

108 CLAIR AVENUE PROPOSED LAND USE CHANGE

FUNCTIONAL SERVICING BRIEF

T&W Properties Inc.

March 24, 2022



3514 White Oak Road, London, ON N6E 2Z9 t. 519.685.5300 f. 519.685.5303 e. info@agm.on.ca

www.agm.on.ca



March 24, 2022

T&W Properties Inc.
53 Atkinson Court
P.O Box 395 Delaware ON N0L 1E0

Attention: **Richard Thyssen**

Re: **108 St. Clair Avenue**
Proposed Land Use Change Application
Functional Servicing Brief

This brief has been prepared in support of the proposed land use change at 108 St. Clair Avenue in the village of Komoka, part of the Municipality of Middlesex Centre. The 0.12ha parcel is located at the south corner of St. Clair Avenue and Delaware Street North. The land use change will convert the existing structure, currently used as a church, into a three (3) unit apartment (Figure 1).

The purpose of this brief is to present the functional servicing strategy for the site.

Existing Infrastructure and Services

The St. Clair Avenue right-of-way is equipped with the following subsurface infrastructure:

- A 150mm diameter watermain beneath the south portion of the road.
- A 200mm sanitary sewer beneath the center of the road conveying sewage westerly to the St. Claire Avenue sanitary sewer and further southwest.

The Delaware Street North right-of-way is equipped with the following subsurface infrastructure:

- A 150mm diameter watermain beneath the south portion of the road, with a fire hydrant nearing the southeast corner of the site. An existing 19mm water service is in place to serve the existing church.
- A 200mm sanitary sewer beneath the center of the road conveying sewage southerly to the Delaware Street North sanitary sewer and further southeast towards St. Lawrence Avenue. A 125mm private drain connection is in place to serve the existing church.
- A 375mm storm sewer with catchbasins in the right-of-way, conveying stormwater runoff to the Delaware Street North storm sewer and then further southeast. Runoff from the subject property is tributary to the storm sewer.

See Figure 2 for an illustration of the existing infrastructure and services.

Proposed Servicing

The servicing strategy for the proposed land use change to a three (3) unit apartment is detailed in the following subsections.

Water Servicing

To service the proposed three (3) unit apartment, water services for units one and two will be connected to the fronting 150mm diameter watermain on St. Clair Avenue, while the existing 19mm water service to Delaware Street North will be utilized for unit three. A 38mm diameter water service, equipped with a water valve 1.0m off property line will be installed to provide domestic water supply for units one and two. The 38mm diameter water service will tee off to two 38mm water services, both equipped with a water valve and meter pit to supply the two units (Figure 3).

Water supply for Fire protection will be provided by the existing hydrant located on the south side of Delaware Street North as it is within 90m of the proposed primary entrances of the three units.

Sanitary Servicing

To service the proposed three (3) unit apartment, a new 100mm sanitary pdc will be connected to the existing 200mm sanitary sewer on St. Clair Avenue to service unit one. Units two and three will utilize the existing 125mm sanitary pdc to Delaware Street North (Figure 3).

The current theoretical population of the site is 12 people (100 people per ha), and the proposed theoretical population of the site would be 7.2 people (2.4 people per unit) after the land use change, assuming medium density zoning. Therefore, the site will see a decrease in theoretical populations as a result of the proposed land use change with a corresponding drop in peak sanitary flow from the site.

Stormwater Management

As mentioned, the site is serviced by the catchbasins and 375mm storm sewer on Delaware Street North.

The proposed land use change will utilize the existing building along with a new asphalt parking lot that will have a smaller area than the existing parking lot, resulting in a decrease in imperviousness on the site. Site grading will maintain existing drainage patterns and convey runoff to Delaware Street.

With the decrease in imperviousness on site, the runoff coefficient will also see a corresponding decrease resulting in a reduction in peak flow from the site. The runoff coefficient is 0.72 for the existing condition and 0.58 for the proposed condition (Figure 4). As a result, no stormwater management measures are needed to control flows to the 375mm storm sewer



Summary

Surrounding properties are not adversely impacted by the proposed land use change and the servicing strategy presented can be accommodated by existing infrastructure fronting the property.

