

# ADEQUACEY OF PUBLIC SERVICING REPORT

For  
82 Eccles Street

Prepared by

**E AU Structural & Environmental Services**

Ottawa, Ontario, K1Y 4P9  
Phone: 613 869 0523  
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Revision 1

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## **1. Introduction**

EAU Structural and Environmental Services Inc. was retained by Mario Poulin of Cloud-9-Drafting to prepare a Servicing adequacy study for the proposed new addition located at 82 Eccles Street, Ottawa, Ontario.

Currently, an existing dwelling is situated in the pertinent property and proposed addition will be constructed on the west of existing dwelling. Due to size of proposed addition, a servicing adequacy report was requested by City of Ottawa, Planning Approval Branch.

### **1.1. Site Description:**

The existing site located at 82 Eccles Street. The subject property measure a total area of approximately 0.04 ha. The site is fronting 152mm diameter PVC water main and 300mm diameter concrete combined sewer main on Eccles Street. The existing dwelling has one 1 bedroom and one 3 bedroom units and the proposed renovation will contain 2 studio units, one 1 bedroom and one 2 bedroom unit.

## **2. Water Supply**

### **Residential Water Demand:**

The water demand is calculated based on the City of Ottawa Water Distribution Design Guidelines as follows:

- Residential occupancy = 1.4 persons per one bedroom apartment and 2.1 persons per 2 bedroom apartment and 3.1 persons per 3 bedroom apartment
- 2 x Studio (1 bedroom) x 1.4 pers./unit = 2.8 persons
- 2 x 1 bedroom units x 1.4 pers./unit = 2.8 persons
- 1 x 2 bedroom units x 2.1 pers./unit = 2.1 persons
- 1 x 3 bedroom units x 3.1 pers./unit = 3.1 persons

Total occupancy = 10.8 persons rounded up to 11 persons

Residential Average Daily Demand = 350 L/c/d.

- Average daily demand of 350 L/c/day x 11 persons = 3850 Liters/day or 0.044 L/s
- Maximum daily demand (factor of 2.5) is 0.044 L/s x 2.5 = 0.11 L/s
- Peak hourly demand (factor of 2.2) = 0.11 L/s x 2.2 = 0.24 L/s

**Fire Fighting Requirement**  
**Based on Fire Underwriter Survey Method**

Fire flow protection requirements were calculated as per the Fire Underwriter's Survey (FUS).  
An estimate of the fire flow required is as follows:

Step 1:

$$F = 220C\sqrt{A}$$

F = fire flow in liters per minute

C = co-efficient related to type of construction.

= 1.5 for wood construction material

A = total floor area in square meters for the building= 350 square meters

$$F = 220 \times 1.5 \times \sqrt{350} = 6,174 \text{ L/min or } 6,200 \text{ L/min}$$

Step 2:

Reductions or increase due to occupancy = low hazard occupancy = -15%

$$F = 6,200 - 0.15 \times 6,200 = 5,270 \text{ L/min}$$

Step 3:

Reduction for automatic sprinkler protection

= no sprinkler system

= no change

Step 4:

Charge for structures exposed within 45 meters of separation.

Side	Separation (m)	Charge %
North (side)	20	15
South (front)	20	15
East (front)	5	20
West (rear)	5	20
Total Charge not to exceed 75%		70

Total Charge not to exceed 70%.

$$= 0.70 \times 5,270$$

$$= 3,689 \text{ L/min}$$

Total Required Fire Flow rounded to the nearest 1000 L/min

$F = 5,270 + 3,689$   
 $= 8,959$  rounded to nearest 1000 L/min  
 $= 9,000$  L/min  
 $= 150$  L/s  
Required duration 2.5 hours.

The above calculated residential water supply requirement and Fire Fighting Requirement were provided to the City of Ottawa for boundary conditions. The following are boundary conditions, (provided by the City of Ottawa) HGL, for hydraulic analysis at 82 Eccles assumed to be connected to the 152mm diameter watermain.

Minimum HGL = 106.2m  
Maximum HGL = 115.0m  
MaxDay + FireFlow (183.5 L/s) = 95.0m

Based on City of Ottawa Design Guidelines – Water Distribution a minimum water service size of 25mm is required where the residential water pressure is over 310 kPa and the peak flows are less than 0.4 L/s. As such, the minimum service diameter required for the proposed development is 50mm. Using the above minimum HGL, a 50 mm service diameter would result in a residual pressure of about 271 kPa on the second floor of the proposed residential building. The residual pressure at the on the first floor of the proposed building using a 50 mm service diameter would be 330 kPa which is well above the minimum requirement of 275 kPa on the ground surface.

The existing water service at the building is to be investigated for material, size and condition. If the existing pipe is made of lead and/or is less than 50mm in diameter, the water service is to be replaced by a 50mm diameter copper pipe or other approved service material. Lead services shall be replaced from the watermain to the service post with an approved product, at a minimum depth of 2.4m.

