

Noise Feasibility Study

Proposed Residential Development

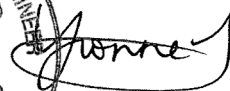
900 Jalna Boulevard

London, ON

Prepared for:

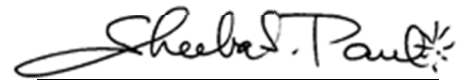
900 Jalna GP Ltd.
60 Granton Drive, Unit 101 – 103
Richmond Hill, ON
L4B 2N6

Prepared by



Yvonne Lo, MEng, PEng

Reviewed by



Sheeba Paul, MEng, PEng

November 24, 2023

HGC Project No: 02300612

VERSION CONTROL

Noise Feasibility Study,
900 Jalna Boulevard,
London, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	November 24, 2023	Noise Feasibility Study prepared to support the planning and approvals process.	Y.Lo

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(Without Mitigation)**

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(Without Mitigation)**

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1 Introduction and Summary

HGC Engineering was retained by 900 Jalna GP Ltd. to conduct a noise feasibility study for a proposed residential development located at 900 Jalna Boulevard in London, Ontario. The residential development will consist of blocks of 3-storey and 3.5-storey 2-plex units. The study is required by the municipality as part of the planning and approvals process.

The primary source of noise is road traffic noise on Southdale Road, with some lesser contributions from road traffic on Ernest Avenue. Road traffic data was obtained from the City of London and was used to predict future traffic sound levels at the proposed building façades. The predicted sound levels were compared to the guidelines of the Ministry of Environment, Conservation and Parks (MECP) and the City of London to develop noise control recommendations.

The results of the study indicate that the proposed development is feasible with the noise control measures described in this report. Central air conditioning and upgraded glazing construction are required for the dwelling units adjacent to Southdale Road. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant is required for all remaining dwelling units further from Southdale Road. Noise warning clauses are also required to inform future occupants of the traffic noise impacts, to address sound level excesses and proximity to existing commercial and institutional uses.

There are existing commercial uses at the east side of the site, including a Rexall with a loading area and a commercial plaza. The sound emissions from the rooftop mechanical equipment and trucking activities have been evaluated. A computer model of the area was created using acoustic modelling software to predict the sound levels from the existing commercial uses at the closest façades of the proposed dwelling units. Daytime and nighttime sound levels are in excess of the MECP guideline limits at the facades of the proposed residential uses. Feasible means exist to reduce noise from the existing commercial uses to within MECP limits, including design of the closest proposed dwelling unit such that the east facade does not include windows to sensitive spaces.



2 Site Description and Noise Sources

Figure 1 is a key plan indicating the location of the proposed site. The site is located on the south side of Southdale Road East, north of Jalna Blvd and west of Ernest Ave and existing commercial uses in London, Ontario. Figure 2 shows the site plan by AGA dated June 2023. The proposed development consists of blocks of 3-storey and 3.5-storey 2-plex buildings.

HGC Engineering personnel visited the site in September 2023 to make observations of the acoustical environment. During the site visit, it was noted that the primary source of noise impacting the site was road traffic on Southdale Road East, with secondary contributions from Ernest Avenue. Road traffic noise on Jalna Boulevard was not significant at the site area. The site is currently occupied by a commercial building, which will be demolished for the construction of the proposed development.

The areas around the site consist of mostly residential and commercial uses. To the west and north of the site area are existing residential uses. To the east of the site area are existing commercial buildings including a Rexall, restaurants, and personal services businesses (Salon and Laser service provider). To the south of the site is a church (St. Justin's Parish).

Sound emissions from the worship and commercial buildings were found to be negligible at the site area during the site visit. A stationary noise analysis was completed to determine the impact of the commercial uses on the proposed dwelling units, and are discussed in Section 5. Further, it is recommended that a noise warning clause to identify that such institutional and commercial uses may be audible at times be included in the property and tenancy agreements, as included in Section 6.

3 Traffic Noise Criteria

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013, and are listed in Table I below.

The values in Table I are energy equivalent (average) sound levels [LEQ] in units of A-weighted decibels [dBA].



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Table I: MECP Road Traffic Noise Criteria (dBA)

Area	Daytime L_{EQ} (16 hour) Road	Nighttime L_{EQ} (8 hour) Road
Outdoor Living Area	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the time period between 23:00 and 07:00. The term “Outdoor Living Area” (OLA) is used in reference to an outdoor patio, a backyard, a terrace, or other area where passive recreation is expected to occur. Small balconies are not considered OLAs for the purposes of assessment. Elevated terraces and balconies greater than 4 m in depth (measured perpendicular to the building façade) are considered to be OLAs.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible noise excesses are also required when nighttime sound levels exceed 50 dBA at the plane of a bedroom/living/dining room window and

when daytime sound levels exceed 55 dBA at the plane of a bedroom/living/dining room window due to road traffic.

4 Traffic Noise Assessment

4.1 Road Traffic Data

Traffic data for Southdale Road East and Ernest Avenue was obtained from the City of London in the form of existing Average Annual Daily Traffic (AADT) traffic values, and is provided in Appendix A. A speed limit of 60 km/h and 50km/h was applied in the analysis for Southdale Road and Ernest Avenue, respectively. The current traffic volumes were projected to the year 2033 at an annual growth rate of 2.5 %. A day/night split of 96 % / 4 % was used for all roads. A commercial vehicle percentage of 3 % was used for both roads, further split into 1.2 % for medium trucks and 1.8 % for heavy trucks as per MTO guidelines.

Sound from road traffic on Jalna Boulevard was found to be negligible given the low traffic volume and is not considered further in the study. Table II summarizes the traffic volume data used in this study.

Table II: Projected Road Traffic Data to Year 2033

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Southdale Road East	Daytime	27 811	344	516	28 671
	Nighttime	1 159	14	22	1 195
	Total	28 969	358	538	29 865
Ernest Avenue	Daytime	12 486	154	232	12 873
	Nighttime	520	6	10	536
	Total	13 007	161	241	13 409

4.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the study area in the future, sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Predictions of the traffic sound levels were chosen around the proposed residential building to obtain

an appropriate representation of future sound levels at various façades. Sound levels were predicted at the plane of the 3rd storey bedroom and/or living/dining room windows during daytime and nighttime hours to investigate ventilation and façade construction requirements. Figure 2 shows the site plan with prediction locations. The results of these predictions are summarized in Table III.

Table III: Predicted Road Traffic Sound Levels [dBA], Without Mitigation

Prediction Location	Block	Description	Daytime – in the OLA L _{EQ-16 hr}	Daytime – at the Façade L _{EQ-16 hr}	Nighttime – at the Façade L _{EQ-8 hr}
[A]	11	Dwelling units adjacent to Southdale Road	--	69	59
[B]	18	Dwelling units with exposure to Southdale Road	--	57	<50
[C]	25	Dwelling units with exposure to Southdale Road	--	<55	<50
[D]	--	Amenity Area	55	--	--

4.3 Discussions and Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at the proposed development. The following discussion outlines the recommendations for ventilation requirements, upgraded building façade construction, and warning clauses to achieve the noise criteria stated in Table I.

