COMMENT 1 1 START 3 line 1 START 1 1 START 1 1 START 1 1 START 1 S	Conduit Length No Conduit define Zero lag Beta weighting fi Routing timestep No. of sub-reache 1.290 Ction Node No. 1.290 Ction Node No. Ction Node Node No. Ction Node Node No. Ction Node Node No. Ction Node Node Node Node Node No.	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/	/s	35	START 1 1=2 COMMENT 3 1ir ************************************	Zero; 2=Define(s) of continuous of continuou	E.329 Fine Domment GOUTH OF SI 99999 hectares (PERV) metric : (%) : Impervior (IMPERV) ith Zero Dj i=SCS CN/C "n" Zero No or C efficient Abstractic =Trianglr .000 .880	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting fr Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2=Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/	/s	4	START 1 1=Z COMMENT 3 1:II ********** PROP DEV ************ CATCHMEN 12.000 2.680 134.000 1.000 35.000 1.000 1.250 74.000 .100 8.924 1 ADD RUNC	Zero; 2=Defene(s) of continuous c	Eine Domment GOUTH OF SI 99999 hectares (*): Impervious IMPERV) ith Zero Di =SCS CN/C. "n" re No or C efficient Abstractic =Trianglr.	res us pth ; 2=Hortor on ; 2=Rectar 1.329	- POND P11 1; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s	4=Lin. Reserv
9 17 14 35	ROUTE	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ction Node No. 200 ction Node No. 200 cro; 2=Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/	/s	35 4	START 1 1=Z COMMENT 3 1ir ************************************	Zero; 2=Def ne(s) of co ********* ******** ********* *******	Eine Dimment SOUTH OF SI 99999 hectares (PERV) met: (%) Impervious IMPERV) tth Zero Di L=SCS CN/C "n" e No or C efficient Abstractic L=Trianglr .000 .880 .178	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE	Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 cro; 2=Define e(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/ SEGMENT 1 - POND P10 tres ous	/s /s	4	START 1 1=2 COMMENT 3 11 **********************************	Zero; 2=Define(s) of commercial commercial continuity of the conti	J. 329 Eine Domment GOUTH OF SI 99999 hectares perv) met: (%): Impervious ith Zero Di =SCS CN/C. "n" re No or C efficient Abstractic =Trianglr. .000 .880 .178 99999	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	COMBINE 1 June START 1 1=2. COMMENT 3 Line ***********************************	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ction Node No. 200 ction Node No. 200 cro; 2=Define a(s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/	/s /s	4	1 1=2 COMMENT 1 1=7 COMMENT 3 1:1 ***********************************	Zero; 2=Defene(s) of continuous of continuou	Eine Domment SOUTH OF SI 99999 hectares (PERV) met: (%): Impervious IMPERV) th Zero Di L=SCS CN/C "n" Ze No or C efficient Abstractic L=Trianglr .000 .880 .178 99999 hectares	res us pth ; 2=Hortor on 1.329 .481	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction Node No. 200 cro; 2=Define (s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND P10 tres ous Dpth C; 2=Horton; 3=Green-Am	/s /s	4	START 1 1=Z COMMENT 3 11T *********** PROP DEV ************ CATCHMEN 12.000 2.680 134.000 1.000 35.000 1.0	Zero; 2=Define(s) of commercial c	Eine South OF Si 99999 hectares (PPRV) met: (%) : Impervio IMPERV) th Zero Dj "n" re No or C fficient Abstractic =Trianglr .000 .880 .178 99999 hectares PERV) metrioner services ser	res us pth ; 2=Hortor on 1.329 .481	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting fr Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2=Define e(s) of comment ********** ID No.6 99999 Area in hectares Length (PERV) met Gradient (%) Per cent Impervic Length (IMPERV) *Imp. with Zero; Option 1=SCS CN/6 Manning "n" SCS Curve No or or	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/ SEGMENT 1 - POND P10 tres ous Dpth C; 2=Horton; 3=Green-Am	/s /s	4	1 1=2 COMMENT 1 1=7 COMMENT 3 1:1 ***********************************	Zero; 2=Defene(s) of continuous of continuou	E.329 Fine Domment GOUTH OF SI 99999 hectares PERV) met: (%) Impervious (IMPERV) th Zero Dy =SCS CN/C "n" ye No or C efficient Abstractic =Trianglr .000 .178 99999 hectares PERV) met: (%)	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481 1.329	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting f: Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction Node No. 200 cro; 2=Define (s) of comment ************************************	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND Pl0 tres ous Dpth C; 2-Horton; 3-Green-Am	/s /s	4	1 1=2 COMMENT 1 1=7 COMMENT 3 1ii ***********************************	Zero; 2=Defene(s) of continuous of continuou	Eine Dimment SOUTH OF SI 99999 hectares (PERV) met: (%): Impervious IMPERV) th Zero Di L=SCS CN/C "n" Fe No or C efficient Abstract L=Trianglr .000 .178 99999 hectares (PERV) met: (%): (%): (%): (%): (%): (%): (%): (%)	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481 1.329	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction timestally med Gradient (%) Per cent Impervice Length (MPERV) % Imp. with Zero 1 Option 1=SCS CN/(Manning "n" SCS Curve No or (Ia/S Coefficient Initial Abstract:	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND Pl0 tres ous Dpth C; 2-Horton; 3-Green-Am	/s /s npt; 4=Repeat	4	START 1 1=2 COMMENT 3 1 1=2 COMMENT ******** PROP DEV *********** CATCHMEN 12.000 2.680 134.000 1.000 35.000 1.000 1.000 4.000 .100 8.924 1 ADD RUNC CATCHMEN 13.000 6.980 216.000 1.000 70.000	Zero; 2=Def ne(s) of co *********** ID No.6 Area in Length (Gradient Per cent Manning SCS Curr IA'S Coe Initial Option 1 178 1267 DFF 1178 ID No.6 Area in Length (Gradient Fer cent IT No.6 Area in IT No.6 Area in IT No.6 Area in Length (Gradient Fer cent	Eine Dimment SOUTH OF SI 99999 hectares (PERV) met: (%): Impervious IMPERV) th Zero Di L=SCS CN/C "n" Fe No or C efficient Abstract L=Trianglr .000 .178 99999 hectares (PERV) met: (%): (%): (%): (%): (%): (%): (%): (%)	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481 1.329	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction timestally med Gradient (%) Per cent Impervice Length (MPERV) % Imp. with Zero 1 Option 1=SCS CN/(Manning "n" SCS Curve No or (Ia/S Coefficient Initial Abstract:	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 c.m/ SEGMENT 1 - POND P10 tres ous Dpth C; 2=Horton; 3=Green-Am	/s /s mpt; 4=Repeat HYD; 4=Lin. Reserv	4	START 1 1=2 COMMENT 3 11 **********************************	Zero; 2=Defene(s) of continuous of continuou	Eine Domment GOUTH OF SI 99999 hectares PERV) met: (%) Impervious (IMPERV) th Zero Di =SCS CN/C "n" Ve No or C efficient Abstractic =Trianglr .000 .178 99999 hectares PERV) met: (%) Impervious Impervious Impervious Impervious Impervious	res us pth ; 2=Hortor on 1.329 .481 1.329 res us	. POND P11 1; 3=Green-Ampt; 1; 3=SWM HYD; 1.329 c.m/s C perv/imperv/	4=Lin. Reserv
9 17 14 35 4	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Conduit Length No Conduit define Zero lag Beta weighting fe Routing timestep No. of sub-reach 063 1.290 ction Node No. 063 1.290 ero; 2-Define e(s) of comment ********* ******** ******* ******* ****	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND P10 tres ous Dpth C; 2=Horton; 3=Green-Am C ion r; 2=Rectanglr; 3=SWM F	/s //s mpt; 4=Repeat HYD; 4=Lin. Reserv	4	START 1 1=2 COMMENT 3 1:1 ***********************************	Zero; 2=Def ne(s) of cc ******** FELOPMENT s FELOPMENT s Area in Length (Gradient Per cent Length (Mump. wi Option 1 Manning SCS Curr IA/S Coe Initial Option 1 178 10 No.6 Area in Length (Gradient Per cent Length (Mump. wi Option 1 Manning	### SOUTH OF SI 99999 hectares PERV) met: (%) Impervio th Zero D ### Sourh	res us pth ; 2=Hortor 1.329 1.329 res us pth ; 2=Hortor	- POND P11 n; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s C perv/imperv/ 1.329 c.m/s	4=Lin. Reserv
9 17 14 35	ROUTE	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting fe Routing timestep No. of sub-reache 1.290 ction Node No. 1.290 ction Node No. 203 ction Node No. 204 ction Node No. 205 ction Node No. 206 ction Node No. 207 ction Node No. 207 ction Node No. 207 ction Node No. 208 ction Node No. 208 ction Node No. 208 ction Node No. 209 209 200 200 200 200 200 200 200 200	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND Pl0 tres ous Dpth C; 2=Horton; 3=Green-Am C ion r; 2=Rectanglr; 3=SWM F 1.290 1.290 c.m/ .695 C perv/impe	/s //s mpt; 4=Repeat HYD; 4=Lin. Reserv //s erv/total	4	START 1 1=2 COMMENT 3 1:1 ********** PROP DEV ************* CATCHMEN 12.000 2.680 134.000 1.000 35.000 1.000 4.000 1.000 8.924 1 ADD RUNC CATCHMEN 13.000 6.980 216.000 1.000 216.000 0.000 250 74.000	Zero; 2=Defene(s) of continuous of continuou	Eine Dimment SOUTH OF SI 99999 hectares (PERV) met: (%): Impervious IMPERV) th Zero Di L=SCS CN/C "n" 76 No or C efficient Abstractic L=Trianglr .000 .880 .178 99999 hectares (PERV) met: (%): Impervious IMPERV) th Zero Di L=SCS CN/C "n" To No or C 1MPERV) th Zero Di L=SCS CN/C "n"	res us pth ; 2=Hortor 1.329 1.329 res us pth ; 2=Hortor	- POND P11 n; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s C perv/imperv/ 1.329 c.m/s	4=Lin. Reserv
9 17 14 35 4	ROUTE	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction Node No. 1.290 ction Sub-reach 1.290 ction Node No. 1.290 Area in hectares Length (PERV) med Gradient (%) Per cent Impervic Length (IMPERV) %Imp. with Zero 1 Option 1=SCS CN/d Manning "n" SCS Curve No or (Ia/S Coefficient Initial Abstract: Option 1=Triangl: 331 .000 267 .879 FF .831 .531	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND P10 tres ous Dpth C; 2=Horton; 3=Green-Am C ion r; 2=Rectanglr; 3=SWM E 1.290 1.290 c.m/	/s //s mpt; 4=Repeat HYD; 4=Lin. Reserv //s erv/total	4	START 1 1=2 COMMENT 3 11 *********************************	Zero; 2=Def ne(s) of co *********** ID No.6 Area in Length (Gradient Per cent Manning SCS Curr 178 10 No.6 Area in Length (*Imp. wi Option 1 178 10 No.6 Area in Length (Gradient Fer cent ID No.6 Area in Length (Gradient Fer cent ID No.6 Area in Length (Gradient Fer cent Length (Manning SCS Curr Manning SCS Curr IA/S Coe	ine South of Si 99999 hectares PERV) met: (%) Impervious ith Zero Di Lescs CN/C. "n" re No or C fficient Abstractic Lettrianglr. 000 .880 .178 99999 hectares PERV) met: (%) ith Zero Di Lescs CN/C. "n" re No or C officient	res us pth ; 2=Hortor on ; 2=Rectar 1.329 .481 1.329 res us pth ; 2=Hortor	- POND P11 n; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s C perv/imperv/ 1.329 c.m/s	4=Lin. Reserv
9 17 14 35 4	ROUTE	Conduit Length No Conduit Length No Conduit define Zero lag Beta weighting for Routing timestep No. of sub-reach 1.290 ction Node No. 1.290 ction Node No. 1.290 ction Sub-reach 1.290 ction Node No. 1.290 Area in hectares Length (PERV) med Gradient (%) Per cent Impervic Length (IMPERV) %Imp. with Zero 1 Option 1=SCS CN/d Manning "n" SCS Curve No or (Ia/S Coefficient Initial Abstract: Option 1=Triangl: 331 .000 267 .879 FF .831 .531	.000 .000 c.m/ ed actor es 1.290 .000 c.m/ 1.290 1.290 c.m/ SEGMENT 1 - POND Pl0 tres ous Dpth C; 2=Horton; 3=Green-Am C ion r; 2=Rectanglr; 3=SWM F 1.290 1.290 c.m/ .695 C perv/impe	/s //s mpt; 4=Repeat HYD; 4=Lin. Reserv //s erv/total	4	START 1 1=2 COMMENT 3 1:1 ********** PROP DEV ************* CATCHMEN 12.000 2.680 134.000 1.000 35.000 1.000 4.000 1.000 8.924 1 ADD RUNC CATCHMEN 13.000 6.980 216.000 1.000 216.000 0.000 250 74.000	Zero; 2=Defene(s) of continuous c	Eine Domment GOUTH OF SI 99999 hectares (PERV) met: (%) Impervious (IMPERV) th Zero Di L=SCS CN/C "n" Ze No or C fficient Abstractic (%) Impervious (IMPERV) L=Trianglr .000 .178 99999 hectares (PERV) met: (%) Impervious (IMPERV) L=Trianglr .000 .178 99999 hectares (PERV) met: (%) Impervious (IMPERV) th Zero Di L=SCS CN/C "n" Ze No or C efficient Abstractic	res us pth ; 2=Hortor on 1.329 .481 1.329 res us pth ; 2=Hortor	- POND P11 n; 3=Green-Ampt; nglr; 3=SWM HYD; 1.329 c.m/s C perv/imperv/ 1.329 c.m/s	4=Lin. Reserv (total

	.267 .890 .703 C perv/imperv/total	74.000 SCS Curve No or C
15	ADD RUNOFF .933 1.112 1.329 1.329 c.m/s	.100 Ia/S Coefficient 8.924 Initial Abstraction
4	CATCHMENT	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	14.000 ID No.6 99999	1.695 .051 .408 .408 c.m/s
	.670 Area in hectares 67.000 Length (PERV) metres	.267 .897 .708 C perv/imperv/total 15 ADD RUNOFF
	1.000 Gradient (%)	1.695 1.737 .408 .408 c.m/s
	60.000 Per cent Impervious	9 ROUTE
	67.000 Length (IMPERV) .000 %Imp. with Zero Dpth	.000 Conduit Length .000 No Conduit defined
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	.000 Zero lag
	.250 Manning "n"	.000 Beta weighting factor
	74.000 SCS Curve No or C .100 Ia/S Coefficient	.000 Routing timestep 0 No. of sub-reaches
	8.924 Initial Abstraction	1.695 1.737 1.737 .408 c.m/s
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>	v 17 COMBINE
	.083 1.112 1.329 1.329 c.m/s .267 .884 .637 C perv/imperv/total	2 Junction Node No. 1.695 1.737 1.737 2.145 c.m/s
15	ADD RUNOFF	1.695 1.737 1.737 2.145 C.M/S 14 START
	.083 1.177 1.329 1.329 c.m/s	1 1=Zero; 2=Define
27	HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen	4 CATCHMENT 43.000 ID No.6 99999
	Volume = .3408792E+04 c.m	.330 Area in hectares
10	POND	47.000 Length (PERV) metres
	5 Depth - Discharge - Volume sets 184.800 .000 .0	1.000 Gradient (%) 35.000 Per cent Impervious
	185.300 .0140 1142.0	47.000 Length (IMPERV)
	186.100 .0240 3519.0	.000 %Imp. with Zero Dpth
	186.500 .287 4978.0 186.800 1.922 6222.0	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	Peak Outflow = .022 c.m/s	74.000 SCS Curve No or C
	Maximum Depth = 185.947 metres	.100 Ia/S Coefficient
	Maximum Storage = 3066. c.m .083 1.177 .022 1.329 c.m/s	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
35	.083 1.177 .022 1.329 C.m/B COMMENT	.026 .000 1.737 2.145 c.m/s
	<pre>3 line(s) of comment</pre>	.266 .885 .483 C perv/imperv/total
	********	15 ADD RUNOFF
	FLOW U/S OF RICE RD CULVERT - OUTLET A1	.026 .026 1.737 2.145 c.m/s 4 CATCHMENT
17	COMBINE	44.000 ID No.6 99999
	1 Junction Node No.	6.400 Area in hectares
14	.083 1.177 .022 1.344 c.m/s START	207.000 Length (PERV) metres 1.000 Gradient (%)
	1 1=Zero; 2=Define	70.000 Per cent Impervious
35	COMMENT	207.000 Length (IMPERV)
	<pre>3 line(s) of comment ************************************</pre>	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	PROP DEVELOPMENT SOUTH OF QUAKER RD & WEST OF RICE RD PON	.250 Manning "n"
	********	74.000 SCS Curve No or C
4	CATCHMENT 40.000 ID No.6 99999	.100 Ia/S Coefficient 8.924 Initial Abstraction
	8.210 Area in hectares	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	234.000 Length (PERV) metres	.854 .026 1.737 2.145 c.m/s
	1.000 Gradient (%) 25.000 Per cent Impervious	.267 .887 .701 C perv/imperv/total 15 ADD RUNOFF
	234.000 Length (IMPERV)	.854 .874 1.737 2.145 c.m/s
	.000 %Imp. with Zero Dpth	9 ROUTE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	.000 Conduit Length .000 No Conduit defined
	74.000 SCS Curve No or C	.000 Zero lag
	.100 Ia/S Coefficient	.000 Beta weighting factor
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	.000 Routing timestep v 0 No. of sub-reaches
	.408 .000 .022 1.344 c.m/s	.854 .874 .874 2.145 c.m/s
	.267 .894 .423 C perv/imperv/total	17 COMBINE
15	ADD RUNOFF .408 .408 .022 1.344 c.m/s	2 Junction Node No854 .874 .874 3.019 c.m/s
9	ROUTE	14 START
	.000 Conduit Length	1 1=Zero; 2=Define
	.000 No Conduit defined .000 Zero lag	18 CONFLUENCE 2 Junction Node No.
	.000 Beta weighting factor	.854 3.019 .874 .000 c.m/s
	.000 Routing timestep	4 CATCHMENT
	0 No. of sub-reaches .408 .408 .408 1.344 c.m/s	45.000 ID No.6 99999 1.030 Area in hectares
17	COMBINE	83.000 Length (PERV) metres
	Junction Node No.	1.000 Gradient (%)
14	.408 .408 .408 c.m/s	60.000 Per cent Impervious 83.000 Length (IMPERV)
	1 1=Zero; 2=Define	.000 %Imp. with Zero Dpth
4	CATCHMENT	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	41.000 ID No.6 99999 .690 Area in hectares	.250 Manning "n" 74.000 SCS Curve No or C
	68.000 Length (PERV) metres	.100 Ia/S Coefficient
	1.000 Gradient (%)	8.924 Initial Abstraction
	35.000 Per cent Impervious 68.000 Length (IMPERV)	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .122 3.019 .874 .000 c.m/s
	.000 %Imp. with Zero Dpth	.267 .886 .638 C perv/imperv/total
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	15 ADD RUNOFF
	.250 Manning "n" 74.000 SCS Curve No or C	.122 3.124 .874 .000 c.m/s 27 HYDROGRAPH DISPLAY
	.100 Ia/S Coefficient	5 is # of Hyeto/Hydrograph chosen
	8.924 Initial Abstraction	Volume = .9292279E+04 c.m
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .051 .000 .408 .408 c.m/s	v 10 POND 6 Depth - Discharge - Volume sets
	.267 .884 .483 C perv/imperv/total	186.000 .000 .0
15	ADD RUNOFF	186.800 .0550 4048.0
4	.051 .051 .408 .408 c.m/s	187.300 .0730 7091.0 187.500 .170 8424.0
4	CATCHMENT 42.000 ID No.6 99999	187.500 .170 8424.0 187.800 .257 10552.0
	12.640 Area in hectares	188.000 .880 12094.0
	290.000 Length (PERV) metres	Peak Outflow = .129 c.m/s
	1.000 Gradient (%) 70.000 Per cent Impervious	Maximum Depth = 187.415 metres Maximum Storage = 7854.c.m
	290.000 Length (IMPERV)	.122 3.124 .129 .000 c.m/s
	.000 %Imp. with Zero Dpth	17 COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	2 Junction Node No.