### **3. Sanitary Sewage**

#### **3.1. Sanitary Sewage Calculation**

##### **Design Flows**

Residential

- ☐ 2 x Studio (1 bedroom) x 1.4 pers./unit = 2.8 persons
- ☐ 2 x 1 bedroom units x 1.4 pers./unit = 2.8 persons
- ☐ 1 x 2 bedroom units x 2.1 pers./unit = 2.1 persons
- ☐ 1 x 3 bedroom units x 3.1 pers./unit = 3.1 persons

Total occupancy = 10.8 persons rounded up to 11 persons

Q Domestic =  $11 \times 350 \text{ L/person/day} \times (1/86,400 \text{ sec/day}) = 0.044 \text{ L/sec}$

Peaking Factor =  $1 + 14 / (4 + (11 / 1000)^{0.5}) = 4.43$  \*use 4 maximum

$$Q \text{ Peak Domestic} = 0.044 \text{ L/sec} \times 4.0 = 0.18 \text{ L/sec}$$

**Infiltration**

$$Q \text{ Infiltration} = 0.28 \text{ L/S/Gross hectare} \times 0.04 \text{ ha} = 0.011 \text{ L/sec}$$

**Total Peak Sanitary Flow = 0.18 + 0.011 = 0.191 L/sec**

The Ontario Building Code specifies minimum pipe size and maximum hydraulic loading for sanitary sewer pipe. OBC 7.4.10.8 (2) states "Horizontal sanitary drainage pipe shall be designed to carry no more than 65% of its full capacity." A 300mm diameter sanitary service with a minimum slope of 1.0% has a capacity of 100.0 Litres per second. The maximum peak sanitary flows for the site is 0.191 L/s. Since 0.191 L/s is much less than  $0.65 \times 100.0 = 65.0 \text{ L/s}$ .

Sewage discharges will be domestic in type and in compliance with the City of Ottawa Sewer Use By-law. The proposed service connection from the proposed building will be made to the existing sanitary sewer on Eccles Street. The proposed service will be a 135mm diameter PVC pipe installed at a minimum slope of 1%.

The peak sanitary flow from the proposed development is less than 10 percent of the capacity of the existing sanitary. As such the proposed increase in sanitary flow as a result of the construction of the proposed building is negligible and there is sufficient available capacity for the proposed development.

## **Conclusion**

1. There is an adequate water supply for domestic use and firefighting.
2. The existing water pressure is adequate for the proposed development.
3. Since it is estimated that the water pressure is less than 80 psi, pressure reducing valves are not required.
4. The proposed water service connection is adequately sized to serve the development.
5. The expected sanitary sewage flow will be adequately handled by the proposed sanitary sewer service connection.
6. The expected sanitary sewage flow will be adequately handled by the by the existing sanitary sewer connection
7. The increase in sanitary flows contributing to the existing municipal sanitary sewer is expected to have a negligible impact.

For any comment or clarification please contact the undersigned.

Should you have any question, do not hesitate to let us know.



Derrick R. Clark, PEng.  
EAU Structural & Environmental Services  
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## APPENDIX A:

### Related Correspondents





January 24, 2019

Application No: A19-000211

VIA Email

CLOUD 9 DRAFTING & DESIGN

Fax:

E-mail: [mario.poulin@cloud9drafting.ca](mailto:mario.poulin@cloud9drafting.ca)

Attention: Mario Poulin

Dear Sir/Madam:

**Re: Application to Construct for 82 Eccles St**

The following comments are the result of a review of the plans and/or for reports received for the referenced building permit application at the subject address. The Infrastructure Approvals Division cannot provide clearance in order to issue approval of the grading/servicing plans submitted until the following issues have been resolved:

**Grading**

*Site Grading*

1. A grading plan, prepared and stamped by a qualified professional (P.Eng, CET, OLS) is required for this application.

*Servicing*

1. Due to the size of this addition, a servicing adequacy report, prepared and stamped by a qualified professional (P.Eng, CET, OLS), is required. The adequacy report must demonstrate that the existing services provide sufficient capacity to account for the increased flows from the proposed addition. The report should include any future development plans for this addition (ie, conversion of the addition into two units). The report must also demonstrate that the water service is of adequate size and pressure for domestic use and fire protection needs. If the building will be sprinklered, the water service must be sized to a minimum 50mm. Please note that only one water service is permitted per municipal address. Furthermore, the designer must demonstrate that the City systems have capacity for this development.
2. If the existing services prove to be adequate, a CCTV Scan is required to verify that the services are in good condition. Please follow the attached CCTV Scan Guideline for the proper procedure and required documents for submission.
3. If new services are required, submit a servicing plan, prepared and stamped by a qualified professional (P.Eng, CET, OLS) for review.

We await your response to the above comments. Please contact the Infrastructure Approvals Officer noted below, if you require additional information or clarification.

