

Functional Servicing Report for Gordon Street – Guelph ON

April 13, 2020

Prepared for:

Tricar Developments Inc.

Prepared by:

Stantec Consulting Ltd. 600-171 Queens Avenue London ON N6A 5J7



This document entitled Functional Servicing Report for Gordon Street – Guelph ON was prepared by Stantec Architecture Ltd. ("Stantec") for the account of Tricar Development Inc. (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Dwil 1 Prepared by

Derrick Rice, EIT

Reviewed by ____

975-

Jen Young, P.Eng.

Approved by _

(signature)

Chris Hendriksen, P.Eng.

signature

Table of Contents

1.0	INTRODUCTION AND BACKGROUND	1.1
1.1	OVERVIEW	1.1
1.2	BACKGROUND INFORMATION	1.1
1.3	EXISTING INFRASTRUCTURE	1.2
2.0	OVERALL GRADING AND DRAINAGE	2.2
2.1	DESIGN CONSTRAINTS AND PROCEDURES	2.2
2.2	PROPOSED ROAD PROFILES AND OVERALL SITE GRADING	2.3
3.0	SANITARY SERVICING	3.3
4.0	WATER DISTRIBUTION	4.3
5.0	STORMWATER MANAGEMENT STRATEGY	5.4
5.1	STORMWATER MANAGEMENT CRITERIA	5.4
	5.1.1 HANLON CREEK WATERSHED PLAN (HCWP)	5.4
	5.1.2 TORRANCE CREEK SUBWATERSHED STUDY (TCSS)	5.4
	5.1.3 CITY OF GUELPH DEVELOPMENT ENGINEERING MANUAL	5.4
	5.1.4 Criteria for the Site	5.5
5.2	SOILS INFORMATION	5.5
5.3	HYDROLIC MODELING	5.5
5.4	EXISTING CONDITIONS	5.6
5.5	WATER QUANTITY CONTROL	5.7
5.6	ON-SITE INFILTRATION	5.8
5.7	WATER QUALITY CONTROL	5.9
6.0	CONCLUSIONS AND RECOMMENDATIONS	6.10

LIST OF TABLES

Table 5.1 City of Guelph – Chicago Storm Parameters	.5.	6
Table 5.2 Pre-Development and Post-Development Flow Rates	.5.	8

APPENDICES

PRELIMINARY CIVIL DRAWING PACKAGE



FIGURE 1 – EXISTING STORM DRAINAGE CONDITIONS PROPOSED STORM DRAINAGE CONDITIONS HYDROLOGIC MODELLING PARAMETERS MIDUSS MODELING FILES ROCK TRENCH SIZING CALCULATIONS STORMCEPTOR SIZING REPORT



Introduction and Background

1.0 INTRODUCTION AND BACKGROUND

1.1 OVERVIEW

This Functional Servicing Report has been prepared in support of the Zoning and Official Plan amendment and the Site Plan Application for the proposed development located at 1242, 1250 & 1260 Gordon Street (Site) in the City of Guelph (City). The subject property is approximately 2.8 ha in size and is bounded to the northwest by existing residential subdivision, to the northeast by protected woodlot, to the southwest by Gordon Street, and to the southeast existing high-density development.

The conceptual site plan for the proposed development that forms the basis of this servicing assessment includes two 12 story apartment buildings consisting of 9 townhouse units and 368 apartment units. The bulk of site parking will be achieved through underground and at/above grade enclosed parking.

This report outlines how the proposed development can be supplied with adequate services, including sanitary, domestic water, storm drainage and includes the preliminary design of the infiltration and water quality facilities proposed to provide the required water quality and quantity controls and the preliminary erosion and sediment control strategy to be implemented during construction.

1.2 BACKGROUND INFORMATION

A variety of sources have been referenced during the preparation of this report, and the following should be read in conjunction with this Report:

- Geotechnical Engineering Report, Two 12-Storey Apartment Buildings 1242, 1250, 1260 Gordon Street, Guelph, Ontario (CMT Engineering Inc, April 2018)
- Low Impact Development Stormwater Management Planning and Design Guide (Credit Valley Conservation Authority and Toronto and Region Conservation Authority, 2010)
- Erosion & Sediment Control Guideline for Urban Construction, (Greater Golden Horseshoe Area Conservation Authorities, December 2006)
- Stormwater Management Planning and Design Manual (SWMPD Manual), (Ontario Ministry of the Environment, March 2003)
- Development Engineering Manual, City of Guelph (City of Guelph Engineering and Transportation Services, January 2019)
- Groundwater Flow, Figure 14 of 1242, 1250, 1260 Gordon Street and 9 Valley Road Hydrogeological Assessment (Stantec Consulting Ltd., March 2020)
- Hanlon Creek Watershed Plan (Marshal Macklin Monaghan Ltd., LGL Ltd., October 1993)



FUNCTIONAL SERVICING REPORT FOR GORDON STREET – GUELPH ON

Overall Grading and Drainage

• Torrance Creek Subwatershed Study- Management Strategy (Totten Sims Hubicki Associates, et al, September 1998)

1.3 EXISTING INFRASTRUCTURE

A summary of the municipal infrastructure that currently exists near the Site is as follows:

- A 200mm sanitary sewer located on Gordon Street.
- A 400mm watermain on Gordon Street.
- A 575mm storm sewer on Gordon Street.

Fully constructed municipal roads include Gordon Street to the west and Valley Road to the north.

2.0 OVERALL GRADING AND DRAINAGE

2.1 DESIGN CONSTRAINTS AND PROCEDURES

Using existing topographic information provided by BSR&D limited (dated November 2014), the proposed Site grading will be designed to generally meet the following criteria:

- Match existing grades at all site boundaries.
- Match existing grades at existing tree driplines wherever possible to facilitate tree retention.
- Extension of Edinburgh Road and Valley Road to municipal standards and match into existing road grades of Gordon Street and Valley Road.
- Account for future urbanization of adjacent lands.
- Have consideration for future pedestrian connections north of the site towards Valley Road.
- Provide adequate cover over underground services.
- Ensure all building openings are protected from flooding.
- Comply with Municipal standards for minimum and maximum grades.
- Provide major overland flow routes for flows exceeding the storm sewer capacity.
- Maintain drainage from Gordon Street right-of-way and neighboring properties to the north and south.

Sanitary Servicing

2.2 PROPOSED ROAD PROFILES AND OVERALL SITE GRADING

Road profiles within the subject site were established based on the proposed street pattern to satisfy the constraints outlined in the previous Section 2.1. The road profiles have been designed to accommodate the constraints set out by the site layout and underground parking limits with grades ranging from 0.5% to 8.0% with 3:1 and 4:1 transition slopes or retaining walls utilized to accommodate the various grade changes within the site and at various perimeter locations. The proposed centerline road elevations for the extension Landsdown Drive and Edinburgh Road and lot grades are illustrated on the Grading plan as well as the plan and profile provided for these extensions (Drawing No. 4 of 7 and 5 of 7) included in Appendix A. Existing grades and cross sections of Gordon Street and Valley Road have been considered fixed constraints in the development of the preliminary grading. The extension of Landsdown Drive and Edinburgh Road of curb as per City of Guelph's Linear Infrastructure Standard drawing SD-48a. Internal roads, consisting of 6.7m wide asphalt as the building has structured parking not subject to the standard 7.0m minimum width drive aisle.

3.0 SANITARY SERVICING

The City of Guelph is currently completing the Gordon Street Improvements EA and an overall Master Wastewater Servicing Plan that is considering an upgrade to the sanitary service capacity within Gordon Street fronting the site. Through correspondence with the City in 2019 and 2020, the proposed development will be incorporated in the design of the sanitary sewer upgrades. Confirmation of this has been received from Daryush Esmaili via email received June 28, 2019 and Reg Russwurm via email received March 4, 2020 (see email correspondence attached).

A 200mm extension of the municipal sanitary sewer east on the Edinburgh Road extension proposed as part of this redevelopment to provide service to the site. Sewers will be designed in accordance with the requirements of the Ontario Building Code and the City of Guelph. An illustration of the sanitary sewer layout can be found in the Sanitary Area Plan (Sheet No. 3 of 7) included in Appendix A.

4.0 WATER DISTRIBUTION

The existing water distribution system near the Site includes a 400mm watermain on Gordon Street. The primary source for the proposed development will be the Gordon Street watermain. It is anticipated that the following work to the existing municipal infrastructure will be made:

- Tapping sleeve and valve connection to the 400mm Gordon Street watermain (200mm connection).
- Extension of the municipal watermain along the Edinburgh Road extension to provide service to the Site.



FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

Stormwater Management Strategy

Please refer to the Preliminary Servicing plan (Drawing No. 1 of 7) for an illustration of the watermain layout.

Based on building information currently available, a conservative fire flow requirement for the site is 150 L/s, based on typical OBC calculations as provided in Appendix B.

A 200 mm diameter watermain is proposed for the development with 200mm connections provided to each building. They are positioned as illustrated on the Preliminary Servicing plan (Drawing No. 1 of 7).

Fire protection will be provided via onsite hydrants, adequately spaced to ensure proper coverage to all buildings, in conjunction with standpipe connections for building sprinkler systems. The City of Guelph will confirm the pipe sizing proposed provides adequate pressure to meet MOE design criteria. No backflow prevention or pressure reducing valves (PRV) have been proposed for this development.

5.0 STORMWATER MANAGEMENT STRATEGY

5.1 STORMWATER MANAGEMENT CRITERIA

This site is covered by criteria from different documents. The documents and site criteria are discussed below.

5.1.1 HANLON CREEK WATERSHED PLAN (HCWP)

The HCWP states that for upper Hanlon Creek development no urban drainage will be permitted to the headwaters of Tributary E or F, except for lands that already have drainage outlets. All stormwater generated from the area must either infiltrate into the ground or evaporate (100-year infiltration and zero runoff). There is no discussion in the report on requirements for redeveloping lands within the existing development areas where this project is located.

5.1.2 TORRANCE CREEK SUBWATERSHED STUDY (TCSS)

The TCSS states that for Zone 2, where this site is located, the requirement is to detain the postdevelopment flow to pre-development ratees for the 2- to 100-year events and to infiltrate 150 mm/yr.

5.1.3 CITY OF GUELPH DEVELOPMENT ENGINEERING MANUAL

The specific SWM Criteria for the Site from the City of Guelph Development Engineering Manual (January 2019).

Water Quantity Control

• Based on City Guidelines, on-site stormwater control should be sized to attenuate postdevelopment peaks flows to the pre-development (existing) peak flows. This 'post-to-pre' control should be provided for the 2-year through to the 100-year storm events.



FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

Stormwater Management Strategy

Water Quality Control

 Based on City guidelines, the feasibility of on-site infiltration should be investigated. All developments are required to provide a minimum of Enhanced water quality level protection (ie, 80% TSS removal). It is recommended for small development sites (approximately 2 ha) a treatment train approach be followed.

5.1.4 Criteria for the Site

The HCWP appears to be more applicable to development in the upper Hanlon Creek areas, with drainage to Tributaries E and F. The project site is located in the 'existing development' area within the study and is not specifically addressed within the plan and drains to Tributary D.

Additionally, the GRCA mapping for the site shows a recharge of 122-199 mm/year and runoff of 118-207 mm/year while sites within the Upper Hanlon Creek area have a recharge of 315-371 mm/year and a runoff of 0 mm/year, showing that the flow regime for the two areas is obviously different.

Based on the above information, it was decided that applying the TCSS criteria to the site was a reasonable approach based on the information available. The SWM criteria for the site are as follows:

- Attenuate post-development peak flows to pre-development rates for the 2-year though 100-year storm events
- Infiltrate, evaporate, or reuse 150 mm/yr
- Minimum of Enhanced Water Quality Protection.

5.2 SOILS INFORMATION

Site soil properties were confirmed using the Geotechnical Investigation Report (XCG Consulting Ltd., April 2018), which outlined soil conditions for the site as per tested boreholes. It was confirmed that site soils can be expected to be sand – silt with traces of clay, with overall good drainage properties. For this analysis, site soils were classified as BC, which was deemed to be a conservative estimate. Infiltration rates for the site were determined to be approximately 7 mm/hr.

A hydrogeologic assessment was completed by Stantec Consulting for the site. In the Site monitoring well MW5 – 18S a high water table elevation of 340.3 m was recorded. For the purposes of this design, this value was taken to represent the high groundwater elevation for the Site. The groundwater flow follows a similar divide as surface water, with a portion flowing east as part of the Torrance Creek Watershed, and another portion flowing west as part of the Hanlon Creek Watershed.

5.3 HYDROLIC MODELING

A hydrologic model was prepared to simulate drainage conditions for the subject development. MIDUSS was used to predict flows for the existing and proposed development conditions and to design the SWM system to ensure the previously mentioned criteria were achieved.



FUNCTIONAL SERVICING REPORT FOR GORDON STREET – GUELPH ON

Stormwater Management Strategy

To address the criteria, existing and post-development conditions were modeled for the 2 year through to the 100-year, 3-hour Chicago design storms, derived using the City of Guelph parameters as provided in Table 1.

Storm Event	а	b	С	Duration (hrs.)	Depth (mm)
2-year	743	6	0.798		34
5-year	1593	11	0.879		47
10-year	2221	12	0.908	3	56
25-year	3158	15	0.936		68
50-year	3886	16	0.950		78
100-year	4688	17	0.925		87

Table 5.1 City of Guelph – Chicago Storm Parameters

5.4 **EXISTING CONDITIONS**

The existing site is 2.86 ha in area and includes 3 residential properties with gravel/asphalt driveways. A large portion of the site is a woodlot area, and part of the Torrance Watershed, and generally has fairly steep slopes (approximately 5.0 %). A portion of the properties drain to an existing storm sewer on Gordon Street. The drainage catchments are shown on Figure 1, attached, and are summarized below.

- Catchment 101 A 1.13 ha area that includes residential homes, with storm water out-letting to Gordon Street to the west.
- **Catchment 102** A 1.73 ha undeveloped area, which discharges as shallow overland flow to the woodlot to the east, part of the Torrance Creek Swamp

Detailed modeling calculations have been appended for reference and show results for the 2 through to the 100-year event. Proposed Conditions

The proposed site plan includes two 12-storey apartment buildings, one with one level of underground parking and one with one level of underground parking. The proposed drainage catchments are summarized in detail below and shown in Figure 2, attached. Generally, the proposed conditions will increase the area out-letting to Gordon Street to the west and will reduce the area out-letting to the woodlot to the east. The development will also increase the impervious area and will produce an increase in stormwater flows to the downstream Gordon Street storm sewer.

- **Catchment 201** A 0.12 ha building/landscaped area that will drain uncontrolled to Gordon Street to the west.
- Catchment 202 A 0.21 ha roof top area. Runoff from this area will be attenuated by a roof-top control system system, and ultimately outlet to the downstream Gordon Street storm sewer. The 25 mm rainfall event will be directed to a rock (infiltration) trench, situated east of the developed area.

FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

Stormwater Management Strategy

- **Catchment 203** A 0.23 ha rooftop area. Runoff from this area will be attenuated by a roof-top control system and ultimately outlet to the downstream Gordon Street storm sewer. The 25 mm rainfall event will be directed to a rock (infiltration) trench, situated east of the developed area.
- Catchment 204 A 0.85 ha area, including the parking area, lane-way and small portions of landscape. Runoff from the impervious area will be collected by catchbasins and conveyed via a storm sewer system to an underground storage tank. This tank will be located in the parking lot structure at the north end of the site and will attenuate flows to pre-development levels prior to out-letting to the downstream Gordon Street storm sewer. A Manhole upstream of this tank will outlet the first 25 mm of every rain event to the east rock trench.
- Catchment 205 A 1.44 ha woodlot area draining uncontrolled east to the Torrance watershed

5.5 WATER QUANTITY CONTROL

Stormwater runoff will be provided with water quantity control by a combination of rooftop controls over both the west and east building and a subsurface storage tank located in the underground parking structure at the north section of the development.

The rooftop controls will provide flow attenuation to both building areas, Catchment 202 and Catchment 203. The rooftop controls will allow for 16.0 cm of ponding, and through a 75 mm diameter orifice will direct attenuated flows into a downspout system. The rooftop downspouts will connect into an on-site infiltration (rock) trench in Catchment 205. This feature will promote infiltration of the rooftop runoff to the groundwater system, with overflows backing up to a subsurface storage tank and ultimately out-letting to the Gordon Street storm sewer.

A storm sewer system will convey collected runoff from Catchment 204 to the subsurface tank. A 75 mm orifice control will be provided on the downstream end, prior to discharge to the Gordon Street storm sewer. The first 25 mm event will be directed to the infiltration trench through an orifice control. This subsurface tank was sized to provide flow attenuation to Catchment 204, such that the total flow to Gordon Street (inclusive of rooftop-controlled flow from Catchment 203 and 204) meets the pre-development target rates. Table 2 below shows the existing and controlled post-development flow rates. As shown, the pre-development targets are met for the two site outlets in the post-development condition.



Stormwater Management Strategy

	Existing Flow Rates to Outlet (m ³ /s)			
Storm Event	Gordon Street (101)	Torrance Creek Watershed (102)		
2-yr	0.008	0.003		
5-yr	0.013	0.006		
100-yr	0.034	0.040		
	Proposed Flow Rates to Outlet (m ³ /s)			
	Proposed Flow R	ates to Outlet (m³/s)		
Storm Event	Proposed Flow R Gordon Street (201, 202, 203, 204)	ates to Outlet (m³/s) Torrance Creek Watershed (205)		
Storm Event 2-yr	Proposed Flow R Gordon Street (201, 202, 203, 204) 0.007	Torrance Creek Watershed (205) 0.003		
Storm Event 2-yr 5-yr	Gordon Street (201, 202, 203, 204) 0.007 0.013	Torrance Creek Watershed (205) 0.003 0.005		

Table 5.2 Pre-Development and Post-Development Flow Rates

The subsurface tank has been sized to provide an active storage volume such that the required flow attenuation is provided. During the 100-year event a total of 420 m3 of active storage will be utilized in the subsurface storage tank, 121 m3 of active storage will be provided on the West Building rooftop (Catchment 202) and 143 m3 of active storage will be provided on the East Building rooftop (Catchment 203).

Subsurface storage, rooftop controls, parking lot ponding configurations will be confirmed at detailed design, based on final site plan layout, grading and servicing.

It is noted that under proposed conditions less runoff will outlet to the Torrance Watershed, as the contributing drainage catchment has been reduced (1.44 ha in proposed vs. 1.73 ha in existing). This will cause a small decrease in surface and groundwater flows to Torrance Creek. However, the infiltration trench (downstream of Catchment 202, 203 and 204) is located within the Torrance Watershed and will increase the infiltration to Torrance Creek to help offset the reduction in area by providing more groundwater flow.

It is expected that the reduction in flows from existing to proposed conditions for the Torrance Watershed will be less than 10% for both minor and major storm events. Considering the entire Torrance Watershed catchment, this reduction in flows is negligible. It is not expected that this flow decrease will adversely impact the downstream watershed.

For more details of the stormwater management strategy, including model parameters and inputs/outputs data files, please see the attachments.

5.6 ON-SITE INFILTRATION

An on-site infiltration (rock) trench was sized to capture and infiltrate the 25 mm event over Catchment 202 (West Building roof area), Catchment 203 (East Building roof area) and Catchment 204 (parking



FUNCTIONAL SERVICING REPORT FOR GORDON STREET – GUELPH ON

Stormwater Management Strategy

area). The total controlled area is 4,400 m² of rooftop and 8,500 m² or parking lot. The total infiltration volume is 323 m^3 of stormwater runoff.

This infiltration trench will be located along the east portion of the development, in Catchment 205. By infiltrating the first 25 mm of every storm event, it is expected 80% TSS removal (enhanced level protection) will be provided to the off-site runoff, in accordance with City of Guelph standards. The trench was sized to draw-down within 48 hours after roof-top ponding.

The infiltration trench consists of the following components:

- Surface area of 672 sq*m;
- Assumed subsurface soil infiltration rate of 7 mm/hr which was deemed to be a conservative estimate;
- Infiltration gallery 0.96 m deep (filled with clearstone) with sides wrapped in filter fabric.

The invert of the infiltration gallery is 339.00 m, and therefore the high groundwater elevation of 340.3 m will intercept the gallery during seasonal high groundwater levels. However, it should be noted that the 340.3 m groundwater elevation is the highest groundwater level observed on site at MW5-18(S), and other monitoring wells recorded lower groundwater elevations. The high groundwater elevations on-site generally ranged from 340.0 to 334.0 m across 5 monitoring wells.

The groundwater elevations were recorded in on-site monitoring well MW5-18(S) by Stantec from approximately September 2018 to January 2020. During this 16-month period, the high groundwater elevation exceeded 339.00 m from approximately beginning of April through to the end of June 2019 (a 3-month period). During other times the high groundwater table was consistently below 339.00 m. The infiltration gallery should only be intercepted by groundwater in spring-time. The groundwater level is below the invert of the rock trench, notably during summer periods when urban catchments would experience increased runoff from summer storms. In the event that the infiltration gallery is submerged, water will back up into the parking lot underground storage tank and ultimately outlet to the Gordon Street storm sewer.

Prior to the installation of the infiltration trench, the on-site infiltration rate should be confirmed via in-situ testing and deemed to be acceptable by the design engineer. For more details of the on-site infiltration trench, please see the attached calculation sheet.

5.7 WATER QUALITY CONTROL

To comply with the City of Guelph 'treatment train' recommendation, an Oil-Grit Separator Unit (Stormceptor EF4) was sized upstream of the underground storage tank. In addition, catchbasin shields will be provided on-site. As the Stormceptor EF 4 will provide approximately 90% TSS removal to runoff from Catchment 204 this approach will incorporate redundancy into the water quality system and it can be expected that the entire site (including uncontrolled Catchment 201) will have approximately 80% TSS removal. For a detailed sizing report of the Stormceptor EF4, please see the attachment.



FUNCTIONAL SERVICING REPORT FOR GORDON STREET – GUELPH ON

Conclusions and Recommendations

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the preceding report, the following conclusions can be drawn:

- Sanitary service is provided by the proposed upgrade to the municipal system located on Gordon Street just west of the site access.
- Water service is provided from the existing 400mm watermain on Gordon Street fronting this site.
- Enhanced (Level 1) water quality control will be provided for the site by a combination of OGS unit, and infiltration gallery. Adequate water quality volumes will be provided to meet the MOE water quality requirements associated with infiltration facilities.
- The proposed infiltration will infiltrate the 25 mm event to maintain predevelopment conditions
- The proposed rooftop storage and detention tank will detain the 2- to 100-year peak flows to predevelopment levels prior to discharge to Gordon Street.

FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

PRELIMINARY CIVIL DRAWING PACKAGE



	I (N Stantec
Ν	
	Stantec
	London ON N6A 5J7
	Tel. 519-645-2007 www.stantec.com
	Liability Noto:
	The Contractor shall verify and be responsible for all dimensions.
	DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.
	Notes
	1. <u>CITY OF GUELPH BENCHMARK 225</u> <u>ELEVATION 338.665</u> LOCATION: 1221 GORDON STREET
	 EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014) THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO
	 THE CONSULTING ENGINEER SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.
	Legend
	SITE LIMIT
	EX. STORM SEWER
	PROPOSED SANITARY SEWER
	PROPOSED SANITARY MANHOLE R2 PROPOSED STORM MANHOLE
	CBMH1 PROPOSED CATCHBASIN MANHOLE
	CB or CICB PROPOSED CATCHBASIN
4536.45	EX. MH EX. MANHOLE
	PROPOSED WATERMAIN
	EX. WATERMAIN
	PROPOSED 3-WAY FIRE HYDRANT C/W STORZ CONNECTION
	→→ EX. FIRE HYDRANT
	· ·
	Revision By Appd. YY.MM.DD
	· ·
	1. FOR SITE PLAN APPROVAL JAC CJH 20.04.15
	Issued By Appd. YY.MM.DD
· // // · // //	
	File Name: 161413684_c-db JAC CJH JAC 20.04.15
	Permit-Seal
11 11 III	PROFESSIONAL
11 11 11 10 10 10 10 10 10 10 10 10 10 1	1sec. 12 sen
	S C. J. HENDRIKSEN
	April 15/20 -
	Round out at
	CE OF O
21.312 //////	Client/Project
	TRICAR DEVELOPMENTS INC.
<i>" // //</i>	
	1250 GORDON STREET
	GUELPH, ON
DIRECTED OFFSITE VIA SWALE	
RDON STREET, WHERE THE WATER	SERVICING PLAN
THE STORM OR SANITARY SEWER	
OR SANITARY SEWER SYSTEM MUST EMENTS AS PER CITY OF GUELPH	
ANAGEMENT PRACTICES PER	Project NO. Scale 5 15 25m 161413684 1:500 1:
GUIDELINES FOR URBAN	
E MANAGEMENT.	
	SSP-1 1 of 7 0
	_



ORIGINAL SHEET - ANSI D

ORIGINAL SHEET - ANSI D

		Stantec 800-171 Queens Avenue Moden ON N6A 5.07 Tel S19-645-2007 www.stantec.com blability Note: De Norts cade the drawing - any errors or omissions shall be reported to Stantec without delay. Notes 1 0.110 OF CUELPH BENCHMARK 225 1.110 DE S100 DE S100 DE S100 DE STATE ELEVATION 338.665 LOCATION: 1221 GORDON STREET 0.111 CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND TO REPORT ANY DISCREPANCIES TO STRING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO STRING CONDITION
M4536145"W M4536145"W M4536145"W M4536145"W M4536145"W M4536145"W M4536145"W		Legend A1 A=0.92ha. FLOW=6.44L/s AREA ID CONTRIBUTING AREA (ha) FLOW RATE (7L/s/ha. APARTMENTS-1L/s/ha. RESIDENTIAL) — — — DRAINAGE BOUNDARY
	NEST INCLUS CONTROL OF	Revision BY Appd. YY.MM.DD Revision BY Appd. YY.MM.DD 1. FOR SITE PLAN APPROVAL JAC CUH 20.04.15 Issued BY Appd. YY.MM.DD Permit-Seal JAC CUH Z0.04.15 Vermit-Seal Vermit-Seal Vermit-Seal Vermit-Seal Vermit-Seal Vermit-Seal
		Project No. Scale 0 5 15 25m 161413684 1:500 1:500 Revision Drawing No. Sheet Revision SSP-3 3 of 7 0

Stantec 600-171 Queens Avenue

London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com

Liability Note:

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Notes

- <u>CITY OF GUELPH BENCHMARK 225</u> <u>ELEVATION 338.665</u> LOCATION: 1221 GORDON STREET
 EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014)
 THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER
 SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

	SITE LIMIT
	EX. STORM SEWER
	PROPOSED STORM SEWER
	EX. SANITARY SEWER
	PROPOSED SANITARY SEWER
● S2	PROPOSED SANITARY MANHOLE
• R2	PROPOSED STORM MANHOLE
CBMH1	PROPOSED CATCHBASIN MANHOLE
CB or CICB	PROPOSED CATCHBASIN
EX. MH	EX. MANHOLE
EX. CB	EX. CATCHBASIN
	PROPOSED WATERMAIN
	EX. WATERMAIN
→	PROPOSED 3-WAY FIRE HYDRANT C/W STORZ CONNECTION
- Þ4	EX. FIRE HYDRANT
►	PROPOSED WATER VALVE
X	EX. WATER VALVE
	RESTORATION LIMITS WITH LAP JOINT PER 509.010

	Revision		Ву	Appd.	YY.MM.DD
	1. FOR SITE PLAN APP	PROVAL	JAC Bv	CJH Appd.	20.04.15 YY.MM.DD
· · · · · · · · · · · · · · · · · · ·	ISSUED		- ,	, 19 9 91	
	File Name: 161413684_c-st	JAC	CJH	JAC	20.04.15
		Dwn.	Chkd.	Dsgn.	YY.MM.DD
	Permit-Seal	M OFESSION .			
·····		ED PR. The St.	1		
	CERT	C I HENEDEIKGEN			
		100125181	j		
		April 15/20			
· · · · · · · · · · · · · · · · · · ·		OVINCE OF ONTATION			
· · · · · · · · · · · · · · · · · · ·		and the second second second			
		ELOPMENTS INC	•		
	1250 GORD	on street			
	GUELPH, ON				
	Title	-			
	STREET 'A'				
	PLAN & PRC	DFILE			
	Project No.	Scale 0 5		15	25m
	161413684	1:500			
	Drawing No.	Sheet		Revi	sion
	SSP-4	4 of 7		0	1

-							
-							
:					: 		
:							
:					:		
:	 						
:							
:	 				 :		
:	· · ·						
-	 					- - -	
:						-	
:	 				:		
:							
:	 · · · · · · · · · · · · · · · · · · ·						
:						-	
:							
:	 						
:						-	
-	 						
:							
:	 						
:	· · ·		•				
:					: : :		
:			-				
:	 				:		
:							
:							
:	 				- · · · · · · · · · · · · · · · · · · ·		
:							
:	 · · · · · · · · · · · · · · · · · · ·						
:	· · ·					· · ·	
:	 						
:			•				
:	 				: :		
:					:	-	
:	 · · · · · · · · · · · ·					-	
:							
:	· · ·						
:	 				- · · · · · · · · · · · · · · · · · · ·		
:	-				:	-	
-	 						
:	· · ·						
:	 						
:	· · ·		•			-	
:							
:			•				
:	 · · · · · · · · · · · · · · · · · · ·						
:						-	
:						:	
:							
:							
:							
:							
:	· · ·		• • •			• • •	
-	 						
:							
-	 						
:			•				
-							
:	 - 					- 	
-	 						
:						· · ·	
-	 						
:							
• • • •	 						
-	 						
:			•				
:	· · ·						
	 	-	-	-	-	-	

Stantec 600-171 Queens Avenue London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com

Liability Note:

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Notes

- <u>CITY OF GUELPH BENCHMARK 225</u> <u>ELEVATION 338.665</u> LOCATION: 1221 GORDON STREET EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014) THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER
- 4. SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

Legend	PROPOSED SWALE
lacksquare	PROPOSED STORM MANHOLE
	PROPOSED STORM CATCH BASIN MANHOLE
•	PROPOSED SANITARY MANHOLE
۲	EX. STORM MANHOLE
۲	EX. SANITARY MANHOLE
	PROPOSED CATCH BASIN
	EX. CATCH BASIN
● 75.95	PROPOSED GRADES
● 75.95 (SP)	PROPOSED OVERLAND FLOW SPILL POINT
(75.95)	EXISTING GRADES
· • • • • • • • • • • • • • • • • • • •	MAJOR OVERLAND FLOW ROUTE
	SITE BOUNDARY
● 71.77 ● (SW)	PROPOSED SWALE GRADE
	STRAWBALE FILTER
	HEAVY DUTY SILT FENCE (SD-74b)
	EXISTING CONTOURS
←	FLOW DIRECTION
	HYDRANTS

Revision	By	Appd.	YY.MM.DD
1. FOR SITE PLAN APPROVAL	JAC	CJH	20.04.15
Issued	Ву	Appd.	YY.MM.DD

JACCJHJAC20.04.15Dwn.Chkd.Dsgn.YY.MM.DD File Name: 161413684_c-fb Permit-Seal

Client/Project TRICAR DEVELOPMENTS INC.

