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PRELIMINARY ENVIRONMENTAL NOISE REPORT

PROPOSED INDUSTRIAL COMMERCIAL DEVELOPMENT
CLAREMONT NORTH BUSINESS PARK
BROCK ROAD AND OLD BROCK ROAD
CITY OF PICKERING (CLAREMONT)

PREPARED FOR
S. LARKIN DEVELOPMENTS INC.

PREPARED BY

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April 23, 2024
File: 23-185

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SUMMARY

The proposed industrial commercial development is to be located between Brock Road and Old Brock Road, south of Uxbridge Pickering Townline in the City of Pickering (Claremont). The subject site includes one (1) existing industrial building consisting of two (2) parts with one part proposed to be upgraded, three (3) new industrial buildings, one (1) commercial-store building with a drive-thru, one (1) car wash building, a gas station and several parking areas.

The main noise sources associated with the proposed development are rooftop HVAC mechanical units, truck repair operations inside the existing industrial building, car wash operations, vacuum and air compressor operations, a speaker at the drive-thru associated with the commercial-store building, truck movements and cars idling at the driveways associated with the car wash building and the commercial-store drive-thru.

The environmental noise guidelines of the City of Pickering and the Ministry of the Environment, Conservation and Parks (MOE) set sound level limits due to the stationary sources based on the existing ambient sound levels without the noise source in operation and the Class 2 exclusion sound levels. The MOE NPC-300 noise guidelines were used in the report.

Based on the analysis, the applicable sound level limits are predicted to be exceeded at some analyzed noise sensitive receptor; therefore, noise mitigation measures are required. The proposed physical mitigation measures include a 3.0 m high and 4.0 m long sound barrier to be installed on the south side of the car wash building exit door in the form of a wing wall and a 1.5 m high roof parapet for the industrial plaza building positioned parallel with Old Brock Road. Section 6.0 provides details of the proposed mitigation.

Garbage collection operations should be limited to daytime hours between 7:00 a.m. and 7:00 p.m., Monday to Friday.

An updated environmental noise report should be prepared once final site and grading plans, detailed architectural and mechanical drawings and final mechanical equipment selection information become available.

1.0 INTRODUCTION

Jade Acoustics Inc. has been retained by S. Larkin Developments Inc. to prepare an Environmental Noise Report to investigate the potential noise emissions from the proposed industrial commercial development on the neighbouring noise sensitive receptors to the satisfaction of the City of Pickering.

The proposed development will include one (1) existing industrial building consisting of two (2) parts with one part proposed to be upgraded, three (3) new industrial buildings, one (1) commercial-store building with a drive-thru, one (1) car wash building, a gas station and several parking areas.

The subject site is bound by Uxbridge Pickering Townline to the north, Brock Road to the east, Old Brock Road to the west and an agricultural land with a residential dwelling to the south. There are residential/agricultural properties on the west side of Old Brock Road and along Uxbridge Pickering Townline.

A Key Plan is attached as Figure 1. Figure 2 shows the proposed concept plan.

In preparing the report, the following information has been used:

- Concept Plan prepared by Caricari Lee Architects received on January 8, 2024; and
- Site visit conducted by Jade Acoustics Inc. staff on January 3, 2024.

2.0 NOISE SOURCES

The identified sources of noise include rooftop HVAC mechanical units, truck repair operations inside the existing industrial building generating sound which could propagate through nine (9) open overhead doors, car wash activities with open entrance and exit doors at the car wash building, vacuum and air compressor operations located adjacent to the car wash building, a speaker at the drive-thru associated with the commercial-store building, truck movements and cars idling at the driveways associated with the car wash building and the commercial-store drive-thru.

No acoustically significant loading/unloading operations affecting the noise sensitive receptors are expected to take place within the proposed industrial commercial development; therefore, impulsive noise is not considered further in the report.

At the time of preparation of this report, the specific building mechanical plans and mechanical equipment selection information were not available. As such, sound rating, duty cycle and other information for typical equipment and operations from our other files associated with similar buildings/developments were used in the noise assessment. Section 5.0 includes details.

Once mechanical equipment is selected, mechanical drawings become available and other operations and activities are confirmed, an updated noise analysis would need to be prepared to ensure that the applicable noise guidelines are achieved at the neighbouring noise sensitive receptors.

3.0 ENVIRONMENTAL NOISE GUIDELINES

The MOE document "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", dated August, 2013, released October 21, 2013 (updated final version # 22) was used for the analysis. A brief summary of the NPC-300 guidelines is given in Appendix B. The guidelines are also summarized below.

For the purpose of this analysis, the area of the proposed development was considered to be a Class 2 Residential Area.

With respect to stationary sources of noise in urban areas, the MOE guidelines require that the sound level due to the stationary source not exceed the ambient sound levels due to road traffic in any hour of operation, or the values of 50 dBA between 7:00 a.m. and 11:00 p.m. (daytime and evening hours) and 45 dBA between 11:00 p.m. and 7:00 a.m. (nighttime hours) applicable to the plane of any window/exterior door, whichever is higher. For outdoor areas, the MOE Class 2 exclusion sound levels are 50 dBA between 7:00 a.m. and 7:00 p.m. (daytime hours) and 45 dBA between 7:00 p.m. and 11:00 p.m. (evening hours). Tables C-5, C-6, C-7 and C-8 of the NPC-300 guidelines included in Appendix B provide the exclusion limit values of one-hour equivalent sound level (Leq, dBA) and impulsive sound level (Llm, dBAI).

The most critical hour is usually the quietest hour of road traffic in which the stationary source is also operating. If the guidelines are exceeded, the MOE requires mitigation measures, preferably at the source. The sounds from the stationary source of steady noise are expressed in terms of Leq, the energy equivalent continuous sound level measured over a defined time period (in this case, one hour) and from the stationary source of impulsive noise in terms of Llm, the logarithmic average of sound levels measured using sound level meters with the impulsive setting selection.

The MOE recognizes the need for back-up beepers/alarms as safety devices and, as such, does not have any noise guidelines or criteria to address these sources.