Jessica Valic E.I.T

Engineering Intern

Planning & Infrastructure Approvals Branch

110 Laurier Ave West, Ottawa, ON K1P 1J1

Telephone: 613-580-2424 x15672

Fax No.: 613-580-4751

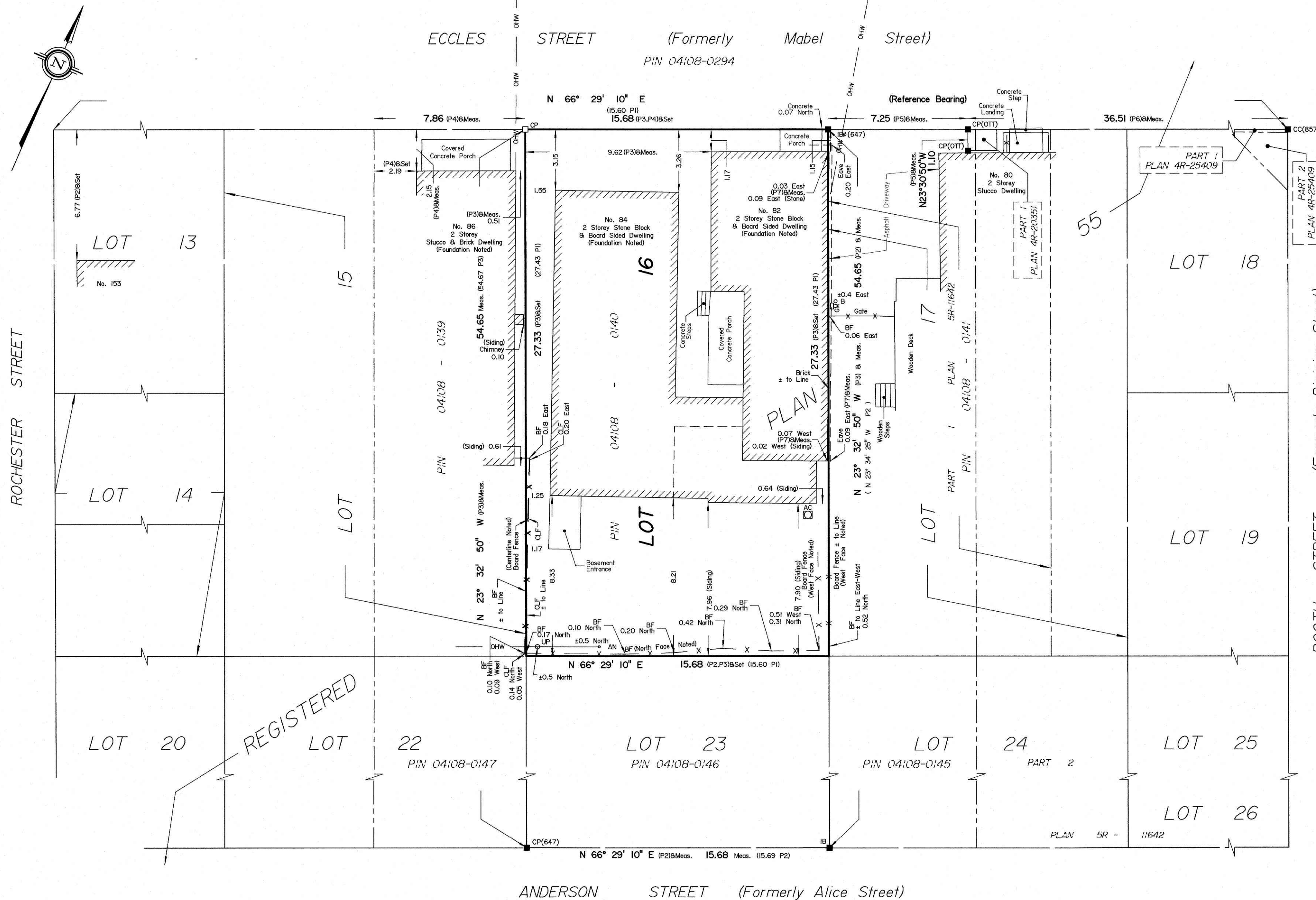
Email: [jessica.valic@ottawa.ca](mailto:jessica.valic@ottawa.ca)

## APPENDIX B:

### Geo-Ottawa Map Information



## APPENDIX C: PLANS

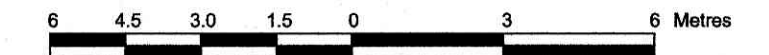


**SURVEYOR'S REAL PROPERTY REPORT**  
**PART 1 Plan of**

**LOT 16**  
**REGISTERED PLAN 55**  
**CITY OF OTTAWA**

Surveyed by Annis, O'Sullivan, Vollebakk Ltd.

Scale 1 : 150



**Metric**

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

**Surveyor's Certificate**

I CERTIFY THAT:

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 16th day of October, 2019.

Oct 21<sup>st</sup> 2019  
Date

Richard R. Gauthier  
Ontario Land Surveyor

**PART 2**

THIS PLAN MUST BE READ IN CONJUNCTION WITH  
SURVEY REPORT DATED: October 21, 2019

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to  
2B Developments ("The Client"), their solicitors,  
mortgagees, and other related parties, permission to use original, signed, sealed  
copies of the Surveyor's Real Property Report in transactions involving The Client.

**Notes & Legend**

□	Denotes	Survey Monument Planted
■	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
CP	"	Concrete Pin
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebakk Ltd.
Meas.	"	Measured
(P1)	"	Registered Plan 55
(P2)	"	(647) Plan October 19, 2010
(P3)	"	(725) Plan June 12, 1986
(P4)	"	(AOG) Plan May 31, 1984
(P5)	"	Plan 4R-20351
(P6)	"	Plan 4R-25409
(P7)	"	Plan 5R-11642
BF	"	Board Fence
CLF	"	Chain link Fence
○ UP	"	Utility Pole
○ AN	"	Anchor
□ GM	"	Gas Meter
○ B	"	Bollard



Bearings are astronomic, derived from the southerly limit of Eccles Street, shown  
as N 66°29'10"E on Plan 5R-11642.



City of Ottawa Comprehensive Zoning By-law (2008-250)

The subject property is zoned Residential Fourth Density – Subzone H (R4H). The intent of this R4 Zone is to allow a wide mix of residential building forms, including low rise apartment dwellings, up to a height of four storeys in lands designated “General Urban Area” in the Official Plan.