4.3.1 Outdoor Living Areas

The predicted daytime sound level in the ground level amenity area will be up to 55 dBA, which is within the MECP limits. No physical mitigation is required.

4.3.2 Indoor Living Areas and Ventilation Requirements

Air Conditioning

The predicted future sound levels outside the top storey windows of the dwelling unit adjacent to Southdale Road will be greater than 65 dBA during daytime hours. To address these excesses, these units need to be equipped with central air conditioning systems so that windows may remain closed. These units are indicated in Figure 3.

Provision for the Future Installation of Air Conditioning by the Occupant

The predicted sound levels outside the top storey bedroom and/or living/dining room of the dwelling unit with some exposure to Southdale Road will be between 55 dBA and 65 dBA during the daytime, or 50 dBA and 60 dBA during the nighttime. To address these excesses, the MECP guidelines recommend that these units be equipped with forced air ventilation systems, with ducts large enough to allow future installment of air conditioning at the occupant's discretion. The inclusion of central air conditioning will meet and exceed these requirements. These units are indicated in Figure 3.

Window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300, as applicable.

4.3.3 Building Façade Constructions

The predicted sound levels at the dwelling units adjacent to Southdale Road (Prediction Location [A]) will exceed 65 dBA during daytime hours. MECP guidelines stipulate that in such cases, building components including windows, walls, and doors be designed so that the indoor sound levels comply with the noise criteria in Table I.

Calculations were performed to determine the acoustical insulation factors (AIF) to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the anticipated area ratios of the facade components (walls, windows and doors) and the floor area of the adjacent room.

Exterior Doors

There may be glazed exterior doors (sliding or swing) for entry onto the balconies from living/dining rooms and some bedrooms. The glazing areas of the doors should be counted as part of the total window glazing area. All exterior doors should include good weather seals to reduce air infiltration to the minimum achievable levels.

Acoustical Requirements for Glazing

The required building components are selected based on the AIF value for road traffic. Detailed floor plans and building elevations were not available for review at the time of this report. A window to floor ratio of 50% (40% fixed, 10% operable) for living/dining room and 40% (30% fixed, 10% operable) for bedrooms were assumed to determine preliminary window STC ratings required to mitigate road traffic noise levels.

A minimum Sound Transmission Class (STC) requirement of STC-31 or lower is required at the façades of the dwelling units adjacent to Southdale Road (Prediction Location [A]), based on the possibility of sound entering the building through walls, windows and doors for all of the dwellings.

Acoustical test data for the selected assemblies should be requested from the supplier, to ensure that the stated acoustic performance levels will be achieved by their assemblies.

Operable sections, including doors and operable windows, must be well-fitted and weather-stripped in order to achieve the upper range of target STC values. Alternative assemblies may be required for operable windows and doors to achieve the required performance values, depending on the nature of seals.

Any exterior wall and double glazed window construction meeting the minimum requirements of the OBC will provide adequate sound insulation for the remaining dwelling units.

Further Analysis

When detailed floor plans and building elevations are available for the dwelling units, window glazing construction should be refined based on actual window to floor area ratios.

5 Stationary Noise Assessment

An industrial or commercial facility is classified in MECP Guideline NPC-300 as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. In terms of background sound, the development is located in an urban (Class I) acoustical environment which is characterized by an acoustical environment dominated by road traffic and human activity. The rooftop mechanical equipment and trucking activities associated with the

existing commercial uses to the east are considered stationary noise sources and have the potential to impact the proposed development.

5.1 Stationary Noise Criteria

NPC-300 is intended for use in the planning of both residential and commercial/industrial land uses and provides the acceptability limits for sound due to commercial operations in that regard. The façade of a residence (i.e., in the plane of a window), or any associated usable outdoor area is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound level limit for a stationary noise source in an urban Class 1 area is taken to be 50 dBA during daytime/evening hours (07:00 to 23:00), and 45 dBA during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds. To ensure a conservative analysis, the exclusionary minimum criteria has been adopted at all receptors.

Commercial activities such as the occasional movement of customer vehicles, occasional deliveries, and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. The occasional movement of customer vehicles on the property are not of themselves considered to be significant noise sources in the MECP guidelines. Noise from safety equipment (e.g. back-up beepers) is also exempt from consideration and may be audible on occasion.

The MECP guidelines stipulate that the sound level impact during a “predicable worst-case hour” be considered. This is defined to be an hour when a typically busy “planned and predictable mode of operation” occurs at the subject facility, coincident with a period of minimal background sound. Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may still be residual audibility during periods of low background sound.

5.2 Noise Source Description

The primary source of sound associated with the existing commercial development to the east is expected to be rooftop HVAC equipment and trucking activities associated with the Rexall. Typical sound levels associated with these sources were obtained from HGC Engineering’s project files for similar past projects and the locations are indicated on the aerial view. Sensitive receptor locations were taken at the most potentially impacted residences (R1 to R4) as shown in Figure 4. Each receptor location was assessed at the closest top floor window of the proposed dwelling units as these represent the most potentially impacted locations.

5.3 Assumptions

Predictive noise modelling was used to assess the sound impact of the existing commercial buildings on proposed sensitive receptors, in accordance with MECP guidelines. The noise prediction model was based on a review of the proposed site plan, aerial photos, estimates of sound emission levels for rooftop mechanical equipment on the existing buildings, assumed operational profiles, and established engineering methods for the prediction of outdoor sound propagation. These methods include the effects of distance, air absorption, and acoustical screening by barrier obstacles.

The source levels associated with the equipment and activities are listed in Table IV below in terms of sound power level.

Table IV: Source Sound Power Levels [dB re 10-12 W]

Source	ID	Octave Band Centre Frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k
Lennox LGA060 (5 Tons)	LEN5	--	67	72	77	76	73	68	61
Exhaust Fan	EF	78	85	79	69	64	63	58	54
Medium Truck Engine Idle	IDLE	91	87	89	84	91	88	79	71
Medium Reefer	RF	101	96	97	86	86	83	77	69
Medium Truck Acceleration	ACC	108	90	92	90	94	91	84	77

The above outlined sound levels were used as input to a predictive computer model. The software used for this purpose (*Cadna/A version 2023 MR1 (32 bit) build: 197.5343*) is a computer implementation of ISO Standard 9613-2.2 “Acoustics - Attenuation of Sound During Propagation Outdoors.”

The following information and assumptions were used in the analysis.

- The height of the existing commercial buildings is assumed to be up to 6.0 m in height.
- Lennox LGA060 models (5 Tons) were assumed for the rooftop air conditioning units on the existing buildings.
- The existing noise sources were assumed to be located as shown in Figure 4. The green lines indicate the truck movement path. The green crosses represent noise sources such as rooftop HVAC equipment. The rooftop equipment is assumed to be Lennox models at 1.5 m in height. The exhaust fans were assumed to be 0.6 m in height. The height of a reefer unit on a truck is 2.5 m. Sound data was obtained from HGC project files which were originally obtained from the manufacturer.