If you have any questions regarding this brief, please contact our office.

Regards,

Archibald, Gray & McKay Engineering Ltd.



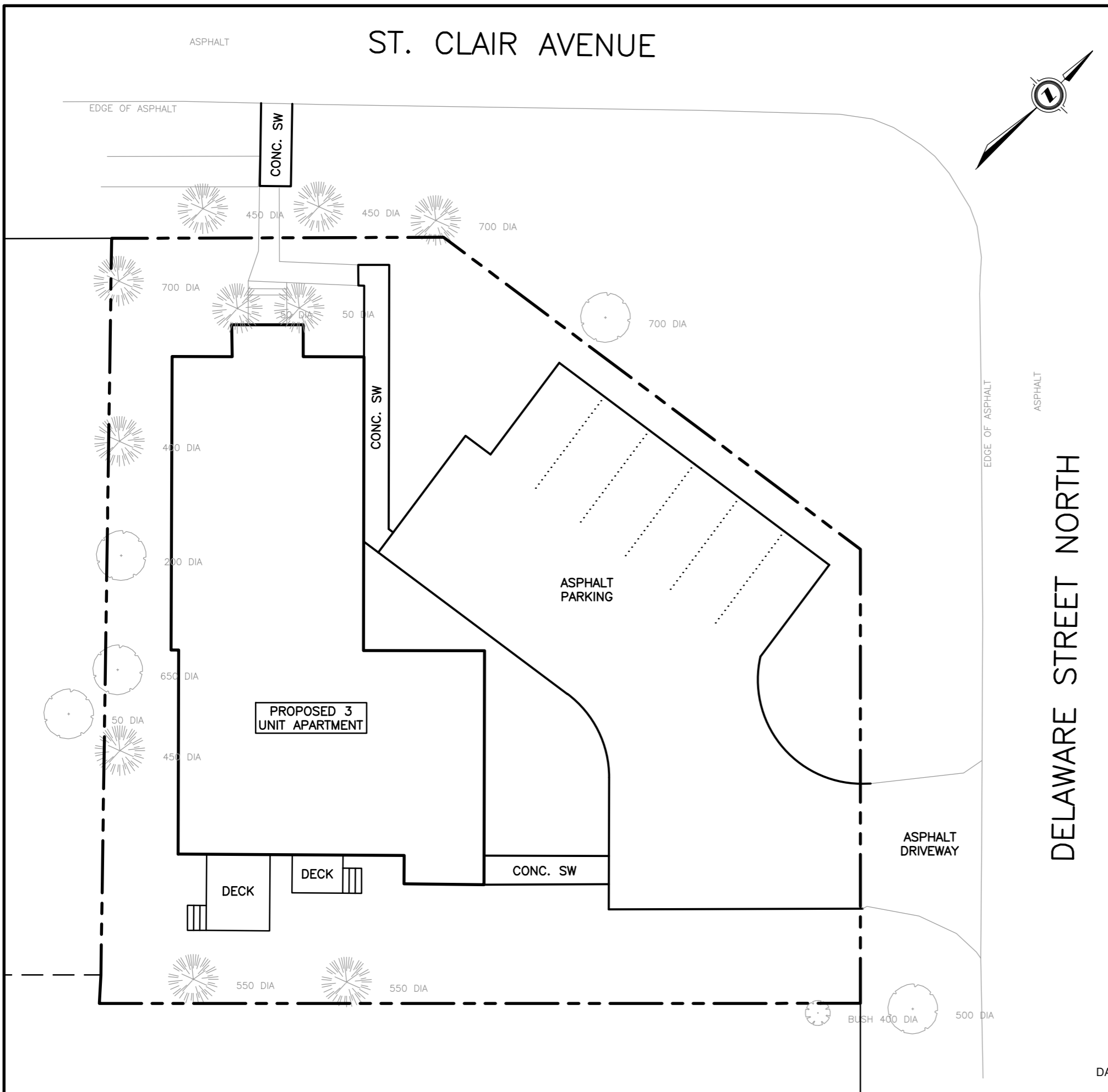
Craig Colpaert
Engineer-in-Training



Steve Brown, P.Eng.
Engineer Design Manager



ST. CLAIR AVENUE



DELAWARE STREET NORTH

FIGURE 1 PROPOSED DEVELOPMENT

SCALE 1:200
DATE: MARCH 2022

AGM
ARCHIBALD, GRAY & MCKAY
ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER






