



March 27, 2018
File: 1604010199

Attention: Wendy Tse
Planner II – Planning Infrastructure and Eco Development Department
110 Laurier Avenue West
Ottawa, ON. K1P 1J1

Dear Ms. Tse,

Reference: 1000 Thomas Spratt Place Adequacy of Services

BACKGROUND

Stantec Consulting Ltd. has been commissioned by Eglise de Dieu D'Expression Francaise D'Ottawa to prepare a letter in support of a Zoning By-law Amendment for a property situated at 1000 Thomas Spratt Place. The zoning amendment would permit a place of worship as an additional use in the IL – Light Industrial zone. The place of worship will be located on the ground floor and offices will remain on the 2nd floor of the existing building.

The site is located at the southwest corner of Thomas Spratt Place and Thurston Drive. The existing 2 storey building is located in the centre of the site and has a gross floor area of 1800 sq. metres. The applicant proposes to modify the ground floor to support a 1156 sq. m place of worship that will hold up to 300 people while maintaining office use on the second floor. The intent of this letter is to provide an engineering rationale for the modifications with respect to any proposed changes in local infrastructure demands or loading, while adhering to City of Ottawa design guidelines and recommendations and utilizing the existing local infrastructure in accordance with prior consultation with City of Ottawa staff.

The site is currently serviced by connections to the existing 675mm diameter storm sewer, 250mm diameter sanitary sewer and 300mm diameter watermain within the Thomas Spratt ROW near the northeast boundary of the site displayed in **Appendix C**. The property is located within the City's water pressure zone 2C. Ground elevations of the site are approximately 82.7m.

POTABLE WATER

DEMANDS

Water demands for the development were estimated using the City of Ottawa Water Distribution Design Guidelines (2009). A daily rate of 28,000 L/gross ha/day has been applied for average day other commercial domestic demands for the office buildings on the second floor. A daily rate of 15 L/(seat/day), has been applied for average day domestic demands for the ground floor place of worship). For detailed domestic water demand estimates, (see **Appendix A**).



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The average day demand (AVDY) for the modified existing building was determined to be 0.07 L/s. The maximum daily demand (MXDY) is 1.5 times the AVDY for both institutional and industrial use equates to 0.11 L/s. The peak hour demand (PKHR) is 1.8 times the MXDY, totaling 0.20 L/s.

Based on the above demands, hydraulic gradelines vary from approximately 124.5m to 130.1m as confirmed through boundary conditions as provided by the City of Ottawa.

Non-combustible construction was considered in the assessment for fire flow requirements according to the FUS Guidelines. Based on calculations per the FUS Guidelines (**Appendix A**), the maximum required fire flows for this development are 117 L/s (7,000L/min).

ANALYSIS

Based on average existing on-site elevations of 82.7m and expected pressures within the watermain system of 124.5m to 130.1m, on-site pressures are expected to range from 41.8m to 47.4m (59.4 to 67.4 psi). These values are within the recommended pressure range of 275 kPa to 552 kPa (40 to 80 psi), as recommended by the City of Ottawa's Water Distribution Design Guidelines.

Based on anticipated maximum day domestic demand and fire flow requirements per the FUS methodology (**Appendix A**) of 117L/s (the maximum fire flow noted for the modified existing building) the 300mm watermain within Thomas Spratt Place is expected to maintain a residual pressure of 41.8m (59.4 psi). This demonstrates that the existing watermain and nearby hydrants can provide adequate fire flows in excess of the calculated 117L/s fire flow requirement with the required residual pressure of 20 PSI. The nearest existing hydrant is located at the site's northeast boundary, on the south side of Thomas Spratt Place within 90m as per City of Ottawa requirements.

SANITARY SEWER

The site will continue to be serviced via the existing 250mm diameter sanitary sewer situated within the Thomas Spratt Place ROW at the eastern boundary of the site, (see **Appendix C**). The proposed building modifications will allow the 1000 Thomas Spratt Place property to function as a place of worship on the ground floor and office space on the second floor. The place of worship value of 15 L/seat/day was taken from the Churches section of Appendix 4-A.2 of the City of Ottawa Sewer Design Guidelines (2012). As outlined in the City of Ottawa Sewer Design Guidelines and the MOE's Design Guidelines for Sewage Works, the following criteria were used to calculate estimated wastewater flow rates.