It should be noted that the MOE guidelines do not require that the source be inaudible but rather that specific sound level limits be achieved.

The City of Pickering has a by-law to prohibit and regulate noise, By-law No. 8048/23. The Noise By-law does not provide specific sound level limits, but rather provides qualitative information with respect to sources and prohibitions by time and place.

4.0 NOISE RECEPTORS AND APPLICABLE SOUND LEVEL LIMITS

The noise sensitive receptors affected by the proposed industrial commercial development are existing residential properties located on the west side of Old Brock Road, south of the proposed development and along Uxbridge Pickering Townline.

Most of the existing residential properties include two-storey dwellings. Second storey windows have been taken to be the worse case noise sensitive receptors at a height of 4.5 m above ground. The outdoor points of reception were modelled at 1.5 m above ground.

Based on the City of Pickering Zoning By-law and Official Plan applicable to the area south of Uxbridge Pickering Townline and the Township of Uxbridge Zoning By-law applicable to the area north of Uxbridge Pickering Townline, the lands in proximity to the proposed industrial commercial development are generally zoned for agricultural and environmental protection uses which allow construction of single-family dwellings. According to online information available on the two municipal web sites, there are no current planning applications for the development of any noise sensitive uses in the wider area of the subject site. Therefore, no future noise sensitive receptors were included in the noise analysis.

The MOE noise guidelines require that the sounds from the proposed development not exceed the existing ambient Leq due to road traffic in any hour of operation or the exclusion limits discussed in Section 3.0.

Ambient sound levels at the analyzed noise sensitive receptors set by road traffic have not been assessed as it is expected that they would not exceed the MOE Class 2 exclusion sound levels at most of the analyzed noise sensitive receptors. Therefore, the applicable sound level limits were taken to be the MOE Class 2 exclusion sound levels shown in Table A below.

TABLE A

SUMMARY OF SOUND LEVEL LIMITS

Noise Sensitive Receptor	Leq 1 hour (dBA)		
	Daytime 7:00 a.m. to 7:00 p.m.	Evening 7:00 p.m. to 11:00 p.m.	Nighttime 11:00 p.m. to 7:00 a.m.
Outdoor	50*	45*	N/A
Plane of Window/Exterior Door	50*	50*	45*

* MOE Class 2 exclusion sound level limits.

N/A Outdoor locations are not noise sensitive receptors during the nighttime hours; therefore, there is no sound level limit.

5.0 NOISE IMPACT ASSESSMENT

Sound levels in terms of Leq1hour due to the analyzed stationary continuous noise sources mentioned in Section 2.0 were predicted at the residential receptors in vicinity of the proposed development using the CadnaA computer program (Version 2023, build 195.5312) which is based on International Standard Analytical Code ISO 9613-2.

As the specific building mechanical plans and mechanical equipment selection details were not available at the time of the preparation of the noise report, sound rating, duty cycle and other information for typical equipment and operations from our other files associated with similar buildings/developments were used in the noise assessment.

The following noise sources and operation parameters for an expected worst case hour during each of the three (3) time periods, daytime between 7:00 a.m. and 7:00 p.m., evening 7:00 p.m. and 11:00 p.m. and nighttime between 11:00 p.m. and 7:00 a.m., were included in the acoustic model prepared for the proposed industrial commercial development:

- Two (2) movement paths for tractor trailers, each path with five (5) trucks for the daytime hour and three (3) trucks for the evening and nighttime hours;
- Nine (9) doors at the existing buildings (Building B) with truck repair operations open sixty (60) minutes during the daytime hour with no evening and nighttime operation;
- Car wash building with no nighttime operations having the entrance door open twelve (12) minutes during the daytime and evening hours;
- Car wash building with no nighttime operations having the exit door open twenty-four (24) minutes during the daytime and evening hours;
- Five (5) cars idling outside waiting to enter into the car wash building;
- C-store building with one (1) rooftop refrigeration unit and two (2) rooftop exhaust fans, all operating sixty (60) minutes during the daytime, evening and nighttime hours;
- C-store building with one (1) rooftop HVAC unit operating sixty (60) minutes during the daytime hour, forty-two (42) minutes during the evening hour and twenty-four (24) minutes during the nighttime hour;
- One (1) speaker in the C-store drive-thru operating fifteen (15) minutes during the daytime and evening hours and five (5) minutes during the nighttime hour;

- Nine (9) cars idling in the C-store drive-thru;

- Two (2) vacuums at the gas station operating twenty (20) minutes during the daytime and evening hours with no nighttime operation;

- One (1) air compressor at the gas station operating ten (10) minutes during the daytime and evening hours with no nighttime operation;

- Industrial Plaza building with five (5) rooftop HVAC units operating sixty (60) minutes during the daytime hour, forty-two (42) minutes during the evening hour and twenty-four (24) minutes during the nighttime hour and one (1) rooftop exhaust fan operating sixty (60) minutes during the daytime, evening and nighttime hours;

- Another Industrial Plaza building with six (6) rooftop HVAC units operating sixty (60) minutes during the daytime hour, forty-two (42) minutes during the evening hour and twenty-four (24) minutes during the nighttime hour and one (1) rooftop exhaust fan operating sixty (60) minutes during the daytime, evening and nighttime hours;

- Proposed building with three (3) rooftop HVAC units operating sixty (60) minutes during the daytime hour, forty-two (42) minutes during the evening hour and twenty-four (24) minutes during the nighttime hour and one (1) rooftop exhaust fan operating sixty (60) minutes during the daytime, evening and nighttime hours; and

- One (1) ground level HVAC unit installed on the north side of Building B operating sixty (60) minutes during the daytime hour, forty-two (42) minutes during the evening hour and twenty-four (24) minutes during the nighttime hour.

The location of the analyzed noise sources listed above are shown on Figure 3.

Table 1 shows the unmitigated sound levels predicted for the daytime, evening and nighttime hours and applicable MOE Class 2 sound level limits. The predicted unmitigated sound levels are also shown on Figure 4.

As can be seen, the unmitigated sound levels are predicted to exceed the applicable sound level limits at the some of the analyzed noise sensitive receptors. Therefore, physical noise mitigation measures are required.