72.0-200 SA @ 0.74%
PVC SDR 35 ASPHALT

ST. CLAIR AVENUE

SAMH

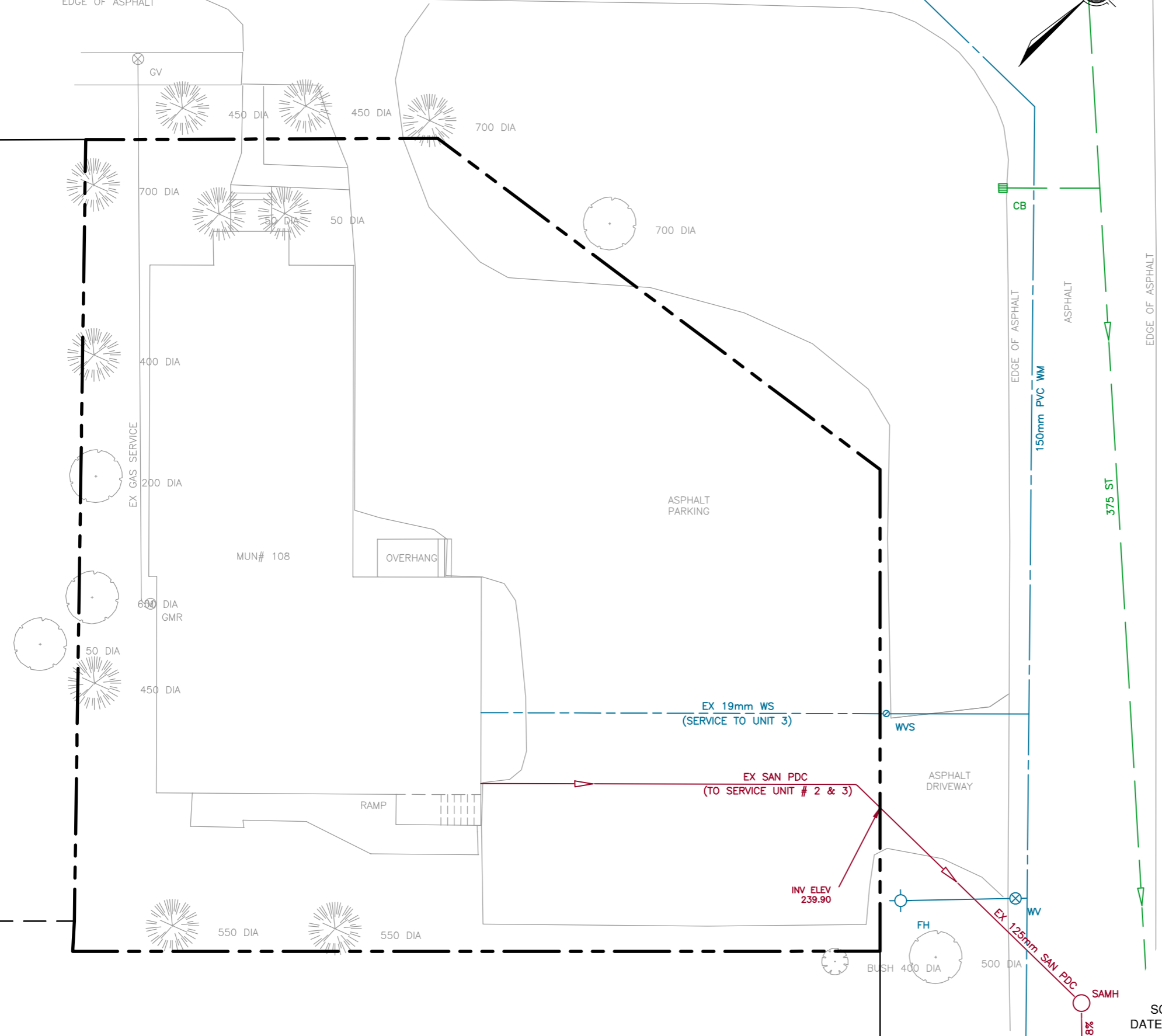
CB
RIM=240.64

LEGEND

-  **SAMH 200 SA** EXISTING SANITARY SEWER AND MANHOLE
-  **375 ST** EXISTING STORM SEWER
-  **CB** EXISTING CATCHBASIN
-  **150 WM** EXISTING WATERMAIN
-  **WV FH** EXISTING FIRE HYDRANT AND VALVE