The following performance standards apply to the subject property, with the right column indicating conformity:

Provision	Performance Standard	Proposed	
Lot Width (m)	Min: 12 m	15.7 m	✓
Lot Area (m²)	Min: 360 m²	429 m²	✓
Height (m)	Max: 11 m*	7.81 m	✓
Front Yard Setback (minimum)	Non-conforming existing setback: 1.15 m For additions: average of abutting lots: (0.91+2.13)/2 = 1.52 m, capped at 3 m	1.15 m 3.15 m	✓ ✓
Rear Yard Setback (m)	Min. 30% of lot depth: 27.33*0.3 = 8.2 m 25% of lot area: (7.9*15.68)/429 = 0.28	7.9 m 28%	✗ ✓
Interior Side Yard (m)	Non-complying right for east wall varies: 0 m Min. 1.5 for the first 21 m, then 6 m	E: 0 m W: 1.17 m	E: ✓ W: ✗
Projections	Stairs: where at or below the floor level of the first floor in the interior side yard or rear yard: no limit	Rear stairs: 2.41 m	✓
Unit count	Max. 4 units permitted for “apartment, low-rise” use	6 units	✗
Parking (Area X)	Residential + Visitor: none for first 12 units = 0 spaces	0 space	✓

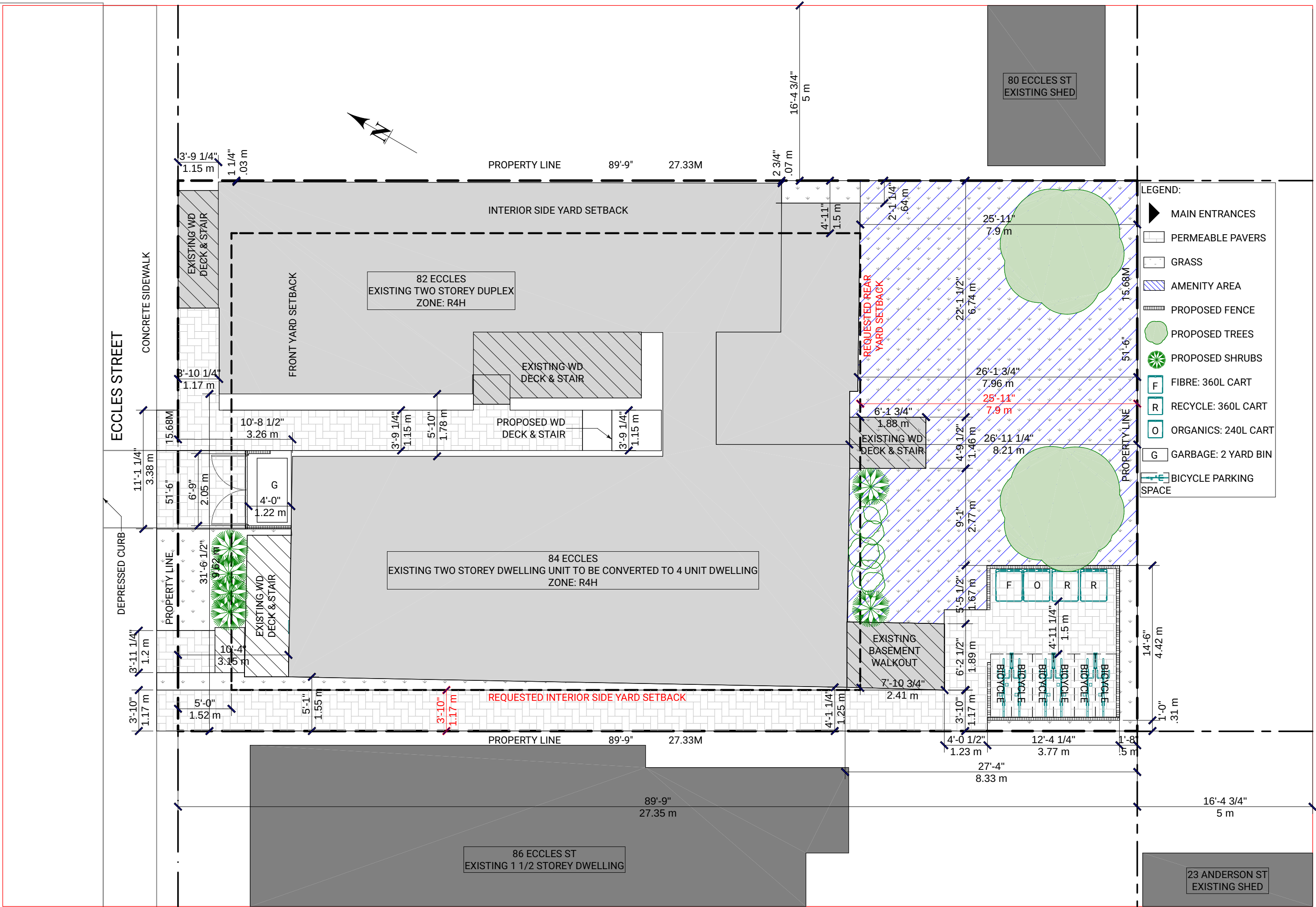
Required bicycle parking	0.5 per unit: 0.5*6 = 3 spaces 50% horizontal, may be located in any yard, max. 15 spaces in landscaped area	6 spaces	✓
Walkways	Must extend from driveway to door or sidewalk to door max. 1.25 m width	Width: 1.2 m	✓
Waste management	Min. 1.2 m path to street Storage as per Solid Waste Management By-law Min 2.2 m path to yard bin	1.17 m path to street, Compliant Compliant	✗ ✓ ✓
Landscaping	Min. 30% of lot area: 429*0.3 = 128.7 m²	40% soft landscape (173 m²)	✓
Amenity Area	15m²/unit for first 8 units: 15*6=90 m² 100% of required area must be communal, 80% soft landscaped (72 m²) and located at-grade in rear yard	91 m² communal 91 m² (100%) soft landscaped	✓

