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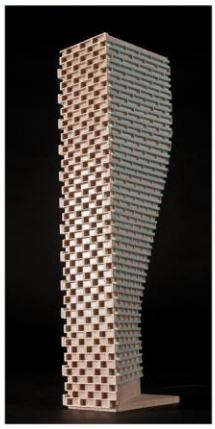
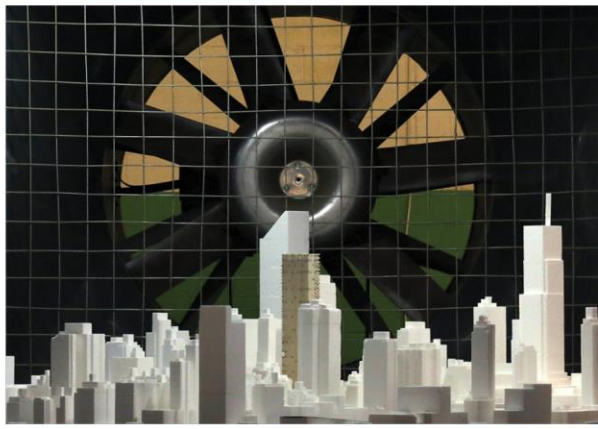
TRAFFIC NOISE FEASIBILITY ASSESSMENT

2275 Mer-Bleue Road
Ottawa, Ontario

Report: 20-281–Traffic Noise Feasibility





January 6, 2021

PREPARED FOR
Caivan Communities
2934 Baseline Road, Suite 302
Ottawa, ON K2H 1B2

PREPARED BY
Efser Kara, MSc, LEED GA, Acoustic Scientist
Joshua Foster, P.Eng., Principal

EXECUTIVE SUMMARY

This report describes a traffic noise feasibility assessment undertaken for a proposed subdivision development located at 2275 Mer-Bleue Road in Ottawa, Ontario. The proposed subdivision is located on a rectangular parcel to the east of Mer-Bleue Road and to the south of Brian Coburn Boulevard. The north part of the parcel, around 0.75-hectare area, is reserved for a medium density mixed-use development. The remaining of the development comprises back-to-back and standard townhomes. The major sources of traffic noise impacting the residential subdivision are Brian Coburn Boulevard and Mer-Bleue Road.

The assessment is based on (i) theoretical noise prediction methods that conform to the Ministry of the Environment, Conservation and Parks (MECP) and City of Ottawa requirements; (ii) noise level criteria as specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG); (iii) future vehicular traffic volumes based on the City of Ottawa's Official Plan roadway classifications; and (iv) site plan drawings prepared by Gerrard Design Associates Inc.

The results of the current analysis indicate that noise levels will range between 59 and 70 dBA during the daytime period (07:00-23:00) and between 51 and 62 dBA during the nighttime period (23:00-07:00), assuming no massing on site. The highest noise level (70 dBA) occurs at the north of the development site, which is directly exposed to the noise generated by Mer-Bleue Road and Brian Coburn Boulevard. Figures 6 and 7 illustrate daytime and nighttime noise contours throughout the site at a height of 1.5 m above grade.

Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA. The results of the calculations indicate that the buildings that are directly exposed to arterial roadways, Mer-Bleue Road and Brian Coburn Boulevard, will require STC rated building components as well as central air conditioning. For the other blocks, forced air heating with provision for the installation of central air conditioning may be required. Additionally, Warning Clauses will also be required to be placed on all Lease, Purchase and Sale Agreements.

Results of the roadway traffic noise calculations also indicate that the outdoor living areas having direct exposure to traffic noise may require noise control measures (see Figure 4). Mitigation measures are described in Section 5.1.1, with the aim to reduce the L_{eq} to as close to 55 dBA as technically, economically and administratively feasible. A detailed roadway traffic noise study will be required at the time of subdivision registration to determine specific noise control measures for the development.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Caivan Communities to undertake a traffic noise feasibility assessment for a proposed subdivision development located at 2275 Mer-Bleue Road in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to the assessment of exterior and interior noise levels generated by local roadway traffic.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on site plan drawings prepared by Gerrard Design Associates Inc., with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The focus of this environmental noise feasibility assessment is a proposed subdivision development located at 2275 Mer-Bleue Road in Ottawa, Ontario. The proposed subdivision is located on a rectangular parcel to the east of Mer-Bleue Road and to the south of Brian Coburn Boulevard. The north part of the parcel, around 0.75 hectare area, is reserved for a medium density mixed-use development. The remaining of the development comprises 32 back-to-back and 80 standard townhomes. The massing in the study site was not considered during the analysis.