Cadna Evaluation Parameters:

- Temperature: 10°C, Relative Humidity: 70%
- Reference Time: Day (07:00 – 23:00) and Night (23:00 – 07:00)
- Maximum Order of Reflections: 1
- Building Reflection Coefficients: 0.2
- Generally flat terrain
- Global Ground Absorption: 0.25

In this impact assessment, we have considered typical worst-case (busiest hour) scenarios for each time period to be as follows:

Assumed day worst-case scenario:

- All rooftop equipment operating continuously at 66% capacity;
- One truck arrives and departs the loading dock for the existing Rexall building;
- At the loading area, trucks are assumed to idle engines for 10 minutes in an hour with refrigeration units. Each refrigeration unit (“reefer”) on the trucks is assumed to operate continuously for 30 minutes in an hour.

Assumed night worst-case scenario:

- All rooftop equipment operating on a 33% duty cycle;
- No trucking activities or deliveries.

5.4 Assessment of Noise from the Existing Commercial Buildings on Proposed Residential Units

The unmitigated sound levels due to noise sources associated with the existing uses at the proposed building are summarized in Table V below. Resultant sound levels at the proposed buildings are shown graphically in Figures 5 and 6.

Table V: Predicted Sound Levels from the Existing Commercial Development at the Proposed Dwelling Units [dBA]

Receptor	Criteria (Day/Night)	Day	Night
R1	50/45	52	46
R2	50/45	47	43
R3	50/45	46	42
R4	50/45	45	42

The results of the calculations indicate that the predicted daytime and nighttime sound levels due to the operation of the rooftop mechanical equipment and trucking activities at the existing commercial uses has the potential to exceed MECP limits at the east façade of (R1) during a worst-case operational scenario.

At the most impacted receptor, the sound levels have the potential to exceed the criteria by up to 2 dBA during the day. Recommendations are provided in the following section.

5.5 Recommendations

Feasible means exist to reduce stationary sound levels from the activities of the existing commercial uses at the proposed dwelling units to meet MECP criteria. The noise excesses occur outside the plane of the windows of the closest proposed dwelling unit with exposure to the existing commercial uses. The following are the recommendations.

For the future residences (R1), the dwelling unit should be designed such that there are no windows to noise sensitive spaces facing east on Lots 38 and 39 (indicated in Figure 7). Windows into non-sensitive spaces such as washrooms, closets, hallways, stairwells, and laundry rooms are acceptable for the east facade of R1.

Further Analysis

When detailed floor plans and building elevations are available for R1, an acoustical consultant shall review the drawings to ensure there are no windows to noise sensitive spaces along the east facade.

6 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses.

The following noise warning clauses are required for specific dwellings as indicated in Table VI.

Suggested wording for future dwellings with sound levels exceeding the MECP criteria is provided is given below.

A):

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks noise criteria.

Suggest wording for future dwellings which will have central air conditioning units to be installed is given below.

B):

This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwelling units in close proximity to commercial/institutional buildings is given below.

C):

Purchasers are advised that due to the proximity of the existing commercial and institutional buildings, sound levels from the facilities may at times be audible.

These sample clauses are provided by the MECP as examples, and can be modified by the Municipality as required.

7 Summary and Recommendations

The following list and Table VI summarize the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are applied and discussed in more detail.

For transportation noise sources

1. Central air conditioning will be required for the proposed dwelling units adjacent to Southdale Road. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning are required for the remaining dwelling units in the development. The location, installation and sound rating of the outdoor condensing units must be compliant with NPC-300, as applicable.
2. Upgraded glazing constructions are required for the dwelling units adjacent to Southdale Road. When detailed floor plans and building elevations are available for these units, an acoustical consultant should provide revised glazing constructions based on actual window-to-floor area ratios. For all other dwellings in the proposed development, any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation.
3. The use of warning clauses in the property and tenancy agreements is recommended to inform future residents of traffic noise issues and of the proximity to existing commercial and institutional uses.

For stationary noise sources

1. The east façade of the proposed dwelling units on Lots 38 and 39 labelled as (R1) should be designed such that there are no windows to noise sensitive spaces (indicated in Figure 7). Noise sensitive spaces include bedrooms/dens/living/dining rooms and eat-in kitchens. Windows into non-noise sensitive spaces such as washrooms, closets, hallways, stairwells, and laundry room are acceptable.
2. When detailed floor plans and building elevations are available for the dwelling unit (R1) closest to existing commercial uses, an acoustical consultant should review the drawings to ensure that there are no windows to noise sensitive spaces along the east facade.



Table VI: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Block	Description	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Upgraded Glazing Constructions+	Stationary Noise++
[A]	1 – 11	Dwelling units adjacent to Southdale Road	--	Central A/C	A, B, C	LR/DR: STC-31 BR: OBC	--
[B]	12 – 18	Dwelling units with exposure to Southdale Road	--	Forced Air	A, B, C	OBC	--
--	--	Remaining dwelling units	--	--	C	OBC	--
R1	38, 39	East façade	--	--	C	OBC	No windows to sensitive spaces along east façade
[D]	--	Amenity area	--	--	--	--	--

Notes:

* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.

+ When detailed floor plans and building elevations are available for the dwelling units, window glazing construction should be refined based on actual window to floor area ratios.

++ When detailed floor plans and building elevations are available for the dwelling units on Lots 38 and 39, the plans should be reviewed to ensure no windows into sensitive spaces along the east façade.

-- No specific requirements

OBC – Ontario Building Code,

LR/DR – Living Room/Dining Room,

BR – Bedroom

7.1 Implementation

To ensure that the noise control recommendations outlined above are properly implemented, it is recommended that:

1. Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the detailed architectural plans and building elevations to refine glazing requirements based on actual window to floor areas ratios for the dwellings adjacent to Southdale Road East and review the architectural plans for the dwellings on Lots 38 and 39 to ensure no windows into sensitive spaces along the east façade.
2. Prior to the issuance of occupancy permits for this development, the Municipality’s building inspector or a Professional Engineer qualified to perform acoustical engineering services in

the Province of Ontario should certify that the noise control measures have been properly incorporated, installed, and constructed.

8 Conclusions

The results of this study indicate that the proposed development is feasible on this site from a noise impact perspective, with architectural design to avoid noise sensitive spaces at the most heavily impacted façade (east façade) of the dwelling unit closest to the existing commercial uses.

Acoustic modelling has been undertaken to assess the noise impact of surrounding transportation and stationary sources on the proposed development. Preliminary recommendations for appropriate building envelope sound insulation values are provided. In any case, warning clauses are recommended to advise residents of road traffic noise and the proximity to existing commercial and institutional uses.