6.0 NOISE MITIGATION MEASURES

As discussed in Section 5.0, noise mitigation measures are required in order to meet the noise guidelines at the noise sensitive receptors in the vicinity of the proposed industrial development.

The following is a summary of the required mitigation:

- A 3.0 m high and 4.0 m long sound barrier to be installed on the south side of the car wash building exit door in the form of a wing wall; and

- A 1.5 m high parapet along the west roof edge of the Industrial Plaza building parallel to Old Brock Road.

The sound levels predicted accounting for the noise mitigation measures listed above are included in Table 2 and shown on Figure 5. As can be seen, the mitigated sound levels are equal to or less than the applicable MOE Class 2 sound level limits; therefore, they are in compliance with the noise guidelines.

The proposed mitigation measures are shown on Figure 2 and Figure 5.

The proposed wing wall and rooftop parapet should have a minimum surface density of 20 kg/m^2.

The noise mitigation measures, particularly the rooftop parapet mentioned above, should be re-evaluated when detailed architectural and mechanical drawings and final mechanical equipment selection information become available.

If the noise mitigation requirements are confirmed, in order to avoid installation after the Industrial Plaza building has been constructed, it is recommended that the rooftop parapet be included in building design and therefore, constructed as part of the industrial building. It is also recommended that the incorporation of a mansard roof design be considered for all buildings which would satisfy the rooftop barrier (parapet) requirement.

According to NPC-300, parking lots for private passenger vehicles are not considered to be sources of noise that need to be assessed. As such, they were not analyzed and noise mitigation measures are not required.

Although noise sources associated with private vehicle traffic in parking lots are exempt from the numerical sound level limits of NPC-300, these activities have the potential to be of annoyance to the neighbouring residential homeowners.

Regulation of noise generated within the proposed parking areas are expected to be controlled by the Municipal Noise By-law. Also, noise associated with the construction activities are governed in the Municipal Noise By-law, as are snow removal activities in the parking areas.

In general, garbage collection operations should be limited to daytime hours between 7:00 a.m. and 7:00 p.m., Monday to Friday.

7.0 CONCLUSION

Based on the preliminary analysis, the City/MOE sound level limits are predicted to be met at the affected residential receptors with the incorporation of appropriate physical mitigation measures addressed in Section 6.0 and shown on Figures 2 and 5.

An updated environmental noise report should be prepared once final site and grading plans, detailed architectural and mechanical drawings and final mechanical equipment selection information become available.

Prior to issuance of building permits, an acoustical consultant should review the plans and mechanical equipment to ensure compliance with the City/MOE guidelines.

Prior to final occupancy, an acoustical consultant should inspect the installed mechanical equipment and noise mitigation measures.

Respectfully submitted,

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DS/CK/jg
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8.0 REFERENCES

1. "Model Municipal Noise Control By-Law", Final Report, Ontario Ministry of the Environment, August, 1978.

2. “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August, 2013, released October 21, 2013, (updated final version # 22).

3. Noise By-law 8043-23, City of Pickering, October 23, 2023.

4. “Consolidated Zoning By-law”, The Corporation of the City of Pickering, Second Draft, February 1, 2024.

5. “Pickering Official Plan Edition 9”, City of Pickering, March 2022.

6. “Zoning By-law Number 81-19 (As Amended)”, The Corporation of the Township of Uxbridge, Office Consolidation, December 2023.

TABLE 1

PROPOSED INDUSTRIAL COMMERCIAL DEVELOPMENT

CLAREMONT NORTH BUSINESS PARK

BROCK ROAD AND OLD BROCK ROAD

CITY OF PICKERING (CLAREMONT)

SUMMARY OF PREDICTED SOUND LEVELS DUE TO STATIONARY SOURCES OF CONTINUOUS NOISE AT THE CLOSEST RECEPTOR LOCATIONS
<u>WITHOUT</u> MITIGATION MEASURES

Receptor Location	Daytime Sound Level* Leq 1 hour (dBA)			Evening Sound Level** Leq 1 hour (dBA)			Nighttime Sound Level*** Leq 1 hour (dBA)		
	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
R1 Outdoor	47	50	No	47	45	Yes	N/A	N/A	No
R1 House	51	50	Yes	51	50	Yes	37	45	No
R2 Outdoor	38	50	No	36	45	No	N/A	N/A	No
R2 House	38	50	No	37	50	No	33	45	No
R3 Outdoor	50	50	No	46	45	Yes	N/A	N/A	No
R3 House	49	50	No	47	50	No	43	45	No
R4 Outdoor	47	50	No	46	45	Yes	N/A	N/A	No
R4 House	47	50	No	46	50	No	42	45	No
R5 Outdoor	43	50	No	42	45	No	N/A	N/A	No
R5 House	43	50	No	42	50	No	39	45	No
R6 Outdoor	39	50	No	38	45	No	N/A	N/A	No
R6 House	39	50	No	38	50	No	35	45	No
R7 Outdoor	39	50	No	38	45	No	N/A	N/A	No
R7 House	39	50	No	37	50	No	34	45	No
R8 Outdoor	38	50	No	37	45	No	N/A	N/A	No
R8 House	38	50	No	37	50	No	34	45	No

* (7:00 a.m. to 7:00 p.m.)

** (7:00 p.m. to 11:00 p.m.)

*** (11:00 p.m. to 7:00 a.m.)

See Figure 4.

