

Noise Feasibility Study

Proposed Change of Use and Proposed Addition

7701 Lundy's Lane

Niagara Falls, Ontario

Prepared for:

100706636 Ontario Inc.
Box 870
Niagara on the Lake, ON,
L0S 1J0

Prepared by

DRAFT

Yvonne Lo, MEng, PEng

Reviewed by

DRAFT

Sheeba Paul, MEng, PEng

June 6, 2024

HGC Project No. 02300944

VERSION CONTROL

Noise Feasibility Study,
7701 Lundy's Lane,
Niagara Falls, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	DRAFT	Noise Feasibility Study in support of the planning and approvals process.	Y. Lo/S.Paul

Limitations

This document was prepared solely for the addressed party and titled project or named part thereof, and should not be relied upon or used for any other project without obtaining prior written authorization from HGC Engineering. HGC Engineering accepts no responsibility or liability for any consequence of this document being used for a purpose other than for which it was commissioned. Any person or party using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm their agreement to indemnify HGC Engineering for all loss or damage resulting therefrom. HGC Engineering accepts no responsibility or liability for this document to any person or party other than the party by whom it was commissioned.

Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.



ACOUSTICS



NOISE



VIBRATION

Table of Contents

1	Introduction and Summary	1
2	Site Description and Sources of Sound.....	2
3	Criteria for Acceptable Sound Levels.....	2
3.1	Road Traffic Noise Criteria	2
4	Traffic Sound Level Assessment	4
4.1	Road Traffic Data	4
4.2	Road Traffic Noise Predictions	5
5	Traffic Noise Recommendations	6
5.1	Outdoor Living Areas	6
5.2	Indoor Living Areas.....	6
5.3	Building Façade Constructions.....	7
5.4	Warning Clauses.....	7
6	Stationary Noise Assessment.....	9
6.1	Stationary Noise Criteria	9
6.2	Noise Source Description	10
6.3	Assumptions	10
6.4	Assessment of Noise from the Existing Commercial Buildings on Subject Building	11
6.5	Noise Control Recommendations for the Existing Commercial Uses	12
7	Summary and Recommendations	12
7.1	Implementation.....	14

Figure 1: Key Plan

Figure 2a: Site Plan Showing Prediction Locations

Figure 2a: Site Plan Showing Prediction Locations (6-storey Addition)

Figure 2c: Site Plan Showing Ventilation Requirements

Figure 2d: Site Plan Showing Ventilation Requirements (6-storey Addition)

Figure 3: Existing Noise Source Locations

Figure 4: Predicted Daytime Sound Levels at the Subject Building, dBA (Without Mitigation)

Figure 5: Predicted Nighttime Sound Levels at Subject Building, dBA (Without Mitigation)

Appendix A: Supporting Drawings

Appendix B: Road Traffic Data

Appendix C: Sample STAMSON 5.04 Output



ACOUSTICS



NOISE



VIBRATION

1 Introduction and Summary

HGC Engineering was retained by 100706636 Ontario Inc. to conduct a noise feasibility study for a proposed change of use and a proposed 6-storey addition at the southeast portion of the site. Currently, the existing building is a two-storey building located at 7701 Lundy's Lane in Niagara Falls, Regional Municipality of Niagara (RMON), Ontario. The study is required as part of the submission to the RMON to assess the impact of traffic noise from surrounding roads and stationary noise from existing commercial uses as part of a Zoning Bylaw Amendment and Site Plan Application.

The primary traffic noise sources impacting the site are road traffic on Montrose Road and Lundy's Lane. Secondary sources of noise include road traffic on Beaverdams Road and the Queen Elizabeth Way (QEW). Road traffic data was obtained from the relevant authorities. The data was used to predict future traffic sound levels at various locations around the subject buildings. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the RMON.

The sound level predictions indicate that future road traffic sound levels will exceed MECP guidelines at the subject buildings. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant will be required for the existing building. Central air conditioning systems and upgraded building constructions are required for the proposed building addition. Building constructions meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the existing building. Warning clauses are also recommended to inform future owners of the buildings and the occupants of the traffic noise impacts, to address sound level excesses and to indicate the presence of existing retail/commercial uses.

There are existing commercial uses at the east side of the site, including a Dulux Paint and Muller's Work Wear. The sound emissions from the rooftop mechanical equipment associated with these uses 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 sensitive receptors of the subject buildings. Results indicate that the potential sound impact of the existing commercial uses is



expected to be within the applicable noise guideline limits of the MECP at the subject buildings. Noise mitigation is not required for the existing commercial buildings. A warning clause is required to inform future owners/tenants of the subject buildings of the proximity to existing commercial uses.

2 Site Description and Sources of Sound

A key plan showing the location of the subject site is indicated in Figure 1. The site is located at 7701 Lundy's Lane in Niagara Falls, Ontario. A site plan for the existing building prepared by MZE Architecture and Design Inc. dated October 24, 2023 is attached as Figure 2a. The site plan for the proposed 6-storey building prepared by MZE Architecture and Design Inc. plotted on May 7, 2024 is attached as Figure 2b. The existing building is currently a motel and will become a residential apartment for a total of 93 dwelling units. There are no changes to the existing building and a 6-storey addition is proposed. Appendix A includes the floor plans and building elevations.

A site visit was performed by HGC Engineering personnel in February 2024 to investigate the surrounding land uses and to identify the significant noise sources in the vicinity. The primary sources of noise are road traffic on Montrose Road and Lundy's Lane, with lesser contributions from the QEW and Beaverdams Road.

There are existing motels to the west and south and existing residential uses to the north. There are existing commercial/retail buildings located to the east, including a Dulux Paint and a commercial building with uses such as Muller's Work Wear and Pho Bowl Vietnamese. There are small rooftop units atop the existing commercial buildings. During the site visit, traffic sounds dominated the site, nevertheless, a noise warning clause informing future owners and occupants of the subject buildings of the proximity to existing commercial/retail uses is recommended as included in Section 6.5.

3 Criteria for Acceptable Sound Levels

3.1 Road 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", Part C release date October 21, 2013 and are listed in Table 1



ACOUSTICS



NOISE



VIBRATION

below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA]. These criteria have generally been adopted by the Regional Municipality of Niagara.

Table 1: Road Traffic Noise Criteria

	Daytime L_{EQ}(16 hour) Road	Nighttime L_{EQ}(8 hour) Road
Outdoor Living Areas	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, while nighttime refers to the 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. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the sound level in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements and offers of purchase and sale for the property. When 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 feasible.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom/living/dining room windows exceed 60 dBA or daytime sound levels exceed 65 dBA outside bedroom/living room windows. A forced air ventilation system with ducts sized for the future provision of air conditioning, or some other alternative form of mechanical ventilation, is required where nighttime sound levels at bedroom/living/dining room windows are in the range of 51 – 60 dBA or daytime sound levels are in the range of 56 – 65 dBA.

