Appendix A : Water Supply Servicing November 6, 2017

Appendix A : WATER SUPPLY SERVICING

A.1 DOMESTIC WATER DEMAND ESTIMATE



Estimated Water Demand per City of Ottawa Design Guidelines (July 2010)

WATER DEMAND

Estimated Area: Commercial and Retail $-250m^2/1000m^2$ = 0.250

Average Daily Demand:

$$Q_{avg} = 0.250 \times \frac{5000L}{d} = 1250 \frac{L}{d} \times \frac{1d}{86,400s} = 0.014 \frac{L}{s}$$

Maximum Daily Demand:

$$Q_{\text{max}_daily} = 1250 \frac{L}{d} \times 1.5 = 1875 \frac{L}{d} \times \frac{1d}{86,400s} = 0.022 \frac{L}{s}$$

Peak Hourly:

$$Q_{peak_hourly} = 1875 \frac{L}{d} \times 1.8 = 3375 \frac{L}{d} \times \frac{1d}{86,400s} = 0.039 \frac{L}{s}$$

Appendix A : Water Supply Servicing November 6, 2017

A.2 FIRE FLOW REQUIREMENTS PER FUS





FUS Fire Flow Calculation

Stantec Project #: 1604-01302 Project Name: 3500 Hawthorne Road Date: March 24, 2017 Data input by: Warren Johnson Calculations based on: "Water Supply for Public Fire Protection" by Fire Underwriters' Survey, 1999

Fire Flow Calculation #: 1 Building Type/Description/Name: Commercial Building Gas Station / Convienence Store

Notes:

Image: construction of construction of unit Image: construction of unit			Table A: Fire	Underwriters Survey Determina	tion of Required	l Fire Flow - Long Me	thod		Γ
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& Volume Required Duration of Fire Flow (hrs) 1.50	6				Το	tal Required Fire Flow	v (above)) in L/s:	67
	ь					Required Duration o	f Fire Flo	w (hrs)	1.50
						Required Volume of	Fire Flo	N (m ³)	360

Appendix A : Water Supply Servicing November 6, 2017

A.3 BOUNDARY CONDITIONS



From:	Oram, Cody
То:	Johnson, Warren
Cc:	<u>Kilborn, Kris</u>
Subject:	RE: Hydraulic Boundary Conditions - 3500 Hawthorne Road
Date:	Tuesday, March 14, 2017 11:27:14 AM
Attachments:	image001.png
	3500 Hawthorne March 2017.pdf

Hi Warren,

The following are boundary conditions, HGL, for hydraulic analysis at 3500 Hawthorne (zone 2C) assumed to be connected to the 406 mm on Hawthorne (see attached PDF for location).

Minimum HGL = 122.1 m Maximum HGL = 133.5 m Max day (0.022 L/s) + FireFlow (67 L/s) = 125.8 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Regards,

Cody Oram, P.Eng. Senior Engineer

Development Review, South Services

Planning, Infrastructure and Economic Development Department | Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West. Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1 613.580.2424 ext./poste **13422**, fax/téléc:613-580-2576, cody.oram@ottawa.ca

?

From: Johnson, Warren [mailto:Warren.Johnson@stantec.com]
Sent: Wednesday, March 08, 2017 11:19 AM
To: Oram, Cody
Cc: Kilborn, Kris
Subject: Hydraulic Boundary Conditions - 3500 Hawthorne Road

Hi Cody,

I'm looking for watermain hydraulic boundary conditions for the proposed site at 3500 Hawthorne Road. We anticipate connecting to the existing 400mm watermain on Hawthorne Road.

Attached are the FUS calculations for the proposed building and location plan. The intended land use is Commercial, for a 1 story gas station and convenience store with an area of 250m2.

Estimated domestic demands and fire flow requirements for the site are as follows:

Average Day Demand- 0.014L/sMax Day Demand- 0.022L/sPeak Hour Demand- 0.039L/sFire Flow Requirement per FUS - 67L/s

Thanks,

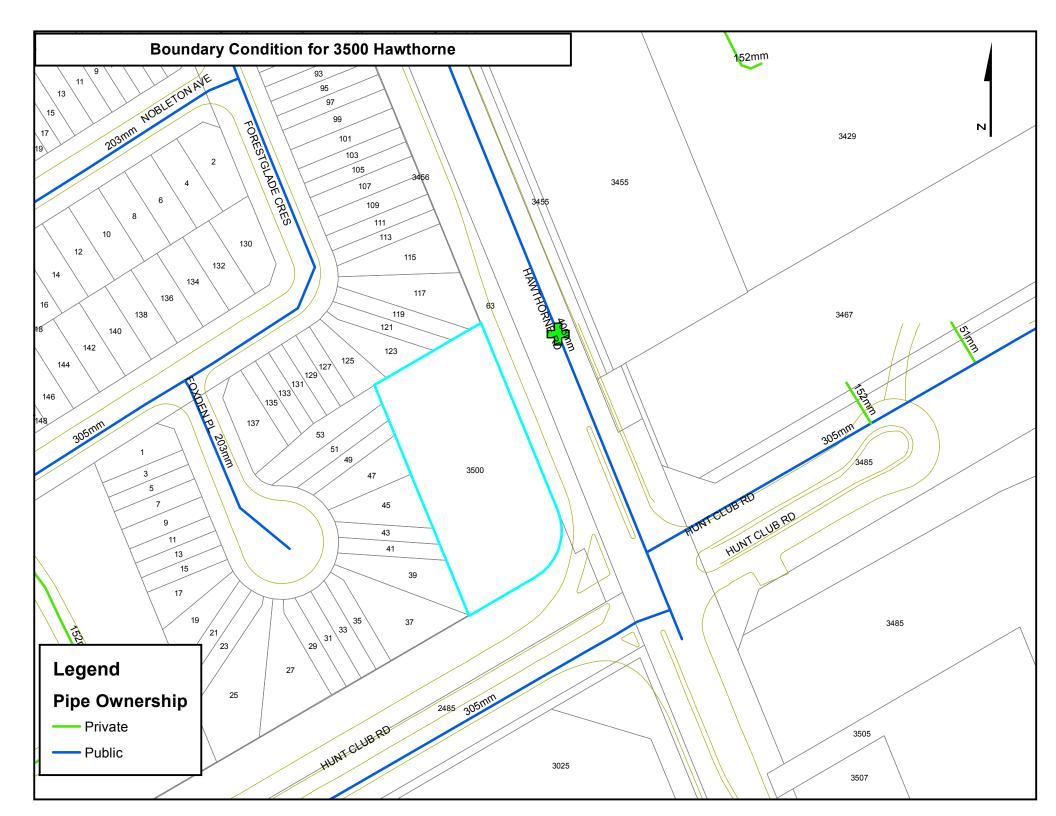
Warren Johnson, C.E.T. Civil Engineering Technologist Stantec 400 - 1331 Clyde Avenue Ottawa ON K2C 3G4 Phone: 613-784-2272 warren.johnson@stantec.com