\*Building height measured based on existing average grade (average of grade elevations at both side lot lines at required front and rear yard setbacks)

Requested Minor Variances

In order to permit the proposed development, relief from several provisions of the Zoning By-law is required. Relief from the following provisions is therefore requested through the enclosed Minor Variance Application:

- To permit a total of six units, whereas the Zoning By-law permits a maximum of four units for an apartment, low rise;
- To permit a reduced west side yard setback of 1.17 metres whereas a 1.5 metre setback is required for any new additions;
- To permit a reduced rear yard setback of 29% of the lot depth (7.9 m) whereas the Zoning By-law requires a minimum rear yard setback of 30% of the lot depth (8.2 m);
- To permit a reduced path width of 1.17m to access waste and bicycle parking whereas the Zoning By-law requires a minimum width of 1.2m.



DO NOT SCALE DRAWINGS.  
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE AND NOTIFY THE DESIGNER OF ANY DIMENSIONAL ERRORS, OMISSIONS OR DISCREPANCIES BEFORE BEGINNING OR FABRICATING ANY WORK.  
DESIGN IS IN ACCORDANCE WITH LOCAL BYLAWS AND THE 2012 ONTARIO BUILDING CODE. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL BYLAWS, BUILDING CODE & REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.  
THIS DRAWING SET IS THE EXCLUSIVE PROPERTY OF 2B DEVELOPMENTS.  
ANY CHANGES MADE ON THE PLANS AFTER PRINTS ARE MADE ARE AT THE OWNER'S AND/OR CONTRACTOR'S EXPENSE AND RESPONSIBILITY.

#	REVISION	DATE
01	ISSUED FOR CITY REVIEW	08/20/19
02	REVISION	09/04/19

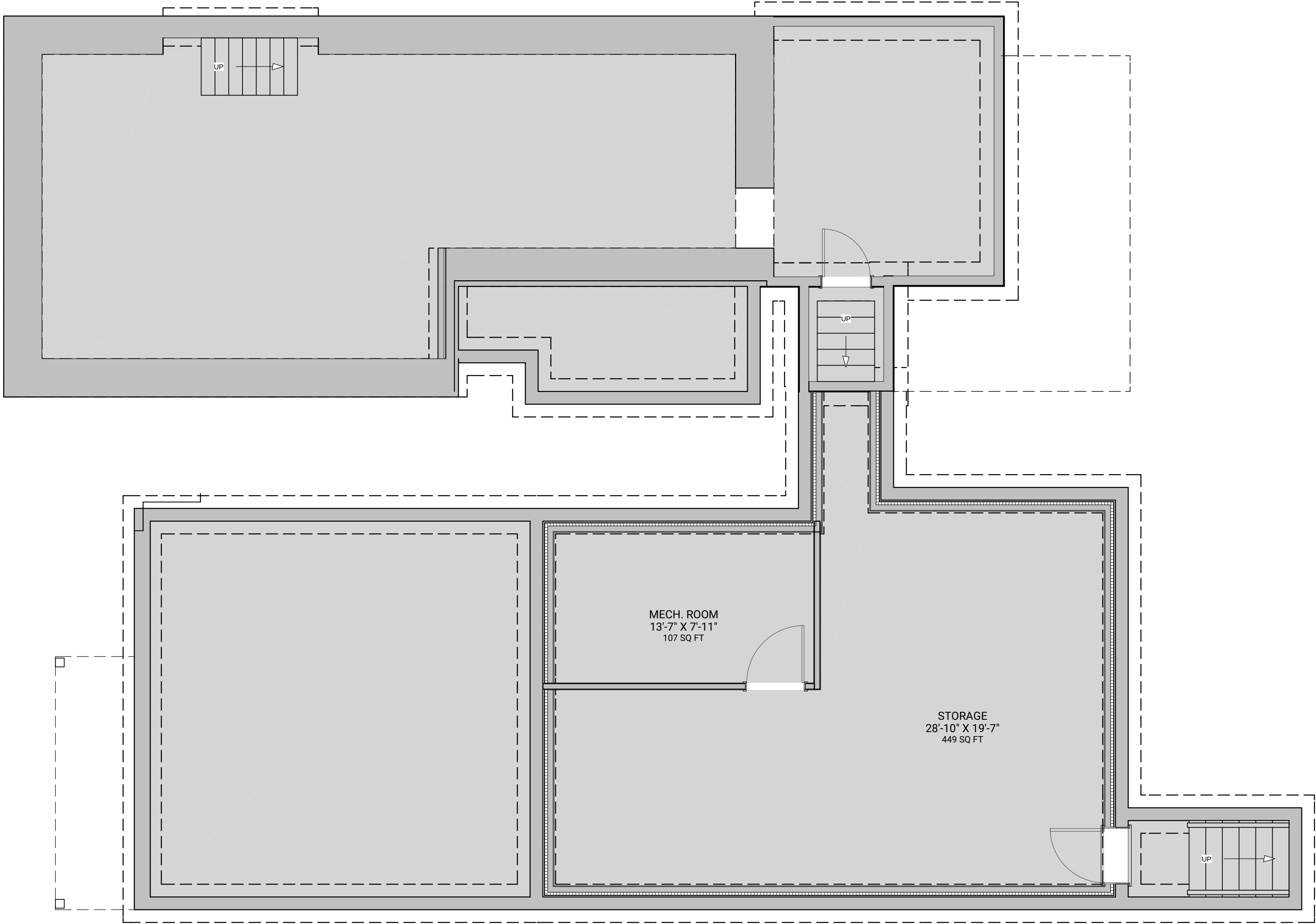
The undersigned has reviewed and takes responsibility for this design and has the qualifications and meets the requirements set out in the Ontario Building Code to design the work shown in the attached documents.