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

Warning clauses are required to notify future residents of possible excesses when nighttime sound levels exceed 50 dBA at the plane of the bedroom/living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom/living/dining room window due to road traffic.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Road traffic data for Lundy's Lane (Regional Road 20) and Montrose Road (Regional Road 98) was provided by RMON personnel in the form of Turning Movement Counts. A commercial vehicle percentage of 1.4% was further split into 0.9% heavy trucks and 0.5% medium trucks for Lundy's Lane. A commercial vehicle percentage of 2.2% was further split into 1.4% heavy trucks and 0.8% medium trucks for Montrose Road. The data was projected 20 years to the year 2044 as per RMON requirements using a 2.5% growth rate. A day/night split of 90%/10% and a posted speed limit of 50 km/h were used in the analysis.

Road traffic data for the QEW was obtained from the Ministry of Transportation and projected to the year 2034 at a conservative growth rate of 2.5%/year. A commercial vehicle percentage of 20% was further split into 5% medium trucks and 15% heavy trucks. These vehicles were assumed to be travelling at the posted maximum speed of 100 km/hr. A 67%/33% day/night split was used in the analysis.

Road traffic data for Beaverdams Road was provided by City of Niagara Falls personnel in the form of hourly traffic counts. A commercial vehicle percentage of 2.0% was further split into 0.8% heavy trucks and 1.2% medium trucks for Lundy's Lane. The data was projected to the year 2034 at a conservative growth rate of 2.5%/year. A day/night split of 90%/10% and a posted speed limit of 50 km/h were used in the analysis.

The projected road traffic volumes are shown in Table 2 below and included in Appendix B.



Table 2: Projected Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Lundy's Lane <i>(projected to 2044)</i>	Daytime	25 934	131	237	26 303
	Nighttime	2 881	14	27	2 922
	Total	28 816	147	263	29 225
Montrose Road <i>(projected to 2044)</i>	Daytime	20 372	167	292	20 830
	Nighttime	2 263	18	33	2 314
	Total	22 635	186	324	23 145
Queen Elizabeth Way <i>(projected to 2034)</i>	Daytime	57 162	3 573	10 718	70 735
	Nighttime	28 577	1 786	5 358	35 721
	Total	85 739	5 359	16 076	107 174
Beaverdams Road <i>(projected to 2034)</i>	Daytime	2 583	24	29	2 636
	Nighttime	287	3	3	291
	Total	2 870	27	32	2 928

4.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which would impact the site in the future, road traffic predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix C.

Prediction locations were chosen around the site to obtain a good representation of the future sound levels at the building facades with exposure to the surrounding roadways. A receptor height of 4.5 m and 16.5 m was used at the top storey of the existing 2-storey and 6-storey building, respectively. The results of these predictions are summarized in Table 3.

Table 3: Future Road Traffic Sound Levels, [dBA], Without Mitigation

Prediction Location	Description	Daytime in OLA LEQ-16 hr	Daytime at Façade LEQ-16 hr	Nighttime at Façade LEQ-8 hr
[A]	Suites adjacent to Beaverdams Road, with some exposure to the QEW	--	61	57
[B]	Suite with some exposure to the QEW	--	56	54
[C]	Suite adjacent to Lundy's Lane, with some exposure to the QEW	--	61	58
[D]	Outdoor Amenity Area	59	--	--
[E]	South facade of 6-storey addition	--	68	65
[F]	East facade of 6-storey addition	--	68	66

5 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the subject site. Recommendations to address these excesses are discussed below.

5.1 Outdoor Living Areas

The predicted daytime sound level in the assumed outdoor amenity area at the interior of the development site (Prediction Location [E]) will be 59 dBA, 4 dBA in excess of the MECP's limit of 55 dBA. The MECP allows excesses of up to 4 dBA of its limit with the use of a noise warning clause if it is acceptable to the Municipality. Physical mitigation is not required.

5.2 Indoor Living Areas

Provision for the Future Installation of Air Conditioning

The predicted future sound levels outside the top storey windows of the building with exposure to the QEW (Prediction Location [A], [B], [C]) will be between 56 and 65 dBA during the daytime hours and between 51 and 60 dBA during the nighttime. To address this excess, the MECP guidelines

recommend that these units be equipped with a forced air ventilation system with ducts sized to accommodate the future installation of air conditioning by the occupant.

Central Air Conditioning

The predicted nighttime sound levels at the building façades of the proposed addition (Prediction Locations [E] and [F]) exceed 65 dBA and exceed 60 dBA during the daytime and nighttime hours, thus central air conditioning systems are required for all dwelling units so that windows may remain closed.

These units are shown in Figures 2c and 2d. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise 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. The guidelines also recommend warning clauses for all units with ventilation requirements.

5.3 Building Façade Constructions

Predicted sound levels at the proposed 6-storey addition (Prediction Locations [E] and [F]) were used to determine sound insulation requirements of the building envelope. The required acoustic insulation of the wall and window components was determined using methods developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building façades, and the area ratios of the facade components (walls, windows and doors) and the floor area of the adjacent room.

Exterior Wall Constructions

Any exterior wall construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the proposed building.

Acoustical Requirements for Glazing

Floor plans and building elevations included in Appendix C for the 6-storey building were used to calculate window to floor area ratios. The window to floor area ratios were calculated to be a maximum of approximately 30% for bedrooms and 45% for living/dining rooms. The minimum



acoustical requirement for the window glazing, including glass in fixed sections, swing or sliding doors and operable windows, is calculated to be lower than STC-30. Any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the existing building.

5.4 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. Examples are provided below.

Suggested wording for future dwellings with sound level exceeding the MECP criteria.

Type 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 dwellings occupants as the sound levels exceed the noise criteria of the Municipality and the Ministry of the Environment, Conservation and Parks.

A suggested wording for future dwellings requiring forced air ventilation systems is given below.

Type B:

This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments 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.

A suggested wording for future dwellings requiring central air conditioning is given below.

Type C:

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.

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



6 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 associated with the existing commercial uses to the east are considered stationary noise sources and have the potential to impact the subject buildings.

6.1 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.

6.2 Noise Source Description

The primary source of sound associated with the existing commercial development to the east (including Dulux Paints and Muller's Work Wear) is the rooftop HVAC equipment. 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 facades of the subject buildings. Each receptor location was assessed at the closest top floor window of the building as these represent the most potentially impacted locations.

6.3 Assumptions

Predictive noise modelling was used to assess the sound impact of the existing commercial buildings on sensitive receptors at the subject building, in accordance with MECP guidelines. The noise prediction model was based on a review of the 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 sound level associated with the equipment is listed in Table 4 below in terms of sound power level.