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Appendix B : Wastewater Servicing November 6, 2017

Appendix B : WASTEWATER SERVICING

B.1 SANITARY SEWER DESIGN SHEET



td w:\active\160401284_3500 hawthorne road (1302)\design\report\servicing\rpt_2017-11-06_servicing.docx

										(1.		-	د د		
									VEL.	(ACT.)	(m/s)	0.31	0.30		
									VEL.	DW (FULL)	(m/s)	0.86			
									CAP. V	PEAK FLOW	(%)	2.77%	1.27%		
									CAP.	(FULL)	(I/s)	15.3	33.4		
								PIPE	SLOPE		(%)	1.00	1.00		
	s/m	s/m			E				CLASS			DR 28	SDR 35		
	0.60	3.00	0.013	В	2.50 m				MATERIAL			PVC	PVC		
									DIA		(mm)	150	200	200	
	LOCITY	ELOCITY	_	ASS	VER				LENGTH		(m)	2.0	1.8		
	MINIMUM VELOCITY	MAXIMUM VELOCITY	MANNINGS n	BEDDING CLASS	MINIMUM COVER			TOTAL	FLOW		(I/s)	0.4	0.4		
								7	INFILT.	FLOW	(I/S)	0.1	0.1		
DESIGN PARAMETERS	350 l/p/day	Vha/day	Vha/day	Vha/day	Vha/day	0.28 I/s/Ha		INFILTRATION	ACCU.	AREA	(ha)	0.37	0.37		
DESIGN PAI	350	50,000 l/ha/day	55,000 l/ha/day	35,000 l/ha/day	50,000 l/ha/day	0.28		-	TOTAL	AREA	(ha)	0.37	0.00		
	N							C+I+I	PEAK	FLOW	(I/s)	0.3	0.3		
	AVG. DAILY FLOW / PERSON		ΗΕΑΥΥ)	LIGHT)	٨L	_		UNUSED	ACCU.	AREA	(ha)	0.00	0.00		
	AVG. DAILY F	COMMERCIAL	INDUSTRIAL (HEAVY)	INDUSTRIAL (LIGHT)	INSTITUTIONAL	INFILTRATION		GREEN / UNUSED	AREA		(ha)	0.00	0.00		
		-						TIONAL	ACCU.	AREA	(ha)	0.00	0.00		
	4.0	2.0	2.4	1.5	3.4	2.7	1.8	INSTITUTIONAL	AREA		(ha)	0.00	0.00		
			'RIAL):	INST.):				IIAL (H)	ACCU.	AREA	(ha)	0.00	0.00		
	AAX PEAK FACTOR (RES.)=	TOR (RES.)=	TOR (INDUST	TOR (COMM.,	NGLE	WNHOME	ARTMENT	(H) INDUSTRIAL (H)	AREA		(ha)	0.00	0.00		
	MAX PEAK FA	MIN PEAK FACTOR (RES.)=	PEAKING FACTOR (INDUSTRIAL):	PEAKING FACTOR (COMM., INST.):	PERSONS / SINGLE	PERSONS / TOWNHOME	PERSONS / APARTMENT	(I) TI	ACCU.	AREA	(ha)	0.00	0.00		
	-	-						INDUSTRIAL (L)	AREA		(ha)	0.00	0.00		
								RCIAL	ACCU.	AREA	(ha)	0.37	0.37		
								COMMERCIAL	AREA		(ha)	0.37	0.00		
SANITARY SEWER DESIGN SHEET	a)								PEAK	FLOW	(I/s)	0.0	0.0		
ARY SI	r of Ottaw								PEAK	FACT.		4.00	4.00		
ANIT ^A DESIC	(City								TIVE	POP.		0	0		
S				160401302				DPULATION	CUMULATIVE	AREA	(ha)	0.00	0.00		
								RESIDENTIAL AREA AND POPULATION	POP.			0	0		
				FILE NUMBER:				RESIDENTIAL		APT		0	0		
AD		3/24							UNITS	TOWN		0	0		
DRNE RO		2017/03/24	-	NAJ						SINGLE		0	0		
VISION: 3500 HAWTHORNE ROAD				BY:	3Y:				AREA		(ha)	0.00	0.00		
		DATE:	REVISION:	DESIGNED BY:	CHECKED BY:				TO	M.H.		-	EX STUB		
U)			Ľ	<u>ں</u>	<u>ں</u>				FROM	M.H.		BLDG	-		
				Chambro	אמוותר			LOCATION	AREA ID	NUMBER		C1A			

