

Prepared for:

SMART LIVING PROPERTIES
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Ottawa, ON
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Site Servicing Study

535 Chapel Street, Ottawa ON



Site Servicing Study

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1.0 INTRODUCTION

1.1 Background

J.L. Richards & Associates Limited (JLR) has been retained by Smart Living Properties (SLP) to prepare a Site Servicing Report and drawings of municipal infrastructure in support of a Site Plan Application (SPA) for the modifications to an existing residential building sited at 535 Chapel Street, in the Sandy Hill area of the City of Ottawa. The proposed modifications include the construction of an additional storey on top of the third floor and to carry out other internal works within the basement.

This report and drawings have been prepared in support of a SPA. This Report has been prepared to outline the design objectives, criteria, servicing constraints and strategies for servicing the subject lands with water, wastewater, and stormwater management.

- i) the November 2009 Servicing Study Guidelines for Development Applications in the City of Ottawa (City);
- ii) the Ottawa Sewer Design Guidelines (2012) and associated Technical Bulletins (Section 1.4); and
- iii) the discussions held during a pre-consultation meeting held on August 11th, 2021 with City staff.

A copy of the Site Plan, Legal Plan and Topographical Survey is included in Appendix A.

1.2 Site Description and Background

The subject property is located within the urban limits of the City of Ottawa, specifically in the northeastern quadrant of the Chapel Street and Mann Avenue intersection and has an area of 336 m². SLP is proposing to carry out modifications to the existing 3-storey residential building as noted in Section 1.1.

As shown on Figure 1 (below), the property currently consists of a combination of asphalt with small grassy areas and a large building footprint which makes the subject site almost fully impervious.

Figure 1: Site Plan Location



1.3 Existing Infrastructure

A review of existing services was undertaken in the vicinity of the site. The following drawings and Legal Plan were reviewed for the purpose of identifying the infrastructure bounding the subject property (refer to Appendix C for copy of Drawings):

- City of Ottawa Plan and Profile Drawing 3325 (as-built)

Based on the review of the above information, the topographical survey and the information presented on “geoOttawa”, the following infrastructure has been identified within the Chapel Street Right-Of-Way (R.O.W.):

Watermains:

- 610 mm diameter feedermain
- 203 mm diameter PVC watermain

Based on the review of “geoOttawa”, the following four (4) hydrants are located within the prescribed distances of ISTB-2018-02, in close proximity to the subject property:

- one (1) hydrant is located within the property of 648 Chapel Street;
- one (1) hydrant is located within 13 m from the south corner of the Chapel Street and Mann Avenue intersection;
- one (1) hydrant is located within 8 m from the Mann Avenue and Nancy Smith Private; and
- one (1) hydrant is located within the property of 221 Blackburn Avenue.

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Sanitary Sewers:

- 250 mm diameter PVC sanitary sewer (flowing north). This sewer eventually discharges into the 1800 mm diameter Somerset Street East's brick combined sewer.

Storm Sewers:

- 375 mm diameter PVC storm sewer (flowing north). This sewer outlets to the 1800 mm diameter brick combined sewer located within the Somerset Street East ROW.

Figure 2 below shows the existing infrastructure near subject property.

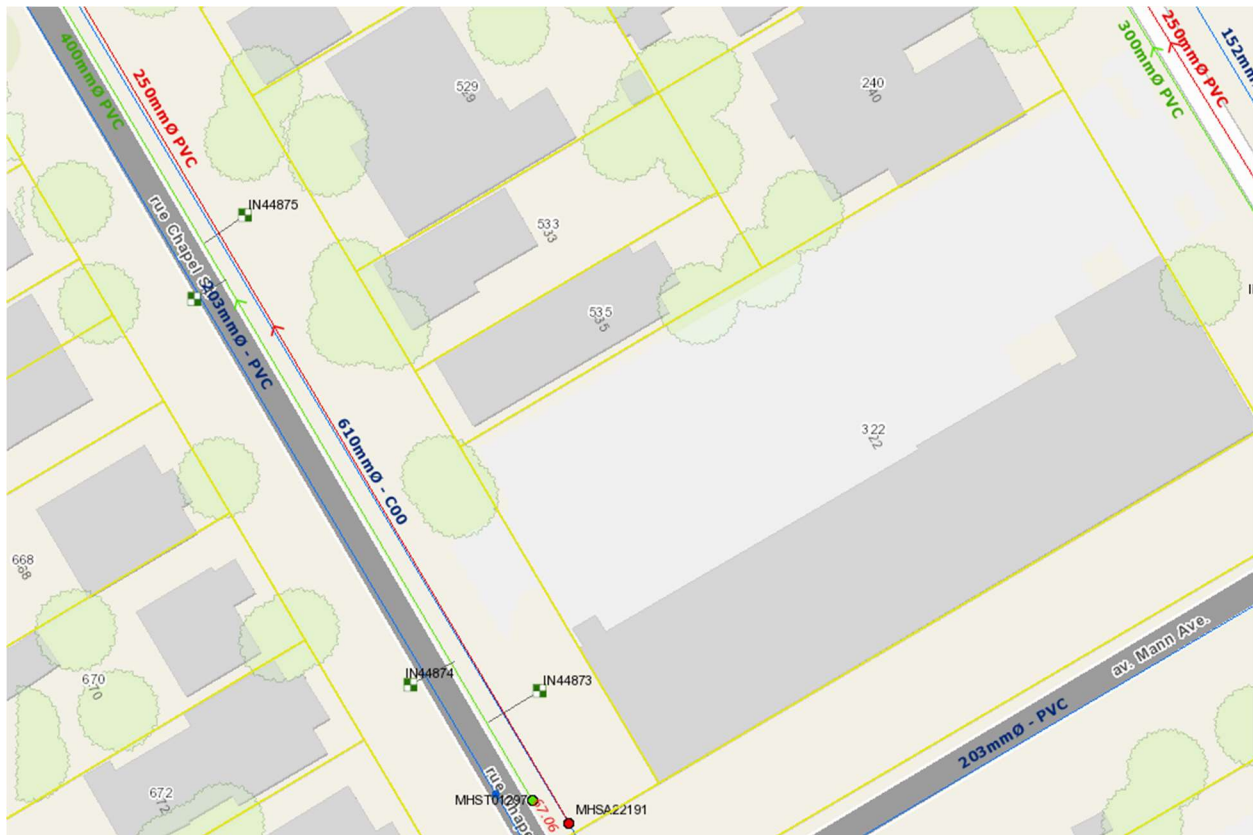


Figure 2: Existing Infrastructure

1.4 Existing Conditions

A closed-circuit television (CCTV) review was undertaken for the 250 mm diameter sanitary sewer and 375 mm storm sewer on Chapel fronting the property. The review determined that the site is currently being serviced with a single 150mm dia. lateral that collects both the storm and wastewater and discharges to the existing sanitary sewer on Chapel street. Water supply is achieved via a service lateral (size unknown) which is likely fed from the Chapel Street 203 mm diameter watermain.

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1.5 Proposed Servicing

The existing servicing and connections to off-site linear infrastructure is summarized in Section 1.3 and 1.4. Based on the above-noted connections with existing infrastructure, the following services are being proposed:

<u>Water Servicing:</u>	50 mm diameter (assumed) water service lateral connected to the existing Chapel Street 203 mm diameter watermain to remain.
<u>Wastewater:</u>	Keep the existing 150mm dia. sanitary lateral connected to the Chapel Street 250 mm diameter sanitary sewer. Disconnect stormwater feeds.
<u>Storm:</u>	Proposed rooftop drains collected using a 100 mm diameter storm lateral and connect to the 375 mm diameter storm sewer within the Chapel Street ROW.

1.6 Municipal Design Guidelines

This Site Servicing Report and functional-level drawings were prepared in support of the OPA/ZBLA in accordance with the following:

City of Ottawa Sewer Design Guidelines (October 2012) complete with the following Technical Bulletins:

- ISDTB-2012-01;
- ISDTB-2014-01;
- PIEDTB-2016-01;
- ISTB-2018-01;
- ISTB-2019-01; and
- ISTB-2019-02;

City of Ottawa Water Distribution Guidelines (July 2010) complete with the following Technical Bulletins:

- ISDTB-2010-02;
- ISDTB-2014-02;
- ISTB-2018-02; and
- ISTB-2021-03

Detail Drawings as well as well as Sewer Material Specifications including:

- Sewer Connection (2003-513) and Sewer Use (2003-514) By-Laws
- Watermains/Services Material Specifications as well as Water and Road Standard Detail Drawings
- Water By-Law (2018-167)

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1.7 Pre-Consultation, Permits and Approvals

A pre-consultation meeting was held with the City of Ottawa via a Teams Meeting on August 4th, 2021. A copy of the meeting notes is included in Appendix B.

2.0 WATER SERVICING

2.1 Water Supply and Design Criteria

Headloss calculations were carried out to confirm the site's watermain sizing and to demonstrate its compliance to the Ottawa Design Guidelines for Water Distribution (July 2010) and Technical Bulletins ISDTB-2014-02, ISTB-2018-02 and ISTB-2021-03.

Section 4.2.2 of the Water Design Guidelines requires that all new development additions to the public water distribution system be designed such that the minimum and maximum water pressure, as well as the fire flow rates, conform to the following:

- Under maximum hourly demand conditions (peak hour), the pressures shall not be less than 276 kPa;
- During periods of maximum day and fire flow demand, the residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi);
- In accordance with the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi);
- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi); and
- Feeder mains, which have been provided primarily for the purpose of redundancy, shall meet, at a minimum, the basic day plus fire flow demand.

Table 2-1 summarizes the design criteria for water servicing, which served as the basis of the headloss calculations.