- Minimum Velocity – 0.6 m/s (0.8 m/s for upstream sections)
- Maximum Velocity – 3.0 m/s



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- Manning roughness coefficient for all smooth wall pipes – 0.013
- Average Wastewater Generation – 15 L/person/day (Churches)
- Average Wastewater Generation – 28,000L/ha/day (institutional)
- Residential Peak Factor – 4.0 (Harmon's)
- Institutional Peak Factor – 1.5 (Harmon's)
- Extraneous Flow Allowance – 0.28 l/s/ha (conservative value)

Based on the above, the sites existing peak sanitary discharge to the downstream 250mm sanitary sewer for the existing building use is 0.23 L/s and for the proposed change in building use is 0.38 L/s, (see **Appendix B**).

STORM SEWER

The site is currently serviced via an existing 675mm diameter storm sewer situated within the Thomas Spratt ROW at the northeast boundary of the site, displayed in **Appendix C**. There is no proposed increase to the amount of impervious on the site or area modifications proposed to the exterior of the 1000 Thomas Spratt building for this application, and as such, no increases in the estimated peak discharge rate for the site have been identified.

UTILITIES

As the subject site lies within a developed industrial community, Hydro, Bell, Gas and Cable servicing for the proposed development should be readily available. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. No off-site works are anticipated to be required for redevelopment of the subject site.

RECOMMENDATIONS

Based on the findings above, it is anticipated that the current servicing infrastructure for the 1000 Thomas Spratt Place property will be adequate for rezoning purposes to permit the addition of a place of worship on the subject property.



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Regards,

STANTEC CONSULTING LTD.

Dustin Thiffault, P.Eng.

Project Engineer, Community Development

Phone: (613) 724-4385

Fax: (613) 722-2799

Dustin.Thiffault@Stantec.com

Attachment: Appendix A:

Boundary Conditions,
Water Demand Estimates
FUS Calculations

Appendix B:

Sanitary Discharge Calculations

Appendix C:

Existing Watermain Services
Existing Sanitary Services
Existing Stormwater Services
Floor Plan Drawings – Existing Building

W:\active\1 planning_landscape\1604 Projects\160410199_1000 Thomas Spratt Place\design\report\Service Adequacy Report_2018_03_27_Servicing.docx



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APPENDIX A

Odam, Cameron

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Monday, April 09, 2018 9:18 AM
To: Tse, Wendy; Oram, Cody; Odam, Cameron
Subject: RE: 1000 Thomas Spratt Place - Boundary Conditions Request
Attachments: 1000 Thomas Spratt April 2018.pdf

Hi Cameron,

Please see attached the requested water boundary conditions:

The following are boundary conditions, HGL, for hydraulic analysis at 1000 Thomas Spratt (zone 2C) assumed to be connected to the 305mm on Thomas Spratt (see attached PDF for location).

Minimum HGL = 125.1m

Maximum HGL = 130.1m

MaxDay + FireFlow (117 L/s) = 124.5m

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.

Thanks,

Adam Baker, EIT

Engineering Intern

Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique

Development Review - South Branch

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 26552, Adam.Baker@ottawa.ca

From: Baker, Adam

Sent: Thursday, April 05, 2018 1:30 PM

To: Tse, Wendy <Wendy.Tse@ottawa.ca>; Oram, Cody <Cody.Oram@ottawa.ca>; 'cameron.odam@stantec.com' <cameron.odam@stantec.com>

Subject: RE: 1000 Thomas Spratt Place - Boundary Conditions Request

Hi Cameron,

The boundary condition request has been forwarded to our water resources group. I'll send you the boundary conditions as soon as I receive them.

Thanks,

Adam Baker, EIT

Engineering Intern

Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique

Development Review - South Branch

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 26552, Adam.Baker@ottawa.ca

From: Odam, Cameron <Cameron.Odam@stantec.com>

Sent: Thursday, April 05, 2018 11:39 AM

To: Tse, Wendy <Wendy.Tse@ottawa.ca>

Cc: Meloshe, Nancy <Nancy.Meloshe@stantec.com>

Subject: 1000 Thomas Spratt Place - Boundary Conditions Request

Hi Wendy,

Could you please forward the following boundary conditions request for 1000 Thomas Spratt Place, including the attachment, to the contact at the city who would be able to provide them.