Appendix C : Stormwater Management November 6, 2017

Appendix C : STORMWATER MANAGEMENT

C.1 STORM SEWER DESIGN SHEET



	3500	HAWTH	ORNE R	OAD				N SEWE			DESIGN	PARAME	ERS																										
Stantec							DESIG	IN SHEE	т		I = a / (t+	·b) ^c		(As per C	ty of Ottav	va Guidel	nes, 2012	2)																					
	DATE:		2017	/11/03			(City o	of Ottawa))			1:2 yr	1:5 yr	1:10 yr	1:100 yr																								
	REVISION:			2							a =				1735.688			0.013		BEDDING	CLASS =	В																	
	DESIGNED		M	IJS	FILE NU	MBER:	1604012	284			b =	6.199	6.053	6.014				2.00																					
	CHECKED	BY:	1								c =	0.810	0.814	0.816		TIME OF E	NTRY	10	min									1											
LOCATION AREA ID	FROM	то	AREA	AREA	4054	1051	1054	0	0	0	0	40	400104	DR		EAO	1000	40	1000	T -(0					0	ACCUM.	0	I ENGTH	PIPE WIDTH	DIDE	PIPE		PIPE SELE	CHON	0	0/ F 101	1071	VEL.	TIME OF
NUMBER	MH	мн	(2-YEAR)	(5-YEAR)	(10-YEAR	AREA 2) (100-YEAF	ROOF	(2-YEAR)	(5-YEAR)	(10-YEAR)	(100-YEAR)	AXC (2-YEAR)	ACCUM	(5-YEAR)	ACCOM.	(10-YEAR)	ACCUM.	(100-YEAR)	ACCOM. AxC (100YR)	TOPC	2-YEAR	I5-YEAR	10-YEAR	100-YEAR	CONTROL	QCONTROL	Q _{ACT} (CIA/360)		DR DIAMETER	HEIGHT	SHAPE	MATERIAL	CLASS	SLOPE	(FULL)	% FULL	VEL. (FULL)	(ACT)	FLOW
NOMBER	W.11.	Mart.	(2-12AIX) (ha)	(3-1EAR) (ha)	(10-1 EAR	(100-12A) (ha)	(ha)	(2-1EAR) (-)	(J=TEAR) (-)	(10-12AR)	(100-1EAIX) (-)	(ha)	(ha)	(J= 1 EAIX) (ha)	(ha)	(ha)	(ha)	(100-12AIX) (ha)	(ha)	(min)	(mm/h)	(mm/h)	(mm/h)	(mm/h)	(L/s)	(L/s)	(CIA/300) (L/s)	(m)	(mm)	(mm)	(-)	(-)	(-)	%	(L/s)	(-)	(m/s)	(m/s)	(min)
																							. ,								••								
R101A	STUB	STC300	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.00 10.14	76.81	104.19	122.14	178.56	1.6	1.6	1.6	3.8	200	200	CIRCULAR	PVC		1.00	33.3	4.80%	1.05	0.45	0.14
																				10.14																			
L202A	CB 202	STC 300	0.00	0.09	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.000	0.000	0.072	0.072	0.000	0.000	0.000	0.000	10.00 10.67	76.81	104.19	122.14	178.56	0.0	0.0	20.9	38.7	200	200	CIRCULAR	PVC	-	1.00	33.3	62.89%	1.05	0.96	0.67
L200A	CB 200 0	CBMH103	0.00	0 17	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.000	0.000	0.128	0 128	0.000	0.000	0.000	0.000	10.67	76.81	104.19	122.14	178 56	0.0	0.0	37.0	17.0	200	200	CIRCULAR	PVC		1.00	33.3	111.07%	1.05	1.05	0.27
			0.00	0.11	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.000	0.000		0.120					10.27				110.00	0.0				200	200	01100211								
L201A	CB 201 0	CBMH103	0.00	0.03	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.000	0.000	0.013	0.013	0.000	0.000	0.000	0.000	10.00 10.74	76.81	104.19	122.14	178.56	0.0	0.0	3.8	25.5	200	200	CIRCULAR	PVC	-	1.00	33.3	11.34%	1.05	0.57	0.74
L103A	103	102	0.00	0.04	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.000	0.000	0.022	0.163	0.000	0.000	0.000	0.000	10.74	74.07	100.43	117.71	172.04	0.0	0.0	45.4	4.5	300	300	CIRCULAR	PVC	-	0.60	74.5	60.99%	1.06	0.96	0.08
	102	STC300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.163	0.000	0.000	0.000	0.000	10.82	73.79	100.05	117.26	171.39	0.0	0.0	45.3	6.4	300	300	CIRCULAR	PVC	-	0.60	74.5	60.76%	1.06	0.96	0.11
	STC300	EX MH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.235	0.000	0.000	0.000	0.000	10.93 11.76	73.40	99.52	116.63	170.47	1.6	1.6	66.6	65.0	300	300 300	CIRCULAR	PVC	-	1.03	97.6	68.27%	1.39	1.31	0.83
																				11.76									300	300									

Appendix C : Stormwater Management November 6, 2017

C.2 RATIONAL METHOD CALCULATIONS



File No: 160401284 Project: PROPOSED COMMERCIAL DEVELOPMENT Date: 03-Nov-17

SWM Approach: Post-development to Pre-development flows

Post-Development Site Conditions:

Overall Runoff Coefficient for Site and Sub-Catchment Areas

Sub-cate		Runoff C	Coefficient Table Area		Runoff			Overall
Are Catchment Type	a ID / Description		(ha) "A"		Coefficient "C"	"A	x C"	Runoff Coefficient
Roof	R101A	Hard	0.025		0.9	0.023		
		Soft	0.000		0.2	0.000		
	Subto	otal		0.025			0.0225	0.900
Controlled - Tributary	(L103A+L201A+L200A)	Hard	0.165		0.9	0.149		
controlled moduly	(2.00,0220,0220,0)	Soft	0.066		0.2	0.013		
	Subto			0.231			0.1619667	0.700
Controlled - Tributary	L202A	Hard	0.077		0.9	0.069		
Controlled - Thibatary	LZOZA	Soft	0.018		0.2	0.003		
	Subto			0.094			0.0726426	0.770
Uncontrolled - Non-Tributary	U1A	Hard	0.006		0.9	0.006		
		Soft	0.005		0.2	0.001		
	Subto	otal		0.011			0.0067567	0.590
Uncontrolled - Non-Tributary	U2A	Hard	0.000		0.9	0.000		
-		Soft	0.010		0.2	0.002		
	Subto	otal		0.010			0.0019784	0.200
Total				0.372			0.266	
verall Runoff Coefficient= C:				0.372			0.200	0.71
otal Roof Areas			0.025 h					
otal Tributary Surface Areas (C	Controlled and Uncontrolled	d)	0.326 h					
otal Tributary Area to Outlet		,	0.351 h	na				
otal Uncontrolled Areas (Non-	Fributary)		0.021 h	na				
otal Site			0.372 h					
Utal Site			0.372 F	ia				