14	START		.250 Manni				
2.5	1 1=Zero; 2=Define			rve No or	С		
35	COMMENT 3 line(s) of comment			Coefficient al Abstract	ion		
	**************************************					anglr; 3=SWM HYD; 4=Lin	. Reserv
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.046	.077	1.185	1.185 c.m/s	
	************		.267	.885	.328	C perv/imperv/total	
4	CATCHMENT	15	ADD RUNOFF				
	2.000 ID No.6 99999	_	.046	.123	1.185	1.185 c.m/s	
	9.020 Area in hectares	9	ROUTE				
	245.000 Length (PERV) metres 1.000 Gradient (%)			it Length nduit defin	od.		
	40.000 Per cent Impervious		.000 Zero		e u		
	245.000 Length (IMPERV)			veighting f	actor		
	.000 %Imp. with Zero Dpth			ng timestep			
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		0 No. of	sub-reach	es		
	.250 Manning "n"		.046	.123	.123	1.185 c.m/s	
	74.000 SCS Curve No or C	17	COMBINE				
	.100 Ia/S Coefficient		2 Junction No				
	8.924 Initial Abstraction		.046	.123	.123	1.308 c.m/s	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	14	START				
	.702 .000 .129 .129 c.m/s .267 .895 .518 C perv/imperv/total	35	1 1=Zero; 2=I COMMENT	Define			
15	ADD RUNOFF	35	3 line(s) of	gommon+			
13	.702 .702 .129 .129 c.m/s		**********				
9	ROUTE		EXISTING AREA W	ST OF RICE	RD AND S	OUTH OF QUAKER ROAD	
,	.000 Conduit Length		**********		ILD AND D	COIN OF COMMEN NOND	
	.000 No Conduit defined	4	CATCHMENT				
	.000 Zero lag			.ó 99999			
	.000 Beta weighting factor			in hectares			
	.000 Routing timestep			n (PERV) me	tres		
	0 No. of sub-reaches		1.000 Gradie	ent (%)			
	.702 .702 .702 .129 c.m/s		40.000 Per ce	ent Impervi	ous		
17	COMBINE			n (IMPERV)			
	2 Junction Node No.			with Zero			
	.702 .702 .702 .745 c.m/s				C; 2=Hort	on; 3=Green-Ampt; 4=Rep	eat
14	START		.250 Mannir				
	1 1=Zero; 2=Define			rve No or	С		
18	CONFLUENCE 2 Junction Node No.			Coefficient			
	2 Junction Node No702 .745 .702 .000 c.m/s			al Abstract			December 1
35	.702 .745 .702 .000 C.m/s COMMENT		1.115	.000	.123	anglr; 3=SWM HYD; 4=Lin 1.308 c.m/s	. Reserv
33	3 line(s) of comment		.267	.896	.518	C perv/imperv/total	
	**************************************	15	ADD RUNOFF	.050	.510	c perv/imperv/cocar	
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		1.115	1.115	.123	1.308 c.m/s	
	**************	9	ROUTE				
4	CATCHMENT			it Length			
	3.000 ID No.6 99999		.000 No Cor	nduit defin	ed		
	5.680 Area in hectares		.000 Zero	Lag			
	195.000 Length (PERV) metres		.000 Beta v	veighting f	actor		
	1.000 Gradient (%)			ng timestep			
	40.000 Per cent Impervious			E sub-reach			
	195.000 Length (IMPERV)		1.115	1.115	1.115	1.308 c.m/s	
	.000 %Imp. with Zero Dpth	17	COMBINE				
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		2 Junction No				
	.250 Manning "n"	1.4	1.115	1.115	1.115	2.423 c.m/s	
	74.000 SCS Curve No or C .100 Ia/S Coefficient	14	START 1 1=Zero; 2=I				
	8.924 Initial Abstraction	18	CONFLUENCE	Deline			
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	10	2 Junction No	ode No			
	.440 .745 .702 .000 c.m/s		1.115	2.423	1.115	.000 c.m/s	
	.267 .885 .514 C perv/imperv/total	35	COMMENT	2.125		1000 01111, 2	
15	ADD RUNOFF		<pre>3 line(s) of</pre>	comment			
	.440 1.185 .702 .000 c.m/s		*******				
9	ROUTE		RICE ROAD FROM (QUAKER RD T	O CITY OF	WELLAND MUNICIPAL BOUN	DA
	.000 Conduit Length		********	**			
	.000 No Conduit defined	4	CATCHMENT				
	.000 Zero lag			.ó 99999			
	.000 Beta weighting factor			in hectares			
	.000 Routing timestep			ı (PERV) me	tres		
	0 No. of sub-reaches			ent (%)			
17	.440 1.185 1.185 .000 c.m/s COMBINE			ent Impervi	ous		
1,	2 Junction Node No.			n (IMPERV) with Zero 1	Onth		
	.440 1.185 1.185 c.m/s					on; 3=Green-Ampt; 4=Rep	eat
14	START		.250 Mannin		,		
	1 1=Zero; 2=Define			rve No or	C		
35	COMMENT			Coefficient			
	<pre>3 line(s) of comment</pre>		8.924 Initia	al Abstract			
	***********		1 Option	n 1=Triangl:	r; 2=Rect	anglr; 3=SWM HYD; 4=Lin	. Reserv
	PROP DEVELOPMENT SOUTH OF QUAKER RD, EAST OF RICE RD		.209	2.423	1.115	.000 c.m/s	
	**********		.267	.886	.700	C perv/imperv/total	
4	CATCHMENT	15	ADD RUNOFF				
	50.000 ID No.6 99999	•	.209	2.615	1.115	.000 c.m/s	
	3.420 Area in hectares	9	ROUTE	it Length			
	151.000 Length (PERV) metres 1.000 Gradient (%)			it Length nduit defin			
	10.000 Per cent Impervious		.000 Re Col		ea		
	151.000 Fer cent impervious 151.000 Length (IMPERV)			tag veighting f	actor		
	.000 %Imp. with Zero Dpth			ng timestep			
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat			f sub-reach	es		
	.250 Manning "n"		.209	2.615	2.615	.000 c.m/s	
	74.000 SCS Curve No or C	35	COMMENT				
	.100 Ia/S Coefficient		<pre>3 line(s) of</pre>	comment			
	8.924 Initial Abstraction		********	**			
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		FLOW D/S OF RICE		T - OUTLE	T A2	
	.077 .000 1.185 1.185 c.m/s		********	**			
	.267 .875 .328 C perv/imperv/total	17	COMBINE				
15	ADD RUNOFF		1 Junction No				
4	.077 .077 1.185 1.185 c.m/s	14	.209 START	2.615	2.615	3.959 c.m/s	
4	CATCHMENT 51 000 TD No 6 99999	14		Defino			
	51.000 ID No.6 99999 1.980 Area in hectares	35	1 1=Zero; 2=I COMMENT	Serme			
	11.980 Area in nectares 115.000 Length (PERV) metres	35	COMMENT 3 line(s) of	commen+			
	1.000 Gradient (%)		***********				
	10.000 Per cent Impervious				QUAKER RD	- QUALLITY CONTROL ONL	Y
	115.000 Length (IMPERV)		*********				
	.000 %Imp. with Zero Dpth	4	CATCHMENT				
	1 Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat		20.100 ID No.	. რ 99999			

	.780 Area in hectares	35	COMMENT
	72.000 Length (PERV) metres		<pre>3 line(s) of comment</pre>
	1.000 Gradient (%)		************
	35.000 Per cent Impervious 72.000 Length (IMPERV)		FLOW U/S OF FIRST AVE CULVERT
	.000 %Imp. with Zero Dpth	17	COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Junction Node No.
	.250 Manning "n"		.269 4.762 4.762 4.762 c.m/s
	74.000 SCS Curve No or C	14	START
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	35	COMMENT
	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	•	<pre>3 line(s) of comment</pre>
	.057 .000 2.615 3.959 c.m/s		*****
	.267 .884 .483 C perv/imperv/total		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
15	ADD RUNOFF	_	******
	.057 .057 2.615 3.959 c.m/s	4	CATCHMENT
4	CATCHMENT 20.000 ID No.6 99999		52.000 ID No.ó 99999 6.430 Area in hectares
	3.210 Area in hectares		207.000 Length (PERV) metres
	146.000 Length (PERV) metres		1.000 Gradient (%)
	1.000 Gradient (%)		70.000 Per cent Impervious
	85.000 Per cent Impervious		207.000 Length (IMPERV)
	146.000 Length (IMPERV)		.000 %Imp. with Zero Dpth
	.000 %Imp. with Zero Dpth		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		.250 Manning "n"
	.250 Manning "n"		74.000 SCS Curve No or C
	74.000 SCS Curve No or C		.100 Ia/S Coefficient
	.100 Ia/S Coefficient		8.924 Initial Abstraction
	8.924 Initial Abstraction		<pre>Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	•	.858 .000 4.762 4.762 c.m/s
	.500 .057 2.615 3.959 c.m/s		.267 .887 .701 C perv/imperv/total
	.267 .877 .785 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF .500 .549 2.615 3.959 c.m/s	9	.858 .858 4.762 4.762 c.m/s
•	.500 .549 2.615 3.959 c.m/s ROUTE	9	ROUTE
9	.000 Conduit Length		.000 Conduit Length .000 No Conduit defined
	.000 No Conduit defined		.000 Zero lag
	.000 Zero lag		.000 Beta weighting factor
	.000 Beta weighting factor		.000 Routing timestep
	.000 Routing timestep		0 No. of sub-reaches
	0 No. of sub-reaches		.858 .858 .858 4.762 c.m/s
	.500 .549 .549 3.959 c.m/s	17	COMBINE
17	COMBINE		2 Junction Node No.
	1 Junction Node No.		.858 .858 .858 c.m/s
	.500 .549 .549 4.508 c.m/s	14	START
14	START		1 1=Zero; 2=Define
	1 1=Zero; 2=Define	4	CATCHMENT
18	CONFLUENCE		53.000 ID No.ó 99999
	1 Junction Node No.		11.340 Area in hectares
	.500 4.508 .549 .000 c.m/s		275.000 Length (PERV) metres
35	COMMENT		1.000 Gradient (%)
	<pre>3 line(s) of comment ************************************</pre>		70.000 Per cent Impervious
			275.000 Length (IMPERV)
	REALIGNED CHANNEL - SEGMENT 2		.000 %Imp. with Zero Dpth
			1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
4	CATCHMENT 200.000 ID No.6 99999		.250 Manning "n" 74.000 SCS Curve No or C
	.970 Area in hectares		.100 Ia/S Coefficient
	80.416 Length (PERV) metres		8.924 Initial Abstraction
	1.000 Gradient (%)		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	10.000 Per cent Impervious		1.523 .000 .858 .858 c.m/s
	80.416 Length (IMPERV)		.267 .897 .708 C perv/imperv/total
	.000 %Imp. with Zero Dpth	15	ADD RUNOFF
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		1.523 1.523 .858 .858 c.m/s
	.250 Manning "n"	9	ROUTE
	74.000 SCS Curve No or C		.000 Conduit Length
	.100 Ia/S Coefficient		.000 No Conduit defined
	8.924 Initial Abstraction		.000 Zero lag
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	•	.000 Beta weighting factor
	.024 4.508 .549 .000 c.m/s		.000 Routing timestep
	.267 .886 .328 C perv/imperv/total		0 No. of sub-reaches
35	COMMENT		1.523 1.523 1.523 .858 c.m/s
	3 line(s) of comment	17	COMBINE 2 Tungtion Node No.
	FLOW D/S OF AREA A20 - OUTLET B		2 Junction Node No. 1.523 1.523 1.523 2.381 c.m/s
	**************************************	18	1.523 1.523 1.523 2.381 C.m/s CONFLUENCE
15	ADD RUNOFF	10	2 Junction Node No.
	.024 4.532 .549 .000 c.m/s		1.523 2.381 1.523 .000 c.m/s
35	COMMENT	4	CATCHMENT
	<pre>3 line(s) of comment</pre>	•	54.000 ID No.6 99999
	************		1.280 Area in hectares
	EX RES. AND FUT DEVELOPMENT LANDS BY OTHERS WEST OF FIRST AV		92.000 Length (PERV) metres
	***********		1.000 Gradient (%)
4	CATCHMENT		60.000 Per cent Impervious
	21.000 ID No.6 99999		92.000 Length (IMPERV)
	35.460 Area in hectares		.000 %Imp. with Zero Dpth
	487.000 Length (PERV) metres		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.200 Gradient (%)		.250 Manning "n"
	5.000 Per cent Impervious 487.000 Length (IMPERV)		74.000 SCS Curve No or C .100 Ia/S Coefficient
	.000 %Imp. with Zero Dpth		8.924 Initial Abstraction
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.250 Manning "n"		.149 2.381 1.523 .000 c.m/s
	74.000 SCS Curve No or C		.267 .887 .639 C perv/imperv/total
	.100 Ia/S Coefficient	15	ADD RUNOFF
	8.924 Initial Abstraction	-	.149 2.514 1.523 .000 c.m/s
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	27	HYDROGRAPH DISPLAY
	.269 4.532 .549 .000 c.m/s		5 is # of Hyeto/Hydrograph chosen
	.267 .897 .298 C perv/imperv/total		Volume = .6870401E+04 c.m
15	ADD RUNOFF	10	POND
	.269 4.762 .549 .000 c.m/s		6 Depth - Discharge - Volume sets
9	ROUTE		182.000 .000 .0
	.000 Conduit Length		182.800 .0190 5251.0
	.000 No Conduit defined		183.150 .0230 7895.0
	.000 Zero lag .000 Beta weighting factor		183.500 .238 10751.0 183.800 .396 13425.0
	.000 Beta weighting factor .000 Routing timestep		183.800 .396 13425.0 184.000 1.028 15337.0
			184.000 1.028 15337.0 Peak Outflow = .021 c.m/s
	0 No. of sub-reaches .269 4.762 4.762 .000 c.m/s		Maximum Depth = 182.962 metres

	Maximum Storage = 6474. c.m .149 2.514 .021	.000 c.m/s	35	COMMENT 3 line(s) of comment	
17	.149 2.514 .021 COMBINE	.000 C.m/s		<pre>3 line(s) of comment **************</pre>	
	2 Junction Node No.			REALIGNED CHANNEL - SEGMENT 3	
	.149 2.514 .021	.021 c.m/s		******	
14	START 1 1=Zero; 2=Define		4	CATCHMENT	
35	1 1=Zero; 2=Define COMMENT			300.000 ID No.6 99999 3.180 Area in hectares	
33	3 line(s) of comment			146.000 Length (PERV) metres	
	********			.200 Gradient (%)	
	EXISTING AREA ON QUAKER RD, EAST OF	RICE RD		15.000 Per cent Impervious	
	*******			146.000 Length (IMPERV)	
4	CATCHMENT			.000 %Imp. with Zero Dpth	
	5.000 ID No.6 99999			<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R</pre>	lepeat
	1.870 Area in hectares			.250 Manning "n"	
	112.000 Length (PERV) metres 1.000 Gradient (%)			74.000 SCS Curve No or C .100 Ia/S Coefficient	
	50.000 Per cent Impervious			8.924 Initial Abstraction	
	112.000 Length (IMPERV)			1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L	in. Reserv
	.000 %Imp. with Zero Dpth			.099 5.467 .705 .000 c.m/s	
	1 Option 1=SCS CN/C; 2=Horto	n; 3=Green-Ampt; 4=Repeat		.267 .894 .361 C perv/imperv/tota	1
	.250 Manning "n"		15	ADD RUNOFF	
	74.000 SCS Curve No or C			.099 5.566 .705 .000 c.m/s	
	.100 Ia/S Coefficient		4	CATCHMENT	
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta	nglr; 3=SWM HYD; 4=Lin. Reserv		301.000 ID No.6 99999 .720 Area in hectares	
	.175 .000 .021	.021 c.m/s		.720 Area in hectares 69.000 Length (PERV) metres	
	.267 .885 .576	C perv/imperv/total		.200 Gradient (%)	
15	ADD RUNOFF	o por v, impor v, dodar		10.000 Per cent Impervious	
	.175 .175 .021	.021 c.m/s		69.000 Length (IMPERV)	
9	ROUTE			.000 %Imp. with Zero Dpth	
	.000 Conduit Length			<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R</pre>	tepeat
	.000 No Conduit defined			.250 Manning "n"	
	.000 Zero lag .000 Beta weighting factor			74.000 SCS Curve No or C .100 Ia/S Coefficient	
	.000 Beta weighting factor .000 Routing timestep			.100 Ia/S Coefficient 8.924 Initial Abstraction	
	0 No. of sub-reaches			1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L	in. Reserv
	.175 .175 .175	.021 c.m/s		.016 5.566 .705 .000 c.m/s	III. Kebel v
17	COMBINE	1021 0111/10		.267 .876 .328 C perv/imperv/tota	1
	2 Junction Node No.		15	ADD RUNOFF	
	.175 .175 .175	.180 c.m/s		.016 5.582 .705 .000 c.m/s	
18	CONFLUENCE		9	ROUTE	
	2 Junction Node No.			.000 Conduit Length	
	.175 .180 .175	.000 c.m/s		.000 No Conduit defined	
35	COMMENT 3 line(s) of comment			.000 Zero lag .000 Beta weighting factor	
	<pre>3 line(s) of comment ************************************</pre>			.000 Beta weighting factor .000 Routing timestep	
	EXISTING AREA ON QUAKER RD, EAST OF	RICE BD		0 No. of sub-reaches	
	**********	1102 10		.016 5.582 5.582 .000 c.m/s	
4	CATCHMENT		17	COMBINE	
	6.000 ID No.6 99999			1 Junction Node No.	
	1.920 Area in hectares			.016 5.582 5.582 5.582 c.m/s	
			14	START	
	113.000 Length (PERV) metres				
	.200 Gradient (%)		25	1 1=Zero; 2=Define	
	.200 Gradient (%) 65.000 Per cent Impervious		35	1 1=Zero; 2=Define COMMENT	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV)		35	1 1=Zero; 2=Define	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth	n: 3=Green-Ampt: 4=Repeat	35	1 1=Zero; 2=Define COMMENT 3 line(s) of comment **********	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV)	n; 3=Green-Ampt; 4=Repeat	35	1 l=Zero; 2=Define COMMENT 3 line(s) of comment	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C	n; 3=Green-Ampt; 4=Repeat	35	1 1=Zero; 2=Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient	n; 3=Green-Ampt; 4=Repeat		1 1-Zero; 2-Define COMMENT 3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction			1 l=Zero; 2=Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta	nglr; 3=SWM HYD; 4=Lin. Reserv		1 1=Zero; 2=Define COMMENT 3 line(s) of comment *********** PROF DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************ CATCHMENT 30.000 ID No.6 99999 8.4770 Area in hectares 238.000 Length (PERV) metres	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient Initial Abstraction 0 Option 1=Trianglr; 2=Recta .240 .180 .175	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s		1 1-Zero; 2-Define COMMENT 3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************ CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%)	
15	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676	nglr; 3=SWM HYD; 4=Lin. Reserv		1 l=Zero; 2=Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious	
15	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total		1 1-Zero; 2-Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV)	
15 35	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s		1 l=Zero; 2=Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious	Lepeat
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total		1 l=Zero; 2=Define COMMENT 3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth	depeat
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1 l=Zero; 2=Define COMMENT 3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************ CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C	Lepeat
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/c; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1 1-Zero; 2-Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (NPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient	repeat
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1 1-Zero; 2-Define COMMENT 3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************ ********** 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=E	
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1 1=Zero; 2=Define COMMENT 3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s	in. Reserv
	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=TriangIr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s		1	in. Reserv
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15	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total	4	1 1-Zero; 2-Define COMMENT 3 line(s) of comment ************* PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************** 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CON/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota ADD RUNOFF .077 .077 5.582 5.582 c.m/s CATCHENNT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L	in. Reserv
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15	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total	15 4	1 1-Zero; 2=Define COMMENT 3 line(s) of comment ************* PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *************** 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota ADD RUNOFF .077 .077 5.582 5.582 c.m/s CATCHENNT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L 1.498 .077 5.582 5.582 c.m/s .267 .897 .739 C perv/imperv/tota ADD RUNOFF 1.498 1.509 5.582 5.582 c.m/s	in. Reserv
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35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horto .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s	15 4	1 1-Zero; 2=Define COMMENT 3 line(s) of comment *************** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************** 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota ADD RUNOFF .077 .077 5.582 5.582 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option l=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=SCS CN/C; 2=Horton; 3=SWM HYD; 4=L .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option l=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .498 .077 5.582 5.582 c.m/s .267 .897 .739 C perv/imperv/tota ADD RUNOFF 1.498 .077 5.582 5.582 c.m/s PYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .5129908E+04 c.m CATCHMENT 32.000 ID No.6 99999 .650 Area in hectares	in. Reserv
35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Hortor .250 Manning "n" 74.000 SCS Curve No or C .100 Iz/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s	15 4	1 1-Zero; 2-Define COMMENT 3 line(s) of comment ************* PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota ADD RUNOFF .077 .077 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .250 MST .5582 5.582 c.m/s .267 .897 .739 C perv/imperv/tota ADD RUNOFF 1.498 .077 5.582 5.582 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .5129908E+04 c.m CATCHMENT 32.000 ID No.6 99999 .690 Area in hectares 68.000 Length (PERV) metres	in. Reserv
35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Hortor .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1 1-Zero; 2-Define COMMENT 3	in. Reserv
35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Hortor .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1 1-Zero; 2=Define COMMENT 3 line(s) of comment ************************************	din. Reserv
35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Hortor .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1 1-Zero; 2-Define COMMENT 3 line(s) of comment ************* PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L .077 .000 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota ADD RUNOFF .077 .077 5.582 5.582 c.m/s .267 .896 .267 C perv/imperv/tota 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=R .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/s Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=L 1.498 .077 5.582 5.582 c.m/s .267 .897 .739 C perv/imperv/tota ADD RUNOFF 1.498 1.509 5.582 5.582 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .5129908E+04 c.m CATCHENT 32.000 ID No.6 99999 .690 Area in hectares 68.000 Length (PERV) metres 1.000 Gradient (%) 690 Area in hectares 68.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 68.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 68.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 68.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 68.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 68.000 Length (PERV) metres	din. Reserv
35 4 15 9	.200 Gradient (%) 65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Hortor .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Recta .240 .180 .175 .267 .896 .676 ADD RUNOFF .240 .418 .175 COMMENT 3 line(s) of comment ************************************	nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s WELLAND MUNICIPAL BOUNDA n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s C perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1 1-Zero; 2=Define COMMENT 3 line(s) of comment ************************************	din. Reserv

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.100
                     Ia/S Coefficient
         8.924
                     Initial Abstraction
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 85 1.509 5.582 5.582 c.m/s 67 .884 .637 C perv/imperv/total
                  .085
15
        ADD RUNOFF
        .085 1.5
HYDROGRAPH DISPLAY
                             1.576
                                           5.582
                                                          5.582 c.m/s
27
         is # of Hyeto/Hydrograph chosen
Volume = .5356146E+04 c.m
10
         POND
        POND
5 Depth - Discharge - Volume sets
178.800 .000 .0
179.300 .0260 1520.0
                           .0440
                                         4649.0
7069.0
                           .414
         180.600
         .414
1.204
Peak Outflow =
Maximum 5
        reak Outflow = 0.42 c.m/s
Maximum Depth = 180.027 metres
Maximum Storage = 4365. c.m
.085 1.576
                          5.582 c.m/s
17
              Junction Node No.
