

1 STORMWATER MANAGEMENT PLAN - PROPOSED REDEVELOPMENT

C104-0 SCALE:1:250

0 5 10 Meters

LEGEND

- CATCH BASIN — CB
- GRATED TOP MANHOLE — GTMH
- STORM MANHOLE — STMH
- MANHOLE — MH
- STORM CATCHMENT INLET
- OVERLAND ESCAPE ROUTE
- ROOF LAND USE
- ASPHALT OR CONCRETE PAVEMENT
- LANDSCAPED LAND USE
- EXTENT OF PONDING / EXTENT OF FULL SUPPLY LEVEL
- STORM CATCHMENT BOUNDARY
- STORM CATCHMENT LABEL — A2
- AREA (ha) — 0.500
- RUNOFF COEFFICIENT — 0.65

STORMWATER CALCULATIONS

STORMWATER MANAGEMENT CALCULATIONS

Rainfall Intensity = 104.2 mm/hr (1:5 Year); 178.6 mm/hr (1:100 Year)

PRE-DEVELOPMENT SITE CONDITIONS

CATCHMENT A

SURFACE	AREA (m²)	C FACTOR
BUILDING		1.00
PAVEMENT		0.90
LANDSCAPE	7407	0.50
TOTAL	7407	0.50

$Q_{ALLOWABLE}$ = 2.78 C i A

	1:5 Year	1:100 Year	
$Q_{ALLOWABLE}$ =	107.3	183.8	L/s

POST-DEVELOPMENT SITE CONDITIONS

CATCHMENT C1 - UNCONTROLLED TO LEFT SIDE TO DITCH (EXISTING)

SURFACE	AREA (m²)	C FACTOR	
BUILDING	0	1.00	
PAVEMENT	0	0.90	
LANDSCAPE	553	0.30	add 25% to c value for 100 year
TOTAL	553	0.30	

Q_{C1} = 2.78 C i A

	1:5 Year	1:100 Year
Q_{C1} =	4.8	10.3

CATCHMENT C2 - UNCONTROLLED TO RIGHT SIDE TO MEANDER BELT (EXISTING)

SURFACE	AREA (m²)	C FACTOR	
BUILDING	0	1.00	
PAVEMENT	55	0.90	
LANDSCAPE	1906	0.30	add 25% to c value for 100 year
TOTAL	1961	0.32	

Q_{C2} = 2.78 C i A

	1:5 Year	1:100 Year
Q_{C2} =	18.0	38.4

CATCHMENTS B1-B6 - CONTROLLED

SURFACE	AREA (m²)	C FACTOR	
BUILDING/ROOF	816	1.00	
PAVEMENT	3213	0.90	
GRAVEL	0	0.65	
LANDSCAPE	864	0.38	add 25% to c value for 100 year
TOTAL	4893	0.82	

Q_{B} = 2.78 C i A

	1:5 Year	1:100 Year	Stress Test (20%)	
Q_{B} =	117	200.1	240.2	L/s

ORIFICE CONTROL IN PR. CBMH#3

	1:5 Year	1:100 Year	Stress Test (20%)	
R =	55.0	55.0	55.0	mm
A_O =	0.01040	0.01040	0.01040	m^2
Head Calculation				
Top of Pond =	102.055	102.130	102.155	m
Pipe Invert =	100.310	100.310	100.310	m
pipe (if orifice submerged) =	0.150	0.153	0.154	m
H_3 =	1.595	1.667	1.691	m/m
Q_{B2} =	34.9	35.7	36.0	L/s

STORAGE VOLUME REQUIRED (RATIONAL METHOD MODEL)

	1:5 Year	1:100 Year	Stress Test (20%)	
VOLUME $_{REQ}$ =	52.9	120.7	157.7	m^3
ELEVATION REACHED =	102.055	102.130	102.155	m

STORAGE VOLUME PROVIDED

Surface Storage Volume at Max Full Supply Level (Elevation 102.20) =	219.6 m^3
Underground Pipe & Barrel Storage	19.1 m^3
Total Storage	238.6 m^3

TOTAL FREE FLOW + CONTROLLED FLOW =

	1:5 Year	1:100 Year	Stress Test (20%)	
$Q_{C1} + Q_{C2} + Q_{B2}$ =	57.7	84.4	84.7	L/s