I am looking for watermain hydraulic boundary conditions for an existing site located at 1000 Thomas Spratt Place. A portion of the existing office warehouse building, the entire ground floor is proposed to be used as a place of worship. We will continue to connect to the existing 305mm watermain on Thomas Spratt Place to service the site.

Attached are the FUS calculations for the proposed building.

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

Average Day Demand – 0.07L/s

Max Day Demand - 0.11L/s

Peak Hour Demand - 0.20L/s

Fire Flow Requirement per FUS - 117L/s

Thanks,

Cameron

Cameron Odam

Direct: +16137244353

Fax: +16137222799

Stantec Consulting Ltd.

400 - 1331 Clyde Avenue

Ottawa ON K2C 3G4 CA



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Boundary Conditions for 1000 Thomas Spratt

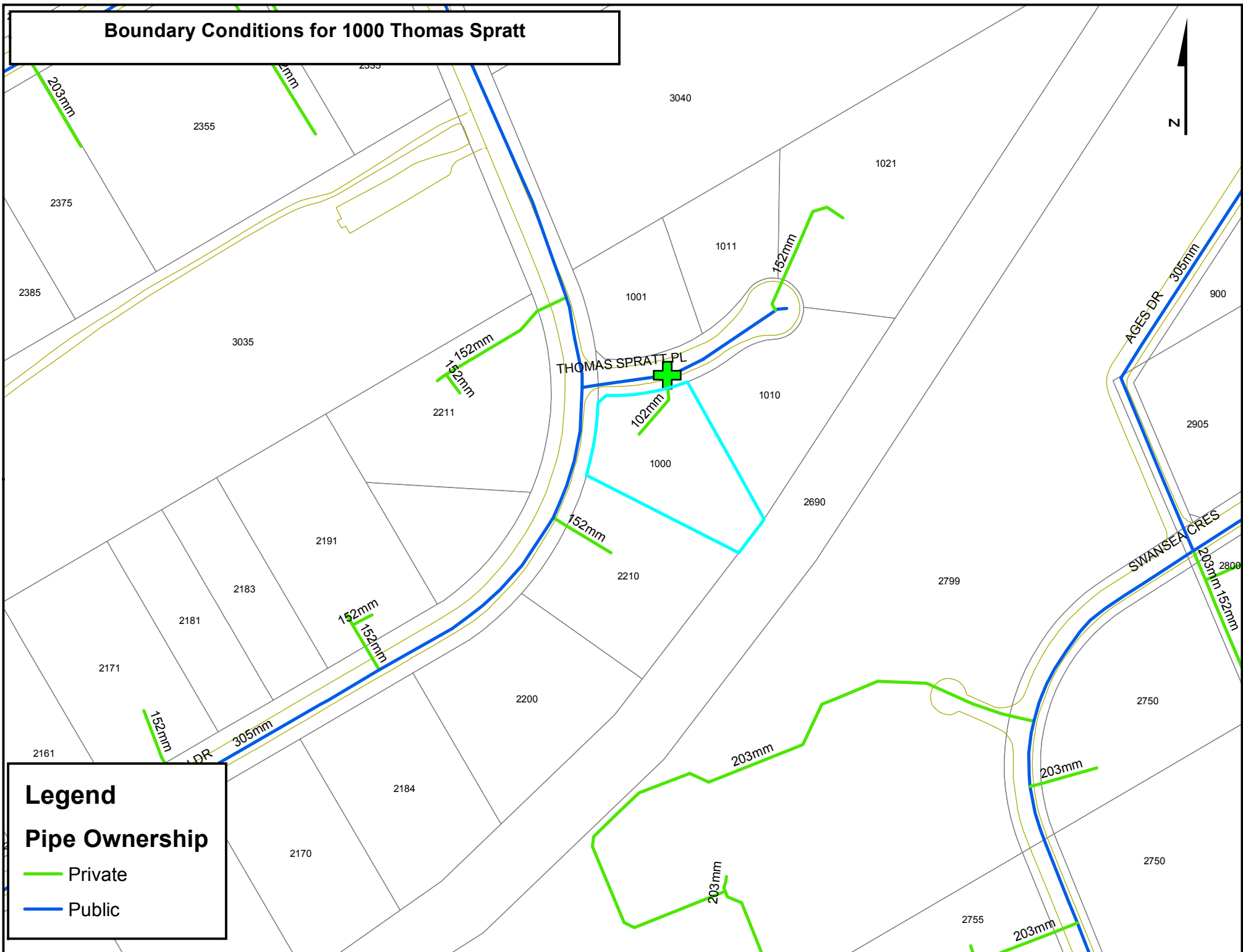


THOMAS SPRATT PL

Legend

Pipe Ownership

- Private
- Public



1000 Thomas Spratt Place - Domestic Water Demand Estimates

- Based on Douglas Clancey Architectural Site Plan (160410199)