        .085
START
                             1.576
                                                           5.608 c.m/s
14
               1=Zero; 2=Define
         COMMENT
35
         line(s) of comment
        PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
         CATCHMENT
                     ID No.6 99999
       33.000
       12,960
                     Area in hectares
Length (PERV) metres
      294.000
                     Gradient (%)
Per cent Impervious
Length (IMPERV)
        1.000
       75.000
      294.000
          .000
                      %Imp. with Zero Doth
          .250
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                     Manning "n"
SCS Curve No or C
       74.000
                     Ia/S Coefficient
Initial Abstraction
          .100
         8.924
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
1.919 .000 .042 5.608 c.m/s
.267 .897 .739 C perv/imperv/total
15
        ADD RUNOFF
                1.919
        HYDROGRAPH DISPLAY
27
        is # of Hyeto/Hydrograph chosen
Volume = .4931688E+04 c.m
CATCHMENT
                     Area in hectares
         .660
                     Length (PERV) metres
Gradient (%)
Per cent Impervious
       66.000
         1.000
       60.000
                     Length (IMPERV)
%Imp. with Zero Dpth
       66.000
         .000
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                     Manning "n"
SCS Curve No or C
          . 250
       74.000
          . 100
                      Ia/S Coefficient
                      Initial Abstraction
                     Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                 .082
                             1.919 .042
.884 .637
                                                        5.608 c.m/s
C perv/imperv/total
        ADD RUNOFF
15
        ADD RUNOFF
.082 1.983 .042
HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .5148061E+04 c.m
                                                           5.608 c.m/s
         POND
       6 Depth - Discharge - Volume sets
                   .000
         178.300
                                        .0
1927.0
         178.900
         179.600
                          .0540
                                         4692.0
                         .150
         180.000
                            .321
                                         6538.0
        5.608 c.m/s
17
            Junction Node No. .082 1.983
        .082
START
14
               1=Zero; 2=Define
        CONFLUENCE
18
       1 Junction Node No.
        .082 5.642
         3 line(s) of comment
        REALIGNED CHANNEL - SEGMENT 3
         CATCHMENT
      302.000
                    TD No. 6 99999
                     Area in hectares
Length (PERV) metres
         1.610
      104.000
       .200
10.000
                     Gradient (%)
Per cent Impervious
                     Length (IMPERV)
      104.000
                     %Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
           . 250
                     Manning "n"
SCS Curve No or C
       74.000
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.100
                Ia/S Coefficient
      8.924
                Initial Abstraction
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .035
                    5.642
                                .052 .000 c.m/s
.329 C perv/imperv/total
                       .893
      COMMENT
      3 line(s) of comment
      FLOW U/S OF NIAGARA ST CULVERT - OUTLET D
15
      ADD RUNOFF
      .035
START
                       5.677
                                   .052
                                             .000 c.m/s
14
           1=Zero; 2=Define
```

35	COMMENT							82.000		h (PERV) m	etres		
		(s) of comme			******			1.000 10.000		ent (%) ent Imperv			
		TORM EVENT						82.000		h (IMPERV)			
			******	******	*****	*****		.000	%Imp.	with Zero	Dpth		
2	STORM							1			/C; 2=Horto	n; 3=Green-Ampt	4=Repeat
	1			ser;4=Cd	ln1hr;5=Historic			.250	Mannir				
	900.000 5.200	Coefficient Constant b						74.000 .100		urve No or Coefficien			
	.745	Exponent c						8.924		al Abstrac			
	.450	Fraction to						1				nglr; 3=SWM HYD	; 4=Lin. Reserv
	240.000	Duration ó							.033	.612	1.522	1.522 c.m/s	
		59.713 mm	Total de	epth					.308	.898	.367	C perv/imperv	total/
3	IMPERVIOU						15	ADD RUNG					
	.015	Manning "n"		=Horton;	3=Green-Ampt; 4	=Repeat	10	POND	.033	.644	1.522	1.522 c.m/s	
	98.000	SCS Curve N							- Dischar	rge - Volu	me sets		
	.100	Ia/S Coeffi						184.800		.000	.0		
	.518	Initial Abs	traction					185.750		0210	1.0		
35	COMMENT							186.000		0230	503.0		
		e(s) of comme	ent					186.250 186.500			1091.0 1765.0		
		RES. WEST OF	SEGMENT 1	ı				186.700			2370.0		
		*****	220112112	-				Peak Out			27 c.m/s		
4	CATCHMENT	?								= 186.4			
	1.000	ID No.ó 999							Storage		1. c.m		
	17.520	Area in hec							.033	.644	.027	1.522 c.m/s	
	343.000 1.000	Length (PER					17	COMBINE 1 Jun	nction No				
	35.000	Gradient (% Per cent Im							.033	.644	.027	1.546 c.m/s	
	343.000	Length (IMP					14	START	.033	.011	.027	1.540 C.M/B	
	.000	%Imp. with							Zero; 2=I	Define			
	1	Option 1=SC	S CN/C; 2=	=Horton;	3=Green-Ampt; 4	=Repeat	18	CONFLUE	NCE				
	.250	Manning "n"							nction No			005	
	74.000	SCS Curve N					25		.033	1.546	.027	.000 c.m/s	
	.100 8.924	Ia/S Coeffi Initial Abs					35	COMMENT 3 lir	ne(s) of	common+			
	8.924			Rectard	plr; 3=SWM HYD; 4	=Lin. Reserv			ne(s) or ********				
	1.4			000	.000 c.m/s	-DIM: Rebelv		REALIGNE	ED CHANN	EL - SEGME	NT 1		
		.90	9 .5	518	C perv/imperv/to	tal			******	**			
15	ADD RUNOR						4	CATCHMEN					
	1.4	1.44	.5 .0	000	.000 c.m/s			101.000		.ó 99999			
35	COMMENT							.610		in hectare			
	3 line	e(s) of comme	nt					64.000 1.000		h (PERV) m	etres		
		CHANNEL - S	ECMENT 1					10.000		ent (%) ent Imperv	ione		
	*******		EGMENI I					64.000		h (IMPERV)			
4	CATCHMENT	?						.000		with Zero			
	100.000	ID No.ó 999	99					1				n; 3=Green-Ampt	; 4=Repeat
	2.020	Area in hec	tares					.250	Mannir				
	116.000	Length (PER	V) metres					74.000	SCS Ct	urve No or	C		
	.400	Gradient (%						.100		Coefficien			
	15.000	Per cent Im	nervious					8.924		al Abstrac			
								1	Option				
	116.000	Length (IMP	ERV)									nglr; 3=SWM HYD	; 4=Lin. Reserv
	.000	Length (IMP %Imp. with	ERV) Zero Dpth		3 (1)	P			.023	1.546	.027	.000 c.m/s	
	.000 1	Length (IMP %Imp. with Option 1=SC	ERV) Zero Dpth S CN/C; 2=	=Horton;	3=Green-Ampt; 4	=Repeat	15		.023 .308				
	.000 1 .250	Length (IMP %Imp. with Option 1=SC Manning "n"	ERV) Zero Dpth S CN/C; 2=	=Horton;	3=Green-Ampt; 4	=Repeat	15	ADD RUNG	.023 .308 OFF	1.546 .899	.027 .367	.000 c.m/s C perv/imperv	
	.000 1	Length (IMP %Imp. with Option 1=SC	PERV) Zero Dpth S CN/C; 2=	=Horton;	3=Green-Ampt; 4	=Repeat	15 9	ADD RUNG	.023 .308	1.546	.027	.000 c.m/s	
	.000 1 .250 74.000	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N	ERV) Zero Dpth S CN/C; 2= To or C cient	=Horton;	3=Green-Ampt; 4	=Repeat		ADD RUNG ROUTE .000	.023 .308 OFF .023	1.546 .899	.027 .367	.000 c.m/s C perv/imperv	
	.000 1 .250 74.000 .100 8.924	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr	ERV) Zero Dpth S CN/C; 2= To or C cient straction rianglr; 2=	=Rectang	ılr; 3=SWM HYD; 4			ADD RUNG ROUTE .000	.023 .308 OFF .023 Condui	1.546 .899 1.567 it Length nduit defi	.027 .367 .027	.000 c.m/s C perv/imperv	
	.000 1 .250 74.000 .100 8.924 1	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 1.44	ERV) Zero Dpth S CN/C; 2= To or C cient straction rianglr; 2=	=Rectang)00	plr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000	.023 .308 OFF .023 Condui No Cor	1.546 .899 1.567 it Length nduit defin	.027 .367 .027	.000 c.m/s C perv/imperv	
25	.000 1 .250 74.000 .100 8.924 1	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr	ERV) Zero Dpth S CN/C; 2= To or C cient straction rianglr; 2=	=Rectang)00	ılr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000	.023 .308 OFF .023 Condui No Cor Zero I Beta v	1.546 .899 1.567 it Length nduit definates lag weighting	.027 .367 .027 ned	.000 c.m/s C perv/imperv	
35	.000 1 .250 74.000 .100 8.924 1	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 77 1.44	ERV) Zero Dpth S CN/C; 2= To or C cient straction ianglr; 2= 5 .0	=Rectang)00	plr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000	.023 .308 OFF .023 Condui No Cor Zero I Beta v Routir	1.546 .899 1.567 it Length nduit definates lag weighting and timester	.027 .367 .027 ned factor	.000 c.m/s C perv/imperv	
35	.000 1 .250 74.000 .100 8.924 1	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 1.44 108 .89	ERV) Zero Dpth S CN/C; 2= To or C cient straction ianglr; 2= 5 .0	=Rectang)00	plr; 3=SWM HYD; 4	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000	.023 .308 OFF .023 Condui No Cor Zero I Beta v Routir No. of	1.546 .899 1.567 it Length nduit defi: lag weighting ng timeste; f sub-reac	.027 .367 .027 ned factor p	.000 c.m/s C perv/imperv .000 c.m/s	
35	.000 1 .250 74.000 .100 8.924 1 .0 .3 COMMENT 3 line	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 1.44 108 .89	ERV) Zero Dpth S CN/C; 2= To or C cient ttraction rianglr; 2= 5 .(=Rectang 000 396	rlr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv		ADD RUNG ROUTE .000 .000 .000 .000	.023 .308 OFF .023 Condui No Cor Zero I Beta v Routin No. of	1.546 .899 1.567 it Length nduit definates lag weighting and timester	.027 .367 .027 ned factor	.000 c.m/s C perv/imperv	
35	.000 1 .250 74.000 .100 8.924 1 .0 .3 COMMENT 3 line	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 177 1.44 108 .89 e(s) of comme ***********************************	ERV) Zero Dpth S CN/C; 2= To or C cient ttraction rianglr; 2= 5 .(=Rectang 000 396	rlr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to	=Lin. Reserv	9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.023 .308 OFF .023 Condui No Cor Zero I Beta v Routin No. of	1.546 .899 1.567 it Length nduit defin lag weighting mg timester f sub-react 1.567	.027 .367 .027 ned factor p	.000 c.m/s C perv/imperv .000 c.m/s	
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15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .00 .100 8.924 1 .00 .000 .000 .000 .000 .000 .000 .0	Length (IMP Wimp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs Option 1=Tr 177 1.44 108 .89 a(s) of comme ***********************************	ERV) Zero Dpth S CN/C; 2= To or C cient Straction Sianglr; 2= S S S S S S S S S S S S S S S S S S S	=Rectang 000 396 SEGMENT 000 5522 5522	(lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.023 .308 OFF .023 Condui No Cor Zero 1 Beta v Routir No. of .023 Zero; 2=I ne(s) of ************************************	1.546 .899 1.567 it Length Induit defi: lag weighting: g timeste; f sub-reaci 1.567 Ode No. 1.567 Define comment ** T SOUTH OF ** .6 99999 in hectare; h (PERV) ment (%) ent Imperv. h (IMPERV) murve No or Coefficien al Abstract n 1=Triang .000 .897 .209 .6 99999	.027 .367 .027 ned factor phes 1.567 1.567 1.567 2.567 1.567	.000 c.m/s C perv/imperv .000 c.m/s .000 c.m/s .000 c.m/s 1.567 c.m/s - POND P11 on; 3=Green-Ampt 1.567 c.m/s C perv/imperv	/total ; 4=Repeat ; 4=Lin. Reserv
15 9 17 14 35	.000 1.250 74.000 .100 8.924 1 .0 .COMMENT 3 line ************************************	Length (IMP NIMP. with Option 1=SC Manning "n" SCS Curve In/SCS In	ERV) Zero Dpth S CN/C; 2= To or C cient traction ianglr; 2= 5 The Color of C cient traction cianglr; 2= 5 The Color of C cient traction cianglr; 2= 5 The Color of C cient traction cianglr; 2= The Color of C cient traction cianglr; 2= The Color of C color of C cient traction cianglr; 2= The Color of C color of	=Rectang 000 396 SEGMENT 000 5522 5522	(lr; 3=swm HyD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s	=Lin. Reserv	9 17 14 35	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 COMBINE 1 Ju START 1 1=2 COMMENT 3 1ir ************************************	.023 .308 OFF .023 Condui No Cor Zero) Beta v Routir No. of .023 action Nc. 023 Zero; 2=I me(s) of ************************************	1.546 .899 1.567 it Length Induit defiilag weighting: general sub-react 1.567 Ode No. 1.567 Define comment ** T SOUTH OF ** .6 99999 in hectare in 1=SCS CN ing "n" urre No or Coefficien 1=Triang .000 .897 .209 .6 99999 in hectare	.027 .367 .027 ned factor phes 1.567 1.567 2.SEGMENT 1 setres dious Dpth dc; 2=Horto Ct tion lr; 2=Recta 1.567 .514 1.567	.000 c.m/s C perv/imperv .000 c.m/s .000 c.m/s .000 c.m/s 1.567 c.m/s - POND P11 on; 3=Green-Ampt 1.567 c.m/s C perv/imperv	/total ; 4=Repeat ; 4=Lin. Reserv
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15 9 17 14 35	.000 1.250 74.000 1.00 8.924 1 .00 .100 8.924 1 .100 .100 8.924 1 .000 .000 .000 .000 .000 .000 .000 .	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs 108 .89 (s) of comme ***********************************	ERV) Zero Dpth S CN/C; 2= to or C cient ttraction tianglr; 2= 5 TULVERT - S	=Rectang 100 1996 SEGMENT 1000 6 522 ENT 1 - =Horton;	(lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s 1.522 c.m/s POND Pl0 3=Green-Ampt; 4 1.522 c.m/s C perv/imperv/to	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.023 .308 OFF .023 Condui No Cor Zero ; Beta v Routir No. of .023 action No023 Zero; 2=I me(s) of ************************************	1.546 .899 1.567 it Length Induit defining weighting: grimester f sub-reach 1.567 Ode No. 1.567 Define comment ** T SOUTH OF ** .6 99999 in hectare h (PERV) ment (PERV) my "n" urve No or Coefficien al Abstracc n 1=Triang .000 .897 .209 .6 99999 in hectare h (PERV) ment (PERV) ment (PERV) ment (PERV) ment (PERV) with Zero n 1=SCS CN ng "n" urve No or Coefficien al Abstracc n 1=Triang .209 .6 99999 in hectare h (PERV) ment (%) ent Imperv h (IMPERV) with Zero n 1=SCS CN ng "n" urve No or	.027 .367 .027 ned factor phes 1.567 1.567 1.567 2 SEGMENT 1 Setres dious 1.567 .514 1.567 .514 1.567 .514 1.567	.000 c.m/s C perv/imperv .000 c.m/s .000 c.m/s .000 c.m/s 1.567 c.m/s - POND Pl1 on; 3=Green-Ampt lnglr; 3=SWM HYD l.567 c.m/s C perv/imperv l.567 c.m/s	/total ; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35 4	.000 1.250 74.000 1.100 8.924 1 COMMENT 3 line ************************************	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs 108 89 16(s) of comme ***********************************	ERV) Zero Dpth S CN/C; 2= To or C cient ttraction tianglr; 2= 5 TULVERT - S	=Rectang 100 1996 SEGMENT 1000 6 522 ENT 1 - =Horton;	(lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s 1.522 c.m/s POND P10	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.023 .308 OFF .023 Condui No Core Zero l Beta v Routir No. of .023 Zero; 2=I ne(s) of ************************************	1.546 .899 1.567 it Length induit defi: lag weighting: g timeste; f sub-reac! 1.567 Ode No. 1.567 Define comment ** T SOUTH OF ** .6 99999 in hectare: h (PERV) me al Abstrac n 1=Triang .000 .897 .209 .6 99999 in hectare: h (PERV) me ent (%) ent Imperv. h (IMPERV) h (PERV) in lestrac n 1=Triang .000 .897 .209 .6 99999 in hectare: h (PERV) ment (%) ent Imperv. h (IMPERV) ment (%)	.027 .367 .027 ned factor P hes 1.567 1.567 SEGMENT 1 setres flous Dpth //C; 2=Horto 1.567 .514 1.567 setres flous Dpth //C; 2=Horto control cont	.000 c.m/s C perv/imperv .000 c.m/s .000 c.m/s .000 c.m/s 1.567 c.m/s - POND Pl1 on; 3=Green-Ampt lnglr; 3=SWM HYD l.567 c.m/s C perv/imperv l.567 c.m/s	/total ; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35	.000 1.250 74.000 1.00 8.924 1 .00 .100 8.924 1 .100 .100 8.924 1 .000 .000 .000 .000 .000 .000 .000 .	Length (IMP %Imp. with Option 1=SC Manning "n" SCS Curve N Ia/S Coeffi Initial Abs 108 89 16(s) of comme ***********************************	ERV) Zero Dpth S CN/C; 2= To or C cient traction ianglr; 2= 5 1 10 ULVERT - S 12 10 10 10 10 10 10 10 10 10 10 10 10 10	=Rectang 100 1996 SEGMENT 1000 6 522 ENT 1 - =Horton;	(lr; 3=SWM HYD; 4 .000 c.m/s C perv/imperv/to 1 .000 c.m/s .000 c.m/s 1.522 c.m/s POND Pl0 3=Green-Ampt; 4 1.522 c.m/s C perv/imperv/to	=Lin. Reserv	9 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.023 .308 OFF .023 Condui No Coro Zero i Beta v Routir No. of .023 action Nc. 023 Zero; 2=I ne(s) of ************************************	1.546 .899 1.567 it Length nduit defin lag weighting: f sub-reach 1.567 Ode No. 1.567 Define comment ** T SOUTH OF ** .6 99999 in hectaren h (PERV) me ent (%) ent Imperv. h (IMPERV) .897 .209 .6 99999 in hectaren h (PERV) me nt imperv. h (IMPERV) with Zero n 1=SCS CN ng "n" urve No or Coefficien .897 .209 .6 99999 in hectaren h (PERV) me ent (%) ent Imperv. h (IMPERV) with Zero n 1=SCS CN ng "n" urve No or Coefficien urve No or Coefficien al Abstract	.027 .367 .027 ned factor phes 1.567 1.567 SEGMENT 1 setres dous Dpth //C; 2=Horto ct tion lr; 2=Recta 1.567 setres dous Dpth //C; 2=Horto ct tion	.000 c.m/s C perv/imperv .000 c.m/s .000 c.m/s .000 c.m/s 1.567 c.m/s - POND Pl1 on; 3=Green-Ampt lnglr; 3=SWM HYD l.567 c.m/s C perv/imperv l.567 c.m/s	/total ; 4=Repeat ; 4=Lin. Reserv /total

	.308 .897 .721 C perv/imperv/total	74.000 SCS Curve No or C
15	ADD RUNOFF 1.083 1.292 1.567 1.567 c.m/s	.100 Ia/S Coefficient 8.924 Initial Abstraction
4	CATCHMENT	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	14.000 ID No.6 99999	1.980 .061 .484 .484 c.m/s
	.670 Area in hectares	.308 .910 .729 C perv/imperv/total
	67.000 Length (PERV) metres	15 ADD RUNOFF
	1.000 Gradient (%) 60.000 Per cent Impervious	1.980 2.030 .484 .484 c.m/s 9 ROUTE
	67.000 Length (IMPERV)	.000 Conduit Length
	.000 %Imp. with Zero Dpth	.000 No Conduit defined
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	.000 Zero lag .000 Beta weighting factor
	74.000 SCS Curve No or C	.000 Routing timestep
	.100 Ia/S Coefficient	0 No. of sub-reaches
	8.924 Initial Abstraction	1.980 2.030 2.030 .484 c.m/s
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .099 1.292 1.567 1.567 c.m/s</pre>	v 17 COMBINE 2 Junction Node No.