$Q_{PR} < Q_{ALL}$

$VOL_{REQ} < VOL_{AVL}$

STORM SEWER DESIGN - COMPUTATION FORM

Project Name: Eagleson, Shell, New C-store, Ex car wash, New u/g petroleum tanks — **1:5 year intensity (mm/hr)** 104.19 — Revised: 11/8/2026

Job No: 2025071 — **ST Ci** 2084

Catchment Area Design													Pipe Design									Capacity Check	
	Manhole																						
Drainage Area Label	U/S	D/S	Drainage Area (ha)	Sum Area (ha)	Runoff Factor C	Equivalent Area (ha) AxC	Cumulative Area (ha) AxC	U/S Tc (min)	D/S Tc (min)	Intensity (mm/hr)	Incremental Design Flow, (L/s)	Design Flow (L/s)	Restricted Flow, (L/s)	Pipe Slope (%)	Nominal Pipe Diameter (mm)	Pipe Material	Friction Coeff. (n)	Pipe Length (m)	Pipe Capacity (L/s)	Velocity (m/s)	Time of Flow (min)	Design / Cap. Ratio	Pipe OK or SURCHARGED
B1	EX CB#1 & 2 XR	PR CBMH#1	0.1756	0.1756	0.75	0.132	0.132	10.00	10.85	104.19	38.4	38.4	38.4	0.350%	300	PVC	0.011	48.897	67.6	0.96	0.85	0.57	OK
B6	EX CB#3	PR CBMH#3	0.0797	0.0797	0.83	0.066	0.066	10.00	10.49	104.19	19.3	19.3	19.3	1.010%	200	PVC	0.011	36.603	39.0	1.24	0.49	0.49	OK
B2	PR CB#2	PR CBMH#1	0.0674	0.0674	0.86	0.058	0.058	10.00	10.27	104.19	16.7	16.7	16.7	0.370%	300	PVC	0.011	16.149	69.5	0.98	0.27	0.24	OK
B3	PR CBMH#1	PR CBMH#2	0.0558	0.2988	0.98	0.055	0.245	10.27	10.48	102.78	15.6	69.9	69.9	0.400%	300	PVC	0.011	12.501	72.3	1.02	0.20	0.97	OK
B4	PR CBMH#2	PR CBMH#3	0.0401	0.3389	0.95	0.038	0.283	10.48	10.80	101.76	10.8	80.1	80.1	0.370%	300	PVC	0.011	19.147	69.5	0.98	0.32	1.15	SURCHARGED
B5	PR CBMH#3	PR OGS	0.0707	0.4893	0.76	0.054	0.403	10.80	10.86	100.17	15.0	112.3	34.9	1.130%	200	PVC	0.011	4.419	41.2	1.31	0.06	0.85	OK
	PR OGS	PR TMH	0.0000	0.4893	0.82	0.000	0.403	10.86	10.88	99.90	0.0	112.0	34.9	1.250%	200	PVC	0.011	1.600	43.3	1.38	0.02	0.81	OK
	PR TMH	T-MAIN	0.0000	0.4893	0.82	0.000	0.403	10.88	11.02	99.81	0.0	111.9	34.9	1.050%	200	PVC	0.011	10.503	39.7	1.26	0.14	0.88	OK

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LICENSED PROFESSIONAL ENGINEER — V. A. FAAS — 100507645 — Nov. 13 2026 — PROVINCE OF ONTARIO

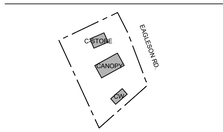
ISSUE/REVISION

I/R	DATE	DESCRIPTION
D	2026-11-13	ISSUED FOR SPCA
C	2026-06-22	ISSUED FOR SPCA
B	2026-06-09	ISSUED FOR SPCA
A	2025-10-21	ISSUED FOR CLIENT REVIEW

DRAWN BY

ED

KEY PLAN



GLOBAL PROJECT ID NUMBER

CAN00---

SHEET TITLE

SITE
STORMWATER MANAGEMENT PLAN
PROPOSED REDEVELOPMENT

FILE NUMBER: D07-12-26-0056
CTM DESIGN FILE NAME

2025071_C104-0

SHEET NUMBER

C104-0

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