Building ID	Area (m ²)	Population	Daily Rate of Demand ¹	Avg Day Demand ²		Max Day Demand ³		Peak Hour Demand ³	
				(L/min)	(L/s)	(L/min)	(L/s)	(L/min)	(L/s)
Place of worship	1156	300	15	3.1	0.052	4.7	0.078	8.4	0.141
Office	644	-	28,000	1.3	0.021	1.9	0.031	3.4	0.056
Total Site :	1800			4.4	0.07	6.6	0.11	11.8	0.20

1 For the purpose of this study it is predicted that other commercial facilities will be operated 12 hours per day generating 28,000 L/gross ha/d, and the place of worship is based on 15 L/(sanctuary seat/d). These values reference the MOE Drinking water demand guidelines (2008)

2 City of Ottawa water demand criteria used to estimate peak demand rates for industrial and insitutional areas are as follows:

maximum day demand rate = 1.5 x average day demand rate

maximum hour demand rate = 1.8 x maximum day demand rate



FUS Fire Flow Calculation

Stantec Project #: 1604-10199
 Project Name: 1000 Thomas Spratt Place
 Date: April 5, 2018
 Data input by: Cameron Odam

Calculations based on: "Water Supply for Public Fire Protection" by Fire Underwriters' Survey, 1999

Fire Flow Calculation #: 1
 Building Type/Description/Name: Office Space/Place of worship

Notes:
 Building Classification A and D

Table A: Fire Underwriters Survey Determination of Required Fire Flow - Long Method

Step	Task	Term	Options	Multiplier Associated with Option	Choose:	Value Used	Unit	Total Fire Flow (L/min)	
1	Choose Frame Used for Construction of Unit	Framing Material							
		Coefficient related to type of construction (C)	Wood Frame	1.5	Non-combustible construction	0.8	-		
			Ordinary construction	1					
			Non-combustible construction	0.8					
			Fire resistive construction (> 3 hrs)	0.6					
2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	Floor Space Area							
		Type of Housing	Single Family	1	Other (Comm, Ind, Apt etc.)	1	Units		
			Townhouse - indicate # of units	8					
			Other (Comm, Ind, Apt etc.)	1					
2.2	# of Storeys	Number of Floors/Storeys in the Unit (do not include basement):			2	2	Storeys		
3	Enter Ground Floor Area of One Unit	Average Floor Area (A) based on fire resistive building design when vertical openings are inadequately protected:			900	1,800	Area in Square Meters (m ²)		
					Square Metres (m2)				
4	Obtain Required Fire Flow without Reductions	Required Fire Flow (without reductions or increases per FUS) (F = 220 * C * √A) Round to nearest 1000L/min							7,000
5	Apply Factors Affecting Burning	Reductions/Increases Due to Factors Affecting Burning							
5.1	Choose Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible	-0.25	Limited combustible	-0.15	N/A	5,950	
			Limited combustible	-0.15					
			Combustible	0					
			Free burning	0.15					
			Rapid burning	0.25					
5.2	Choose Reduction Due to Presence of Sprinklers	Sprinkler reduction	Adequate Sprinkler conforms to NFPA13	-0.3	None	0	N/A	0	
			None	0					
		Water Supply Credit	Water supply is standard for sprinkler and fire dept. hose line	-0.1	Water supply is not standard or N/A	0	N/A	0	
			Water supply is not standard or N/A	0					
		Sprinkler Supervision Credit	Sprinkler system is fully supervised	-0.1	Sprinkler not fully supervised or N/A	0	N/A	0	
			Sprinkler not fully supervised or N/A	0					
5.3	Choose Separation Distance Between Units	Exposure Distance Between Units	North Side	30.1 to 45.0m	0.05	0.15	m	893	
			East Side	45.1m or greater	0				
			South Side	20.1 to 30.1m	0.1				
			West Side	45.1m or greater	0				
6	Obtain Required Fire Flow, Duration & Volume	Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:							7,000
		Total Required Fire Flow (above) in L/s:							117
		Required Duration of Fire Flow (hrs)							2.25
		Required Volume of Fire Flow (m ³)							945