Stormwater Management Calculations

	5 yr Intens	itv	$I = a/(t + b)^{c}$	a =	998.071	t (min)	l (mm/hr)
	City of Otta			a = b =	6.053	5	141.18
	ony of one	iwa		C =	0.814	10	104.19
				Ŭ	0.011	15	83.56
						20	70.25
						25	60.90
						30	53.93
						35	48.52
						40	44.18
						45	40.63
						50	37.65
						55	35.12
					L	60	32.94
	5 YEA	R Predeve	elopment Ta	arget Releas	e from Por	tion of Sit	e
Subdrai	Area (ha):	0.372	ment Tributar	y Area to Outl	et		
	C:	0.50					
		e of Concer					
	tc (min)	l (5 yr) (mm/hr)	Qtarget (L/s)				
	10	104.19	53.9				
	5 YEAR M	Iodified R	ational Met	hod for Enti	re Site		
Subdrai	nage Area:	R101A				F "	Roof
	Area (ha): C:	0.03 0.90		IVI	aximum Sto	rage Deptn:	150 mm
	tc	l (5 yr)	Qactual	Qrelease	Qstored	Vstored	Depth
	(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)	(mm)
	10	104.19	6.52	1.6	4.9	3.0	_
	20	70.25	4.39	1.6	2.8	3.4	
	30	53.93	3.37	1.6	1.8	3.2	
	40	44.18	2.76	1.6	1.2	2.8	
	50	37.65	2.36	1.6	0.8	2.3	
	60 70	32.94	2.06	1.6	0.5	1.7	
	70 80	29.37 26.56	1.84 1.66	1.6	0.2	1.0	
	80 90	26.56	1.66	1.6 1.6	0.1 0.0	0.3 0.0	
	90 100	24.29 22.41	1.52 1.40	1.6	0.0	0.0	
	110	22.41	1.40	1.6	0.0	0.0	
	120	19.47	1.22	1.6	0.0	0.0	
orage:	Roof Storag	1e					
		Depth	Head	Discharge	Vreq	Vavail	Discharge
E voor l	Vater Level	(mm) 103.55	(m) 0.10	(L/s) 1.6	(cu. m) 3.4	(cu. m) 10.0	Check 0.0
o-year \	water Level	103.55	U.1U	1.6	3.4	10.0	U.U
Subdrai	nage Area: Area (ha): C:	A+L201A+L 0.23 0.70	200A)			Controll	ed - Tributary
	tc	l (5 yr)	Qactual	Qrelease	Qstored	Vstored	ſ
	(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)	
		104.19	46.91	19.9	27.0	16.2	
	10					14.1	
	20	70.25	31.63	19.9	11.7		
	20 30	70.25 53.93	31.63 24.28	19.9	4.4	7.9	
	20 30 40	70.25 53.93 44.18	31.63 24.28 19.89	19.9 19.9	4.4 0.0	7.9 0.0	
	20 30	70.25 53.93 44.18 37.65	31.63 24.28 19.89 16.95	19.9 19.9 19.9	4.4 0.0 0.0	7.9 0.0 0.0	
	20 30 40 50 60	70.25 53.93 44.18 37.65 32.94	31.63 24.28 19.89 16.95 14.83	19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0	7.9 0.0 0.0 0.0	
	20 30 40 50	70.25 53.93 44.18 37.65	31.63 24.28 19.89 16.95	19.9 19.9 19.9	4.4 0.0 0.0	7.9 0.0 0.0	
	20 30 40 50 60 70	70.25 53.93 44.18 37.65 32.94 29.37	31.63 24.28 19.89 16.95 14.83 13.23	19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0	
	20 30 40 50 60 70 80 90 100	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	20 30 40 50 60 70 80 90 100 110	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	20 30 40 50 60 70 80 90 100	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
orage:	20 30 40 50 60 70 80 90 100 110	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
	20 30 40 50 60 70 80 90 100 110 120 * Above CB	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific	20 30 40 50 60 70 80 90 100 110 120	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific	20 30 40 50 60 70 80 90 100 110 120 Above CB e Equation: e Diameter:	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 • CdA(2gh)^	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific Orifice Inve T/	20 30 40 50 60 70 80 90 100 110 120 2 Above CB e Equation: 2 Diameter: rt Elevation 2 Elevation	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 * CdA(2gh)^ 83.00	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific Orifice Inve T/	20 30 40 50 60 70 80 90 100 110 120 2 Above CB e Equation: e Diameter: rt Elevation	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 ************************************	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific Orifice Inve T/ Max Por	20 30 40 50 60 70 80 90 100 110 120 2 Above CB e Equation: 2 Diameter: rt Elevation 2 Elevation	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 * * CdA(2gh)^A 83.00 82.26 84.22	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77 0.5 mm m	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Orific Orifice Inve T/ Max Por	20 30 40 50 60 70 80 90 100 110 120 2 Above CB e Equation: b Diameter: rt Elevation G Elevation ding Depth	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 * CdA(2gh)^* 83.00 82.26 84.22 0.15	31.63 24.28 19.89 16.95 14.83 13.23 11.96 9.38 9.38 8.77 0.5 mm m m m Head	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Volume
Orific Orifica Inve T/ Max Por Down	20 30 40 50 60 70 80 90 100 110 120 2 Above CB e Equation: b Diameter: rt Elevation G Elevation ding Depth	70.25 53.93 44.18 37.65 32.94 29.37 26.56 24.29 22.41 20.82 19.47 * * * * * * * * * * * * * * * * * * *	31.63 24.28 19.89 16.95 14.83 13.23 11.96 10.94 10.09 9.38 8.77 0.5 mm m m m	19.9 19.9 19.9 19.9 19.9 19.9 19.9 19.9	4.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	7.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Volume Check OK

Project #160401284, PROPOSED COMMERCIAL DEVELOPMENT Modified Rational Method Calculatons for Storage

Project #160401284, PROPOSED COMMERCIAL DEVELOPMENT Modified Rational Method Calculatons for Storage