Table 2-1: Water Design Criteria

Design Criteria	Design Value
Density (Bachelor)	1.4 persons/unit
Density (1-Bedroom)	1.4 persons/unit
Density (4-Bedroom)	3.4 person/unit
Population < 500 persons	
Residential average day demand	280 L/cap/day
Peaking Factors	MOE Table 3-3
Fire Flow Requirements	
Municipal ROW	FUS
Within Private Property	OBC
Scenario	
Peak hour	>276 kPa (40 psi)
Maximum day plus fire flow	>140 kPa (20 psi)
Minimum hour (maximum HGL)	<552 kPa (80 psi)

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2.2 Domestic Water Demands

The water demands presented in this section reflect the unit count proposed in the Site Plan. Domestic water demands were calculated for both the existing three-storey building and the proposed one-storey addition. The redeveloped low-rise apartment contains four (4) existing units and five (5) proposed units for a total of nine (9) units. The residential unit breakdown for the proposed low-rise apartment can be found in Appendix D.

The residential consumption rate for average day demand was set to 280 L/c/d as instructed by the City based on Technical Bulletin ISTB-2021-03. Since the proposed population for the entire site is less than 500 people, peaking factors interpolated from Table 3-3 of the MECP Design Guidelines were used to generate the maximum day and peak hour demands. Table 2-2 summarizes the water consumption rates and peaking factors used in the HNA.

Table 2-2: Water Consumption Rates and Peaking Factors

Demand Scenario	Residential Peaking Factors
Average Day	280 L/c/d
Maximum Day	9.5 x Avg. Day
Peak Hour	14.3 x Avg. Day

Table 2-3 summarizes the water demands based on the proposed site details and the peaking factors from Table 2-2. The detailed water demand calculations can be found in Appendix D.

Table 2-3: Calculated Water Demands

Demand Scenario	Water Demand (L/s)
Average Day	0.06
Maximum Day	0.52
Peak Hour	0.79

2.3 Existing Water Service

The assumed location of the existing water service is shown on the Site Servicing Plan (Drawing C1). Water supply to the existing building and the proposed addition is assumed to be provided by an existing 50 mm diameter water service lateral that is connected to the 203 mm diameter watermain on Chapel Street. Based on information received from SLP, the existing building's mechanical room is located at the back of the basement (away from Chapel Street). The headloss calculations were carried out to account for the existing water service lateral from the Chapel Street watermain to the building's mechanical room.

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The watermain roughness coefficient for the existing 50 mm diameter water service was assumed to be 100 as presented in Section 4.2.12. of the Design Guidelines. The internal pipe diameter for the 50 mm diameter water service was analyzed as 50 mm based on Section 4.3.5 of the Design Guidelines.

2.4 Required Fire Flow

Technical Bulletin ISTB-2021-03 recognizes that fire protection for buildings within private property is to be established in accordance with the Ontario Building Code (OBC). ISTB-2021-03 reads as follows:

“The requirements for levels of fire protection on private property in urban areas are covered in Section 7.2.11 of the OBC. If this approach yields a fire flow greater than 9,000 L/min then the Fire Underwriters Survey method shall be used to determine these requirements instead.”

Fire protection for the proposed redevelopment on 535 Chapel Street will be governed by the OBC since the site is located on private property. The existing two-storey apartment and the proposed one-storey addition are non-sprinklered and consist of combustible construction. Based on the OBC Guidelines for calculating required fire flow (RFF) for non-sprinklered buildings, and the measured exposure distances, the RFF for the apartment was calculated as 2,700 L/min (45 L/s). The detailed RFF calculations per the OBC for this redeveloped low-rise apartment are presented in Appendix D.

2.5 Boundary Conditions

Boundary conditions were requested from the City at the existing water service connection location on the Chapel Street 203 mm diameter watermain. The boundary conditions received from the City are summarized in Table 2-4 and a copy of the email correspondence can be found in Appendix D.

Table 2-4: Hydraulic Boundary Conditions

Water Demand Scenario	HGL On Chapel Street (m)
Peak Hour	105.7
Maximum HGL	115.2
Max. Day + Fire Flow per the OBC (45 L/s)	108.4

2.6 Headloss Calculations

The proposed functional servicing as presented on Drawing C1 was evaluated under the demand scenarios listed in Section 2.2. Based on information received from SLP, the existing water service is assumed to enter the building's mechanical room is located at the back of the basement (away from Chapel Street). The length of the water service lateral is ± 37 m. This length has been used to evaluate the expected headloss along the 50 mm diameter service lateral.

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Headlosses were calculated along the existing lateral using the Hazen-Williams equation. The operating pressures at the building (basement finished floor elevation) were calculated under the water demand scenarios listed in Table 2-3. The Headloss Calculation Spreadsheet in Appendix D summarizes the operating pressures estimated at the building under peak hour and maximum pressure scenarios. The hydrant location figure in Appendix D depicts the nearby hydrants that can supply fire flow under the maximum day plus fire flow scenario.

2.6.1 Peak Hour

Using the peak hour demand shown in Table 2-3 and the boundary condition shown in Table 2-4, the anticipated pressure at the building's basement level was found to be 357 kPa (51.8 psi). Assuming 8.15 m (26.7 ft) from basement level to the bottom of the proposed top floor, a pressure of 277 kPa (40.2 psi) was calculated at the top floor. Hence, it is anticipated that the minimum pressure criterion of 276 kPa (40 psi) will be met.

2.6.2 Maximum Day Plus Fire Flow

A total fire flow of 2,700 L/min (45 L/s) per the OBC is required for the site. Based on the supply elevation under the maximum day plus fire flow scenario, a residual head of 40.6 m is calculated based on the existing grade of 69.7 near the property line which results in a residual pressure of 398 kPa (57.8 psi). Hence, there is sufficient fire flow and pressure (>140 kPa) to meet the 45 L/s requirement.

There are two (2) existing hydrants (refer to Appendix D for aerial image of hydrant location) located within 75 m of the proposed building (on Chapel Street (± 61 m) and Mann Avenue (± 62 m)). Based on the residual pressure noted above and ISTB-2018-02, each of these hydrants can supply 5,700 L/min (95 L/s), which exceeds the fire flow requirement of 2,700 L/min (45 L/s).

2.6.3 Maximum HGL

The Water Design Guidelines require that a high-pressure check (maximum hydraulic grade elevation) be performed to ensure that the maximum pressure constraint of 552 kPa (80 psi) is not exceeded. Based on a zero (0 L/s) demand condition and maximum HGL boundary condition (refer to Table 2-4), a maximum pressure of 453 kPa (65.7 psi) is expected at the building's basement level. This result is below the maximum pressure constraint of 552 kPa (80 psi) and no pressure reducing valve (PRV) is required.

2.7 Summary and Conclusions

Based on the calculations presented above, it is expected that the existing 50 mm diameter watermain service lateral can provide adequate domestic water supply and the existing municipal hydrants can satisfy the fire flow requirement for the subject site.

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3.0 WASTEWATER SERVICING

3.1 Existing Conditions

Currently, wastewater flows from the existing building is collected by an internal piping system that converges into the basement. Based on CCTV undertaken on behalf of the client, the existing wastewater lateral discharges to the Chapel Street 250 mm diameter sanitary sewer.

3.2 Design Criteria

The capacity of the existing 150 mm sanitary lateral for 535 Chapel Street was verified based on the City of Ottawa Sewer Design Guidelines ((OSDG) - (October 2012)) and associated Technical Bulletins. Key design parameters have been summarized in Table 3-1.

Table 3-1: Wastewater Servicing Design Criteria

Design Criteria	Design Value	Reference
Residential average flow	280 L per capita/day	ISTB-2018-01
Residential peaking factor	Harmon Formula x 0.8	City Section 4.4.1
Infiltration Allowance 0.05 L/s/ha (dry I/I) 0.28 L/s/ha (wet I/I)	0.33 L/s/ha	ISTB-2018-01
Minimum velocity	0.6 m/s	OSDG Section 6.1.2.2
Maximum velocity	3.0 m/s	OSDG Section 6.1.2.2
Manning Roughness Coefficient (for smooth wall pipes)	0.013	OSDG Section 6.1.8.2
Minimum allowable slopes	Varies	OSDG Table 6.2, Section 6.1.2.2

3.3 Theoretical Sanitary Peak Flow and Proposed Sanitary Servicing

Based on the proposed densities for apartment buildings (as recommended by the OSDG), the peak wastewater flow was calculated based on an overall population of 17 as per the design parameters listed in the above table and unit breakdown provided (refer to Section 2.2 for breakdown).

A peak wastewater flow of 0.16 L/s was calculated (refer to Appendix E for Detailed Wastewater Flow Calculations). A summary is represented in Table 3-2 below.

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Table 3-2: Peak Flow Calculation

Population	Area (ha)	Peaking Factor	Population Flow (L/s)	Infiltration (L/s)	Peak Design Flow (L/s)
17	0.01	3.71	0.20	0.00	0.21

Based on the above calculated peak flow of 0.16 L/s, the 150 mm dia. sanitary lateral at 1% would provide a free-flowing capacity of 15.9 L/s which exceeds the theoretical peak flow.

3.4 Summary and Conclusions

The wastewater calculations in Section 3.3 shows that the 150mm dia. sewer at 1% is sufficient to accommodate the theoretical peak flow. It is, therefore, recommended that the wastewater servicing shown on the Site Servicing Drawing (Dwg. C1) be implemented to provide wastewater servicing for the proposed building.

4.0 STORM SERVICING AND STORMWATER MANAGEMENT

4.1 Existing Conditions

It was determined through CCTV inspection that rooftop drainage is currently collected by a series of drains that conveys the captured flows to the Chapel Street 250 mm diameter sanitary sewer. Thus, storm flows are currently being discharged in the sanitary sewer although an existing storm sewer is existing.

Based on aerial photos, most of the subject property consists of a roof in addition to hard surfaces at the back and landscaped area at the front of the property.

4.2 Storm Servicing Strategy

The proposed works are mostly attributed to building modifications. It is proposed that the proposed 4th floor roof drains be designed by the owner's mechanical engineer in accordance with the requirements of the Ontario Building Code.

Flow captured within the rooftop will be collected by a series of roof drains that will discharge into a riser pipe and will discharge on the asphalt pathway north of the residential building. Since the proposed floor addition will not be modifying the existing building's footprint or imperviousness, stormwater management (SWM) measures are not required. As such, flows captured by the roof drain system can drain overland as sheet flow drainage to be ultimately captured by the Chapel Street catch basins and storm sewer system. The existing site grading positively flows across the property towards Chapel Street, which in turns, flows north towards the nearest catch basin.