1250 GORDON STREET

GUELPH, ON

Title

GRADING PLAN

Project No.	Scale _{0 5}	15 25m
161413684	1:500	
Drawing No.	Sheet	Revision
GP-1	5 of 7	0

Stantec 600-171 Queens Avenue London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com Liability Note: The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. Notes CITY OF GUELPH BENCHMARK 225 ELEVATION 338.665 LOCATION: 1221 GORDON STREET

- EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014) THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER

PROPERTY LINE

DIVERSION SWALE

TOPSOIL STOCKPILE

FILL MATERIAL STOCKPILE

CONSTRUCTION ENTRANCE

SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

Legend <u> PAD</u> CONSTRUCTION FENCE (ς)

ANGULAR RIP RAP STRAW BALE DAM ROCK CHECK DAM SILT FENCE (SD-74B) TREE PROTECTION FENCE (SD-90A) TEMPORARY STORM SEWER SEDIMENT BASIN SLOPES SEDIMENT TRAP (SEE DETAIL C-610) SURFACE FLOW DIRECTION DIVERSION BERM CATCHBASIN COVERING

Revision

Revision		 	Appd.	YY.MM.DD
1. FOR SITE PLAN APPROVAL		JAC By	CJH Appd.	20.04.15 YY.MM.DD
File Name: 161413684_c-esc	JAC	СЈН	JAC	20.04.15
Dermit Seed	Dwn.	Chkd.	Dsgn.	YY.MM.DD
C.J.HEND 100125 April 1	RIKSEN			
Client/Project	NTS INC			
Client/Project TRICAR DEVELOPME 1250 GORDON STRE	NTS INC	•		
Client/Project TRICAR DEVELOPME 1250 GORDON STRE GUELPH, ON	NTS INC	•		

Project No.

Drawing No.

161413684

GP-2

Shee

6 of 7

NOTES AND SPECIFICATIONS:

A. GENERAL:

- 1. BUILDINGS ARE NOT TO BE SITED WITH THIS DRAWING. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SITE SERVICING PLANS (SSP SERIES)
- & THE GRADING PLAN (GP SERIES) PREPARED BY STANTEC CONSULTING.
- THESE PLANS FOR CONSTRUCTION ONLY WHEN APPROVED BY THE CITY OF GUELPH AND SEALED BY THE ENGINEER. 3. THE CONTRACTOR MUST CHECK AND VERIFY DIMENSIONS; OBTAIN ALL UTILITY LOCATES
- AND OBTAIN ALL REQUIRED PERMITS/LICENSES AND VERIFY ELEVATIONS OF EXISTING
- AND OBTAIN ALL REQUIRED PERMITS/LICENSES AND VERT ELEVATIONS OF EXISTING SERVICES BEFORE PROCEEDING WITH ANY WORK.
 ALL WORK WITHIN THE RIGHTS-OF-WAY OR CITY EASEMENTS ARE TO BE INSTALLED BY CITY OF GUELPH AT THE OWNER'S EXPENSE UNLESS OTHERWISE NOTED.
 ANY PROPOSED CHANGES SHALL BE APPROVED BY THE ENGINEER AND CITY OF GUELPH.
 ALL UNDERGROUND SERVICING TO BE INSPECTED BY STANTEC CONSULTING LTD. AND CERTIFIED FOR THE CITY OF GUELPH. CONTRACTOR SHALL COORDINATE WITH STANTEC AND SHALL CONTACT SAME AT LEAST AB HOURS DRIPT TO INSTALLATION. OF SERVICES
- AND SHALL CONTACT SAME AT LEAST 48 HOURS PRIOR TO INSTALLATION OF SERVICES. . CONTRACTOR SHALL COORDINATE WITH STANTEC AND SHALL CONTACT SAME AT LEAST 48
- HOURS PRIOR TO INSTALLATION OF SERVICES. ALL CONSTRUCTION WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR
- CONSTRUCTION PROJECTS (LATEST EDITION). 9. THE PROPERTY OWNER IS RESPONSIBLE FOR RESTORATION OF ALL DAMAGED AND/OR
- ISTURBED PROPERTY WITHIN THE MUNICIPAL RIGHT-OF-WAY TO CITY OF GUELPH 10. IF, FOR UNFORESEEN REASONS, THE OWNER AND/OR HIS/HER REPRESENTATIVE MUST ENCROACH ONTO PRIVATE LANDS TO UNDERTAKE ANY WORKS, HE/SHE MUST OBTAIN WRITTEN PERMISSION FROM THE ADJACENT PROPERTY OWNERS PRIOR TO ENTERING UPON THE PRIVATE PROPERTY TO PERFORM ANY WORKS. COPIES OF THESE LETTERS OF CONSENT MUST BE SUBMITTED TO THE DEVELOPMENT & TECHNICAL SERVICES -ENGINEERING DEVELOPMENT DIVISION, PRIOR TO ANY WORK BEING PERFORMED. FAILURE TO COMPLY WITH THE ABOVE IS AT THE PROPERTY OWNERS OWN RISK.

B. UNDERGROUND SERVICES:

- 1. CONTRACTOR SHALL VERIFY ELEVATION AND LOCATION OF EXISTING SANITARY AND STORM SEWERS AND WATERMAINS PRIOR TO COMMENCING SITE WORK AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS BETWEEN EXISTING AND PROPOSED
- 2. THE CONTRACTOR TO MAKE CONNECTIONS TO SERVICES AT STUB LOCATION FOR SANITARY, STORM SEWERS, WATERMAIN AND TO RESTORE ALL OFF-SITE AFFECTED PROPERTY TO ORIGINAL CONDITION.
- 0. ON-SITE SERVICING SHALL NOT BE UNDERTAKEN PRIOR TO COMPLETION OF
- SERVICE CONNECTIONS WITHIN THE ROAD R.O.W.'S. 4. ALL UNDERGROUND SERVICES TO BE IN COMPLIANCE WITH THE LATEST REVISED BUILDING CODE, CITY OF GUELPH ENGINEERING STANDARDS, ONTARIO PROVINCIAL STANDARDS (OPSS, OPSD) AND WITH THE LATEST REGULATIONS OF THE ONTARIO PLUMBING CODE AND SUPPLEMENT SPECIFICATION FOR MUNICIPAL SERVICES (DGSSMS) AND INSPECTED B CITY STAFF/CONSULTANT PRIOR TO BACKFILLING.
- 5. UNDERGROUND SERVICES TO TERMINATE 1.5m FROM BUILDING LINE, PLUGGED OR CAPPED C/W MARKER EXTENDING FROM INVERT TO 1.0M ABOVE FINISHED GRADE. ALL BEDDING TO BE AS NOTED BELOW. TRENCH BACKFILL TO BE APPROVED NATIVE MATERIAL COMPACTED IN 200mm MAX. LIFTS TO 95% STANDARD PROCTOR DENSITY.
- . ALL SERVICES SHALL BE TESTED AS SPECIFIED IN THE APPLICABLE OPSS (OPSS
- 410 & 441).
- & A41).
 & ALL SERVICES, UTILITIES AND CATCHBASIN LEADS ARE TO BE SUPPORTED AS PER OPSD 1007.01 DURING TRENCHING ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO AND DURING CONSTRUCTION. LOCATION OF EXISTING UTILITIES TO BE VERIFIED IN THE FIELD.
 ANY UTILITY RELOCATION DUE TO THIS DEVELOPMENT TO BE UNDERTAKEN AT THE
- EXPENSE OF THE OWNER/DEVELOPER.

C. SEWERS/APPURTENANCES: 4. STORM SEWERS:

- LESS THAN 200mmø PVC DR-28
 200mmø TO 375mmø PVC DR-35
- PVC RIBBED PIPE (ULTRA-RIB OR EQUIVALENT)
 CL-3 CONCRETE • 450mmø TO 600mmø - PVC RIBBED PIPE (ULTRA-RIB OR EQUIVALENT)
- 65D CONCRETE
 450mmø TO 600mmø 65D CONCRETE
- 5. SANITARY SEWERS:
 LESS THAN 200mmø PVC DR–28
- 200mmø OR LARGER PVC DR-35 2.5m MINIMUM COVER FOR SANITARY SEWERS.
- 3. SEWER BEDDING:
 CITY OF GUELPH SD-29 150mm (MIN) GRAN 'A' TO 98% S.P.D.
- 4. STORM MANHOLES: OPSD 701.010 (1200mmø)
- OPSD 701.011 (1500mmø OPSD 701.012 (1800mmg)
- OPSD 701.013 (2400mmø) OPSD 701.014 (3000mmø
 SANITARY MAINTENANCE HOLE
- 0PSD 701.010 (1200mmø MAINTENANCE HOLE BENCHING
- CITY OF GUELPH SD-44 CBMH'S WITH AN OUTLET PIPE GREATER THAN 450mmø SHOULD BE BENCHED. 450mmø OR LESS SHALL BE PROVIDED WITH A 600mm SUMP. 8. CATCHBASINS/CATCHBASIN LEADS:
- OPSD 705.01 (SINGLE) OPSD 705.02 (DOUBLÉ)
- OPSD 705.03 (DITCH INLET 3:1 SLOPE) MINIMUM LEAD DIAMETER. 200mmø FOR SINGLE, 300mmø FOR DOUBLE CATCHBASINS. 9. FRAMES AND GRATES/COVERS:
- OPSD 400.10 (CB'S & CBMH'S) OPSD 401.01 TYPE 'A' (SANITARY AND STORM MH'S)
- CITY OF GUELPH SD-15 (RLCB'S) CITY OF GUELPH SD-16 (DICB'S)
- CITY OF GUELPH SD-9 (SAFETY GRATE FOR MH'S)
 ALL FRAMES ON STRUCTURES TO BE SET USING PRECAST CONCRETE ADJUSTMENT UNITS 3
- D. WATER SERVICES/APPURTENANCES:
- 100mmø TO 300mmø AWWA C–900 PVC SDR–18 350mmø TO 600mmø AWWA C905 PVC SDR–25
- 2.0m MINIMUM COVER FITTINGS TO AWWA C-90 WHERE CONFLICT ARISES AT WATERMAIN/SERVICE CROSSING OTHER UNDERGROUND

4 MF 3=342 340.

臣下班站

450mr <u>300mm</u> 7.=340.260r

450

STM

, . (.).

- SERVICES, WATERMAIN/SERVICES SHALL BE LOWERED TO MAINTAIN 0.50m VERTICAL SEPARATION.
- 2. PIPE BEDDING:
 CITY OF GUELPH SD-29
- 150mm (MIN) GRANULAR 'A' 98% S.P.D.
 THRUST BLOCKING:
- CITY OF GUELPH SD-27
 TRACER WIRE:

347

346

345

344

343

342

34

340

339

338

337

336

335

ORIGINAL SHEET - ANSI D

• CITY OF GUELPH SD-54A 5. HYDRANTS: • CITY OF GUELPH SD-25A (OPEN RIGHT)

- 6. VALVES:
 ALL VALVES TO OPEN COUNTER-CLOCKWISE AND COMPLY WITH A.W.W.A. SPEC.
 CITY OF GUELPH SD-24
- WATER SERVICES 25mmø TYPE K COPPER PIPING WET TAPPED TO PVC WATERMAIN WITH APPROVED SADDLE CITY OF GUELPH SD-54B
- 8. WATER METERS: BUILDING UNITS TO HAVE INDIVIDUAL WATER METERS TO THE SATISFACTION OF CITY OF
 GUELPH WATERWORKS DEPARTMENT
 MAINTAIN SPATIAL SEPARATION FOR SITE SERVICES PER BUILDING CODE PART 7.3.5.6
- 1. CATHODIC PROTECTION IN ACCORDANCE WITH CITY OF GUELPH STANDARDS. 12. A WATERMAIN COMMISSIONING PLAN IN ACCORDANCE WITH DGSSMS WILL BE REQUIRED.

<u>E. GRADING:</u>

- COMPLETE ALL EXCAVATION, GRADING, TRIMMING AND COMPACTION AS REQUIRED TO FACILITATE THE WORK, ALL SUBGRADE AREAS SHALL BE PROOF ROLLED TO 98% S.D.P. PRIOR TO GRANULAR SUBBASE PLACEMENT.
 DISPOSE OF ALL SURPLUS AND UNSUITABLE MATERIAL OFFSITE.
 SAWCUT ASPHALT IN NEAT LINES AT ALL MATCH LINES.
 MATCH EXISTING GRADES AT ADJACENT PROPERTY LINES.
- 5. TRANSITION SLOPES TO BE MAXIMUM 3:1 (HORIZONTAL TO VERTICAL) UNLESS OTHERWISE
- NOTED . SURFACE WORKS:
- 1. CURBS:
- OPSD 600.040 (CONCRETE BARRIER CURB WITH STANDARD GUTTER) • OPSD 600.070 (CONCRETE BARRIER CURB WITH STANDARD GUTTER, TWO STAGE
- CONSTRUCTION) OPSD 600.080 (CONCRETE BARRIER CURB WITH NARROW GUTTER) OPSD 600.110 (CONCRETE BARRIER CURB)
- ASPHALT PAVEMENT: (PARKING AREA) 40mm HL 3 (SURFACE ASPHALT) 97% MARSHALL 97% S.P.D.
- 50mm HL4 (BASE ASPHALT) 150mm GRANULAR 'A' BASE 300mm GRANULAR 'B' SUB-BASE 100% S.P.D. 100% S.P.D. ASPHALT PAVEMENT: (ABOVE PARKING GARAGE)
- CONCRETE DECK ROOFING MEMBRANE PROTECTION BOARD
- 40MM HL 3 (SURFACE ASPHALT) 97% MARSHALL 50MM HL4 (BASE ASPHALT) 97% S.P.D.
- PAVEMENT: (HEAVY DUTY/FIRE ROUTE) 97% MARSHALL - (WHERE IN PLACE) 50mm HL-3 SURFACE ASPHALT 60mm HL-4 BASE ASPHALT 150mm GRANULAR 'A' 400mm GRANULAR 'B' 97% MARSHALL 100% S.P.D. 100% S.P.D.
- SAW CUT CLEAN EDGES AT ALL MATCH LINES AND APPLY TACK COAT.
- 5. CONCRETE SIDEWALKS: CITY OF GUELPH SD-2, 1.5m WIDE (CONCRETE SIDEWALK)
- CITY OF GUELPH SD-4 (SIDEWALK RAMPS)
 SITE AREAS DISTURBED BY CONSTRUCTION AND NOT INDICATED FOR REMOVAL TO BE
 RESTORED TO ORIGINAL CONDITIONS.

G. EROSION CONTROL:

- ALL SILT FENCING TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY AREA GRADING, EXCAVATION OR DEMOLITION.
 EROSION CONTROL FENCE TO BE PLACED AROUND THE BASE OF ALL STOCKPILES. ALL STOCKPILES TO BE KEPT A MINIMUM OF 2.5m FROM ALL PROPERTY LINES.
 P-250 FILTER FABRIC UNDERLYING CONSTRUCTION VEHICLE ENTRANCE TO CONSIST OF CLEANED OR REPLACED 200mm THICK, 50mmø STONE. STONE TO BE TAKEN UP AND MUDIALOCIMUM DIDING CONSTRUCTION CETAN.
- WHEN ACCUMULATIONS COVER 50% OF TOP OF STONE (SEE DETAIL). 4. EROSION PROTECTION TO BE PROVIDED AROUND ALL STORM AND SANITARY MANHOLES
- AND/OR CATCHBASINS. 5. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. CONTRACTOR TO PROVIDE ALL ADDITIONAL EROSION CONTROL STRUCTURES.
 EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY BY STANTEC CONSULTING LTD. AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN
- ACCUMULATIONS REACH A MAXIMUM OF ONE THIRD (1/2) THE HEIGHT OF THE SILT
- 7. ALL EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN RE-STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- 8. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY STANTEC CONSULTING LTD. AND THE CITY OF GUELPH'S WORKS DEPARTMENT
- DEPARTMENT 9. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SEDIMENTS FROM THE MUNICIPAL ROAD AND SIDEWALKS AT THE END OF EACH WORK DAY. 10. MUD MATS TO BE PROVIDED ON SITE AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES EXIT THE SITE. MUD MATS SHALL BE A MINIMUM OF 3.0m WIDE, 15.0m LONG (LENGTH
- EXIT THE SITE. MUD MATS SHALL BE A MINIMUM OF 3.0m WIDE, 15.0m LONG (LENGTH MAY VARY DEPENDING ON SITE LAYOUT) AND 0.3m DEEP AND SHALL CONSIST OF 20mm CLEAR STONE MATERIAL OR APPROVED EQUIVALENT. CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT THE MAT IS MAINTAINED IN A MANNER TO MAXIMIZE ITS EFFECTIVENESS AT ALL TIMES.
 11. STANTEC CONSULTING LTD. TO MONITOR THE SITE DEVELOPMENT TO ENSURE ALL EROSION CONTROLS ARE INSTALLED AND MAINTAINED TO CITY REQUIREMENTS. CONTRACTOR TO COMPLY WITH THE ENGINEER'S INSTRUCTIONS TO INSTALL, MODIFY, OR MAINTAIN EROSION CONTROL WORKS.

H. RETAINING WALLS:

1. RETAINING WALL TO BE CONSTRUCTED AS DESIGNED BY OTHERS. APPROPRIATE CONSTRUCTION DETAILS SHALL BE PROVIDED FOR RETAINING WALLS HIGHER THAN 0.80m. DETAILS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER UPON APPROVAL, GUARD RAIL IS REQUIRED WHEN HEIGHT EXCEEDS 0.80m. CONTRACTOR TO CONTACT GEOTECHNICAL ENGINEER 48 HOURS PRIOR TO CONSTRUCTION OF RETAINING WALL TO ALLOW FOR INSPECTION OF SOIL CONDITIONS.

3. ANY CHANGES IN WALL HEIGHT MUST BE APPROVED BY THE ENGINEER. 4. BUILDING PERMIT MUST BE OBTAINED FOR RETAINING WALL

- I. <u>DEWATERING NOTES:</u>
- 1. PUMPED GROUNDWATER WILL BE DIRECTED OFFSITE VIA SWALE AND/OR TEMPORARY PIPE TO POPPY DRIVE EAST, WHERE THE WATER WILL BE DISCHARGED TO EITHER THE STORM OR SANITARY SEWER SYSTEM. 2. DISCHARGE TO THE STORM AND/OR SANITARY SEWER SYSTEM MUST ADHERE TO THE

QUALITY REQUIREMENTS AS PER CITY OF GUELPH BY-LAW NUMBER (1996)-15202.

- PROPOSED GROUND

- EXISTING GROUND

VV.=339.96

- J. MISCELLANEOUS: 1. WHERE COVER OVER SEWERS IS LESS THAN 1.2m IN PAVED AREAS, OR LESS THAI C.90m IN GRASSED AREAS INSTALL INSULATION AS PER DETAIL. INSULATION TO BE 60mm THICK × 1800mm WIDE UNLESS OTHERWISE NOTED. INSTALL LONGITUDINALLY OVER
- IT IS THE SITE OWNERS' RESPONSIBILITY TO ENSURE THAT ALL SEDIMENT CONTROLS ARE IMPLEMENTED AND MAINTAINED IN ACCORDANCE WITH THE ABOVE CRITERIA.

NILEX 4545 FILTER FABRIC, OR

APPROVED EQUIVALENT, LINES

TOP, BOTTOM AND SIDES OF

ROCK TRENCH SYSTEM

PROTECTED IN THE EVENT OF RAIN. AT THE MINIMUM OVERLAP.

OEQUIPMENT STORAGE;

- NOT TO BE USED.
- 3 MAINTENANCE

OIL GRIT SEPARATOR

1 INSTALLATION

- 2 MAINTENANCE
- INSPECTION SHOULD BE DONE BIANNUALLY;

UNDERGROUND STORAGE AND INFILTRATION TRENCHES

1 PRIOR TO INSTALLATION

• EFFORTS SHOULD BE MADE TO AVOID COMPACTION BY NOT USING THE FACILITY LOCATION AS: OLAYDOWN OR STOCKPILE LOCATIONS;

• OTRAFFIC FLOW OR SITE ACCESS.

• MATERIAL TO BE USED IN THE CONSTRUCTION OF THE FACILITY SHOULD NOT BE BROUGHT ON SITE PRIOR TO IT BEING NEEDED. IF THIS MATERIAL IS ON SITE PRIOR TO FINAL PLACEMENT, IT SHALL BE STOCKPILED SEPARATELY FROM ANY OTHER CONSTRUCTION MATERIALS AND ADEQUATELY PROTECTED (AS DIRECTED BY THE LID INSPECTOR).

• TRENCH FLOOR TO BE SCARIFIED TO A DEPTH OF 0.15M UNLESS THE LID INSPECTOR DIRECTS GREATER DEPTHS OF SCARIFICATION. • ONCE THE AREA IS SCARIFIED, AT LEAST 2 LOCATIONS IN EACH FACILITY ARE TO BE TESTED FOR IN-SITU INFILTRATION RATE, ADDITIONAL SCARIFICATION MAY BE REQUIRED FOLLOWING THESE TESTS, AFTER WHICH THE TESTS SHOULD BE COMPLETED AGAIN IN OTHER LOCATIONS. • SHOULD THE TRENCH WORK BE COMPLETED IN ADVANCE ON THE INSTALLATION OF THE GEOTEXTILE AND STONE, THE TRENCH SHOULD BE • THE OVERLAP ON THE GEOTEXTILE SHALL BE A MINIMUM OF 0.3M. THE GEOTEXTILE SHALL BE WRAPPED OVERTOP OF THE STONE STORAGE

• ALL STONE INSTALLED IS TO BE TRIPLE WASHED TO PREVENT DUST FROM CLOGGING THE FABRIC AND SOIL PORES, STONE IS TO BE INSTALLED IN LIFTS OF 0.3M MAXIMUM. THESE LIFTS SHOULD BE LIGHTLY WORKED TO SETTLE THE STONE BUT MECHANICAL COMPACTION IS

• ALL UNDERDRAIN PIPES ARE TO BE WRAPPED IN A SEDIMENT SOCK.

• IF THE FACILITY IS COMPLETED PRIOR TO SITE STABILIZATION, RUNOFF SHOULD BE DIRECTED AWAY FROM THE FACILITY TO PREVENT HEAVY SEDIMENTATION. EROSION CONTROLS SHOULD BE INSTALLED AS PER THE DIRECTION OF THE LID INSPECTOR.

• REMOVE ANY DEBRIS, GARBAGE, LEAVES, STICKS, OR OTHER ITEMS FROM THE FACILITY INLETS. THIS SHOULD BE DONE BIANNUALLY WITH SPECIAL ATTENTION IN FALL TO REMOVE FALLEN LEAVES; • REMOVE ACCUMULATED SEDIMENT FROM THE BOTTOM OF THE FACILITY AS NEEDED BY FLUSHING;

• MONITOR PERFORMANCE; OBSERVE WATER DEPTHS IN THE FACILITY DURING RAIN EVENTS BIANNUALLY.

• ONCE INSTALLED. THE INLET TO THE OGS SHOULD BE SURROUNDED BY A FILTER SOCK RING TO REMOVE THE HEAVIEST SEDIMENT LOADS. THE OGS SHOULD BE INSPECTED BIWEEKLY DURING CONSTRUCTION AND CLEANED BY VACUUM TRUCK WHEN THE SUMP IS 50% FULL OF

• WHEN CONSTRUCTION IS COMPLETE, THE OGS SHOULD BE CLEANED OF ANY SEDIMENT.

• REMOVE ACCUMULATED SEDIMENT FROM THE BOTTOM OF THE FACILITY WHEN 50% FULL BY VACUUM TRUCK; • REMOVAL OF ANY OILS OR FLOATABLES AS NEEDED, WITH SPECIAL ATTENTION PAID IN THE EVENT OF A DELETERIOUS SPILL.

Profile view

CB Shield (600mm Sump)

Stantec 600-171 Queens Avenue London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com

Liability Note: The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Notes

- CITY OF GUELPH BENCHMARK 225 ELEVATION 338.665 LOCATION: 1221 GORDON STREET
- EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014) THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND
- EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER
- 4. SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

Legend

Revision		By	Appd.	YY.MM.DD
1. FOR SITE PLAN APPI Issued	ROVAL	 	CJH Appd.	20.04.15 YY.MM.DD
File Name: 161413684_c-dt	JAC	CJH Chkd	JAC Dsan	20.04.15 YY.MM.DD
Client/Project TRICAR DEV	April 15/20 April 15/20 ELOPMENTS INC	2.		
TRICAR DEV	elopments inc On street			
GUELPH, ON				
Title NOTES & DE	TAILS			
Project No. 161413684	Scale 0 5 1:500		15	25m
Drawing No.	Sheet		Revi	sion
SSP-5	7 of 7		С	

347 346 345 344 343 342 341 340 339 338 337 336		
346 345 344 343 343 342 341 340 339 338 337 336		317
346 345 344 343 342 341 340 339 338 337 336		547
345 344 343 342 341 340 339 338 337 336	· · · · · · · · · · · · · · · · · · ·	346
344 343 342 341 340 339 338 337 336		345
343 342 341 340 339 338 337 336		344
342 341 340 339 338 337 336		343
341 340 339 338 337 336		342
340 339 338 337 336		341
339 338 337 336		340
338 337 336		339
337 336		338
336		337
:		336
335		335

FIGURE 1 – EXISTING STORM DRAINAGE CONDITIONS

ORIGINAL SHEET - ANSI D

Stantec 600-171 Queens Avenue London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com

Liability Note:

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Notes

- <u>CITY OF GUELPH BENCHMARK 225</u> <u>ELEVATION 338.665</u> LOCATION: 1221 GORDON STREET
 EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014)
 THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER
 SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

Revision		Ву	Appd.	YY.MM.DD
1. FOR SITE PLAN APPROVAL		JAC	CJH	20.01.20
Issued		Ву	Appd.	YY.MM.DD
File Name: 161413684_c-sd_ex	DRR	CJH	DRR	19.05.31
	Dwn.	Chkd.	Dsgn.	YY.MM.DD
Permit-Seal				

Client/Project TRICAR DEVELOPMENTS INC.