TABLE 2

PROPOSED INDUSTRIAL COMMERCIAL DEVELOPMENT

CLAREMONT NORTH BUSINESS PARK

BROCK ROAD AND OLD BROCK ROAD

CITY OF PICKERING (CLAREMONT)

SUMMARY OF PREDICTED SOUND LEVELS DUE TO STATIONARY SOURCES OF CONTINUOUS NOISE AT THE CLOSEST RECEPTOR LOCATIONS <u>WITH</u> MITIGATION MEASURES

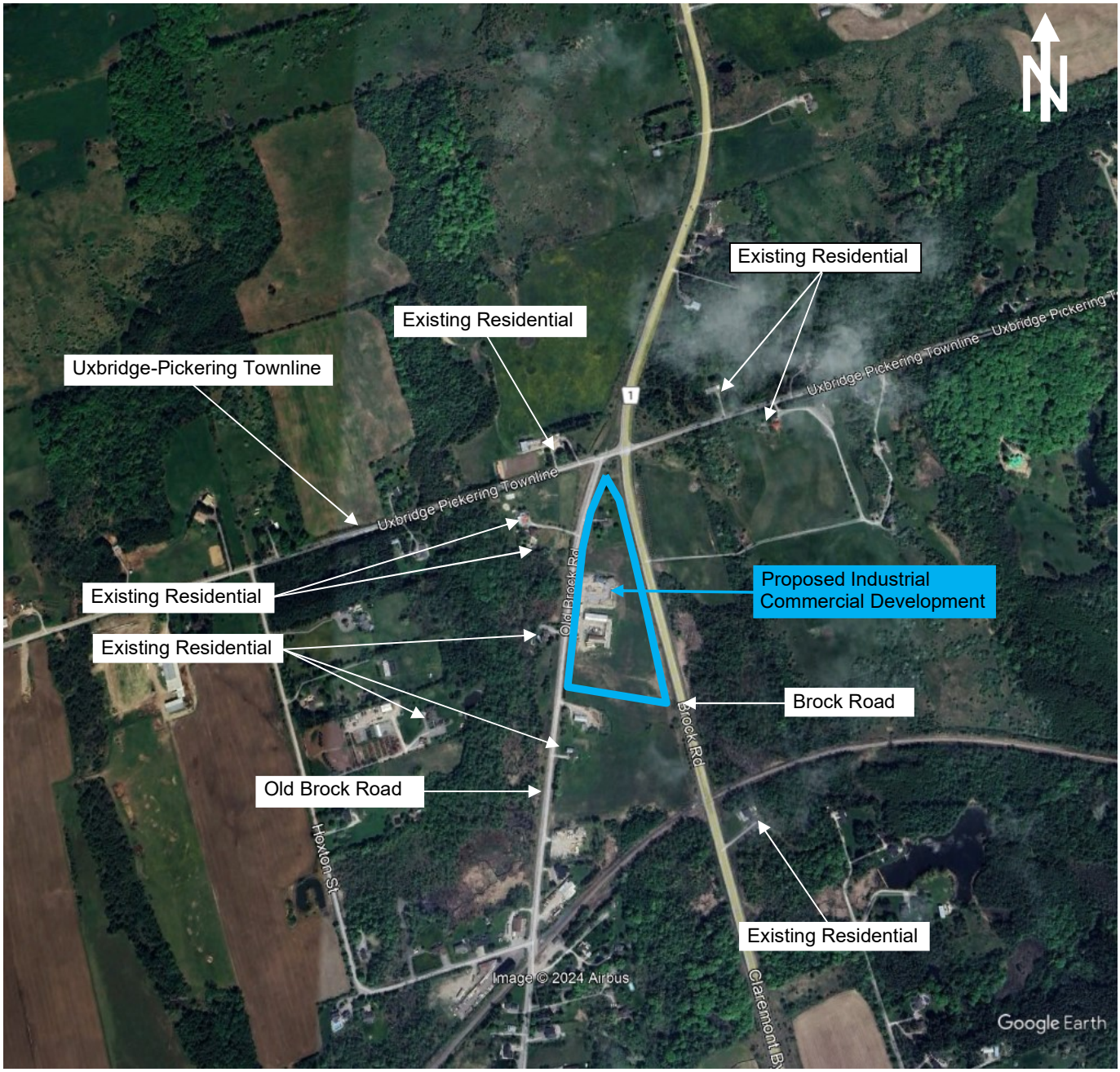
Receptor Location	Daytime Sound Level* Llm 1 hour (dBAI)			Evening Sound Level** Llm 1 hour (dBAI)			Nighttime Sound Level*** Llm 1 hour (dBAI)		
	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance	Predicted	Limit	Exceedance
R1 Outdoor	43	50	No	42	45	No	N/A	N/A	No
R1 House	44	50	No	43	50	No	37	45	No
R2 Outdoor	37	50	No	36	45	No	N/A	N/A	No
R2 House	38	50	No	37	50	No	33	45	No
R3 Outdoor	50	50	No	45	45	No	N/A	N/A	No
R3 House	49	50	No	46	50	No	42	45	No
R4 Outdoor	46	50	No	45	45	No	N/A	N/A	No
R4 House	47	50	No	46	50	No	41	45	No
R5 Outdoor	43	50	No	42	45	No	N/A	N/A	No
R5 House	44	50	No	43	50	No	39	45	No
R6 Outdoor	40	50	No	38	45	No	N/A	N/A	No
R6 House	39	50	No	38	50	No	35	45	No
R7 Outdoor	39	50	No	38	45	No	N/A	N/A	No
R7 House	39	50	No	37	50	No	34	45	No
R8 Outdoor	38	50	No	37	45	No	N/A	N/A	No
R8 House	38	50	No	36	50	No	34	45	No

* (7:00 a.m. to 7:00 p.m.)

** (7:00 p.m. to 11:00 p.m.)

*** (11:00 p.m. to 7:00 a.m.)

See Figure 5.



N.T.S.