In an effort to prevent a large excavation, a road cut, and crossing a live gas line and feedermain, the City of Ottawa concurred that rooftop drain could be discharged at the surface given that it will ultimately be captured in the same storm sewer system.

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4.3 Summary and Conclusions

Based on the above stormwater servicing details, it is recommended that the storm servicing and grading shown on the Site Servicing Drawing (Drawing C1) be implemented to provide storm servicing for the property.

5.0 EROSION AND SEDIMENTATION CONTROL

Appropriate erosion and sedimentation control measures, as outlined in the Ontario Ministry of Natural Resources (MNR) Guidelines on Erosion and Sediment Control for Urban Construction Sites, will need to be implemented during construction. The following erosion and sedimentation control measures could be implemented should it be deemed to be appropriate. Drawing C1 depicts the minimum erosion and sediment control (ESC) measures to be implemented on site.

- Supply and installation of filter fabric between the frame and cover of catch basins and maintenance holes adjacent to the project area during construction, to prevent sediment from entering the sewer system. The filter fabric is to be inspected regularly and corrected as required.
- Stockpiling of material during construction is to be located in specified area.

The proposed removal and reinstatement measure as well as the erosion control measures shall conform to the following documents:

- “Guidelines on Erosion and Sediment Control for Urban Construction Sites” published by Ontario Ministries of Natural Resources, Environment, Municipal Affairs, and Transportation & Communication, Association of Construction Authorities of Ontario and Urban Development Institute, Ontario, May 1987.
- “MTO Drainage Manual”, Chapter F: “Erosion of Materials and Sediment Control”, Ministry of Transportation & Communications, 1985.
- “Erosion and Sediment Control” Training Manual by Ministry of Environment, Spring 1998.
- Applicable Regulations and Guidelines of the Ministry of Natural Resources.

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This report has been prepared for the exclusive use of Smart Living Properties (SLP) for the stated purpose, for the named facility. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report was prepared for the sole benefit and use of SLP and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

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J.L. RICHARDS & ASSOCIATES LIMITED

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Reviewed by:

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Appendix A

Site Plan and Topographic
Plan

DEVELOPED FROM

PLAN OF SURVEY OF
PART OF LOT 43 REGISTERED PLAN 33878
CITY OF OTTAWA

Annis, O'Sullivan, Vollebekk Ltd. 2014



GRAPHIC SCALE FOR REFERENCE ONLY
ALL MEASUREMENTS ARE IMPERIAL WITH CORRESPONDING METRIC IN BRACKETS

ZONING: R4UB [480] - Proposed Use: Low-rise Apartment, maximum of 12 units

ZONING MECHANISM		REQUIRED	PROVIDED	COMMENTS
A) MINIMUM LOT AREA		400m ²	250m ²	150m ² or 37% DEFICIENT
B) MINIMUM LOT WIDTH		15m	6.37m	8.63m or 57% DEFICIENT
C) MINIMUM LOT DEPTH		n/a	31.0m	
D) MINIMUM FRONT YARD SETBACK		4.5m	2.2m	existing building setback
E) MINIMUM INTERIOR SIDE YARD SETBACK	NORTH SIDE	1.5m	0.35m	existing building setback
	SOUTH SIDE	1.5m	0.82m	existing building setback
F) MINIMUM REAR YARD AREA (see by-law provision amendments outlined below)	As per section 144 by-law no. 2020 - 289	AREA	62.5m ²	62.0m ² existing building rear yard area based on 25% of lot area
G) MINIMUM REAR YARD SETBACK (see by-law provision amendments outlined below)	As per section 144 by-law no. 2020 - 289	DEPTH	9.3m	6.8m existing building rear setback based on 30% of lot depth
H) MAXIMUM BUILDING HEIGHT		11m	10.3m	0.7m LOWER or 7.7%
I) AMENITY AREA		n/a	n/a	
J) VEHICLE PARKING		0	0	
K) BICYCLE STORAGE	0.5 PER UNIT	6	11	

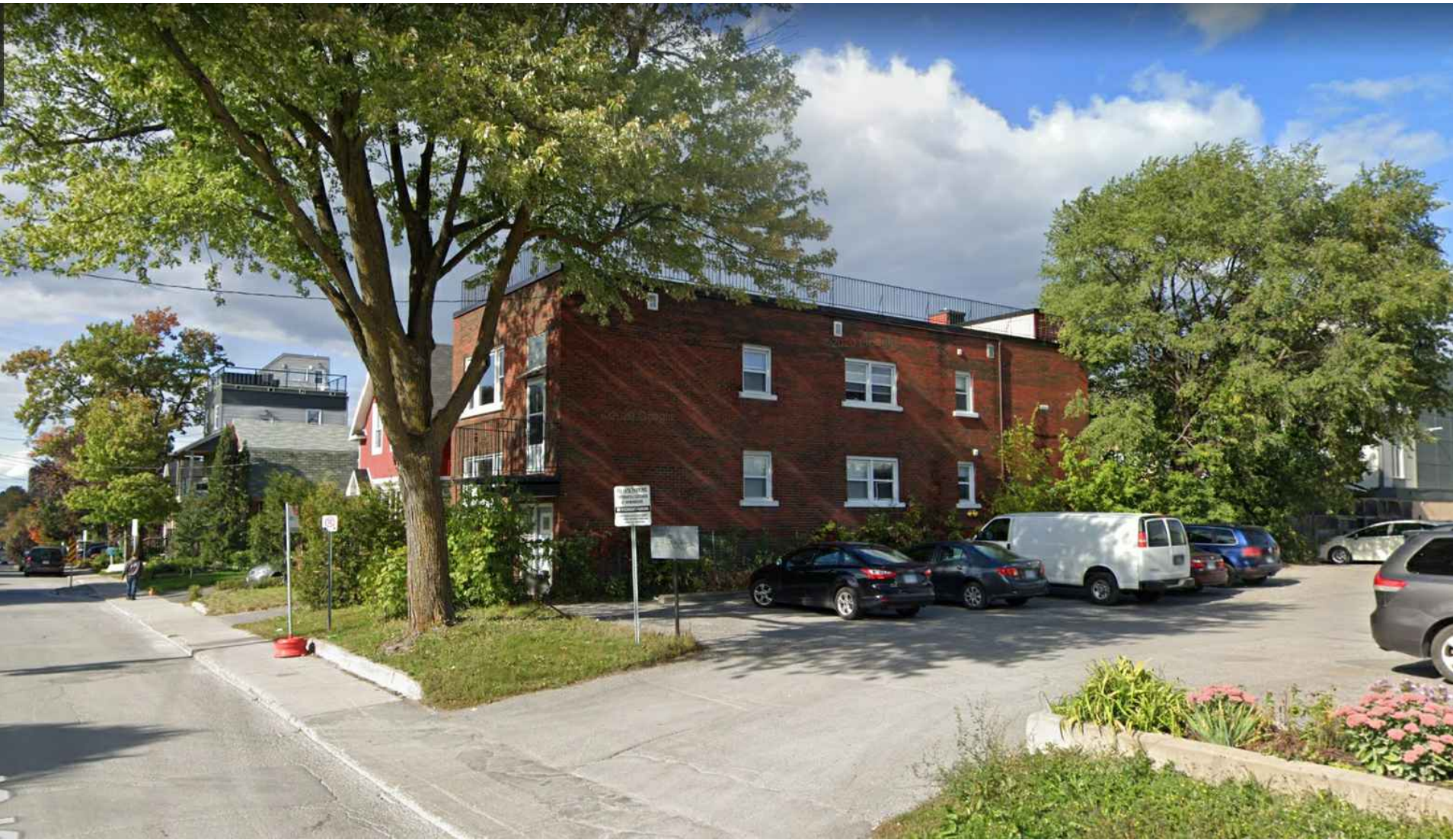
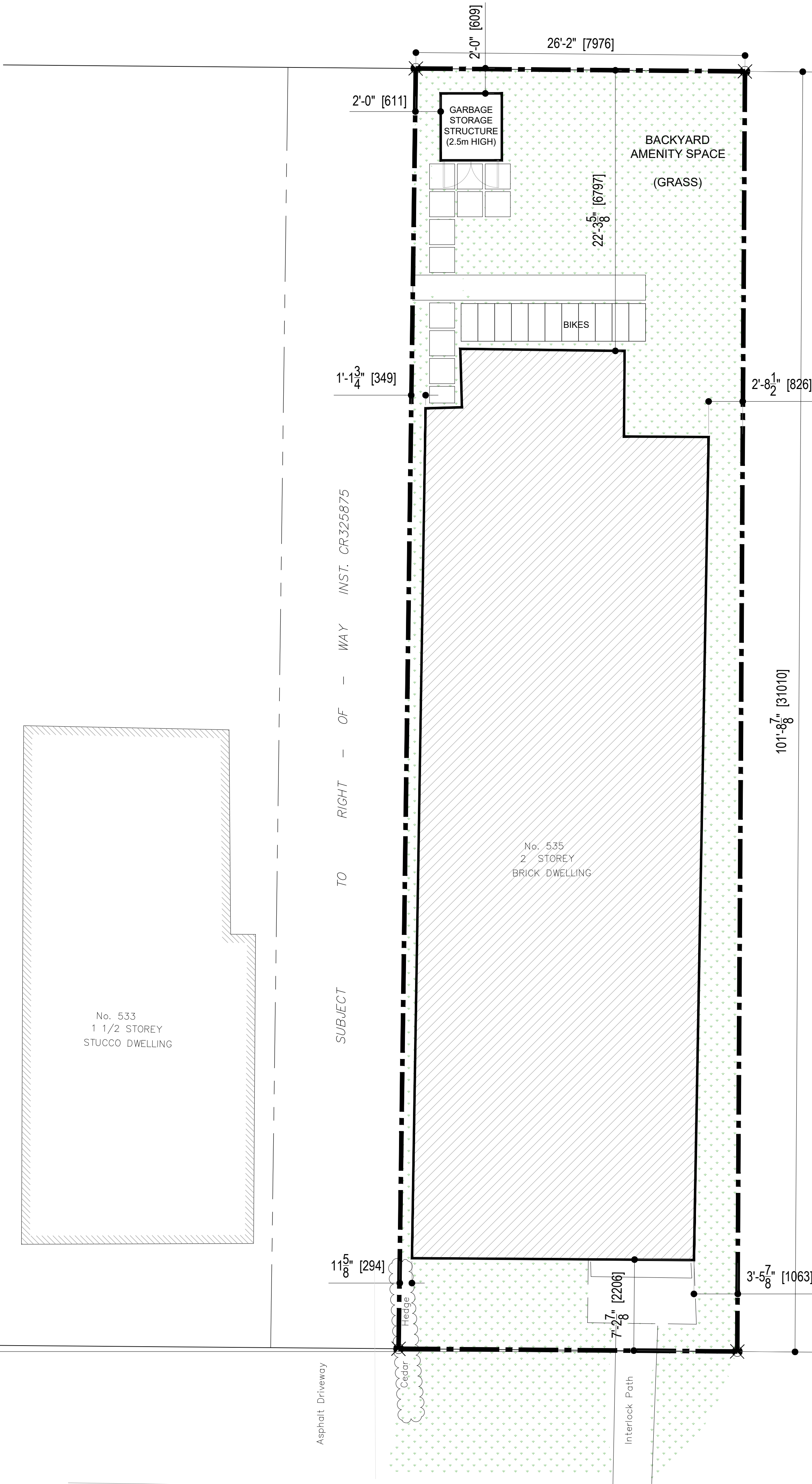
Section 144 - Alternative Yard Setbacks for Low-rise Residential Uses in the Greenbelt for the minimum required rear yard setback. The rear yard must comprise at least 25 percent of the lot area; and the minimum rear yard setback is pursuant to Table 144A