1250 GORDON STREET

GUELPH, ON

Title

EXISTING STORM DRAINAGE CONDITIONS

Project No. 161413684	Scale 0 4 1:400	12 20m
Drawing No.	Sheet	Revision
1	1 of 2	0

FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

PROPOSED STORM DRAINAGE CONDITIONS

ORIGINAL SHEET - ANSI D

Stantec 600-171 Queens Avenue London ON N6A 5J7 Tel. 519-645-2007 www.stantec.com

Liability Note:

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

Notes

- <u>CITY OF GUELPH BENCHMARK 225</u> <u>ELEVATION 338.665</u> LOCATION: 1221 GORDON STREET
 EXISTING SURVEY COMPLETED BY BSR&D (NOVEMBER, 4 2014)
 THE CONTRACTOR IS TO VERIFY ALL EXISTING ELEVATIONS AND EXISTING CONDITIONS AND TO REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER
 SITE PLAN PREPARED BY STANTEC, DATED JANUARY, 2020.

Legend

Revision		Ву	Appd.	YY.MM.DD
1. FOR SITE PLAN APPROVAL		JAC	CJH	20.03.24
Issued		Ву	Appd.	YY.MM.DD
File Name: 161413684_c-sd_prop	DRR	CJH	DRR	19.05.31
	Dwn.	Chkd.	Dsgn.	YY.MM.DD
Permit-Seal				

Client/Project TRICAR DEVELOPMENTS INC.

1250 GORDON STREET

GUELPH, ON

Title

PROPOSED STORM DRAINAGE CONDITIONS

Project No. 161413684	Scale 0 4 1:400	12 20m
Drawing No.	Sheet	Revision
2	2 of 2	0

FUNCTIONAL SERVICING REPORT FOR GORDON STREET - GUELPH ON

HYDROLOGIC MODELLING PARAMETERS

1250 Gordon Street [161413684] MIDUSS Parameters

Table 1: CN Values									
Land Use				Hyd	rologic Soil Type	9			
		A	AB	В	BC	С	CD	D	
Meadow	"Good"	30	44	58	65	71	75	78	USDA
Woodlot	"Fair"	36	48	60	67	73	76	79	USDA
Lawns	"Good"	39	50	61	68	74	77	80	USDA
Pasture/Range		49	55	60	70	79	82	84	USDA
Crop		64	70	74	79	81	84	85	USDA
Gravel		76	81	85	87	89	90	91	USDA
Bare Soil (Fallow)		77	82	86	89	91	93	94	USDA
Impervious		98	98	98	98	98	98	98	USDA

USDA - United States Department of Agriculture (2004), National Engineering Handbook, Part 630 Hydrology,

Table 2: Pre-Development Parameters

Area Description	Catchment Number	Area	Flow Path Length	CN	Runoff Coefficient (C)	Manning n - Pervious	Change in Elevation	Slope	Impervious ness	Initial Abstraction - Pervious
		(ha)	(m)				(m)	(%)	(%)	(mm)
To Gordon Street	101	1.130	105.00	67	0.25	0.03	4.00	3.81	7	5.0
To Torrance Watershed	102	1.730	145.00	67	0.21	0.03	5.00	3.45	2	5.0
TOTAL AREA		2.86								

Table 3: Post-Development Parameters

Area Description	Catchment Number	Area	Flow Path Length	CN	Runoff Coefficient (C)	Manning n - Pervious	Change in Elevation	Slope	Impervious ness	Initial Abstraction - Pervious
		(ha)	(m)				(m)	(%)	(%)	(mm)
Uncontrolled to Gordon	201	0.120	10.00	68	0.69	0.03		2.00	70	5.0
Building West	202	0.210	40.00	68	0.89	0.03		0.50	99	5.0
Building East	203	0.230	25.00	68	0.89	0.03		0.50	99	5.0
Parking	204	0.850	45.00	68	0.80	0.03		1.50	85	5.0
To Torrance	205	1.440	125.00	67	0.21	0.03	5.00	4.00	2	5.0
TOTAL AREA		2.85								

Notes:

Slope measure from topographic contours and pre-development drainage plan Imperviousness estimated from development plan (existing buildings imperviouness estimated to be 99%) Manning n for parking lot surface taken as 0.010; 0.05 for brush areas; and 0.03 for lawn areas; from Manning n for Channels R.C assumed to be 0.2 for undeveloped areas, 0.9 for impervious area, as per Design Chart 1.07 (MTO Drainage Management Manual) Assume graded areas have a slope of 1.5 - 2.0%

1250 Gordon Street [161413684] Pre-Development Drainage Schematic

Post-Development Drainage Schematic

1250 Gordon Street [161413684] SWM Storage Tank Stage-Storage-Discharge

Building Area

			2,100	m^2							
		Rating Curve for MIDUSS									
	Elevation Discharge Active Storage Active Storage Drawdown (hrs)				wn (hrs)						
	(m)	(m³/s)	(m³)	(ha*m)	Increment	Total					
Orifice Elev.	0.06	0.001	0	0.0000							
	0.08 0.10 0.12 0.14	0.002 0.002 0.003 0.003	42 84 126 168	0.0042 0.0084 0.0126 0.0168	9.9 5.6 4.4 3.7	0.0 0.0 0.0 0.0					
Top of Tank Elev.	0.16	0.004	210	0.0210	3.3	0.0					

0.210

ha

ha m^2

	volume	Esumation		
	Tota	al Pond	Total	
Elevation	Area	Act Vol	Act Vol	
(m)	(m²)	(m³)	(m³)	
0.00 0.02 0.04 0.06 0.08 0.10 0.12 0.14	2100 2100 2100 2100 2100 2100 2100 2100	0.00 42.00 42.00 42.00 42.00 42.00 42.00 42.00	0 42 84 126 168 210 252 294	
0.14 0.16	2100 2100	42.00 42.00	294 336	

Quitlet Controls						
Elevation	Orifice 1	Total Flow	Parameters	3		
(m)	(m³/s)	(m³/s)				
			Orifce 1 in Junction	on Box		
0.00			Orifice Invert Elev. (m)	Orifice Coeff.		
0.02	0.000	0.000	0.02	0.60		
0.04	0.000	0.000	Orifice Mid-point Elev. (m)	Perimeter (m)		
0.06	0.001	0.001	0.06	0.24		
0.08	0.002	0.002	Orifice Diam.(mm)	Area (m ²)		
0.10	0.002	0.002	75	0.004		
0.12	0.003	0.003	Weir Coeff (semi-circular)	Orientation		
0.14	0.003	0.003	1.62	Vertical		
0.16	0.004	0.004				

East Building - Catchment 203	Building Area	0.230
		2,300

	Rating Curve for MIDUSS					
	Elevation	Discharge	Active Storage	Active Storage	Drawdov	vn (hrs)
	(m)	(m³/s)	(m³)	(ha*m)	Increment	Total
Orifice Elev.	0.06	0.000	0	0.0000		
	0.08	0.000	46	0.0046	96.9	0.0
	0.10	0.001	92	0.0092	22.9	0.0
	0.12	0.002	138	0.0138	9.7	0.0
	0.14	0.003	184	0.0184	5.4	0.0
Top of Tank Elev.	0.16	0.004	230	0.0230	3.4	0.0

Ctorogo	Tonk
Storage	rank

West Building - Catchment 202

	Rating Curve for MIDUSS					
	Elevation	Discharge	Active Storage	Active Storage	Drawdov	wn (hrs)
	(m)	(m³/s)	(m³)	(ha*m)	Increment	Total
Orifice Elev.	339.00	0.000	0	0.0000		
	339.25	0.005	88	0.0088	9.0	9.0
	339.50	0.008	175	0.0175	3.6	12.6
	339.75	0.010	263	0.0263	2.7	15.3
	340.00	0.012	350	0.0350	2.3	17.6
Top of Tank Elev.	340.00	0.013	438	0.0438	2.0	19.6

Volume Estimation					
	Tota	al Pond	Total		
Elevation	Area	Act Vol	Act Vol		
(m)	(m²)	(m³)	(m³)		
0.00	2300	0.00	0		
0.02	2300	46.00	46		
0.04	2300	46.00	92		
0.06	2300	46.00	138		
0.08	2300	46.00	184		
0.10	2300	46.00	230		
0.12	2300	46.00	276		
0.14	2300	46.00	322		
0.16	2300	46.00	368		

	Outlet Controls							
Elevation (m)	Orifice 1 (m³/s)	Total Flow (m³/s)	Parameters					
			Orifce 1 in Junction	on Box				
0.00			Orifice Invert Elev. (m)	Orifice Coeff.				
0.02	0.000	0.000	0.02	0.60				
0.04	#NUM!	#NUM!	Orifice Mid-point Elev. (m)	Perimeter (m)				
0.06	0.000	0.000	0.06	0.24				
0.08	0.000	0.000	Orifice Diam.(mm)	Area (m ²)				
0.10	0.001	0.001	75	0.004				
0.12	0.002	0.002	Weir Coeff. (semi-circular)	Orientation				
0.14	0.003	0.003	1.62	Vertical				
0.16	0.004	0.004						

Volume Estimation					
	Tota	al Pond	Total		
Elevation	Area	Act Vol	Act Vol		
(m)	(m²)	(m³)	(m³)		
()	()	()	()		
339.00	350	87 50	88		
330.25	350	87.50	175		
339.50	350	87.50	263		
339.75	350	87.50	350		
340.00	350	87.50	438		
340.25	350	87.50	525		

Outlet Controls						
Elevation	Orifice 1	Total Flow	Parameters	5		
(m)	(m³/s)	(m³/s)				
			Orifce 1 in Junctio Orifice Invert Elev. (m)	On Box Orifice Coeff.		
			339.00	0.60		
339.00	0.000	0.000	339.04	0.24		
339.25	0.005	0.005	Orifice Diam.(mm)	Area (m²)		
339.50	0.008	0.008	75 Mair Cooff (comi aircular)	0.004 Orientation		
340.00	0.010	0.010		Vertical		
340.25	0.013	0.013				

MIDUSS MODELING FILES

				ODDDE DAT		
	1502 000	Cooffici	ont a	URPREIDAT		
	11 000	Constant	h (mi	n)		
	879	Exponent	c (iii1	,		
	.400	Eraction	to peak	r		
	180.000	Duration	ó 1500 mi	n n		
		25.003 mm	Total	depth		
3	IMPERVI	ous				
	1	Option 1	=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Repeat	
	.015	Manning	"n"			
	98.000	SCS Curv	e No or C			
	.100	Ia/S Coe	fficient			
	1.500	Initial	Abstractio	n		
35	COMMENT					
	5 11 ******	ne(s) of co **********	mment ****			
	To Gord	on Street				
	******	*******	****			
4	CATCHME	NT				
	101.000	ID No.ó	99999			
	1.130	Area in	hectares			
	104.000	Length (PERV) metr	es		
	3.800	Gradient	(%)			
	7.000	Per cent	Imperviou	s		
	1.000	Length (IMPERV)			
	.000	Option 1	-scs cN/C·	2-Honton	· 2-Green-Ampt: 4-Report	
	. 030	Manning	"n"	2-1101 001	, 5-dreen-Ampt, 4-Repeat	
	67.000	SCS Curv	e No or C			
	.100	Ia/S Coe	fficient			
	5.000	Initial	Abstractio	n		
	1	Option 1	=Trianglr;	2=Rectan	glr; 3=SWM HYD; 4=Lin. Reserv	/
		.025	.000	.000	.000 c.m/s	
		.093	.794	.107	C perv/imperv/total	
45						
15	ADD RUN	UFF	0.05	000	000	
25	COMMENT	.025	.025	.000	.000 C.m/S	
55	3 11	ne(s) of co	mment			
	******	*******	****			
	To Torr	ance Waters	hed			
	******	*******	****			
4	CATCHME	NT				
	102.000	ID No.ó	99999			
	1.730	Area in	nectares			
	2 5000	Constinution	<pre>/*CRV) metr (%)</pre>	82		
	2,000	Per cent	(/*) Imperviou	c .		
	2.000	i ci cent	1.0pc1 v100			
				Page 3		

GORPRE.DAT Output File (4.7) 2yr_ULT.out opened 2006-11-07 16:08 Units used are defined by G = 9.810 360 720 15.000 are MAXDT MAXHYD & DTMIN values Licensee: Paragon Engineering Limited COMMENT 5 ling(c) cf -

STORM 1 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic Y43.000 Coefficient a 6.000 Constant b (min) 799 Exponent c .400 Fraction to peak r .400 Fraction to peak r .25.003 mm Total depth IMPERVIOUS 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .010 Manning "n" 98.000 SCS Curve No or C .100 Ia/S Coefficient 1.500 Initial Abstraction START

Page 1

COMMENT 7 line(s) of comment *******

IMPERVIOUS 1 Option 1=SCS .010 Manning "n" 98.000 SCS Curve No .100 Ia/S Coeffic 1.500 Initial Abst START 1 1=Zero; 2=Define COMMENT 3 line(s) of common

3 line(s) of comment To Gordon Street ************

CATCHMENT 101.000 ID No.ó 99999 1.130 Area in hectar 104.000 Length (PERV) 3.800 Gradient (%) 7.000 Per cent Imper

1.000

ID No.o 99999 Area in hectares Length (PERV) metres Gradient (%) Per cent Impervious Length (IMPERV)

2-yr STORM

STORM 1 743.000

180.000

35

35

2

3

14 35

4

			G	ORPRE. DA	т	
	.000	%Imp.	with Zero Dp	th		
	1	Ontior	1 1=SCS_CN/C:	2=Horto	n: 3=Green - ∆mpt: /	4=Reneat
	. 636	Mannir	າອຸ"n"	2 1101 001	ng s or con ranpeg	, nepeut
	67.000	SCS CI	irve No or C			
	.100	Ta/S (Coefficient			
	5 000	Initia	al Abstraction	n		
	1	Ontion	1 1=Trianglr:	2=Recta	nglr: 3=SWM HVD:	4=lin Reserv
	-	025	.000	.000	.000 c.m/s	
		093	.794	.107	C nerv/imnerv/t	otal
15	ADD RUNC)FF			e per ij amper ij e	
20		025	.025	.000	.000 c.m/s	
35	COMMENT	020	1025		1000 (1111) 5	
	3 lir	e(s) of	comment			
	******	******	*****			
	To Torra	ance Wate	ershed			
	******	******	*****			
4	CATCHMEN	п				
	102.000	ID No.	ó 99999			
	1.730	Area :	in hectares			
	145.000	Length	n (PERV) metre	es		
	3.500	Gradie	ent (%)			
	2,000	Per ce	ent İmperviou	5		
	0.000	Length	1 (IMPERV)			
	.000	%Imp.	with Zero Dp	th		
	1	Optior	1 1=SCS CN/C;	2=Horto	n; 3=Green-Ampt; 4	4=Repeat
	.030	Mannir	ng "n"			·
	67.000	SCS CL	urve No or C			
	.100	Ia/S (Coefficient			
	5.000	Initia	al Abstraction	ı		
	1	Optior	n 1=Trianglr;	2=Recta	nglr; 3=SWM HYD; 4	4=Lin. Reserv
		346	.000	.000	.000 c.m/s	
		146	.799	.472	C perv/imperv/te	otal
15	ADD RUNC	FF				
		346	.346	.000	.000 c.m/s	
35	COMMENT					
	7 lir	e(s) of	comment			
	******	******	*****			
	5-yr STC	RM				
	******	******	*****			
14	START					
	1 1=2	ero; 2=[Define			
2	STORM					

		GORPRE.DAT
	0.000	YIND with Zone Dath
	.000	Aimp. With Zero Dpth Option 1-SCS (N/C: 2-Honton: 2-Gnoon Ampt: 4-Ronast
	030	Mapping "n"
	67 000	SCS Curve No on C
	100	Ta/S Coefficient
	5.000	Initial Abstraction
	1	Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Reserv
	:	346 .000 .000 .000 c.m/s
		146 .799 .472 C perv/imperv/total
15	ADD RUNOF	F
	.:	346 .346 .000 .000 c.m/s
35	COMMENT	
	7 line	e(s) of comment
	*******	*******
	10 - yr ST(DRM

2	CTODM	
2	310101	1-Chicago: 2-Huff: 2-Ucon: 4-Cdp1hp:E-Hictoric
	2221 000	Coefficient a
	12 000	Constant b (min)
	908	Exponent c
	. 400	Eraction to peak r
	180.000	Duration ó 1500 min
		25.003 mm Total depth
3	IMPERVIO	JS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.015	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=Ze	ero; 2=Define
35	COMMENT	
	3 line	e(s) of comment
	**************************************	*****
	10 Gordor	1 Street
	CATCUMENT	
4	101 000	TD No 6 99999
	1.130	Area in hectares
	104.000	length (PERV) metres
	3.800	Gradient (%)
	7.000	Per cent Impervious
		Desta 4
		Page 4

			GORPRE	.DAT		
	1.000	Length (IMP	ERV)			
	.000	%Imp. with Zero Dpth				
	1	Option 1=SC	5 CN/C; 2=Ho	rton; 3=Green-Am	ot; 4=Repeat	
	.030	Manning "n"				
	67.000	SCS Curve N	o or C			
	.100	Ia/S Coeffi	ient			
	5.000	Initial Abs	traction			
	1	Option 1=Tr	ianglr; 2=Re	ctanglr; 3=SWM H	/D; 4=Lin. Reserv	
		025 .00	.000	.000 c.m/s	5	
		093 .79	4.107	C perv/imper	rv/total	
15	ADD RUNO	FF				
		346 .34	5.000	.000 c.m/s	5	
35	COMMENT					
	3 lin	e(s) of comme	nt			
	******	*****	k			
	To Torra	nce Watershed				
	*******	******	k			
4	CATCHMEN	т				
	102.000	ID No.ó 999	99			
	1.730	Area in hec	tares			
	145.000	Length (PER	/) metres			
	3.500	Gradient (%)			
	2.000	Per cent Im	pervious			
	0.000	Length (IMP	ERV)			
	.000	%Imp. with 3	Zero Dpth			
	1	Option 1=SC	5 CN/C; 2=Ho	rton; 3=Green-Amp	ot; 4=Repeat	
	.030	Manning "n"				
	67.000	SCS Curve N	o or C			
	.100	Ia/S Coeffi	ient			
	5.000	Initial Abs [.]	traction			
	1	Option 1=Tr	ianglr; 2=Re	ctanglr; 3=SWM H	/D; 4=Lin. Reserv	
		346 .00	9 .000	.000 c.m/s	5	
		146 .79	.472	C perv/imper	rv/total	
15	ADD RUNO	FF				
		346 .34	5.000	.000 c.m/s	5	
35	COMMENT					
	7 lin	e(s) of comme	nt			
	******	******	ĸ			
	25 - yr ST	ORM				

1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic

Page 5

Coefficient a

2

STORM

1 3158.000

GORPRE, DAT GORPRE.C Constant b (min) Exponent c Fraction to peak r Duration ó 1500 min 25.003 mm Total depth 15.000 .936 .400 180.000 IMPERVIOUS 3 S Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat Manning "n" SCS Curve No or C Ia/S Coefficient Initial Abstraction 1 .015 98.000 .100 1.500 START 14 1=Zero; 2=Define 1 COMMENT 35 4 CATCHMENT 101.000 1.130 3.800 7.000 1.000 1 .030 67.000 .100 1 ADD RUNOFF .346 COMMENT 15 .346 .000 .000 c.m/s 35 To Torrance Watershed 4 CATCHMENT . ID No.ó 99999 Area in hectares Length (PERV) metres Gradient (%) Per cent Impervious 102.000 1.730 145.000 3.500 7.000 Page 6

		GORPRE.DAT					GORPRE.DA	л
10 67 5 15 A 35 C	.000 .000 1 .030 .000 .100 .000 1 .00 DD RUNOFF .00 DD RUNOFF	Length (IMPERV) %Imp. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat Manning "n" SCS Curve No or C Ia/S Coefficient Initial Abstraction Option 1=TriangLr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv 25 .000 .000 .000 c.m/s 33 .794 .107 C perv/imperv/total F 25 .025 .000 .000 c.m/s	15 35	1.000 .000 1 .030 67.000 .100 5.000 1 ADD RUNG	Length %Imp. Option Mannin SCS Cu Ia/S C Initia Option .025 .093 DFF .346	<pre>(IMPERV) with Zero 1 =SCS CN/ ng "n" inve No or coefficient 1 Abstract 1 =Triang] .000 .794 .346</pre>	Dpth C; 2=Horto C : ion Lr; 2=Recta .000 .107 .000	n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. R .000 c.m/s C perv/imperv/total .000 c.m/s
7*	line; ********	(s) of comment **********		3 lin ******** To Torra ********	ne(s) of ********* ance Wate ********	comment ******* ershed ******		
5 2 3886 16 3 1 98 3 1 14 5 5 5 3 8 *	0-yr STOM ************************************	RM ************************************	4 15 35	CATCHMEI 102.000 1.730 145.000 2.000 0.000 1 .000 1 1.030 67.000 1 1 ADD RUNK COMMENT 7 lin	NT ID No. Area i Length Gradie Per ce Length %Imp. Option Mannin SCS Cu Ia/SC Initia Option .346 .346 .346 ne(s) of	<pre>6 99999 n hectares (PCRV) me (PCRV) me (IMPERV) with Zero 1 =CS CNV g "n" rvv No or coefficient 1 Abstract 1 =Triang .000 .799 .346 comment *******</pre>	: tres Dpth C; 2=Horta C : : : : : : : : : : : : : : : : : :	n; 3=Green-Ampt; 4=Repeat nglr; 3=SWM HYD; 4=Lin. R .000 c.m/s C perv/imperv/total .000 c.m/s
4 C 101 104 104 3	********* ATCHMENT .000 .130 .000 .800	ID No.ó 99999 Area in hectares Length (PERV) metres Gradient (%)	14	100-yr 9 ******* START 1 1=5	STORM ******** Zero; 2=D	****** Define		
/	.000	Page 7	2	STURM			Page 8	

nglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .000 .107 .000 c.m/s C perv/imperv/total .000 c.m/s .000 metres rvious V) ro Dpth CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat or C ient raction nglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .000 .472 .000 c.m/s C perv/imperv/total .000 .000 c.m/s

	Output Fi Units use 300	GORPRE.OUT le (4.7) GORPRE.out opened 2020-03-26 15:01 d are defined by G = 9.810 600 15:000 are MAXDT MAXHYD & DTMIN values
35	Licensee: COMMENT 5 line	Paragon Engineering Limited
	********** 1250 Gorc Stormwate March 202 *********	**************************************
35	COMMENT 7 line ********	t(s) of comment
	2-yr STOF	24
	*******	******
2	STORM	
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
	743.000	Coefficient a
	6.000	Constant b (min)
	.799	Exponent c
	.400	Fraction to peak r
	180.000	Duration ó 4500 min
		34.242 mm Total depth
3	IMPERVIOU	IS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.010	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
14	5 IAKI 1 1-7a	ana la Dofina
35	COMMENT	ro, z-berine
	3 line	o(s) of comment
	********	******
	To Gordor ********) Street **********
4	CATCHMENT	•
	101.000	ID No.ó 99999
	1.130	Area in hectares
	104.000	Length (PERV) metres
	3.800	Gradient (%)
	7.000	Per cent Impervious
	1.000	Length (IMPERV)
		Page 1

					_	
	000	%Tmp	with Zong I	GORPRE.OU	11	
	.000	Ontio	n 1=SCS CN/	C: 2=Horte	n: 3=Green-Ampt: 4=Repeat	-
	.030	Manni	ng "n"	c, 2 noi c	ng s arcen nape, 4 nepea	-
	67.000	SCS C	urve No or (с		
	.100	Ia/S (Coefficient			
	5.000	Initia	al Abstract	ion		
	1	Option	n 1=Triangl	r; 2=Recta	anglr; 3=SWM HYD; 4=Lin.	Reserv
		.008	.000	.000	.000 c.m/s	
		.009	.163	.020	C perv/imperv/total	
15	ADD RUN	OFF				
25	COMMENT	.008	.008	.000	.000 c.m/s	
35	COMMENT 2 14	no(c) of	commont			
	*******	********	*****			
	To Torr ******	ance Wate	ershed ******			
4	CATCHME	NT				
	102.000	ID No	ó 99999			
	1.730	Area	in hectares			
	145.000	Lengti	1 (PERV) me	tres		
	3.500	Bop c	ent (%)	0110		
	2.000	Length	a (IMPERV)	ous		
	.000	%Tmn.	with Zero I	Dnth		
	1	Option	1=SCS CN/	C: 2=Horto	on; 3=Green-Ampt; 4=Repea	t
	.030	Manni	ng "n"	-,	, + - , +	
	67.000	SCS CI	urve No or (Ċ		
	.100	Ia/S (Coefficient			
	5.000	Initia	al Abstract	ion		
	1	Option	n 1=Triangl	r; 2=Recta	anglr; 3=SWM HYD; 4=Lin. I	Reserv
		.003	.008	.000	.000 c.m/s	
15		.009	.1/1	.012	t perv/imperv/total	
13	ADD KON	000	011	000	000 c m/s	
35	COMMENT		.011		1000 0111/5	
	7 li	ne(s) of	comment			
	******	******	*****			
	5 - yr ST	ORM				
	******	*******	*****			
14	START					
	1 1=	Zero: 2=	Define			
2	STORM	,				
	1	1=Chi	ago;2=Huff	;3=User;4=	Cdn1hr;5=Historic	
	1593.000	Coeff:	icient a			
				Page 2		
				8		

			GORPRE.DAT	
	1	1=Chicago;2=Hutt;	3=User;4=C	dn1hr;5=Historic
	4688.000	Coefficient a		
	17.000	Constant b (m	1n)	
	.962	Exponent c		
	.400	Fraction to peak	r	
	180.000	Duration o 1500 m	1n 1 Jan 1	
2	THEFT	25.003 mm Tota	1 αερτη	
5	IMPERVIOU 1	Ontion 1-SCS CN/C	· 2-Honton	· 2-Groon Ampt: 4-Roport
	015	Manning "n"	, z-nor con	, s-dreen-Ampt, 4-Repear
	09 000	SCS Curve No on C		
	100	Ta/S Coofficient		
	1 500	Initial Abstracti	on	
35	COMMENT	Initial Abstracti	on	
	3 line	(s) of comment		
	*******	****		
	To Gordon	Street		
	*******	*****		
4	CATCHMENT			
	101.000	ID No.ó 99999		
	1.130	Area in hectares		
	104.000	Length (PERV) met	res	
	3.800	Gradient (%)		
	7.000	Per cent Impervio	us	
	1.000	Length (IMPERV)		
	.000	%Imp. with Zero D	pth	
	1	Option I=SCS CN/C	; 2=Horton	; 3=Green-Ampt; 4=Repeat
	.030	Manning n		
	100	Ta/S Coofficient		
	. 100 E 000	Initial Abstracti	on	
	3.000	Ontion 1=Trianglr	: 2=Rectan	σ]r: 3=SWM HYD: 4=Lin. Reserv
	0	25 .000	.000	.000 c.m/s
	.0	93 .794	.107	C perv/imperv/total
	.0	25 .000	.000	.000 c.m/s
	.0	93 .794	.107	C perv/imperv/total
15	ADD RUNOF	F		
	.3	46 .346	.000	.000 c.m/s
35	COMMENT			
	3 line	(s) of comment		
	*******	*****		
	To Torran	ce Watershed		
	******	*****		
4	CATCHMENT	TD N. (000000		
	102.000	TD NO.0 99999		
	1./30	Area in hectares	200	
	145.000	Length (PERV) met	res	

 3.500 Gradient (%) 2.000 Per cent Impervious 0.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .030 Manning "n" 67.000 SCS Curve No or C .100 Ia/SC Coefficient 5.000 Initial Abstraction 1 Option 1=FriangIr; 2=RectangIr; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 c.m/s .346 .000 .000 c.m/s 				c	ORPRE.D	AT
 2.000 Per cent Impervious 0.000 Length (IMPERV) .000 %Imp. with Zero Dpth 0.010 1=5CS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .030 Manning "n" 67.000 SCS Curve No or C		3.500	Gradie	nt (%)		
 6.000 Length (IMPERV) .000 %Imp. with Zero Dpth 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .030 Manning "n" 67.000 SCS Curve No or C .100 In/SC Coefficient 5.000 In/tial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 c.m/s .146 .739 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s .346 .346 .000 .000 c.m/s 		2.000	Per ce	nt Imperviou	IS	
.000 %Imp.with Zero Dpth 1 Option 1=5CS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .030 Manning "n" 67.000 SCS Curve No or C .100 Ia/S Coefficient 5.000 Initial Abstraction 1 Option 1=TriangIr; 2=RectangIr; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		0.000	Length	(IMPERV)		
1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .03 Manning "n" 67.000 SCS Curve No or C .100 Ia/S Coefficient 5.000 Initial Abstraction 1 Option 1=Frianglr; 2=Rectanglr; 3=SMM HYD; 4=Lin. Reserv .346 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .000 .000 c.m/s		.000	%Imp.	with Zero Dp	oth	
.030 Manning "n" 67.000 SCS Curve No or C .100 Ia/S Coefficient 5.000 Initial Abstraction 1 Option 1=Triang1r; 2=Rectang1r; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		1	Option	1=SCS CN/C;	2=Hort	on; 3=Green-Ampt; 4=Repeat
67.000 SCS Curve No or C .100 Ja/S Coefficient 5.000 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		.030	Mannin	g "n"		
.100 Ia/S Coefficient 5.000 Initial Abstraction 1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		67.000	SCS Cu	rve No or C		
5.000 Initial Abstraction 1 Option 1=Triang1r; 2=Rectang1r; 3=SWM HYD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		.100	Ia/S C	oefficient		
1 Option 1=Trianglr; 2=Rectanglr; 3=SMM HVD; 4=Lin. Reserv .346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		5.000	Initia	1 Abstractio	on	
.346 .000 .000 .000 c.m/s .146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s		1	Option	1=Trianglr;	2=Rect	anglr; 3=SWM HYD; 4=Lin. Reserv
.146 .799 .472 C perv/imperv/total 15 ADD RUNOFF .346 .346 .000 .000 c.m/s			.346	.000	.000	.000 c.m/s
15 ADD RUNOFF .346 .346 .000 .000 c.m/s			.146	.799	.472	C perv/imperv/total
.346 .346 .000 .000 c.m/s	15	ADD RUM	IOFF			
			.346	.346	.000	.000 c.m/s
20 MANUAL	20	MANUAL				