150mm PVC WM

EDGE OF ASPHALT

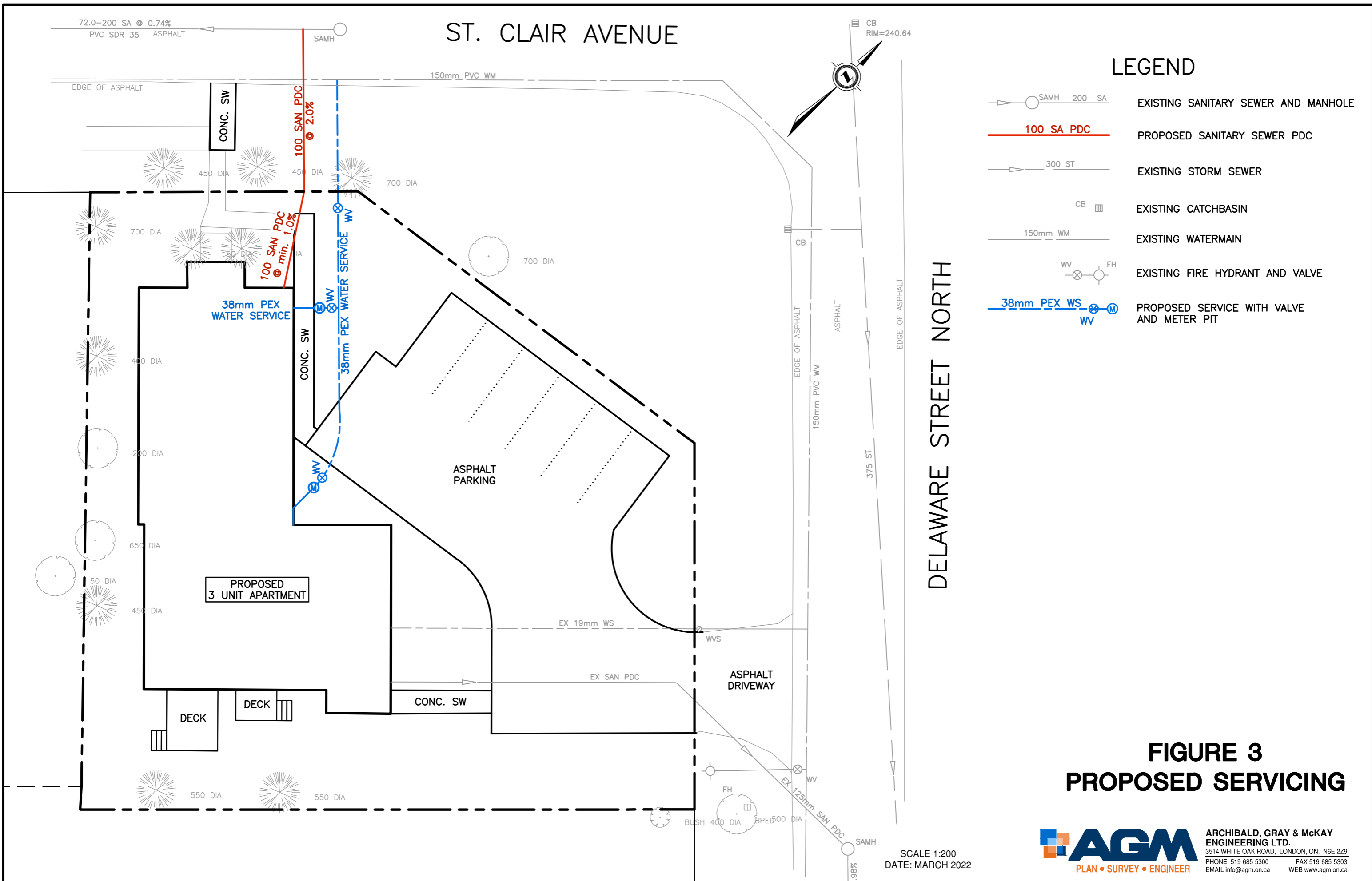


DELaware STREET NORTH

FIGURE 2 EXISTING INFRASTRUCTURE

AGM
ARCHIBALD, GRAY & MCKAY
ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER

SCALE 1:200
DATE: MARCH 2022



LEGEND

- SAMH 200 SA EXISTING SANITARY SEWER AND MANHOLE
- 100 SA PDC PROPOSED SANITARY SEWER PDC
- 300 ST EXISTING STORM SEWER
- CB EXISTING CATCHBASIN
- 150mm WM EXISTING WATERMAIN
- WV FH EXISTING FIRE HYDRANT AND VALVE
- 38mm PEX WS WV PROPOSED SERVICE WITH VALVE AND METER PIT