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	100 yr Inte		$I = a/(t + b)^{2}$	a =	1735.688	t (min)	l (mm/hr)	ļ
	City of Ott	awa		b =	6.014	5	242.70	
				c =	0.820	10 15	178.56 142.89	
						20	119.95	
						25	103.85	
						30	91.87	
						35	82.58	
						40	75.15	
						45	69.05	
						50 55	63.95 59.62	
						55 60	59.62	
						00	55.05	1
	100 YEAR	R Modified	Rational M	ethod for En	tire Site			
Subdrai	nage Area:	R101A					Roof	
	Area (ha): C:	0.03 1.00		Ma	aximum Stor	rage Depth:	150	
	tc	l (100 yr)	Qactual	Qrelease	Qstored	Vstored	Depth	1
1	(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)	(mm)	
	10	178.56	12.41	3.8	8.6	5.2		
	20 30	119.95 91.87	8.34 6.38	3.8 3.8	4.6 2.6	5.5 4.7		
	30 40	91.87 75.15	6.38 5.22	3.8	2.6	4.7 3.5		
	40 50	63.95	5.22 4.44	3.8	0.7	2.1		
	60	55.89	3.88	3.8	0.1	0.4		
	70	49.79	3.46	3.8	0.0	0.0		
	80	44.99	3.13	3.8	0.0	0.0		
	90	41.11	2.86	3.8	0.0	0.0		
	100	37.90	2.63	3.8	0.0	0.0		
	110	35.20	2.45	3.8	0.0	0.0		
	120	32.89	2.29	3.8	0.0	0.0		
Storage:	Roof Storag	-						1
		Depth (mm)	Head	Discharge	Vreq	Vavail	Discharge	
100 year	Water Level	(mm) 122.39	(m) 0.12	(L/s) 3.8	(cu. m) 5.5	(cu. m) 10.0	Check 0.0	-
TOO-year	valei Level	122.59	0.12	3.0	0.0	10.0	0.0	1
Subdrai	nage Area: Area (ha): C:	A+L201A+I 0.23 0.88	_200A)			Control	ed - Tributary	
1	40	1 (100)	Operatural	Oralasa -	Ostara-I	Votoro	1	
	tc (min)	l (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)		
	10	178.56	100.50	20.8	79.7	47.8	1	
	20	119.95	67.51	20.8	46.7	56.0		
	30	91.87	51.71	20.8	30.9	55.6		
	40	75.15	42.29	20.8	21.5	51.5		
	50 60	63.95 55.89	36.00 31.46	20.8 20.8	15.2 10.6	45.5 38.2		
	70	55.89 49.79	28.02	20.8	7.2	38.2 30.2		
	80	44.99	25.32	20.8	4.5	21.5		
	90	41.11	23.14	20.8	2.3	12.4		
	100	37.90	21.33	20.8	0.5	3.0		
	110 120	35.20 32.89	19.81 18.51	20.8 20.8	0.0 0.0	0.0 0.0		
0.				20.0	0.0	0.0		
Storage:	Surface Sto				0.5			
	e Equation: e Diameter:	Q = CdA(2 83.00		Where Cd =	0.572			
	e Diameter: ert Elevation	83.00						
T/	G Elevation	84.22						
Max Por	nding Depth	0.35	m					
	stream W/L	0.00						
		Stage	Head	Discharge	Vreq	Vavail	Volume	1
		Olage	(m)	(L/s)	(cu. m)	(cu. m)	Check	1
100-year 1	Water Level	84.57	2.31	20.8	56.0	74.4	OK]
100-ycai								

Stormwater Management Calculations

٦

Project #160401284, PROPOSED COMMERCIAL DEVELOPMENT Modified Rational Method Calculatons for Storage

Subdrai	nage Area: Area (ha): C:	L202A 0.09 0.77				Controll	ed - Tributa	ry
	tc (min)	l (5 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	I	
	10	104.19	21.0	19.1	1.9	1.1	1	
	20 30	70.25 53.93	14.2 10.9	19.1 19.1	0.0 0.0	0.0 0.0		
	40	44.18	8.9	19.1	0.0	0.0		
	50	37.65	7.6	19.1	0.0	0.0		
	60 70	32.94 29.37	6.7 5.9	19.1 19.1	0.0 0.0	0.0 0.0		
	80	29.57	5.9	19.1	0.0	0.0		
	90	24.29	4.9	19.1	0.0	0.0		
	100	22.41 20.82	4.5	19.1 19.1	0.0	0.0 0.0		
	110 120	20.82	4.2 3.9	19.1	0.0 0.0	0.0		
Storage:	Above CB							
	e Equation:			Where Cd =	0.572			
	e Diameter:	83.00	mm					
	rt Elevation G Elevation	82.64 84.44	m m					
	ding Depth	0.15	m					
	stream W/L	0.00	m					
	J	Stage	Head	Discharge	Vreq	Vavail	Volume	¬
		olaye	(m)	(L/s)	(cu. m)	(cu. m)	Check	
5-year \	Vater Level	84.59	1.95	19.1	1.1	27.8	OK	
Subdrai	nage Area: Area (ha): C:	U1A 0.01 0.59			Ui	ncontrolled - I	Non-Tributa	ry
	tc	l (5 yr)	Qactual	Qrelease	Qstored	Vstored	I	
	(min) 10	(mm/hr) 104.19	(L/s) 2.0	(L/s) 2.0	(L/s)	(m^3)	ļ	
	20	70.25	1.3	1.3				
	30	53.93	1.0	1.0				
	40	44.18	0.8	0.8				
	50 60	37.65 32.94	0.7 0.6	0.7				
	70	29.37	0.6	0.6				
	80	26.56	0.5	0.5				
	90	24.29	0.5	0.5				
	100 110	22.41 20.82	0.4 0.4	0.4 0.4				
	120	19.47	0.4	0.4				
Subdrai	nage Area: Area (ha):	U2A 0.01			Ur	ncontrolled - I	Non-Tributa	ry
	C:	0.20						
	tc (min)	l (5 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	I	
	10	104.19	0.6	0.6	(13)	(11 3)	ļ	
	20	70.25	0.4	0.4				
	30 40	53.93 44.18	0.3 0.2	0.3 0.2				
	40 50	44.18 37.65	0.2	0.2				
	60	32.94	0.2	0.2				
	70	29.37	0.2	0.2				
	80 90	26.56 24.29	0.1 0.1	0.1				
	100	24.29 22.41	0.1	0.1				
	110	20.82	0.1	0.1				
	120	19.47	0.1	0.1				
SUMMARY	TO OUTLET	,				Vrequired	Vavailable	,
			ibutary Area ow to Sewer	0.326 40.7		0		0 m ³ O
	Tota	Non-Tr I 5yr Flow l	ibutary Area Incontrolled	0.021 2.5	L/s			
		То	Total Area otal 5yr Flow Target	0.347 43.2 53.9	L/s			

Project #160401284, PROPOSED COMMERCIAL DEVELOPMENT Modified Rational Method Calculatons for Storage