DESIGNER  
O. GAUTHIER  
BCIN

PLANNING  
82-84 ECCLES STREET

CONSTRUCTION NOTES, ASSEMBLIES & SITE PLAN  
AS SHOWN  
SEPT 04 2019

A0



01  
A3.0  
PROPOSED BASEMENT FLOOR PLAN  
SCALE: 1/4"=1' 0"



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BCIN

PLANNING

82-84 ECCLES STREET

AS SHOWN  
SEPT 04 2019

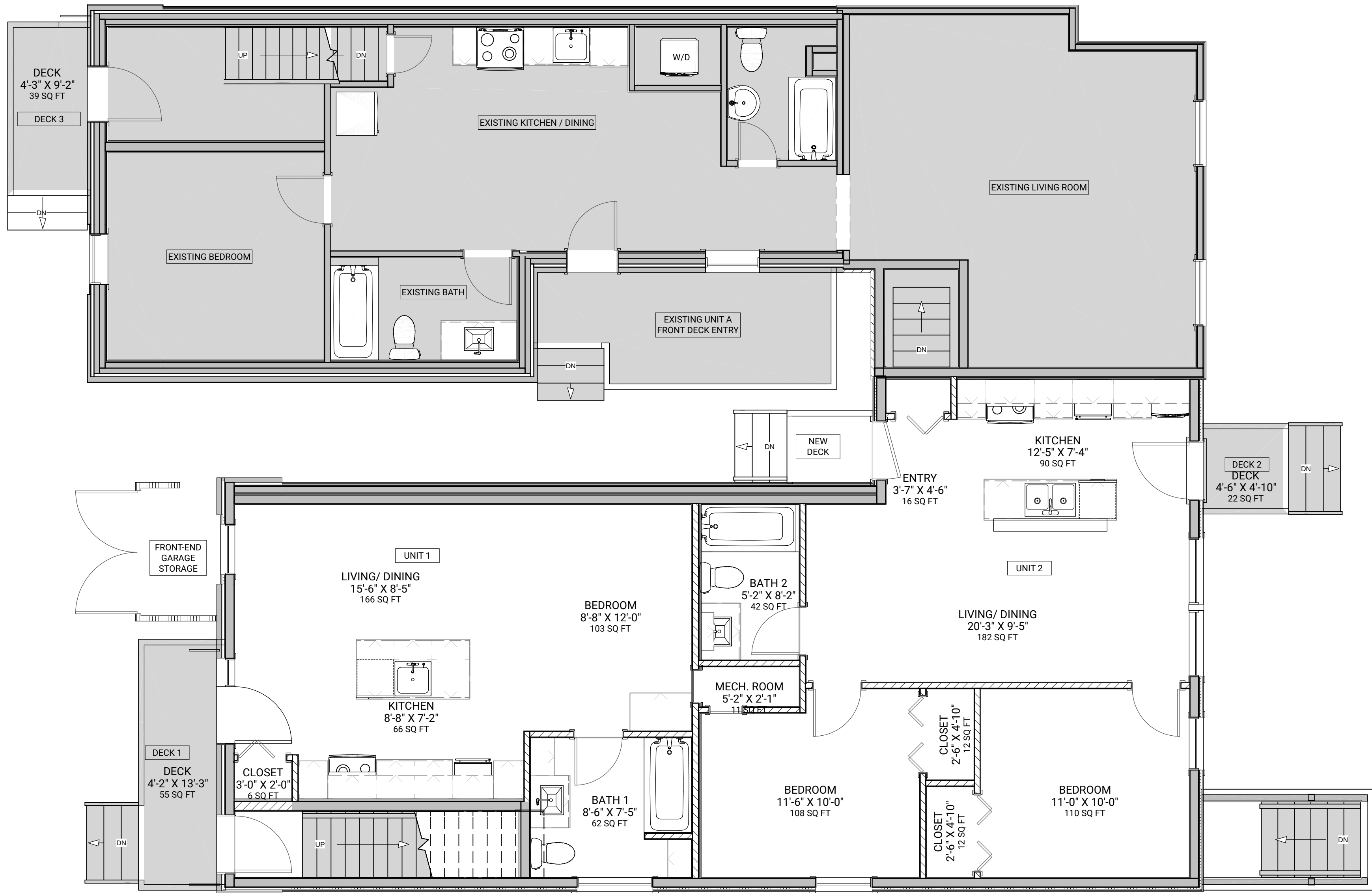


23

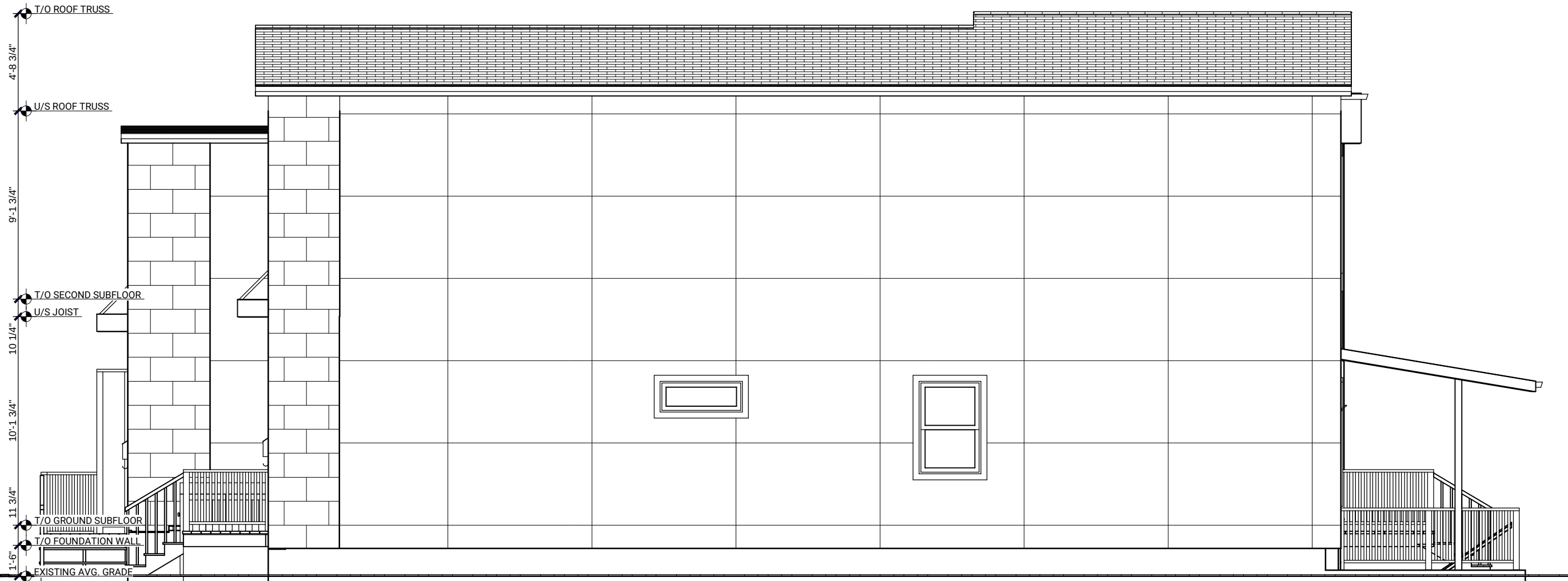
DEVELOPMENTS

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#	REVISION	DATE
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02	REVISION	09/04/19



01  
A3.0  
PROPOSED GROUND FLOOR PLAN  
SCALE: 1/4"=1' 0"



02  
A3.0  
PROPOSED ELEVATION (RIGHT)  
SCALE: 3/16"=1' 0"

The undersigned has reviewed and takes responsibility for this design and has the qualifications and meets the requirements set out in the Ontario Building Code to design the work shown in the attached documents.