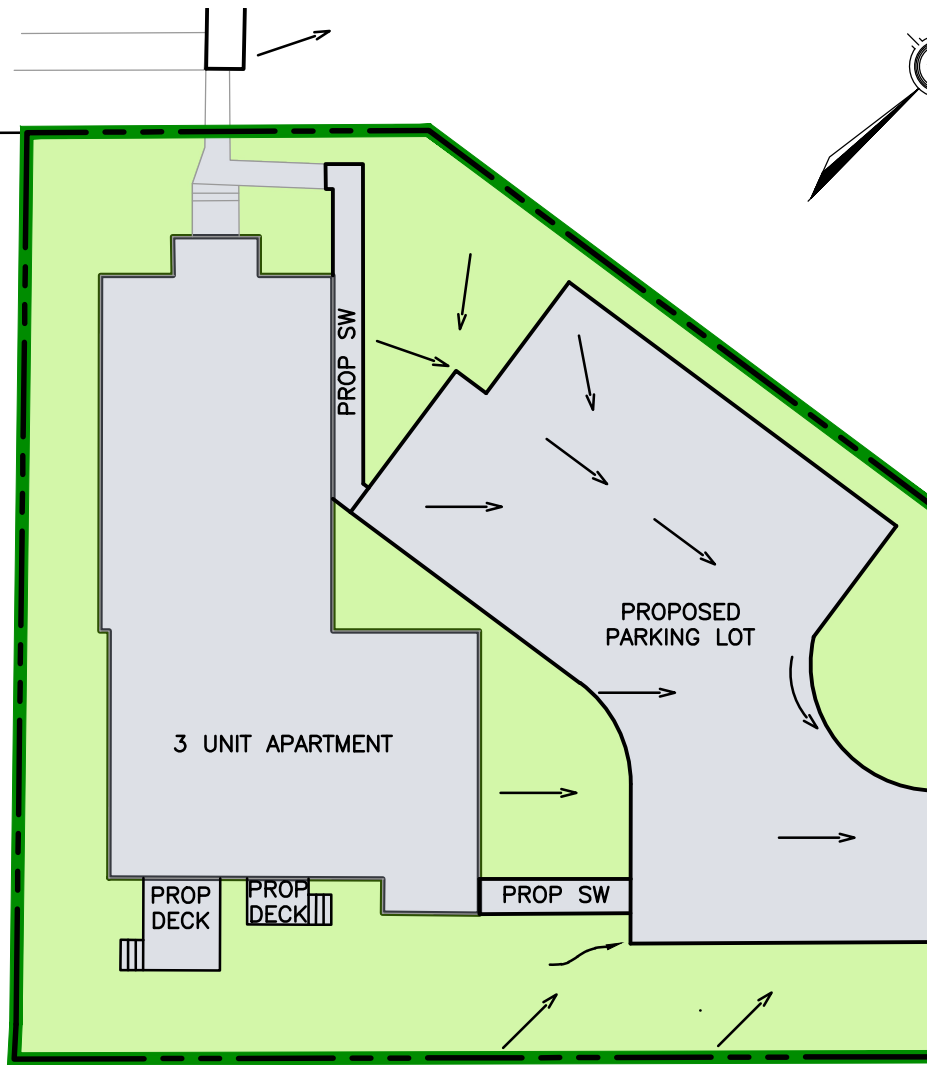
**FIGURE 3
PROPOSED SERVICING**

AGM ARCHIBALD, GRAY & MCKAY
ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca
PLAN • SURVEY • ENGINEER




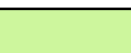

SCALE 1:200
DATE: MARCH 2022

EXISTING CONDITION

PROPOSED CONDITION



LEGEND

-  PROPOSED DIRECTION OF SURFACE FLOW
-  PROPOSED SWALE
-  IMPERVIOUS AREA FROM SUBJECT PROPERTY
-  PERVIOUS AREA FROM SUBJECT PROPERTY
-  DRAINAGE AREA BOUNDARY

TYPICAL C-VALUES
 HARD SURFACE = 0.9
 GRASS SURFACE = 0.2

NOTE:
 THE RUNOFF COEFFICIENT (C) IS LOWER UNDER THE PROPOSED CONDITION AS THE AMOUNT OF HARD SURFACE WILL BE REDUCED ONSITE. STORMWATER RUNOFF FROM THE SITE WILL THEREFORE BE REDUCED. AS SUCH, STORMWATER MANAGEMENT CONTROLS ARE NOT REQUIRED.