Subdrainage Area: Area (ha): C:	L202A 0.09 0.96				Controll	ed - Tributary
tc	l (100 yr)	Qactual	Qrelease	Qstored	Vstored	
(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)	
10	178.56	45.1	19.5	25.6	15.4	
20	119.95	30.3	19.5	10.8	13.0	
30	91.87	23.2	19.5	3.7	6.7	
40	75.15	19.0 16.1	19.5	0.0	0.0	
50	63.95	16.1	19.5	0.0	0.0	
60 70	55.89		19.5	0.0	0.0	
70 80	49.79 44.99	12.6 11.4	19.5 19.5	0.0 0.0	0.0 0.0	
90	41.11	10.4	19.5	0.0	0.0	
100	37.90	9.6	19.5	0.0	0.0	
110	35.20	8.9	19.5	0.0	0.0	
120	32.89	8.3	19.5	0.0	0.0	
Storage: Surface Sto	rage Above	CB				
•	-		Where Orl -	0.570		
Orifice Equation: Orifice Diameter:	Q = CdA(2gi 83.00 r	n <i>)</i> ~0.5	Where Cd =	0.572		
Invert Elevation	82.64 r					
T/G Elevation	84.44 r					
Max Ponding Depth	04.44 I 0.22 r					
Downstream W/L	0.00 r					
[Stage	Head	Discharge	Vreq	Vavail	Volume
100 year Water Level	94 66	(m)	(L/s)	(cu. m)	(cu. m) 27.8	Check
100-year Water Level	84.66	2.02	19.5	15.4	27.8	OK
					12.43	
Subdrainage Area: Area (ha): C:	U1A 0.01 0.74			Und	controlled - I	Non-Tributary
tc (min)	l (100 yr)	Qactual	Qrelease	Qstored	Vstored	
(min) 10	(mm/hr) 178.56	(L/s) 4.2	(L/s) 4.2	(L/s)	(m^3)	
20	119.95	2.8	2.8			
30	91.87	2.2	2.2			
40	75.15	1.8	1.8			
50	63.95	1.5	1.5			
60	55.89	1.3	1.3			
70	49.79	1.2	1.2			
80	44.99	1.1	1.1			
90	41.11	1.0	1.0			
100	37.90	0.9	0.9			
110	35.20	0.8	0.8			
120	32.89	0.8	0.8			
Subdrainage Area: Area (ha): C:	U2A 0.01 0.25			Und	controlled - I	Non-Tributary
tc	l (100 yr)	Qactual	Qrelease	Qstored	Vstored	
(min) 10	(mm/hr) 178.56	(L/s) 1.2	(L/s) 1.2	(L/s)	(m^3)	
20	119.95	0.8	0.8			
30	91.87	0.6	0.6			
40	75.15	0.5	0.5			
50	63.95	0.4	0.4			
60	55.89	0.4	0.4			
70	49.79	0.3	0.3			
80	44.99	0.3	0.3			
90	41.11	0.3	0.3			
100	37.90	0.3	0.3			
110	35.20	0.2	0.2			
120	32.89	0.2	0.2			
SUMMARY TO OUTLET						
		outary Area	0.326		Vrequired	Vavailable*
Tot	al 100yr Flo				0	0 m ³
	Mars Talk	outary Area	0.021	ha		
Total 10	Non-Tric Oyr Flow Ur					

Project #160401284, PROPOSED COMMERCIAL DEVELOPMENT Roof Drain Design Sheet, Area R101A Standard Zurn Model Z-105-5 Control-Flo Single Notch Roof Drain

	Rating	Curve			Volume E	stimation		
Elevation	Discharge Rate	Outlet Discharge	Storage	Elevation	Area	Volume	e (cu. m)	Water Depth
(m)	(cu.m/s)	(cu.m/s)	(cu. m)	(m)	(sq. m)	Increment	Accumulated	(m)
0.000	0.0000	0.0000	0	0.000	0	0	0	0.000
0.025	0.0004	0.0008	0	0.025	6	0	0	0.025
0.050	0.0008	0.0015	0	0.050	22	0	0	0.050
0.075	0.0012	0.0023	1	0.075	50	1	1	0.075
0.100	0.0015	0.0031	3	0.100	89	2	3	0.100
0.125	0.0019	0.0038	6	0.125	139	3	6	0.125
0.150	0.0023	0.0046	10	0.150	200	4	10	0.150

	Drawdow	n Estimate	
Total	Total		
Volume	Time	Vol	Detention
(cu.m)	(sec)	(cu.m)	Time (hr)
0.0	0.0	0.0	0
0.3	211.0	0.3	0.05861
1.2	381.8	0.9	0.16466
2.9	557.6	1.7	0.31955
5.7	735.4	2.8	0.52384
10.0	914.3	4.2	0.7778

Notch Rating

Rooftop Storage Summary

	250	
80%	200	
	0.99	
	232	
	2	
	0.15	* As per Ontario Building Code section OBC 7.4.10.4.(2)(c).
	10	
	0.5	
	80%	80% 200 0.99 232 2 0.15 10

Head (m) L/min L/s

From Zurn Drain Catalogue

0.051 45.5 0.00076 232

* Note: Number of drains can be reduced if multiple-notch drain used.

Calculation Results	5yr	100yr	Available
Qresult (cu.m/s)	0.003	0.004	-
Depth (m)	0.104	0.122	0.150
Volume (cu.m)	3.4	5.5	10.0
Draintime (hrs)	0.4	0.5	

Appendix C : Stormwater Management November 6, 2017

C.3 OIL/GRIT SEPARATOR SIZING





Stormceptor Design Summary PCSWMM for Stormceptor

Project Information

Designer Information				
Location	Ottawa, ON			
Project Number	160401302			
Project Name	3500 Hawthorne Road			
Date	10/4/2017			

Company	Stantec Consulting Ltd.			
Contact	Dustin Thiffault, P.Eng.			

Notes

Drainage Area

Total Area (ha)	0.372
Imperviousness (%)	100

The Stormceptor System model STC 300 achieves the water quality objective removing 87% TSS for a CLOCA (clay, silt and sand) particle size distribution.

Stormceptor Sizing Summary

Rainfall

Name	OTTAWA MACDONALD-CARTIER INT'L A
State	ON
ID	6000
Years of Records	1967 to 2003
Latitude	45°19'N
Longitude	75°40'W

Water Quality Objective

T	SS Removal (%)	80

Upstream Storage

Storage	Discharge
(ha-m)	(L/s)
0.000	00.000
0.008	49.500

Stormceptor Model	TSS Removal %		
STC 300	87		
STC 750	90		
STC 1000	91		
STC 1500	91		
STC 2000	93		
STC 3000	93		
STC 4000	95		
STC 5000	95		
STC 6000	96		
STC 9000	97		
STC 10000	97		
STC 14000	98		



Particle Size Distribution

Removing silt particles from runoff ensures that the majority of the pollutants, such as hydrocarbons and heavy metals that adhere to fine particles, are not discharged into our natural water courses. The table below lists the particle size distribution used to define the annual TSS removal.