	.308 .898 .662 C perv/imperv/total	1.980 2.030 2.030 2.514 c.m/s
15	ADD RUNOFF	14 START
	.099 1.367 1.567 c.m/s	1 1=Zero; 2=Define
27	HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen	4 CATCHMENT 43.000 ID No.6 99999
	Volume = .4091430E+04 c.m	.330 Area in hectares
10	POND	47.000 Length (PERV) metres
	5 Depth - Discharge - Volume sets 184.800 .000 .0	1.000 Gradient (%)
	184.800 .000 .0 185.300 .0140 1142.0	35.000 Per cent Impervious 47.000 Length (IMPERV)
	186.100 .0240 3519.0	.000 %Imp. with Zero Dpth
	186.500 .287 4978.0	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	186.800	.250 Manning "n" 74.000 SCS Curve No or C
	Maximum Depth = 186.136 metres	.100 Ia/S Coefficient
	Maximum Storage = 3650. c.m	8.924 Initial Abstraction
	.099 1.367 .048 1.567 c.m/s	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
35	COMMENT	.031 .000 2.030 2.514 c.m/s .308 .898 .515 C perv/imperv/total
	<pre>3 line(s) of comment ************************************</pre>	.308 .898 .515 C perv/imperv/total 15 ADD RUNOFF
	FLOW U/S OF RICE RD CULVERT - OUTLET A1	.031 .031 2.030 2.514 c.m/s
	*******	4 CATCHMENT
17	COMBINE	44.000 ID No.6 99999
	1 Junction Node No099 1.367 .048 1.583 c.m/s	6.400 Area in hectares 207.000 Length (PERV) metres
14	START 1000 1000 1000 1000 1000 1000 1000 10	1.000 Gradient (%)
	1 1=Zero; 2=Define	70.000 Per cent Impervious
35	COMMENT 3 line(s) of comment	207.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	**************************************	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	PROP DEVELOPMENT SOUTH OF QUAKER RD & WEST OF RICE RD PON	.250 Manning "n"
	*********	74.000 SCS Curve No or C
4	CATCHMENT 40.000 ID No.6 99999	.100 Ia/S Coefficient 8.924 Initial Abstraction
	8.210 Area in hectares	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	234.000 Length (PERV) metres	.990 .031 2.030 2.514 c.m/s
	1.000 Gradient (%)	.308 .896 .719 C perv/imperv/total
	25.000 Per cent Impervious 234.000 Length (IMPERV)	15 ADD RUNOFF .990 1.014 2.030 2.514 c.m/s
	.000 %Imp. with Zero Dpth	9 ROUTE
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	.000 Conduit Length
	.250 Manning "n" 74.000 SCS Curve No or C	.000 No Conduit defined .000 Zero lag
	.100 Ia/S Coefficient	.000 Zero lag .000 Beta weighting factor
	8.924 Initial Abstraction	.000 Routing timestep
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>	
	.484 .000 .048 1.583 c.m/s .308 .902 .457 C perv/imperv/total	.990 1.014 1.014 2.514 c.m/s 17 COMBINE
15	ADD RUNOFF	2 Junction Node No.
	.484 .484 .048 1.583 c.m/s	.990 1.014 1.014 3.528 c.m/s
9	ROUTE	14 START 1 1=Zero; 2=Define
	.000 Conduit Length .000 No Conduit defined	18 CONFLUENCE
	.000 Zero lag	2 Junction Node No.
	.000 Beta weighting factor	.990 3.528 1.014 .000 c.m/s
	.000 Routing timestep 0 No. of sub-reaches	4 CATCHMENT 45.000 ID No.6 99999
	.484 .484 1.583 c.m/s	1.030 Area in hectares
17	COMBINE	83.000 Length (PERV) metres
	2 Junction Node No.	1.000 Gradient (%) 60.000 Per cent Impervious
14	.484 .484 .484 c.m/s START	83.000 Length (IMPERV)
	1 1=Zero; 2=Define	.000 %Imp. with Zero Dpth
4	CATCHMENT	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	41.000 ID No.6 99999 .690 Area in hectares	.250 Manning "n" 74.000 SCS Curve No or C
	68.000 Length (PERV) metres	.100 Ia/S Coefficient
	1.000 Gradient (%)	8.924 Initial Abstraction
	35.000 Per cent Impervious	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	68.000 Length (IMPERV) .000 %Imp. with Zero Dpth	.147 3.528 1.014 .000 c.m/s .308 .899 .662 C perv/imperv/total
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	15 ADD RUNOFF
	.250 Manning "n"	.147 3.648 1.014 .000 c.m/s
	74.000 SCS Curve No or C	27 HYDROGRAPH DISPLAY
	.100 Ia/S Coefficient 8.924 Initial Abstraction	5 is # of Hyeto/Hydrograph chosen Volume = .1120983E+05 c.m
	8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.061 .000 .484 .484 c.m/s	6 Depth - Discharge - Volume sets
	.308 .898 .515 C perv/imperv/total	186.000 .000 .0
15	ADD RUNOFF .061 .061 .484 .484 c.m/s	186.800 .0550 4048.0 187.300 .0730 7091.0
4	CATCHMENT	187.500 .170 8424.0
	42.000 ID No.6 99999	187.800 .257 10552.0
	12.640 Area in hectares	188.000 .880 12094.0
	290.000 Length (PERV) metres 1.000 Gradient (%)	Peak Outflow = .198 c.m/s Maximum Depth = 187.598 metres
	70.000 Per cent Impervious	Maximum Storage = 9121. c.m
	290.000 Length (IMPERV)	.147 3.648 .198 .000 c.m/s
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	17 COMBINE 2 Junction Node No.
	Option 1=505 CN/C; 2=norton; 3=Green-Ampt; 4=Repeat	2 Junet 101 Node No.

14	START		.250	Manning				
2.5	1 1=Zero; 2=Define		74.000		e No or (2		
35	COMMENT 3 line(s) of comment		.100 8.924	Ia/S Coe	Abstract:	ion		
	**************************************		1				anglr; 3=SWM HYD; 4=Lin	. Reserv
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.0		.097	1.392	1.392 c.m/s	
	*********			808	.899	.367	C perv/imperv/total	
4	CATCHMENT	15	ADD RUNOF					
	2.000 ID No.6 99999 9.020 Area in hectares	9	ROUTE	159	.156	1.392	1.392 c.m/s	
	245.000 Length (PERV) metres	9	.000	Conduit	T.enath			
	1.000 Gradient (%)		.000		it define	ed		
	40.000 Per cent Impervious		.000	Zero lag				
	245.000 Length (IMPERV)		.000	Beta wei	ghting fa	actor		
	.000 %Imp. with Zero Dpth		.000	Routing				
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		0		ub-reache			
	.250 Manning "n"	17		159	.156	.156	1.392 c.m/s	
	74.000 SCS Curve No or C .100 Ia/S Coefficient	17	COMBINE 2 June	tion Node	Ma			
	8.924 Initial Abstraction				.156	.156	1.548 c.m/s	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	14	START	.55	•150	.130	1.540 C.M/B	
	.824 .000 .198 .198 c.m/s			ro; 2=Def	ine			
	.308 .904 .547 C perv/imperv/total	35	COMMENT					
15	ADD RUNOFF		3 line	(s) of co	mment			
	.824 .824 .198 .198 c.m/s		******					
9	ROUTE					RD AND S	OUTH OF QUAKER ROAD	
	.000 Conduit Length .000 No Conduit defined		******		****			
	.000 No Conduit defined .000 Zero lag	4	CATCHMENT 4.000	ID No.ó	00000			
	.000 Beta weighting factor		13.940	Area in				
	.000 Routing timestep		305.000		PERV) met	res		
	0 No. of sub-reaches		1.000	Gradient				
	.824 .824 .198 c.m/s		40.000		Impervi	ous		
17	COMBINE		305.000	Length (IMPERV)			
	2 Junction Node No.		.000	%Imp. wi	th Zero I	Opth		
	.824 .824 .824 .877 c.m/s		1	Option 1	=SCS CN/C	C; 2=Hort	on; 3=Green-Ampt; 4=Rep	eat
14	START		.250	Manning				
	1 1=Zero; 2=Define		74.000		e No or (2		
18	CONFLUENCE		.100	Ia/S Coe				
	2 Junction Node No.		8.924		Abstract		analm. 3-com com. 4-1 in	
35	.824 .877 .824 .000 c.m/s		1 1.2		.000	.156	anglr; 3=SWM HYD; 4=Lir 1.548 c.m/s	. Reserv
33	3 line(s) of comment				.910	.549	C perv/imperv/total	
	**************************************	15	ADD RUNOF		.510	.545	c perv/imperv/cocar	
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		1.2		.270	.156	1.548 c.m/s	
	********	9	ROUTE					
4	CATCHMENT		.000	Conduit	Length			
	3.000 ID No.6 99999		.000	No Condu	it define	ed		
	5.680 Area in hectares		.000	Zero lag				
	195.000 Length (PERV) metres		.000		ghting fa	actor		
	1.000 Gradient (%)		.000	Routing				
	40.000 Per cent Impervious		0		ub-reache		1 540 (-	
	195.000 Length (IMPERV) .000 %Imp. with Zero Dpth	17	1.2	170 1	.270	1.270	1.548 c.m/s	
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	17		tion Node	No			
	.250 Manning "n"		1.2		.270	1.270	2.818 c.m/s	
	74.000 SCS Curve No or C	14	START	.70 1	.270	1.270	2.010 C.M/S	
	.100 Ia/S Coefficient			ro; 2=Def	ine			
	8.924 Initial Abstraction	18	CONFLUENCE					
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		2 Junct	tion Node	No.			
	.515 .877 .824 .000 c.m/s		1.2	70 2	.818	1.270	.000 c.m/s	
	.308 .894 .543 C perv/imperv/total	35	COMMENT					
15	ADD RUNOFF			(s) of co	mment			
	.515 1.392 .824 .000 c.m/s		******					
9	ROUTE .000 Conduit Length		******		KER RD TO	CITY OF	WELLAND MUNICIPAL BOUN	IDA
	.000 Conduit Length .000 No Conduit defined	4	CATCHMENT					
	.000 Zero lag	-	501.000	ID No.ó	99999			
	.000 Beta weighting factor		1.570	Area in				
	.000 Routing timestep		102.000		PERV) met	res		
	0 No. of sub-reaches		1.000	Gradient				
	.515 1.392 1.392 .000 c.m/s		70.000	Per cent	Impervi	ous		
17	COMBINE		102.000	Length (
	2 Junction Node No.		.000		th Zero I			
	.515 1.392 1.392 c.m/s		1			C; 2=Hort	on; 3=Green-Ampt; 4=Rep	eat
14	START 1 1=Zero; 2=Define		.250 74.000	Manning SCS Curv	"n" e No or (,		
35	COMMENT		.100	Ia/S Coe		-		
55	3 line(s) of comment		8.924		Abstract:	ion		
	**************************************		1				anglr; 3=SWM HYD; 4=Lir	. Reserv
	PROP DEVELOPMENT SOUTH OF QUAKER RD, EAST OF RICE RD		. 2		.818	1.270	.000 c.m/s	
	*********		.30		.901	.723	C perv/imperv/total	
4	CATCHMENT	15	ADD RUNOF				_	
	50.000 ID No.ó 99999		. 2	50 3	.038	1.270	.000 c.m/s	
	3.420 Area in hectares	9	ROUTE					
	151.000 Length (PERV) metres		.000	Conduit				
	1.000 Gradient (%) 10.000 Per cent Impervious		.000		it define	ed		
				Zero lag				
	151.000 Length (IMPERV) .000 %Imp. with Zero Dpth		.000	Routing	ghting fa	AC COL		
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.000		timestep ub-reache	es		
	.250 Manning "n"		-		.038	3.038	.000 c.m/s	
	74.000 SCS Curve No or C	35	COMMENT				-	
	.100 Ia/S Coefficient		3 line	(s) of co	mment			
	8.924 Initial Abstraction		******	******				
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		FLOW D/S		D CULVER	r - OUTLE	T A2	
	.097 .000 1.392 1.392 c.m/s		******	*****				
	.308 .892 .367 C perv/imperv/total	17	COMBINE		••-			
15	ADD RUNOFF			tion Node		2 022	4 601 - 1	
4	.097 .097 1.392 1.392 c.m/s CATCHMENT	14	.2	50 3	.038	3.038	4.621 c.m/s	
-	51.000 ID No.6 99999	14		ro; 2=Def	ine			
	1.980 Area in hectares	35	COMMENT	, 2-Del				
	115.000 Length (PERV) metres			(s) of co	mment			
	1.000 Gradient (%)		******	*****				
	10.000 Per cent Impervious				OUTH OF	QUAKER RD	- QUALLITY CONTROL ONI	Y
	115.000 Length (IMPERV)		******					
	.000 %Imp. with Zero Dpth	4	CATCHMENT		00000			
	1 Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat		20.100	ID No. 6	99999			

	.780 Area in hectares	35	COMMENT
	72.000 Length (PERV) metres		<pre>3 line(s) of comment</pre>
	1.000 Gradient (%)		**********
	35.000 Per cent Impervious		FLOW U/S OF FIRST AVE CULVERT
	72.000 Length (IMPERV)		**********
	.000 %Imp. with Zero Dpth	17	COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		1 Junction Node No338 5.586 5.586 5.586 c.m/s
	74.000 SCS Curve No or C	14	.330 5.300 5.300 5.300 C.m/s
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	35	COMMENT
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		<pre>3 line(s) of comment</pre>
	.068 .000 3.038 4.621 c.m/s		******
	.308 .897 .514 C perv/imperv/total		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
15	ADD RUNOFF		******
	.068 .068 3.038 4.621 c.m/s	4	CATCHMENT
4	CATCHMENT		52.000 ID No.6 99999
	20.000 ID No.6 99999		6.430 Area in hectares
	3.210 Area in hectares 146.000 Length (PERV) metres		207.000 Length (PERV) metres
			1.000 Gradient (%)
	1.000 Gradient (%) 85.000 Per cent Impervious		70.000 Per cent Impervious 207.000 Length (IMPERV)
	146.000 Length (IMPERV)		.000 %Imp. with Zero Dpth
	.000 %Imp. with Zero Dpth		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.250 Manning "n"
	.250 Manning "n"		74.000 SCS Curve No or C
	74.000 SCS Curve No or C		.100 Ia/S Coefficient
	.100 Ia/S Coefficient		8.924 Initial Abstraction
	8.924 Initial Abstraction		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		.995 .000 5.586 5.586 c.m/s
	.575 .068 3.038 4.621 c.m/s		.308 .896 .719 C perv/imperv/total
	.308 .893 .806 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF		.995 .995 5.586 5.586 c.m/s
•	.575 .639 3.038 4.621 c.m/s	9	ROUTE
9	ROUTE .000 Conduit Length		.000 Conduit Length .000 No Conduit defined
	.000 No Conduit defined		.000 Zero lag
	.000 Zero lag		.000 Beta weighting factor
	.000 Beta weighting factor		.000 Routing timestep
	.000 Routing timestep		0 No. of sub-reaches
	0 No. of sub-reaches		.995 .995 .995 5.586 c.m/s
	.575 .639 .639 4.621 c.m/s	17	COMBINE
17	COMBINE		2 Junction Node No.
	1 Junction Node No.		.995 .995 .995 c.m/s
	.575 .639 .639 5.253 c.m/s	14	START
14	START		1 1=Zero; 2=Define
	1 1=Zero; 2=Define	4	CATCHMENT
18	CONFLUENCE		53.000 ID No.6 99999
	1 Junction Node No.		11.340 Area in hectares
	.575 5.253 .639 .000 c.m/s		275.000 Length (PERV) metres
35	COMMENT		1.000 Gradient (%)
	3 line(s) of comment		70.000 Per cent Impervious 275.000 Length (IMPERV)
	REALIGNED CHANNEL - SEGMENT 2		275.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	**************************************		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
4	CATCHMENT		.250 Manning "n"
•	200.000 ID No.6 99999		74.000 SCS Curve No or C
	.970 Area in hectares		.100 Ia/S Coefficient
	80.416 Length (PERV) metres		
			8.924 Initial Abstraction
	1.000 Gradient (%)		8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	1.000 Gradient (%)		<pre>Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth	15	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	15 9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep
35	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches
35	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .308 .898 .367 C perv/imperv/total	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches
35	1.000	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 Zero lag .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s
35	1.000	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 2.771 c.m/s
	1.000	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFIUENCE
35	1.000	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 c perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 Zero lag .000 Esta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No.
15	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .308 .898 .367 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s
	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPRV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .308 .898 .367 C perv/imperv/total COMMENT 3 line(s) of comment ************************************	9	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 c perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 Zero lag .000 Eata weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHENTE
15	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .308 .898 .367 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999
15	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 c perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .308 .898 .367 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 c perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 % Tup. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat 74.000 SCS Curve No or C
15 35	1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPRV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .032 5.253 .639 .000 c.m/s .038 .898 .367 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Tmp. with Zero Dpth 1 Option 1=SCS CNC; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 II CASCOEfficient
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 II A/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .179 2.771 1.776 .000 c.m/s
15 35	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 C perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Tmp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 IA/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .179 2.771 1.776 .000 c.m/s .308 .900 .663 C perv/imperv/total ADD RUNOFF .179 2.924 1.776 .000 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776 .000 .995 .995 c.m/s .308 .908 .728 c perv/imperv/total ADD RUNOFF 1.776 1.776 .995 .995 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Routing timestep 0 No. of sub-reaches 1.776 1.776 1.776 .995 c.m/s COMBINE 2 Junction Node No. 1.776 1.776 1.776 2.771 c.m/s CONFLUENCE 2 Junction Node No. 1.776 2.771 1.776 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Tmp. with Zero Dpth 1 Option 1=SCS CNC; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 IA/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .179 2.771 1.776 .000 c.m/s .308 .900 .663 C perv/imperv/total ADD RUNOFF .179 2.924 1.776 .000 c.m/s HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen Volume = .8196629E+04 c.m POND
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776
15 35 4	1.000	9 17 18 4	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 1.776

	W			35	CONDITIVE
	Maximum Storage = 7762. .179 2.924	.023	.000 c.m/s	33	COMMENT 3 line(s) of comment
17	COMBINE				******
	2 Junction Node No179 2.924	.023	.023 c.m/s		REALIGNED CHANNEL - SEGMENT 3
14	START			4	CATCHMENT
35	1 1=Zero; 2=Define COMMENT				300.000 ID No.6 99999 3.180 Area in hectares
	<pre>3 line(s) of comment</pre>				146.000 Length (PERV) metres
	**************************************	PACT OF DIC	מם שי		.200 Gradient (%) 15.000 Per cent Impervious
	**************************************	EAST OF RIC	E RD		146.000 Length (IMPERV)
4	CATCHMENT				.000 %Imp. with Zero Dpth
	5.000 ID No.ó 99999 1.870 Area in hectares				1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	112.000 Length (PERV) metr	es			74.000 SCS Curve No or C
	1.000 Gradient (%) 50.000 Per cent Imperviou				.100 Ia/S Coefficient 8.924 Initial Abstraction
	112.000 Length (IMPERV)	.s			1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dp				.119 6.402 .816 .000 c.m/s
	1 Option 1=SCS CN/C; .250 Manning "n"	2=Horton;	3=Green-Ampt; 4=Repeat	15	.308 .910 .399 C perv/imperv/total ADD RUNOFF
	74.000 SCS Curve No or C			13	.119 6.521 .816 .000 c.m/s
	.100 Ia/S Coefficient			4	CATCHMENT
	8.924 Initial Abstraction 1 Option 1=Trianglr:		r; 3=SWM HYD; 4=Lin. Reserv		301.000 ID No.6 99999 .720 Area in hectares
	.211 .000	.023	.023 c.m/s		69.000 Length (PERV) metres
1.5	.308 .900	.604 C	perv/imperv/total		.200 Gradient (%)
15	ADD RUNOFF .211 .211	.023	.023 c.m/s		10.000 Per cent Impervious 69.000 Length (IMPERV)
9	ROUTE				.000 %Imp. with Zero Dpth
	.000 Conduit Length .000 No Conduit defined				1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
	.000 No Conduit defined				74.000 SCS Curve No or C
	.000 Beta weighting fac	tor			.100 Ia/S Coefficient
	.000 Routing timestep 0 No. of sub-reaches				8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.211 .211	.211	.023 c.m/s		.020 6.521 .816 .000 c.m/s
17	COMBINE				.308 .892 .367 C perv/imperv/total
	2 Junction Node No211 .211	.211	.217 c.m/s	15	ADD RUNOFF .020 6.541 .816 .000 c.m/s
18	CONFLUENCE		.217 C.M/B	9	ROUTE
	2 Junction Node No.				.000 Conduit Length
35	.211 .217	.211	.000 c.m/s		.000 No Conduit defined .000 Zero lag
33	3 line(s) of comment				.000 Beta weighting factor
	******				.000 Routing timestep
	EXISTING AREA ON QUAKER RD,	EAST OF RIC	E RD		0 No. of sub-reaches .020 6.541 6.541 .000 c.m/s