PROPOSED SITE DEVELOPMENT INFO			COMMENTS
LOT AREA	250m ²		
BUILDING HEIGHT	10.3m		
PARKING SPACES	0		
NUMBER OF STOREYS	3		3 floors + 1 partially below grade
NUMBER OF UNITS	EXISTING	NEW	5 existing + 4 new
- BACHELOR UNITS	3	4	
- FOUR-BEDROOM UNITS	2	0	
LOT COVERAGE	58%		building footprint 145.4m ²
SOFT LANDSCAPING COVERAGE	FRONT	14m ²	
	REAR	60m ²	
HARD LANDSCAPING	13m ²		

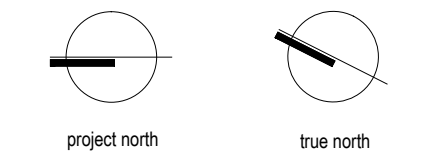
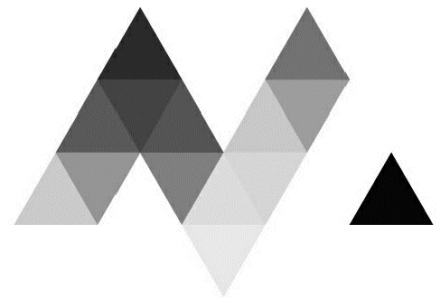
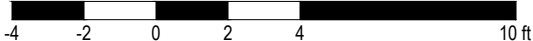
GARBAGE MANAGEMENT REQUIREMENT		
	REQUIRED	PROVIDED
GARBAGE	0.231 cubic yards per unit: 5x0.231=2.079	1 - 2 cubic yard garbage container
RECYCLING	for every 6 units provide 1 360L blue cart and 1 360L black cart	2-360L Blue carts and 2-360L Black carts
ORGANICS	container for each unit and 1 communal 240L green container per 50 units	container for each unit and 1 communal 240L green

Property owner will be responsible for the removal and storage of snow for all walkways, exterior stairs, and driveway throughout the winter

BUILDING AREA (gross areas)	EXISTING	ADDITION	TOTAL
BASEMENT	141m ²	0m ²	141m ²
GROUND FLOOR	141m ²	0m ²	141m ²
SECOND FLOOR	141m ²	0m ²	141m ²
THIRD FLOOR (PROPOSED)	0m ²	141m ²	141m ²
TOTAL AREAS	423m ²	141m ²	564m ²



01 | SITEPLAN



G	
F	
E	
D	
C	
B	
A	issued for Pre-application Consultation 2021.07.21
issue	description date

535 Chapel Street
Proposed Addition

Drawing title

SITEPLAN

drawn by	P.A.
scale	3/16"=1'-0"
date	2021.05.12
project number	
drawing number	

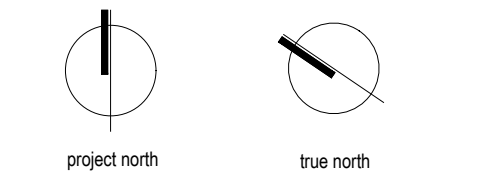
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- UNIT 101 - EXISTING - 223sq.ft.
UNIT 102 - NEW - 300sq.ft.
UNIT 103 - NEW - 218sq.ft.
UNIT 201 - EXISTING - 1175sq.ft.
UNIT 301 - EXISTING - 1175sq.ft.
UNIT 401 - NEW - 240sq.ft.
UNIT 402 - NEW - 220sq.ft.
UNIT 403 - NEW - 220sq.ft.
UNIT 404 - NEW - 272sq.ft.



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G	
F	
E	
D	
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B	
A	issued for Pre-application Consultation 2021.07.21
issue	description date

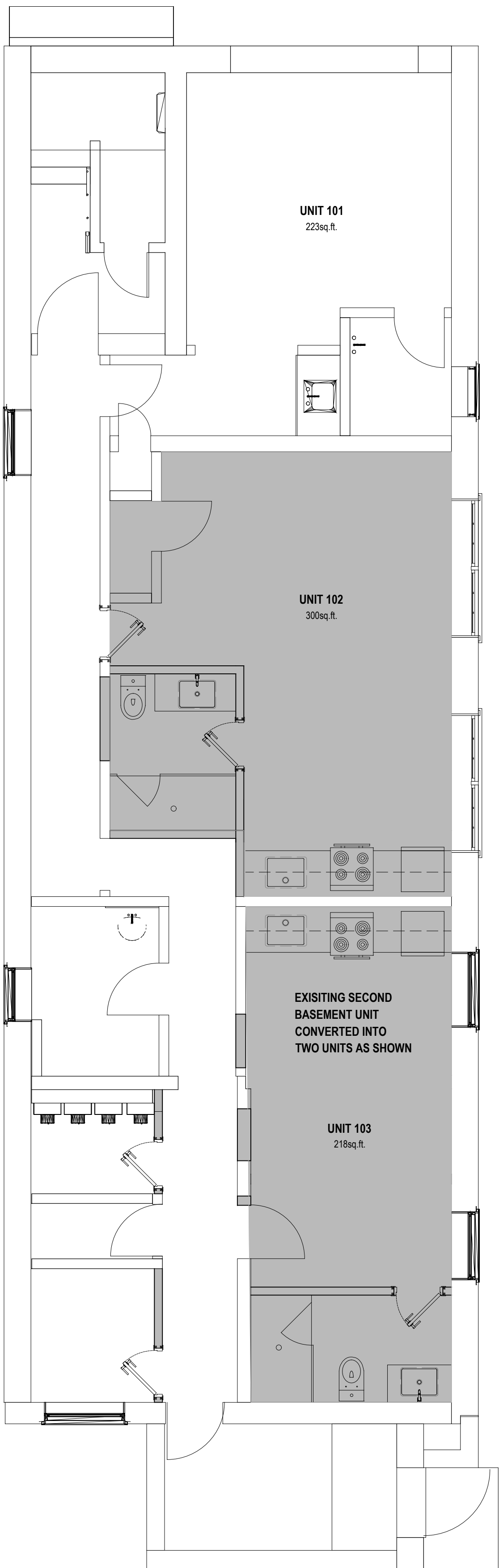
535 Chapel Street
Proposed Addition

drawing title

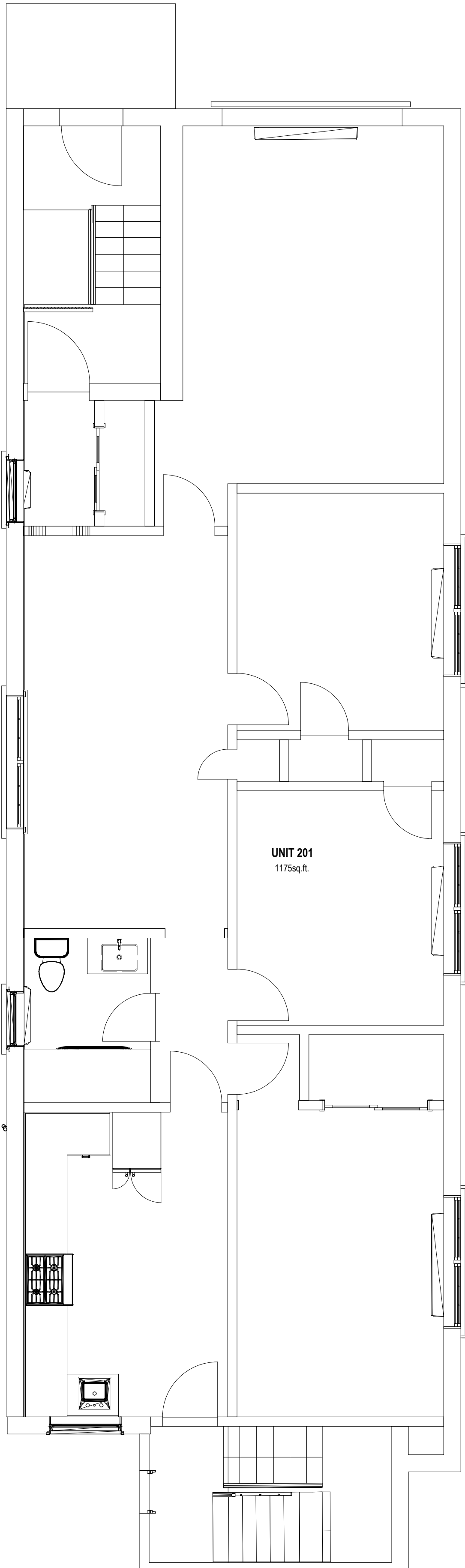
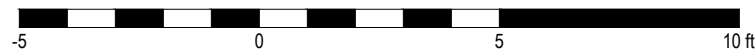
FLOOR PLANS