Table 4: Source Sound Power Level [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]							
	63	125	250	500	1k	2k	4k	8k
Lennox LGA060 (5 Tons)	--	67	72	77	76	73	68	61

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 5.0 m in height.

- Lennox LGH060 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 3. 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. 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 75% capacity;

Assumed night worst-case scenario:

- All rooftop equipment operating on a 33% duty cycle;

6.4 Assessment of Noise from the Existing Commercial Buildings on the Subject Buildings

The unmitigated sound levels due to noise sources associated with the existing commercial uses at the subject buildings are summarized in Table 5 below. Resultant sound levels at the subject buildings are shown graphically in Figures 4 and 5.

Table 5: Predicted Sound Levels from the Existing Commercial Uses at the Subject Buildings [dBA]

Receptor	Criteria	Day	Night
East Façade of Existing Building	50/45	45	42
East Façade of Proposed Addition	50/45	43	40

The results of the calculations indicate that the predicted daytime and nighttime sound levels due to the operation of the rooftop mechanical equipment at the existing commercial uses will be within MECP limits at the sensitive points of reception at the subject buildings. Physical mitigation will not be required.

6.5 Noise Control Recommendations for the Existing Commercial Uses

To inform future tenants/owners of the subject buildings of potential noise from the existing commercial uses, the following warning clause is recommended.

1. Warning Clause

The following noise warning clause is required to notify future residents of the presence of the existing commercial uses is given below.

Type D:

Purchasers are advised of the proximity of adjacent commercial facilities, the sound from which may at times be audible.

7 Summary and Recommendations

The following list and Table 6 summarize the recommendations made in this report.

1. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning system will be required for the existing building. Central air conditioning is required

for the proposed 6-storey residential addition. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300, as applicable.

2. Upgraded building constructions are required for the proposed 6-storey residential addition. Details are provided in Section 5.3. Any building construction meeting the minimum requirements of the OBC will be sufficient for the existing building.
3. Warning clauses should be used to inform future residents of the traffic noise issues and the presence of the surrounding commercial and retail facilities.

Table 6: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Acoustic Barrier	Ventilation Requirements *	Type of Warning Clause	Building Façade Constructions
Existing Suite adjacent to Beaverdams Road, with some exposure to the QEW	--	Forced Air	A, B, D	OBC for the existing building, STC-30 glazing construction for the proposed 6-storey building
Existing Suite with some exposure to the QEW	--	Forced Air	A, B, D	
Existing Suite shielded away from QEW	--	--	--	
Remaining Units	--	--	--	
Existing Suite adjacent to Lundy's Lane, with some exposure to the QEW	--	Forced Air	A, B, D	
Proposed 6-storey residential addition	--	Central A/C	A, C, D	
Outdoor Amenity Area	--	--	--	

Notes:

-- no specific requirement

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

OBC – meeting the minimum requirements of the Ontario Building Code

The reader is referred to previous sections of this report where these recommendations are discussed in more detail.

7.1 Implementation

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

1. Prior to the issuance of occupancy permits for this development, the City's building inspector or a Professional Engineer qualified to perform acoustical engineer services in the province of Ontario should certify that the noise control measures have been properly incorporated, installed and constructed.