4	CATCHMENT			17	COMBINE
	6.000 ID No.6 99999				1 Junction Node No.
	1.920 Area in hectares 113.000 Length (PERV) metr	es		14	.020 6.541 6.541 6.541 c.m/s START
	.200 Gradient (%)	0.0			1 1=Zero; 2=Define
	65.000 Per cent Imperviou	s		35	
		-		33	COMMENT
	113.000 Length (IMPERV) .000 %Imp. with Zero Dp			33	COMMENT 3 line(s) of comment ***********
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C;	th	3=Green-Ampt; 4=Repeat	33	<pre>3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30</pre>
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n"	th	3=Green-Ampt; 4=Repeat		<pre>3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************************************</pre>
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C;	th	3=Green-Ampt; 4=Repeat	4	<pre>3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30</pre>
	.000 %Imp. with Zero Dp Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio	th 2=Horton;			3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr;	th 2=Horton; n 2=Rectangl	r; 3=SWM HYD; 4=Lin. Reserv		3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ********* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres
	.000 %Imp. with Zero Dp Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio	n 2=Horton; n 2=Rectangl			3 line(s) of comment ********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares
15	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF	n 2=Rectangl .211 .697	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total		3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *********** CATCIMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV)
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractic 1 Option 1=Trianglr; .308 .906 ADD RUNOFF .279 .486	n 2=Horton; n 2=Rectangl	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s		3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************* CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth
15 35	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment	n 2=Rectangl .211 .697	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total		3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ********** CATCIMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV)
	.000 %Imp. with Zero Dp	n 2=Rectangl .211 .697 C	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s		3 line(s) of comment *********** PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 ************ CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment	n 2=Rectangl .211 .697 C	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s		3 line(s) of comment ********* ********** ********** ****
	.000 %Imp. with Zero Dp	n 2=Rectangl .211 .697 C	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s		3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	n 2=Rectangl .211 .697 C	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s		3 line(s) of comment *********** ********** **********
	.000 %Imp. with Zero Dp	z=Horton; n 2=Rectangl .211 .697 C .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s		3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *********** CATCHMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %imp. with Zero Dpth 1 Option 1=SCS CM/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	n 2=Rectangl .211 .697 .211 CITY OF WEL	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s	15	3 line(s) of comment *********** ********** **********
	.000 %Imp. with Zero Dp	n 2=Rectangl .211 .697 .211 CITY OF WEL	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s	4	3 line(s) of comment ************************************
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	3 line(s) of comment ************************************
	.000 %Imp. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s	15	3 line(s) of comment ************ PROP DEVELOPMENT NORTH OF SEGMENT 3 - POND P30 *********** CATCHEMNT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Opth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .113 .000 6.541 6.541 c.m/s .308 .906 .309 C perv/imperv/total ADD RUNOFF .113 .113 6.541 6.541 c.m/s CATCHEMNT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	3 line(s) of comment *********** *********** **********
	.000 %Imp. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	n 2=Rectangl .211 .697 .211 CITY OF WEL es s	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA	15	3 line(s) of comment ********** ********** ********** CATCIMENT 30.000 ID No.6 99999 8.470 Area in hectares 238.000 Length (PERV) metres .200 Gradient (%) .100 Per cent Impervious 238.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CNC; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .113 .000 6.541 6.541 c.m/s .308 .906 .309 C perv/imperv/total ADD RUNOFF .113 .113 6.541 6.541 c.m/s CATCHMENT 31.000 ID No.6 99999 10.420 Area in hectares 264.000 Length (PERV) metres 1.000 Gradient (%) 75.000 Per cent Impervious 264.000 Length (IMPERV)
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL es s th 2=Horton;	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s Perv/imperv/total .000 c.m/s .LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat	15	3 line(s) of comment ************************************
	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rn 2=Rectangl .211 .697 .211 CITY OF WEL es s th 2=Horton;	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	15	3 line(s) of comment ********** *********** ********** *****
4	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rn 2=Rectangl .211 .697 .211 CITY OF WEL es s th 2=Horton;	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat .r; 3=SWM HYD; 4=Lin. Reserv	15	3 line(s) of comment ************************************
	.000 %Imp. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rh 2=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL es s th 2=Horton; n 2=Rectangl .211 .692 C	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15	3 line(s) of comment ************************************
4	.000 %Imp. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rn 2=Rectangl .211 .697 .211 CITY OF WEL es s th 2=Horton;	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	15	3
15	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rn 2=Rectangl .211 .697 .211 CITY OF WEL es s th 2=Horton; n 2=Rectangl .211 .692 .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15	3 line(s) of comment ********** ********** ********** ******
15	.000 %Imp. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rn 2=Rectangl .211 .697 .211 CITY OF WEL es s th 2=Horton; n 2=Rectangl .211 .692 .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15	3
15	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Dption 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rh 2=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL es s th 2=Horton; n 2=Rectangl .211 .692 C .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15 4	3
15	.000 %Imp. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	The proof of the p	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15 4	3
15	.000 %Imp. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	The proof of the p	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total	15 4	3
15	.000 %IMP. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	rh 2=Horton; n 2=Rectangl .211 .697 C .211 CITY OF WEL es s th 2=Horton; n 2=Rectangl .211 .692 C .211 tor	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4	3
35 4 15 9	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 ption 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Rectangl .211 .697 C .211 CITY OF WEL es sth 2=Horton; n 2=Rectangl .211 .692 C .211 .211 .692 C .211 .211 .692 C .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4	1
35 4 15 9	.000 %IMP. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Rectangl .211 .697 C .211 CITY OF WEL es sth 2=Horton; n 2=Rectangl .211 .692 C .211 .211 .692 C .211 .211 .692 C .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4	1
35 4 15 9	.000 %Imp. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	z=Rectangl .211 .697 C .211 CITY OF WEL es sth 2=Horton; n 2=Rectangl .211 .692 C .211 .211 .692 C .211 .211 .692 C .211	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	15 4	1
35 4 15 9	.000 %IMP. with Zero Dp .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	### Table 1.00 Table 1.00 ### Table 1.00	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1
35 4 15 9	.000 %IMP. with Zero Dp .255 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 1 Option 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	### Table 1.00 Table 1.00 ### Table 1.00	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1
35 4 15 9	.000 %Imp. with Zero Dp 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstractio 0 Dption 1=Trianglr; .279 .217 .308 .906 ADD RUNOFF .279 .486 COMMENT 3 line(s) of comment ************************************	### Table 1.00 Table 1.00 ### Table 1.00	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s ! perv/imperv/total .000 c.m/s .000 c.m/s	15 4	1

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.100
                      Ia/S Coefficient
         8.924
                      Initial Abstraction
                      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 02 1.763 6.541 6.541 c.m/s 08 .898 .662 C perv/imperv/total
                  .308
15
         ADD RUNOFF
         .102 1.8
HYDROGRAPH DISPLAY
                               1.840
                                             6.541
                                                             6.541 c.m/s
27
         is # of Hyeto/Hydrograph chosen
Volume = .6549078E+04 c.m
10
         POND
         POND
5 Depth - Discharge - Volume sets
178.800 .000 .0
179.300 .0260 1520.0
                           .0440
                                          4649.0
7069.0
                            .414
         180.600
         .414
1.204
Peak Outflow =
Maximum 5
        reak Outflow = .114 c.m/s
Maximum Depth = 180.194 metres
Maximum Storage = .5104 c.m
.102 1.840 ---
                           6.541 c.m/s
17
               Junction Node No.
        .102
START
                              1.840
                                               .114
                                                             6.569 c.m/s
14
                1=Zero; 2=Define
         COMMENT
35
         line(s) of comment
         PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
         CATCHMENT
                     ID No.6 99999
        33.000
        12,960
                      Area in hectares
Length (PERV) metres
      294.000
                      Gradient (%)
Per cent Impervious
Length (IMPERV)
         1.000
       75.000
      294.000
          .000
                      %Imp. with Zero Doth
           .250
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                      Manning "n"
SCS Curve No or C
        74.000
                      Ia/S Coefficient
Initial Abstraction
          .100
         8.924
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.171 .000 .114 6.569 c.m/s .308 .910 .759 C perv/imperv/total
        ADD RUNOFF
2.171
15
         HYDROGRAPH DISPLAY
27
         is # of Hyeto/Hydrograph chosen
Volume = .5876996E+04 c.m
CATCHMENT
                      Area in hectares
          .660
                      Length (PERV) metres
Gradient (%)
Per cent Impervious
        66.000
         1.000
        60.000
                      Length (IMPERV)
%Imp. with Zero Dpth
        66.000
          .000
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                      Manning "n"
SCS Curve No or C
           . 250
        74.000
           . 100
                      Ia/S Coefficient
                       Initial Abstraction
                      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                  .098
                              2.171
                                        .114
                                                          6.569 c.m/s
C perv/imperv/total
        ADD RUNOFF
.098 2.245 .114
HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .6138025E+04 c.m
         ADD RUNOFF
15
                                                             6.569 c.m/s
         POND
        6 Depth - Discharge - Volume sets
                    .000
         178.300
                                          .0
1927.0
         178.900
         179.600
                           .0540
                                          4692.0
                          .150
         180.000
                             .321
                                          6538.0
         180.300 1.922 8059.0

Peak Outflow = 107 c.m/s

Maximum Depth = 179.709 metres
         Maximum Storage = 5.098 2.245
COMBINE
                                      5183. c.m
17
             Junction Node No.
        .098
START
14
                1=Zero; 2=Define
         CONFLUENCE
18
       1 Junction Node No.
        .098 6.606
COMMENT
         3 line(s) of comment
         REALIGNED CHANNEL - SEGMENT 3
         CATCHMENT
      302.000
                     TD No. 6 99999
                      Area in hectares
Length (PERV) metres
         1.610
      104.000
       .200
10.000
                      Gradient (%)
Per cent Impervious
                      Length (IMPERV)
      104.000
                      %Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
           . 250
                      Manning "n"
SCS Curve No or C
       74.000
```

```
.100
                Ia/S Coefficient
      8.924
                Initial Abstraction
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                    6.606
                                .107 .000 c.m/s
.368 C perv/imperv/total
             .308
                       .901
      COMMENT
      3 line(s) of comment
      FLOW U/S OF NIAGARA ST CULVERT - OUTLET D
15
      ADD RUNOFF
      .043
START
                       6.649
                                   .107
                                              .000 c.m/s
14
           1=Zero; 2=Define
```

35	COMMENT					82.000		(PERV) met	res		
	3 line	e(s) of comment				1.000	Gradien				
			*******	******		10.000		t Impervio	ous		
		STORM EVENT	*******	******		82.000 .000		(IMPERV) rith Zero D	nth.		
2	STORM					1				on; 3=Green-Ampt;	4=Repeat
	1	1=Chicago;2=Hu	ff;3=User;4=	Cdn1hr;5=Historic		.250	Manning				•
	1020.000	Coefficient a				74.000		ve No or C	2		
	4.700	Constant b	(min)			.100		efficient			
	.731	Exponent c	ala			8.924 1		Abstracti			. 4-Tim Domesti
	.450 240.000	Fraction to pe Duration ó 24				_	.054	.735	1.832	anglr; 3=SWM HYD; 1.832 c.m/s	4=LIM. Reserv
	240.000		otal depth				.367	.912	.422	C perv/imperv/	'total
3	IMPERVIOU		_		15	ADD RUNG	OFF				
	1		N/C; 2=Horto	on; 3=Green-Ampt; 4=Repeat			.054	.783	1.832	1.832 c.m/s	
	.015	Manning "n"			10	POND					
	98.000	SCS Curve No o						e - Volume			
	.100 .518	Initial Abstra				184.800 185.750	.02	00	.0 1.0		
35	COMMENT	IIIICIAI ADSCIA	CCION			186.000	.02		503.0		
		e(s) of comment				186.250	.02		91.0		
	******	******				186.500	.02	.80 17	765.0		
		RES. WEST OF SE	GMENT 1			186.700			370.0		
		******				Peak Out			c.m/s		
4	CATCHMENT 1.000	ID No.ó 99999					Depth = Storage =	186.513 1804.			
	17.520	Area in hectar	es				.054	.783	.105	1.832 c.m/s	
	343.000	Length (PERV)			17	COMBINE	• • • • • • • • • • • • • • • • • • • •	• / 05		11002 01111/10	
	1.000	Gradient (%)				1 Jur	nction Nod	e No.			
	35.000	Per cent Imper					.054	.783	.105	1.857 c.m/s	
	343.000	Length (IMPERV			14	START					
	.000 1	%Imp. with Zer		on; 3=Green-Ampt; 4=Repeat	18	1 1=2 CONFLUEN	Zero; 2=De	fine			
	.250	Manning "n"	, c, 2-HOLLC	, J J J J J J J T T T T T T T T T T T T	10		nce nction Nod	e No.			
	74.000	SCS Curve No o						1.857	.105	.000 c.m/s	
	.100	Ia/S Coefficie	nt		35	COMMENT					
	8.924	Initial Abstra					ne(s) of c				
	1			anglr; 3=SWM HYD; 4=Lin. F	eserv		*******				
	1.7	731 .000 368 .925	.000 .563	.000 c.m/s C perv/imperv/total			*********	- SEGMENT	. 1		
15	ADD RUNO		.303	c perv/imperv/cocar	4	CATCHMEN					
	1.7		.000	.000 c.m/s		101.000	ID No.6	99999			
35	COMMENT					.610	Area in	hectares			
		e(s) of comment				64.000		(PERV) met	res		
	*******	******** CHANNEL - SEGM				1.000	Gradien				
	******		ENT I			10.000 64.000		t Impervic (IMPERV)	ous		
4	CATCHMENT					.000		ith Zero D	opth		
	100.000	ID No.ó 99999				1				on; 3=Green-Ampt;	4=Repeat
	2.020	Area in hectar				.250	Manning				
	116.000 .400	Length (PERV) : Gradient (%)	metres			74.000 .100		ve No or C efficient	2		
	15.000	Per cent Imper	vious			8.924		Abstracti	on		
	116.000	Length (IMPERV				1				anglr; 3=SWM HYD;	4=Lin. Reserv
							0.20				
	.000	%Imp. with Zer						1.857	.105	.000 c.m/s	
	1	Option 1=SCS C		on; 3=Green-Ampt; 4=Repeat			.367	1.857 .914	.105 .422	.000 c.m/s C perv/imperv/	/total
			N/C; 2=Horto	on; 3=Green-Ampt; 4=Repeat	15	ADD RUNG	.367 OFF			C perv/imperv/	/total
	1 .250	Option 1=SCS C Manning "n"	N/C; 2=Horto	on; 3=Green-Ampt; 4=Repeat		ADD RUNG	.367 OFF	.914	.422		total/
	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra	N/C; 2=Horto r C nt ction		15 9	ADD RUNG ROUTE	.367 OFF .038 Conduit	.914 1.890 Length	.105	C perv/imperv/	'total
	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian	N/C; 2=Horto r C nt ction glr; 2=Recta	ınglr; 3=SWM HYD; 4=Lin. F	15 9	ADD RUNG ROUTE .000	.367 OFF .038 Conduit No Cond	.914 1.890 Length Luit define	.105	C perv/imperv/	/total
	1 .250 74.000 .100 8.924 1	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra	N/C; 2=Horto r C nt ction		15 9	ADD RUNG ROUTE	.367 OFF .038 Conduit No Cond Zero la	.914 1.890 Length Luit define	.422 .105	C perv/imperv/	/total
35	1 .250 74.000 .100 8.924 1 .1	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 368 .905	N/C; 2=Horto r C nt ction glr; 2=Recta .000	nglr; 3=SWM HYD; 4=Lin. F .000 c.m/s	15 9	ADD RUNG ROUTE .000 .000 .000 .000	.367 OFF .038 Conduit No Cond Zero la Beta we Routing	.914 1.890 Length Luit define g ighting fa	.422 .105	C perv/imperv/	/total
35	1 .250 74.000 .100 8.924 1 .1 COMMENT 3 line	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 368 .905	N/C; 2=Horto r C nt ction glr; 2=Recta .000	nglr; 3=SWM HYD; 4=Lin. F .000 c.m/s	15 9	ADD RUNG ROUTE .000 .000 .000 .000	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of	.914 1.890 Length tuit define g ighting fa timestep sub-reache	.422 .105	C perv/imperv/	/total
35	1 .250 74.000 .100 8.924 1 .1 .: COMMENT 3 line	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 368 .905	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448	unglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv	ADD RUNG ROUTE .000 .000 .000 .000 .000	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of	.914 1.890 Length Luit define g ighting fa	.422 .105	C perv/imperv/	/total
35	1 .250 74.000 .100 8.924 1 .1 .: COMMENT 3 line	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra option 1=Trian 101 1.731 668 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448	unglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9	ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of	.914 1.890 Length tuit define g highting fa timestep sub-reache 1.890	.422 .105	C perv/imperv/	/total
	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 s(s) of comment ************************************	N/C; 2=Hortor C r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv	ADD RUNG ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038	.914 1.890 Length tuit define g highting fa timestep sub-reache 1.890	.422 .105	C perv/imperv/	/total
15	1 .250 74.000 .100 8.924 1 .: COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 1068 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448	unglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038	.914 1.890 Length tuit define the service of the	.422 .105	C perv/imperv/ .000 c.m/s .000 c.m/s	/total
	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv 17	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 mction Nod .038	.914 1.890 Length tuit define the service of the	.422 .105	C perv/imperv/ .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .: COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 368 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv	ADD RUNC ROUTE	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 mction Nod .038	.914 1.890 Length uit define g idighting fa timestep sub-reache 1.890 de No. 1.890 ffine	.422 .105	C perv/imperv/ .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 2(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv 17	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DPF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine	.422 .105	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .3: COMMENT 3 lime ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 a(s) of comment ********** F UTI ROADWAY CULV ******** F Conduit Length No Conduit def Zero lag Beta weighting	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv 17	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DPF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine	.422 .105	C perv/imperv/ .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .] COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine	.422 .105	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 lime ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 16(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor epp epches	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total FT 1 .000 c.m/s	15 9 eserv 17	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OPF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length uit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine comment	.422 .105	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15 9	1 .250 74.000 .100 8.924 .1.3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length uit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine comment	.422 .105	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 16(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor epp epches	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total FT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of co ************************************	.914 1.890 Length tuit define gighting far timestep sub-reache 1.890 de No. 1.890 ffine comment SOUTH OF S	.422 .105 ad actor 88 1.890 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15 9 17	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor epp epches	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total FT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define g inghting fa rtimestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S 6.99999 hectares (PERV) met tt (%)	.422 .105 ad actor as 1.890 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15 9	1.250 74.000 1.00 8.924 1.3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 2(s) of comment ***********************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total WT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OPF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De me(s) of co ************************************	.914 1.890 Length wit define grand in timestep sub-reache 1.890 le No. 1.890 fine comment south of	.422 .105 ad actor as 1.890 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15 9 17	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 a(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total WT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inghting fa r timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (99999 hectares (PERV) met tt (%) tt Impervic	.422 .105 ed actor es 1.890 1.890 esegment 1	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	/total
15 9 17	1 .250 74.000 .100 8.924 1 .3 COMMENT 1 .3 COMMENT 1 .3 COMMENT 1 .3 COMBENT 1 .3 C	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total WT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define graph tuit define graph tuit define graph tuit define graph tuit define for the sub-reache 1.890 le No. 1.890 fine comment south of S (99999 thectares (PERV) met tt (%) tit Impervice (IMPERV) rith Zero Drith	.422 .105 ad actor as 1.890 1.890 SEGMENT 1	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s	