DESIGNER  
O. GAUTHIER

PLANNING

82-84 ECCLES STREET

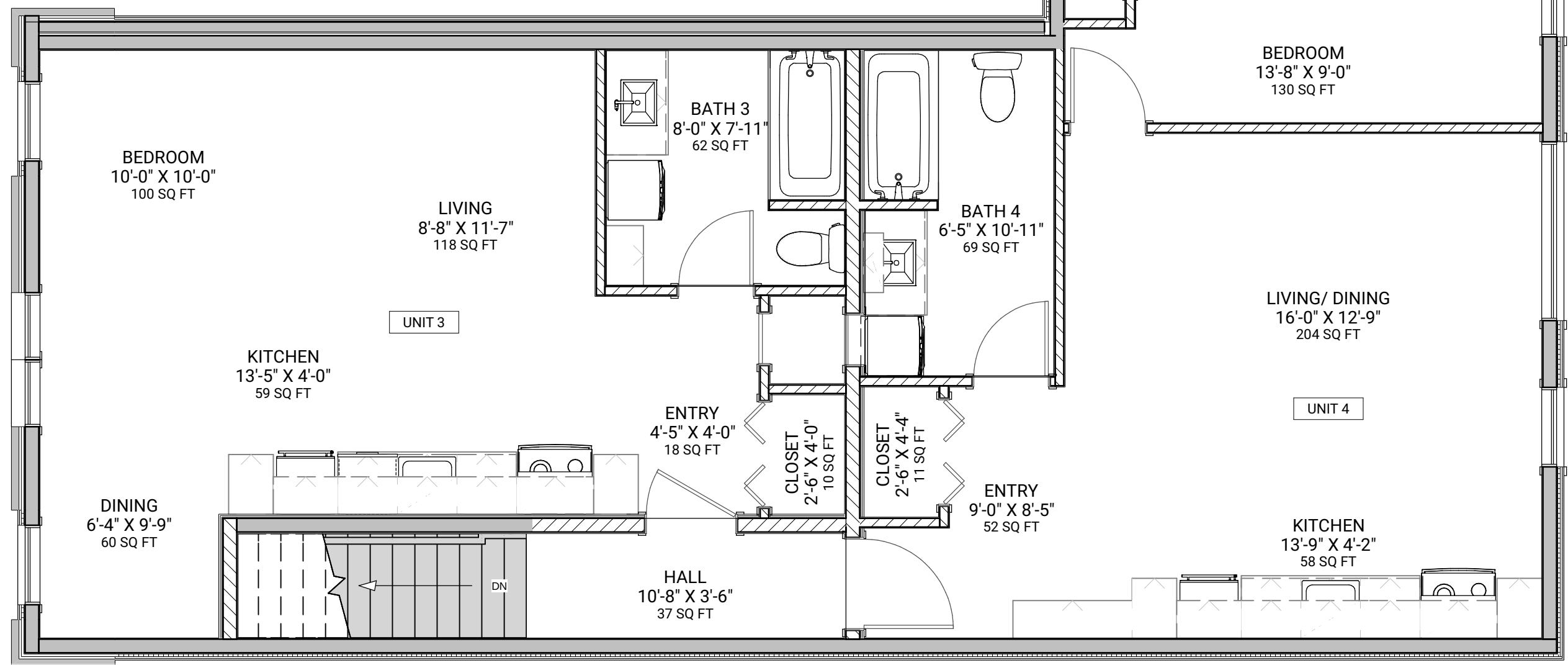
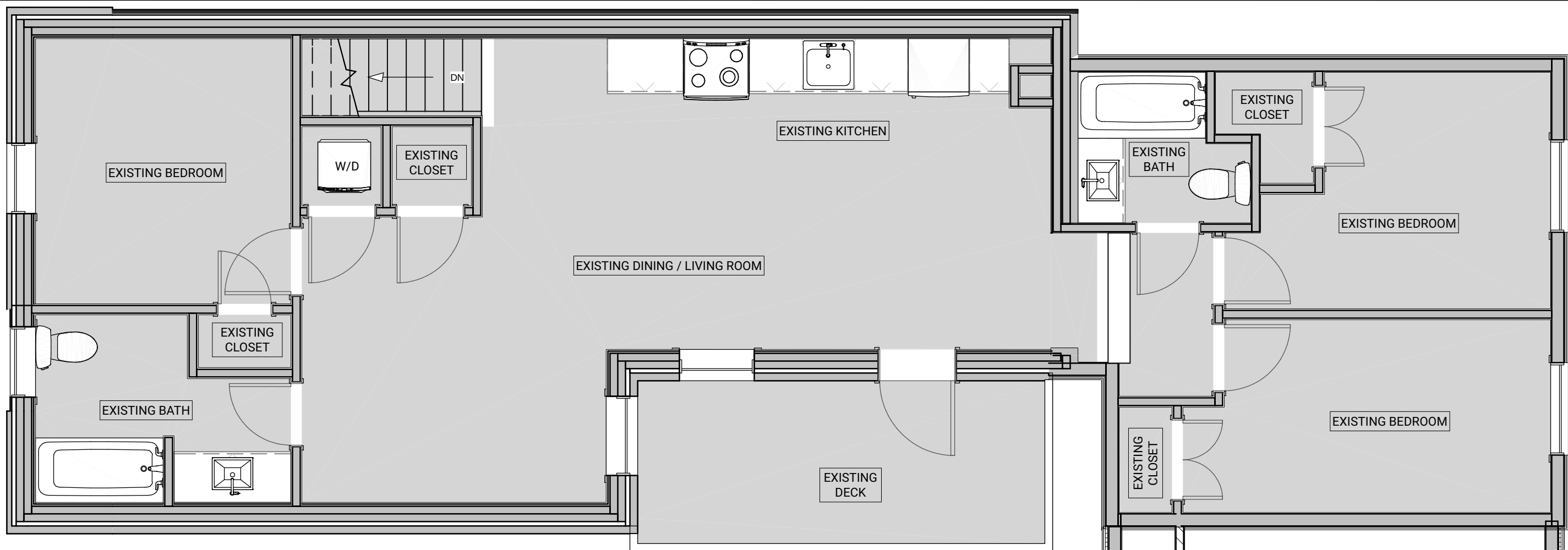
PROPOSED BASEMENT & GROUND FLOOR PLAN

AS SHOWN  
SEPT 04 2019

A3.0

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01 PROPOSED SECOND FLOOR PLAN  
A3.1 SCALE: 1/4"=1' 0"



02 PROPOSED FRONT ELEVATION  
A3.1 SCALE: 3/16"=1' 0"



03 PROPOSED REAR ELEVATION  
A3.1 SCALE: 3/16"=1' 0"

EXPLANATORY  
DECLARATION  
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DESIGNER  
O. GAUTHIER  
BCIN

PLANNING  
82-84 ECCLES STREET

PROPOSED SECOND FLOOR  
PLAN & ELEVATIONS

AS SHOWN  
SEPT 04 2019  
A3.1