Proposed Industrial Commercial Development
Claremont North Business Park
Brock Road and Old Brock Road
City of Pickering (Claremont)

Date: April 2024 **File: 23-185**

KEY PLAN

FIGURE 1

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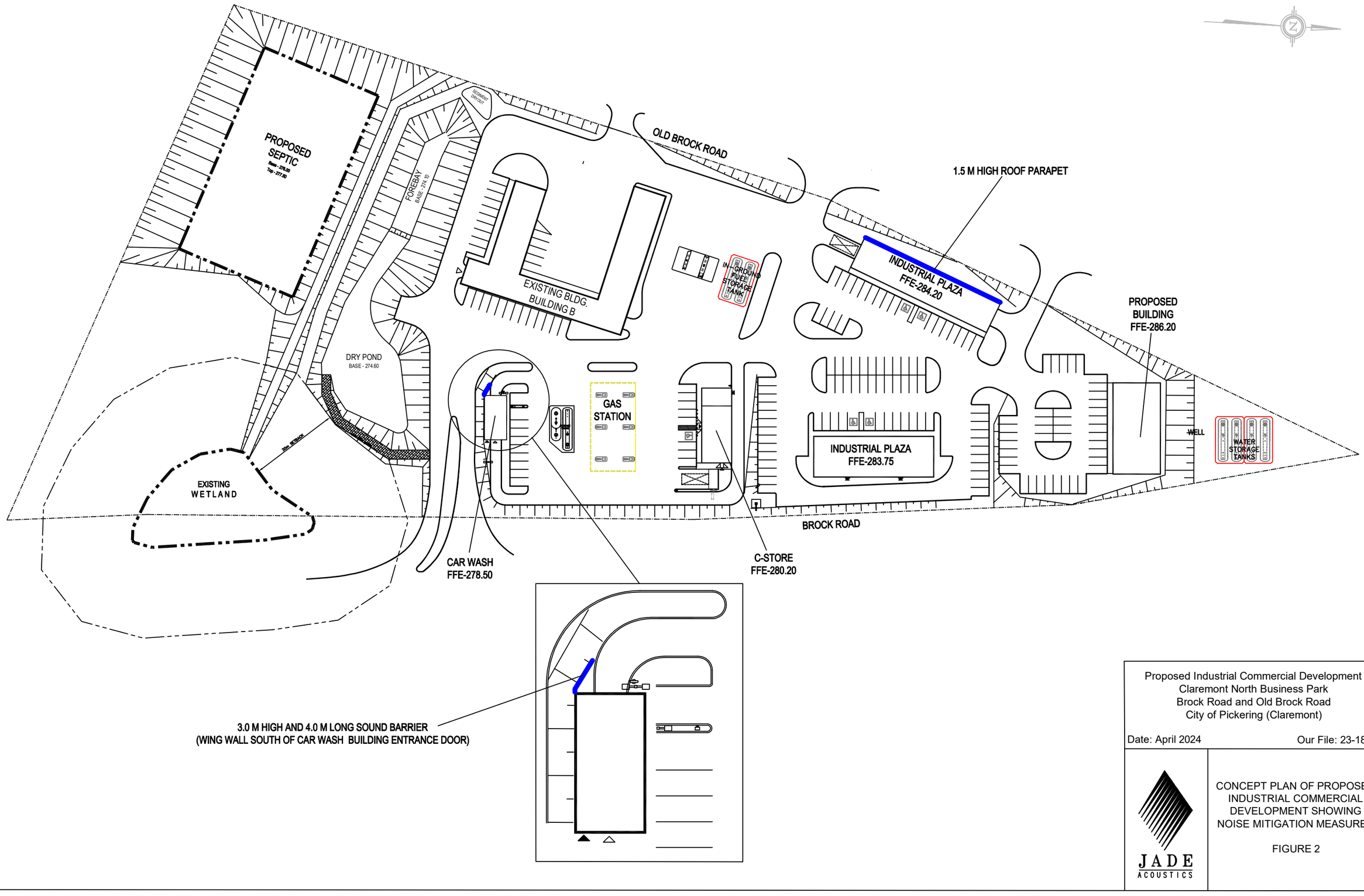


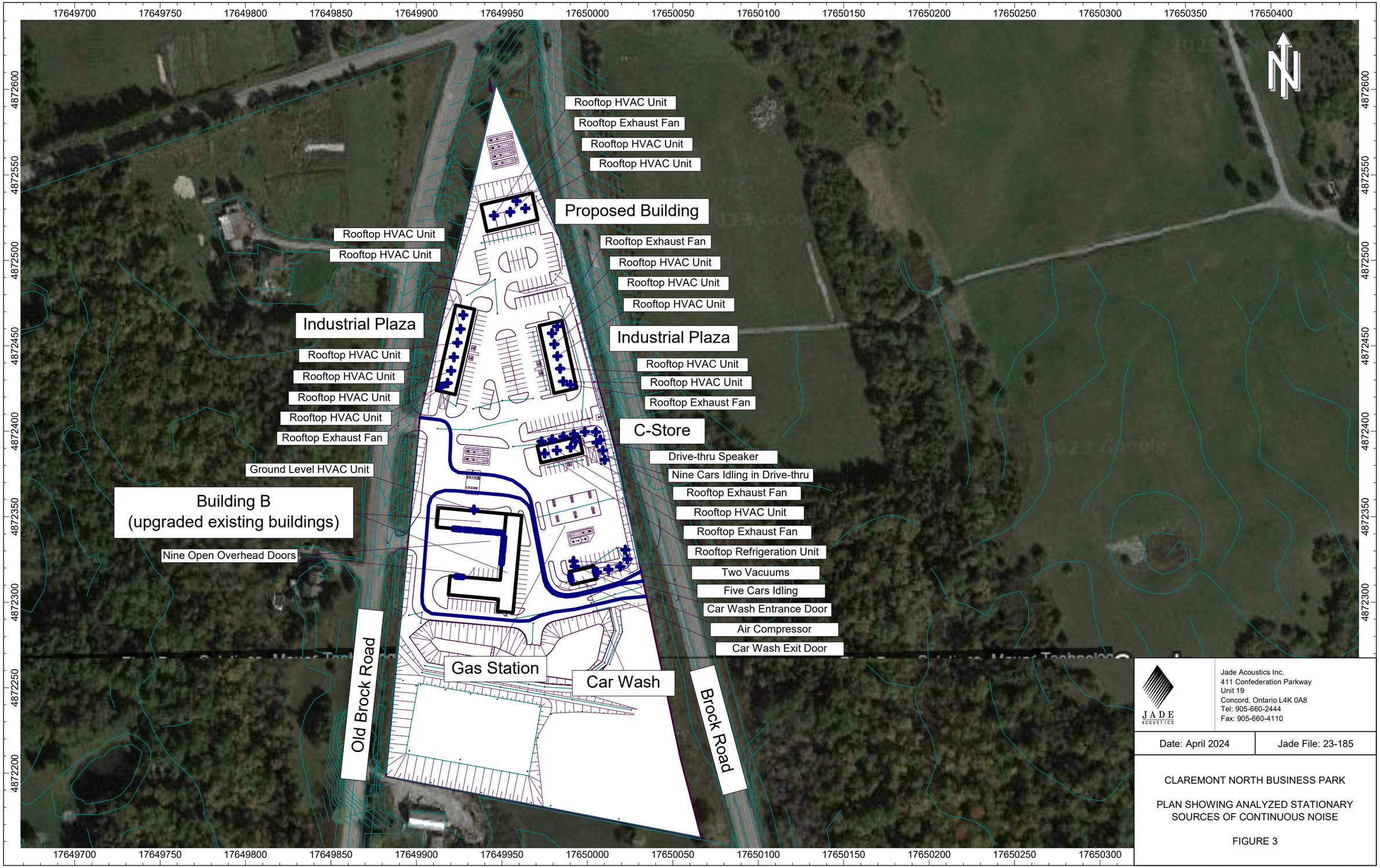
Proposed Industrial Commercial Development
Claremont North Business Park
Brock Road and Old Brock Road
City of Pickering (Claremont)