drawn by	P.A.
scale	1/4"=1'-0"
date	2021.06.16
project number	
drawing number	

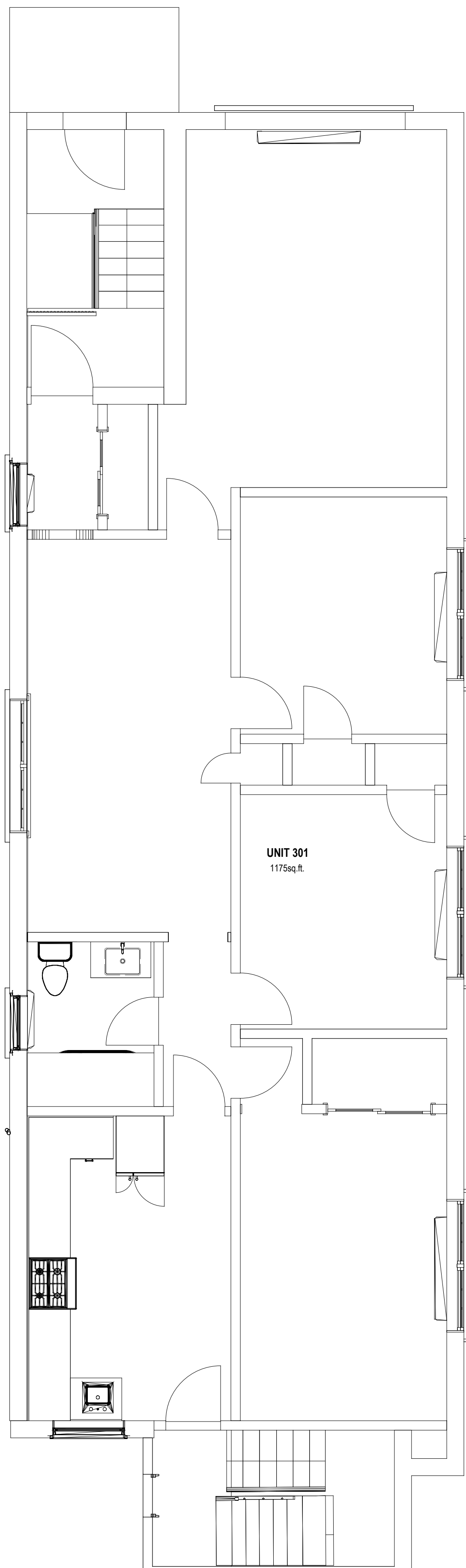
A1.1 _rev -



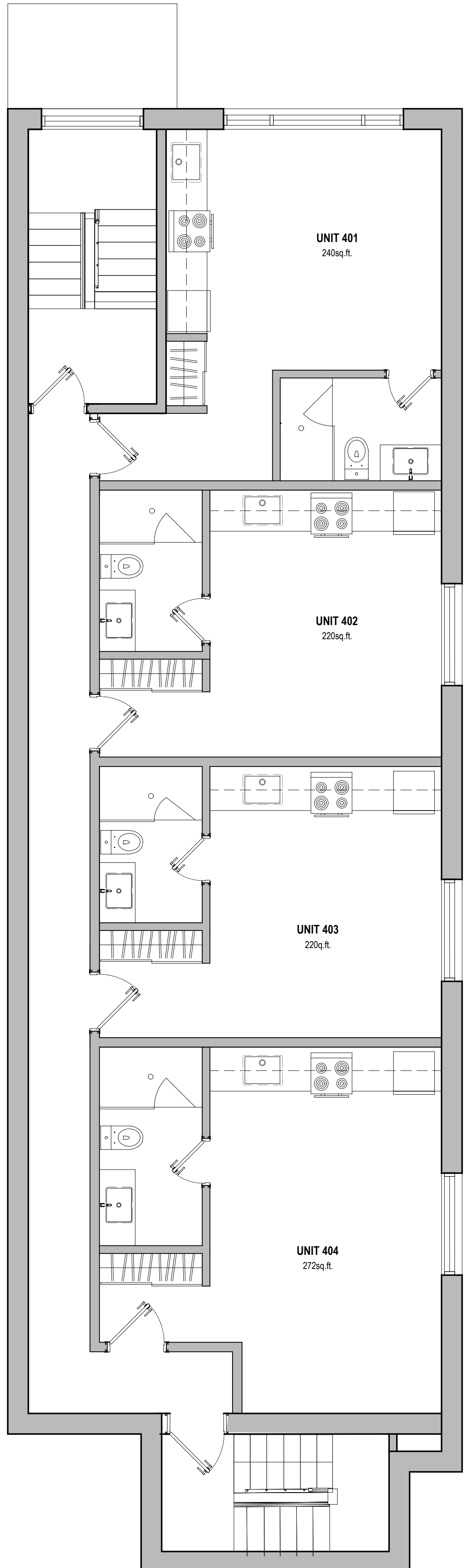
01 | BASEMENT



02 | FIRST FLOOR PLAN - EXSITING

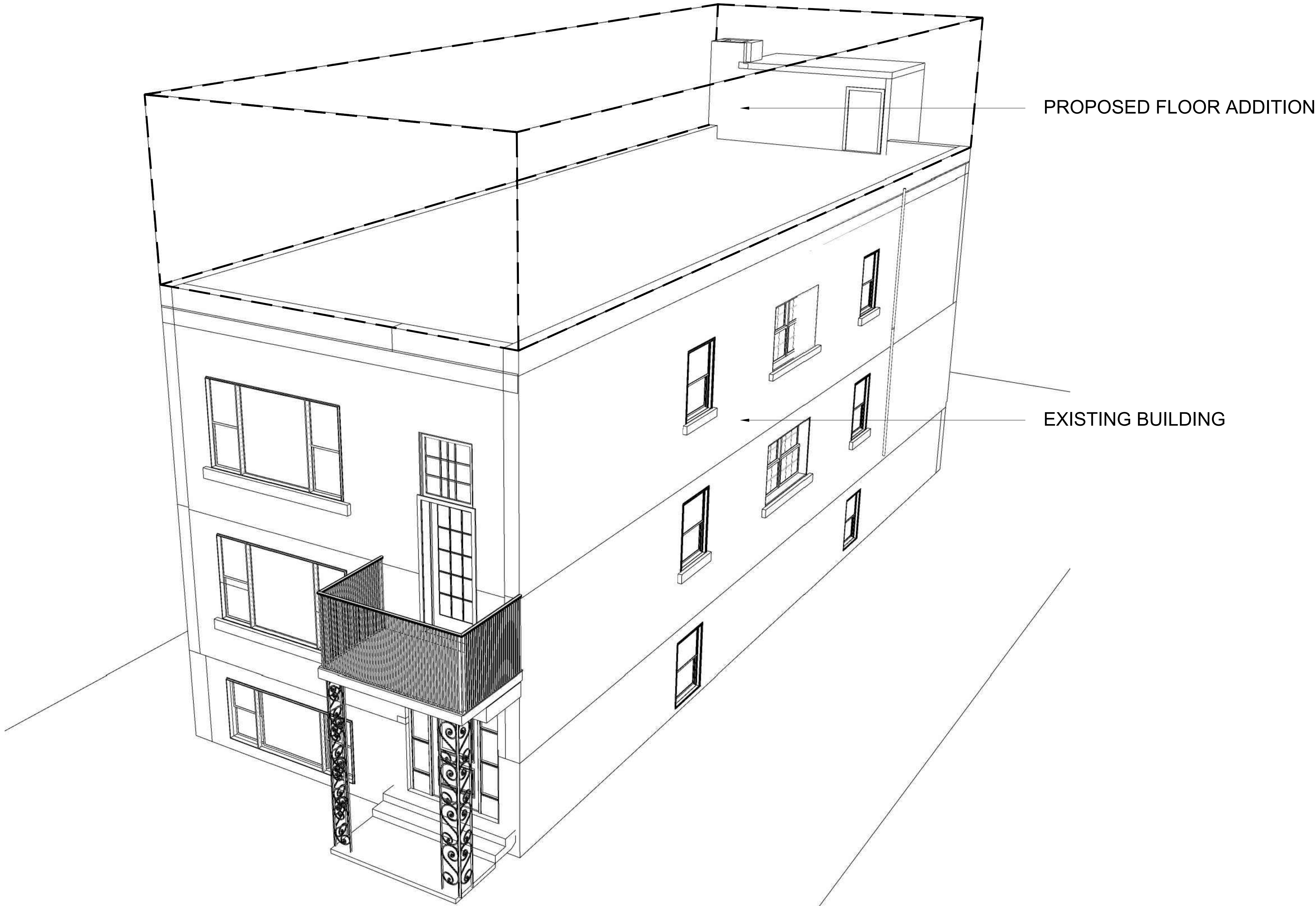


03 | 2ND FLOOR PLAN - EXISTING

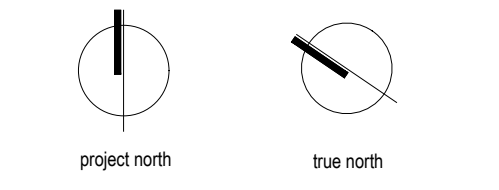


04 | PROPOSED 3RD FLOOR - 4 UNITS





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G	
F	
E	
D	
C	
B	
A	issued for Pre-application Consultation 2021.07.21
issue	description date

535 Chapel Street
Proposed Addition

Drawing title

PROPOSED FLOOR

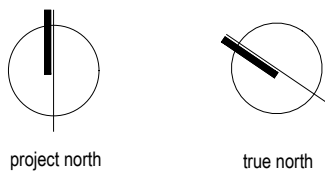
drawn by	P.A.
scale	1/4"=1'-0"
date	2021.06.16
project number	-
drawing number	-

A2.1 _rev -



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G		
F		
E		
D		
C		
B		
A	issued for Pre-application Consultation	2021.07.08
issue	description	date

535 Chapel Street
Proposed Addition

Drawing title

ELEVATIONS

drawn by	P.A.
scale	1/4"=1'-0"
date	2021.07.21
project number	
drawing number	

A2.2

_rev -



TOPOGRAPHICAL PLAN OF

LOT 43
(West Blackburn Avenue)
LOT 43
(East Chapel Street)
REGISTERED PLAN 33878
CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebakk Ltd.