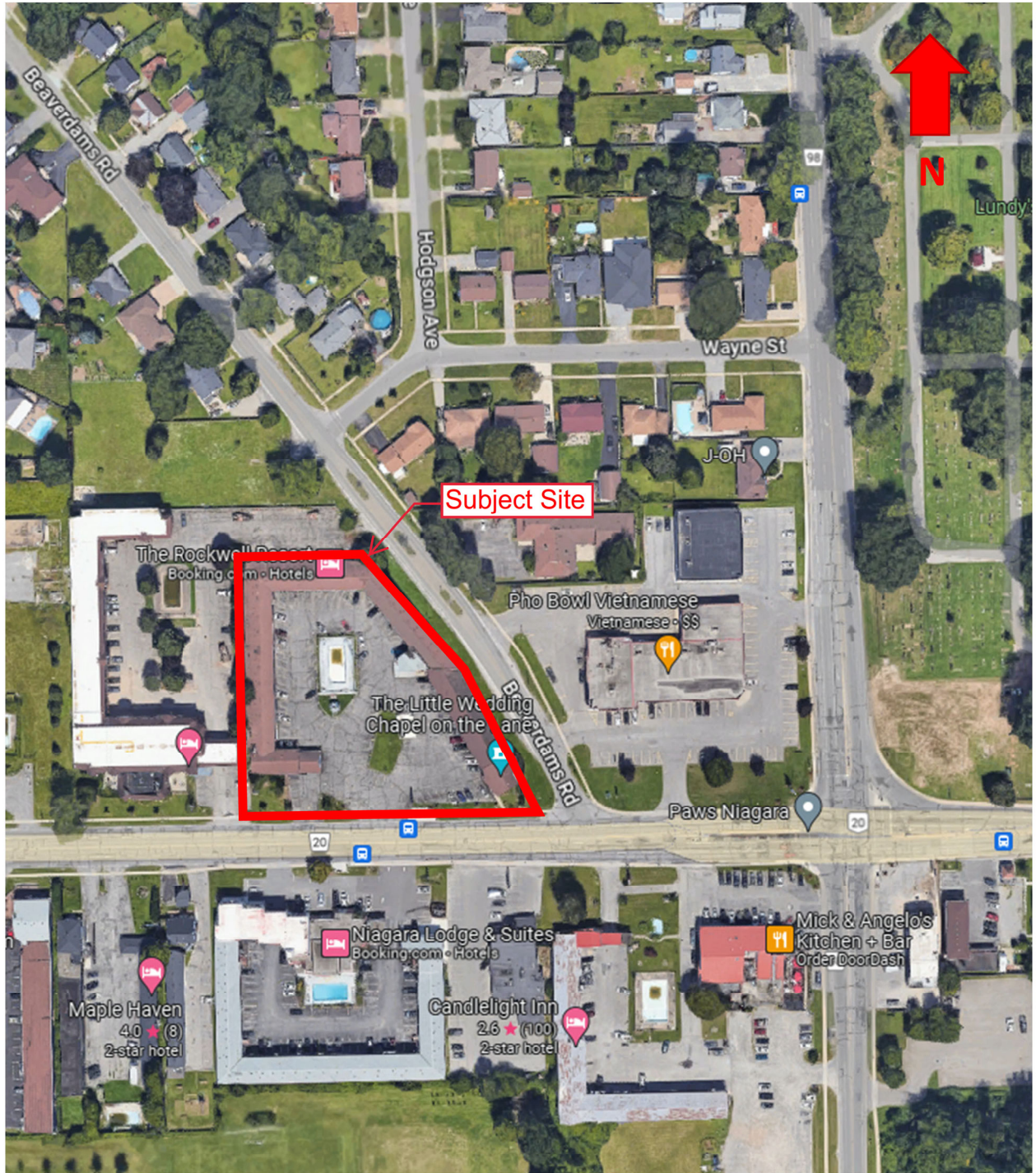
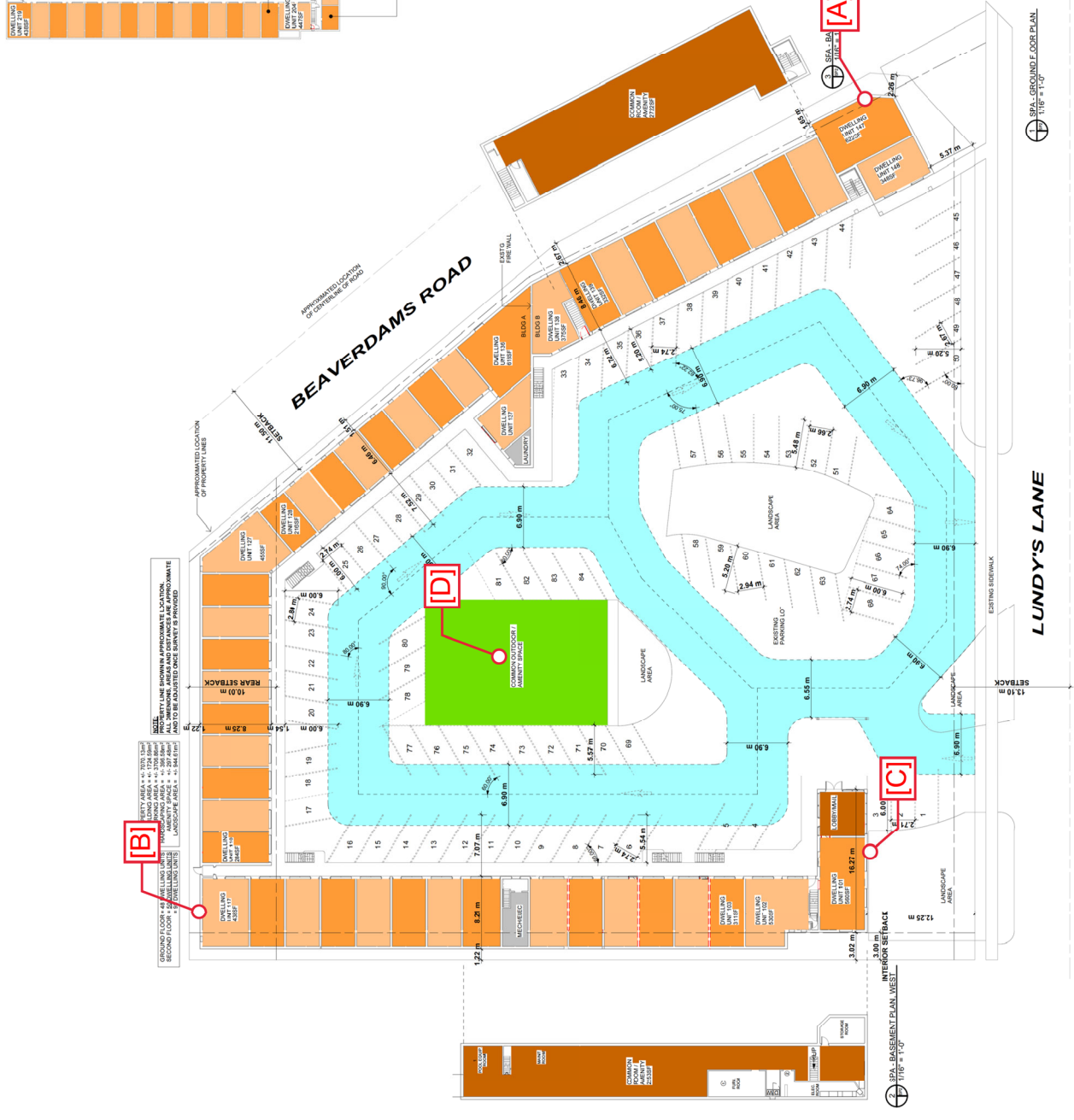
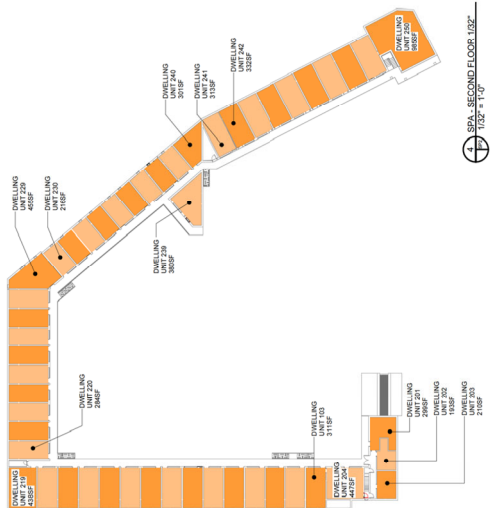


Figure 1: Key Plan

Plan No.	23-28
Scale	As Indicated
Client	MZE
Date	10/24/2023 13:21 PM
Drawn By	MOT/MS/BO



OVERSEAS AND/OR
 CONTRACTORS OF
 THIS PROJECT SHALL
 BE RESPONSIBLE FOR
 OBTAINING ALL
 NECESSARY PERMITS
 AND FOR THE
 ACCURACY OF THE
 INFORMATION
 PROVIDED HEREON.
 THIS DOCUMENT IS
 THE PROPERTY OF
 ARCHITECTURE
 DESIGN INC. AND
 IS NOT TO BE
 REPRODUCED OR
 TRANSMITTED IN
 ANY FORM OR BY
 ANY MEANS,
 ELECTRONIC OR
 MECHANICAL,
 INCLUDING
 PHOTOCOPYING,
 RECORDING, OR
 BY ANY INFORMATION
 STORAGE AND
 RETRIEVAL SYSTEM,
 WITHOUT THE
 WRITTEN
 PERMISSION OF
 ARCHITECTURE
 DESIGN INC.