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APPENDIX B

<div></div>	SUBDIVISION:		1000 THOMAS SPRATT PLACE		SANITARY SEWER DESIGN SHEET (City of Ottawa)								DESIGN PARAMETERS																						
	DATE: 4/17/2018												MAX PEAK FACTOR (RES.)= 4.0				AVG. DAILY FLOW / PERSON 15 l/p/day				MINIMUM VELOCITY 0.60 m/s														
	REVISION: 1												MIN PEAK FACTOR (RES.)= 2.0				COMMERCIAL 50,000 l/ha/day				MAXIMUM VELOCITY 3.00 m/s														
	DESIGNED BY: CO												PEAKING FACTOR (INDUSTRIAL): 2.4				INDUSTRIAL (HEAVY) 55,000 l/ha/day				MANNINGS n 0.013														
CHECKED BY:		FILE NUMBER: 160410199				PEAKING FACTOR (COMM., INST.): 1.5				INDUSTRIAL (LIGHT) 35,000 l/ha/day				BEDDING CLASS B				MINIMUM COVER 2.50 m																	
						PERSONS / SINGLE 1.0				INSTITUTIONAL 28,000 l/ha/day																									
						PERSONS / TOWNHOME 1.0				INFILTRATION 0.28 l/s/Ha																									
						PERSONS / APARTMENT 1.0																													
LOCATION			RESIDENTIAL AREA AND POPULATION								COMMERCIAL		INDUSTRIAL (L)		INDUSTRIAL (H)		INSTITUTIONAL		GREEN / UNUSED		C+H	INFILTRATION			TOTAL	PIPE									
AREA ID NUMBER	FROM M.H.	TO M.H.	AREA Population (ha)	UNITS TOWN	POP. APT	CUMULATIVE AREA (ha)	POP. 	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	FLOW (l/s)	LENGTH (m)	DIA (mm)	MATERIAL	CLASS	SLOPE (%)	CAP. (FULL) (l/s)	CAP. V PEAK FLOW (%)	VEL. (FULL) (m/s)	VEL. (ACT.) (m/s)				
PRE	BLDG	MAIN	0.000	0	0	0	0	0.00	0	4.00	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.180	0.18	0.340	0.34	0.09	0.52	0.52	0.15	0.23	41.5	250 200	PVC	SDR 35	1.00	60.6	0.38%	1.22	0.23
POST	BLDG	MAIN	0.120	300	0	0	300	0.12	300	4.00	0.21	0.000	0.00	0.000	0.00	0.000	0.00	0.060	0.06	0.340	0.34	0.03	0.52	0.52	0.15	0.38	41.5	250 200	PVC	SDR 35	1.00	60.6	0.63%	1.22	0.30