Date: April 2024 Our File: 23-185

JADE ACOUSTICS

CONCEPT PLAN OF PROPOSED INDUSTRIAL COMMERCIAL DEVELOPMENT SHOWING NOISE MITIGATION MEASURES

FIGURE 2



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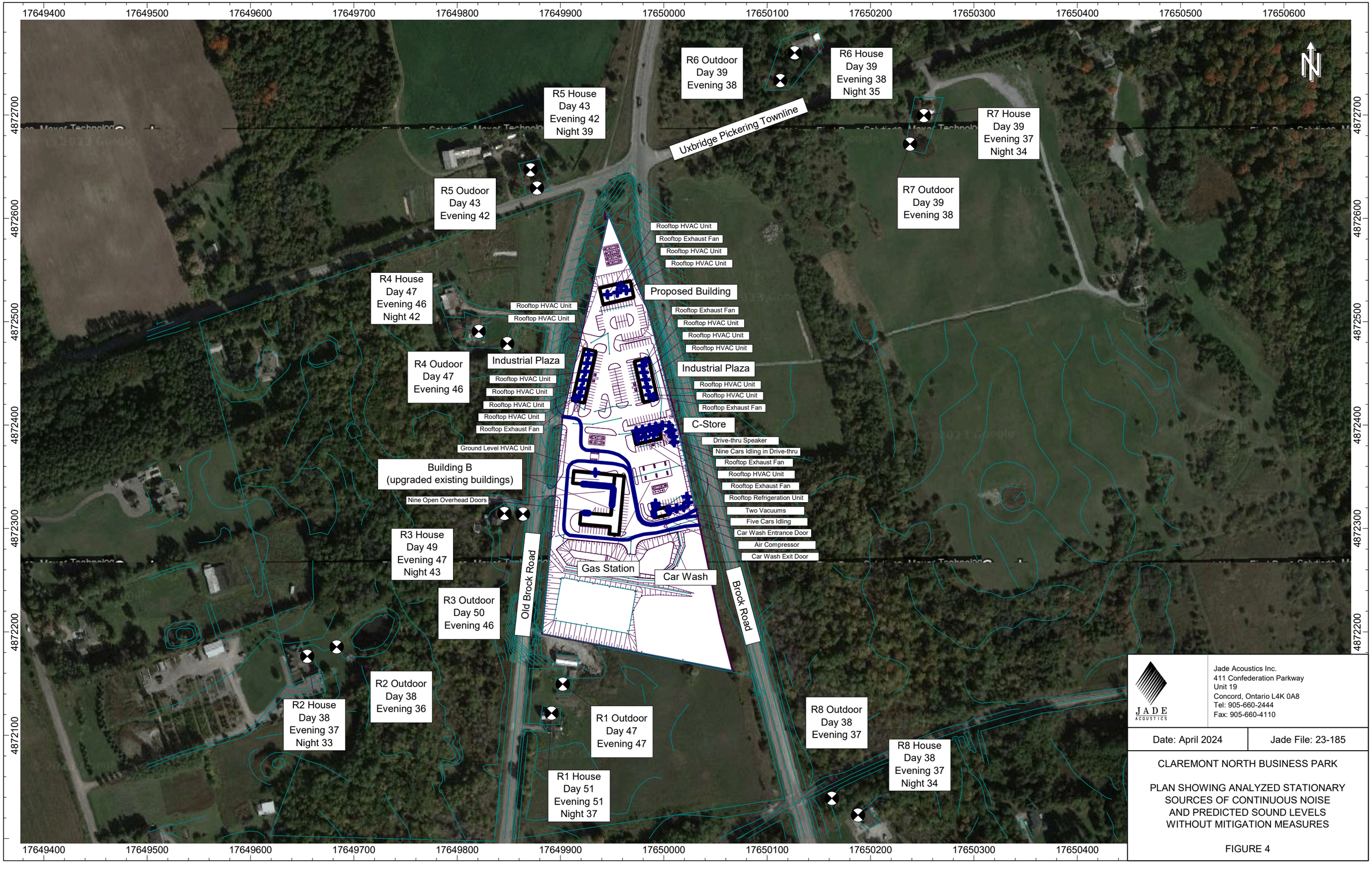
CLAREMONT NORTH BUSINESS PARK

PLAN SHOWING ANALYZED STATIONARY SOURCES OF CONTINUOUS NOISE

FIGURE 3



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CLAREMONT NORTH BUSINESS PARK

PLAN SHOWING ANALYZED STATIONARY SOURCES OF CONTINUOUS NOISE AND PREDICTED SOUND LEVELS WITHOUT MITIGATION MEASURES

FIGURE 4

17649400 17649500 17649600 17649700 17649800 17649900 17650000 17650100 17650200 17650300 17650400 17650500 17650600