**EXISTING CONDITION
 COMPOSITE RUN-OFF CALCULATION**

AREA OF HARD SURFACE = 874.9m²
 AREA OF GRASS SURFACE = 308.7m²
 TOTAL DRAINAGE AREA = 1183.6m²

$$C_{COMPOSITE} = \frac{(C_{GRASS} \times AREA_{GRASS}) + (C_{HARD} \times AREA_{HARD})}{AREA_{TOTAL}}$$

$$C_{COMPOSITE} = \frac{(0.2 \times 308.7m^2) + (0.9 \times 874.9m^2)}{1183.6m^2}$$

$$C_{COMPOSITE} = 0.72$$

**PROPOSED CONDITION
 COMPOSITE RUN-OFF CALCULATION**

AREA OF HARD SURFACE = 636.7m²
 AREA OF GRASS SURFACE = 546.9m²
 TOTAL DRAINAGE AREA = 1183.6m²

$$C_{COMPOSITE} = \frac{(C_{GRASS} \times AREA_{GRASS}) + (C_{HARD} \times AREA_{HARD})}{AREA_{TOTAL}}$$

$$C_{COMPOSITE} = \frac{(0.2 \times 546.9m^2) + (0.9 \times 636.7m^2)}{1183.6m^2}$$

$$C_{COMPOSITE} = 0.58$$

**FIGURE 4
 STORMWATER
 RUN-OFF COEFFICIENT
 COMPARISON**

SCALE 1:300
 DATE: MARCH 2022