15 9 17	1 .250 74.000 .100 8.924 .1 .3 .2 .2 .2 .2 .2 .2 .2 .3 .3 .1 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	Option 1=SCS C Manning "n" Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .995 2(s) of comment ***********************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total WT 1 .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length uit define gighting far timestep sub-reache 1.890 de No. 1.890 de No. 1.890 de No. (Time time time time time time time time t	.422 .105 ad actor as 1.890 1.890 SEGMENT 1	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s	
15 9 17	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of co ************************************	.914 1.890 Length wit define grading timestep sub-reache 1.890 le No. 1.890 fine comment SOUTH OF S (PERV) met tit (%) tit Impervice (IMPERV) in the Zero D 1=SCS CN/C """	.422 .105 ed actor ss 1.890 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s	
15 9 17 14 35	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 1068 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tit (%) ti Impervic (IMPERV) rith Zero I 1=SCS CN/C ("""	.422 .105 ad actor as 1.890 1.890 1.890 accepted to the control of the control o	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s	
15 9 17	1 .250 74.000 .100 8.924 1 .] COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .68 .905 .e(s) of comment	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Anction Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine comment SOUTH OF S (PERV) met tt (%) tt Impervice (IMPERV) itt Impervice (IMPERV) reache verificient efficient Abstracti	.422 .105 ad actor as 1.890 1.890 SEGMENT 1 Cres ous opth Cr 2=Horte	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND Pl1	: 4=Repeat
15 9 17 14 35	1 .250 74.000 .100 8.924 .1 .1 2 2 2 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DPF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length uit define gighting fa timestep sub-reache 1.890 de No. 1.890 de	.422 .105 ad actor as 1.890 1.890 1.890 2. Company to the com	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt;	: 4=Repeat
15 9 17 14 35	1 .250 74.000 .100 8.924 .1 1 .1: COMMENT .1 ROUTE .000 .000 .000 .000 .000 .000 .000 .0	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ************************************	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832 F SEGMENT 1	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define gighting far timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=SCS CN/C """ ve No or cefficient Abstracti 1=Trianglr .000	.422 .105 ad actor ss 1.890 1.890 1.890 cres ppth cr; 2=Horter cr; 2=Rect. 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; 1.890 c.m/s	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 .1 .1 2 2 2 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 e(s) of comment ************************************	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832 F SEGMENT 1	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length uit define gighting fa timestep sub-reache 1.890 de No. 1.890 de	.422 .105 ad actor as 1.890 1.890 1.890 2. Company to the com	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt;	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .] COMMENT 1 ADD RUNOI .000 .000 .000 .000 .000 .000 .000 .0	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Anction Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define gighting far timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=SCS CN/C """ ve No or cefficient Abstracti 1=Trianglr .000	.422 .105 ad actor ss 1.890 1.890 1.890 cres ppth cr; 2=Horter cr; 2=Rect. 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; 1.890 c.m/s	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o IA/S Coefficie Initial Abstra Option 1=Trian Option 1=	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length uit define gighting fa timestep sub-reache 1.890 de No. 1.890 de No. 1.890 fine comment SOUTH OF S (99999 hectares (PERV) met ti (%) tit Impervic (IMPERV) rith Zero I 1=SCS CN/C (""" ve No or C defficient .000 .914 .262	.422 .105 ed actor ss 1.890 1.890 1.890 2.326 2.	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .1 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian Option 1=Trian 168 .905 e(s) of comment ******** FUT ROADWAY CULV ********* FUT ROADWAY CULV ******** Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 stion Node No. 101 1.832 stion Node No. 101 1.832 ttion Node No. 101 1.832 ttion Node No. 101 1.832 cro; 2=Define e(s) of comment ********* ID No.6 99999 Area in hectar Length (FERV): Gradien FERV): Gradien FERV): Gradien FERV): Gradien FERV): Gradien FERV): Cradien (FERV): Almpen With Zer Length (IMPERV) Almpen With Zer	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832 f SEGMENT 1 es metres vious) o Dpth	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define gighting far timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=SCS CN/C """ ve No or Cefficient .Abstracti 1=Trianglr .000 .914 .262	.422 .105 ed actor ss 1.890 1.890 1.890 2.326 2.	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832 f SEGMENT 1 es metres vious) o Dpth	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define graph tuit define for the sub-reache 1.890 le No. 1.890 fine comment SOUTH OF S 99999 hectares (PERV) met ti (%) ti Impervice (IMPERV) it Impervice (IMPERV) """ ve No or Coefficient - Abstracti 1=Trianglr .000 .914	.422 .105 ad actor as 1.890 1.890 1.890 segment 1 cres bus opth c; 2=Hort. 1.890 .559 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 e(s) of comment ********* FF UT ROADWAY CULV ******** FF Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 ction Node No. 101 1.832	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inighting fa f timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=SCS CN/C ("" ve No or C vefficient Abstracti 1=Trianglr .000 .914 .262 [99999 hectares (PERV) met	.422 .105 ad actor as 1.890 1.890 1.890 segment 1 cres bus opth c; 2=Hort. 1.890 .559 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ************************************	N/C; 2=Horto r C nt totion glr; 2=Recta .000 .448 ERT - SEGMEN .000 ined factor ep ches 1.832 1.832 F SEGMENT 1 es metres vious) o Dpth N/C; 2=Horto r C	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inghting fa timestep sub-reache 1.890 le No. 1.890 fine comment SOUTH OF S 6.99999 hectares (PERV) met tit (%) 1.890 .914 .262 .99999 hectares (PERV) met tit (%)	.422 .105 ad actor ss 1.890 1.890 1.890 2.22 2.24 2.27 2.27 2.27 2.27 2.27 2.27	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian .01 1.731 .08 .905 .08) of comment	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define g inighting fa f timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=SCS CN/C ("" ve No or C vefficient Abstracti 1=Trianglr .000 .914 .262 [99999 hectares (PERV) met	.422 .105 ad actor ss 1.890 1.890 1.890 2.22 2.24 2.27 2.27 2.27 2.27 2.27 2.27	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	: 4=Repeat : 4=Lin. Reserv
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .3 COMMENT 1 .3 ************************************	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 1068 .905 10(8) of comment ************************************	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T 1 .000 c.m/s .000 c.m/s 1.832 c.m/s - POND P10 on; 3=Green-Ampt; 4=Repeat	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De ne(s) of c ************************************	.914 1.890 Length tuit define graph tuit define tuit defin	.422 .105 ad actor as 1.890 1.890 1.890 2.286ct. 1.890 1.890 1.890 2.559 1.890 2.cres bus both	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND Pll on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv, 1.890 c.m/s	; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ********** ADD RUNDI .000 .000 .000 .000 .000 .000 .000 .0	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 168 .905 e(s) of comment ********* FF UT ROADWAY CULV ******** FF Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 ction Node No. 101 1.832	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s - POND P10 anglr; 3=SWM HYD; 4=Lin. F 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inighting fa f timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (99999 hectares (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tit (%) tit Inpervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (199999 hectares (PERV) met tit Impervic (IMPERV) rith Zero I 1=SCS CN/C	.422 .105 ad actor as 1.890 1.890 1.890 2.286ct. 1.890 1.890 1.890 2.559 1.890 2.cres bus both	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND P11 on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv,	; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35	1 .250 74.000 .100 8.924 1 .3 COMMENT 3 line ********** ADD RUNDI .000 .000 .000 .000 .000 .000 .000 .0	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ******** FF UT ROADWAY CULV ******** FF UT ROADWAY CULV ******** FF Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 ction Node No. 102 1.832 ction Node No. 103 2.832 ction Node No. 101 1.832 ction Node No. 101 1.832 ction Node No. 103 2.832 ction Node No. 101 1.832	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T 1 .000 c.m/s .000 c.m/s 1.832 c.m/s - POND P10 on; 3=Green-Ampt; 4=Repeat	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define g inighting fa f timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (99999 hectares (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tit (%) tit Inpervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tit (%) tit Impervic (IMPERV) rith Zero I 1=Trianglr .000 .914 .262 (199999 hectares (PERV) met tit Impervic (IMPERV) rith Zero I 1=SCS CN/C	.422 .105 ad actor ss 1.890 1.890 1.890 SEGMENT 1 Cres ous Opth 1; 2=Hort 1.890 1.890 cres ous Opth 1:92 1.890 1.890 cres ous Opth 1:92 1.890 1.890 cres ous Opth 1:92 1.890 1.890 cres ous	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND Pll on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv, 1.890 c.m/s	; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 101 1.731 168 .905 2(s) of comment ********* FF UT ROADWAY CULV ******** FF UT ROADWAY CULV ******** FF Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 ction Node No. 102 1.832 ction Node No. 103 2.832 ction Node No. 101 1.832 ction Node	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s - POND P10 anglr; 3=SWM HYD; 4=Lin. F 1.832 c.m/s	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 OFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 Action Nod .038 Zero; 2=De me(s) of c ************************************	.914 1.890 Length tuit define gighting far timestep sub-reache 1.890 de No. 1.890 fine comment SOUTH OF S (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=Trianglr .000 .914 .262 (99999 hectares (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=Trianglr .000 .914 .262 (99999) hectares (PERV) met tt (%) tt Impervic (IMPERV) rith Zero D 1=SCS CN/CO (""""	.422 .105 ad actor ss 1.890 1.890 1.890 1.890 1.890 1.890 1.890 1.890 1.890 1.890	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND Pll on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv, 1.890 c.m/s	; 4=Repeat ; 4=Lin. Reserv /total
15 9 17 14 35	1 .250 74.000 .100 8.924	Option 1=SCS C Manning "n" SCS Curve No o Ia/S Coefficie Initial Abstra Option 1=Trian 1068 .905 2(s) of comment ********* FF UT ROADWAY CULV ********* FF UT ROADWAY CULV ********* Conduit Length No Conduit def Zero lag Beta weighting Routing timest No. of sub-rea 101 1.832 ction Node No. 101 1.832	N/C; 2=Horto r C nt ction glr; 2=Recta	anglr; 3=SWM HYD; 4=Lin. F .000 c.m/s C perv/imperv/total T1 .000 c.m/s .000 c.m/s 1.832 c.m/s - POND P10 on; 3=Green-Ampt; 4=Repeat 1.832 c.m/s C perv/imperv/total	15 9 eserv 17 14 35 4	ADD RUNC ROUTE .000 .000 .000 .000 .000 .000 .000 .0	.367 DFF .038 Conduit No Cond Zero la Beta we Routing No. of .038 .040 .040 .040 .050	.914 1.890 Length uit define gighting fa (timestep sub-reache 1.890 le No. 1.890 le No. 1.890 fine comment SOUTH OF S (PERV) met tit (%) tit Zero I 1=SCS CN/C ("n" ve No or C efficient 1=SCS CN/C ("m" ve No or C efficient 1=Abstracti Abstracti Abstracti Abstracti	.422 .105 ad actor as 1.890 1.890 1.890 1.890 according to the control of the co	C perv/imperv, .000 c.m/s .000 c.m/s .000 c.m/s 1.890 c.m/s - POND Pll on; 3=Green-Ampt; anglr; 3=SWM HYD; 1.890 c.m/s C perv/imperv, 1.890 c.m/s	; 4=Repeat ; 4=Lin. Reserv /total

	.368 .908 .746 C perv/imperv/total	74.000 SCS Curve No or C
15	ADD RUNOFF 1.307 1.567 1.890 1.890 c.m/s	.100 Ia/S Coefficient 8.924 Initial Abstraction
4	CATCHMENT	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
•	14.000 ID No.ó 99999	2.409 .078 .607 .607 c.m/s
	.670 Area in hectares	.368 .921 .755 C perv/imperv/total
	67.000 Length (PERV) metres	15 ADD RUNOFF
	1.000 Gradient (%) 60.000 Per cent Impervious	2.409 2.475 .607 .607 c.m/s 9 ROUTE
	67.000 Length (IMPERV)	.000 Conduit Length
	.000 %Imp. with Zero Dpth	.000 No Conduit defined
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	.000 Zero lag
	.250 Manning "n" 74.000 SCS Curve No or C	.000 Beta weighting factor .000 Routing timestep
	.100 Ia/S Coefficient	0 No. of sub-reaches
	8.924 Initial Abstraction	2.409 2.475 2.475 .607 c.m/s
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.124	2 Junction Node No. 2.409 2.475 2.475 3.082 c.m/s
15	ADD RUNOFF	14 START
	.124 1.659 1.890 1.890 c.m/s	1 1=Zero; 2=Define
27	HYDROGRAPH DISPLAY 5 is # of Hyeto/Hydrograph chosen	4 CATCHMENT 43.000 ID No.6 99999
	Volume = .5247869E+04 c.m	.330 Area in hectares
10	POND	47.000 Length (PERV) metres
	5 Depth - Discharge - Volume sets	1.000 Gradient (%)
	184.800 .000 .0 185.300 .0140 1142.0	35.000 Per cent Impervious 47.000 Length (IMPERV)
	186.100 .0240 3519.0	.000 %Imp. with Zero Dpth
	186.500 .287 4978.0	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	186.800 1.922 6222.0	.250 Manning "n"
	Peak Outflow = .143 c.m/s Maximum Depth = 186.281 metres	74.000 SCS Curve No or C .100 Ia/S Coefficient
	Maximum Storage = 4180. c.m	8.924 Initial Abstraction
	.124 1.659 .143 1.890 c.m/s	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
35	COMMENT	.039 .000 2.475 3.082 c.m/s .367 .911 .557 C perv/imperv/total
	<pre>3 line(s) of comment ************************************</pre>	.367 .911 .557 C perv/imperv/total 15 ADD RUNOFF
	FLOW U/S OF RICE RD CULVERT - OUTLET A1	.039 .039 2.475 3.082 c.m/s
	********	4 CATCHMENT
17	COMBINE 1 Junction Node No.	44.000 ID No.6 99999 6.400 Area in hectares
	1 Junction Node No124 1.659 .143 1.908 c.m/s	207.000 Length (PERV) metres
14	START 11005 TIME 11005 TIME 1	1.000 Gradient (%)
	1 1=Zero; 2=Define	70.000 Per cent Impervious
35	COMMENT 3 line(s) of comment	207.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	**************************************	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	PROP DEVELOPMENT SOUTH OF QUAKER RD & WEST OF RICE RD PON	.250 Manning "n"
	**********	74.000 SCS Curve No or C
4	CATCHMENT 40.000 ID No.6 99999	.100 Ia/S Coefficient 8.924 Initial Abstraction
	8.210 Area in hectares	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	234.000 Length (PERV) metres	1.193 .039 2.475 3.082 c.m/s
	1.000 Gradient (%)	.368 .906 .744 C perv/imperv/total
	25.000 Per cent Impervious 234.000 Length (IMPERV)	15 ADD RUNOFF 1.193 1.226 2.475 3.082 c.m/s
	.000 %Imp. with Zero Dpth	9 ROUTE
	<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>	.000 Conduit Length
	.250 Manning "n" 74.000 SCS Curve No or C	.000 No Conduit defined .000 Zero lag
	.100 Ia/S Coefficient	.000 Zero lag .000 Beta weighting factor
	8.924 Initial Abstraction	.000 Routing timestep
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.607 .000 .143 1.908 c.m/s .367 .911 .503 C perv/imperv/total	1.193 1.226 1.226 3.082 c.m/s 17 COMBINE
15	ADD RUNOFF	2 Junction Node No.
	.607 .607 .143 1.908 c.m/s	1.193 1.226 1.226 4.308 c.m/s
9	ROUTE .000 Conduit Length	14 START 1 1=Zero; 2=Define
	.000 Conduit Length .000 No Conduit defined	18 CONFLUENCE
	.000 Zero lag	2 Junction Node No.
	.000 Beta weighting factor	1.193 4.308 1.226 .000 c.m/s
	.000 Routing timestep 0 No. of sub-reaches	4 CATCHMENT 45.000 ID No.6 99999
	.607 .607 1.908 c.m/s	1.030 Area in hectares
17	COMBINE	83.000 Length (PERV) metres
	2 Junction Node No.	1.000 Gradient (%)
14	.607 .607 .607 .607 c.m/s START	60.000 Per cent Impervious 83.000 Length (IMPERV)
	1 1=Zero; 2=Define	.000 %Imp. with Zero Dpth
4	CATCHMENT	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	41.000 ID No.ó 99999 .690 Area in hectares	.250 Manning "n" 74.000 SCS Curve No or C
	68.000 Length (PERV) metres	.100 Ia/S Coefficient
	1.000 Gradient (%)	8.924 Initial Abstraction
	35.000 Per cent Impervious	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
	68.000 Length (IMPERV) .000 %Imp. with Zero Dpth	.184 4.308 1.226 .000 c.m/s .367 .912 .694 C perv/imperv/total
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	.367 .912 .694 C perv/imperv/total 15 ADD RUNOFF
	.250 Manning "n"	.184 4.453 1.226 .000 c.m/s
	74.000 SCS Curve No or C	27 HYDROGRAPH DISPLAY
	.100 Ia/S Coefficient 8.924 Initial Abstraction	5 is # of Hyeto/Hydrograph chosen Volume = .1443723E+05 c.m
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.078 .000 .607 .607 c.m/s	6 Depth - Discharge - Volume sets
15	.367 .914 .559 C perv/imperv/total ADD RUNOFF	186.000 .000 .0 186.800 .0550 4048.0
12	ADD RUNOFF .078 .078 .607 .607 c.m/s	186.800 .0550 4048.0 187.300 .0730 7091.0
4	CATCHMENT	187.500 .170 8424.0
	42.000 ID No.6 99999	187.800 .257 10552.0
	12.640 Area in hectares 290.000 Length (PERV) metres	188.000 .880 12094.0 Peak Outflow = .430 c.m/s
	1.000 Gradient (%)	Maximum Depth = 187.856 metres
	70.000 Per cent Impervious	Maximum Storage = 10981. c.m
	290.000 Length (IMPERV)	.184 4.453 .430 .000 c.m/s
	.000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	17 COMBINE 2 Junction Node No.
	OFO Manager and Manager and Conference of the Co	194 4 452 420 420

14	START		.250 Manning "n"
	1 1=Zero; 2=Define		74.000 SCS Curve No or C
35	COMMENT line(g) of comment		.100 Ia/S Coefficient
	<pre>3 line(s) of comment ************************************</pre>		8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD		.092 .148 1.706 1.706 c.m/s
	*********		.368 .916 .422 C perv/imperv/total
4	CATCHMENT	15	ADD RUNOFF
	2.000 ID No.6 99999 9.020 Area in hectares	9	.092 .240 1.706 1.706 c.m/s
	9.020 Area in hectares 245.000 Length (PERV) metres	9	.000 Conduit Length
	1.000 Gradient (%)		.000 No Conduit defined
	40.000 Per cent Impervious		.000 Zero lag
	245.000 Length (IMPERV)		.000 Beta weighting factor
	.000 %Imp. with Zero Dpth		.000 Routing timestep
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		0 No. of sub-reaches
	.250 Manning "n" 74.000 SCS Curve No or C	17	.092 .240 .240 1.706 c.m/s COMBINE
	.100 Ia/S Coefficient	1,	2 Junction Node No.
	8.924 Initial Abstraction		.092 .240 .240 1.925 c.m/s
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>	14	START
	1.013 .000 .430 .430 c.m/s		1 1=Zero; 2=Define
	.368 .912 .586 C perv/imperv/total	35	COMMENT
15	ADD RUNOFF		3 line(s) of comment
9	1.013 1.013 .430 .430 c.m/s ROUTE		EXISTING AREA WEST OF RICE RD AND SOUTH OF QUAKER ROAD
,	.000 Conduit Length		**************************************
	.000 No Conduit defined	4	CATCHMENT
	.000 Zero lag		4.000 ID No.6 99999
	.000 Beta weighting factor		13.940 Area in hectares
	.000 Routing timestep		305.000 Length (PERV) metres
	0 No. of sub-reaches		1.000 Gradient (%)
	1.013 1.013 1.013 .430 c.m/s		40.000 Per cent Impervious
17	COMBINE 2 Junction Node No.		305.000 Length (IMPERV) .000 %Imp. with Zero Dpth
	1.013 1.013 1.013 1.074 c.m/s		1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
14	START		.250 Manning "n"
	1 1=Zero; 2=Define		74.000 SCS Curve No or C
18	CONFLUENCE		.100 Ia/S Coefficient
	2 Junction Node No.		8.924 Initial Abstraction
	1.013 1.074 1.013 .000 c.m/s		<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>
35	COMMENT		1.566 .000 .240 1.925 c.m/s
	3 line(s) of comment	15	.367 .923 .590 C perv/imperv/total
	EXISTING AREA ON QUAKER RD, WEST OF RICE RD	15	ADD RUNOFF 1.566 1.566 .240 1.925 c.m/s
	**************************************	9	ROUTE 1.300 1.300 1.323 C.M/S
4	CATCHMENT	_	.000 Conduit Length
	3.000 ID No.ó 99999		.000 No Conduit defined
	5.680 Area in hectares		.000 Zero lag
	195.000 Length (PERV) metres		.000 Beta weighting factor
	1.000 Gradient (%)		.000 Routing timestep
	40.000 Per cent Impervious		0 No. of sub-reaches
	195.000 Length (IMPERV) .000 %Imp. with Zero Dpth	17	1.566 1.566 1.566 1.925 c.m/s COMBINE
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	1,	2 Junction Node No.
	.250 Manning "n"		1.566 1.566 1.566 3.491 c.m/s
	74.000 SCS Curve No or C	14	START
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	18	CONFLUENCE
	<pre>Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		2 Junction Node No.
	.632 1.074 1.013 .000 c.m/s .367 .903 .582 C perv/imperv/total	35	1.566 3.491 1.566 .000 c.m/s
15	.367 .903 .582 C perv/imperv/total ADD RUNOFF	35	3 line(s) of comment
	.632 1.706 1.013 .000 c.m/s		************
9	ROUTE		RICE ROAD FROM QUAKER RD TO CITY OF WELLAND MUNICIPAL BOUNDA
	.000 Conduit Length		********
	.000 No Conduit defined	4	CATCHMENT
	.000 Zero lag		501.000 ID No.6 99999
	.000 Beta weighting factor		1.570 Area in hectares
	.000 Routing timestep 0 No. of sub-reaches		102.000 Length (PERV) metres 1.000 Gradient (%)
	.632 1.706 1.706 .000 c.m/s		70.000 Per cent Impervious
17	COMBINE		102.000 Length (IMPERV)
	2 Junction Node No.		.000 %Imp. with Zero Dpth
	.632 1.706 1.706 c.m/s		<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
14	START 1 1=Zero; 2=Define		.250 Manning "n" 74.000 SCS Curve No or C
35	1 1=Zero; 2=Define COMMENT		.100 Ia/S Coefficient
55	3 line(s) of comment		8.924 Initial Abstraction
	*************		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	PROP DEVELOPMENT SOUTH OF QUAKER RD, EAST OF RICE RD		.314 3.491 1.566 .000 c.m/s
	********		.367 .915 .751 C perv/imperv/total
4	CATCHMENT	15	ADD RUNOFF
	50.000 ID No.6 99999		.314 3.754 1.566 .000 c.m/s
	3.420 Area in hectares 151.000 Length (PERV) metres	9	ROUTE .000 Conduit Length
	1.000 Length (PERV) metres 1.000 Gradient (%)		.000 Conduit Length .000 No Conduit defined
	10.000 Per cent Impervious		.000 Zero lag
	151.000 Length (IMPERV)		.000 Beta weighting factor
	.000 %Imp. with Zero Dpth		.000 Routing timestep
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		0 No. of sub-reaches
	.250 Manning "n" 74.000 SCS Curve No or C	35	.314 3.754 3.754 .000 c.m/s
	74.000 SCS Curve No or C .100 Ia/S Coefficient	35	COMMENT 3 line(s) of comment
	8.924 Initial Abstraction		***************
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		FLOW D/S OF RICE RD CULVERT - OUTLET A2
	.148 .000 1.706 1.706 c.m/s		*******
	.367 .912 .422 C perv/imperv/total	17	COMBINE
15	ADD RUNOFF		1 Junction Node No.
	.148 .148 1.706 1.706 c.m/s		.314 3.754 3.754 5.662 c.m/s
4	CATCHMENT 51.000 ID No.6 99999	14	START
	1.980 Area in hectares	35	1 1=Zero; 2=Define COMMENT
	115.000 Length (PERV) metres	33	3 line(s) of comment
	1.000 Gradient (%)		*************
	10.000 Per cent Impervious		PROP DEVELOPMENT SOUTH OF QUAKER RD - QUALLITY CONTROL ONLY
	115.000 Length (IMPERV)		********
	.000 %Imp. with Zero Dpth	4	CATCHMENT
	<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>		20.100 ID No.ó 99999

	.780 Area in hectares	35	COMMENT
	72.000 Length (PERV) metres		<pre>3 line(s) of comment</pre>
	1.000 Gradient (%)		**********
	35.000 Per cent Impervious		FLOW U/S OF FIRST AVE CULVERT
	72.000 Length (IMPERV)		***********
	.000 %Imp. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	17	COMBINE 1 Junction Node No.