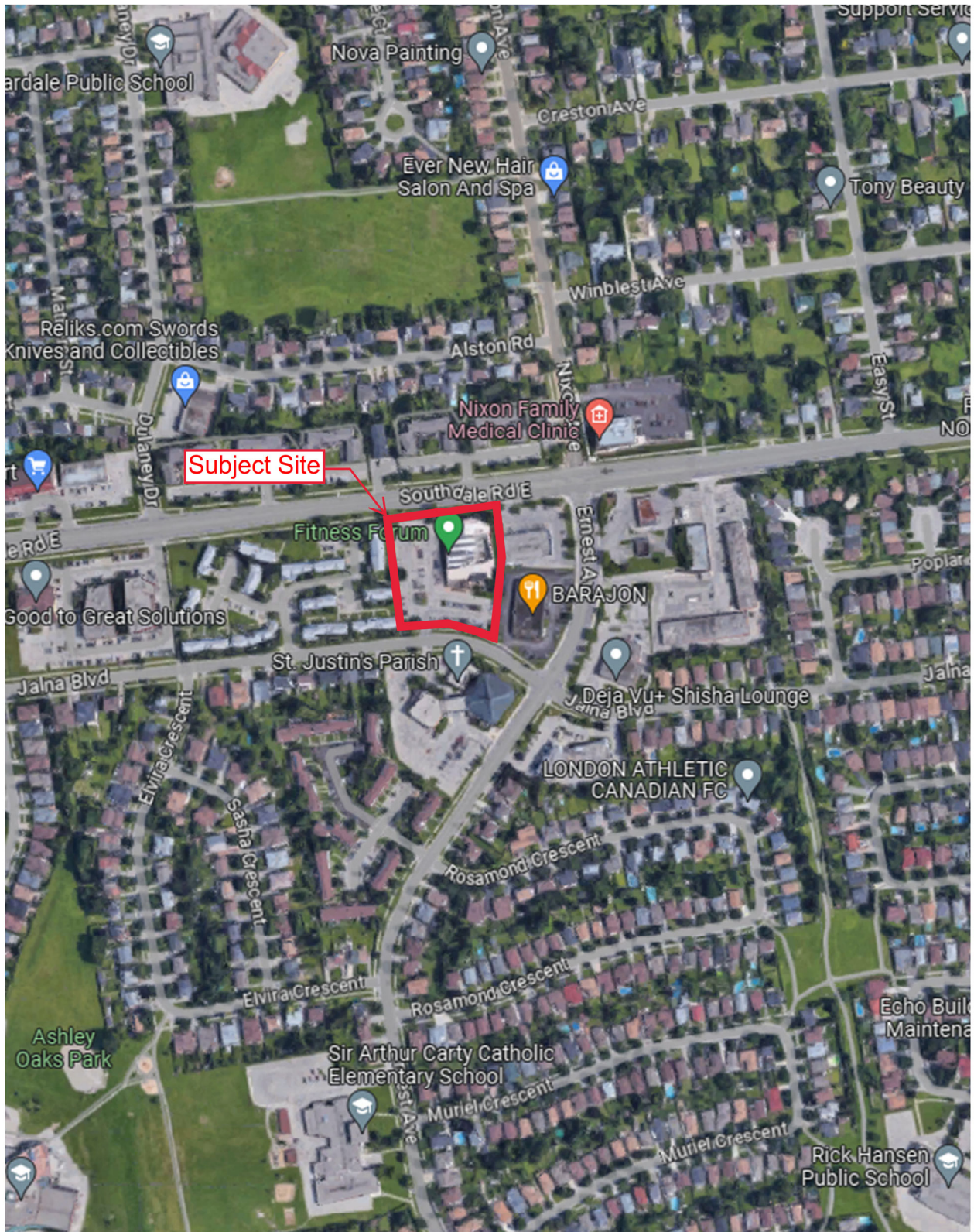
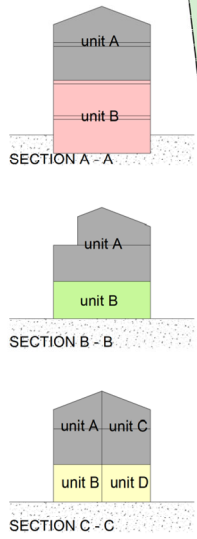
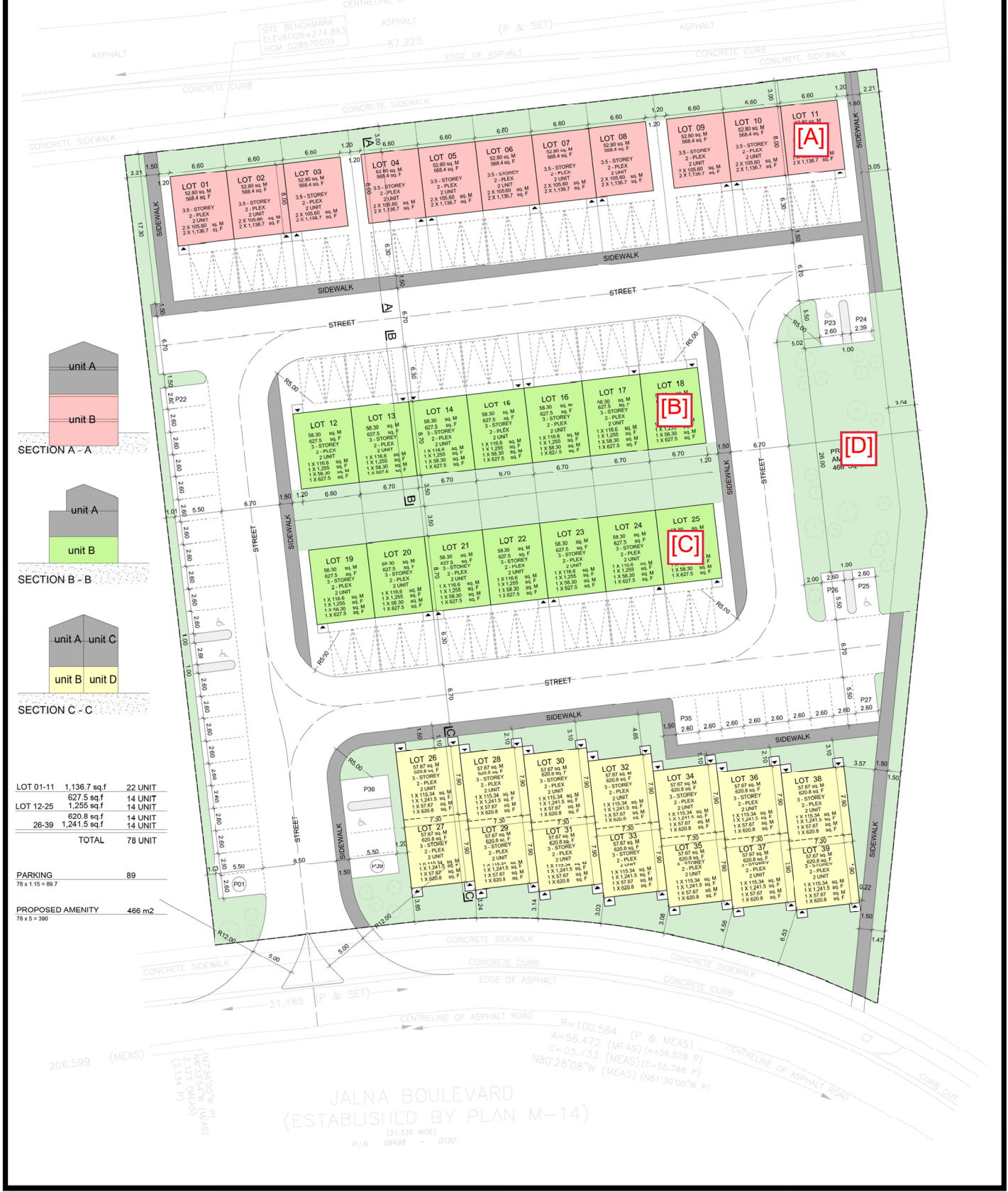