Scale 1 : 100
4 3 2 1 0 2 4 Metres

Metric
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

March 14/14
Date
V. Andrew Sharp, O.L.S.

Notes & Legend

- Denotes
- Fire Hydrant
 - Maintenance Hole (Unidentified)
 - Maintenance Hole (Storm Sewer)
 - Overhead Wires
 - Catch Basin
 - Catch Basin Inlet
 - Gas Meter
 - Hydro Meter
 - Chain Link Fence
 - Board Fence
 - Wooden Fence
 - Utility Pole
 - Anchor
 - Bollard
 - Sign
 - Concrete Retaining Wall
 - Stone Retaining Wall
 - Deciduous Tree
 - Coniferous Tree
 - Diameter
 - Location of Elevations
 - Location of Elevations (Top of Wall)
 - Top of Concrete Curb Elevation
 - Centreline
 - Top of Grate
 - Property Line
 - Foundation

Topographic data was collected under Winter Conditions.
Snow cover and ice preclude determining location and
elevation of some topographic data that is otherwise visible.

Bearings are astronomic, derived from the easterly limit of Chapel Street
shown to be N31°19'10"W on Plan 4R-25236.

SITE AREA :

PIN 04206-0278 AREA= 539.4 m²
PIN 04206-0280 AREA= 243.0 m²
PIN 04206-0281 AREA= 296.6 m²

BOUNDARY INFORMATION DERIVED FROM EXISTING SURVEY
RECORDS AND FIELD SURVEY .

ELEVATION NOTES

- Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
- It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that its relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

- This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
- Only visible surface utilities were located.
- A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Appendix B

Pre-Consultation Notes

Pre-Application Consultation Follow-up Meeting Notes

Property Address: 535 Chapel Street
PC2021-0264
Wednesday, August 11, 2021
2pm-3pm via Microsoft Teams

Attendees:

City of Ottawa

Jean-Charles Renaud, File Lead
Holly Newitt, Student Planner
Christopher Moise, Urban Design
Claire Lee, Urban Design Student
Nishant Jhamb, Engineer
Wally Dubyk, Transportation

Applicant Team

Ghada Zaki
Jeremy Silburt

Regrets:

Community Association
John Verbaas

Subject: 535 Chapel

Meeting Notes:

Opening & attendee introduction

- Introduction of meeting attendees

Overview of proposal

- Smart Living Properties owns the adjacent and rear lots
- Existing building is a 2.5-storey building with 4 residential units
- Proposal is to add an additional storey consisting of 4 bachelor apartments
 - An additional bachelor unit would be added at the rear of the basement in the existing building
 - 9 units total, 3 three-bedroom, 1 one-bedroom and 5 bachelor units
- Rear yard bike parking and garbage storage
 - 11 bike spaces proposed
- Soft-scaping to be increased in rear yard
- Zoned R4UB
 - Lot area, lot width, side and rear yard setbacks deficient
 - The existing building is non-complying
- Shared driveway is not within the lot lines of this property
 - Existing easement for use

- 3 of the new units will front the driveway as existing units do
- Materiality will connect the addition with the existing
- A balcony over the main entrance is proposed on the half landing as a communal space

Technical Comments:

Jean-Charles Renaud, Planner

- Staff have concerns with the appropriateness of having 9-units within a building on this property. The zoning would only allow 2-units at a maximum height of 10m on the property as of right. In justifying an increase in units to 9, it will be important to demonstrate the site's maintained functionality and the impact it will have on its surroundings.
- Staff also have concerns with the proposed massing of the addition. While the proposed setbacks already exist, the increase in height results in an increase in massing impact, on a site that already suffers from reduced setbacks as well as lot width and area. Please implement ways to mitigate this impact.
- Please consider covering the bike parking.
- Consider the provisions of Sections 144, 143 and 161(18) in the Zoning By-law.

Christopher Moise, Urban Design

- We appreciate the drawings presented at the pre-consultation meeting and have the following comments/questions about the design presented:
 - Bike Parking: We recommend protected bicycle storage;
 - Materiality: We support the choice for a hardy board (or similar cementitious product) for the third floor which will relate well with the existing masonry;
 - Side-yard: The building is getting larger in mass and will have an increased impact on the reduced side-yard and we recommend issues of proximity and over-look be considered in the design of the upper floor;
 - We recommend some legal measure be created to protect the right-of-way required to access the rear yard on the neighbouring property;
 - Accessibility: We recommend the building code be reviewed in regard to the requirement for accessibility. Nine total residential units may trigger the requirement for an accessible unit to be provided which may have impacts on the current design;
 - Trees/Landscaping: We recommend that new trees and soft landscaping be considered for the front and rear yards;
- A scoped Design Brief is a required submittal for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided.
- This is an exciting project in an area full of potential. We look forward to helping you achieve its goals with the highest level of design resolution. We are happy to assist and answer any questions regarding the above. Good luck.

Wally Dubyk, Transportation

- Work by PWES Forecast ID LN50342 targeted to start 1-2 years.
- The development site proposes 9 new units and no parking spaces. This development would not generate sufficient traffic to warrant a TIA report.
- Chapel Street is classified as a Collector road. There are no additional protected ROW limits identified in the OP.

- For any planter boxes/trees on the City's road right-of-way, an Encroachment Agreement along with a Maintenance Agreement will be required.
- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.
- The purchaser, tenant or sub-lessee acknowledges the unit being rented/sold is not provided with any on-site parking and should a tenant/purchaser have a vehicle for which they wish to have parking that alternative and lawful arrangements will need to be made to accommodate their parking need at an alternative location. The Purchaser/Tenant also acknowledges that the availability and regulations governing on-street parking vary; that access to on-street parking, including through residential on-street parking permits issued by the City cannot be guaranteed now or in the future; and that a purchaser, tenant or sub-lessee intending to rely on on-street parking for their vehicle or vehicles does so at their own risk.
- Please keep in mind that on street parking is not a viable option for tenants. Ensure that potential tenants are aware that there is no provision for parking.
- Should the property Owner wish to use a portion of the City's road allowance for construction staging, prior to obtaining a building permit, the property Owner must obtain an approved Traffic Management Plan from the Manager, Traffic Management, Transportation Services Department. The city has the right for any reason to deny use of the Road Allowance and to amend the approved Traffic Management Plan as required

Nishant Jhamb, Engineer

- Concern about protection of 600mm watermain. Vibration and settlement monitoring plan will be required.
- Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.
- Please provide a memo from a Structural Engineer licensed in the province of Ontario confirming if the existing structure can take additional load as proposed.

General:

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an Existing Conditions Plan.
- Reference documents for information purposes:
 - Ottawa Sewer Design Guidelines (October 2012)
 - Technical Bulletin PIEDTB-2016-01
 - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
 - Ottawa Design Guidelines - Water Distribution (2010)
 - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
 - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
 - City of Ottawa Environmental Noise Control Guidelines (January 2016)
 - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
 - Ottawa Standard Tender Documents (latest version)
 - Ontario Provincial Standards for Roads & Public Works (2013)
 - Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

- Please note that this is the applicant responsibility to refer to the latest applicable guidelines while preparing reports and studies.

Disclaimer: *The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only.*



Storm Sewer:

- A 400mm dia. PVC storm sewer (2002) is available within Chapel street.

Sanitary Sewer

- A 250 mm dia. PVC Sanitary sewer (2002) is available within Chapel Street.
- Please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity.
- Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.
- Include correspondence from the Architect within the Appendix of the report confirming the number of residential units per building and a unit type breakdown for each of the buildings to support the calculated building populations.

Water:

- A 200 mm dia. PVC watermain (2002) is available within Chapel Street.
- If existing Existing residential service to be blanked at the main.
- Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m³/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration. The basic day demand for this site not expected to exceed 50m³/day.
- Please review Technical Bulletin ISTB-2018-0, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal. Two or more public hydrants are anticipated to be required to handle fire flow.

- Boundary conditions are required to confirm that the required fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
 - Type of Development and Units
 - Site Address
 - A plan showing the proposed water service connection location.
 - Average Daily Demand (L/s)
 - Maximum Daily Demand (L/s)
 - Peak Hour Demand (L/s)
 - Fire Flow (L/min)
 - [Fire flow demand requirements shall be based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection 1999]
 - Exposure separation distances shall be defined on a figure to support the FUS calculation and required fire flow (RFF).
 - Hydrant capacity shall be assessed to demonstrate the RFF can be achieved. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

CCTV sewer inspection:

- CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Road Reinstatement

- Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

Required Engineering Plans and Studies:

- Plans:
 - Existing Conditions and Removals Plan (if removals are proposed)
 - Site Servicing Plan (if any upgrades are required)
 - Road Reinstatement plan
 - Roof Drainage Plan
 - Grade Control and Drainage Plan
 - Erosion and Sediment Control Plan
 - Topographical survey
- Reports:
 - Site Servicing Report (to confirm the fire flow requirement is being met and the sanitary service has capacity)
 - Noise Control Study
 - Structural Engineer Statement on the existing structure
 - Phase 1 ESA (as existing parking will be excavated to add landscaping/amenity areas)
 - Phase 2 ESA (depending on Phase 1 recommendations)
 - Vibration and settlement monitoring plan for 600mm watermain
- Please refer to the City of Ottawa Guide to Preparing Studies and Plans [Engineering]

- Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.
- Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4: <https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety>

Noise Study:

- A Transportation Noise Assessment is required as the subject development is located within 100m proximity of Chapel street and Mann Ave.
- A Stationary Noise Assessment is required in order to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

Vibration and settlement monitoring on Backbone Watermain:

- A 600 mm dia. backbone watermain is located within Chapel Street. Please note that to ensure the integrity of the nearby watermain the applicant may be required to develop a Vibration and Settlement Monitoring Program. A Vibration and settlement Monitoring Specialist Engineer shall undertake monitoring, develop a vibration and settlement monitoring plan, and prepare a protection plan, an emergency response plan, ensure conformance and shall issue certificates of conformance. The Vibration and settlement Monitoring Specialist Engineer shall be a licensed engineer in the Province of Ontario with a minimum of five years of experience in the field of Vibration and settlement monitoring. Vibration and settlement monitors are to be placed directly on the watermain. The maximum peak particle velocities are to be in accordance with Table 1 of the City of Ottawa Specification F-1201.
- Note: In addition to requirement of a vibration specialist engineer required to design and monitor vibration, a certificate of liability insurance shall be submitted to the City wherein the Owner is the named insured and the City of Ottawa is an additional insured. The limits of the policy shall be in the amount of \$25,000,000 and shall be kept in full force and effect for the term of the construction work.
https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Exterior Site Lighting:

- Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the

maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

Fourth (4th) Review Charge:

- Please be advised that additional charges for each review, after the 3rd review, will be applicable to each file. There will be no exceptions.