				GORPRE.OU	IT	
	.030	Manni	ng "n"			
	67.000	SCS C	urve No or	с		
	.100	Ia/S	Coefficient			
	5.000	Initi	al Abstract	ion		
	1	Optio	n 1=Triangl	r; 2=Recta	anglr; 3=SWM HYD; 4=Lin. Reserv	
		017	.000	.000	.000 c.m/s	
		024	.203	.037	C perv/imperv/total	
15	ADD RUNC)FF			/	
		01/	.01/	.000	.000 c.m/s	
35	COMMENT	- (-) - 6				
	5 11r *******	ie(s) от	comment			
	To Toppe	nco Hot	anchod			
	*******	*******	******			
4	CATCHMEN	т				
-	102.000	TD No	. á 99999			
	1.730	Area	in hectares			
	145.000	Lengt	h (PERV) me	tres		
	3.500	Gradi	ent (%)			
	2.000	Per c	ent Impervi	ous		
	.000	Lengt	h (IMPERV)			
	.000	%Imp.	with Zero	Dpth		
	1	Optio	n 1=SCS CN/	C; 2=Horto	on; 3=Green-Ampt; 4=Repeat	
	.030	Manni	ng "n"			
	67.000	SCS_C	urve No or	с		
	.100	Ia/S	Coet+icient			
	5.000	Initi	al Abstract	10n		
	T	00000	n I=Iriangi	r; 2=Recta	angir; 3=SWM HYD; 4=Lin. Reserv	
	•	010	.017	.000	C popy/impopy/total	
15	ADD RUNC	024	.212	.028	c perv/imperv/cocar	
10	ADD NONC	010	.026	. 000	.000 c.m/s	
35	COMMENT					
	7 lir	e(s) of	comment			
	******	******	*****			
	25 - yr ST	ORM				
	*******	******	******			
2	CTODM	******				
2	STORM	1-Chi	cago, 2-Uuff	- 2-Ucon 4-	Cdn1hn;E-Wistonic	
	2159 000	Cooff	iciont a	,5-0ser,4-	cultur, 5-HISCOLIC	
	15.000	Const	ant h (min)		
	.936	Expon	ent c			
	.400	Fract	ion to peak	r		
	180.000	Durat	ion ó 4500	min		
				Dees F		
				Page 5		

		2221.000	Coefficient a
		12.000	Constant b (
		.908	Exponent c
		.400	Fraction to peak
tepeat		180.000	Duration ó 4500
			56.266 mm Tot
	3	IMPERVI	DUS
		1	Option 1=SCS CN/
		.015	Manning "n"
in. Reserv		98.000	SCS Curve No or
		.100	Ia/S Coefficient
1		1.500	Initial Abstract
	14	START	
		1 1=	Zero; 2=Define
	35	COMMENT	
		3 li ******	ne(s) of comment ******
		To Gord *******	on Street ******
	4	CATCHME	NT
		101.000	ID No.ó 99999
		1.130	Area in hectares
		104.000	Length (PERV) me

		GORPRE.OUT
	.030	Manning "n"
	67.000	SCS Curve No or C
	.100	Ia/S Coefficient
	5.000	Initial Abstraction
	1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.0	06 .013 .000 .000 c.m/s
	.0	18 .199 .022 C perv/imperv/total
15	ADD RUNOF	F
	.0	06 .019 .000 .000 c.m/s
35	COMMENT	
	7 line	(s) of comment
	*******	********
	10-vr STO	RM
	,	
	*******	******
2	STORM	
-	1	1=Chicago:2=Huff:3=User:4=Cdn1hr:5=Historic
	2221.000	Coefficient a
	12.000	Constant b (min)
	.908	Exponent c
	.400	Fraction to peak r
	180 000	Duration ó 4500 min
	1001000	56 266 mm Total denth
з	TMPERVTOL	s
-	1	Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	.015	Manning "n"
	98,000	SCS Curve No or C
	. 100	Ia/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=7e	ro: 2=Define
35	COMMENT	, = =====
	3 line	(s) of comment
	********	*****
	To Gordon	Street
	*******	******
4	CATCHMENT	
•	101.000	TD No. 6 99999
	1,130	Δrea in hectares
	104 000	length (PERV) metres
	3 800	Gradient (%)
	7.000	Per cent Impervious
	1.000	Length (IMPERV)
	.000	%Imp. with Zero Doth
		Ontion 1=SCS (N/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	-	operation a best on, of a non-conf b-direction military - nepetite

GORPRE.OUT Total depth

68.057 mm IMPERVIOUS

3

GORPRE.OUT

3	IMPERVIOU	IS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.015	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=Ze	ero: 2=Define
35	COMMENT	
	3 line	(s) of comment
	********	*******
	To Gordor	Street
	*******	******
4	CATCHMENT	r
-	101 000	TD No ó 99999
	1 130	Area in hectares
	104 000	length (PERV) metres
	3 800	Gradient (%)
	7 000	Per cent Impervious
	1 000	length (TMPERV)
	000	%Imp_with Zero Doth
	.000	Option 1-SCS (N/C: 2-Honton: 3-Green-Ampt: 4-Repeat
	030	Manning "n"
	67 000	SCS Curve No on C
	100	Ta/S Coefficient
	5 000	Initial Abstraction
	5.000	Ontion 1-Trianglr: 2-Rectanglr: 3-SWM HVD: 4-Lin Reserv
	1	000 000 1-111011g11, 2-Rectang11, 3-5M11110, 4-E111, Reserv
		32 215 045 Cnerv/imperv/total
15		
10	ADD NONOT	, 103 023 000 000 cm/s
35	COMMENT	.000
55	2 line	a(s) of commont
	********	**************************************
	To Toppar	ice Watershed
	********	*******
4		r
-	102 000	TD No ó 99999
	1 720	Appa in bestanes
	145 000	Longth (REPV) mother
	3 500	Gradient (%)
	7 000	Ben cent Impervious
	10.000	Longth (IMDERV)
	10.000	YImp with Zono Doth
	.000	Amp, with Zero Dpth
	020	Monning "n"
	67 000	SCS Curvo No on C
	57.000	
		Page 6

Page 3

CATCHMENT				
101.000	ID No.ó 99999			
1.130	Area in hectares			
104.000	Length (PERV) metres			
3.800	Gradient (%)			
7.000	Per cent Impervious			
1.000	Length (IMPERV)			
.000	%Imp. with Zero Dpth			
1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat			
.030	Manning "n"			
67.000	SCS Curve No or C			
.100	Ia/S Coefficient			
5.000	Initial Abstraction			
1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv			
	013 .000 .000 .000 c.m/s			
	018 .190 .030 C perv/imperv/total			
ADD RUNO)FF			
	013 .013 .000 .000 c.m/s			
COMMENT				
3 lin	e(s) of comment			
******	*****			
To Torra *******	Ince Watershed			
CATCHMEN	т			
102.000	ID No.ó 99999			
1.730	Area in hectares			
145.000	Length (PERV) metres			
3.500	Gradient (%)			
2.000	Per cent Impervious			
.000	Length (IMPERV)			
.000	%Imp. with Zero Dpth			
1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat			
	Page 3			

15 35

4

GORPRE.OUT (min) Constant b Exponent c

		GORFREIDOT
	11.000	Constant b (min)
	.879	Exponent c
	.400	Fraction to peak r
	180.000	Duration ó 4500 min
		47.219 mm Total depth
3	IMPERVIOU	S
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.015	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
35	COMMENT	
	3 line	(s) of comment
	******	*****
	To Gordon	Street
	*******	******
4	CATCHMENT	
	101.000	ID No.ó 99999
	1.130	Area in hectares
	104.000	Length (PERV) metres
	3.800	Gradient (%)
	7.000	Per cent Impervious
	1.000	Length (IMPERV)
	.000	%Imp. with Zero Dpth
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030	Manning "n"

		GORPRE, OUT		
	.100	Ia/S Coefficient		.100
	5.000	Initial Abstraction		5.000
	1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv		1
		.032 .023 .000 .000 c.m/s		
		.032 .237 .047 C perv/imperv/total		
15	ADD RUNC)FF	15	ADD RU
		.032 .055 .000 .000 c.m/s		
35	COMMENT		35	COMMEN
	7 lir	e(s) of comment		3
	******	********		*****
				To Tor

	50 - yr S1	ORM	4	CATCH
				102.000
				1.730
	******	******		145.000
2	STORM			3.500
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic		2.000
	3886.000	Coefficient a		.000
	16.000	Constant b (min)		.000
	.949	Exponent c		1
	.400	Fraction to peak r		.030
	180.000	Duration o 4500 min		67.000
		77.819 mm Total depth		.100
3	IMPERVIC			5.000
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		1
	.015	Manning n		
	98.000	SUS CURVE NO OF C	15	
	. 100	Ta/S COETTICIENT	15	ADD RU
14	1.500	Initial Abstraction	25	COMMEN
14	1 1=7	Vana: 2-Define	55	7 .
25	COMMENT	elo, z-beline		******
22	3 lir	ne(s) of comment		
	*******	(*************************************		
	To Gorde	n Street		100-11
	******	*********		100 91
4	CATCHMEN	IT		
	101.000	ID No.ó 99999		*****
	1,130	Area in hectares	14	START
	104.000	length (PERV) metres		1 1
	3.800	Gradient (%)	2	STORM
	7.000	Per cent Impervious		1
	1.000	Length (IMPERV)		4688.000
	.000	%Imp. with Zero Dpth		17.000
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat		.962
	.030	Manning "n"		.400
	67.000	SCS Curve No or C		180.000

				GORPRE.OU	т	
	.100	Ia/S	Coefficient			
	5.000	Initi	al Abstracti	on		
	1	Optio	n 1=Trianglr	; 2=Recta	nglr; 3=SWM HYD; 4=Lin.	Reserv
		.028	.000	.000	.000 c.m/s	
		.038	.223	.051	C perv/imperv/total	
15	ADD RUN	OFF				
		.028	.028	.000	.000 c.m/s	
35	COMMENT					
	******	ne(s) от *******	comment			
	To Torr	ance Wat	ershed			
	******	******	*****			
4	CATCHME	NT				
	102.000	ID No	.ó 99999			
	1.730	Area	in hectares			
	145.000	Lengt	h (PERV) met	res		
	3.500	Gradi	ent (%)			
	2.000	Per c	ent Impervio	us		
	.000	Lengt	h (IMPERV)			
	.000	%Imp.	with Zero D	pth		
	1	Optio	n 1=SCS CN/C	; 2=Horto	n; 3=Green-Ampt; 4=Repea	t
	.030	Manni	ng "n"			
	67.000	SCS C	urve No or C			
	.100	Ia/S	Coefficient			
	5.000	Initi	al Abstracti	on		
	1	Optio	n 1=Trianglr	; 2=Recta	nglr; 3=SWM HYD; 4=Lin.	Reserv
		.029	.028	.000	.000 c.m/s	
46		.038	.233	.042	C perv/imperv/total	
13	ADD KOW	077	051	000	000 c m/s	
35	COMMENT	.025	.051	.000	.000 C.10/3	
	7 11	ne(s) of	comment			
	******	*******	*****			
	100-yr :	STORM				
	ale alle alle alle alle alle alle alle		ale de ale de ale de ale			
	******	******	******			
14	5TART	70001 2-	Define			
2	1 1=. STOPM	zero, z=	Dertile			
2	310101	1-Chi	cago:2-Huff:	3-llcor·1-	Cdn1hr.5-Historic	
	1688 000	Cooff	icient a	5-0361,4-	cultin , 5-lits col ic	
	17 000	Const	ant h (m	in)		
	.962	Expon	ent c			
	. 400	Eract	ion to peak	r		
	180.000	Durat	ion ó 4500 m	in		
				Dege C		
				Page 8		

		GORPRE, OUT
		87.226 mm Total depth
3	IMPERVIOU	IS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.015	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
35	COMMENT	
	3 line	(s) of comment
	******	*****
	To Gordon	Street
	*******	******
4	CATCHMENT	·
	101.000	ID No.0 99999
	1.130	Area in hectares
	104.000	Length (PERV) metres
	3.800	Gradient (%)
	7.000	Per cent Impervious
	1.000	YTmp with Zene Dath
	.000	Ontion 1-SCS (N/C: 2-Honton: 2-Groon-Ampt: 4-Banast
	636	Manning "n"
	67 000	SCS Curve No or C
	.100	Ta/S Coefficient
	5.000	Initial Abstraction
	1	Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Reserv
	0	.000 .000 .000 .000 c.m/s
	.0	44 .229 .057 C perv/imperv/total
15	ADD RUNOF	F
	.0	34 .034 .000 .000 c.m/s
35	COMMENT	
	3 line	(s) of comment
	*******	*****
	To Torran	ce Watershed
	******	******
4	CATCHMENT	·
	102.000	ID No.0 99999
	1./30	Area in nectares
	145.000	Creationt (%)
	3.500	Gradient (%)
	2.000	Longth (IMDER)/)
	.000	%Imp_with Zepo_Doth
		Ontion 1=SCS (N/C: 2=Horton: 3=Green_Ampt: 4=Repeat
	. 030	Manning "n"
	67.000	SCS Curve No or C
	.100	Ia/S Coefficient
	5.000	Initial Abstraction
		Dage 0
		rage 2

	GORPRE.OUT						
	1 Option	1=Trianglr;	2=Recta	nglr; 3=SWM HYD; 4=Lin. Reserv			
	.040	.034	.000	.000 c.m/s			
	.044	.239	.048	C perv/imperv/total			
15	ADD RUNOFF						
	.040	.071	.000	.000 c.m/s			
20	MANUAL						

GORPOST.DAT Output File (4.7) 2yr ULT.out opened 2006-11-07 16:08 Units used are defined by G = 9.810 360 720 15.000 are MAXDT MAXHYD & DTMIN values Licensee: Paragon Engineering Limited COMMENT 5 line(c) cf -35 START 1 1=Zero; 2=Defin COMMENT 14 1 35 7 line(s) of comment 2-yr STORM ***** 2 STORM 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic Coefficient a Constant b (min) Exponent c Fraction to peak r Duration ó 1500 min 25.003 mm Total depth US 1 743.000 6.000 .799 .400 180.000 25.003 mm Otal Gepts IMPERVIOUS 1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat .010 Manning "n" 98.000 SCS Curve No or C .100 Ia/S Coefficient 1.580 Initial Abstraction 3 14 35 Uncontrolled Flow to Gordon Street ******* 4 CATCHMENT 201.000 0.120 1.000 ID No.ó 99999 Area in hectares Length (PERV) metres

			GORPOST.DAT	c	
1 6	.14	16 .799	.4/2	C perv/imperv/	total
12	ADD KUNUFI	- 000	000	000 c m/s	
35	COMMENT		.000	.000 с.ш, з	
	3 line	(s) of comment			
	*******	*****	*****		
	West Build	ding - Rooftop	Control		
	*******	******	*****		
10	POND				
	4 Depth - [)ischarge - Vol	ume sets		
	0.000	.00000	.0		
	0.080	0.0020	126.0		
	0.120	0.0030	210.0		
	Peak Outf	low = 0.	000 c.m/s		
	Maximum De	epth = 000.	000 metres		
	Maximum St	torage = 00	000. c.m		
	.00	30 .000	.000	.000 c.m/s	
35	COMMENT	(-) - (
	3 11nei *********	(s) or comment ********	*****	*****	
	West Roof	-top Flow to Go	ordon St. Storm	Sewer	
	********	******	*****	*****	
17	COMBINE				
	500 Junci	a and and	000	000 c m/s	
14	START		.000	.000 0.111/ 5	
	1 1=Zer	ro; 2=Define			
35	COMMENT				
	3 line	(s) of comment	a da sta sta sta		
	Eact Build	ding Doof And			
	**********	11118 - KOOT AFE	:d :****		
4	CATCHMENT				
	203.000	ID No.ó 99999			
	0.230	Area in hectar	es		
	1.000	Length (PERV)	metres		
	99.000	Ber cent Imper	wious		
	25,000	Length (IMPERV	()		
	.000	%Imp. with Zer	o Dpth		
	1	Option 1=SCS C	N/C; 2=Horton;	3=Green-Ampt;	4=Repeat
	.030	Manning "n"			
	68.000	SCS Curve No c	or C		
	.100	Ia/S Coetticie	enτ		
			Page 3		

		COPPOST DAT
	2 000	Gradient (%)
	70 000	Per cent Impervious
	10.000	length (TMPERV)
	000	%Imp_with Zono Doth
	.000	Ontion 1-SCS (N/C: 2-Honton: 2-Gnoon Ampt: 4-Bonost
	020	Manning "n"
	69 000	SCS Cupie No op C
	100	Ta/S Coefficient
	.100	Taitial Abstraction
	5.000	Initial Abstraction
	T	opcion i=nitangin, z=kectangin, s=swin htb, 4=Lin, keserv
		.025 .000 .000 .000 c.m/s
45		.093 .794 .107 C perv/imperv/totai
12	ADD KUNG	JFF
~	DOUTE	.000 .000 .000 .000 c.m/s
9	ROUTE	
	.000	Conduit Length
	.000	No Conduit defined
	.000	Zero lag
	.000	Beta weighting factor
	.000	Routing timestep
	0	No. of sub-reaches
		.000 .000 .000 .000 c.m/s
17	COMBINE	
	500 Jur	nction Node No.
	0.	.000 .000 .000 .000 c.m/s
14	START	
	1 1=2	Zero; 2=Detine
35	COMMENT	
	3 lir	ne(s) of comment
	*******	***************
	West Bui	ilding - Root Area
	******	*************
	CATCUME	
4	202 000	TD No é 00000
	202.000	ID NO.0 99999
	0.210	Area IN Nectores
	1.000	Length (PERV) metres
	0.500	Gradient (%)
	99.000	Per cent impervious
	40.000	Length (IMPERV)
	.000	%Imp. with Zero Upth
	1	Uption 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030	Manning "n"
	68.000	SCS CURVE NO OF C
	.100	la/S Coetticient
	5.000	Initial Abstraction
	1	Option 1=IriangIr; 2=RectangIr; 3=SWM HYD; 4=Lin. Reserv
		.346 .000 .000 .000 c.m/s

Page	2
------	---

			G	ORPOST.DAT	г		
	5.000	Initial /	Abstractic	n			
	1	Option 1:	=Trianglr;	2=Rectan	glr	; 3=SWM HYD; 4=Lin.	Reserv
	.3	46	.000	.000		.000 c.m/s	
	.1	.46	.799	.472	С	perv/imperv/total	
15	ADD RUNOF	F					
		. 000	.000	.000		.000 c.m/s	
35	COMMENT	() (
	3 11ne	(s) of cor	nment	*****			
	Fact Ruil	ding Do	ftan Cont	nol			
	East Bull	а1ng - кос	5TTOP CONT	.roi *****			
10	DOND						
10	4 Denth -	Discharge	- Volume	cote			
		ooooo	- vorume	a			
	0.000	.0000	, c	.0			
	0.100	0 0010	13	8.0			
	0.160	0.0020	23	0.0			
	Peak Outf	low =	0.000	c.m/s			
	Maximum D	epth =	000.000	metres			
	Maximum ⊆	torage =	0000.	c.m			
	.0	. 00	.000	.000		.000 c.m/s	
35	COMMENT						
	3 line	(s) of cor	nment				
	*******	********	******	******	***	*****	
	East Roof	-top Flow	to Gordon	St. Stor	m S	ewer	
	********	********	********	*******	***	*****	
17	COMBINE						
	500 June	tion Node	NO.	000		000 (-	
14	CTAPT		.000	.000		.000 c.m/s	
14	5 IARI 1 1-7-	no. 2 Dof					
25		ero; z=Der.	Ine				
55	2 line	(s) of cor	mont				
	********	*********	****				
	Parking A	rea Catchr	ment				
	*******	*********	****				
4	CATCHMENT						
	204.000	ID No.ó 9	99999				
	0.850	Area in H	nectares				
	1.000	Length (F	PERV) metr	es			
	1.500	Gradient	(%)				
	85.000	Per cent	Imperviou	IS			
	60.000	Length (EMPERV)				
	.000	%Imp. wi†	th Zero Dp	th			
	1	Option 1	=SCS CN/C;	2=Horton	; 3	=Green-Ampt; 4=Repe	at
				Page 4			
				- Be F			

	GORPOST DAT	
	A3A Manning "n"	
	68,000 SCS Curve No or C	
	.100 Ja/S Coefficient	
	5,000 Initial Abstraction	
	1 Ontion 1=Trianglr: 2=Rectanglr	: 3=SWM HYD: 4=Lin. Reserv
	.346 .000 .000	.000 c.m/s
	.146 .799 .472 (nerv/imperv/total
15	ADD RUNOFF	F
	.000 .000 .000	.000 c.m/s
35	COMMENT	
	3 line(s) of comment ******************	
	Parking Lot Ponding *******************	
10	POND	
	2 Depth – Discharge – Volume sets	
	42.000 .00000 .0	
	42.300 0.1730 114.0	
	Peak Outflow = 0.000 c.m/s	
	Maximum Depth = 000.000 metres	
	Maximum Storage = 0000. c.m	
47	.000 .000 .000	.000 c.m/s
1/	COMBINE 400 Junction Node No	
	400 Junction Node No.	000 s m/s
10	CONFLUENCE 0.000 0.000	.000 C.m/S
10	400 Junction Node No	
		000 cm/s
35	COMMENT	
	3 line(s) of comment	

	Underground Storage Tank ******	
10	POND	
	4 Depth – Discharge – Volume sets	
	339.000 .00000 .0	
	339.250 0.0050 88.0	
	340.000 0.0120 350.0	
	340.250 0.0130 438.0	
	Peak Outflow = 0.000 c.m/s	
	Maximum Depth = 000.000 metres	
	Maximum Storage = 0000.c.m	222 /-
25	.000 .000 .000	.000 c.m/s
35	LUMMENI	
	>	
	Total Flow to Gordon St. Storm Sewer	

Gordon St. Storm Se

Page 5

GORPOST.DAT

	GORPOST.DAT

17	COMBINE
	500 Junction Node No.
	0.000 .000 .000 .000 c.m/s
18	CONFLUENCE
	500 Junction Node No.
	0.000 0.000 0.000 .000 c.m/s
14	SIAKI 1 1-Zanay 2-Define
35	COMMENT
55	3 line(s) of comment

	Undeveloped Area - Flow to Torrance Watershed

4	CATCHMENT
4	205.000 TD No. 6 99999
	1.440 Area in hectares
	120.000 Length (PERV) metres
	4.000 Gradient (%)
	2.000 Per cent Impervious
	5.000 Length (IMPERV)
	.000 %Imp. with Zero Dpth
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	67 000 SCS Cupye No on C
	.100 Ta/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000 .000 c.m/s
	.146 .799 .472 C perv/imperv/total
15	ADD RUNOFF
	.000 .000 .000 .000 c.m/s
14	SIARI
25	I I=Zero; Z=DetIN
55	7 line(s) of comment

	5-vr STORM
	- ,

2	α το στα τη
2	STORE
	Page 6

	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
	1593.000	Coefficient a
	11.000	Constant b (min)
	.879	Exponent c
	.400	Fraction to peak r
	180.000	Duration ó 1500 min
		25.003 mm Total depth
3	IMPERVIO	JS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.010	Manning "n"
	98,000	SCS Curve No or C
	.100	Ta/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=7	ero: 2=Define
35	COMMENT	
	3 lin	e(s) of comment
	*******	**********
	Uncontro	lled Elow to Gordon Street
	onconer o.	
	******	*******
4	CATCHMEN.	Г
	201.000	TD No.ó 99999
	0 120	Area in hertares
	1 000	length (PERV) metres
	2 000	Gradient (%)
	70 000	Per cent Impervious
	10 000	length (IMPERV)
	10.000	%Imp_with Zero Doth
	1	Ontion 1=SCS_CN/C: 2=Horton: 3=Green-Amnt: 4=Reneat
	630	Manning "n"
	68 000	SCS Curve No on C
	100	Ta/S Coefficient
	5 000	Initial Abstraction
	3.000	Ontion 1-Iniongle: 2-Pectongle: 2-SWM HVD: 4-Lin Pecery
		225 000 000 000 000 cm/s
		302 704 107 (popy/impopy/total
10		
1.5	ADD NONOI	-
٩	POLITE	
2	000	Conduit Length
	.000	No Conduit defined
	.000	Zeno lag
	.000	Reta weighting factor
	.000	Pouting timesten
	.000	No. of sub-poschos
	0	10, 01 Sub-reaches
17	COMPTNE	
.,	CONDINE	
		Page 7

			GC	RPOST.DAT	ŕ	
	500 Jur 0.	nction Node .000	No. .000	.000	.000 c.m/s	
14	START					
35	1 1=2 COMMENT	Zero; 2=Def	ine			
20	3 lir	ne(s) of co	omment			
	******	*********	*****			
	West Bui *******	ilding - Ro	of Area			
4	CATCHMEN	т				
	202.000	ID No.ó	99999			
	0.210	Area in	hectares			
	1.000	Length (PERV) metr	es		
	99 000	Per cent	. (//) Tmnerviou	e		
	40.000	Length (IMPERV)	,		
	.000	%Imp. wi	th Zero Dp	th		
	1	Option 1	=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Repeat	
	.030	Manning	"n"			
	68.000	SCS Curv	/e No or C			
	.100	Ia/S COG Initial	Abstractio	n		
	1	Option 1	=Trianglr:	2=Rectan	glr: 3=SWM HYD: 4=Lin. Rese	erv
		346	.000	.000	.000 c.m/s	
		146	.799	.472	C perv/imperv/total	
15	ADD RUNG	OFF 000	000	000	000 c m/c	
35	COMMENT.	. 000	.000	.000	.000 C.m/S	
	3 lir	ne(s) of co	omment			
	******	*******	*****	****		
	West Bui *******	ilding - Ro	oftop Cont	rol *****		
10	POND					
	4 Depth	 Discharge 	e - Volume	sets		
	0.000	.0000	10	.0		
	0.080	0.0036	, ,) 12	5.0		
	0.160	0.0040	21	0.0		
	Peak Out	= flow =	0.000	c.m/s		
	Maximum	Depth =	000.000	metres		
	Maximum	Storage =	0000.	c.m	000	
35	COMMENT	. 000	.000	.000	.000 C.M/S	
55	3 lir	ne(s) of co	omment			
	******	*********	*******	******	*****	
	West Roo	of-top Flow	ı to Gordon	St. Stor	m Sewer	
				Page 8		