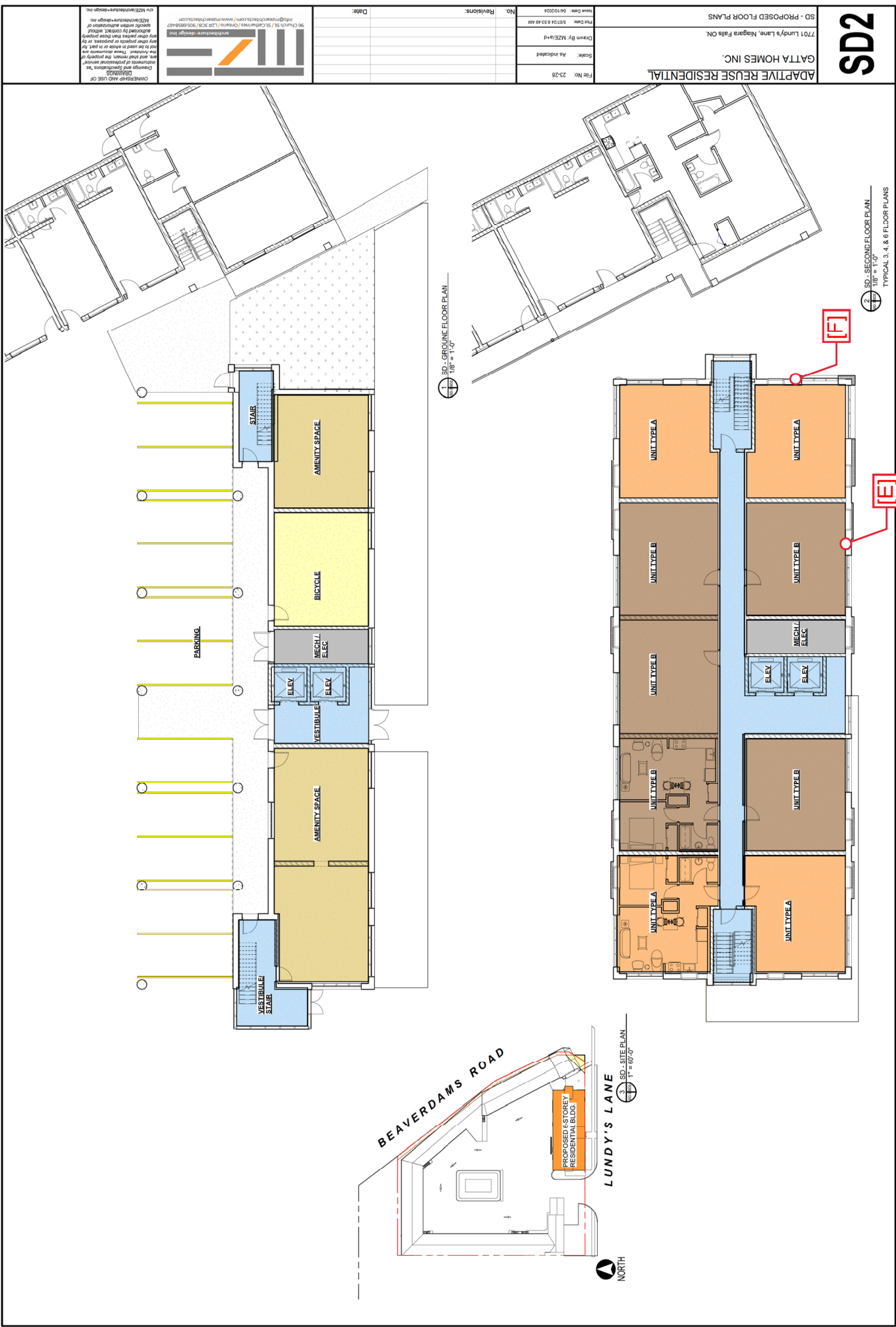
NOTE:
 THESE DRAWINGS CAPTURE AS BUILT EXISTING CONDITIONS AS OBSERVED &
 PROPERTY LINES ARE LANDSCAPE TAKEN FROM AERIAL PHOTO.

SPA - SECOND FLOOR PLAN
 1/16" = 1'-0"

SPA - SECOND FLOOR PLAN
 1/16" = 1'-0"

SPA - BASEMENT PLAN WEST
 1/16" = 1'-0"

Figure 2a: Proposed Site Plan Showing Prediction Locations



File No.	23-28
Scale	As indicated
Drawn By	MZE14-D
Proj. Date	07/24/18 08:44 AM
Rev. No.	04/10/2024

Revisions:	No.	Date:

OWNER'S AND USER OF DRAWINGS TO SIGN AND SPECIFY THE SCOPE OF WORK AND TO PROVIDE THE NECESSARY PERMITS AND APPROVALS. THE ARCHITECT'S RESPONSIBILITY IS LIMITED TO THE DESIGN AND CONSTRUCTION OF THE BUILDING AS SHOWN ON THESE DRAWINGS. THE ARCHITECT DOES NOT PROVIDE ENGINEERING, SURVEYING, OR OTHER PROFESSIONAL SERVICES UNLESS SPECIFICALLY NOTED ON THESE DRAWINGS.

architectural design inc.
 96 Church St. Scarborough (Markham) ON M1S 2B1 / 905.668.4127
 info@architectural-design-inc.com

2 SD - SECOND FLOOR PLAN
 1/8" = 1'-0"
 TYPICAL 3, 4 & 6 FLOOR PLANS

SD - GROUND FLOOR PLAN
 1/8" = 1'-0"

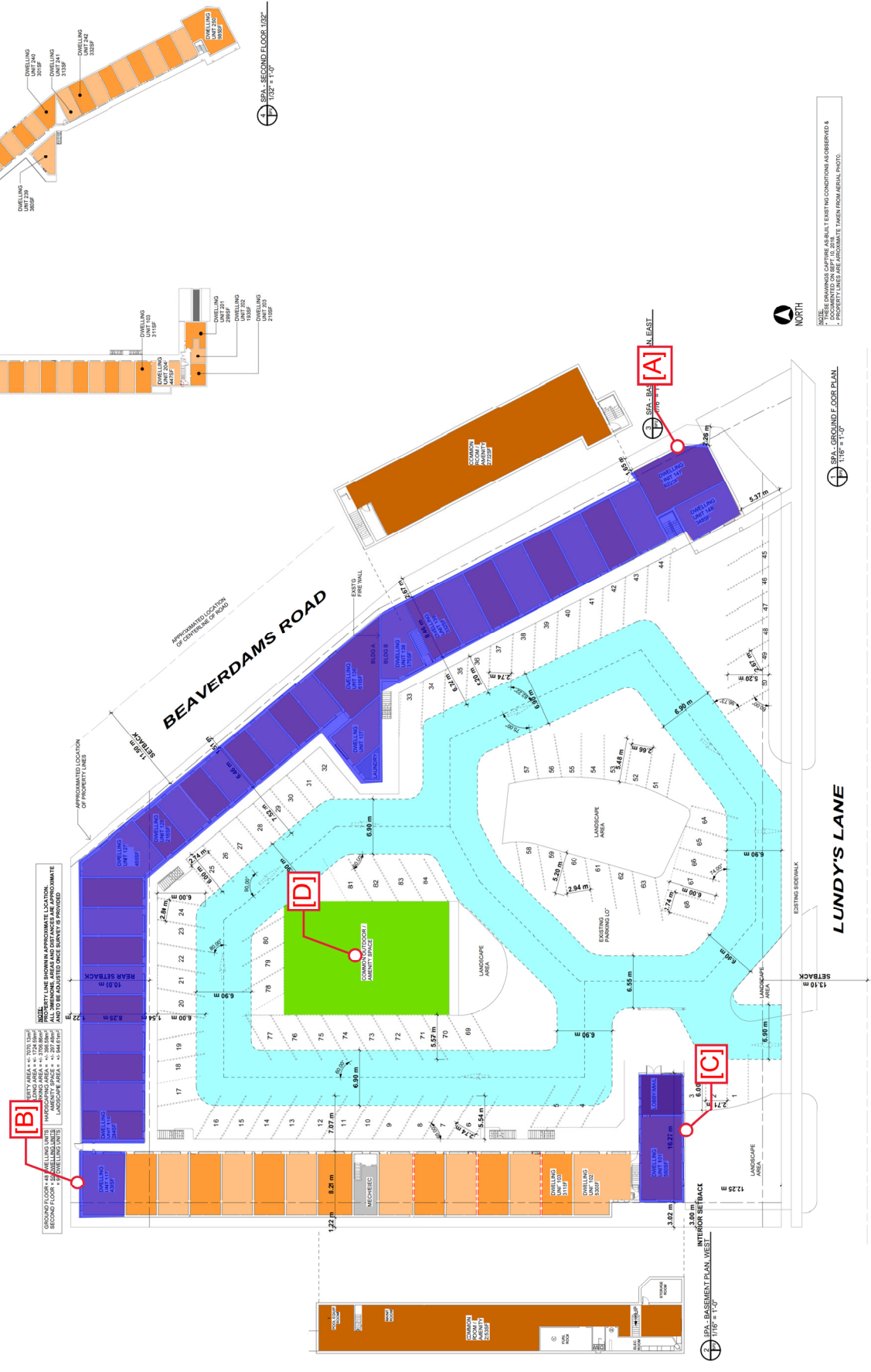
3 SD - SITE PLAN
 1" = 60'-0"