The major sources of traffic noise impacting the residential subdivision are Brian Coburn Boulevard and Mer-Bleue Road.

3. OBJECTIVES

The principal objectives of this study are to (i) calculate the future noise levels on the study buildings produced by local roadway traffic, and (ii) explore potential noise mitigation where required.

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ontario Ministry of the Environment, Conservation and Parks – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013

4. METHODOLOGY

4.1 Background

Noise can be defined as any obtrusive sound. It is created at a source, transmitted through a medium, such as air, and intercepted by a receiver. Noise may be characterized in terms of the power of the source or the sound pressure at a specific distance. While the power of a source is characteristic of that particular source, the sound pressure depends on the location of the receiver and the path that the noise takes to reach the receiver. Measurement of noise is based on the decibel unit, dBA, which is a logarithmic ratio referenced to a standard noise level (2×10^{-5} Pascals). The 'A' suffix refers to a weighting scale, which better represents how the noise is perceived by the human ear. With this scale, a doubling of power results in a 3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

4.2 Roadway Traffic Noise

4.2.1 Criteria for Roadway Traffic Noise

For vehicle traffic, the equivalent sound energy level, L_{eq}, provides a measure of the time varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00) / 8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings. The City of Ottawa's Environmental Noise Control Guidelines (ENCG) specifies that the recommended Outdoor Living Area (OLA) noise limit is 55 dBA during the daytime period. As per the ENCG, OLAs do not need to be considered during the nighttime period.

Predicted noise levels at the outdoor living area dictate the action required to achieve the recommended sound levels. According to the ENCG, if an area is to be used as an OLA, noise control measures are required to reduce the L_{eq} to 55 dBA. This is typically done with noise control measures outlined in Section 5.1.1. When noise levels at these areas exceed the criteria, specific Warning Clause requirements may apply. As this is a preliminary assessment, noise control recommendations are of a general nature. Specific mitigation requirements would be the work of a future detailed noise study.

4.2.2 Theoretical Roadway Noise Predictions

Noise predictions were determined by computer modelling using two programs: Predictor-Lima and STAMSON 5.04. To provide a general sense of noise across the site, the employed software program was *Predictor-Lima (TNM calculation)*, which incorporates the United States Federal Highway Administration's (FHWA) Transportation Noise Model (TNM) 2.5. This computer program is capable of representing three-dimensional surface and first reflections of sound waves over a suitable spectrum for human hearing. A receptor grid was placed across the study site, along with a number of discrete receptors at key sensitive areas. Although this program outputs noise contours, it is not the approved model for roadway predictions by the City of Ottawa. Therefore, the results were confirmed by performing discrete noise calculations with the MECP computerized noise assessment program, STAMSON 5.04, at three sample receptor locations coinciding with the receptor locations in Predictor as shown in Figure 2. Receptor distances and exposure angles are also illustrated in Figures 3. Appendix A includes the STAMSON 5.04 input and output data.

Roadway noise calculations were performed by treating each road segment as separate line sources of noise. In addition to the traffic volumes summarized in Table 1, theoretical noise predictions were based on the following parameters:

- Truck traffic on all roadways was taken to comprise 5% heavy trucks and 7% medium trucks, as per ENCG requirements for noise level predictions.
- The day/night split was taken to be 92% / 8% respectively for all streets.
- The ground surface was modelled as absorptive where grass and foliage (soft ground) are present, and as reflective where pavement and concrete are present (hard ground).
- The study site was treated as having flat or gently sloping topography.
- No massing in the study site considered as potential noise screening elements.
- Nine (9) receptors were strategically placed throughout the study area. Six (6) of them are defined on plane of window (POW) at the assumed massing and three (3) of them at potential outdoor living areas (OLA).

4.2.3 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, traffic volumes are based on the roadway classifications outlined in the City of Ottawa's Official Plan (OP) and Transportation Master Plan[3] which provide additional details on future roadway expansions. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. Table 1 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 1: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Mer Bleue Road	4-Lane Urban Arterial Divided (4-UAD)	60	**35,000**
Brian Coburn Boulevard	4-Lane Urban Arterial Undivided (4-UAU)	70	**30,000**

5. RESULTS

5.1 Roadway Traffic Noise Levels

The results of the roadway traffic noise calculations are summarized in Table 2. The results of the current analysis indicate that noise levels will range between 59 and 70 dBA during the daytime period (07:00-23:00) and between 51 and 62 dBA during the nighttime period (23:00-07:00). The highest noise level (70 dBA) occurs at the north of the development site, which is directly exposed to the noise generated by Mer-Bleue Road and Brian Coburn Boulevard. Figures 6 and 7 illustrate daytime and nighttime noise contours throughout the site at a height of 1.5 m above grade.