GORPOST.DAT

	********	*******	*****	*******	*******	
17	COMBINE					
17	500 Junci	tion Node	No.			
	0.00	30	.000	.000	.000	c.m/s
14	START					
	1 1=Zer	ro; 2=Def	ine			
35	COMMENT					
	3 line	(s) of co	omment			
	********	********	*********			
	East Build	ling - Ro	ot Area			
4	CATCHMENT					
	203.000	ID No.ó	99999			
	0.230	Area in	hectares			
	1.000	Length (PERV) metr	es		
	0.500	Gradient	: (%)			
	99.000	Per cent	Imperviou	s		
	25.000	Length (IMPERV)			
	.000	%1mp. Wi	th Zero Dp	τn 2-Uonton	. 2-000	n Amnti A-Ronast
	636	Manning	"n"	2=HOPLON	, 5=01.66	n-Ampt, 4=Repeat
	68,000	SCS Curv	e Noor C			
	.100	Ia/S Coe	fficient			
	5.000	Initial	Abstractio	n		
	1	Option 1	=Trianglr;	2=Rectan	glr; 3=S	WM HYD; 4=Lin. Reserv
	.34	16	.000	.000	.000	c.m/s
	.14	16	.799	.472	C perv/	imperv/total
15	ADD RUNOFI	-	000	000	000	(-
25	COMMENT	90	.000	.000	.000	c.m/s
55	3 line	(s) of co	mment			
	********	********	******	****		
	East Build	ding - Ro	oftop Cont	rol		
	*******	********	*********	****		
10	POND					
	4 Depth - [Discharge	e - Volume	sets		
	0.000	.0000	10	.0		
	0.100	0.0010) 9 \ 12	2.0		
	0.120	0.0020	/ 13) 23	0.0 0.0		
	Peak Outf	low =	0.000	c.m/s		
	Maximum De	epth =	000.000	metres		
	Maximum St	torage =	0000.	c.m		
	.00	90	.000	.000	.000	c.m/s
35	COMMENT					
	3 line	(s) of co	omment			

Page 9

	GORPOST.DAT

	East Roof-top Flow to Gordon St. Storm Sewer

47	**************************************
17	CONDINE EQ0 Junction Node No
	500 Junction Node No.
14	CTART
14	1 1-Zapa: 2-Define
35	COMMENT
	3 line(s) of comment

	Parking Area Catchment *******************
	647610FN7
4	CATCHMENT TO NE (20000
	204.000 ID NO.0 99999
	0.850 Area In nectares
	1 500 Gradient (%)
	85 000 Per cent Impervious
	60.000 Length (IMPERV)
	.000 %Imp, with Zero Doth
	1 Ontion 1=SCS_CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	.030 Manning "n"
	68,000 SCS Curve No or C
	.100 Ia/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000 .000 c.m/s
	.146 .799 .472 C perv/imperv/total
15	ADD RUNOFF
	.000 .000 .000 .000 c.m/s
35	COMMENT
	<pre>3 line(s) of comment</pre>

	Parking Lot Ponding

10	POND 2 Death Discharge Valuma esta
	2 Depth = Discharge = Volume sets
	42.000 .00000 .0
	42.500 0.1750 114.0
	Maximum Denth $-$ 000 000 metres
	Maximum Storage = 0000 c m
	.000 .000 .000 .000 .000 .000 .000 .00
17	COMBINE
	D
	Page 10

					GORPOST.DAT		
	400	Junction	Node	No.			
		0.000	0.	.000	0.000	.000 c.m/s	
18	CONFL	UENCE					
	400	Junction	Node	NO.	0.000	000	
25	COMM	0.000	0.	. 000	0.000	.000 C.m/S	
55	3	line(s)	of com	nmont			
	*****	********	*****	*****	****		
	Under	rground S	torage	e Tank	¢		
	****	*******	*****	*****	****		
10	POND						
	4 Dept	:h - Disc	narge	- Vol	lume sets		
	339.6	900	.00000	9	.0		
	339.2	250 0	.0050		88.0		
	340.0	000 0 050 0	0120		128 0		
	Peak	Outflow	.0150	0	.000 c.m/s		
	Maxin	num Depth	=	000	.000 metres		
	Maxin	num Stora	ge =	00	Э00. с.m		
		.000		.000	.000	.000 c.m/s	
35	COMME	NT					
	3	line(s)	of com	nment			
	*****	*******	*****	*****	******		
	Tota	l Flow to	Gordo	on St.	Storm Sewer		
	****	******	*****	*****	*****		
17	COMBI	INF					
	500	Junction	Node	No.			
		0.000		.000	.000	.000 c.m/s	
18	CONFL	UENCE					
	500	Junction	Node	No.			
		0.000	0.	.000	0.000	.000 c.m/s	
14	5TAK	1-70001		n.			
35	COMME	I-Zero, . INT	z-beri	llie			
55	3	line(s)	of com	nment			
	****	*******	*****	*****	*****	*****	
	Undev	/eloped A	rea -	Flow	to Torrance Wa	tershed	
	*****	********	*****	*****	******	******	
4	САТСИ	IMENT					
	205.000) ID I	No.ó 9	99999			
	1.446) Are	a in ł	nectar	res		
	120.000) Len	gth (F	PERV)	metres		
	4.000) Gra	dient	(%)			
					Page 11		

		G	ORPOST.DA	T
	2.000	Per cent Imperviou	s	
	5.000	Length (IMPERV)		
	.000	%Imp. with Zero Dp	th	
	1	Option 1=SCS CN/C:	2=Horton	: 3=Green-Ampt: 4=Repeat
	. 030	Manning "n"		,
	67.000	SCS Curve No or C		
	100	Ta/S Coefficient		
	5 000	Initial Abstractio	n	
	5.000	Ontion 1-Triangle:	2-Pocton	alp: 2-SUM HVD: 4-Lip Pocopy
	1	opcion i-miangin,	2=Rectan	000 c m/c
	•	.546 .000	.000	.000 C.m/S
45		.146 .799	.4/2	C perv/imperv/total
15	ADD RUNC	JFF 000		000
		.000 .000	.000	.000 c.m/s
14	START			
	1 1=2	Zero; 2=Detin		
35	COMMENT			
	7 lir	ne(s) of comment		
	******	**********		
	10 - yr S1	FORM		
	******	*****		
2	STORM			
	1	1=Chicago;2=Huff;3	=User;4=C	dn1hr;5=Historic
	2221.000	Coefficient a		
	12.000	Constant b (mi	n)	
	.908	Exponent c		
	.400	Fraction to peak	r	
	180.000	Duration ó 1500 mi	n	
		25.003 mm Total	depth	
3	IMPERVIC	DUS		
	1	Option 1=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Repeat
	.010	Manning "n"		
	98.000	SCS Curve No or C		
	.100	Ia/S Coefficient		
	1.500	Initial Abstractio	n	
14	START			
	1 1=7	Zero: 2=Define		
35	COMMENT			
	3 lir	ne(s) of comment		
	*******	******	******	
	Uncontro	olled Flow to Gordon	Street	
	Sheonere			
	******	*****	*****	
4	CATCHMEN	т		
-	201.000	 ID No.ó 99999		
4	CATCHMEN	ΝT		
	201.000	LD No.o 99999		

			G	PROST DA	r			
	0 120	Apon in I	actanos	M-051.0A				
	1 000	Length (PERV) metr	o c				
	2 000	Gradient	(%)	0.5				
	70 000	00 Per cent Impervious						
	10.000	A Longth (IMDERV)						
	0.000	%Tmp wit	th Zero Dr	th				
	.000	Ontion 1:	=SCS_CN/C·	2=Horton	· 3=Green_Amnt ·	4=Reneat		
	630	Manning	"n"	2 1101 001	, s=oreen Ampe,	4-Repeat		
	68,000	SCS Curve	NoorC					
	. 100	Ta/S Coe	fficient					
	5,000	Initial /	Abstractio	n				
	1	Option 1	=Trianglr:	2=Rectan	glr: 3=SWM HYD:	4=Lin. Reserv		
	0	25	.000	.000	.000 c.m/s			
	.0	93	.794	.107	C perv/imperv/	total		
15	ADD RUNOF	F						
	.0	00	. 000	. 000	.000 c.m/s			
9	ROUTE							
	.000	Conduit	Length					
	.000	No Condu	it defined					
	.000	Zero lag						
	.000	Beta wei	ghting fac	tor				
	.000	Routing	timestep					
	0	No. of si	ub-reaches					
	.0	00	.000	.000	.000 c.m/s			
17	.0 COMBINE	00	.000	.000	.000 c.m/s			
17	.0 COMBINE 500 Junc	00 tion Node	.000 No.	.000	.000 c.m/s			
17	.0 COMBINE 500 Junc 0.0	00 tion Node 00	.000 No. .000	.000	.000 c.m/s .000 c.m/s			
17 14	0 COMBINE 500 Junc 0.0 START	00 tion Node 00	.000 No. .000	.000 .000	.000 c.m/s .000 c.m/s			
17 14	.0 COMBINE 500 Junc 0.0 START 1 1=Ze	00 tion Node 00 ro; 2=Def:	.000 No. .000 ine	.000 .000	.000 c.m/s .000 c.m/s			
17 14 35	.0 COMBINE 500 Junc 6.0 START 1 1=Ze COMMENT	00 tion Node 00 ro; 2=Def:	.000 No. .000 ine	.000	.000 c.m/s .000 c.m/s			
17 14 35	.0 COMBINE 500 Junc 0.0 START 1 1=Ze COMMENT 3 line	00 tion Node 00 ro; 2=Def: (s) of con	.000 No. .000 ine mment	.000	.000 c.m/s .000 c.m/s			
17 14 35	.0 COMBINE 500 Junc 0.0 START 1 1=Ze COMMENT 3 line *********	00 tion Node 00 ro; 2=Def: (s) of com	.000 No. .000 ine mment	.000	.000 c.m/s .000 c.m/s			
17 14 35	.0 COMBINE 500 Junc 0.0 START 1 1=Ze COMMENT 3 line ********* West Buil	00 tion Node 00 ro; 2=Def: (s) of com ********* ding - Rom	.000 No. .000 ine mment ********** of Area	.000	.000 c.m/s .000 c.m/s			
17 14 35	.0 COMBINE 500 Junc 0.0 START 1 1=Ze COMMENT 3 line ********* West Buil *********	00 tion Node 00 ro; 2=Def: (s) of con ********* ding - Roo *****	.000 No. .000 ine ********** of Area *********	.000	.000 c.m/s .000 c.m/s			
17 14 35		00 tion Node 00 ro; 2=Def: (s) of con ********* ding - Ro ****	.000 No. .000 ine mment *********** of Area *********	.000	.000 c.m/s			
17 14 35 4		00 tion Node 00 ro; 2=Def: (s) of co ********* ding - Ro *********	.000 No. .000 ine mment *********** of Area **********	.000	.000 c.m/s			
17 14 35 4	.0 COMBINE 500 Junc 0.0 START 1 1=Ze COMMENT 3 line ********* West Buil ********* CATCHMENT 202.000 0 2310	00 tion Node 00 ro; 2=Def: (s) of con ********* ding - Roo ********** ID No.ó 9	.000 No. .000 ine mment ********** of Area **********	.000	.000 c.m/s			
17 14 35 4		00 tion Node 00 ro; 2=Def: (s) of con ********* ding - Ro ********* ID No.ó 9 Area in 1 Leonth (.000 No. .000 ine mment ********** of Area *********** 99999 nectares 2000/ moto	.000	.000 c.m/s			
17 14 35 4		00 tion Node 00 ro; 2=Def: ********** ding - Ro ********** ID No.6 Area in I Length (I Gradient	.000 No. .000 ine mment *********** of Area *********** 99999 nectares >ERV) metr. (%)	.000 .000	.000 c.m/s			
17 14 35 4		00 tion Node 00 ro; 2=Def: (s) of con ********** ding - Ro ********** ID No.ó 9 Area in I Length (I Gradient Per cent	.000 No. .000 ine mment ************************************	.000 .000 es	.000 c.m/s			
17 14 35 4		00 tion Node 00 (s) of con ********** ding - Ro ********** D No.ó f Area in l Length (I Gradient Per cent Length (I	.000 No. .000 ine mment ************************************	.000 .000 es	.000 c.m/s			
17 14 35 4		00 tion Node 00 ro; 2=Def: (5) of co ********** ding - Ro ********** ID No.ó f Area in l Length (1 Gradient Per cent Length (2 S'Tem ui'	.000 No. .000 ine mment 	.000 .000 es s	.000 c.m/s			
17 14 35 4		00 tion Node 00 (5) of con ********* ID No.6 f Area in I Length (I Gradient Per cent Length (X XImp. wi Ontion 1:	.000 No. .000 ine mment ************************************	.000 .000 es s th 2=Horton	.000 c.m/s .000 c.m/s	4=Repeat		
17 14 35 4		00 tion Node 00 ro; 2=Def: (5) of cor ********** ding - Ro ********** ID No.ó ! Area in 1 Length (1 Gradient Length (2 XImp. wi Quino 1: Mannine'	.000 No. .000 ine mment ********** of Area ************************************	.000 .000 es s th 2=Horton	.000 c.m/s .000 c.m/s ; 3=Green-Ampt;	4=Repeat		
17 14 35 4		00 tion Node 00 (5) of cor ********** ID No.6 { Area in 1 Length (1 Gradient Per cent Length (%Imp. wi Option 1 Manning	.000 No. .000 ine mment ************************************	.000 .000 es s th 2=Horton	.000 c.m/s .000 c.m/s ; 3=Green-Ampt;	4=Repeat		
17 14 35 4		00 tion Node 00 ro; 2=Def. (5) of cor ************************************	.000 No. .000 ine mment ********** of Area ************************************	.000 .000 es s th 2=Horton	.000 c.m/s .000 c.m/s ; 3=Green-Ampt;	4=Repeat		

	GORPOST.DAT	
	68.000 SCS Curve No or C	
	.100 Ia/S Coefficient	
	5.000 Initial Abstraction	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM	HYD; 4=Lin. Reserv
	.346 .000 .000 .000 c.m	i/s
	.146 .799 .472 C perv/imp	erv/total
15	.5 ADD RUNOFF	
	.000 .000 .000 .000 .000 c.m	i/s
35	S COMMENT	
	3 Line(s) of comment ************************************	
	East Ruilding Poofton Control	

10	0 POND	
10	4 Depth - Discharge - Volume sets	
	0.000 .00000 .0	
	0.100 .0010 92.0	
	0.120 0.0020 138.0	
	0.160 0.0040 230.0	
	Peak Outflow = 0.000 c.m/s	
	Maximum Depth = 000.000 metres	
	Maximum Storage = 0000. c.m	
25	.000 .000 .000 .000 c.m	i/s
35	S CUMMENT 2 line(c) of comment	
	5 IIIIe(5) 01 comment	
	East Roof-top Flow to Gordon St. Storm Sewer	

17	.7 COMBINE	
	500 Junction Node No.	
	0.000 .000 .000 .000 c.m	ı/s
14	4 START	
25	1 1=Zero; 2=Detine	
35	-5 CUMMENT	
	3 IIIe(S) OT Comment	
	Parking Area Catchment	

4	4 CATCHMENT	
	204.000 ID No.ó 99999	
	0.850 Area in hectares	
	1.000 Length (PERV) metres	
	1.500 Gradient (%)	
	85.000 Per cent Impervious	
	ຣອ.ອອດ Length (IMPERV)	
	Page 15	

	GORPOST.DAT
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000 .000 c.m/s
	.146 .799 .472 C perv/imperv/total
15	ADD RUNOFF
	.000 .000 .000 .000 c.m/s
35	COMMENT
	3 line(s) of comment

	West Building - Rooftop Control

10	POND
	4 Depth – Discharge – Volume sets
	0.000 .00000 .0
	0.080 .0020 42.0
	0.120 0.0030 126.0
	0.160 0.0040 210.0
	Peak Outflow = 0.000 c.m/s
	Maximum Depth = 000.000 metres
	Maximum Storage = 0000. c.m
	.000 .000 .000 .000 c.m/s
35	COMMENT
	3 line(s) of comment

	West Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	0.000 .000 .000 .000 c.m/s
14	START
	1 1=Zero; 2=Define
35	COMMENT
	3 line(s) of comment

	East Building - Root Area

	CATCHUCHT
4	CATCHMENT
	203.000 ID NO.0 99999
	0.230 Area in nectares
	1.000 Length (PERV) metres
	0.000 Der sent Treevieus
	99.000 Per Cent Impervious
	20.000 Length (IMPEKV)
	.000 %imp. with Zero Upth
	uputon 1=SUS UN/C; 2=Horton; 3=Green-Ampt; 4=Repeat 020 Magning "a"
	. oso manning n
	Page 14

			G	ORPOST.DAT			
	.000	%Imp. w	ith Zero Dp	th			
	1	Option	1=SCS CN/C;	2=Horton;	3=Green	-Ampt; 4=Repe	eat
	.030	Manning	"n"				
	68.000	SCS Cur	ve No or C				
	.100	Ia/S Co	efficient				
	5.000	Initial	Abstractic	n			
	1	Option	1=Trianglr;	2=Rectang	lr; 3=SW	M HYD; 4=Lin	Reserv
		.346	.000	.000	.000 c	.m/s	
		.146	.799	.472 0	C perv/i	mperv/total	
15	ADD RU	NOFF					
		.000	.000	.000	.000 c	.m/s	
35	COMMEN	Г					
	3 1:	ine(s) of c **********	omment *****				
	Parking	g Lot Pondi **********	ng *****				
10	POND						
	2 Depth	- Discharg	e – Volume	sets			
	42.00	.000	00	.0			
	42.30	0.173	0 11	4.0			
	Peak Ou	utflow =	0.000	c.m/s			
	Maximur	n Depth =	000.000	metres			
	Maximur	n Storage =	0000.	c.m			
		.000	.000	.000	.000 c	.m/s	
17	COMBINE						
	400 Ju	unction Nod	e No.				
	(9.000	0.000	0.000	.000 c	.m/s	
18	CONFLUE	INCE					
	400 Ju	unction Nod	e No.				
	(9.000	0.000	0.000	.000 c	.m/s	
35	COMMEN	Г					
	3 1:	ine(s) of c	omment				
	******	******	*****				
	Undergr ******	round Stora	ge Tank *********				
10	POND						
	4 Depth	- Discharg	e – Volume	sets			
	339.000	ə .00ō	00	.0			
	339.25	0.005	0 8	8.0			
	340.000	0.012	0 35	0.0			
	340.25	0.013	0 43	8.0			
	Peak Oi	utflow =	0.000	c.m/s			
	Maximur	n Depth =	000.000	metres			
	Maximur	n Storage =	0000.	c.m			
		.000	.000	.000	.000 c	.m/s	
35	COMMEN	r					
	3 1:	ıne(s) of c	omment				
	*****	******	********	******			
				Page 16			
				-			

GORPOST.DAT

	Total Fl	ow to Gord	on St. Sto	rm Sewer			
	******	******	******	******			
17	COMBINE						
1/	500 700	ction Node	No				
	500 501	000	000	000	000 c	m/c	
19	CONELLIEN	CE	.000	.000	.000 c.	m/ 3	
10	500 Jun	ction Node	No				
	500 500	000 0	000	0 000	000 c	m / c	
14	START 0.	000 0	.000	0.000	.000 c.	111/ 3	
14	1 1=7	ero: 2=Def	ino				
35	COMMENT	2-001	Inc				
55	3 lin	a(s) of co	mmont				
	*******	********	*********	********	******		
	Undevelo	ned Area -	Elow to T	orrance Wat	onchod		
	ondevero	peu Areu	1100 00 1	orrance wat	ci silcu		
	******	******	*****	*******	******		
4	CATCHMEN	т					
	205.000	ID No.ó	99999				
	1.440	Area in	hectares				
	120.000	Length (PERV) metr	es			
	4.000	Gradient	(%)				
	2.000	Per cent	Imperviou	s			
	5.000	Length (IMPERV)				
	.000	%Imp. wi	th Zero Dp	th			
	1	Option 1	=SCS CN/C;	2=Horton;	3=Green-	Ampt; 4=Repea	t
	.030	Manning	"n"				
	67.000	SCS Curv	e No or C				
	.100	Ia/S Coe	fficient				
	5.000	Initial	Abstractio	n			
	1	Option 1	=Trianglr;	2=Rectangl	r; 3=SWM	1 HYD; 4=Lin.∣	Reserv
		346	.000	.000	.000 c.	m/s	
		146	.799	.472 C	perv/im	perv/total	
15	ADD RUNO	FF					
		000	.000	.000	.000 c.	m/s	
14	START						
	1 1=Z	ero; 2=Def	in				
35	COMMENT						
	7 lin	e(s) of co	mment				
	******	******	****				

25-yr STORM

Page 17

			GC	DRPOST.DAT		
	.0	900	.000	.000	.000 c	.m/s
17	COMBINE					
	500 Junc	tion Node	No.			
	0.0	900	.000	.000	.000 c	.m/s
14	START					
	1 1=Z€	ero; 2=Def	ine			
35	COMMENT					
	3 line	e(s) of co	mment			
	*******	*******	*******			
	West Buil	lding - Ro	of Area			
	*******	******	*******			
4	CATCUMENT	-				
4	202 000		00000			
	202.000	ID NO.0	bostanos			
	1 000	Area In	DEDV() moto			
	1.000	Cradient	PERV) metr	es		
	0.500	Don cont	(/0)	-		
	40.000	Longth (TIMPERVIOU	5		
	40.000	YImp wi	th Zono Dn	+h		
	.000	Ontion 1	=scs_cN/c·	2=Horton:	3=Green	-Ampt: 1-Repeat
	636	Manning	"n"	2-1101 0011;	5-di cen	Ampe, 4-Repear
	68 000	SCS Curv	No or C			
	100	Ta/S Coe	fficient			
	5 000	Initial	Abstractio	n		
	1	Ontion 1	=Trianglr:	2=Rectangl	r: 3=SW	M HYD: 4=lin. Reserv
		46	. 000	.000	. 000 c	.m/s
	.1	46	.799	.472 C	perv/i	mperv/total
15	ADD RUNOF	F			F / -	
	.e	900	.000	.000	.000 c	.m/s
35	COMMENT					
	3 line	e(s) of co	mment			
	*******	*******	******	****		
	West Buil	lding - Ro	oftop Cont	rol		
	******	********	********	****		
10	POND					
	4 Depth -	Discharge	- Volume	sets		
	0.000	.0000	0	.0		
	0.080	.0020	4	2.0		
	0.120	0.0030	12	6.0		
	0.160	0.0040	21	0.0		
	Peak Outf	=low =	0.000	c.m/s		
	Maximum D	epth =	000.000	metres		
	Maximum S	storage =	0000.	c.m		
	.0	900	.000	.000	.000 c	.m/s
35	COMMENT					
	3 line	e(s) of co	mment			
	*******	*******	******	********	*****	
				Page 19		

		GORPOST.DAT
	*****	*********
2	STORM	
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
	3158,000	Coefficient a
	15,000	Constant b (min)
	.935	Exponent c
	. 400	Eraction to peak r
	180.000	Duration ó 1500 min
	1001000	25 003 mm Total depth
3	TMPERV	
5	1	Ontion 1-SCS (N/C: 2-Wonton: 2-Green-Ampt: 4-Repeat
	010	Manning "n"
	00.000	Fidiniting II
	98.000	To/C Coofficient
	.100	Taitial Abstraction
	1.500	Initial Abstraction
14	START	Zener D. D. Gine
	1 1:	=Zero; Z=Detine
35	COMMEN	
	3 1	ine(s) of comment

	Uncont	rolled Flow to Gordon Street
	at the state of the state	
	*****	*********************
4	CATCHM	ENT
	201.000	ID No.0 99999
	0.120	Area in hectares
	1.000	Length (PERV) metres
	2.000	Gradient (%)
	70.000	Per cent Impervious
	10.000	Length (IMPERV)
	.000	%Imp. with Zero Dpth
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030	Manning "n"
	68.000	SCS Curve No or C
	.100	Ia/S Coefficient
	5.000	Initial Abstraction
	1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
		.025 .000 .000 .000 c.m/s
		.093 .794 .107 C perv/imperv/total
15	ADD RU	NOFF
		.000 .000 .000 .000 c.m/s
9	ROUTE	
	.000	Conduit Length
	.000	No Conduit defined
	.000	Zero lag
	.000	Beta weighting factor
	.000	Routing timestep
	0	No. of sub-reaches
		Page 18

GORPOST.DAT

	West Ro	of-top Flo	w to Gord	on St. Sto	rm Sewer	
	******	*******	*******	********	*****	
17	COMBINE					
	500 Ju	nction Nod	e No.			
	0	.000	.000	.000	.000 c.m/s	
14	START					
	1 1=	Zero; 2=De	fine			
35	COMMENT					
	3 li	ne(s) of c	omment			
	******	*********	*******	**		
	East Bu ******	11ding - K	oot Area	**		
4	CATCHME	NT				
	203.000	ID No.ć	99999			
	0.230	Area in	hectares			
	1.000	Length	(PERV) me	tres		
	0.500	Gradien	t (%)			
	99.000	Per cen	t Impervi	ous		
	25.000	Length	(IMPERV)	~		
	.000	%imp. w	ith Zero I	Uptn		B
	1	Option	1=SCS CN/0	C; 2=Horto	n; 3=Green-Ampt; 4	=кереат
	.030	Manning	n Ne ee i	~		
	100		ve wo or a	L L		
	. 100 E 000	Ia/S CO	Abstract	ion		
	3.000	Ontion	1=Triangl	r: 2=Recta	nglr: 3=SWM HVD: 4	-lin Recerv
	-	346	.000		. 000 c.m/s	-cin: Keselv
		146	799	472	C nerv/imnerv/to	tal
15	ADD RUN	OFF	.,,,,,	.4/2	e per 1/ 110per 1/ 00	
		.000	.000	.000	.000 c.m/s	
35	COMMENT					
	3 li	ne(s) of c	omment			
	******	********	******	*****		
	East Bu	ilding - R	ooftop Co	ntrol		
10	ROND					
10	4 Depth	- Dischard	e - Volum	o cote		
	4 Depen	013Charg	ie voruin	0		
	0.000 0.100	.000	ОС	92.0		
	0.120	0.002	ю. 	138.0		
	0.160	0.004	0	230.0		
	Peak Ou	tflow =	0.00	0 c.m/s		
	Maximum	Depth =	000.00	0 metres		
	Maximum	Storage =	0000	. c.m		
		.000	.000	.000	.000 c.m/s	
				Page 20		

		0	GORPOST.D	AT			
35	5 COMMENT						
	3 line(s) of c	ine(s) of comment					
	******	******	******	*****			
	East Roof-top Flo	w to Gordo	n St. Ste	orm Sewer			
	********	*******	******	*****			
17	COMBINE						
	500 Junction Nod	e No.					
	0.000	.000	.000	.000 c.m/s			
14	1 START						
	1 1=Zero; 2=De	fine					
35	5 COMMENT						
	3 line(s) of c	omment					
	******	****					
	Parking Area Catc	hment					
	**********	****					
4	CATCHMENT						
	204.000 ID NO.0	99999					
	1 000 Longth	(DEDV) mot					
	1 EQ0 Gradion	(PERV) met + (%)	res				
	25.000 Don con	t (%) t Imponvio					
	60.000 Length	(TMDERV/)	us				
	000 Eengen	ith Zero D	nth				
	1 Ontion	1=SCS_CN/C	: 2=Horte	on: 3=Green-Amp	t: 4=Repeat		
	.030 Manning	"n"	,	,	-, ·		
	68.000 SCS Cur	ve No or C					
	.100 Ia/S Co	efficient					
	5.000 Initial	Abstracti	on				
	1 Option	1=Trianglr	; 2=Recta	anglr; 3=SWM HY	D; 4=Lin. Reserv		
	.346	.000	.000	.000 c.m/s			
	.146	.799	.472	C perv/imper	v/total		
15	5 ADD RUNOFF						
	.000	.000	.000	.000 c.m/s			
35	5 COMMENT						
	3 line(s) of c	omment *****					
	Parking Lot Pondi	ng					
	**********	****					
10	POND						
	2 Depth - Discharg	e – Volume	sets				
	42.000 .000	00	.0				
	42.300 0.173	0 1	14.0				
	Peak Outflow =	0.000	c.m/s				
	Maximum Depth =	000.000	metres				
	Maximum Storage =	0000.	c.m				

Page	21	
1 age	21	

				GC	RPOST.DA	т	
		.000	.000	,	.000	.000	c.m/s
17	COMBIN	νE					
	400	Junction	Node No.				
		0.000	0.000) (0.000	.000	c.m/s
18	CONFLU	JENCE					
	400	Junction	Node No.				
		0.000	0.000	,	0.000	.000	c.m/s
35	COMMEN	UT.					
	3	line(s) c	of commer	nt			
	*****	*******	******	****			
	Under	round St	orage Ta	ank			
	*****	*******	******	****			
10	POND						
	4 Depth	n - Disch	arge - \	olume :	sets		
	339.00	. 00	00000		.0		
	339.25	50 0.	0050	8	8.0		
	340.00	90 O.	0120	35	0.0		
	340.25	50 0.	0130	43	8.0		
	Peak (Dutflow	-	0.000	c.m/s		
	Maximu	um Depth	= 00	0.000	metres		
	Maximu	um Storag	e =	0000.	c.m		
		.000	.000)	.000	.000	c.m/s
35	COMMEN	IT					
	3	line(s) c	f commer	nt			
	*****	*******	******	*****	*******	*	
	Total	Flow to	Gordon 9	st. Sto	rm Sewer		
	*****	*******	******	*****	*******		
17	COMBIN	IE					
	500 3	Junction	Node No.				
		0.000	.000)	.000	.000	c.m/s
18	CONFLU	JENCE					
	500 3	Junction	Node No.				
		0.000	0.000)	0.000	.000	c.m/s
14	START						
	1 :	l=Zero; 2	=Define				
35	COMMEN	IT					
	3.	line(s) c	of commer	nt			
	*****	******	******	*****	******	******	*
	Undeve	eloped Ar	ea - Flo	w to T	orrance W	latershed	1
	*****	******	******	*****	******	******	*
4	CAICH	1ENI TO 1					
	205.000	TD N	10.0 9999	19			
	1.440	Area	i in hect	ares			
					Page 22		
					5 -		