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"		1 Junction Node No559 6.890 6.890 6.890 c.m/s
	74.000 SCS Curve No or C	14	START 0.090 0.090 0.090 0.090 0.090
	.100 Ia/S Coefficient		1 1=Zero; 2=Define
	8.924 Initial Abstraction	35	COMMENT
	<pre>1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv</pre>		<pre>3 line(s) of comment</pre>
	.087 .000 3.754 5.662 c.m/s		******
	.366 .914 .558 C perv/imperv/total		PROP DEVELOPMENT SOUTH OF QUAKER, EAST OF RICE - POND P50
15	ADD RUNOFF		*****
	.087 .087 3.754 5.662 c.m/s	4	CATCHMENT 52.000 ID No.6 99999
4	CATCHMENT 20.000 ID No.6 99999		52.000 ID No.6 99999 6.430 Area in hectares
	3.210 Area in hectares		207.000 Length (PERV) metres
	146.000 Length (PERV) metres		1.000 Gradient (%)
	1.000 Gradient (%)		70.000 Per cent Impervious
	85.000 Per cent Impervious		207.000 Length (IMPERV)
	146.000 Length (IMPERV)		.000 %Imp. with Zero Dpth
	.000 %Imp. with Zero Dpth		<pre>Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.250 Manning "n"
	.250 Manning "n"		74.000 SCS Curve No or C
	74.000 SCS Curve No or C .100 Ia/S Coefficient		.100 Ia/S Coefficient 8.924 Initial Abstraction
	8.924 Initial Abstraction		1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		1.198 .000 6.890 6.890 c.m/s
	.720 .087 3.754 5.662 c.m/s		.368 .906 .744 C perv/imperv/total
	.368 .913 .831 C perv/imperv/total	15	ADD RUNOFF
15	ADD RUNOFF		1.198 1.198 6.890 6.890 c.m/s
	.720 .807 3.754 5.662 c.m/s	9	ROUTE
9	ROUTE		.000 Conduit Length
	.000 Conduit Length		.000 No Conduit defined
	.000 No Conduit defined .000 Zero lag		.000 Zero lag .000 Beta weighting factor
	.000 Beta weighting factor		.000 Routing timestep
	.000 Routing timestep		0 No. of sub-reaches
	0 No. of sub-reaches		1.198 1.198 1.198 6.890 c.m/s
	.720 .807 .807 5.662 c.m/s	17	COMBINE
17	COMBINE		2 Junction Node No.
	1 Junction Node No.		1.198 1.198 1.198 c.m/s
	.720 .807 .807 6.417 c.m/s	14	START
14	START	_	1 1=Zero; 2=Define
10	1 1=Zero; 2=Define CONFLUENCE	4	CATCHMENT 53.000 ID No.6 99999
18	1 Junction Node No.		11.340 Area in hectares
	.720 6.417 .807 .000 c.m/s		275.000 Length (PERV) metres
35	COMMENT		1.000 Gradient (%)
	<pre>3 line(s) of comment</pre>		70.000 Per cent Impervious
	*********		275.000 Length (IMPERV)
	REALIGNED CHANNEL - SEGMENT 2		.000 %Imp. with Zero Dpth
	*******		<pre>1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat</pre>
4	CATCHMENT		.250 Manning "n"
	200.000 ID No.ó 99999		
			74.000 SCS Curve No or C
	.970 Area in hectares		.100 Ia/S Coefficient
	80.416 Length (PERV) metres		.100 Ia/S Coefficient 8.924 Initial Abstraction
	80.416 Length (PERV) metres 1.000 Gradient (%)		.100 Ia/S Coefficient September 1
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious		.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV)	15	.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV)	15	.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s .368 .919 .753 C perv/imperv/total
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"	15 9	.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s .368 .919 .753 C perv/imperv/total ADD RUNOFF 2.157 2.157 1.198 1.198 c.m/s ROUTE
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C		.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.1.57 .000 1.1.98 1.1.98 c.m/s .368 .919 .753 C perv/imperv/total ADD RUNOFF 2.1.57 2.1.57 1.1.98 1.1.98 c.m/s ROUTE .000 Conduit Length
	80.416		.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s .368 .919 .753 C perv/imperv/total ADD RUNOFF 2.157 2.157 1.198 1.198 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined
	80.416		1.100
	80.416		1.100 Ia/S Coefficient
	80.416		1.100
35	80.416		1.100
35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total		1.100
35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment	9	1.100
35	80.416	9	1.100
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9	1.100
35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9	1.100
15	80.416	9 17 18	1.100
	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9	1.100
15	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s .368 .919 .753 C perv/imperv/total ADD RUNOFF 2.157 2.157 1.198 1.198 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 2.157 2.157 2.157 1.198 c.m/s COMBINE 2 Junction Node No. 2.157 2.157 2.157 3.355 c.m/s CONFLUENCE 2 Junction Node No. 2.157 3.355 2.157 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (FERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 ID No.6 99999 35.460 Area in hectares 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.157 .000 1.198 1.198 c.m/s .368 .919 .753 C perv/imperv/total ADD RUNOFF 2.157 2.157 1.198 1.198 c.m/s ROUTE .000 Conduit Length .000 No Conduit defined .000 Zero lag .000 Beta weighting factor .000 Routing timestep 0 No. of sub-reaches 2.157 2.157 2.157 1.198 c.m/s COMBINE 2 Junction Node No. 2.157 2.157 2.157 3.355 c.m/s CONFLUENCE 2 Junction Node No. 2.157 3.355 2.157 .000 c.m/s CATCHMENT 54.000 ID No.6 99999 1.280 Area in hectares 92.000 Length (PERV) metres 1.000 Gradient (%) 60.000 Per cent Impervious 92.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n"
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 ID	9 17 18	1.100 Ia/S Coefficient 8.924 Initial Abstraction 1
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18 4	1.100 Ia/S Coefficient 8.924 Initial Abstraction 1
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18	1.100
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18 4	1.100 Ia/S Coefficient 8.924 Initial Abstraction 1
15 35	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18 4	1.100
15 35 4	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18 4	1.100
15 35	80.416	9 17 18 4	1.100
15 35 4	80.416 Length (PERV) metres 1.000 Gradient (%) 10.000 Per cent Impervious 80.416 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .053 6.417 .807 .000 c.m/s .367 .912 .422 C perv/imperv/total COMMENT 3 line(s) of comment ***********************************	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100
15 35 4	80.416	9 17 18 4	1.100

	Maximum Storage = 9342. c225 3.539	.m .132	.000 c.m/s	35	COMMENT 3 line(s)) of gor	mont		
17	.225 3.539 . COMBINE	.132	.000 C.m/s		******) of con	imieric		
	2 Junction Node No.				REALIGNED CH	HANNEL -	- SEGMENT 3	3	
		.132	.132 c.m/s		*******				
14	START 1 1=Zero; 2=Define			4	CATCHMENT 300.000 II	D No.ó 9	0000		
35	COMMENT					rea in h			
	<pre>3 line(s) of comment</pre>						PERV) metre	es	
	******					radient			
	EXISTING AREA ON QUAKER RD, EA	AST OF RICE	E RD				Impervious	3	
4	CATCHMENT					ength (]	IMPERV) th Zero Dpt	-h	
•	5.000 ID No.6 99999								3=Green-Ampt; 4=Repeat
	1.870 Area in hectares					anning '		•	2.,
	112.000 Length (PERV) metres	s					e No or C		
	1.000 Gradient (%)					a/S Coef			
	50.000 Per cent Impervious 112.000 Length (IMPERV)						Abstraction		lr; 3=SWM HYD; 4=Lin. Reserv
	.000 %Imp. with Zero Dptl	h			.148		.881	.991	.000 c.m/s
			B=Green-Ampt; 4=Repeat		.368		.924		C perv/imperv/total
	.250 Manning "n"			15	ADD RUNOFF				
	74.000 SCS Curve No or C			_	.148	8.	.029	.991	.000 c.m/s
	.100 Ia/S Coefficient 8.924 Initial Abstraction			4	CATCHMENT 301.000 II	D No.ó 9	0000		
			; 3=SWM HYD; 4=Lin. Reserv			rea in h			
		.132	.132 c.m/s				PERV) metre	es	
		.642 C	perv/imperv/total			radient	(%)		
15	ADD RUNOFF						Impervious	3	
9	.266 .266 ROUTE	.132	.132 c.m/s			ength (]	IMPERV) th Zero Dpt	-h	
,	.000 Conduit Length								3=Green-Ampt; 4=Repeat
	.000 No Conduit defined					anning '		2-1102 00117	5-62 con impo, i-nopouc
	.000 Zero lag						e No or C		
	.000 Beta weighting factor	or				a/S Coef			
	.000 Routing timestep						Abstraction		
	0 No. of sub-reaches	.266	132 g m/g		1 Or		=Triangir; .029	.991	lr; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s
17	COMBINE	.200	.132 c.m/s		.367		.911		perv/imperv/total
	2 Junction Node No.			15	ADD RUNOFF	-			
		.266	.274 c.m/s		.030	8.	.057	.991	.000 c.m/s
18	CONFLUENCE			9	ROUTE				
	2 Junction Node No.	200	000/-			onduit I			
35	.266 .274 COMMENT	.266	.000 c.m/s			o Condui ero lag	it defined		
33	3 line(s) of comment						ghting fact	or	
	******						timestep		
	EXISTING AREA ON QUAKER RD, EX	AST OF RICE	E RD				ub-reaches		
	******				.030	8.	.057 8	3.057	.000 c.m/s
4	CATCHMENT 6.000 ID No.ó 99999			17	COMBINE 1 Junctio	on Node	No.		
	1.920 Area in hectares				.030			3.057	8.057 c.m/s
	113.000 Length (PERV) metres	s		14	START				
	.200 Gradient (%)				1 1=Zero	; 2=Defi	ine		
						,	LIIG		
	65.000 Per cent Impervious			35	COMMENT				
	65.000 Per cent Impervious 113.000 Length (IMPERV)			35	COMMENT 3 line(s)) of con			
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth	h	B=Green-Ampt: 4=Repeat	35	COMMENT 3 line(s) of con	mment	*MENT 3 - 1	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dpth	h	B=Green-Ampt; 4=Repeat	35	COMMENT 3 line(s)) of con	mment	SMENT 3 - 1	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 Manning "n" 74.000 SCS Curve No or C	h	B=Green-Ampt; 4=Repeat	35 4	COMMENT 3 line(s *********** PROP DEVELOI *********** CATCHMENT) of con	mment ORTH OF SEG	SMENT 3 - 1	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient	h 2=Horton; 3	8=Green-Ampt; 4=Repeat		COMMENT 3 line(s) ************ PROP DEVELOI *********** CATCHMENT 30.000 II) of con	mment ORTH OF SEG	ement 3 - 1	POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; : .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction	h 2=Horton; 3			COMMENT 3 line(s) ********* PROP DEVELOI ********* CATCHMENT 30.000 II 8.470 AI) of com PMENT NO D No.6 9 rea in h	mment ORTH OF SEG 99999 nectares		POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; : .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; :	h 2=Horton; 3 2=Rectangl:	r; 3=SWM HYD; 4=Lin. Reserv		COMMENT 3 line(s: ********** PROP DEVELOI ********* CATCHMENT 30.000 II 8.470 Az 238.000 Le) of compMENT NO D No.6 9 rea in hength (F	mment ORTH OF SEG 99999 nectares PERV) metre		POND P30
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274	h 2=Horton; 3 2=Rectangl:			COMMENT 3 line(s: *********** PROP DEVELOI *********** CATCHMENT 30.000 II 8.470 Ar 238.000 Le .200 Gr) of com PMENT NO D No.6 9 rea in h ength (F	mment ORTH OF SEG 99999 nectares PERV) metre	es	POND P30
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF	2=Rectangl: .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total		COMMENT 3 line(s ********** PROP DEVELOU ********* CATCHMENT 30.000 II 8.470 Au 238.000 Le .200 Ge .100 Ge 238.000 Le) of com PMENT NO D No.6 9 rea in hength (Fradient er cent ength (I	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV)	es	POND P30
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; : .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; : .339 .274 .368 .914 ADD RUNOFF .339 .594	h 2=Horton; 3 2=Rectangl:	r; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s		COMMENT 3 line(s) ********** PROP DEVELOU *********** CATCHMENT 30.000 kl 8.470 An 238.000 kg .100 Pe 238.000 kg .100 Pe 238.000 kg .100 Pe .3000 kg .000 %) of com PMENT NO D No.6 S rea in hength (Hength center center center) ength (Hength center center) Imp. with	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious the Zero Dpt	es 3	
	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT	2=Rectangl: .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total		COMMENT 3 line(s) *********** PROP DEVELOI *********** CATCHMENT 30.000 II 8.470 A 238.000 L 2000 G 100 P 238.000 L 000 % 1 O 1 O 1) of com PMENT NO D No.6 S rea in hength (Hength (Heng	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C;	es 3	POND P30 3=Green-Ampt; 4=Repeat
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; : .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; : .339 .274 .368 .914 ADD RUNOFF .339 .594	2=Rectangl: .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total		COMMENT 3 line(s ********** PROP DEVELOR *********** CATCHMENT 30.000 II 8.470 Ai 238.000 Le .200 Ge .100 Ge .200 Ge .000 Si 100 Ge .238.000 Le) of com PMENT No D No.6 9 rea in h ength (H radient er cent ength (I Imp. wit ption 1=	mment ORTH OF SEG 99999 mectares PERV) metre (%) Impervious IMPERV) ch Zero Dpt sSCS CN/C; "n"	es 3	
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment	h 2=Horton; 3 2=Rectangl: .266 .723 C	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s		COMMENT 3 line(s: *********** PROF DEVELOI *********** CATCHMENT 30.000 line 8.470 Aa 238.000 cin .200 cin .100 pe .238.000 kin .100 pe .238.000 kin .200 sin) of com PMENT No D No.6 9 rea in h ength (H radient er cent ength (I Imp. wit ption 1=	mment ORTH OF SEG 99999 mectares pervious Impervious Impervious CMPERV) th Zero Dpt SCS CN/C; """	es 3	
15	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723 C	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s		COMMENT 3 line(s) ********** PROP DEVELOI ********** CATCHMENT 30.000 81 8.470 A1 238.000 L200 G0 .100 Pc 238.000 L200 G0 .100 Pc 238.000 M8 .100 M8 .250 M8 .250 M8 .250 M8) of com PMENT NO D No.6 9 rea in h ength (I radient er cent ength (I Imp. wit ption l= anning ' CS Curve a/S Coef nitial 3	mment ORTH OF SEG 99999 mectares PERV) metre (%) Impervious IMPERV) th Zero Dpt SCS CN/C; "" a No or C fficient Abstraction	es ; ; th 2=Horton;	3=Green-Ampt; 4=Repeat
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723 C	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s		COMMENT 3 line(s) *********** PROP DEVELOI *********** CATCHMENT 30.000 kl 8.470 As 238.000 kc .200 Gs .100 Pc .238.000 kc .100 Pc .238.000 kc .100 Sc) of com PMENT NO D No.6 9 rea in 1 ength (I radient er cent ength (I Imp. wit pution 1= anning ' CS Curve a/S Coef nitial I pution 1=	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; 'n' e No or C fficient Abstraction Trianglr;	es th 2=Horton; 1 2=Rectang	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp, with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .339 .274 .339 .594 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************* FIRST AVE FROM QUAKER RD TO C: *************** CATCHMENT 201.000 ID No.6 99999	h 2=Horton; 3 2=Rectangl: .266 .723 C	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s		COMMENT 3 line(s' *********** PROP DEVELOU ********** CATCIMENT 30.000 II 8.470 Ji 238.000 Le .200 G .100 G .100 G .200 G .100 F .250 Ma 74.000 S .100 II 8.924 II 1 O .188	D No.6 Stree in he ength (I radient er cent ength (I Imp. with ption 1= anning 'C S Curve a/S Coef nitial # ption 1=	mment ORTH OF SEC 99999 mectares EERV) metre (%) Impervious IMPERV) th Zero Dpt SCS CN/C; "n" a No or C fficient Abstraction Trianglr; 0000 8	es : :h 2=Horton; 1 2=Rectang:	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723 C	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s		COMMENT 3 line(s) *********** PROP DEVELOI *********** CATCHMENT 30.000 kl 8.470 As 238.000 kc .200 Gs .100 Pc .238.000 kc .100 Pc .238.000 kc .100 Sc	D No.6 Stree in he ength (I radient er cent ength (I Imp. with ption 1= anning 'C S Curve a/S Coef nitial # ption 1=	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt =SCS CN/C; 'n' e No or C fficient Abstraction Trianglr;	es : :h 2=Horton; 1 2=Rectang:	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; : 2=Rectangl: .266 .723 C .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4	COMMENT 3 line(s) *********** PROP DEVELOU *********** CATCHMENT 30.000 81 8.470 A2 238.000 G2 100 P6 238.000 82 100 P6 250 M2 74.000 S6 100 S6 100 10	D No.6 S rea in hength (E radient er cent ength (E radient er cent ength (I Imp. wit ption l- anning ' CS Curve a/S Coef nitial A ption l-	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt sCS CN/C; "n" a No or C fficient abstraction "rianglr; .000 8	es : :h 2=Horton; 1 2=Rectang:	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr; .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; : 2=Rectangl: .266 .723 C .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4	COMMENT 3 line(s) *********** PROP DEVELOI *********** CATCHMENT 30.000 kl 8.470 As 238.000 Lc .2000 Gs .100 Pc .238.000 kl .200 Ss .1 OI .250 Mm 74.000 Ss .100 kl .1) of com PMENT NO D No.6 S rea in h ength (F radient er cent ength (I Imp. wii ption 1= anning * CS Curve a/S Coef nitial f ption 1=	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) ch Zero Dpt SCS CN/C; "n" e No or C fficient Abstraction Trianglr; .000 8 .916	2=Rectang: 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 .368 .914 .368 .914 .368 .914 .369 .914 .369 .914 .369 .914 .369 .914 .369 .914 .370 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli .266 .723 C .266	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4	COMMENT 3 line(s) *********** PROF DEVELOI *********** CATCIMENT 30.000 ll 8.470 An 238.000 Le .000 %: 1.00 Le .000 %: 1.00 In .250 Mm 74.000 Si .100 II 8.924 In 1.00 II) of com PMENT NO D No.6 S rea in P ength (P readient er cent er cent er cent getion 1= anning 'CS Curve a/S Coef nitial P ption 1=	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Impervious Enteron a No or C Efficient abstraction Trianglr; 000 8916 188 8	2=Rectang: 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangl: .266 .723 C .266 ITY OF WELI	c; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA	4	COMMENT 3 line(s: ************************************) of com PMENT NO D No.6 9 rea in hength (I radient radient Imp. with the ption 1 anning 'CS Curve a/S Coef notial 2 ption 1 - D No.6 9 rea in h	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt SCS CN/C; "n" e No or C fficient Abstraction =Trianglr; .000 8 .916 .188 8	2=Horton; 2=Rectang; 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangl: .266 .723 C .266 ITY OF WELI	; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4	COMMENT 3 line(s) ************************************) of com PMENT NO D No.6 S rea in P ength (P radient er cent continue gradient ength (I Imp. wiid ption 1= ption 1= D No.6 S rea in P ength (I D No.6 S	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) ch Zero Dpt =SCS CN/C; 'n' e No or C efficient Abstraction -Trianglr; .000 8 .188 8 99999 nectares EERV) metre	2=Horton; 2=Rectang; 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; : .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; : .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangl: .266 .723 C .266 ITY OF WELI	c; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA	4	COMMENT 3 line(s) *********** PROF DEVELOI *********** CATCHMENT 30.000 gl. 8.470 Aa 238.000 Le200 Gs100 Pe. 238.000 kg100 Pe250 Ms1 Oi .250 Ms1 Oi .250 Ms1 Oi .250 Ms100 If. 8.924 If. 9.1 Oi .188. ADD RUNOFF .188. ADD RUNOFF .188. CATCHMENT 31.000 gl. 110.420 Aa 264.000 Le. 1.000 Gs.	D No.6 Stream In It is a series of the serie	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) ch Zero Dpt SCS CN/C; "n" e No or C efficient Abstraction Trianglr; .000 8 .916 .188 8 8 99999 nectares PERV) metre (%) Impervious	2=Rectang: 1.057 .057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************ FIRST AVE FROM QUAKER RD TO C: ************ CATCHMENT 201.000 ID No.6 99999 2.430 Area in hectares 127.000 Length (PERV) metres 127.000 Ength (PERV) metres 127.000 Length (PERV) metres 127.000 Length (PERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI	c; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA	4	COMMENT 3 line(s) *********** PROF DEVELOI *********** CATCIMENT 30.000 kl 238.000 kc .000 %c .100 kc .000 %c .100 sc	D No.6 Stream in Fength (I radient anning) CS Curve and Score in Fength (I radient er cent ength (I mp. with ption 1= anning) CS Curve and Score in Fength (I radient er cent ength (I radient er cent ength (I radient ength (I ra	DRTH OF SEG	2=Rectang: .057 .368 (3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723 C .266 ITY OF WELI	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .AND MUNICIPAL BOUNDA	4	COMMENT 3 line(s: ************ PROP DEVELOI ************ CATCHMENT 30.000 kl. 8.470 As 238.000 kc100 Pe 238.000 kc100 Pe 250 Ms 74.000 SS 74.000 SS 74.000 SS .100 Ls 1 OO .250 Ms .100 Ls 1 OO .250 Ms .25	PMENT NO D No.6 S rea in h ength (I radient radient gradient gradient cont er cent er cent er cent granning CS Curve a/S Coef nnitial 2 ption 1= cont cont cont cont cont cont cont cont	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt SCS CN/C; "n" e No or C fficient Abstraction Trianglr; .000 8 .916 .188 8 99999 nectares PERV) metre (%) Impervious Impervious IMPERV)	2=Rectang: 3.057 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s c perv/imperv/total 8.057 c.m/s