Figure 2b: Proposed Site Plan Showing Prediction Locations (6-Storey Building)

LEGEND

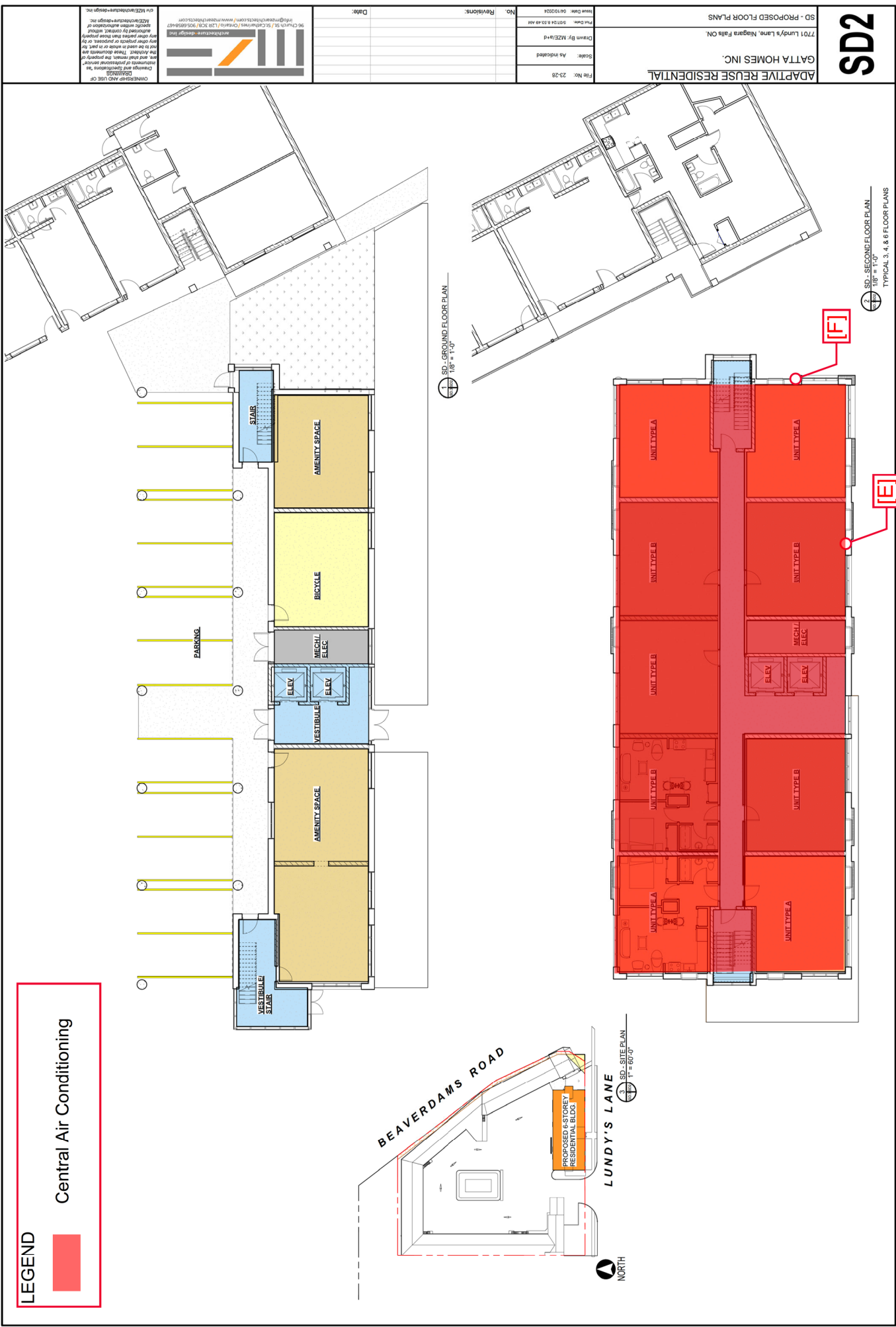


Forced air heating with ducts sized for future installation of air conditioning by the occupant



<p>ADAPTIVE REUSE RESIDENTIAL Company Number 2489083 7701 Lundy's Lane, Niagara Falls, ON</p>		<p>Scale: As Indicated Date: 10/20/23 Project: 2489083</p>	<p>3300 SHEPPARD AVENUE EAST, SUITE 100 SCARBOROUGH, ONTARIO M1S 4T8 TEL: (416) 291-1111 WWW.ARTISTBYDESIGN.COM</p>	<p>OVERSIGHT AND DESIGN OF THE PROJECT IS THE RESPONSIBILITY OF THE ARCHITECT. THE ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT OR ANY OTHER PARTY. THE ARCHITECT HAS CONDUCTED VISUAL VERIFICATION OF THE EXISTING CONDITIONS AS SHOWN IN THESE DRAWINGS. THE ARCHITECT HAS CONDUCTED VISUAL VERIFICATION OF THE EXISTING CONDITIONS AS SHOWN IN THESE DRAWINGS. THE ARCHITECT HAS CONDUCTED VISUAL VERIFICATION OF THE EXISTING CONDITIONS AS SHOWN IN THESE DRAWINGS.</p>
---	--	--	--	---