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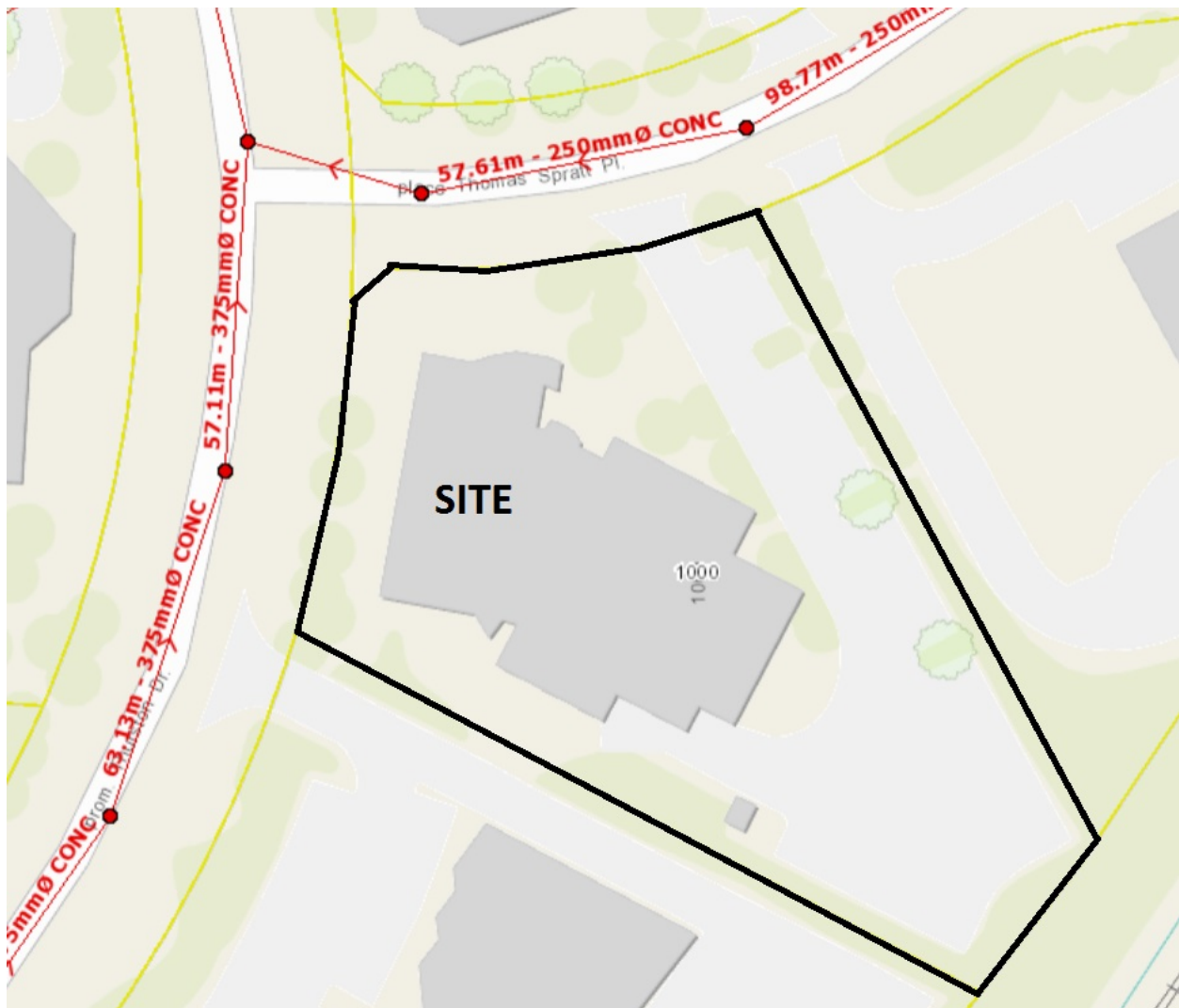
Reference: 1000 Thomas Spratt Place Adequacy of Services