Figure 1: Key Plan

SOUTHDALE ROAD EAST
 (BY BY-LAW No. 5-3847-8, REGISTERED AS INSTRUMENT No. L7415919)
 (ROAD ALLOWANCE BETWEEN CONCESSIONS 1 AND 2)
 (WIDTH VARIES)
 P.I.N. 08485 - 0152



LOT 01-11	1,136.7 sq.f	22 UNIT
LOT 12-25	627.5 sq.f	14 UNIT
LOT 26-39	820.8 sq.f	14 UNIT
TOTAL	1,241.3 sq.f	14 UNIT
PARKING	78 x 1.15 = 89.7	89
PROPOSED AMENITY	78 x 5 = 390	486 m ²

JALNA BOULEVARD
 (ESTABLISHED BY PLAN M-14)
 (21.336 WIDE)
 P.I.N. 08498 - 0192

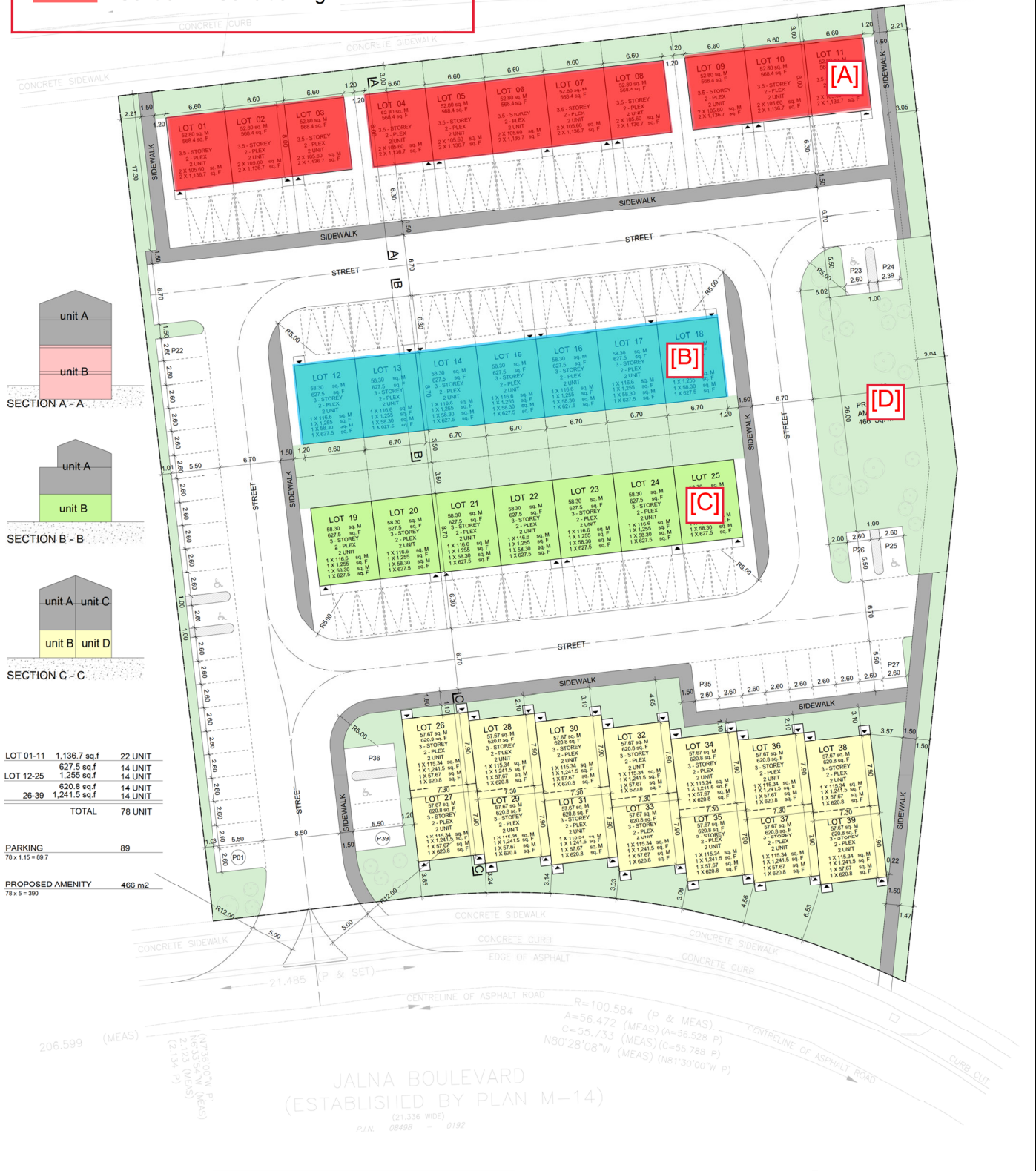


PROJECT NAME:	900 JALNA BOULAVARD	REVISION NO.:	[1]	DRAWN:	
DRAWING TITLE:	SITE PLAN	SC:	1:200	DWG NO.:	A-01
		SHEET SIZE:	A0		
		DATE:	JULINE 2023		

Figure 2: Proposed Site Plan Showing Prediction Locations

LEGEND

- Forced air ventilation systems with ductwork sized for future installation of air conditioning by the occupant.
- Central Air Conditioning



PROJECT NAME:	REVISION NO.:	DRAWN:
900 JALNA BOULAVARD	[1]	
DRAWING TITLE:	SC:	DWG NO.:
SITE PLAN	1:200	A-01
	SHEET SIZE:	
	A0	
	DATE:	
	JUNE 2022	