Figure 2c: Proposed Site Plan Showing Ventilation Requirements



LEGEND

Central Air Conditioning

Central Air Conditioning



SD2

ADAPTIVE REUSE RESIDENTIAL
 GATTA HOMES INC.
 7701 Lundy's Lane, Niagara Falls ON
 SD - PROPOSED FLOOR PLANS

File No: 23-28
 Scale: As indicated
 Drawn By: MZE/4
 Plot Date: 07/24/2024
 Plot Date: 04/10/2024

No.	Revisions:	Date:

OWNER'S AND/OR CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACCURACY OF ALL INFORMATION PROVIDED TO ARCHITECTURE DESIGN INC. BY OTHER PROFESSIONALS OR SOURCES. ARCHITECTURE DESIGN INC. IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DOCUMENT. THIS DOCUMENT IS THE PROPERTY OF ARCHITECTURE DESIGN INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF ARCHITECTURE DESIGN INC.

2 SD - SECOND FLOOR PLAN
 1/8" = 1'-0"
 TYPICAL 3, 4, & 6 FLOOR PLANS

SD - GROUND FLOOR PLAN
 1/8" = 1'-0"

3 SD - SITE PLAN
 1" = 60'-0"

Figure 2d: Proposed Site Plan Showing Ventilation Requirements (6-Storey Building)