Construction approach

- Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Community Association

John Verbaas

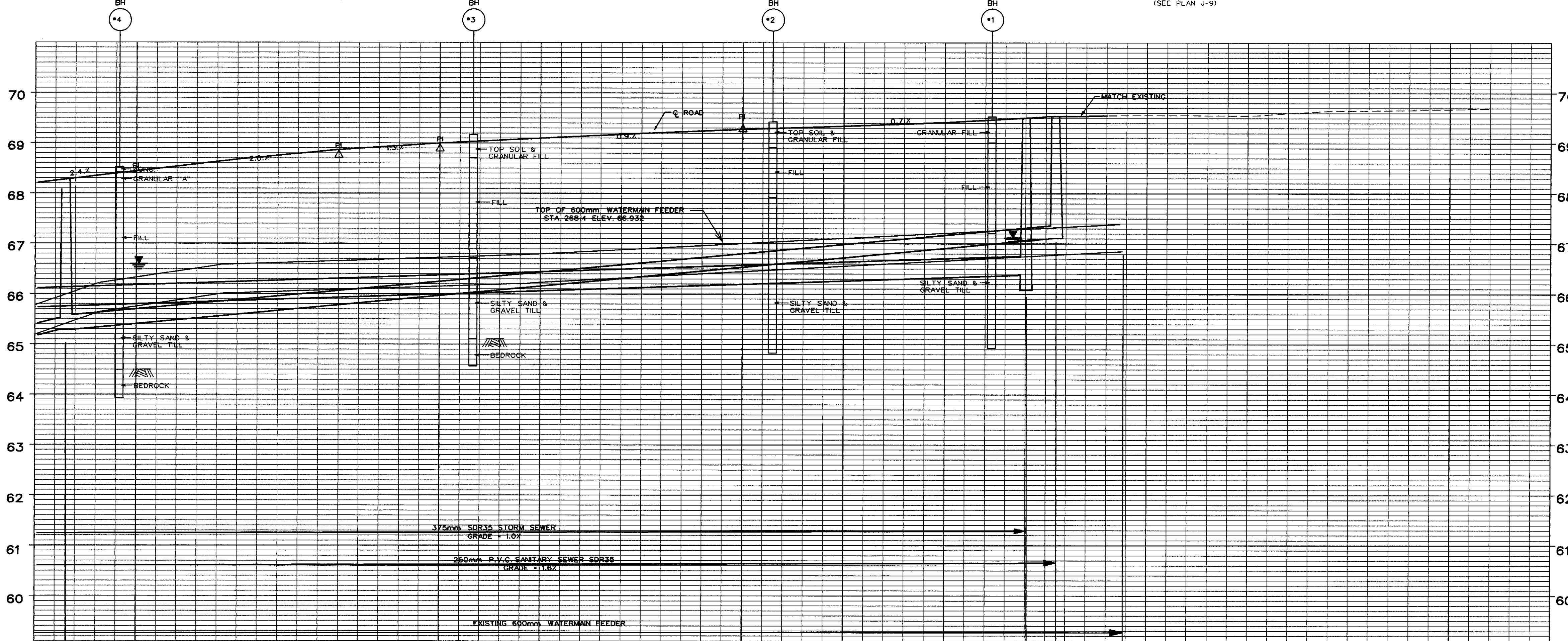
- Although it is true that apt buildings on 10m lots in the R4-UB zone can be up to 11m in height. This lot is only a 7m lot and is not supposed to be targeted for apt buildings. If the building on the lot was then according to the zoning and was a row or a semi...are those allowed a 11m height in the R4-UB zone?
- My first reaction to the proposal is that because the lot and building is so narrow, the aesthetics look very poor when a 4th story (or 3rd story depending on how you want to actually count them!) is stacked on the top. Would some kind of a stepback be possible at the front and possibly rear of the 4th story in order to improve the aesthetics?

Next steps:

- We encourage the applicant to discuss the proposal with the local Councillor and the community association
- We will follow up with meeting minutes and a list of required documents for the submission

Appendix C

Background Drawings



Stations	Elevations						Existing Surface
	Sewer Inverts Existing	Sewer Type & Diameter	Top of Watermain	West Gutter	6 Road	East Gutter	
200				68.119	68.254	68.164	
203.00	65.337	250mm SAN					
210				68.359	68.494	68.404	
220				68.559	68.694	68.604	
230				68.759	68.894	68.804	
240				68.959	69.094	68.934	
250				68.979	69.114	69.024	
260				69.059	69.204	69.114	
270				69.159	69.294	69.204	
280				69.259	69.364	69.274	
290				69.299	69.434	69.344	
298.00		66.384 375mm ST					
300							
301.00	67.064	250mm SAN		69.369	69.504	69.414	
310							
320							
330							
340							
350							
						</	

Revisions:				
No.	Date	Description	Drawn By	Approved By
1	JUNE 18/02	LOWER STORM SEWER	TH	RR

Design:			
Designed By	Date	Checked By	Date
REG. REHERN		FERN MARCUCCIO	10/05/02
Survey Detail By	Date	Field Checked By	Date
J.PINNEY J.FRANCE			
Drafting By	Date	Checked By	Date
GUY QUIROUETTE TED HUNTER			

Program manager	
FERN MARCUCCIO	17/05/02

Final Measurements:	
Construction Type ROAD SEWER, WATER	Inspector TED HUNTER
Work Commenced JULY 8 2002	Project Manager REG. REHEIN
Work Completed OCT. 31 2002	Field Book #
Contractor GREENSBILT CONST.	Date
Drafting Revisions	Date Checked By

As Built Notes:

1. Soil information shown is not guaranteed and contractors are advised to collect additional soils information as deemed necessary.
2. Soil information taken from **OMM-TROW** **MA14274A**
3. Date of television inspection :
4. This plan supercedes (in whole or in part) plan •
5. While illustrations and utilities shown are taken from the best available information, they cannot be guaranteed.
6. The contractor is requested to check with all utility companies.

Legal Survey Notes:

Boundary information shown herein has been compiled and calculated from Teranet data and not based on an actual survey.

Distances shown to survey monuments are for reference purposes only, survey monuments may not define property boundaries.

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THIS IS NOT A PLAN OF SURVEY

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This notice is not an admission of publication.



**Transportation, Utilities and Public Works
Infrastructure Services Branch**

110 LAURIER AVENUE WEST, OTTAWA, ONTARIO. K1P 1J1

Rosemarie Leclair General Manager	Richard Hewitt, P.Eng. Branch Director
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CHAPEL STREET
FROM TEMPLETON STREET TO MANN AVENUE

Contract No: 02-3325	Survey Books:	Scales: (See note) HOR. 1:250 VERT. 1:50	Plan No: 3325 Sheet 6 of 6
-------------------------	---------------	--	----------------------------------

Appendix D

Water Servicing Calculations

Water Demand Calculations		
535 Chapel Street (JLR 31516-000)		
Residential Unit Breakdown	No.	Person Per Unit (Table 4.1)
Bachelor	6	1.4
1 Bed	1	1.4
2 Bed	N/A	1.4
3 Bed	N/A	3.1
4 Bed	2	3.4
Average Apt.	N/A	1.8
Total Unit Count =	9	units
Total Population =	17	ppl
Average Day Consumption Rate	280	L/c/d
Average Day Demand	0.06	L/s
Maximum Day Peaking Factor	9.50	x Avg Day (Table 3-3 MOE)
Maximum Day Demand	0.52	L/s
Peak Hour Peaking Factor	14.30	x Avg Day (Table 3-3 MOE)
Peak Hour Demand	0.79	L/s
Total Demands for 535 Chapel St.		
Average Day Demand	0.06	L/s
Maximum Day Demand	0.52	L/s
Peak Hour Demand	0.79	L/s

Mahad Musse

From: Mahad Musse
Sent: September 10, 2021 9:58 AM
To: Mahad Musse
Subject: RE: 535 Chapel Street - Questions

From: Jeremy Silburt <Jeremy@smartlivingproperties.ca>
Sent: Thursday, September 9, 2021 2:12 PM
To: Annie Williams <awilliams@jlrichards.ca>
Cc: Lucie Dalrymple <ldalrymple@jlrichards.ca>
Subject: RE: 535 Chapel Street - Questions

[CAUTION] This email originated from outside JLR. Do not click links or open attachments unless you recognize the sender and know the content is safe. If in doubt, please forward suspicious emails to Helpdesk.

Annie,

Answers below in red.