	GORPOST, DAT					
	120.000 Length (PERV) metres					
	4.000 Gradient (%)					
	2.000 Per cent Impervious					
	5.000 Length (IMPERV)					
	.000 %Imp. with Zero Dpth					
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat					
	.030 Manning "n"					
	67.000 SCS Curve No or C					
	.100 Ia/S Coefficient					
	5.000 Initial Abstraction					
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv					
	.346 .000 .000 .000 c.m/s					
	.146 .799 .472 C perv/imperv/total					
15	ADD RUNOFF					
	.000 .000 .000 .000 c.m/s					
14	START					
	1 1=Zero; 2=Defin					
35	COMMENT					
	7 line(s) of comment					

	50-yr STORM					

2	CTODM					
2	STURM					
	1 I=CHICago,Z=nuTT,S=USEF,4=CuHIHF,5=nISCOFIC					
	16.000 Constant h (min)					
	10.000 Constant D (min)					
	400 Exponent c					
	190 Puration ó 1500 min					
	25 003 mm Total depth					
3	TMPERVIOUS					
-	1 Ontion 1=SCS_CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat					
	.010 Manning "n"					
	98,000 SCS Curve No or C					
	.100 Ta/S Coefficient					
	1.500 Initial Abstraction					
14	START					
	1 1=Zero; 2=Define					
35	COMMENT					
	3 line(s) of comment					

	Uncontrolled Flow to Gordon Street					

	Dage 22					
	rage 23					

		GORPOST.DAT				
4	CATCHMENT	г				
	201.000	.000 ID No.ó 99999				
	0.120	Area in hectares				
	1.000	Length (PERV) metres				
	2.000	Gradient (%)				
	70.000	Per cent Impervious				
	10.000	Length (IMPERV)				
	.000	%Imp. with Zero Dpth				
	1	Option 1=SCS CN/C; 2=Horton; 3=Gree	n-Ampt; 4=Repeat			
	.030	Manning "n"				
	68.000	SCS Curve No or C				
	.100	Ia/S Coefficient				
	5.000	Initial Abstraction				
	1	Option 1=TriangIr; 2=RectangIr; 3=S	WM HYD; 4=Lin. Reserv			
		325 .000 .000 .000	c.m/s			
45		793 .794 .107 Cperv/	imperv/totai			
15	ADD RUNOF	FF 000 000 000				
0	.c	000. 000. 000. 000	c.m/s			
9	00012	Conduit Longth				
	.000	No Conduit defined				
	.000	Zero lag				
	.000	Beta weighting factor				
	.000	Routing timesten				
	0	No. of sub-reaches				
		000. 000. 000. 000	c.m/s			
17	COMBINE					
	500 Juno	ction Node No.				
	0.0	000. 000. 000. 000	c.m/s			
14	START					
	1 1=Z€	ero; 2=Define				
35	COMMENT					
	3 line	e(s) of comment				
	********	**********				
	West Buil	Iding - Roof Area				
	*******	*********				
	CATCUMENT	r				
4	202 000	TD No 6 99999				
	202.000	Apon in hostopos				
	1 000	Length (DERV) metres				
	0.500	Gradient (%)				
	0.000	Ben cent Impenyious				
	40.000	length (IMPERV)				
	.000	%Imp, with Zero Doth				
	1	Option 1=SCS CN/C: 2=Horton: 3=Gree	n-Ampt: 4=Repeat			
	.030	Manning "n"				
	68.000	SCS Curve No or C				
		Page 34				
		Page 24				

			GORPOST.D/	AT	
	.100 Ia/S	Coefficient			
	5.000 Init:	ial Abstract	ion		
	1 Optio	on 1=Triang	lr; 2=Recta	nglr; 3=SWM HYD; 4=Lin. Rese	erv
	.346	.000	.000	.000 c.m/s	
	.146	.799	.472	C perv/imperv/total	
15	ADD RUNOFF				
	.000	.000	.000	.000 c.m/s	
35	COMMENT				
	3 line(s) o [.]	f comment			
	**********	***********	******		
	West Building	- Rooftop Co	ontrol		
	**********	* * * * * * * * * * * * *	******		
10	POND A Dawth Diach				
	a aga	ange – voru			
	0.000 .0	2020	42.0		
	0.030	2020	126.0		
	0.160 0.0	3040	210.0		
	Peak Outflow	= 0.00	90 c.m/s		
	Maximum Depth	= 000.00	0 metres		
	Maximum Storage	e = 0000	Э. с.m		
	.000	.000	.000	.000 c.m/s	
35	COMMENT				
	3 line(s) o	f comment			
	**********	*********	********	*****	
	Unet Deef ten I	lau ta Cam	lon Ct. Cto		
	west Root-top i	FIOW LO GON	ion st. sto	rm sewer.	
	********	*******	*******	****	
17	COMBINE				
	500 Junction I	Node No.			
	0.000	.000	.000	.000 c.m/s	
14	START				
	1 1=Zero; 2=	=Define			
35	COMMENT				
	3 line(s) o	f comment			
	*********	*******	***		
	East Building	- Roof Area			
	*********	*******	***		
4	CATCUMENT				
4		a á 00000			
	0.230 Area	in hectare			
	1.000 Leng	th (PERV) m	, etres		
	0.500 Grad	ient (%)			
	99.000 Per	cent Imperv:	lous		
	25.000 Leng	th (IMPERV)			
	.000 %Imp	. with Zero	Dpth		

	GORPOST, DAT
	1 Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	.030 Manning "n"
	68.000 SCS Curve No or C
	.100 Ia/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000 .000 c.m/s
	.146 .799 .472 C perv/imperv/total
15	ADD RUNOFF
	.000 .000 .000 .000 c.m/s
35	COMMENT
	3 line(s) of comment

	East Building - Rooftop Control
10	POND
	4 Depth – Discharge – Volume sets
	0.000 .00000 .0
	0.100 .0010 92.0
	0.120 0.0020 138.0
	0.160 0.0040 230.0
	Peak Outflow = 0.000 c.m/s
	Maximum Depth = 000.000 metres
	Maximum Storage = 0000. c.m
	.000 .000 .000 .000 c.m/s
35	COMMENT
	3 line(s) of comment

	East Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	0.000 .000 .000 .000 c.m/s
14	START
	1 1=Zero; 2=Define
35	COMMENT
	3 line(s) of comment ************************************
	Parking Area Catchment

4	CATCHMENT
	204.000 ID No.ó 99999
	0.850 Area in hectares
	1.000 Length (PERV) metres
	1.500 Gradient (%)
	Page 26
	1460 20

	CODDOCT DAT						
	85 000 Per cent Impervious						
	60.000 Length (IMPERV)						
	000 %Tmp with Zero Doth						
	1 Ontion 1=SCS (N/C: 2=Horton: 3=Green-Ampt: 4=Repeat						
	.030 Manning "n"						
	68.000 SCS Curve No or C						
	.100 Ta/S Coefficient						
	5.000 Initial Abstraction						
	1 Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Reserv						
	.346 .000 .000 .000 c.m/s						
	.146 .799 .472 C perv/imperv/total						
15	ADD RUNOFF						
	.000 .000 .000 .000 c.m/s						
35	COMMENT						
	3 line(s) of comment						

	Parking Lot Ponding						

10	POND						
	2 Depth – Discharge – Volume sets						
	42.000 .00000 .0						
	42.300 0.1/30 114.0						
	Peak Outflow = 0.000 c.m/s						
	Maximum Depth = 000.000 metres						
	Maximum Storage = 0000. c.m						
17	COMPTNE						
1/	400 Junction Node No						
	400 Sufference No. 0.000 0.000 0.000 cm/s						
18	CONFLUENCE						
	400 Junction Node No.						
	0.000 0.000 0.000 .000 c.m/s						
35	COMMENT						
	3 line(s) of comment						

	Underground Storage Tank						

10	POND						
	4 Depth – Discharge – Volume sets						
	339.000 .00000 .0						
	339.250 0.0050 88.0						
	340.000 0.0120 350.0						
	340.250 0.0130 438.0						
	Peak Outtiow = 0.000 c.m/s						
	Maximum Depth = 000.000 metres						
	maximum storage = 0000. C.M						
26	.000 .000 .000 .000 .000 .000 .000 .00						
دد	COMMENT						
	Page 27						

			GC	RPOST.DA	т	
	3 l: *****	ine(s) of ********	comment ************	******	*	
	Total	Flow to G	ordon St. Sto	rm Sewer		
	*****	******	*****	******		
17	COMBIN	E				
	500 Ji	unction N	ode No.			
	•	000	.000	.000	.000 c.m/s	
18	CONFLU	ENCE				
	500 J	unction N	ode No.			
14	CTADT	8.000	0.000	0.000	.000 c.m/s	
14	1 1.	-7ero: 2-	Define			
35	COMMEN	-zero, z- T	Del Ille			
	3 1	ine(s) of	comment			
	*****	*******	******	******	*****	
	Undeve.	loped Are	a – Flow to F	orrance w	latersned	
	*****	******	*****	******	****	
4	CATCHM	ENT				
	205.000	ID No	.ó 99999			
	1.440	Area	in hectares			
	120.000	Lengt	n (PERV) metr	es		
	2,000	Bon c	ent (%)	c		
	5.000	Lengt	h (TMPERV)	2		
	.000	%Imp.	with Zero Dp	th		
	1	0ptio	n 1=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Rep	eat
	.030	Manni	ng "n"			
	67.000	SCS C	urve No or C			
	.100	Ia/S	Coefficient			
	5.000	Initi	al Abstractio	n o p t	-1	
	1	00000	n 1=Irlangir;	2=Rectan	igir; 3=SWM HYD; 4=L1r	i. Reserv
		146	799	.000	C perv/imperv/total	
15	ADD RU	NOFF	.,,,,	. 4/2	e per v/ imper v/ cocai	
		.000	.000	.000	.000 c.m/s	
14	START					
	1 1:	=Zero; 2=	Defin			
35	COMMEN	T , , , , , ,				
	/ 1:	1ne(s) o† ********	comment			
	100 - yr	STORM				
				Page 28		
				-		

```
GORPOST.DAT
```

	*****	*****
2	CTODM	
2	510001	1-Chicago, 2-Uluff, 2-Uson, 4-Cdn1hn, E-Uistonis
	1600 000	I=Chicago; Z=Huff; S=USEr; 4=Cuninr; S=Historic
	4088.000	Constant h (min)
	17.000	Constant D (MIN)
	. 902	Exponent c Enoction to pook n
	.400	Praction to peak in
	180.000	Duration o 1500 min
2	TMDEDV	25.003 mm Total depth
2	IMPERV	Option 1-SCS CN/C+ 2-Monton+ 2-Cross Ampt+ 4-Bonost
	010	Monning "p"
	.010	Fidiliting II
	100	Ta/S Coofficient
	1 500	Initial Abstraction
25	COMMEN	T
55	2 1	ine(s) of commont
	******	*****
	Uncont	rolled Flow to Gordon Street
	******	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
4	CATCUM	ENT
4	201 000	EN I
	201.000	ID NO.0 99999
	1 000	Ared In nectories
	2,000	Cradient (%)
	70 000	Ben cent Impenvious
	10.000	longth (IMPERV)
	10.000	%Imp_with Zono Doth
	.000	Ontion 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	630	Manning "n"
	68 000	SCS Curve No on C
	100	Ta/S Coefficient
	5 000	Initial Abstraction
	5.000	Ontion 1=Trianglr: 2=Rectanglr: 3=SWM HVD: 4=Lin Reserv
	-	.025 .000 .000 .000 c.m/s
		.093 .794 .107 Cnerv/imnerv/total
15	ADD RU	NOFF
		.000 .000 .000 .000 c.m/s
9	ROUTE	,
	.000	Conduit Length
	.000	No Conduit defined
	.000	Zero lag
	.000	Beta weighting factor
	.000	Routing timestep
	0	No. of sub-reaches
		Dago 20
		rage 25

		GORPOST.D	AT	
	.000 .000	.000	.000 c.m/s	
17	COMBINE			
	500 Junction Node No.			
	0.000 .000	.000	.000 c.m/s	
14	START			
	1 1=Zero; 2=Define			
35	COMMENT			
	<pre>3 Line(s) of comment *********************************</pre>	****		
	West Building - Roof Are	ea *****		
4	CATCHMENT			
	202.000 ID No.o 99999			
	0.210 Area in hectar	res .		
	1.000 Length (PERV)	metres		
	0.500 Gradient (%)			
	99.000 Per cent Imper	rvious		
	40.000 Length (IMPER)	/) 		
	.000 %imp. with Zer	ro Upth		+
	1 Option 1=StS C	IN/C; Z=Horid	n; 3=Green-Ampt; 4=Re	peac
	.030 Manning n			
	100 Ta/S Coofficie	or c		
	E 000 Tritial Abstra	action		
	1 Option 1-This	alp: 2-Pocta		Pocony
	346 000	1g11, 2-Recta	000 c m/s	n. Keserv
	146 799	472	C nerv/imperv/total	
15	ADD RUNGEE	. 4/2	e per t/ imper t/ cocui	
10	.000 .000	. 999	.000 c.m/s	
35	COMMENT	1000	1000 2111, 5	
	3 line(s) of comment			
	*********	******		
	West Building - Rooftop	Control		
	*****	*******		
10	POND			
	4 Depth - Discharge - Vo	lume sets		
	0.000 .00000	.0		
	0.080 .0020	42.0		
	0.120 0.0030	126.0		
	0.160 0.0040	210.0		
	Peak Outflow = 0.	.000 c.m/s		
	Maximum Depth = 000.	.000 metres		
	Maximum Storage = 00	Э00. с.m		
	.000 .000	.000	.000 c.m/s	
35	COMMENT			
	3 line(s) of comment			
	******	**********	*****	

GORPOST.DAT

West Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE	
	500 Junction Node No.	
	0.000 .000 .000	.000 c.m/s
14	START	
	1 1=Zero; 2=Define	
35	COMMENT	
	3 line(s) of comment	

	East Building - Roof Area	

4	CATCHMENT	
	203.000 ID No.ó 99999	
	0.230 Area in hectares	
	1.000 Length (PERV) metres	
	0.500 Gradient (%)	
	99.000 Per cent Impervious	
	25.000 Length (IMPERV)	
	.000 %Imp. with Zero Dpth	
	1 Option 1=SCS CN/C: 2=Hort	on: 3=Green-Ampt: 4=Repeat
	.030 Manning "n"	
	68.000 SCS Curve No or C	
	.100 Ia/S Coefficient	
	5.000 Initial Abstraction	
	1 Option 1=Trianglr; 2=Rect	anglr; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000	.000 c.m/s
	.146 .799 .472	C perv/imperv/total
15	ADD RUNOFF	· · · · · · · · · · · · · · · · · · ·
	.000 .000 .000	.000 c.m/s
35	COMMENT	
	3 line(s) of comment	

	East Building - Rooftop Control	

10	POND	
	4 Depth - Discharge - Volume sets	
	0.000 .00000 .0	
	0.100 .0010 92.0	
	0.120 0.0020 138.0	
	0.160 0.0040 230.0	
	Peak Outflow = 0.000 c.m/s	
	Maximum Depth = 000.000 metres	
	Maximum Storage = 0000. c.m	
	.000 .000.	.000 c.m/s
	Page 31	
	Page 31	

	GORPOST.DAT
35	COMMENT
	<pre>3 line(s) of comment</pre>

	East Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	0.000 .000 .000 .000 c.m/s
14	START
25	1 1=Zero; Z=Detine
35	CUMMENI
	3 IIIe(S) OT comment
	Parking area Catchment

4	CATCHMENT
	204.000 ID No.ó 99999
	0.850 Area in hectares
	1.000 Length (PERV) metres
	1.500 Gradient (%)
	85.000 Per cent Impervious
	60.000 Length (IMPERV)
	.000 %Imp. with Zero Dpth
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030 Manning "n"
	68.000 SCS Curve No or C
	.100 Ia/S Coetticient
	5.000 Initial Adstraction
	1 Option I=Iriangir; 2=Rectangir; 3=SWM HYD; 4=Lin. Reserv
	.346 .000 .000 .000 .m/s
15	
15	ADD NONOTT 000 000 000 000 cm/s
35	COMMENT
	3 line(s) of comment

	Parking Lot Ponding

10	POND
	2 Depth – Discharge – Volume sets
	42.000 .00000 .0
	42.300 0.1730 114.0
	Peak Outflow = 0.000 c.m/s
	Maximum Deptn = 000.000 metres
	Maximum procage = 0000. c.m
	Page 32

		GORPOST.OUT
	Output Fi Units use 300	lle (4.7) GORPOST.out opened 2020-03-27 11:30 d are defined by G = 9.810 600 15:000 are MAXDT MAXHYD & DTMIN values
35	Licensee: COMMENT 5 line ********	Paragon Engineering Limited :(s) of comment *************
	1250 Gord Stormwate March 202 *********	lon Street - 1614-13884 r Management Modelling 20 - C. Phelps ***************
14	START	
	1 1=Z€	ero; 2=Define
35	COMMENT	
	/ 11ne ********	2(5) OT COMMENT ************
	2-yr STOF	RM
	*******	*****
2	STORM	
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic
	743.000	Coefficient a
	5.000	Constant D (min)
	.400	Exponent to neak r
	180.000	Duration ó 4500 min
		34.242 mm Total depth
3	IMPERVIOU	IS
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	010.	Manning n
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=Ze	ero; 2=Define
35	COMMENT	
	3 11NE ********	(\$) OT COMMENT *********************
	Uncontro] *********	lled Flow to Gordon Street
4	CATCHMENT	-
	201.000	ID No.ó 99999
	.120	Area in hectares
	2,000	Lengtn (PERV) metres Gradient (%)
	2.000	Page 1
		rage 1

				c.	ORPOST O	цт	
		70.000	Per o	ent Impervio	15		
		10.000	Lengt	th (IMPERV)			
values		.000	%Imp.	. with Zero D	oth		
		1	Optic	on 1=SCS CN/C	; 2=Horto	on; 3=Green-Ampt; 4=Repe	at
		.030	Manni	ing "n"			
		68.000	SCS (Curve No or C			
		.100	Ia/S	Coefficient			
		5.000	Initi	ial Abstracti	on		
		1	Optic	on 1=Trianglr	; 2=Recta	anglr; 3=SWM HYD; 4=Lin	Reserv
			.007	.000	.000	.000 c.m/s	
			.009	.185	.132	C perv/imperv/total	
	15	ADD RU	INOFF	007	000	000 (
	0	DOUTE	.007	.007	.000	.000 c.m/s	
	9	RUUTE	Condu	uit Longth			
		.000	No. Co	onduit define	4		
		.000	Zero	lag	4		
		.000	Beta	weighting fa	tor		
		.000	Routi	ing timestep			
		0	No. d	of sub-reache	s		
			.007	.007	.007	.000 c.m/s	
	17	COMBIN	1E				
		500 3	Junction M	Node No.			
			.007	.007	.007	.007 c.m/s	
	14	START					
		1 1	.=Zero; 2=	=Define			
	35	COMMEN	11	· ·			
		3	.ine(s) of	r comment	*		
		Wost F	uilding -	- Poof Anos			
		west t	•uTTUTUB -	- NUUT AI'EB	*		

*********** CATCHMENT 202.000 .210 1.000 .500 99.000 40.000 .000

1 .030 68.000 .100 1

ADD RUNOFF

4

15

CATCHINENT				
205.000	ID No.ó	99999		
1.440	Area in	hectares		
			Page	33

10	CON	LOFUCE			
	500	Junctior	Node No.		
		0.000	0.000	0.000	.000 c.m/s
14	STA	RT			
	1	1=Zero;	2=Define		
35	COM	MENT			
	3	line(s)	of comment		
	***	******	*****	********	****
	Und	eveloped A	rea - Flow t	o Torrance W	latershed
	***	*******	*****	***********	****

18	CONFLUENCE			
	400 Junctic	on Node No.		
	0.000	0.000	0.000	.000 c.m/s
35	COMMENT			
	3 line(s)	of comment		
	*******	*****		
	Underground	Storage Tank		
	********	*****		
10	POND			
	4 Depth - Dis	charge – Volume	sets	
	339.000	.00000	.0	
	339.250	0.0050	94.0	
	340.000	0.0120 3	50.0	
	340.250	0.0130 4	38.0	
	Peak Outflow	= 0.000	c.m/s	
	Maximum Dept	h = 000.000	metres	
	Maximum Stor	age = 0000.	c.m	
	.000	.000	.000	.000 c.m/s
35	COMMENT			
	3 line(s)	of comment		
	********	*****	******	
	Total Flow t	o Gordon St. St	orm Sewer	
	********	*****	******	
17	COMBINE			
	500 Junctic	on Node No.		
	0.000	.000	.000	.000 c.m/s
18	CONFLUENCE			

.000

.000 COMBINE '0

OMBINE 0 Junction Node No. 0.000 0.000 CONFLUENCE

17

18

18 500

4

CATCHMENT

400

GORPOST.DAT

.000 c.m/s

.000 c.m/s

.000

0.000

		GORPOST.	DAT	
120.000	Length (PEF	V) metres		
4.000	Gradient (%	5)		
2.000	Per cent Im	pervious		
5.000	Length (IMF	ERV)		
.000	%Imp. with	Zero Dpth		
1	Option 1=SC	S CN/C; 2=Hort	on; 3=Green-Ampt; 4=	Repeat
.030	Manning "n'			
67.000	SCS Curve M	lo or C		
.100	Ia/S Coeffi	cient		
5.000	Initial Abs	traction		
1	Option 1=Tr	ianglr; 2=Rect	anglr; 3=SWM HYD; 4=	Lin. Reserv
	.346 .00	000.000	.000 c.m/s	
	.146 .79	9.472	C perv/imperv/tot	al
15 ADD R	UNOFF			

.000

.000 c.m/s

.000

1=Zero; 2=Defin

START

MANUAL

14 1

20

.000

Page 34

ENT IN No.6 99999 Area in hectares Length (PERV) metres Gradient (%) Per cent Impervious Length (IMPERV) %IDD. with Zero Dpth Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat Manning "n" SCS Curve No or C Ia/S Coefficient Initial Abstraction Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .014 .000 .007 .007 c.m/s .009 .188 .186 C perv/imperv/total NNOFF Page 2

			GORPC	ST.OUT				
		014 .01	4.0	97	.007	c.m/s		
35	COMMENT							
	3 lin	e(s) of comme	nt					
	******	******	*******	**				
	West Bui	lding – Rooft	op Control					
	*******	**********	********	**				
10	POND							
	4 Depth -	Discharge -	Volume set:	s				
	.000	.000	.0					
	.080	.00200	42.0					
	.120	.00300	126.0					
	Book Out	.00400	210.0 001 c m	10				
	Maximum	Dopth =	057 mot	/ 5 noc				
	Maximum	Storage =	30 cm					
	, interviewent	014 .01	4 .0	91	.007	c.m/s		
35	COMMENT			-				
	3 lin	e(s) of comme	nt					
	******	****	*******	******	*****	ĸ		
	West Roc	of-top Flow to	Gordon St	. Storm	Sewer			
	*****	****	******	*****	*****	k		
17	COMBINE							
	500 Jun	iction Node No	•					
		014 .01	4.0	91	.007	c.m/s		
14	5 TAKI 1 1-7	ana, 2 Define						
25	COMMENT	ero; z=berine						
55	3 lin	e(s) of comme	nt					
	******	*****	******					
	East Bui	lding - Roof	Area					
	******	*****	******					
4	CATCHMEN	IT						
	203.000	ID No.ó 999	99					
	.230	Area in hec	tares					
	1.000	Length (PER	V) metres					
	.500	Gradient (%	·) .					
	99.000	Per cent Im	pervious					
	25.000	YTmp with	ERV) Zana Doth					
	.000	Ontion 1-SC		Honton .	2=Gnor	on-Amot.	4-Popor	. +
	030	Manning "n"	5 CN/C, 2-I	ior con,	5-0166	en-Ampe,	4-Nepea	ac
	68,000	SCS Curve N	o or C					
	.100	Ia/S Coeffi	cient					
	5.000	Initial Abs	traction					
	1	Option 1=Tr	ianglr; 2=	Rectang	lr; 3=9	SWM HYD;	4=Lin.	Reserv
		015 .00	0.0	91	.007	c.m/s		
		009 .18	5.1	83	C perv,	/imperv/	total	
15	ADD RUNG)FF						

				GORPOS	T.OUT	
		.048	.048	.00	9.007	c.m/s
35	COMM	ENT				
	3 ****	line(s) c	f comment			
	Park ****	ing Lot Pc *********	nding *******			
10	POND					
	2 Dep	th - Disch	arge - Vo	lume sets		
	42.	900	.000	.0		
	42.	300	.1/3	114.0	_	
	Реак Мохіи	OUTTION	= 40	.035 C.M/:	5	
	Maxi	num Storag	- +2 e =	23 cm	- 3	
	TIGAT	.048	.048	.03	5 .007	c.m/s
17	COMB	INE				
	400	Junction	Node No.			
		.048	.048	.03	5.035	c.m/s
18	CONF	LUENCE	N - d - N -			
	400	Junction	Node No.	62	- 000	c m/c
35	COMM	.040 FNT	.055	.05	.000	C.111/ 3
	3	line(s) d	f comment			
	****	******	******	****		
	Unde ****	rground St ********	orage Tan *******	k ****		
10	POND					
	4 Dep	th <mark>-</mark> Disch	arge - Vo	lume sets		
	339.	900	.000	.0		
	339.	250.	00500	88.0		
	340.	200	.0120	120.0		
	Peak	Outflow	-0150	430.0 005 c m/	e	
	Maxi	num Depth	= 339	.284 metro	25	
	Maxi	mum Storag	e =	100. c.m		
		.048	.035	.00	5.000	c.m/s
35	COMM	ENT				
	3	11ne(s) c	+ comment	*******	*****	
	Tota	1 Flow to	Gordon St	Storm S	ewer	
	****	*******	******	*******	****	
17	COMB	INE				
	500	Junction	Node No.			
		.048	.035	.00	5.007	c.m/s
18	CONF	LUENCE	Nodo No			
	300	0/8 0/8	NOUE NO. 007	99	5 000	cm/s
14	STAR	+0 T	.007	.00		C.m/ 5
	1	1=Zero; 2	=Define			
				Рая	e 5	
				B		

					BROCT OU	т			
		015	015	0.	001	007	c m/s		
35	COMMEN	т. 015	.015		.001	.007	C.m/ 5		
55	3 1	ine(s) of	comment	-					
	*****	*******	*******	- *****	****				
	East B	uilding -	Rooftor	Cont	rol				
	*****	*******	******	*****	****				
10	POND								
	4 Depth	- Discha	rge - Vo	lume	sets				
	.00	0	. 000		.0				
	.10	0.0	0100	9	2.0				
	.12	0.0	0200	13	8.0				
	.16	0.0	0400	23	0.0				
	Peak O	utflow	-	.000	c.m/s				
	Maximu	m Depth	-	.043	metres				
	Maximu	m Storage	=	40.	c.m				
		.015	.015		.000	.007	c.m/s		
35	COMMEN	т							
	31	ine(s) of	comment	:					
	*****	*******	******	*****	******	******	**		
	East R	oof-top F	low to (Gordon	St. Stor	rm Sewer			
	*****	*******	******	*****	******	******	**		
17	COMBIN	E							
	500 J	unction N	ode No.				,		
		.015	.015		.000	.007	c.m/s		
14	START	7							
25		=Zero; Z=I T	Define						
35		ino(c) of	commont	_					
	> 1 *****	********	******	-					
	Parkin	a Area Ca	tchment						
	*****	*******	******						
4	CATCHM	ENT							
	204.000	TD No	. ó 99999	9					
	.850	Area	in hecta	ares					
	1.000	Lengt	h (PERV)) metr	es				
	1.500	Gradi	ent (%)						
	85.000	Per c	ent Impe	erviou	s				
	60.000	Lengt	h (IMPEF	₹V)					
	.000	%Imp.	with Ze	ero Dp	th				
	1	Optio	n 1=SCS	CN/C;	2=Hortor	n; 3=Gre	en-Ampt;	4=Repea	at
	.030	Manni	ng "n"						
	68.000	SCS C	urve No	or C					
	.100	Ia/S	Coeffici	lent					
	5.000	Initi	al Abstr	ractio	n				
	1	Optio	n 1=Tria	anglr;	2=Rectar	nglr; 3=	SWM HYD;	4=Lin.	Reserv
		.048	.000		.000	.007	c.m/s		
45		.009	.187		.160	C perv	/imperv/	total	
15	ADD RU	NOFF							