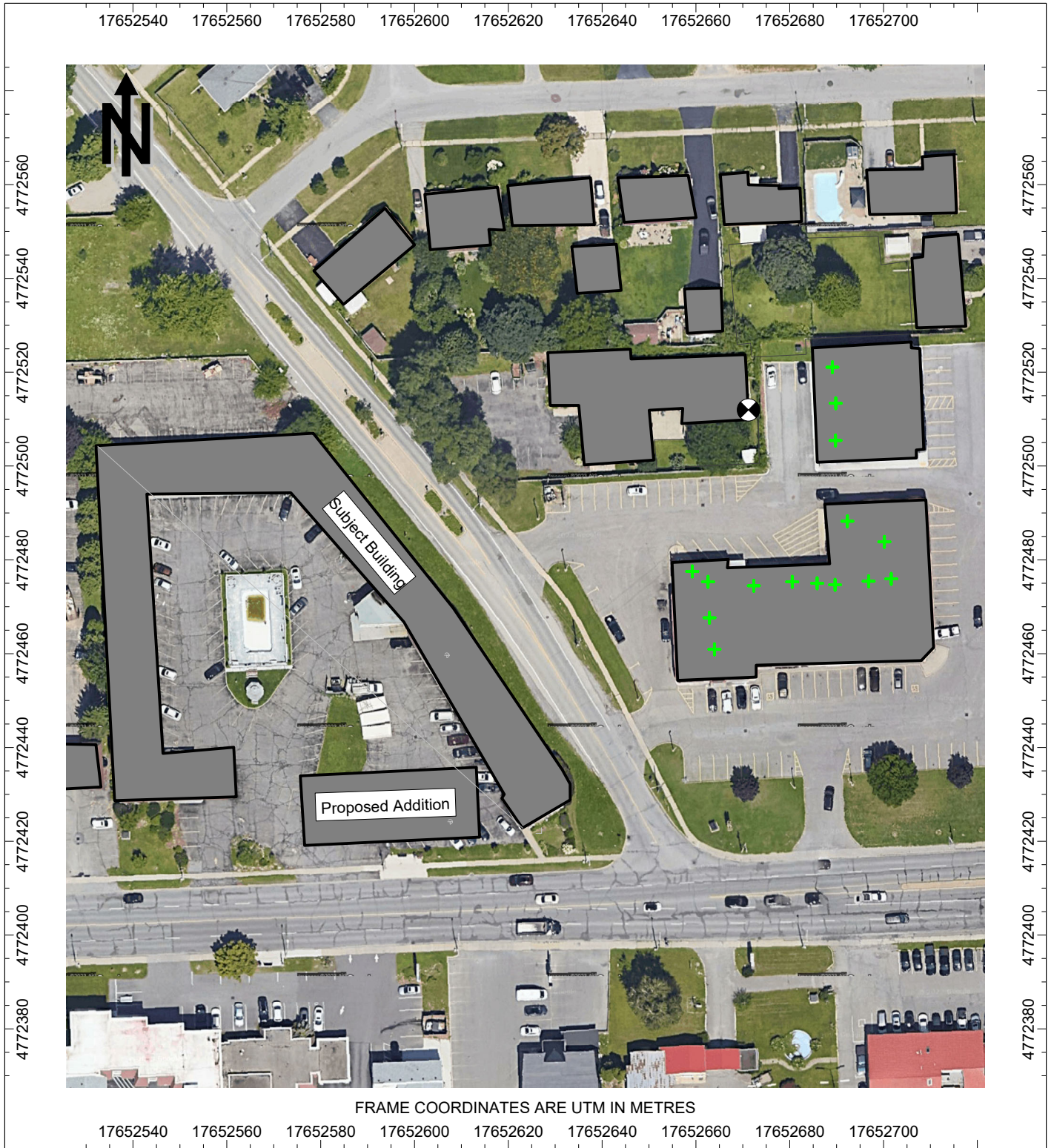


Figure 3: Existing Noise Source Locations

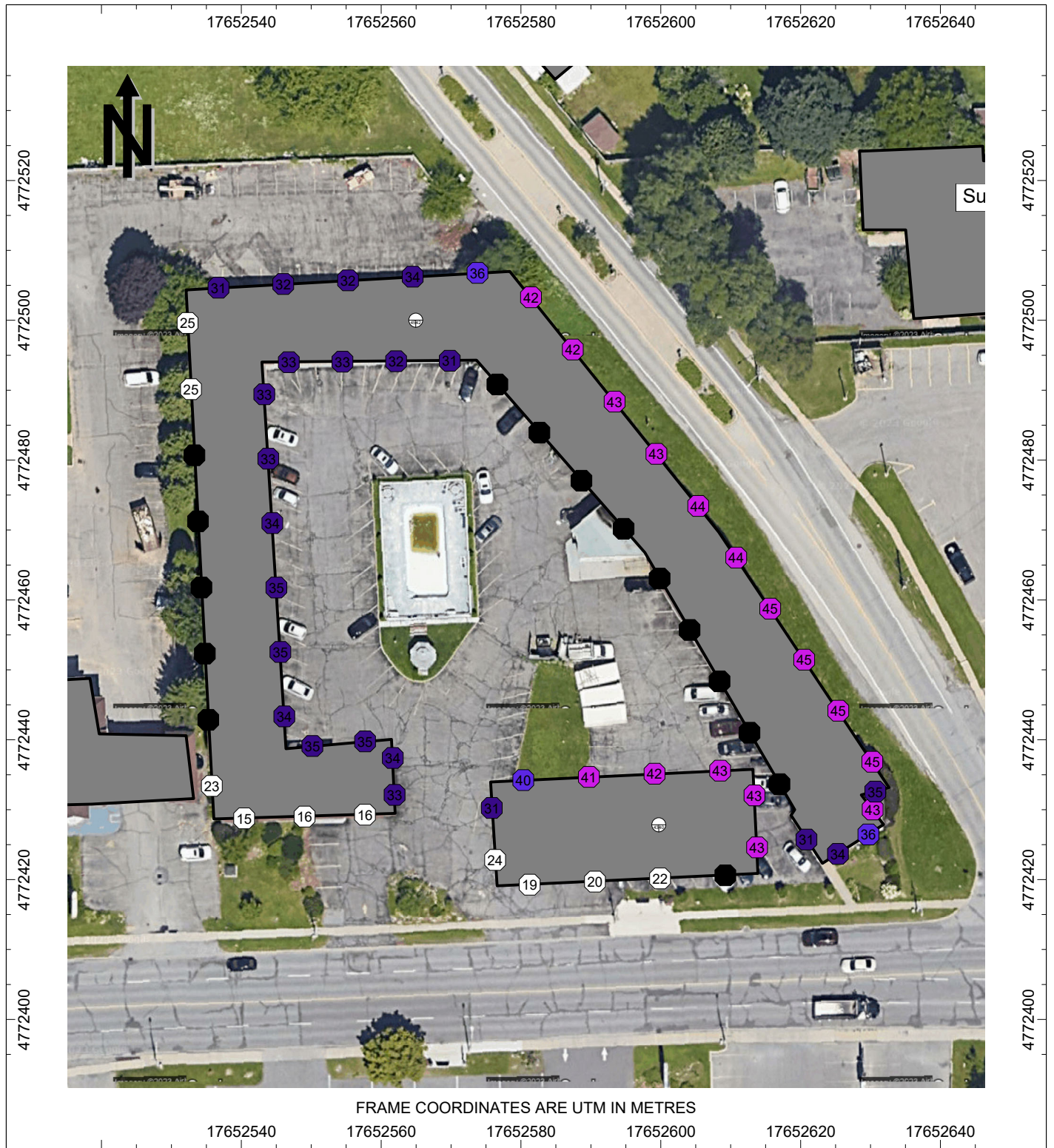


Figure 4: Predicted Daytime Sound Levels at the Subject Building, dBA (Without Mitigation)

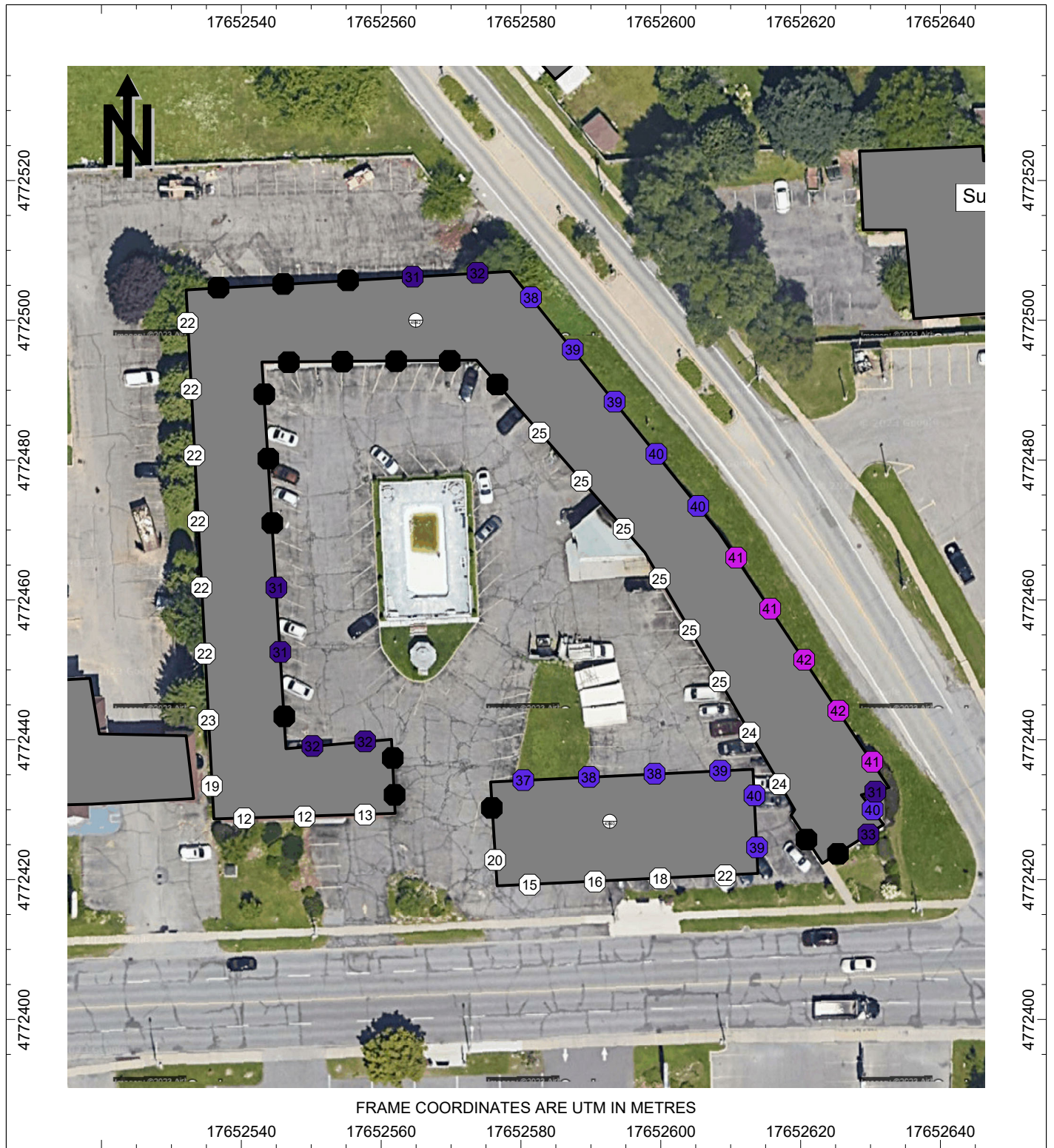


Figure 5: Predicted Nighttime Sound Levels at the Subject Building, dBA (Without Mitigation)