Figure 3: Proposed Site Plan Showing Ventilation Requirements

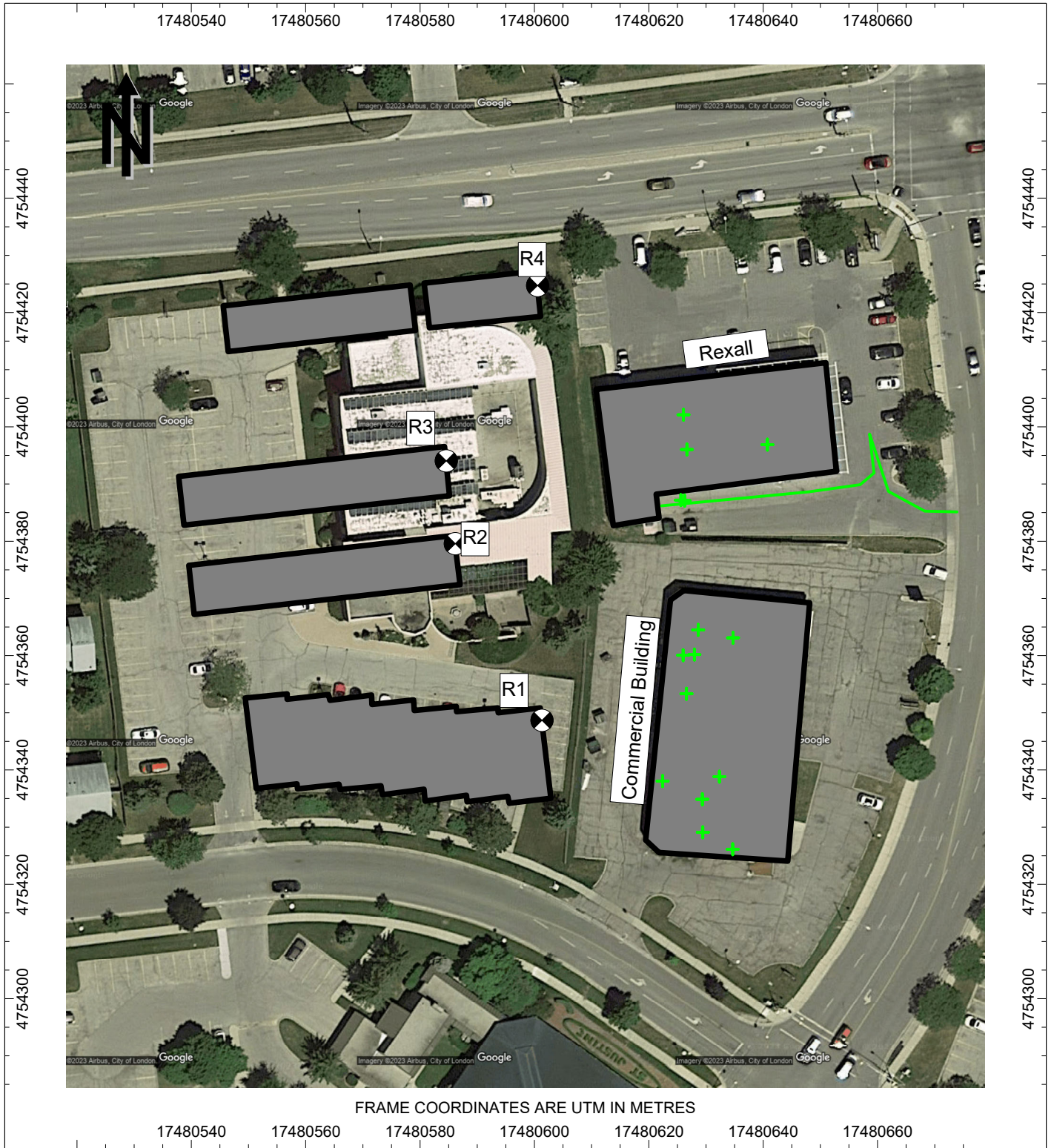


Figure 4: Existing Noise Source Locations

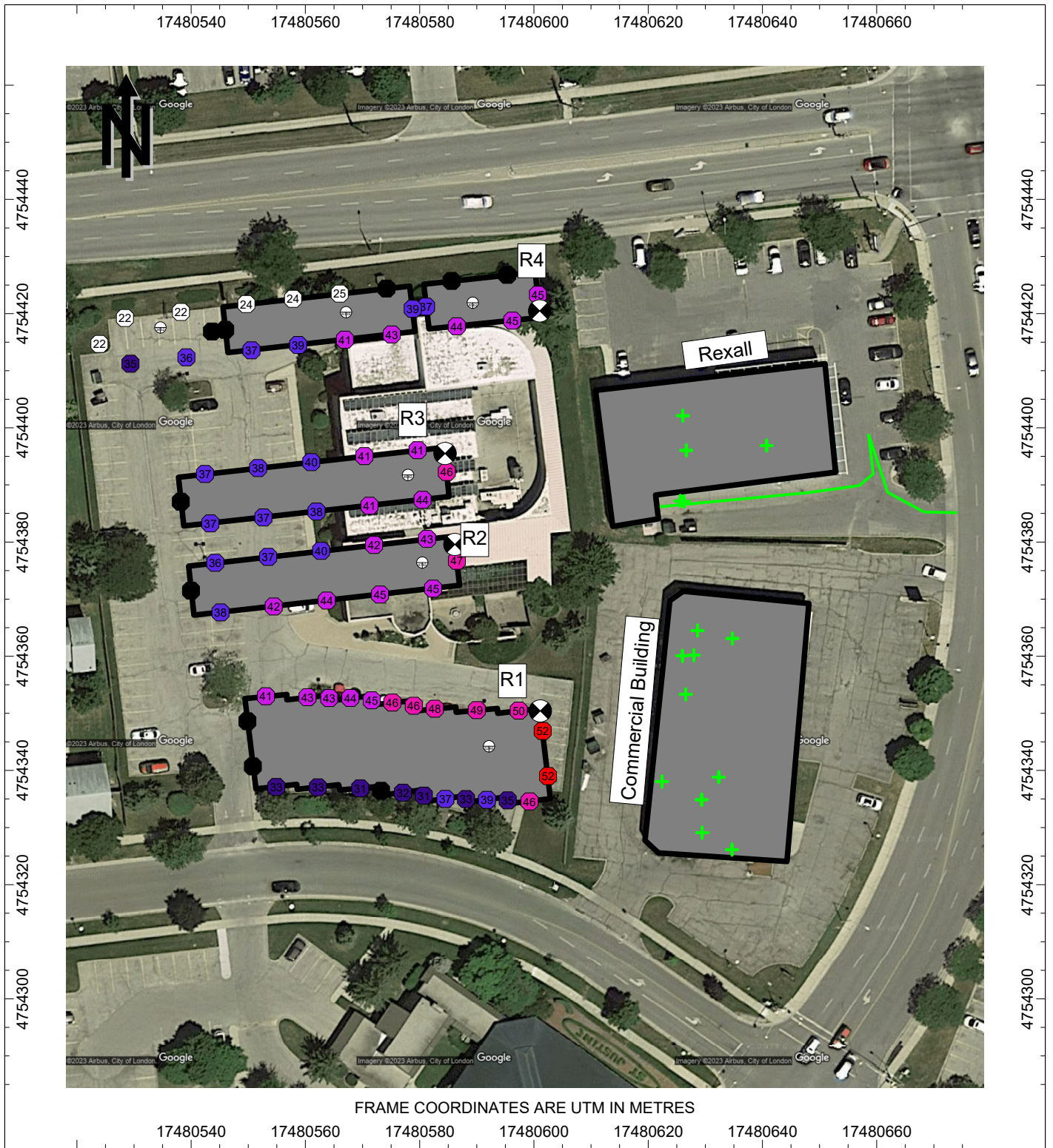


Figure 5: Predicted Daytime Sound Levels at the Proposed Dwelling Units, dBA
(Without Mitigation)