4872700 4872600 4872500 4872400 4872300 4872200 4872100

R6 Outdoor
Day 40
Evening 38

R6 House
Day 39
Evening 38
Night 35

R5 House
Day 44
Evening 43
Night 39

Uxbridge Pickering Townline

R7 House
Day 39
Evening 37
Night 34

R5 Oudoor
Day 43
Evening 42

R7 Outdoor
Day 39
Evening 38

Rooftop HVAC Unit
Rooftop Exhaust Fan
Rooftop HVAC Unit
Rooftop HVAC Unit

1.5 M HIGH ROOF PARAPET

R4 House
Day 47
Evening 46
Night 41

Proposed Building

Rooftop HVAC Unit
Rooftop HVAC Unit

Rooftop Exhaust Fan
Rooftop HVAC Unit
Rooftop HVAC Unit
Rooftop HVAC Unit

R4 Oudoor
Day 46
Evening 45

Industrial Plaza

Rooftop HVAC Unit
Rooftop HVAC Unit
Rooftop HVAC Unit
Rooftop HVAC Unit
Rooftop Exhaust Fan

Industrial Plaza

Rooftop HVAC Unit
Rooftop HVAC Unit
Rooftop Exhaust Fan

C-Store

Ground Level HVAC Unit

Drive-thru Speaker
Nine Cars Idling in Drive-thru
Rooftop Exhaust Fan
Rooftop HVAC Unit
Rooftop Exhaust Fan
Rooftop Refrigeration Unit
Two Vacuums
Five Cars Idling
Car Wash Entrance Door
Air Compressor
Car Wash Exit Door

Building B
(upgraded existing buildings)

Nine Open Overhead Doors

R3 House
Day 49
Evening 46
Night 42

Old Brock Road

Gas Station

Car Wash

Brock Road

R3 Outdoor
Day 50
Evening 45

3.0 M HIGH AND 4.0 M LONG
SOUND BARRIER
(WING WALL SOUTH OF CAR
WASH BUILDING EXIT DOOR)

R2 Outdoor
Day 37
Evening 36

R2 House
Day 38
Evening 37
Night 33

R1 Outdoor
Day 43
Evening 42

R8 Outdoor
Day 38
Evening 37

R8 House
Day 38
Evening 36
Night 34

R1 House
Day 44
Evening 43
Night 37

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CLAREMONT NORTH BUSINESS PARK

PLAN SHOWING ANALYZED STATIONARY
SOURCES OF CONTINUOUS NOISE
AND PREDICTED SOUND LEVELS
WITH MITIGATION MEASURES

FIGURE 5

APPENDIX A

NOISE SOURCE INFORMATION USED IN ANALYSIS

Summary of Sound Power Levels

Name	ID	Type	1/3 Oktave Spectrum (dB)										Source
			63	125	250	500	1000	2000	4000	8000	A	lin	
Truck passby	TP	Lw	97.0	101.0	100.0	97.0	93.0	90.0	83.0	76.0	98.9	105.5	JAI # 23-103
Truck Repair Shop	TRS	Lw	77.5	74.0	65.5	64.0	68.5	73.0	78.5	76.5	82.0	83.6	JAI # 23-103
Car Wash Exit Door	CWED	Lw	108.5	106.0	102.5	101.0	100.5	99.5	94.5	88.0	105.6	112.2	JAI # 10-068-07
Car Wash Entrance Door	CWEN	Lw	102.5	99.0	95.5	95.0	92.5	90.5	83.5	76.0	97.6	105.5	JAI # 10-068-07
Car Idling	CAR	Lw	84.0	79.5	76.0	74.5	72.0	70.0	67.0	62.5	77.7	86.4	JAI # 23-103
Drive-thru Speaker	SPK	Lw	82.0	82.0	74.0	85.0	79.0	74.5	65.5	52.0	84.5	88.9	JAI # 23-166
Refrigeration Unit	REF	Lw	85.0	89.0	84.0	84.0	80.0	71.0	59.0	50.0	84.7	92.4	JAI # 23-166
Rooftop Exhaust Fan	VEBK36	Lw	91.0	89.0	84.0	77.0	74.0	71.0	71.0	73.0	81.9	93.8	JAI # 23-166
Rooftop HVAC Unit Lennox KGA156HS	KGA156H	Lw	97.2	87.1	86.6	84.2	81.0	74.8	70.0	64.1	86.0	98.2	Lennox Web Site
PennBarry Exhaust Fan DX11Q-M	DX11Q	Lw	75.0	79.0	79.0	71.0	67.0	66.0	62.0	55.0	75.0	83.3	JAI # 23-166
Two Vacuums	VAC	Lw	82.0	82.0	94.0	79.0	89.0	93.0	93.0	94.0	99.2	100.1	JAI # 11-046-01
Air Compressor	AIRCOMP	Lw	84.0	90.0	77.0	92.0	83.0	78.0	77.0	79.0	90.8	95.2	JAI # 11-046-01