Page 4

GORPOST.OUT 35 COMMENT 3 line(s) of comment Undeveloped Area - Flow to Torrance Watershed 4 ID No.6 99999 Area in hectares Length (PERV) metres Gradient (%) Per cent Impervious Length (IMPERV) %Imp. with Zero Dpth Option 1-SCS CW/C; 2-Horton; 3=Green-Ampt; 4=Repeat Manning "n" SCS Curve No or C Ia/S Coefficient Initial Abstraction Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv .003 .000 .005 .000 c.m/s .009 .175 .012 C perv/imperv/total NOFF ID No.ó 99999 .000 1 .030 67.000 .100 5.000 1 ADD RUNOFF 15 .003 .005 .000 c.m/s .003 14 START 1=Zero; 2=Define 1 COMMENT 35 7 line(s) of comment 5-yr STORM ***** 2 STORM 1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic Coefficient a Constant b (min) Exponent c Fraction to peak r Duration ó 4500 min 47.219 mm Total depth US 1 1593.000 11.000 .879 .400 180.000 IMPERVIOUS 3 S Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat Manning "n" SCS Curve No or C Ia/S Coefficient Initial Abstraction 1 010. 98.000 .100

				GORPOST O	іт	
14	START			0011 001.00		
14	1 1=7	aro: 2=	ofino			
35	COMMENT		Jet Inc			
55	3 lir	a(s) of	comment			
	*******	*****	*********	******		
	Uncontro	lled Fl	ow to Gordon	Street		
	******	******	*********	*******		
4	CATCHMEN	IT				
	201.000	ID No	ó 99999			
	.120	Area	in hectares			
	1.000	Lengt	n (PERV) met	res		
	2.000	Gradi	ent (%)			
	70.000	Per c	ent Impervic	us		
	10.000	Lengt	1 (IMPERV)			
	.000	%Imp.	with Zero D	pth		
	1	Optio	1 1=SCS CN/C	; 2=Horto	n; 3=Green-Ampt; 4=Re	peat
	.030	Manni	ng "n"			
	68.000		irve No or C			
	. 100	Id/S Tni+i	.Oetticient			
	3.000	Ontio	1 ADStracti	.un 2-Rocta	ngln · 2-SWM HVD · 4-Li	n Pocony
	1	012 012	000	, 2=RECLA	000 c m/s	an. Reserv
	•	012	.212	.154	C nerv/imnerv/total	
15	ADD RUNC)FF			e per 0, imper 0, cocui	
		012	.012	.005	.000 c.m/s	
9	ROUTE					
	.000	Condu	it Length			
	.000	No Co	nduit define	d		
	.000	Zero	Lag			
	.000	Beta ı	veighting fa	ictor		
	.000	Routi	ng timestep			
	0	No. o [.]	f sub-reache	s		
	•	012	.012	.012	.000 c.m/s	
17	COMBINE					
	500 Jur	iction N	ode No.			
		012	.012	.012	.012 c.m/s	
14	START					
25		ero; z=	Jet Tue			
55	2 lin	o(s) of	commont			
	********	*******	**********	*		
	West Bui	lding -	Roof Area			
	*******	******	**********	*		
4	CATCHMEN	IT				
	202.000	ID No	ó 99999			
	.210	Area	in hectares			
	1.000	Lengt	ı (PERV) met	res		
	.500	Gradi	ent (%)			

Page /

		0	OPPOST OF	IT	
	99.000 Per	cent Impervio	1016-051.00		
	40.000 Leng	th (IMPERV)			
	.000 %Imp	. with Zero D	pth		
	1 Opti	on 1=SCS CN/C	: 2=Horto	n; 3=Green-Ampt; 4=Repeat	
	.030 Mann	ing "n"	,	, , , , , , , , , , , , , , , , , , , ,	
	68.000 SCS	Curve No or C			
	.100 Ia/S	Coefficient			
	5.000 Init	ial Abstracti	on		
	1 Opti	on 1=Trianglr	; 2=Recta	nglr; 3=SWM HYD; 4=Lin. Rese	erv
	.024	.000	.012	.012 c.m/s	
	.018	.214	.212	C perv/imperv/total	
15	ADD RUNOFF				
	.024	.024	.012	.012 c.m/s	
35	COMMENT				
	3 line(s) o	f comment			
	********	******	*****		
	West Building	 Rooftop Con 	trol		
	*********	*****	*****		
10	POND				
	4 Depth - Disch	arge – Volume	sets		
	.000	.000	.0		
	.080 .	00200	42.0		
	.120 .	00300 1	26.0		
	.160 .	00400 2	10.0		
	Peak Out+low	= .002	c.m/s		
	Maximum Depth	= .083	metres		
	Maximum Storag	e = 48.	c.m	010(
25	.024	.024	.002	.012 c.m/s	
35	COMMENT 2 line(c) o	f commont			
	**************************************	**********	******	****	
	West Roof-ton	Flow to Gordo	n st sto	rm Sewer	
	***********	************	********	*****	
17	COMBINE				
1,	500 Junction	Node No			
	.024	.024	.002	.012 c.m/s	
14	START				
	1 1=Zero: 2	=Define			
35	COMMENT				
	3 line(s) o	f comment			
	*******	*****	*		
	East Building	- Roof Area			
	**********	******	*		
4	CATCHMENT				
	203.000 ID N	o.ó 99999			
	.230 Area	in hectares			
	1.000 Leng	th (PERV) met	res		
	.500 Grad	ient (%)			
			Page 8		

	GORPOST.OUT	
	99.000 Per cent Impervious	
	25.000 Length (IMPERV)	
	.000 %Imp. with Zero Dpth	
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	
	.030 Manning "n"	
	68.000 SCS Curve No or C	
	.100 Ia/S Coefficient	
	5.000 Initial Abstraction	
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv	
	.026 .000 .002 .012 c.m/s	
	.018 .218 .216 C perv/imperv/total	
15	ADD RUNOFF	
	.026 .026 .002 .012 c.m/s	
35	COMMENT	
	3 line(s) of comment	
	East Building - Roottop Control	
10	DOND	
10	A Depth - Dischange - Velume sets	
	4 Depth - Discharge - Volume sets	
	100 00100 92.0	
	120 00200 138.0	
	160 00400 230 0	
	Peak Outflow = .001 c.m/s	
	Maximum Depth = .071 metres	
	Maximum Storage = 65. c.m	
	.026 .026 .001 .012 c.m/s	
35	COMMENT	
	3 line(s) of comment	

	East Roof-top Flow to Gordon St. Storm Sewer	

17	COMBINE	
	500 Junction Node No.	
	.026 .026 .001 .012 c.m/s	
14	START	
	1 1=Zero; 2=Define	
35	COMMENT	
	3 Line(s) of comment	
	Darking Anas Catabuant	

4	CATCHMENT	
4	204 000 TD No ó 99999	
	.850 Area in hectares	
	1.000 length (PERV) metres	
	1.500 Gradient (%)	
	(·-/	
	Page 9	

			G	ORPOST.OU	т		
	85.000	Per cent I	mperviou	IS			
	60.000	Length (IM	PERV)				
	.000	%Imp. with	Zero Dr	oth			
	1	Option 1=S	CS CN/C;	2=Horton	; 3=Green•	-Ampt; 4=Repe	at
	.030	Manning "n					
	68.000	SCS Curve	No or C				
	.100	Ia/S Coeff	icient				
	5.000	Initial Ab	stractio	on			
	1	Option 1=T	rianglr;	2=Rectan	iglr; 3=SWM	4 HYD; 4=Lin.	Reserv
		084 .0	00 -	.001	.012 c.	.m/s	
		018 .2	15	.185	C perv/ir	nperv/total	
15	ADD RUNO	FF			-		
		084 .0	84	.001	.012 c.	.m/s	
35	COMMENT						
	3 lin	e(s) of comm	ent				
	******	********	**				
	Parking	Lot Ponding					
	*******	*********	**				
10	POND						
	2 Depth -	Discharge -	Volume	sets			
	42.000	.000		.0			
	42.300	.173	11	4.0			
	Peak Out	flow =	.065	c.m/s			
	Maximum	Depth =	42.113	metres			
	Maximum	Storage =	43.	c.m			
	•	084 .0	84	.065	.012 c.	.m/s	
17	COMBINE						
	400 Jun	ction Node N	ο.				
	•	084 .0	84	.065	.065 c.	.m/s	
18	CONFLUEN	CE					
	400 Jun	ction Node N	ο.				
	•	084 .0	65	.065	.000 c.	.m/s	
35	COMMENT						
	3 lin	e(s) of comm	ent				
	*******	*********	******				
	Undergro	und Storage	Tank				
	******	********	******				
10	POND						
	4 Depth -	Discharge -	Volume	sets			
	339.000	.000		.0			
	339.250	.00500	8	38.0			
	340.000	.0120	35	0.0			
	340.250	.0130	43	18.0			
	Peak Out	TTOM =	.007	c.m/s			
	Maximum	veptn =	339.486	metres			
	Maximum	storage =	1/0.	c.m	000 -		
25	COMMENT	084 .0	05	.00/	.000 C.	.m/s	
35	COMMENT						
				Page 10			

	GORDOST OUT			
	3 line(s) of comment		2221.000	Со
	************		12.000	Со
	Total Flow to Gordon St. Storm Sewer		.908	Ex
	********		.400	Fr
17	COMBINE		180.000	Du
	500 Junction Node No.		5	6.
	.084 .065 .007 .013 c.m/s	3	IMPERVIOUS	
18	CONFLUENCE		1	0p
	500 Junction Node No.		.010	Ма
	.084 .013 .007 .000 c.m/s		98.000	SC
14	- START		.100	Ia
	1 1=Zero; 2=Define		1.500	In
35	COMMENT	14	START	
	3 line(s) of comment		1 1=Zer	0;
	*******	35	COMMENT	
	Undeveloped Area - Flow to Torrance Watershed		3 line(s)
	********		********	**
4	CATCHMENT		Uncontroll	ed
	205.000 ID No.0 99999		*******	**
	1.440 Area in hectares	4	CATCHMENT	-
	120.000 Length (PERV) metres		201.000	1D
	4.000 Gradient (%)		.120	Ar
	2.000 Per cent impervious		1.000	Le Cm
	5.000 Length (InPERV)		2.000	ur De
	.000 Allip. With Zero Dpth		10.000	Pe
	Option 1=StS tw/t; 2=Horiton; 3=Green-Ampt; 4=Repeat Manning "n"		10.000	vT
	57 000 FGE Curryo No on C		.000	/01 On
	100 Ta/S Coofficient		020	Ma
	5 000 Initial Abstraction		69 000	sc
	1 Ontion 1=Trianglr: 2=Rectanglr: 3=SWM HVD: 4=Lin Reser	Y.	100	Ta
		•	5.000	In
	018 197 022 Cnerv/imperv/total		1	0n
15	ADD RUNGEE		01	7
	.005 .005 .007 .000 c.m/s		.02	5
14	START	15	ADD RUNOFF	
	1 1=Zero: 2=Define		.01	7
35	COMMENT	9	ROUTE	
	7 line(s) of comment		.000	Со
	***********		.000	No
			.000	Ze
			.000	Be
	10-yr STORM		.000	Ro
			0	No
			.01	7
	*******	17	COMBINE	
2	STORM		500 Junct	io
	1 1=Chicago; 2=Huff; 3=User; 4=Cdn1hr; 5=Historic		.01	7

	2221.000	Coefficient a
	12.000	Constant b (min)
	.908	Exponent c
	.400	Fraction to peak r
	180.000	Duration ó 4500 min
		56.266 mm Total depth
3	IMPERVI	ous
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.010	Manning "n"
	98.000	SCS Curve No or C
	.100	Ia/S Coefficient
	1.500	Initial Abstraction
14	START	
	1 1=	Zero: 2=Define
35	COMMENT	
	3 11	ne(s) of comment
	******	****
	Uncontr	olled Flow to Gordon Street
	******	*****
4	CATCHME	NT
	201.000	TD No. 6 99999
	. 120	Area in hectares
	1.000	length (PERV) metres
	2,000	Gradient (%)
	70 000	Per cent Impervious
	10.000	length (IMPERV)
	10.000	%Imp_with Zero Doth
	.000	Ontion 1=SCS (N/C: 2=Horton: 3=Green_Amnt: 4=Reneat
	630	Manning "n"
	68 000	SCS Curve No or C
	100	Ja/S Coefficient
	5 000	Initial Abstraction
	5.000	Ontion 1=Trianglr: 2=Rectanglr: 3=SWM HVD: A=Lin Reserv
	-	017 000 007 000 cm/s
		025 224 164 C nerv/imnerv/total
15		
15	ADD NOR	017 017 007 000 cm/s
9	ROUTE	.01/ .01/ .00/ .000 (.11/3
	000	Conduit Length
	.000	No Conduit defined
	.000	Zero lag
	.000	Reta weighting factor
	.000	Bouting timesten
	.000	No. of sub poschos
	0	017 017 017 000 c m/c
17	COMPTNE	.01/ .01/ .01/ .000 C.M/S
1/	500 7	nction Node No
	500 50	017 017 017 017 017 cm/c
		.01/ .01/ .01/ .01/ .01/ .01/
		Page 12

GORPOST.OUT

	GORPOST.OUT				
14	START				
25	1 1=Zero; 2=Define				
35	CUMMENI				

	West Building – Roof Area *******************				
4	CATCHMENT				
	202.000 ID No.ó 99999				
	.210 Area in hectares				
	1.000 Length (PERV) metres				
	.500 Gradient (%)				
	99.000 Per cent Impervious				
	40.000 Length (IMPERV)				
	.000 %imp. with Zero Dpth				
	Ampli anning "n"				
	68,000 SCS Curve No or C				
	.100 Ia/S Coefficient				
	5.000 Initial Abstraction				
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv				
	.031 .000 .017 .017 c.m/s				
	.025 .230 .228 C perv/imperv/total				
15	ADD RUNOFF				
25	.031 .031 .017 .017 c.m/s				
35	CUMMENT				

	West Building - Roofton Control				

10	POND				
	4 Depth – Discharge – Volume sets				
	.000 .000 .0				
	.080 .00200 42.0				
	.120 .00300 126.0				
	.160 .00400 210.0				
	Maximum Denth = 000 metres				
	Maximum Storage = 64. c.m				
	.031 .031 .002 .017 c.m/s				
35	COMMENT				
	3 line(s) of comment				

	West Roof-top Flow to Gordon St. Storm Sewer ***********************************				
17	COMBINE				
	500 Junction Node No.				
	.031 .031 .002 .018 c.m/s				
	Page 13				

1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic Page 11

14	START
	1 1=Zero; 2=Define
35	COMMENT
	3 line(s) of comment

	East Building _ Boof Apop
	cast buttuting - Noor Area

4	CATCHMENT
	203.000 ID No.ò 99999
	.230 Area in hectares
	1.000 Length (PERV) metres
	.500 Gradient (%)
	99.000 Per cent Impervious
	25,000 Length (IMPERV)
	.000 %Tmn, with Zero Dnth
	1 Ontion 1=SCS (N/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	All Manning "n"
	68 000 SCS Currie No on C
	100 Ta/S Coefficient
	.100 Ta/S COEfficient
	5.000 Initial Austraction
	1 Option I=Triangir; Z=Rectangir; 3=SWM HYD; 4=Lin. Reserv
	.033 .000 .002 .018 C.m/S
	.025 .232 .230 C perv/imperv/total
15	ADD RUNOFF
	.033 .033 .002 .018 c.m/s
35	COMMENT
	3 line(s) of comment

	East Building – Rooftop Control

10	POND
	4 Depth – Discharge – Volume sets
	.000 .000 .0
	.100 .00100 92.0
	.120 .00200 138.0
	.160 .00400 230.0
	Peak Outflow = .001 c.m/s
	Maximum Depth = .090 metres
	Maximum Storage = 83 c m
	A33 A33 A01 A18 c m/s
35	COMMENT
55	2 line(c) of commont
	5 IIIe(5) 01 Comment
	Fact Deef ten Flev te Conden Ct. Stern Seven
	East Root-top Flow to Gordon St. Storm Sewer
47	**************************************
17	COMBINE
	JUNCTION NODE NO.
	.033 .033 .001 .018 C.M/S
	Page 14
	5

GORPOST.OUT

14 START 1 1=Zero; 2=Define 35 COMMENT 3 line(s) of comment Parking Area Catchment ************************************	
1 1=Zero; 2=Define 35 COMMENT 3 line(s) of comment ************************************	
35 COMMENT 3 line(s) of comment ************************************	
<pre>3 line(s) or comment ************************ Parking Area Catchment ************************************</pre>	
Parking Area Catchment	
4 CATCIMENT	
204 000 TD No ó 99999	
.850 Area in hectares	
1.000 Length (PERV) metres	
1.500 Gradient (%)	
85.000 Per cent Impervious	
60.000 Length (IMPERV)	
.000 %Imp. with Zero Dpth	
1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat	
.030 Manning "n"	
68.000 SCS Curve No or C	
.100 Ia/S Coefficient	
5.000 Initial Abstraction	
1 Option 1=IriangIr; 2=RectangIr; 3=SWM HYD; 4=Lin. Reserv	
.110 .000 .001 .018 c.m/s	
.025 .231 .200 C perv/imperv/totai	
10 110 001 012 cm/c	
35 COMMENT	
3 line(s) of comment	

Parking Lot Ponding	

2 Depth - Discharge - Volume sets	
42.000 .000 .0	
42.300 .173 114.0	
Peak Outflow = .090 c.m/s	
Maximum Depth = 42.157 metres	
Maximum Storage = 60. c.m	
.110 .110 .090 .018 c.m/s	
17 COMBINE	
400 Junction Node No.	
.110 .110 .090 .090 c.m/s	
18 CONFLUENCE	
400 JUNCLION NODE NO.	
35 COMMENT	
3 line(s) of comment	

Underground Storage Tank	
Page 15	

				GORPOST.0	TL	
	******	********	*********			
10	POND					
	4 Depth	- Dischar	ge – Volume	e sets		
	339.000	э.	900	.0		
	339.256	9 .00	500	88.0		
	340.000	.0	120 3	50.0		
	340.250	.0	130 4	38.0		
	Peak Ou	ut+low	= .009	c.m/s		
	Maximur	n Depth	= 339.642	metres		
	Maximur	n Storage	= 225.	c.m	000	
25	COMMENT	.110	.090	.009	.000 C.m/S	
55	3 1	ine(s) of	comment			
	******	********	********	****		
	Total H	low to Go	rdon St. St	orm Sewer		
	******	********	*********	*******		
17	COMBINE					
	500 Ju	unction No	de No.			
		.110	.090	.009	.019 c.m/s	
18	CONFLUE	ENCE				
	500 Ji	Inction No	de No.			
14	CTADT	.110	.019	.009	.000 c.m/s	
14	1 1	-Zero: 2-D	afina			
35	COMMENT	-2010, 2-0	er inc			
	3 1:	ine(s) of (comment			
	******	*********	*********	******	*****	
	Undeve.	loped Area	- Flow to	Torrance	Watershed	
	*****	********	*********	******	*****	
4	CATCHM	ENT	,			
	205.000	ID No.	5 99999			
	1.440	Area 1	n nectares			
	120.000	Cengtin	(PERV) met	res		
	2 000	Per ce	nt (/0) nt Impervic	e		
	5 000	Length	(TMPERV)	03		
	.000	%Imp. v	with Zero D	pth		
	1	Option	1=SCS CN/C	; 2=Horto	n; 3=Green-Ampt; 4=Repeat	
	.030	Mannin	g "n" .		, , , ,	
	67.000	SCS Cu	rve No or C	:		
	.100	Ia/S C	pefficient			
	5.000	Initia	l Abstracti	.on		
	1	Option	1=Trianglr	; 2=Recta	nglr; 3=SWM HYD; 4=Lin. Re	serv
		.009	.000	.009	.000 c.m/s	
15		.024	.20/	.028	c perv/imperv/total	
12	ADD KUI	000	009	669	000 c m/s	
14	START		.009	.009	.000 (/3	
14	STAN					
				Page 16		

Page 16

		GORPOST.OUT			
	1 1=Zero; 2=Define				
35	COMMENT	(a) of commont			
	/ 11IE	**************************************			
	25-yr STC	RM			
	*******	******			
2	STORM				
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic			
	3158.000	Coefficient a			
	15.000	Constant b (min)			
	.935	Exponent c			
	.400	Fraction to peak r			
	180.000	Duration ó 4500 min			
		68.416 mm Total depth			
3	IMPERVIOU				
	1	Uption 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat			
	.010	Manning n			
	98.000	SCS CUrve No or C			
	1 500	Id/S COETTICIENC			
14	1.500	INITIAL ADSTRUCTION			
14	1 1-7c	upo: 2-Define			
35	COMMENT	so, z-berne			
55	3 line	o(s) of comment			
	******	***********			
	Uncontro]	lled Flow to Gordon Street			
	*******	************			
4	CATCHMENT				
	201.000	ID No.0 99999			
	.120	Area in hectares			
	1.000	Length (PERV) metres			
	2.000	Gradient (%)			
	70.000	Per cent Impervious			
	10.000	Viene with Zone Deth			
	.000	Annup, with zero upth			
	030	Manning "n"			
	68 000	SCS Curve No or C			
	100	Ta/S Coefficient			
	5.000	Initial Abstraction			
	1	Option 1=Trianglr: 2=Rectanglr: 3=SWM HYD: 4=Lin. Reserv			
	- .e	022 .000 .009 .000 c.m/s			
		33 .236 .175 C perv/imperv/total			
15	ADD RUNOF	· · · ·			
		Page 17			
		- Be an			

			GORPOST.OU	r	
	.022	.022	.009	.000 c.m/s	
9	ROUTE				
	.000 Con	duit Length			
	.000 No	Conduit defi	ned		
	.000 Zer	o lag			
	.000 Bet	a weighting	factor		
	.000 Rou	ting timeste	р		
	0 No.	of sub-reac	hes		
	.022	.022	.022	.000 c.m/s	
17	COMBINE				
	500 Junction	Node No.			
	.022	.022	.022	.022 c.m/s	
14	START				
	1 1=Zero;	2=Define			
35	COMMENT				
	3 line(s)	of comment	ale ale ale		

	**************************************	- KOOT APea	***		
4	CATCHMENT				
	202.000 ID	No.ó 99999			
	.210 Are	a in hectare	s		
	1.000 Len	gth (PERV) m	etres		
	.500 Gra	dient (%)			
	99.000 Per	cent Imperv	ious		
	40.000 Len	gth (IMPERV)			
	.000 %Im	p. with Zero	Dpth		
	1 Opt	ion 1=SCS CN	/C; 2=Horton	; 3=Green-Ampt; 4=Repe	eat
	.030 Man	ning "n"			
	68.000 SCS	Curve No or			
	.100 Ia/	S COETTICIEN	t tion		
	5.000 IIII	ion 1 Thiong	lui 2-Dester	alm, 2-CHM UND, 4-Lim	Decemu
	1 Opt	1001 1=101ang	ir; z=Rectan	gir; 3=SWM HTD; 4=LIN.	Reserv
	.040	245	242	C peru/imperu/total	
15	ADD RUNGEE	.245	.245	e per v/ imper v/ cocai	
15	.040	. 949	. 922	.022 c.m/s	
35	COMMENT	1010	TOLL	1022 0111, 5	
	3 line(s)	of comment			
	*********	*****	******		
	West Building	- Rooftop C	ontrol		
	*********	*****	******		
10	POND				
	4 Depth - Disc	harge – Volu	me sets		
	.000	.000	.0		
	.080	.00200	42.0		
	.120	.00300	126.0		
	. 160	.00400	210.0		
			Page 18		

	CORDOCT OUT
	GUKPUSI.UUI
	Maximum Dopth = 101 metros
	Maximum Storage = 86 c m
	040 040 003 022 c m/s
35	COMMENT
55	3 line(s) of comment

	West Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	.040 .040 .003 .023 c.m/s
14	START
	1 1=Zero; 2=Define
35	
	3 line(s) of comment
	Eact Building - Roof Area

4	CATCHMENT
	203.000 ID No.ó 99999
	.230 Area in hectares
	1.000 Length (PERV) metres
	.500 Gradient (%)
	99.000 Per cent Impervious
	25.000 Length (IMPERV)
	.000 %Imp. with Zero Dpth
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030 Manning "n"
	68.000 SCS Curve No or C
	.100 Ia/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.045 .000 .003 .023 c.m/s
	.033 .247 .245 C perv/imperv/total
15	ADD RUNOFF
	.045 .045 .003 .023 c.m/s
35	
	5 IIIe(5) 01 comment
	Fast Building - Rooftop Control

10	POND
	4 Depth – Discharge – Volume sets
	.000 .000 .0
	.100 .00100 92.0
	.120 .00200 138.0
	.160 .00400 230.0

	CORDOCT OUT
	Boak Outflow - 001 c m/s
	Maximum Denth = 106 metres
	Maximum Storage = 106 c m
35	COMMENT
55	3 line(s) of comment

	East Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	.045 .045 .001 .023 c.m/s
14	START
	1 1=Zero; 2=Define
35	COMMENT
	3 line(s) of comment

	Parking Area Catchment
-	*********
4	CATCHMENT
	204.000 ID NO.0 999999
	.850 Area in nectares
	1 EQA Condiant (%)
	85.000 Der cent Impervious
	60 000 Length (IMPERV)
	.000 %Tmp, with Zero Dpth
	1 Option 1=SCS CN/C: 2=Horton: 3=Green-Ampt: 4=Repeat
	.030 Manning "n"
	68.000 SCS Curve No or C
	.100 Ia/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.140 .000 .001 .023 c.m/s
	.033 .247 .215 C perv/imperv/total
15	ADD RUNOFF
	.140 .140 .001 .023 c.m/s
35	COMMENT
	3 line(s) of comment

	Parking Lot Ponding
10	POND
10	2 Dopth Dischange Velume sets
	2 Depth - Discharge - Vorume sets
	42 300 173 114 0
	Peak Outflow = .120 c.m/s
	Maximum Depth = 42.209 metres
	Page 20

			GORPOST.OUT	
	Maximum Storage	<u>e</u> =	79. c.m	
17	.140 COMBINE	.140	.120	.023 c.m/s
	400 Junction M	lode No.		
	.140	.140	.120	.120 c.m/s
18	CONFLUENCE			
	400 Junction M	lode No.		
	.140	.120	.120	.000 c.m/s
35	COMMENT			
	3 line(s) of	^c omment		
	*******	********	***	
	Underground Sto	rage Tank	***	
10	POND			
	4 Depth - Discha	arge - Vol	ume sets	
	339.000	.000	.0	
	339.250 .0	0500	88.0	
	340.000 .	0120	350.0	
	340.250	0130	438.0	
	Peak Outflow		011 c.m/s	
	Maximum Depth	= 339.	856 metres	
	Maximum Storage	120	00. c.m	000 c m/c
25	COMMENT	.120	.011	.000 C.III/S
55	3 line(s) of	comment		
	*************	********	*****	
	Total Flow to G	iordon St.	Storm Sewer	
	*******	******	******	
17	COMBINE			
	500 Junction M	lode No.		
	.140	.120	.011	.024 c.m/s
18	CONFLUENCE			
	500 Junction M	lode No.		
	.140	.024	.011	.000 c.m/s
14	START			
	1 1=Zero; 2=	Detine		
35				
	3 IIne(S) 01	- comment	*****	*****
	Undovolopod And	a - Elow	to Tonnanco Ha	tonchod
	**************	**********	**************************************	******
4	CATCHMENT			
-	205.000 TD No	. á 99999		
	1.440 Area	in hectar	es	
	120.000 Lengt	h (PERV)	metres	
	4.000 Gradi	lent (%)		
	2.000 Per d	ent İmper	vious	
	5.000 Lengt	h (IMPERV	')	
	-		Page 21	
			rage 21	