CLOCA (clay, silt and sand)								
Particle Size	Distribution	Specific Gravity	Settling Velocity		Particle Size	Distribution	Specific Gravity	Settling Velocity
μm	%	,	m/s ์		μm	%	,	m/s ์
850	3.3	2.65	0.1465		50	3.9	2.65	0.0022
425	23.4	2.65	0.0698		36	2.6	2.65	0.0012
300	17.5	2.65	0.0439		22	1.3	2.65	0.0004
250	6.5	2.65	0.0335		12	1.9	2.65	0.0004
212	6.5	2.65	0.0259		9	0	2.65	0.0004
150	11.7	2.65	0.0145		6.5	1.3	2.65	0.0004
125	5.2	2.65	0.0105		3	1.3	2.65	0.0004
100	3.9	2.65	0.0070		1.5	1.3	2.65	0.0004
75	3.9	2.65	0.0040		1	4.5	2.65	0.0004

Stormceptor Design Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor version 1.0

- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal.
- Only the STC 300 is adaptable to function with a catch basin inlet and/or inline pipes.
- Only the Stormceptor models STC 750 to STC 6000 may accommodate multiple inlet pipes.
- Inlet and outlet invert elevation differences are as follows:
 - Inlet and Outlet Pipe Invert Elevations Differences

Inlet Pipe Configuration	STC 300	STC 750 to STC 6000	STC 9000 to STC 14000
Single inlet pipe	75 mm	25 mm	75 mm
Multiple inlet pipes	75 mm	75 mm	Only one inlet pipe.

- Design estimates are based on stable site conditions only, after construction is completed.
- Design estimates assume that the storm drain is not submerged during zero flows. For submerged applications, please contact your local Stormceptor representative.
- Design estimates may be modified for specific spills controls. Please contact your local Stormceptor representative for further assistance.
- For pricing inquiries or assistance, please contact Imbrium Systems Inc., 1-800-565-4801.

Appendix D : Correspondence November 6, 2017

Appendix D : CORRESPONDENCE



td w:\active\160401284_3500 hawthorne road (1302)\design\report\servicing\rpt_2017-11-06_servicing.docx



Stantec Consulting Ltd. 400 - 1331 Clyde Avenue, Ottawa ON K2C 3G4

November 7, 2017 File: 160401247

Attention: John Bernier, Planner City of Ottawa

Dear John,

Reference: Technical Circulation Comments, 3500 Hawthorne Road, Site Plan Control Application dated June 16, 2017

<u>General</u>

- **3.** Please include the file number D07-12-17-0043 on the bottom right, outside of the frame on all plans.
- R/ File number has been included.
- 4. Include the attached signature block on all drawings.
- R/ Signature block has been included.
- 6. Include name and address of developer/owner, applicant, architects, designers, engineers, and surveyors on all plans.
- R/ Name and addresses added.

Conservation Authority Comments

44. See attached letter for additional RVCA responses and questions. R/ RVCA noted no objections to the proposed site.

Engineering Comments

SITE SERVICING PLAN, SSP-1, prepared by Stantec, Project# 160401284, revision 1, dated 17.04.06.

1. CCTV inspection required to confirm location, invert and condition of existing 200mm sanitary and 300mm storm pipes located west of the subject site.

R/ Invert and condition of existing pipe to be confirmed by contractor prior to construction as per note on SSP-1.

2. Specify ICD type and flow rate on the drawing as well as schedule.

R/ ICD note has been included in structure label.

3. Extend road cut limits to include CB 203 lead.

R/ Road cut has been extended to include CB 203 lead.

Design with community in mind



November 7, 2017 John Bernier, Planner Page 2 of 5

Reference: Technical Circulation Comments, 3500 Hawthorne Road, Site Plan Control Application dated June 16, 2017

4. Specify size and type of fire hydrant lead.

R/ Size and type of hydrant lead to be outlined in specs.

5. Confirm if relocation of CB 203 is not effecting the designed CB spacing along Hawthorne Road, include rationale in site servicing report.

R/ The relocation of CB 203 is not to result in any change to drainage characteristics of the CB itself. Catchbasins further west of the subject site along Hawthorne are spaced between 30-35m apart, similar to the proposed spacing of 33m from relocated CB to the CB west of the proposed site. As such, we anticipate no concerns with the relocated CB position.

6. Please note STM 102 and STC 750 are located in soft areas and could potentially be inaccessible during winter due to snow accumulation, move MHs to hard surface if possible. R/ It is not possible to locate both storm and sanitary manholes within hard surface area without causing conflicts. It is recommended to install a sign to indicate that the area is to be kept clear of snow.

7. STM 102 is located within 2.0m to the proposed tree, north-west of STM 102, relocate tree/manhole to achieve horizontal separation.

R/ Proposed tree has been relocated to achieve minimum separation.

Please note there is only 0.16m of clearance at crossing #1, raise storm pipe if possible.
 R/ It is not possible to raise the storm pipe due to constraints with cover upstream of the crossing.

9. Manufacturer's Confirmation of STC 750 is required to confirm if connection arrangement is acceptable.

R/ Manufacturer will be engaged to review STC 300 arrangement.

10. TWSI design/detail to conform to transportation comments. R/TWSI's now demonstrated on site servicing & grading plan.

11. Add note for pylon sign located at north-east corner of the site. R/ Note has been added.

12. Specify survey drawing, date and company used for the design. R/ Note has been added.

13. Specify location of proposed roof drains, 100-yr ponding limit, as well as roof drain schedule.

R/Roof drain schedule and 100 year ponding limit have been included on the drawing.



November 7, 2017 John Bernier, Planner Page 3 of 5

Reference: Technical Circulation Comments, 3500 Hawthorne Road, Site Plan Control Application dated June 16, 2017

14. Provide adequate horizontal separation between proposed 150mm watermain and proposed STM 104.

R/ Proposed watermain has been relocated to provide 3.0m horizontal separation from the storm sewer.

GRADING PLAN, GP-1, prepared by Stantec, Project# 160401284, revision 1, dated 17.04.06.

15. Private access from Hawthorne road to be raised to 2.0% to conform to private approach by-law no. 2003-447.

R/ Private approach by-law 2003-447 section 25 (r) states that "No person shall construct a private approach serving any parking area with a grade exceeding 2% and the grade on the private approach shall descend in the direction of the roadway." The current slopes range from 0.60% to 1.5% and conforms to this by-law.

16. Include geotechnical report project no., date, consultant.

R/ Note has been added.

17. Specify heavy duty asphalt limits.

R/ All asphalt areas are to meet the geotechnical recommendations as outlined in the report.

18. Provide a detail for each type of paving structure.

R/ Detail has been provided on drawing GP-1.

19. Raise grades to a minimum of 1.0% where possible.

R/ Grades have been revised to 1.0% where possible.

20. Parking area south of the building appears to be flat, raise slopes to avoid potential ponding areas.

R/ Slopes have been increased to ensure there will be no ponding in this area.

21. Identify snow storage location.

R/ Snow storage location has been identified.

22. Freeze line work near connection to existing 400mm watermain. **R/ Revised as noted.**

EROSION CONTROL PLAN AND DETAIL SHEET, EC-1, prepared by Stantec, Project# 160401284, revision 1, dated 17.04.06.