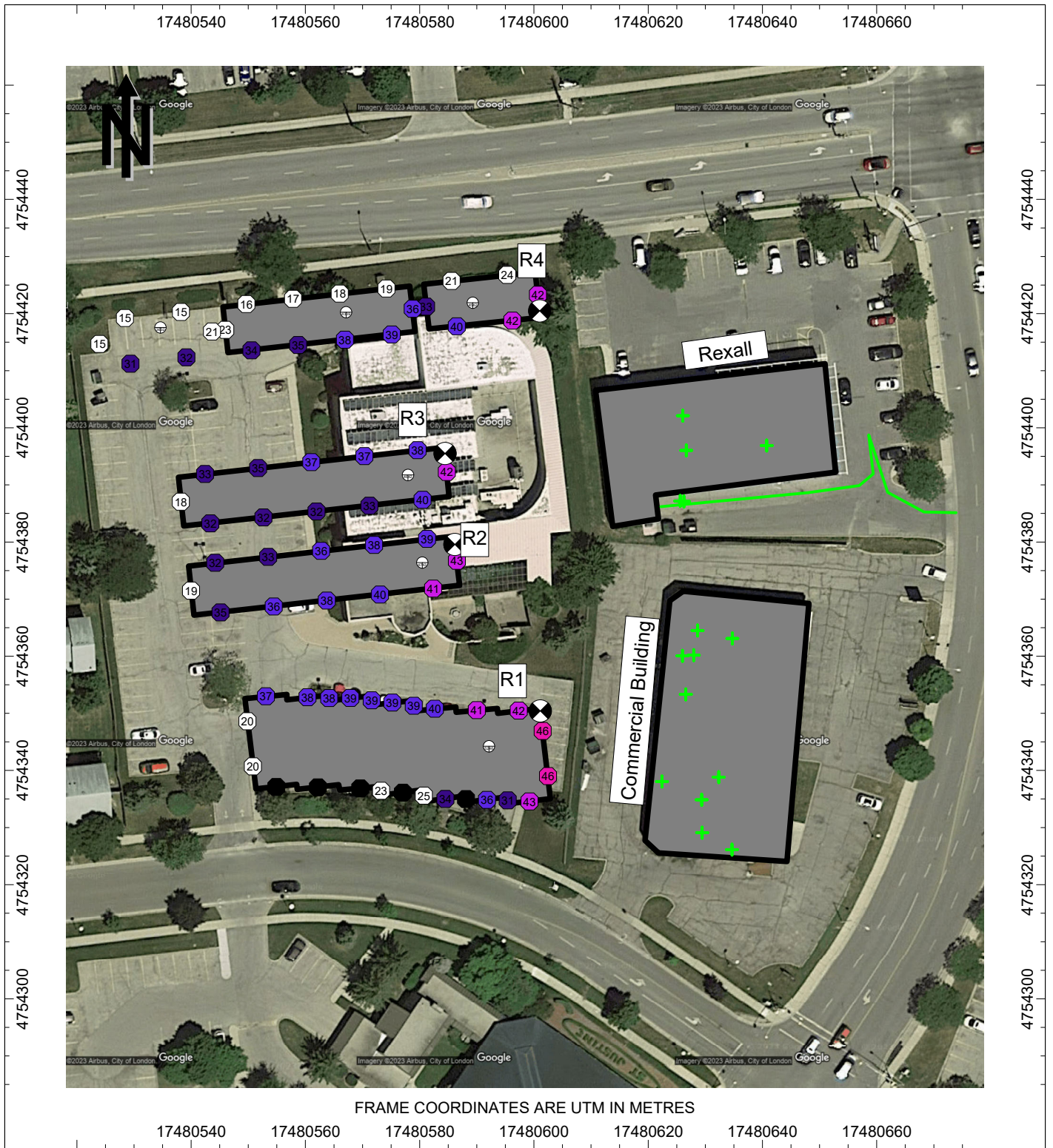


Figure 6: Predicted Nighttime Sound Levels at the Proposed Dwelling Units, dBA (Without Mitigation)