[3] City of Ottawa Transportation Master Plan, November 2013

TABLE 2: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor ID	Receptor Type	Receptor Location	Receptor Height (m)	PREDICTOR-LIMA Noise Level (dBA)	
				Day	Night
R1	POW (assumed)	West (Northwest Corner) – Standard Townhomes	1.5	69	62
R2	POW (assumed)	West – Back-to-back Townhomes	1.5	67	60
R3	POW (assumed)	West – Standard Townhomes	1.5	70	62
R4	POW (assumed)	West – Standard Townhomes	1.5	68	60
R5	POW (assumed)	North – Standard Townhomes	1.5	68	61
R6	OLA (potential)	North – Standard Townhomes Backyard	1.5	68	61
R7	OLA (potential)	West – Standard Townhomes Backyard	1.5	69	61
R8	OLA (potential)	East – Standard Townhomes Backyard	1.5	59	51
R9	POW (assumed)	West (East Side of The Parcel) – Standard Townhomes	1.5	60	53

Table 3 below provides a comparison between Predictor-Lima and STAMSON. Noise levels calculated in STAMSON were found to have good correlation with Predictor-Lima and variability between the two programs was within an acceptable level of ±1-3 dBA.

TABLE 3: RESULT CORRELATION WITH STAMSON

Receptor ID	Receptor Location	Receptor Height (m)	STAMSON 5.04 Noise Level (dBA)		PREDICTOR-LIMA Noise Level (dBA)	
			Day	Night	Day	Night
R1	West (Northwest Corner) – Standard Townhomes	4.5	72	65	69	62
R2	West – Back-to-back Townhomes	4.5	70	62	67	60
R3	West – Standard Townhomes	4.5	73	65	70	62

5.1.1 Noise Control Measures

The noise levels predicted due to roadway traffic exceed the criteria listed in the ENCG for potential outdoor living areas (OLA). Therefore, noise control measures as described below, subscribing to Table 2.3a in the ENCG and listed in order of preference, will be required to reduce the L_{eq} to 55 dBA at some receptors:

- Distance setback with soft ground
- Insertion of noise insensitive land uses between the source and sensitive points of reception
- Orientation of buildings to provide sheltered zones in rear yards
- Shared outdoor amenity areas
- Earth berms (sound barriers)
- Acoustic barriers

Examining the noise control measures listed above, these conclusions consider the possibility that not all of the proposed buildings will be oriented to provide screening elements for outdoor living areas against roadway traffic sources. Distance setback, insertion of non-noise sensitive land uses, and building orientation to provide sheltered zones in rear yards may not be feasible due to the requirements of the Community Development Plan. It is also not feasible to have shared outdoor amenity areas for this development with respect to rear yards, as this would have a significant impact on marketability. Therefore, the most feasible measures are the insertion of earth berms or acoustic wall barriers between the sensitive rear yards and sources of noise, as mentioned in Section 5.1. By siding lots along the collector

roadway, the extent of barriers are minimized. The use of earth berms or acoustic barriers will depend on the grading plan when it becomes available. Both options have the ability to reduce OLA noise levels to below 55 dBA. Potential noise barrier locations can be seen in Figure 4.

In Figure 5, the area(s) indicated with green (potential noise levels between 55 and 65 dBA with massing) may require forced air heating with provision for central air conditioning; the area(s) indicated with orange (potential noise levels greater than 65 dBA even with massing) will require central air conditioning and upgraded building components.

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 59 and 70 dBA during the daytime period (07:00-23:00) and between 51 and 62 dBA during the nighttime period (23:00-07:00). The highest noise level (70 dBA) occurs at the north of the development site, which is directly exposed to the noise generated by Mer-Bleue Road and Brian Coburn Boulevard. Figures 6 and 7 illustrate daytime and nighttime noise contours throughout the site at a height of 1.5 m above grade.

Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA. The results of the calculations indicate that the buildings that are directly exposed to arterial roadways, Mer-Bleue Road and Brian Coburn Boulevard, will require STC rated building components as well as central air conditioning. For the other blocks, forced air heating with provision for the installation of central air conditioning may be required. Additionally, Warning Clauses will also be required to be placed on all Lease, Purchase and Sale Agreements.

In Figure 5, the area(s) indicated with green (potential noise levels between 55 and 65 dBA with massing) may require forced air heating with provision for central air conditioning; the area(s) indicated with orange (potential noise levels greater than 65 dBA even with massing) will require central air conditioning and upgraded building components.