Analyzed Point Stationary Noise Sources

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649918.25	4872428.24	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649920.29	4872435.40	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649921.88	4872443.36	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649923.93	4872451.77	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649925.75	4872459.84	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649927.34	4872468.03	292.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649985.81	4872429.21	291.89
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649984.10	4872436.60	291.89
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649982.51	4872443.87	291.89
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649980.69	4872450.92	291.89
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649979.33	4872457.40	291.89
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649945.39	4872526.19	294.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649954.87	4872528.27	294.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649963.71	4872530.34	294.34
Rooftop HVAC Unit	!000000!HVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	g	17649990.22	4872390.57	288.34
Rooftop Exhaust Fan	!000000!EF	81.9	81.9	81.9	Lw	VEBK36	60.00	60.00	60.00	0.0	(none)	1.00	g	17649982.16	4872388.83	287.50
Rooftop Refrigeration Unit	!000000!REF	84.7	84.7	84.7	Lw	REF	60.00	60.00	60.00	0.0	(none)	1.30	g	17649975.03	4872387.02	287.80
Rooftop Exhaust Fan	!000000!EF	75.0	75.0	75.0	Lw	DX11Q	60.00	60.00	60.00	0.0	(none)	0.80	g	17649914.54	4872426.00	291.30
Rooftop Exhaust Fan	!000000!EF	75.0	75.0	75.0	Lw	DX11Q	60.00	60.00	60.00	0.0	(none)	0.80	g	17649990.08	4872427.20	290.85
Rooftop Exhaust Fan	!000000!EF	75.0	75.0	75.0	Lw	DX11Q	60.00	60.00	60.00	0.0	(none)	0.80	g	17649982.35	4872461.43	290.85
Rooftop Exhaust Fan	!000000!EF	75.0	75.0	75.0	Lw	DX11Q	60.00	60.00	60.00	0.0	(none)	0.80	g	17649958.54	4872534.66	293.30
Rooftop Exhaust Fan	!000000!EF	75.0	75.0	75.0	Lw	DX11Q	60.00	60.00	60.00	0.0	(none)	0.80	g	17649993.01	4872394.05	287.30
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	60.00	60.00	0.0	(none)	1.00	r	17649973.21	4872394.08	281.28
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	60.00	45.00	0.0	(none)	1.00	r	17649979.44	4872395.37	281.22
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	45.00	45.00	0.0	(none)	1.00	r	17649986.00	4872396.94	281.11
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	45.00	45.00	30.00	0.0	(none)	1.00	r	17649992.12	4872398.38	280.99
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	45.00	30.00	30.00	0.0	(none)	1.00	r	17649998.49	4872399.74	280.81
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	30.00	30.00	15.00	0.0	(none)	1.00	r	17650005.01	4872399.52	280.55
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	30.00	15.00	15.00	0.0	(none)	1.00	r	17650007.66	4872395.01	280.30
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	15.00	15.00	5.00	0.0	(none)	1.00	r	17650009.02	4872388.78	280.16
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	15.00	5.00	5.00	0.0	(none)	1.00	r	17650010.17	4872383.34	280.02
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	60.00	60.00	0.0	(none)	1.00	r	17650005.62	4872317.66	279.50
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	60.00	45.00	0.0	(none)	1.00	r	17650012.33	4872319.25	279.32
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	60.00	45.00	45.00	0.0	(none)	1.00	r	17650019.21	4872320.84	279.13
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	45.00	45.00	30.00	0.0	(none)	1.00	r	17650023.47	4872325.16	279.03

Analyzed Point Stationary Noise Sources

Name	ID	Result. PWL			Lw / Li		Operating Time			K0	Direct.	Height		Coordinates		
		Day	Evening	Night	Type	Value	Day	Special	Night					X	Y	Z
		(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		(m)		(m)	(m)	(m)
Car Idling	!000000!CAR	77.7	77.7	77.7	Lw	CAR	45.00	30.00	30.00	0.0	(none)	1.00	r	17650022.22	4872330.62	279.05
Drive-thru Speaker	!000000!DTS	84.5	84.5	84.5	Lw	SPK	15.00	15.00	5.00	0.0	(none)	1.00	r	17650005.46	4872393.24	280.49
Two Vacuums	!000000!VAC	99.2	99.2	99.2	Lw	VAC	20.00	20.00	0.00	0.0	(none)	1.50	r	17649991.89	4872324.03	280.00
Air Compressor	!000000!AIRC	90.8	90.8	90.8	Lw	AIRCOMP	10.00	10.00	0.00	0.0	(none)	1.50	r	17649992.57	4872321.01	280.00
Ground Level HVAC Unit	!000000!GLHVAC	86.0	86.0	86.0	Lw	KGA156H	60.00	42.00	24.00	0.0	(none)	1.84	r	17649933.60	4872354.14	281.20

Analyzed Line Stationary Noise Sources

Name	ID	Result. PWL			Result. PWL'			Lw / Li		Operating Time			K0	Direct.	Moving Pt. Src			
		Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night			Number			Speed
		(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)		Day	Evening	Night	(km/h)
Tractor Trailer Passby	!000001!TTP	89.0	86.8	86.8	65.9	63.6	63.6	PWL-Pt	TP				0.0	(none)	5.0	3.0	3.0	10.0
Tractor Trailer Passby	!000001!TTP	91.5	89.3	89.3	65.9	63.6	63.6	PWL-Pt	TP				0.0	(none)	5.0	3.0	3.0	10.0

Analyzed Vertical Area Stationary Noise Sources

Name	ID	Result. PWL			Result. PWL''			Lw / Li		Operating Time			K0	Direct.
		Day	Evening	Night	Day	Evening	Night	Type	Value	Day	Special	Night		
		(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			(min)	(min)	(min)	(dB)	
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Truck Repair Operations	!000003!TRO	82.0	82.0	82.0	70.0	70.0	70.0	Lw	TRS	60.00	0.00	0.00	3.0	Opening (ÖAL28)
Car Wash Entrance Door	!000003!CWEND	97.6	97.6	97.6	88.1	88.1	88.1	Lw	CWEN	12.00	12.00	0.00	3.0	Opening (ÖAL28)
Car Wash Exit Door	!000003!CWEXD	105.6	105.6	105.6	96.1	96.1	96.1	Lw	CWED	24.00	24.00	0.00	3.0	Opening (ÖAL28)

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MOE)

Reference: "Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning", Publication NPC-300, August, 2013, released October 21, 2013 (updated version # 22).

SOUND LEVEL CRITERIA FOR STATIONARY SOURCES

TABLE C-5

Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

TABLE C-6

Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

TABLE C-7

Exclusion Limit Values for Impulsive Sound Level (L_{LM}, dBAI)
Outdoor Points of Reception

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

TABLE C-8

Exclusion Limit Values of Impulsive Sound Level (L_{LM}, dBAI)
Plane of Window - Noise Sensitive Spaces (Day/Night)

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00-23:00)/ (23:00-07:00)	Class 2 Area (07:00-23:00)/ (23:00-07:00)	Class 3 Area (07:00-19:00)/ (19:00-07:00)	Class 4 Area (07:00-23:00)/ (23:00-07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85