APPENDIX C

EXISTING WATERMAIN SERVICES – 1000 THOMAS SPRATT PLACE



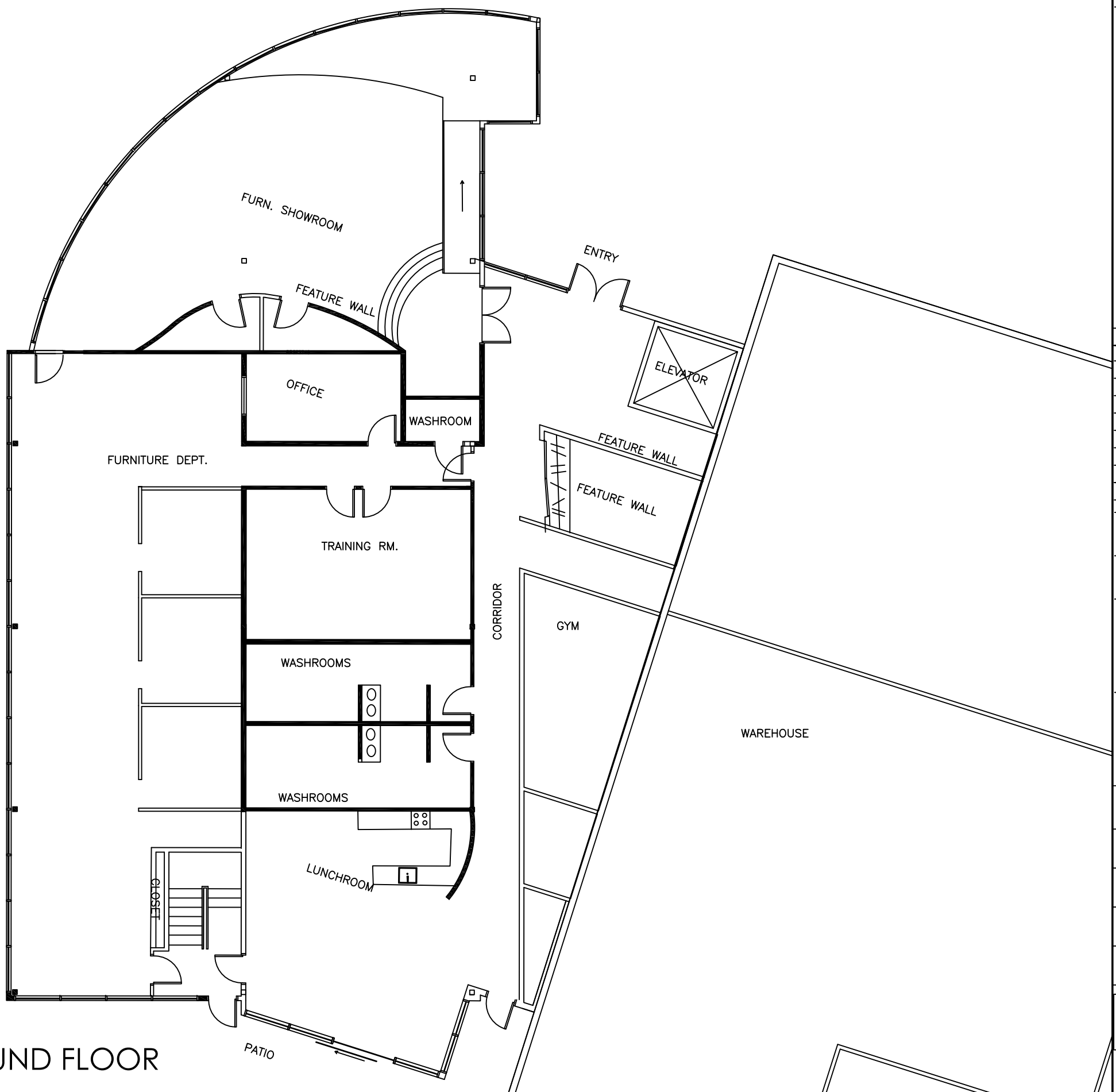
EXISTING SANITARY SERVICES – 1000 THOMAS SPRATT PLACE



EXISTING STORMWATER SERVICES – 1000 THOMAS SPRATT PLACE




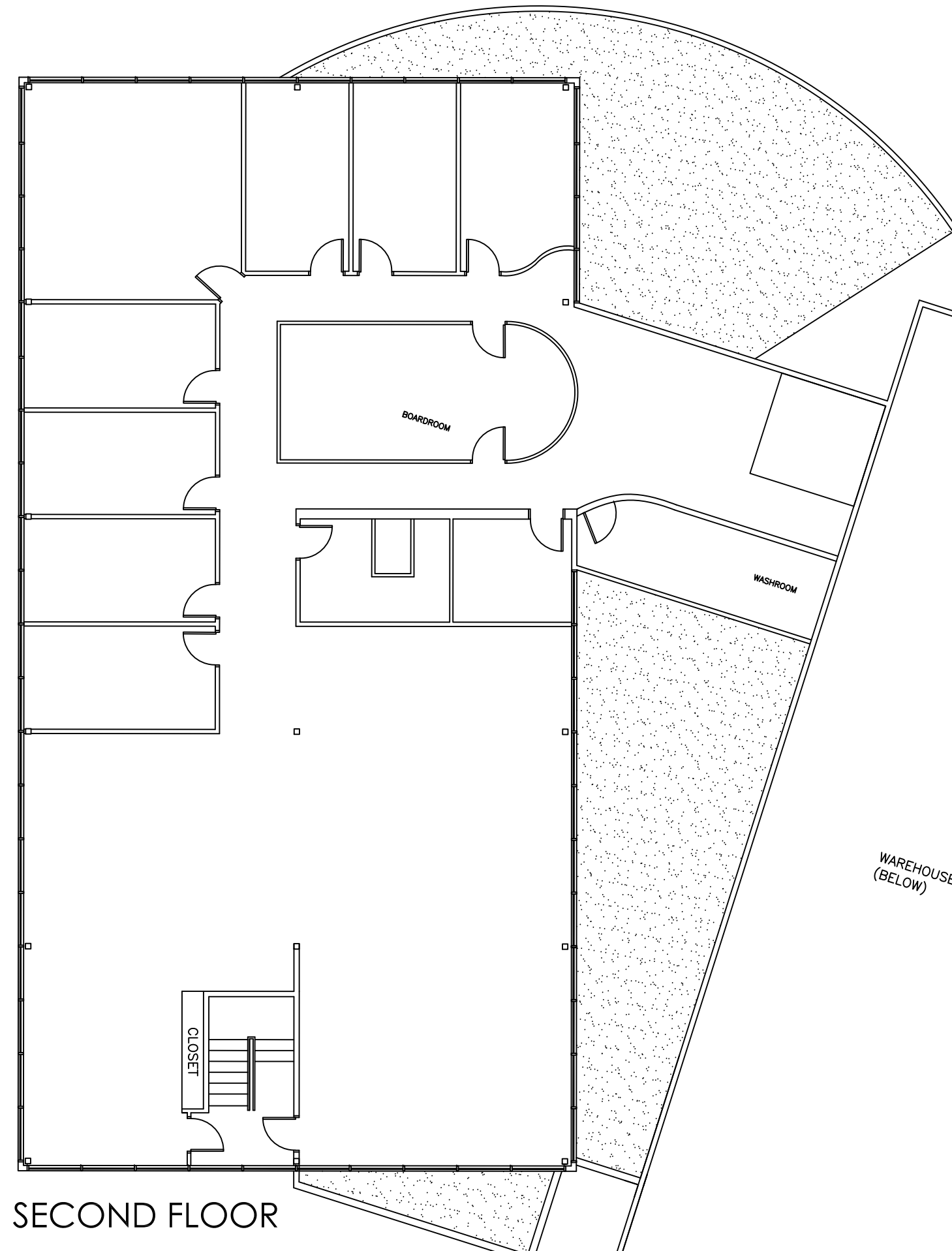
GROUND FLOOR



GENERAL NOTES

1. This drawing remains the property of CMGOI. Neither reproduction nor alteration should be made without prior written authorization of CMGOI.
2. CLIENT IS RESPONSIBLE FOR verifying and confirming suitability of all power pole locations as shown on the drawing and ensuring electrical wiring/ciruits and data cabling are pulled in preparation of furniture installation.
3. All furniture must be installed as per the attached installation drawings, unless changes are approved by a representative of CMGOI.
4. Attached installation drawings are NOT to be scaled. They are intended for the sole purpose of furniture installation.
5. Actual Building dimensions have NOT been verified by CMGOI. All dimensions are based on the AutoCAD drawing supplied by the client.