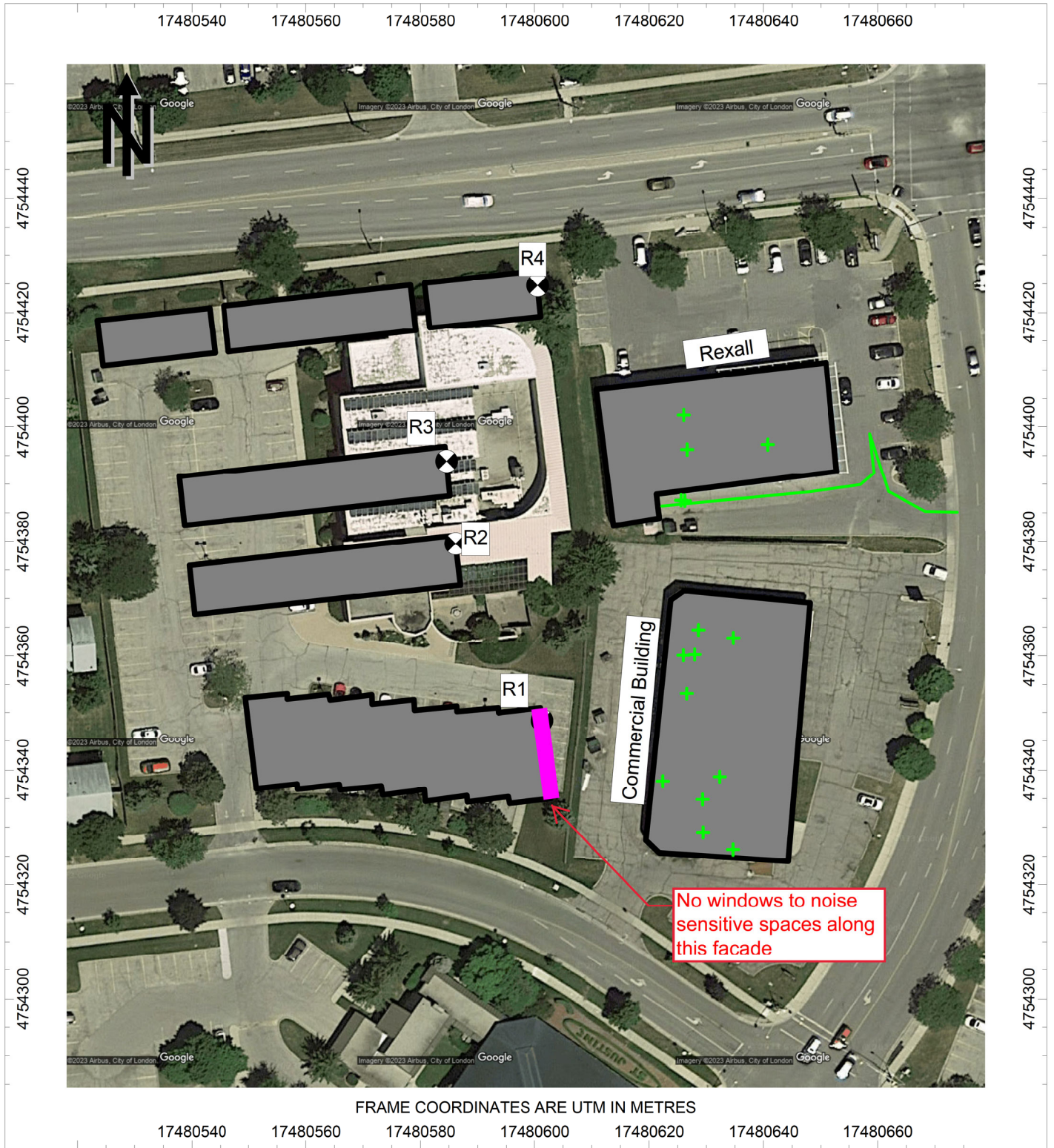


Figure 7: Stationary Noise Mitigation Measures

APPENDIX A
Road Traffic Data

Yvonne Lo

From: Harpal, Dhaval <dharpal@london.ca>
Sent: August 24, 2023 1:19 PM
To: Yvonne Lo
Subject: RE: Road Traffic Data Request - 900 Jalna Road

Good day Yvonne,

We don't have ultimate AADT details but I can provide you existing. Please use 2% growth rate to forecast future scenarios.

Jalna Blvd:

AADT – 2,500 (existing)
Speed – 40km/h
Truck Traffic – 3% (including heavy and medium)
Day/night splits – 96/4%

Southdale Rd:

AADT – 24,500 (existing)
Speed – 60km/h
Truck Traffic – 3% (including heavy and medium)
Day/night splits – 96/4%

Thank you,



London
CANADA

Dhaval Harpal
Technologist II
Transportation Planning and Design
City of London

300 Dufferin Ave., London ON N6A 4LP
P: 519.661.CITY(2489) x 4017
dharpal@london.ca | www.london.ca

As part of our ongoing efforts to stop the spread of COVID-19, the City of London has made changes to many City services. Visit our [website for the latest information about City services and COVID-19](#).

From: Yvonne Lo <ylo@hgcengineering.com>
Sent: Wednesday, August 23, 2023 11:30 AM
To: Harpal, Dhaval <dharpal@london.ca>
Subject: [EXTERNAL] Road Traffic Data Request - 900 Jalna Road

Hi Dhaval,

HGC Engineering is currently conducting a noise study for a proposed development located at 900 Jalna Road:

<https://goo.gl/maps/znqQBXu9eTg6H1M79>

Can you please provide road traffic data for Jalna Road (volume and commercial vehicle %) in the vicinity of the site?

Thank you!

Best,

Yvonne Lo, MEng, PEng
Project Engineer

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Howe Gastmeier Chapnik Limited

2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7

t: 905.826.4044 ext.232 e: ylo@hgcengineering.com

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Any conclusions or recommendations provided by HGC Engineering in this e-mail or any attachments have [limitations](#).

Yvonne Lo

From: Harpal, Dhaval <dharpal@london.ca>
Sent: August 24, 2023 3:22 PM
To: Yvonne Lo
Subject: RE: Road Traffic Data Request - 900 Jalna Road

Hi Yvonne,

That would be as follows:

Ernest Ave:

AADT – 11,000 (existing)

Speed – 50km/h

Truck Traffic – 3% (including heavy and medium)

Day/night splits – 96/4%

Thanks,



Dhaval Harpal

Technologist II

Transportation Planning and Design

City of London

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From: Yvonne Lo <ylo@hgcengineering.com>
Sent: Thursday, August 24, 2023 1:26 PM
To: Harpal, Dhaval <dharpal@london.ca>
Subject: [EXTERNAL] RE: Road Traffic Data Request - 900 Jalna Road

Hi Dhaval,

We appreciate your prompt response and this information. Can you please provide data for Ernest Avenue as well?

Thank you for your help!

Best,

Yvonne Lo, MEng, PEng
Project Engineer

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From: Harpal, Dhaval <dharpal@london.ca>
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Good day Yvonne,

We don't have ultimate AADT details but I can provide you existing. Please use 2% growth rate to forecast future scenarios.

Jalna Blvd:

AADT – 2,500 (existing)

Speed – 40km/h

Truck Traffic – 3% (including heavy and medium)

Day/night splits – 96/4%

Southdale Rd:

AADT – 24,500 (existing)

Speed – 60km/h

Truck Traffic – 3% (including heavy and medium)

Day/night splits – 96/4%

Thank you,



Dhaval Harpal

Technologist II

Transportation Planning and Design

City of London

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From: Yvonne Lo <ylo@hgcengineering.com>

Sent: Wednesday, August 23, 2023 11:30 AM

To: Harpal, Dhaval <dharpal@london.ca>

Subject: [EXTERNAL] Road Traffic Data Request - 900 Jalna Road

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<https://goo.gl/maps/znqQBXu9eTg6H1M79>

Can you please provide road traffic data for Jalna Road (volume and commercial vehicle %) in the vicinity of the site?

Thank you!

Best,

Yvonne Lo, MEng, PEng
Project Engineer

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APPENDIX B
Sample STAMSON 5.04 Output

Data for Segment # 2: Ernest (day/night)

```

-----
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth           :           0       (No woods.)
No of house rows     :           0 / 0
Surface              :           2       (Reflective ground surface)
Receiver source distance : 80.00 / 80.00 m
Receiver height      :   7.50 / 4.50 m
Topography           :           1       (Flat/gentle slope; no barrier)
Reference angle      :           0.00

```

Results segment # 1: Southdale (day)

Source height = 1.16 m

ROAD (0.00 + 69.23 + 0.00) = 69.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
-90	90	0.00	69.90	0.00	-0.67	0.00	0.00	0.00	0.00

69.23									

Segment Leq : 69.23 dBA

Results segment # 2: Ernest (day)

Source height = 1.16 m

ROAD (0.00 + 54.44 + 0.00) = 54.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
0	90	0.00	64.72	0.00	-7.27	-3.01	0.00	0.00	0.00

54.44									

Segment Leq : 54.44 dBA

Total Leq All Segments: 69.37 dBA

Results segment # 1: Southdale (night)

Source height = 1.16 m

ROAD (0.00 + 59.14 + 0.00) = 59.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
-90	90	0.00	59.14	0.00	0.00	0.00	0.00	0.00	0.00

 SubLeq

 59.14

Segment Leq : 59.14 dBA

Results segment # 2: Ernest (night)

Source height = 1.17 m

ROAD (0.00 + 43.70 + 0.00) = 43.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj
0	90	0.00	53.98	0.00	-7.27	-3.01	0.00	0.00	0.00

 SubLeq

 43.70

Segment Leq : 43.70 dBA

Total Leq All Segments: 59.26 dBA

TOTAL Leq FROM ALL SOURCES (DAY) : 69.37
 (NIGHT) : 59.26