Design with community in mind



November 7, 2017 John Bernier, Planner Page 4 of 5

Reference: Technical Circulation Comments, 3500 Hawthorne Road, Site Plan Control Application dated June 16, 2017

23. Confirm mud mat excavation will not impact existing underground utilities in the area of the proposed mud mat.

R/ Proposed mud mat has been relocated to within the site boundary.

STORM DRAINAGE PLAN, SD-1, prepared by Stantec, Project# 160401284, revision 1, dated 17.04.06.

24. Copy roof drain & ICD schedules to site servicing plan. R/ Roof drain and ICD schedules have been included on SSP-1.

25. Show roof drain locations.

R/ Proposed rood drain locations shown on plan with note to refer to building architectural plans for additional detail.

SANITARY DRAINAGE PLAN, SA-1, prepared by Stantec, Project# 160401284, revision 1, dated 17.04.06.

26. No comments.

B. <u>List of Report(s):</u> Servicing Report – 3500 Hawthorne Road, prepared by Stantec, Project# 160401284, dated April 7, 2017.

B1. Section 3.2 – Proposed water demands have been estimated at 50,000 L/ha/day, please provide site specific water demands for the proposed development.

R/ The estimated demand presented in the report is a conservative value, and lies at the upper end of common sewage flow rates for shopping centres per MOECC sewage design guidelines. Given the limited requirements for domestic water on-site (no car-wash, drive-thru paper service only, employee limited washroom), as well as proximity to a large diameter watermain, no domestic water supply volume issues are anticipated.

B2. Section 4.3/Appendix B.1 (Sanitary Sewer Design Sheet) – Check downstream capacity of existing sanitary sewer up to existing manhole on Foxden Place.

R/ The downstream sanitary sewer maintains no additional connections between the existing stub and manhole on Fox Den Place. As such, no capacity concerns are anticipated along the 200mm diameter sewer at 1% slope shown.

B3. Section 5.3.3 – Total release rate for the site (54.22 L/s) is greater than the allowable release rate (54.02), reduce release rate where possible by increasing storage volume/decreasing ICD flow rate.

Design with community in mind



November 7, 2017 John Bernier, Planner Page 5 of 5

Reference: Technical Circulation Comments, 3500 Hawthorne Road, Site Plan Control Application dated June 16, 2017

R/ Storage volume has been increased to allow for reduced discharge rate. The total release rate for the site is now 51.0L/s

B4. Attach correspondence from MOECC and RVCA to servicing report.

R/ RVCA correspondence attached. As the site land use is industrial in nature, an MOECC direct submission ECA will be required along with sign-off from City of Ottawa staff, to be submitted once approved.

Regards,

STANTEC CONSULTING LTD.

Kris Kilborn Associate, Community Development Phone: (613) 724-4337 Fax: (613) 722-2799 kris.kilborn@stantec.com

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Conservation Partners Partenaires de conservation



Mississippi Valley Conservation de la vallée Mississippi OFFICE DE PROTECTION DE LA NATURE DE LA VALLÉE RIDEAU





May 24th, 2017 File: 17-OTT-ZBA

City of Ottawa Planning, Infrastructure and Economic Development Department 110 Laurier Avenue West, 4th floor Ottawa, Ontario K1P 1J1

Attention: John Bernier

Subject: City of Ottawa Zoning By-law Amendment D02-02-17-0028 3500 Hawthorne Road, City of Ottawa.

Dear Mr. Bernier:

The Conservation Partners have completed a review of the above noted application for a Zoning By-law Amendment to facilitate the development of a gas bar with a fast-food restaurant, drive-through facility, and convenience retail uses within a 250 square metre building.

We have undertaken our review within the context of Sections 2.3 Natural Heritage, 2.4 Water Quality and Quantity and 3.1 Natural Hazards of the Provincial Policy Statement under Section 3 of the Planning Act. The following comments are offered for your consideration.

Natural Hazards/ Natural Heritage

There have been no natural hazards or Natural Heritage Features identified on the site which would preclude this application.

Conclusion

In conclusion, the Conservation Authority has no objection to this Zoning By-law Amendment application. Please contact me at ext. 1191 if you have any questions.

Yours truly, Jamie Batchelor, RPP

Planner, Planning and Regulations (RVCA)

Cc: Nancy Meloche; Stantec Consulting Ltd.

Conservation Partners Partenaires de conservation



Mississippi Valley Conservation de la vallée Mississippi OFFICE DE PROTECTION DE LA NATURE DE LA VALLÉE RIDEAU





May 24th, 2017 File: 17-OTT-SPC

City of Ottawa Planning, Infrastructure and Economic Development Department 110 Laurier Avenue West, 4th floor Ottawa, Ontario K1P 1J1

Attention: John Bernier

Subject: City of Ottawa Site Plan Control D07-12-17-0043 3500 Hawthorne Road, City of Ottawa.

Dear Mr. Bernier:

The Conservation Partners have completed a review of the above noted application for the development of a gas bar and a one storey building with a total gross floor area (GFA) of 250 square metres that will contain a fast food restaurant and a convenience/retail use. A surface lot will contain 14 parking spaces.

We have undertaken our review within the context of Sections 2.3 Natural Heritage, 2.4 Water Quality and Quantity and 3.1 Natural Hazards of the Provincial Policy Statement under Section 3 of the Planning Act. The following comments are offered for your consideration.

Natural Heritage/Hazards

We have not identified any natural heritage or natural hazard features that would preclude the approval of the application.

Stormwater Management

Based on the information provided in the report "Servicing Report – 3500 Hawthorne Road" dated April 7th, 2017, prepared by Stantec Consulting Ltd., stormwater from this site is being directed to an existing storm sewer within an easement that leads to the Foxden Place ROW at the western boundary of the subject site. The stormwater management plan proposes a water quality target of 80% TSS removal through the installation of a stormceptor 750. The RVCA is satisfied that the water quality target is appropriate for the receiving watercourse.

Please note, that the RVCA did not conduct a technical review of the report. We will rely on the City to ensure that the stormwater management plan is consistent with the design assumptions for the existing storm sewers.

Conclusion

In conclusion, the Conservation Authority has no objection to this Site Plan Control application. Please contact me at ext. 1191 if you have any questions.

Yours truly,

Jamie Batchelor, RPP Planner, Planning and Regulations (RVCA)

Cc: Nancy Meloche: Stantec Consulting Ltd.

Appendix E : Drawings November 6, 2017

Appendix E : DRAWINGS



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