#	DESCRIPTION	DATE
PROJECT NUMBER		
CLIENT		
The Computer Media Group		
PROJECT DESCRIPTION		
The Computer Media Group Base Building		
PROJECT ADDRESS		
1000 Thomas Spratt Place Ottawa, Ontario		
DRAWING TITLE		
GROUND FLOOR PLAN		
SCALE	CLIENT REFERENCE NUMBER	
NTS		
DRAWN BY	DATE	
REVIEWED BY	DATE	
APPROVED BY	DATE	
SHEET NUMBER		F1
		
<small>1000 Thomas Spratt Place Ottawa ON K1G 5L5 T: 613.226.7071 F: 866.891.7071 www.cgoi.com</small>		



SECOND FLOOR

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#	DESCRIPTION	DATE

PROJECT NUMBER	
----------------	--

CLIENT

The Computer Media Group

PROJECT DESCRIPTION

The Computer Media Group
Base Building

PROJECT ADDRESS

1000 Thomas Spratt Place
Ottawa, Ontario

DRAWING TITLE

SECOND FLOOR PLAN

SCALE

NTS

CLIENT REFERENCE NUMBER

DRAWN BY

DATE

REVIEWED BY

DATE

APPROVED BY

DATE

SHEET NUMBER



1000 Thomas Spratt Place Ottawa ON K1G 5L5
T:613.226.7071 F:1.866.891.7071 www.cga.com

F3