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 2=Rectangli	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .AND MUNICIPAL BOUNDA 	4	COMMENT 3 line(s) ************ PROP DEVELOI ************ CATCHMENT 30.000 LI 38.470 AB 238.000 LC .200 GB .100 PC .238.000 LC .200 SC .100 PC .2550 Mm 74.000 SC .100 LB .250 Mm 74.000 SC .100 LB .100 LB .100 LB .100 LB .1250 Mm .100 LB .1250 Mm .100 LB .	D No.6 Stream Information Info	property of the control of the contr	2=Rectang: 3.057 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 2=Rectangli	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	4	COMMENT 3 line(s) *********** PROP DEVELOU *********** CATCHMENT 30.000 sl. 8.470 As 238.000 Le000 %: .100 Pe 238.000 ks .100 Pe 250 Ms 74.000 Sc .100 Is 8.924 Is 8.924 Is 1 On 1.100 ls 8.924 Is 8.924 Is 1 On 1.00 Is 1.88 CATCHMENT 31.000 Is 1.00 Is 1	D No.6 Srea in Pength (I radient er cent ength (I mp. wit ption 1 anning 'C C Curve a / S Coef no in tial 2 ption 1 ength (I radient er cent ength (I mp. wit ption 1 ength (I radient er cent ength (I mp. wit ption 1 ength (I mp. wit ption 1 ength (I mp. wit ption 1 enning 'C C C C C C C C C C C C C C C C C C C	mment ORTH OF SEG 99999 mectares PERV) metre (%) Impervious IMPERV) a No or C efficient abstraction Trianglr; 000 916 188 8 99999 mectares PERV) metre (%) Impervious I	2=Rectang: 3.057 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s c perv/imperv/total 8.057 c.m/s
15 35	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 .368 .914 .368 .914 .369 .914 .369 .914 .369 .914 .369 .914 .369 .914 .360 .914 .370 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .914 .380 .916 .916 .917 .918 .918 .918 .918 .929 .929 .930 .93	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4	COMMENT 3 line(s) *********** PROF DEVELOI *********** CATCIMENT 30.000 kl 238.000 kc .000 %c .100 kc .000 %c .100 sc	D No.6 Stream in Female 1 PMENT NO D No.6 Stream in Female 1 Pment No. 1 Pment	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Impervious End Orthory Impervious Impervious Impervious Impervious Inservious Impervious 2=Rectang: 3.057 .368 (3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s c perv/imperv/total 8.057 c.m/s	
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .3399 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 2=Rectangli	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s	4	COMMENT 3 line(s: ************************************	PMENT NO D No.6 S rea in hength (I radient radient radient graph (I radient cont er cent er cent er cent er cent er cent er cent ption l= anning ' CS Curve ans (S Cue as (S Cue cent er cent	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious SC CN/C; "n" e No or C fficient Abstraction Trianglr; .000 8 .916 .188 8 99999 nectares PERV) metre (%) Impervious Impe	es in 2=Horton; 2=Rectang: 1.057 .368 3.057 es in 2=Horton;	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 option 1=SCS CN/C;250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr;339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4	COMMENT 3 line(s: ************************************	D No.6 Stream In Imp. with perion 1 anning 'C Curve in Imp. with pitch in Imp. with pitch in Imp. with perion 1 anning 'C Curve in Imp. with perion 1 anning in Imp. with perion 1 anning 'C Curve in Imp. with perion 1 anning 'C C Curve a/S Coefunitial Imp. with perion 1 anning 'C C Curve a/S Coefunitial Imp. with perion 1 anning 'C C Curve a/S Coefunitial Imp.	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Interes PERV) metre (%) Impervious Impervio	2=Rectang: 3.057 .368 .3.057 .2=Horton;	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4	COMMENT 3 line(s) *********** PROP DEVELOU ************ CATCHMENT 30.000 kl .8.470 Aa 238.000 kc .100 Pc 238.000 kc .100 Pc 250 Ma 74.000 SC .100 In .100 In .188 .368 ADD RUNOFT 31.000 II .188 CATCHMENT 31.000 II 10.420 Aa 264.000 Lc .1000 Gc .250 Ma .25	D No.6 Srea in Pength (I radient ption 1= anning radient radie	mment ORTH OF SEG 99999 mectares EERV) metre (%) Impervious Impervious Intervious I	as in 2=Horton; 1 2=Rectang: 1.057 .368 3.057 as in 2=Horton; 1 2=Rectang: 1.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 option 1=SCS CN/C;250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 option 1=Trianglr;339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4	COMMENT 3 line(s: ************************************	D No.6 Srea in Pength (I radient ption 1= anning radient radie	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Interes PERV) metre (%) Impervious Impervio	as in 2=Horton; 1 2=Rectang: 1.057 .368 3.057 as in 2=Horton; 1 2=Rectang: 1.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4 15 4	COMMENT 3 line(s) *********** PROP DEVELOU ************ CATCHMENT 30.000 gl. 38.470 A 238.000 kc100 pc250 Mc100 gl250 Mc100 line 8.924 line 1 00 .250 Mc188 CATCHMENT 31.000 gl100 gl100 gl250 Mc250 Mc2113 .367 ADD RUNOFF 2.113	PMENT NO D No.6 S rea in hength (I radient er cent er cent er cent er cent er cent er cent ption 1= anning CS Curve a/S Coef nitial 2 ption 1= cent er cent e	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Infiervi a No or C fficient abstraction Trianglr; 000 188 8 99999 nectares PERV) metre (%) Impervious Imperv	as in 2=Horton; 1 2=Rectang: 1.057 .368 3.057 as in 2=Horton; 1 2=Rectang: 1.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s C perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 option 1=SCS CN/C;250 Manning "n" .250 Manning "n" .250 Manning "n" .250 Manning "n" .274.000 SCS Curve No or C .100 Ia/S Coefficient .274.000 SCS Curve No or C .274.000 Per Cent Impervious .274.000 SCS Curve No or C .275 Manning "n" .276 March (PERV) March (PERV) .277	h 2=Horton; 3 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	15 4	COMMENT 3 line(s) ************ PROF DEVELOI 30.000 sl. 8.470 Aa 238.000 c200 cs100 pe. 238.000 k100 pe250 Max 74.000 SS100 line(s) .100 line(s) .100 line(s) .100 line(s) .100 ss100 line(s) .100 l	D No.6 Stream in the most of t	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Impervious Impervious Impervious Impervious Impervious End Impervious Impervious Insulation Insulation Insulation Impervious Impervi	2=Rectang: 3.057 .368 .057 .368 .057 .2=Horton; 2=Rectang: 3.057 .779	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Rectangl: .266 .266 ITY OF WELI s 2=Rectangl: .266 .723 C .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat 4: 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROP DEVELOID ************ CATCHMENT 30.000 gl .8.470 Aa 238.000 Le .200 Gc .100 Pc 238.000 Le .000 %; 1 0, .250 Ma 74.000 SC .100 II .188 .368 ADD RUNOFF 264.000 Le .000 %; 1 0, .250 Ma CATCHMENT 31.000 II 10.420 Aa 264.000 Le .000 %; 1 0, .250 Ma 74.000 SC .100 II .250 Ma CATCHMENT 31.000 II .420 Aa 264.000 Le .000 %; .100 SC .100	D No.6 Srea in Pength (I radient radie	mment ORTH OF SEG 99999 mectares EERV) metre (%) Impervious Impervious Interpress a No or C efficient Abstraction Trianglr; 000 916 188 8 99999 mectares EERV) metre (%) Impervious Im	2=Rectang: 3.057 .368 .057 .368 .057 .2=Horton; 2=Rectang: 3.057 .779	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C;250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr;339 .274 .3368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli .266 .723 C .266 ITY OF WELI s h 2=Horton; 3 2=Rectangli .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s .000 c.m/s .000 c.m/s .000 MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat .000 c.m/s .000 c.m/s perv/imperv/total	4 15 4	COMMENT 3 line(s: ************************************	D No.6 Srea in Pength (I radient radie	mment ORTH OF SEG 99999 mectares EERV) metre (%) Impervious Impervious Interpress a No or C efficient Abstraction Trianglr; 000 916 188 8 99999 mectares EERV) metre (%) Impervious Im	2=Rectang: 3.057 .368 .057 .368 .057 .2=Horton; 2=Rectang: 3.057 .779	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Rectangl: .266 .266 ITY OF WELI s 2=Rectangl: .266 .723 C .266 .723 C	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat 4: 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROF DEVELOI *********** CATCIMENT 30.000 gl. 238.000 Le. 238.000 Le. 200 G100 P. 238.000 Le. 250 Me. 74.000 SC100 II. 8.924 II. 1 0,00 II. 1.88 ADD RUNOFF .188 CATCHMENT 31.000 II. 1.000 G. 75.000 Pe. 264.000 Le000 SC100 II1000 G1000 G10	D No.6 Srea in Pength (I radient radie	DRTH OF SEG	2=Rectang: 3.057 .368 .057 .368 .057 .2=Horton; 2=Rectang: 3.057 .779	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat 4: 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROF DEVELOI 30.000 sl. 34.470 Aa 238.000 c. 238.000 c. 100 pe. 238.000 sl. 100 pe. 238.000 sl. 100 pe. 238.000 sl. 100 pe. 24 line 36 ADD RUNOFF ATTEMBENT 31.000 sl. 1100.420 Aa 264.000 sl. 100.00 sl. 250 May 264.000 sl. 1000 sl. 1000 sl. 1000 sl. 1000 sl. 1000 sl. 1100 sl. 1200 sl. 12	D No.6 Stream in Female 1 PMENT NO D No.6 Stream in Female 1 Pment No. 1 Pment	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious SCS CN/C; "n" a No or C fficient abstraction Trianglr; 000 9916 188 8 99999 nectares PERV) metre (%) Impervious Imperv	2=Rectang: 3.057 .368 .057 .368 .057 .2=Horton; 2=Rectang: 3.057 .779	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s AND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROP DEVELOI *********** CATCHMENT 30.000 kl .8.470 Aa 238.000 Le .000 % .100 Pc 238.000 Le .000 % .100 In .10	D No.6 Srea in Pength (I mength (I m	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Impervious Impervious Pricianglr; 000 916 188 89999 nectares PERV) metre (%) Impervious 2=Rectang: 3.057 3.68 3.057 3.68 2=Horton; 2=Horton; 3.057 3.057 3.057 3.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total	
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .339 .274 .336 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangl: .266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s AND MUNICIPAL BOUNDA 3=Green-Ampt; 4=Repeat 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROP DEVELOID ************ CATCHMENT 30.000 gl. 38.470 As 238.000 Le000 Sc100 Pr 238.000 ls100 Sc100 Sc.	D No.6 Srea in hength (Imp. with the search of the search	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Impervious Seg No or C fficient Abstraction Trianglr; 1000 8 1188 8 99999 nectares PERV) metre (%) Impervious	2=Rectang: 3.057 3.68 3.057 3.68 4.2=Horton; 4.2=Rectang: 5.057 4.057 4.057 4.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; 2 .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; 2 .368 .914 .368 .914 .368 .914 .368 .914 .369 .914 .369 .914 .369 .914 .370 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli, 266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROF DEVELOI ************ CATCIMENT 30.000 gl .8.470 Aa 238.000 Le .200 Gg .100 Pe 238.000 Le .000 % .100 li .8.924 li .8.474 li .8.474 li .8.924 li .8.400 li .8.924 li .8.400 li .8.924 li .8.400 li .8.924 li .9.400 li .9.40	D No.6 Srea in Fernancial Fraction In Part of the Internation Inte	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious Impervious Infiervious Fficient Abstraction Trianglr; 000 188 8 99999 nectares PERV) metre (%) Impervious	2=Rectang: 3.057 3.68 3.057 3.68 4.2=Horton; 4.2=Rectang: 5.057 4.057 4.057 4.057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .339 .274 .336 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli, 266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	4 15 4	COMMENT 3 line(s) *********** PROP DEVELOU ************ CATCHMENT 30.000 gl. 8.470 As 238.000 Le000 %c .100 Pe 238.000 Le000 %c .100 Is 8.924 Is 1 Ol. 8.924 Is 1 Ol. 1.88 ADD RUNOFF 264.000 Le .000 %c .100 Gl. 75.000 Pe 264.000 Le .000 %c .100 Is 10.420 As 264.000 Le .000 %c .100 Is .367 ADD RUNOFF 2.113 ADD RUNOFF 2.114 ADD RUNOFF 2.115 ADD RUNOFF 2.116 ADD RUNOFF 2.117 ADD RUNOFF 2.118 A	PMENT NO D No.6 S rea in hength (I radient er cent er	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious IMPERV) a No or C efficient abstraction Trianglr; 000 916 188 8 99999 nectares PERV) metre (%) Impervious IMPERV) th Zero Dpt SCS CN/C; "n" a No or C efficient both Frianglr; 188 99999 nectares PERV) metre (%) Impervious IMPERV) 188 917 151 8 99999 nectares PERV) metre (%) 189999 nectares PERV) metre (%) Impervious IMPERV)	2=Rectang: .057 .368 .057 .368 .057 .368 .057 .368 .057 .368 .057 .779 .058 .057 .779 .058 .057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli, 266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	4 15 4	COMMENT 3 line(s) ************ PROP DEVELOID ************ CATCHMENT 30.000 gi .8.470 As 238.000 Lc .000 gi .100 Pc 238.000 kc .100 Pc .250 Ms 74.000 Sc .100 ls .250 Ms 74.000 Sc .100 ls .250 Ms .100 ls .250 Ms .368 ADD RUNOFF 11 0; .188 CATCHMENT 31.000 ls .100 cs .100 cs .100 cs .100 cs .100 ls .250 Ms .250	D No.6 Stream in Hength (I radient rent engage) D No.6 Stream in Hength (I radient recent engath (I radient recent engath (I radient recent engath (I radient rent engath (I I r	mment ORTH OF SEG 99999 nectares PERV) metre (%) Impervious MPERV) th Zero Dpt SCS CN/C; "n" a No or C efficient Abstraction Impervious Impervious Impervious Hydrograph DE+04 c.m 99999 nectares PERV) metre (%) Impervious Imp	2=Rectang: 3.057 .368 .2=Horton; 2=Rectang: 3.057 .368 .2=Horton; 3.057 .779 .3057 .779 .3057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total
15 35 4 15 9	65.000 Per cent Impervious 113.000 Length (IMPERV) .000 %Imp. with Zero Dptl 1 Option 1=SCS CN/C; .250 Manning "n" 74.000 SCS Curve No or C .100 Ia/S Coefficient 8.924 Initial Abstraction 1 Option 1=Trianglr; .339 .274 .368 .914 ADD RUNOFF .339 .594 COMMENT 3 line(s) of comment ************************************	h 2=Horton; 3 2=Rectangli, 266 .723	3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s LAND MUNICIPAL BOUNDA B=Green-Ampt; 4=Repeat T; 3=SWM HYD; 4=Lin. Reserv .000 c.m/s perv/imperv/total .000 c.m/s .000 c.m/s	4 15 4	COMMENT 3 line(s: ************************************	PMENT NO D No.6 S rea in hength (I radient radient radient radient cont ength (I mp. wit ption 1= anning CS Curve a/S Coef nnitial 2 ption 1= cont radient radient cont ength (I mp. wit ption 1= cont cont cont cont cont cont cont cont	mment ORTH OF SEG 99999 mectares EERV) metre (%) Impervious Impervious Intervious	2=Rectang: 3.057 .368 .2=Horton; 2=Rectang: 3.057 .368 .2=Horton; 3.057 .779 .3057 .779 .3057	3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 3=Green-Ampt; 4=Repeat lr; 3=SWM HYD; 4=Lin. Reserv 8.057 c.m/s perv/imperv/total 8.057 c.m/s 8.057 c.m/s

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.100
                      Ia/S Coefficient
         8.924
                      Initial Abstraction
                      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 27 2.151 8.057 8.057 c.m/s 67 .914 .695 C perv/imperv/total
                  .367
15
         ADD RUNOFF
         .127 2.3
HYDROGRAPH DISPLAY
                               2.246
                                              8.057
                                                             8.057 c.m/s
27
         is # of Hyeto/Hydrograph chosen
Volume = .8577177E+04 c.m
10
         POND
         POND
5 Depth - Discharge - Volume sets
178.800 .000 .0
179.300 .0260 1520.0
                            .0440
                                          4649.0
7069.0
                            .414
         180.600
         .414
1.204
Peak Outflow =
Maximum **
        reak Outflow = 250 c.m/s
Maximum Depth = 180.379 metres
Maximum Storage = 5999. c.m
.127 2.246
                           8.057 c.m/s
17
               Junction Node No.
         .127
START
                              2.246
                                                             8.089 c.m/s
14
                1=Zero; 2=Define
         COMMENT
35
         line(s) of comment
         PROP DEVELOPMENT SOUTH OF SEGMENT 3 - POND P31 *********
         CATCHMENT
                     ID No.6 99999
        33.000
        12,960
                      Area in hectares
Length (PERV) metres
       294.000
                      Gradient (%)
Per cent Impervious
Length (IMPERV)
         1.000
       75.000
       294.000
          .000
                      %Imp. with Zero Doth
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
           .250
                      Manning "n"
SCS Curve No or C
        74.000
                      Ia/S Coefficient
Initial Abstraction
          .100
         8.924
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 2.640 .000 .250 8.089 c.m/s .368 .922 .783 C perv/imperv/total
15
         ADD RUNOFF
                 2.640
         HYDROGRAPH DISPLAY
27
         is # of Hyeto/Hydrograph chosen
Volume = .7430276E+04 c.m
CATCHMENT
                      Area in hectares
          .660
                      Length (PERV) metres
Gradient (%)
Per cent Impervious
        66.000
         1.000
        60.000
                      Length (IMPERV)
%Imp. with Zero Dpth
        66.000
          .000
                      Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
                      Manning "n"
SCS Curve No or C
           . 250
        74.000
           . 100
                      Ia/S Coefficient
                       Initial Abstraction
                      Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
                  .122
                              2.640 .250
.914 .695
                                                          8.089 c.m/s
C perv/imperv/total
         ADD RUNOFF
15
        ADD RUNOFF
.122 2.731 .250
HYDROGRAPH DISPLAY
5 is # of Hyeto/Hydrograph chosen
Volume = .7766209E+04 c.m
                                                             8.089 c.m/s
         POND
        6 Depth - Discharge - Volume sets
                    .000
         178.300
                                          .0
1927.0
         178.900
         179.600
                           .0540
                                          4692.0
                          .150
         180.000
                             .321
                                          6538.0
         180.300 1.922 8059.0
Peak Outflow = .221 c.m/s
Maximum Depth = 179.883 metres
         Maximum Storage = 5
.122 2.731
COMBINE
                                      5982. c.m
                                                             8.089 c.m/s
17
             Junction Node No. .122 2.731
        .122
START
14
                1=Zero; 2=Define
         CONFLUENCE
18
       1 Junction Node No.
        .122 8.131
         3 line(s) of comment
         REALIGNED CHANNEL - SEGMENT 3
         CATCHMENT
       302.000
                     TD No. 6 99999
                      Area in hectares
Length (PERV) metres
         1.610
      104.000
       .200
10.000
                      Gradient (%)
Per cent Impervious
                      Length (IMPERV)
       104.000
                      %Imp. with Zero Dpth
Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
          .000
           . 250
                      Manning "n"
SCS Curve No or C
       74.000
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.100
                Ia/S Coefficient
      8.924
                Initial Abstraction
                Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
             .057
                    8.131
                                .221 .000 c.m/s
.422 C perv/imperv/total
                       .910
      COMMENT
      3 line(s) of comment
      FLOW U/S OF NIAGARA ST CULVERT - OUTLET D
15
      ADD RUNOFF
      .057
START
                       8.188
                                   .221
                                              .000 c.m/s
14
           1=Zero; 2=Define
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