		G	DRPOST.OUT	r	
	.000	%Imp. with Zero Dp	th		
	1	Option 1=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Repeat	
	.030	Manning "n"			
	67.000	SCS Curve No or C			
	.100	Ia/S Coefficient			
	5.000	Initial Abstractio	n		
	1	Option 1=Trianglr;	2=Rectan	glr; 3=SWM HYD; 4=Lin. Reserv	
	.0	18 .000	.011	.000 c.m/s	
	.0	32 .219	.036	C perv/imperv/total	
15	ADD RUNOF	F			
	.0	18 .018	.011	.000 c.m/s	
14	START				
	1 1=Ze	ro; 2=Define			
35	COMMENT				
	7 line	(s) of comment			
	*******	*****			
	50 - yr STO	RM			
	*******	*****			
2	STORM				
-	1	1=Chicago:2=Huff:3	=User:4=C	dn1hr:5=Historic	
	3886.000	Coefficient a	-0501 34-0		
	16.000	Constant b (mi	n)		
	.949	Exponent c	,		
	.400	Fraction to peak	r		
	180.000	Duration ó 4500 mi	n		
		77.819 mm Total	depth		
3	IMPERVIOU	s			
	1	Option 1=SCS CN/C;	2=Horton	; 3=Green-Ampt; 4=Repeat	
	.010	Manning "n"			
	98.000	SCS Curve No or C			
	.100	Ia/S Coefficient			
	1.500	Initial Abstractio	n		
14	START				
	1 1=Ze	ro; 2=Define			
35	COMMENT				
	3 line	(s) of comment			
	*******	*****	******		
	Uncontrol	led Flow to Gordon	Street		
	*******	*****	******		
4	CATCHMENT				
	201.000	ID No.ó 99999			
	.120	Area in hectares			
	1.000	Length (PERV) metr	es		
	2.000	Gradient (%)			
			Page 22		
			age 22		

	GORPOST.OUT					
	70.000	Per cent Impervious				
	10.000	10.000 Length (IMPERV)				
	.000	%Imp. with Zero Dpth				
	1	Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat				
	.030	Manning "n"				
	68.000	SCS Curve No or C				
	.100	Ia/S Coefficient				
	5.000	Initial Abstraction				
	1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv				
		.026 .000 .011 .000 c.m/s				
		.038 .242 .181 C perv/imperv/total				
15	ADD RUM	DFF				
		.026 .026 .011 .000 c.m/s				
9	ROUTE					
	.000	Conduit Length				
	.000	No Conduit defined				
	.000	Zero lag				
	.000	Beta weighting factor				
	.000	Routing timestep				
	0	No. of sub-reaches				
		.026 .026 .026 .000 c.m/s				
17	COMBINE					
	500 Ju	nction Node No.				
		.026 .026 .026 .026 c.m/s				
14	START	- · · · ·				
	1 1=	Zero; 2=Detine				
35	COMMENT					
	3 13	ne(s) of comment				
	Uset D					
	west BL	IIIIIN - KOOT Area				
4	CATCUM	NT.				
4	202 000	TD No. 6 00000				
	202.000	Appa in bestares				
	1 000	Area in nectares				
	1.000	Gradient (%)				
	00 000	Ben cent Impenvious				
	40.000	length (IMPERV)				
	40.000	%Imp_with Zero Doth				
	.000	Ontion 1=SCS (N/C: 2=Horton: 3=Green=Ampt: 4=Repeat				
	. 030	Manning "n"				
	68,000	SCS Curve No or C				
	.100	Ia/S Coefficient				
	5,000	Initial Abstraction				
	1	Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv				
		.047 .000 .026 .026 c.m/s				
		.039 .255 .253 C perv/imperv/total				
15	ADD RUM	DFF				

				GORPOST.OL	JT	
		.047	.047	.026	.026 c.m/s	
35	COMMEN	Т				
	3 l *****	ine(s) of ********	comment ********	******		
	West B ******	uilding - ********	Rooftop C	ontrol *******		
10	POND					
	4 Depth	- Discha	rge – Volu	me sets		
	.00	0	.000	.0		
	.08	0.0	0200	42.0		
	.12	0.0	0300	126.0		
	.16	0.0	0400	210.0		
	Peak 0	utflow	= .0	03 c.m/s		
	Maximu	m Depth	= .1	09 metres		
	Maximu	m Storage	= 10	3. c.m	/	
25	CONVEN	.04/	.04/	.003	.026 c.m/s	
35	COMMEN	1				
	> 1 *****	*********	********	********	****	
	West R	oof-ton F	low to Gor	don St Sto	rm Sewer	
	*****	******	******	********	****	
17	COMBIN	E				
	500 J	unction N	ode No.		/	
	CTART	.047	.047	.003	.02/ c.m/s	
14	1 1	-70001 3-	Dofino			
35	COMMEN	-zero, z-	Del Tile			
55	3 1	ine(s) of	comment			
	*****	******	******	***		
	East B	uilding -	Roof Area			
	CATCUM					
4	203 000	TD No	6 99999			
	.230	Area	in hectare	s		
	1.000	Lengt	h (PERV) m	etres		
	.500	Gradi	ent (%)			
	99.000	Per c	ent Imperv	ious		
	25.000	Lengt	h (IMPERV)			
	.000	%Imp.	with Zero	Dpth		
	1	Optio	n 1=SCS CN	/C; 2=Horto	n; 3=Green-Ampt; 4	l=Repeat
	.030	Manni	ng "n"			
	68.000	SCS C	urve No or	, C		
	.100	Ia/S	Coefficien	t		
	5.000	Initi	ai Adstrac	tion	naln: 2-CUM LIVD: /	1-Lin Poconi
	1	000010	000 in T=11.Taug	11, Z=ReCta	идті ; з= зміті п YD; 4 027 с m/s	+-LIN. Keserv
		.039	.257	.254	C nerv/imnerv/to	otal
15	ADD RU	NOFF			- per 1, amper 1, et	

	GORPOST.OUT
	.055 .055 .003 .027 c.m/s
35	COMMENT
	3 line(s) of comment

	East Building - Rooftop Control

10	POND
	4 Depth – Discharge – Volume sets
	.000 .000.
	.100 .00100 92.0
	.120 .00200 138.0
	.160 .00400 230.0
	Peak Outflow = .002 c.m/s
	Maximum Deptn = .114 metres
	Maximum Storage = 125. C.M
25	.005 .005 .002 .027 C.III/ S
رر	3 line(s) of comment

	East Roof-top Flow to Gordon St. Storm Sewer

17	COMBINE
	500 Junction Node No.
	.055 .055 .002 .027 c.m/s
14	START
	1 1=Zero; 2=Define
35	COMMENT
	3 line(s) of comment

	Parking Area Catchment
	CATCINENT
4	
	204.000 1D NO.0 55555
	1 000 Length (PERV) metres
	1.500 Gradient (%)
	85.000 Per cent Impervious
	60.000 Length (IMPERV)
	.000 %Imp. with Zero Dpth
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat
	.030 Manning "n"
	68.000 SCS Curve No or C
	.100 Ia/S Coefficient
	5.000 Initial Abstraction
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv
	.163 .000 .002 .027 c.m/s
	.039 .256 .223 C perv/imperv/total
15	ADD RUNOFF

	GORPOST	OUT
	.163 .163 .002	.027 c.m/s
35	COMMENT	
	<pre>3 line(s) of comment ************************************</pre>	
	Parking Lot Ponding *********************	
10	POND	
	2 Depth – Discharge – Volume sets	
	42.000 .000 .0	
	42.300 .173 114.0	
	Peak Outflow = .145 c.m/s	
	Maximum Depth = 42.252 metres	
	Maximum Storage = 96. c.m	
47	.163 .163 .145	.02/ c.m/s
1/	COMBINE 100 Junction Mode No.	
	400 JUNCLION NODE NO.	14E c m/c
10	.105 .105 .145	.145 C.m/S
10	400 Junction Node No	
	.163 .145 .145	.000 c.m/s
35	COMMENT	
	3 line(s) of comment	

	Underground Storage Tank	

10	POND	
	4 Depth - Discharge - Volume sets	
	339.000 .000 .0	
	339.250 .00500 88.0	
	340.000 .0120 350.0	
	540.250 .0150 458.0 Book Outflow - 012 c m/c	
	Maximum Depth - 340 021 metres	
	Maximum Storage = 357 cm	
	.163 .145 .012	.000 c.m/s
35	COMMENT	
	3 line(s) of comment	

	Total Flow to Gordon St. Storm Sew	er
	*******	**
17	COMBINE	
	500 Junction Node No.	/
	.163 .145 .012	.029 c.m/s
18	CONFLUENCE	
	JUNCTION NODE NO.	000 c m/c
14	.103 .029 .012 START	.000 c.m/S
14	1 1=Zero: 2=Define	
	1 1200, 200110	
	Page 3	26

	GORPOST, OUT						
35	COMMENT						
	3 line(s) of comment						

	Undeve1 ******	oped Area - Flow to Torrance Watersned ******					
4	CATCHME	NT					
	205.000	ID No.ó 99999					
	1.440	Area in hectares					
	120.000	Length (PERV) metres					
	4.000	Gradient (%)					
	2.000	Per cent Impervious					
	5.000	Length (IMPERV)					
	.000	%Imp. with Zero Dpth					
	1	Uption 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat					
	.030	Manning "n"					
	67.000	SCS CURVE NO OF C					
	. 100	Id/S COETTICIENC					
	3.000	Ontion 1-Triangle: 2-Portangle: 2-SWM HVD: 4-Lin Porony					
	1	026 000 012 000 c m/c					
		038 226 042 Cnerv/imnerv/total					
15	ADD RUN	OFF					
15	7100 1101	.026 .026 .012 .000 c.m/s					
14	START						
	1 1=	Zero; 2=Define					
35	COMMENT						
	7 li	ne(s) of comment					

	100-100	STOPM					
	100 yi	51011					
	******	********					
2	STORM						
	1	1=Chicago;2=Huff;3=User;4=Cdn1hr;5=Historic					
	4688.000	Coefficient a					
	17.000	Constant b (min)					
	.962	Exponent c					
	.400	Fraction to peak r					
	180.000	Duration ó 4500 min					
		87.226 mm Total depth					
3	IMPERVI	Oution 1-SCS CN/C+ 2-Uenten+ 2-Crean Ampte 4 Devict					
	1	Option i=StS CN/C; Z=Horton; 3=Green-Ampt; 4=Repeat					
	.010	SCS Curve No on C					
	100	Ta/S Coefficient					
	1.500	Initial Abstraction					
	1.500	anacasa nose decidi					

			GORPOST.OL	ЛТ		
35	COMMENT					
	3 line(s) of comment ************************************					
	Uncontrolled Flow to Gordon Street					
4	CATCHMEN	т				
	201.000	ID No.ó 99999				
	.120	Area in hectare	≥s			
	1.000	Length (PERV) r	netres			
	2.000	Gradient (%)				
	70.000	Per cent Imper	/ious			
	10.000	Length (IMPERV)			
	.000	%Imp. with Zero	o Dpth			
	1	Option 1=SCS C	V/C; 2=Horto	n; 3=Green-Ampt; 4=Repeat		
	.030	Manning "n"				
	68.000	SCS Curve No o	r C			
	.100	Ia/S Coefficie	nt			
	5.000	Initial Abstra	tion			
	1	Option 1=Trian	gir; 2=Recta	ngIr; 3=SWM HYD; 4=Lin. Reserv		
	•	030 .000	.012	.000 c.m/s		
45		043 .24/	.186	C perv/imperv/total		
15	ADD RUNU	FF 030	010	000 c m/c		
0	POUTE	.050	.012	.000 C.m/S		
9	0012	Conduit Length				
	.000	No Conduit def	ined			
	.000	Zero lag	Incu			
	.000	Beta weighting	factor			
	.000	Routing timeste	ep			
	0	No. of sub-read	hes			
		030 .030	.030	.000 c.m/s		
17	COMBINE					
	500 Jun	ction Node No.				
		030 .030	.030	.030 c.m/s		
14	START					
	1 1=Z	ero; 2=Define				
35	COMMENT					
	3 lin *******	e(s) of comment ****************	****			
	West Bui	lding - Roof Area	a			
	******	******	****			
4	CATCHMEN	Т				
	202.000	ID No ó 99999				
	.210	Area in hectare	es .			
	1.000	Length (PERV) r	netres			
	.500	Gradient (%)				
	99.000	rer cent Imper	vious			
	40.000	Length (IMPERV)			

	GORPOST.OUT					
	.000 %Imp. with Zero Dpth					
	1 Option 1=SCS CN/C; 2=Horton; 3=Green-Ampt; 4=Repeat					
	.030 Manning "n"					
	68.000 SCS Curve No or C					
	.100 Ia/S Coefficient					
	5.000 Initial Abstraction					
	1 Option 1=Trianglr; 2=Rectanglr; 3=SWM HYD; 4=Lin. Reserv					
	.053 .000 .030 .030 c.m/s					
	.045 .263 .260 C perv/imperv/total					
15	ADD RUNOFF					
	.053 .053 .030 .030 c.m/s					
35	COMMENT					
	3 line(s) of comment					

	West Building - Rooftop Control					

10	POND					
	4 Depth – Discharge – Volume sets					
	.000 .000 .0					
	.080 .00200 42.0					
	.120 .00300 126.0					
	.160 .00400 210.0					
	Peak Outflow = .003 c.m/s					
	Maximum Depth = .118 metres					
	Maximum Storage = 121. c.m					
25	.053 .053 .003 .030 C.M/S					
35	COMMENT					
	5 IIIe(5) OT COMMETL					
	West Roof-top Flow to Gordon St. Storm Sewer					

17	COMBINE					
1,	500 Junction Node No					
	.053 .053 .003 .031 c.m/s					
14	START					
	1 1=Zero; 2=Define					
35	COMMENT					
	<pre>3 line(s) of comment</pre>					

	East Building - Roof Area					

4	CATCHMENT					
	203.000 ID No.ó 99999					
	.230 Area in hectares					
	1.000 Length (PERV) metres					
	.500 Gradient (%)					
	99.000 Per cent Impervious					
	25.000 Length (IMPERV)					
	Page 29					
	5					

			GORPOST.0	JUT		
	.000 %	íImp. with Zer	o Dpth			
	1 0	ption 1=SCS (N/C; 2=Hort	on; 3=Green-/	Ampt; 4=Repe	at
	.030 M	lanning "n"	-			
	68.000 5	CS Curve No o	or C			
	5 000 1	nitial Δhstra	action			
	1 0	otion 1=Triar	nglr: 2=Rect	anglr: 3=SWM	HYD: 4=Lin.	Reserv
	.065	.000	.003	.031 c.r	n/s	neser r
	.045	.264	.261	C perv/im	perv/total	
15	ADD RUNOFF					
	.065	.065	.003	.031 c.m	n/s	
35	COMMENT					
	3 line(s	;) of comment	******			
	East Buildi	.ng - Rooftop	Control			
10	POND					
	4 Depth - Di	uscharge – Vol	lume sets			
	.000	.000	.0			
	.100	.00100	92.0			
	.120	.00200	138.0			
	.160	.00400	230.0			
	Peak Outfic)W = .	122 c.m/s			
	Maximum Sto	nage = 1	A3 cm			
	.065	.065	.002	.031 c.m	n/s	
35	COMMENT					
	3 line(s	;) of comment				
	*********	*******	******	*****		
	East Roof-t	op Flow to Go	ordon St. St	orm Sewer		
17	COMPTNE	**********	********	*******		
1/	500 Juncti	ion Node No				
	.065	.065	.002	.031 c.r	n/s	
14	START					
	1 1=Zero	; 2=Define				
35	COMMENT					
	3 line(s	;) of comment ***********				
	Parking are	a Catchment				
4	CATCHMENT					
	204.000	D No.ó 99999				
	.850 4	rea in hectar	res			
	1.000 l	engtn (PERV)	metres			
	2.500 0	nauient (%) Per cent Imper	evious			
	60.000 I	ength (IMPFR)	/)			
		0 (End	, Dama 21			
			Page 36	,		

		(GORPOST.OU	г	
	.000 %Im	p. with Zero D	pth		
	1 Opt	ion 1=SCS CN/C	; 2=Horton	; 3=Green-Ampt; 4=Repeat	
	.030 Man	ning "n"			
	68.000 SCS	Curve No or C			
	.100 Ia/	S Coefficient			
	5.000 Ini	tial Abstracti	on		
	1 Opt	ion 1=Trianglr	; 2=Rectan	glr; 3=SWM HYD; 4=Lin. Res	erv
	.195	.000	.002	.031 c.m/s	
	.044	.262	.230	C perv/imperv/total	
15	ADD RUNOFF				
	.195	.195	.002	.031 c.m/s	
35	COMMENT				
	3 line(s) ***********	of comment *****			
	Parking Lot P ********	onding ********			
10	POND				
	2 Depth - Disc	harge – Volume	sets		
	42.000	.000	.0		
	42.300	.173 1	14.0		
	Peak Outflow	= .170	c.m/s		
	Maximum Depth	= 42.296	metres		
	Maximum Stora	ge = 112.	c.m		
	.195	.195	.170	.031 c.m/s	
17	COMBINE				
	400 Junction	Node No.		177 (
	. 195	. 195	.170	.170 C.M/S	
18	CONFLUENCE	Nada Na			
	400 JUNCLION	Node No.	170	000 c m/c	
25	. 195	.170	.170	.000 C.m/S	
55	2 lino(c)	of commont			
	***********	*********			
	Underground S	torage Tank			
	**********	*********			
10	POND				
	4 Depth - Disc	harge – Volume	sets		
	339.000	.000	.0		
	339.250	.00500	94.0		
	340.000	.0120 3	50.0		
	340.250	.0130 4	38.0		
	Peak Outflow	= .013	c.m/s		
	Maximum Depth	= 340.199	metres		
	Maximum Stora	ge = 420.	c.m		
	.195	.170	.013	.000 c.m/s	
35	COMMENT				
	3 line(s)	of comment			
	*********	*******	****		
			Page 31		

			GO	RPOST.OUT			
	Total Flo ********	w to Gordor	n St. Stor	rm Sewer *******			
17	COMBINE						
	500 Juno	tion Node M	lo.				
	.1	.95 .1	L70	.013	.033	c.m/s	
18	CONFLUENC	E					
	500 Juno	tion Node N	ю.				
	.1	.95 .6	933	.013	.000	c.m/s	
14	START						
	1 1=Z€	ero; 2=Defir	ie				
35	COMMENT						
	3 line	(s) of com	nent				
	*********		· · · · · · · · · · · · · · · · · · ·		*****		
	*********	ed Area = 1	-10W TO 10	prrance wat **********	ersnec ******	↓ ⊧*	
4	CATCHMENT						
	205.000	ID No.ó 99	9999				
	1.440	Area in he	ectares				
	120.000	Length (PE	RV) metre	es			
	4.000	Gradient ((%)				
	2.000	Per cent 1	Imperviou:	5			
	5.000	Length (IM	(PERV)				
	.000	%Imp. with	n Zero Dpi	th			
	1	Option 1=9	SCS CN/C;	2=Horton;	3=Gree	en-Ampt; 4=Repe	at
	.030	Manning "r	י"				
	67.000	SCS Curve	No or C				
	.100	Ia/S Coeft	Ficient				
	5.000	Initial At	ostraction	1			
	1	Option 1=	Frianglr;	2=Rectang1	r; 3=9	SWM HYD; 4=Lin.	Reserv
	.0	.6	900	.013	.000	c.m/s	
	.0	.44	231	.048 C	perv/	'imperv/total	
15	ADD RUNOF	-F	200	013	000	/ -	
1.4			336	.013	.000	c.m/s	
14	1 1-7c	no: 2-Dofir					
20	MANUAI	10, 2-Delli	le				
-0	IMADAL						

ROCK TRENCH SIZING CALCULATIONS

Roof Ponding	(buildings 1+2)	Infiltration Gallery 2				
Impervious area	4400 sq.m	Roof area	4400	sq.m		
		RG Area		sq.m		
		Directly to Tench	8500	sq.m		
Total area:	4400 sq.m	Total area:	12900	sq.m		
		Trench surf. area:	670	sq.m		
		Trench depth:	0.96	m		
		Trench porosity:	0.35			
		Trench full:	225.12	cu.m		
		Trench initial vol:	0	cu.m		
		Subsoil exfil. rate:	7	mm/hr		
		Soil depth:		mm		
		Soil porosity:				
		Soil field cap:				
		Soil wilt point:				
		Soil infil. rate		mm/hr		
		Soil wilt point vol:		cu.m		
depth of rain	0.023	Soil porosity vol:		cu.m		
Rain Volume	102.8	Soil field cap vol:		cu.m		
P volume	717.2	Soil initial vol:		cu.m		
Ponding	0.163 m	Ponding		m		
Orifice	75.00 mm	I/P	12.7			
max ponding	0.021 m	Safety Factor				
P volume	92.73 sq.m	Area with SF				

Summary	Roof (1+5)	IG 2
Total evaporation		0.0
Total exfiltration		322.8
Total drainflow	110.1	0.0
Total runoff	0.0	0.0
Total Reused		
Sum	110.1	322.8
Total rainfall	110.1	432.9
% Treated	100%	100%
% untreated	0%	0%
% Captured	0%	100%
EIA	100%	0%

FUNCTIONAL SERVICING REPORT FOR GORDON STREET – GUELPH ON

Appendix A

STORMCEPTOR SIZING REPORT

Province:	Ontario		Project Na	ame:	1250 Gordon Str	eet
City:	Guelph		Project N	umber:	161413684	
Nearest Rainfall Station:	WATERLOO WELLINGTO	N AP	Designer	Name:	Claire Phelps	
NCDC Rainfall Station Id:	9387		Designer	Company:	Stantec	
Years of Rainfall Data:	34		Designer	Email/Phone:	Claire.Phelps@st	antec.com
Site Name:	1250 Gordon Street		EOR Nam	e:		
			EOR Com	pany:		
Drainage Area (ha):	0.85		EOR Emai	l/Phone:		
% Imperviousness:	35.00					
Kullon Coe		1			Net Annua (TSS) Load	I Sediment
Particle Size Distribution:	>75 micron				Sizing S	Summary
Target TSS Removal (%):	80.0			1	Stormceptor Model	TSS Remova Provided (%)
Require Hydrocarbon Spill Cap	ture?	No			EF4	95
Upstream Flow Control?		No			EF6	98
Required Water Quality Runof	f Volume Capture (%):				EF8	99
Estimated Water Quality Flow	Rate (L/s):				EF10	99
Peak Conveyance (maximum)	Flow Rate (L/s):				EF12	99
Site Sediment Transport Rate (kg/ha/yr):					
	Estima	ited Net A	Recon	nmended St diment (TSS)	ormceptor EF) Load Reduct	Model: E ion (%):

THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor® EF and Stormceptor® EFO are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor® EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patentpending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including highintensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle	Percent Less	Particle Size	Dercent		
Size (µm)	Than	Fraction (µm)	Percent		
1000	100	500-1000	5		
500	95	250-500	5		
250	90	150-250	15		
150	75	100-150	15		
100	60	75-100	10		
75	50	50-75	5		
50	45	20-50	10		
20	35	8-20	15		
8	20	5-8	10		
5	10	2-5	5		
2	5	<2	5		

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	49.9	49.9	1.91	115.0	96.0	100	49.9	49.9
2	7.0	56.9	3.83	230.0	191.0	100	7.0	56.9
3	7.0	63.9	5.74	345.0	287.0	99	6.9	63.8
4	4.4	68.3	7.66	459.0	383.0	97	4.3	68.1
5	3.2	71.5	9.57	574.0	479.0	96	3.1	71.2
6	3.5	75.0	11.48	689.0	574.0	94	3.3	74.5
7	3.1	78.1	13.40	804.0	670.0	93	2.9	77.4
8	2.3	80.4	15.31	919.0	766.0	93	2.1	79.5
9	1.9	82.3	17.23	1034.0	861.0	92	1.7	81.3
10	2.0	84.3	19.14	1148.0	957.0	91	1.8	83.1
11	1.8	86.1	21.05	1263.0	1053.0	92	1.7	84.7
12	1.4	87.5	22.97	1378.0	1148.0	94	1.3	86.1
13	1.3	88.8	24.88	1493.0	1244.0	96	1.2	87.3
14	1.1	89.9	26.80	1608.0	1340.0	98	1.1	88.4
15	1.1	91.0	28.71	1723.0	1436.0	97	1.1	89.4
16	0.8	91.8	30.62	1837.0	1531.0	91	0.7	90.2
17	1.0	92.8	32.54	1952.0	1627.0	86	0.9	91.0
18	0.9	93.7	34.45	2067.0	1723.0	81	0.7	91.7
19	0.7	94.4	36.37	2182.0	1818.0	77	0.5	92.3
20	0.8	95.2	38.28	2297.0	1914.0	73	0.6	92.9
21	0.6	95.8	40.19	2412.0	2010.0	69	0.4	93.3
22	0.5	96.3	42.11	2527.0	2105.0	66	0.3	93.6
23	0.4	96.7	44.02	2641.0	2201.0	63	0.3	93.9
24	0.2	96.9	45.94	2756.0	2297.0	61	0.1	94.0
25	0.2	97.1	47.85	2871.0	2393.0	58	0.1	94.1

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)		
26	0.3	97.4	49.76	2986.0	2488.0	56	0.2	94.3		
27	0.2	97.6	51.68	3101.0	2584.0	54	0.1	94.4		
28	0.1	97.7	53.59	3216.0	2680.0	53	0.1	94.4		
29	0.2	97.9	55.51	3330.0	2775.0	51	0.1	94.5		
30	0.1	98.0	57.42	3445.0	2871.0	50	0.1	94.6		
31	0.2	98.2	59.33	3560.0	2967.0	48	0.1	94.7		
32	0.0	98.2	61.25	3675.0	3062.0	46	0.0	94.7		
33	0.1	98.3	63.16	3790.0	3158.0	45	0.0	94.7		
34	0.1	98.4	65.08	3905.0	3254.0	43	0.0	94.8		
35	0.0	98.4	66.99	4019.0	3350.0	42	0.0	94.8		
36	0.1	98.5	68.91	4134.0	3445.0	41	0.0	94.8		
37	0.0	98.5	70.82	4249.0	3541.0	40	0.0	94.8		
38	0.2	98.7	72.73	4364.0	3637.0	39	0.1	94.9		
39	0.2	98.9	74.65	4479.0	3732.0	37	0.1	95.0		
40	0.1	99.0	76.56	4594.0	3828.0	36	0.0	95.0		
41	0.1	99.1	78.48	4709.0	3924.0	36	0.0	95.0		
42	0.0	99.1	80.39	4823.0	4019.0	35	0.0	95.0		
43	0.0	99.1	82.30	4938.0	4115.0	34	0.0	95.0		
44	0.1	99.2	84.22	5053.0	4211.0	33	0.0	95.1		
45	0.0	99.2	86.13	5168.0	4307.0	32	0.0	95.1		
46	0.1	99.3	88.05	5283.0	4402.0	32	0.0	95.1		
47	0.0	99.3	89.96	5398.0	4498.0	32	0.0	95.1		
48	0.0	99.3	91.87	5512.0	4594.0	31	0.0	95.1		
49	0.0	99.3	93.79	5627.0	4689.0	30	0.0	95.1		
50	0.1	99.4	95.70	5742.0	4785.0	29	0.0	95.1		
Estimated Net Annual Sediment (TSS) Load Reduction =										

FORTERRA

Maximum Pipe Diameter / Peak Conveyance										
Stormceptor EF / EFO	Model Diameter		meter Min Angle Inlet / Outlet Pipes		Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		nveyance Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)	
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15	
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35	
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60	
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100	
EF12 / EF012	3.6	12	90	1828	72	1828	72	2830	100	

SCOUR PREVENTION AND ONLINE CONFIGURATION

Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

► Stormceptor® EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid reentrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.

INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

 0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity												
Stormceptor Model EF / EFO Diameter		Depth Pipe In Sump	(Outlet vert to Floor)	Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **		
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	197	52	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	348	92	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	545	144	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	874	231	610	24	17790	628	28464	78500
EF12 / EF012	3.6	12	3.89	12.8	1219	322	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = $1.6 \text{ kg/L} (100 \text{ lb/ft}^3)$

Feature	Benefit	Feature Appeals To		
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer		
Third-party verified light liquid capture	Proven performance for fuel/oil hotspot	Regulator, Specifying & Design Engineer,		
and retention for EFO version	locations	Site Owner		
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer		
Minimal drop between inlet and outlet	Site installation ease	Contractor		
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner		

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The <u>minimum</u> sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1 4 ft (1219 mm) Diameter OGS Units:

6 ft (1829 mm) Diameter OGS Units:

8 ft (2438 mm) Diameter OGS Units:

10 ft (3048 mm) Diameter OGS Units: 12 ft (3657 mm) Diameter OGS Units: $\begin{array}{l} 1.19 \ m^3 \ sediment \ / \ 265 \ L \ oil \\ 3.48 \ m^3 \ sediment \ / \ 609 \ L \ oil \\ 8.78 \ m^3 \ sediment \ / \ 1,071 \ L \ oil \\ 17.78 \ m^3 \ sediment \ / \ 1,673 \ L \ oil \\ 31.23 \ m^3 \ sediment \ / \ 2,476 \ L \ oil \\ \end{array}$

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing shall be determined using historical rainfall data and a sediment removal performance curve derived from the actual third-party verified laboratory testing data. The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2 .