Jeremy Silburt
Senior Consultant, Developments



226 Argyle Avenue | Ottawa, ON | K2P 1B9
Mob: 613-880-5491 | Tel: (613) 244-1551 | Fax: (613) 900 -1100
Email: jeremy@smartlivingproperties.ca
Website: www.smartlivingproperties.ca

COVID-19 Update

We will be encouraging our people to practice **Social Distancing** and as a way to minimize COVID-19 transmission in the community, the Smart Living Team will be working remotely. We remain fully accessible by phone and email, but this means minimizing face to face meetings and encouraging electronic delivery of all information.

From: Annie Williams <awilliams@jlrichards.ca>
Sent: Thursday, September 9, 2021 1:32 PM
To: Jeremy Silburt <Jeremy@smartlivingproperties.ca>
Cc: Lucie Dalrymple <ldalrymple@jlrichards.ca>
Subject: 535 Chapel Street - Questions

EXTERNAL EMAIL Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Jeremy,

I hope you are doing well. We are currently looking to confirm the building properties at 535 Chapel Street which will allow us to carry out the fire flow calculations for our water supply analysis. Given that it takes 2-3 weeks to get boundary conditions from the City, we are hoping to submit our request to them as soon as possible. Would you or your architect please confirm the following:

- Please confirm that the existing building has 3 bachelor (no separate bedroom) units and 2 four-bedroom units, and the proposed addition has 4 bachelor units for a grand total of 9 units.
No, existing building has 1 bachelor, 1 – 1bedroom, 2 – fourbedroom units. The proposed addition adds 5 bachelor units for a total of 9 units
- What is the construction type per the Ontario Building Code for both the existing and proposed building (combustible, non-combustible, or heavy timber)?
Wood frame is assumed.
- Does the existing or proposed building have any fire separations? If so what are the fire resistance ratings?
Not known. Lath and plaster ceilings are assumed based on the age of the building.
- Will there be a sprinkler system?
No currently planned
- Where is the mechanical room located within the existing building (existing water supply entrance) and what is the existing water service pipe size?
Back of the basement (furthest from the street), existing size is not known. Will require inspection.

Thank you,
Annie

Annie Williams, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4523



*J.L. Richards & Associates Limited is proactively doing our part to protect the wellbeing of our staff and communities while improving our communication technology. **We are pleased to announce that we have implemented direct phone lines for all of our staff, allowing you to connect with us regardless of whether we are working remotely or in the office.** We are dedicated to delivering quality services to you through value and commitment, as always. Please reach out to us if you have any questions about your project.*

535 Chapel St. Low Rise Apartment Fire Flow Calculation (per OFM/OBC Guidelines)	
Type of Structure: A=	Low rise apartment building of combustible construction and no fire-resistance rating Existing building has an area of 423 m ² (incl. basement area), proposed extension has an area of 141 m ² . Total area of existing + proposed is 564 m ² Existing building is 2 storeys (plus basement), proposed extension is 1 storeys Wood Frame Combustible Construction Exposure: 6.80 m northside, 0.83 m eastside, 12.0 m southside, 0.35 m westside
Q= = Required fire flow (litres) = $K V S_{tot}$	<div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">72643 L</div>
"K" - Water Supply Coefficient from Table 1	K = <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">23</div>
"V" - Total building volume in cubic meters 141 m ² x 2.7 m x 2-storeys (1st floor + basement) for existing building + 141 m ² x 2.75 m x 1 storeys (second floor) for existing building + 141 m ² x 3.05 m x 1 storeys (third floor) for proposed extension =	V = <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">1579 m³</div> 1579 m ³
"S_{tot}" - total of spatial coefficient values from Figure 1 1 + 0.27 (for northside exposure) + 0.5 (for eastside exposure) + 0.5 (for westside exposure) + 0 (for southside exposure)	S_{tot} = <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">2.0</div>
Fire Flow Requirement from Table 2 = Since Q < 108,000 L required fire flow = 2,700 L/min	<div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">2700 L/min</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">713 USGPM</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">45 L/s</div>

Mahad Musse

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: September 20, 2021 11:36 AM
To: Annie Williams
Cc: Jeremy Silburt; Lucie Dalrymple; Guy Forget; Alexandre Tourigny; Mahad Musse
Subject: RE: Request for Water Boundary Conditions - 535 Chapel Street
Attachments: 535 Chapel Street September 2021.pdf

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Hello Annie

The following are boundary conditions, HGL, for hydraulic analysis at 535 Chapel Street (zone 1W) assumed to be connected to the 203 mm watermain on Chapel Street (see attached PDF for location).

Minimum HGL: 105.7 m

Maximum HGL: 115.2 m

Max Day + FF (45 L/s): 108.4 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 watermain 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

Nishant Jhamb, P.Eng

Project Manager | Gestionnaire de projet

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

Development Review - Central 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 23112, nishant.jhamb@ottawa.ca

From: Annie Williams <awilliams@jlrichards.ca>

Sent: September 13, 2021 1:33 PM

To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>

Cc: Jeremy Silburt <Jeremy@smartlivingproperties.ca>; Lucie Dalrymple <ldalrymple@jlrichards.ca>; Guy Forget <gforget@jlrichards.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: Request for Water Boundary Conditions - 535 Chapel Street

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Hello Nishant,

We are carrying out a detailed design for a proposed redevelopment located at 535 Chapel Street in downtown Ottawa (see attached Site Location Plan). The redevelopment is on private property and consists of constructing a 1-storey addition on top of an existing low-rise apartment building. The existing building has 4 units and the proposed modifications add 5 units for 9 total units.

This development will be treated as a Site Plan and the existing privately owned service lateral is assumed to connect to the existing 203 mm watermain on Chapel Street. It is intended that the existing water service lateral be maintained. We kindly request hydraulic boundary conditions under the typical scenarios at the existing water service connection location on Chapel Street (see attached RFF Exposure).

Based on the Ottawa Design Guidelines for Water Distribution, the following demands are anticipated:

Average Day = 0.06 L/s
Maximum Day = 0.52 L/s
Peak Hour = 0.79 L/s

Attached is the water demand calculation sheet which was prepared based on the City Guidelines.

The most recent City Technical Bulletin ISTB-2021-03 states that the fire demand calculation method on private property in urban areas is covered in Section 7.2.11 of the Ontario Building Code (OBC). Thus, for this redevelopment, the OBC was used to calculate the required fire flow (RFF).

RFF per the OBC = 2,700 L/min (45 L/s)

A copy of the RFF calculations per the OBC is attached.

If we could receive the requested boundary conditions at your earliest convenience it would be much appreciated.

Should you have any questions or require anything further, please do not hesitate to contact me.

Thank you,
Annie

Annie Williams, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4523



*J.L. Richards & Associates Limited is proactively doing our part to protect the wellbeing of our staff and communities while improving our communication technology. **We are pleased to announce that we have implemented direct phone***

lines for all of our staff, allowing you to connect with us regardless of whether we are working remotely or in the office. We are dedicated to delivering quality services to you through value and commitment, as always. Please reach out to us if you have any questions about your project.

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Boundary Conditions for 535 Chapel Street



— PRIVATE
— PUBLIC

HEAD LOSS - HAZEN-WILLIAMS
535 Chapel Street - Low Rise Apartment
(JLR 31516-000)

Information to City (Sept 13, 2021)

Demand Scenario	Demand (L/s)
Average Day	0.06
Maximum Day	0.52
Required Fire Flow (OBC)	45.00
Peak Hour	0.79

Boundary Conditions (Email from City, Sept 20, 2021):

Water Demand Scenario	Demands (L/s)	Head (m) on 535 Chapel Street
Peak Hour	0.79	105.7
Maximum HGL	0.00	115.2
Max Day + Fire Flow (45 L/s)	45.00	108.4

Headloss Calculations (Hazen Williams Equation)

Hazen Williams equation (Mays, 1999; Streeter et al., 1998; Viessman and Hammer, 1993) where k=0.85 for meter and seconds units or 1.318 for feet and seconds units:

$$H = L \left[\frac{V}{kC} \left(\frac{4}{D} \right)^{0.63} \right]^{1/0.54} \quad V = \frac{Q}{A} \quad A = \frac{\pi}{4} D^2$$

Where,
HL = Headloss (m)
Q - Flow (m³/s)
L - Length (m)
C - Hazen Williams "C"
D - Watermain Diameter (m)
V - Velocity (m/s)
A - Watermain Cross-Sectional Area (m²)

535 Chapel Street Headloss Calculations

Water Demand Condition	Flow (Q) (L/s)	Flow (Q) (m³/s)	Length (m)	C	D (m)	V (m/s)	A (m²)	Head Loss (m)	HGL (m) on Chapel Street	Calculated HGL (m) at 535 Chapel St.	Elevation (m) at 535 Chapel St.	Pressure @ Node			ODG 4.2.2 Requirement	Criteria Acheived?
												(m)	(kPa)	(psi)		
Peak Hour	0.79	0.00079	37	100	0.050	0.402	0.00196	0.30426	105.700	105.396	69.00	36.396	357	51.8	276 kPa	Yes
Maximum HGL	0.00	0.00000	37	100	0.050	0.000	0.00196	0.00000	115.200	115.200	69.00	46.200	453	65.7	552 kPa	Yes

Subject Property

Hydrant locations in proximity of 535
Chapel Street Low-Rise Apartment



Appendix E

Wastewater Peak Flow
Calculations



535 Chapel Street
SANITARY SEWER DESIGN SHEET
SMART LIVING PROPERTIES
JLR NO. 31516-000

4 Bedroom Units	3.4	pers/unit	q =	280	L/cap/day
Bachelor Unit/1 Bed	1.4	pers/unit	I =	0.330	L/s/ha
Manning's Coeff. N =	0.013				

STREET	M.H. #		RESIDENTIAL							PEAK EXTR. FLOW l/s	PEAK DES. FLOW l/s
			NUMBER OF UNITS			CUMULATIVE		PEAKING FACTOR	POPUL. FLOW l/s		
	4 Bed	Apt.	AREA ha	POPUL. peop.	AREA ha						
	FROM	TO									
535 Chapel St	MH1	375 STM	2	7	0.0108	17	0.01	3.71	0.20	0.00	0.21

Site Servicing Study

535 Chapel Street, Ottawa ON



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