Results of the roadway traffic noise calculations also indicate that the outdoor living areas having direct exposure to traffic noise may require noise control measures (see Figure 4). Mitigation measures are described in Section 5.1.1, with the aim to reduce the L_{eq} to as close to 55 dBA as technically, economically and administratively feasible. A detailed roadway traffic noise study will be required to determine specific noise control measures for the development.

This concludes our traffic noise feasibility assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

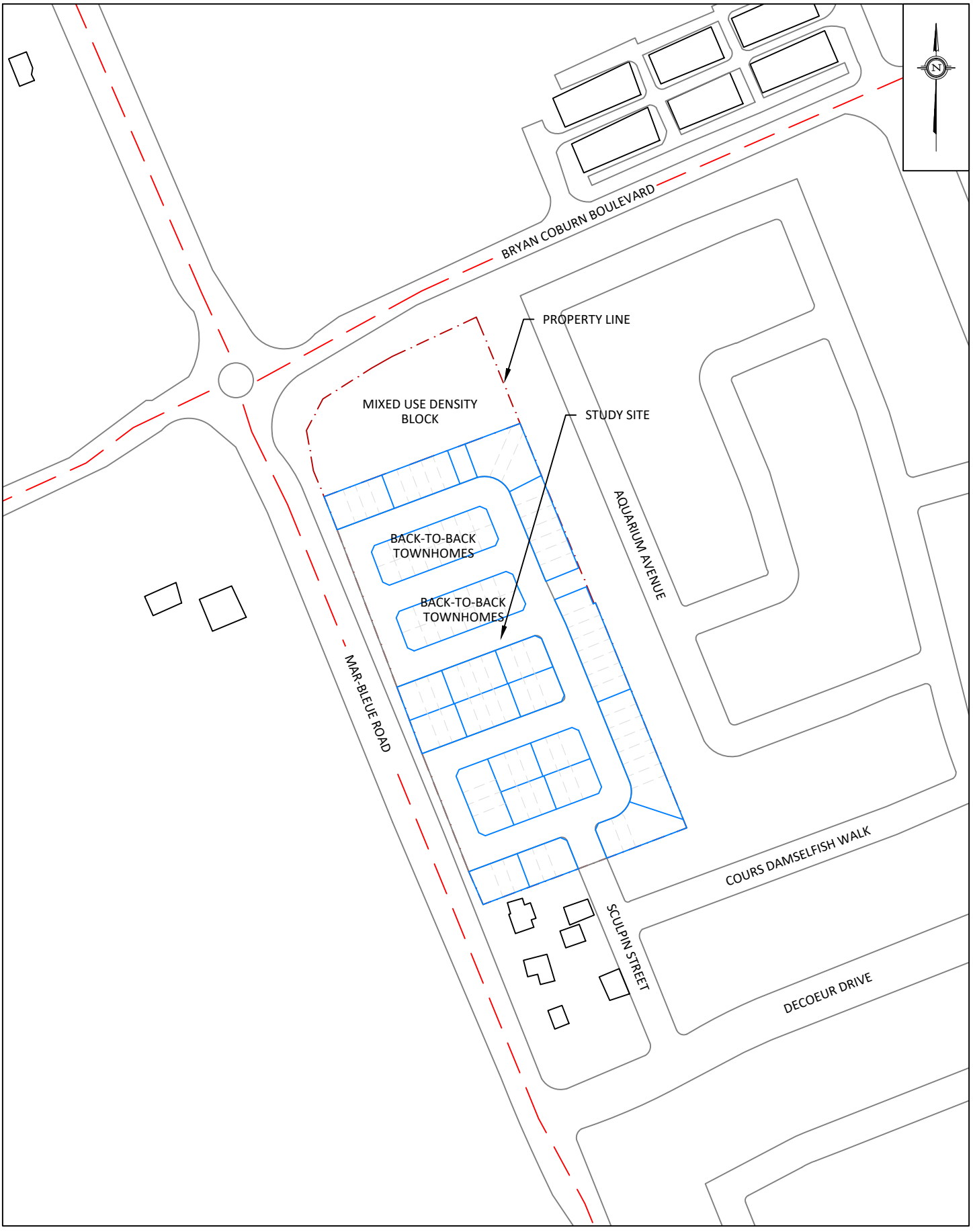
Sincerely,

Gradient Wind Engineering Inc.

Efser Kara, MSc, LEED GA
Acoustic Scientist

Joshua Foster, P.Eng.
Principal

Gradient Wind File #20-281-Traffic Noise Feasibility



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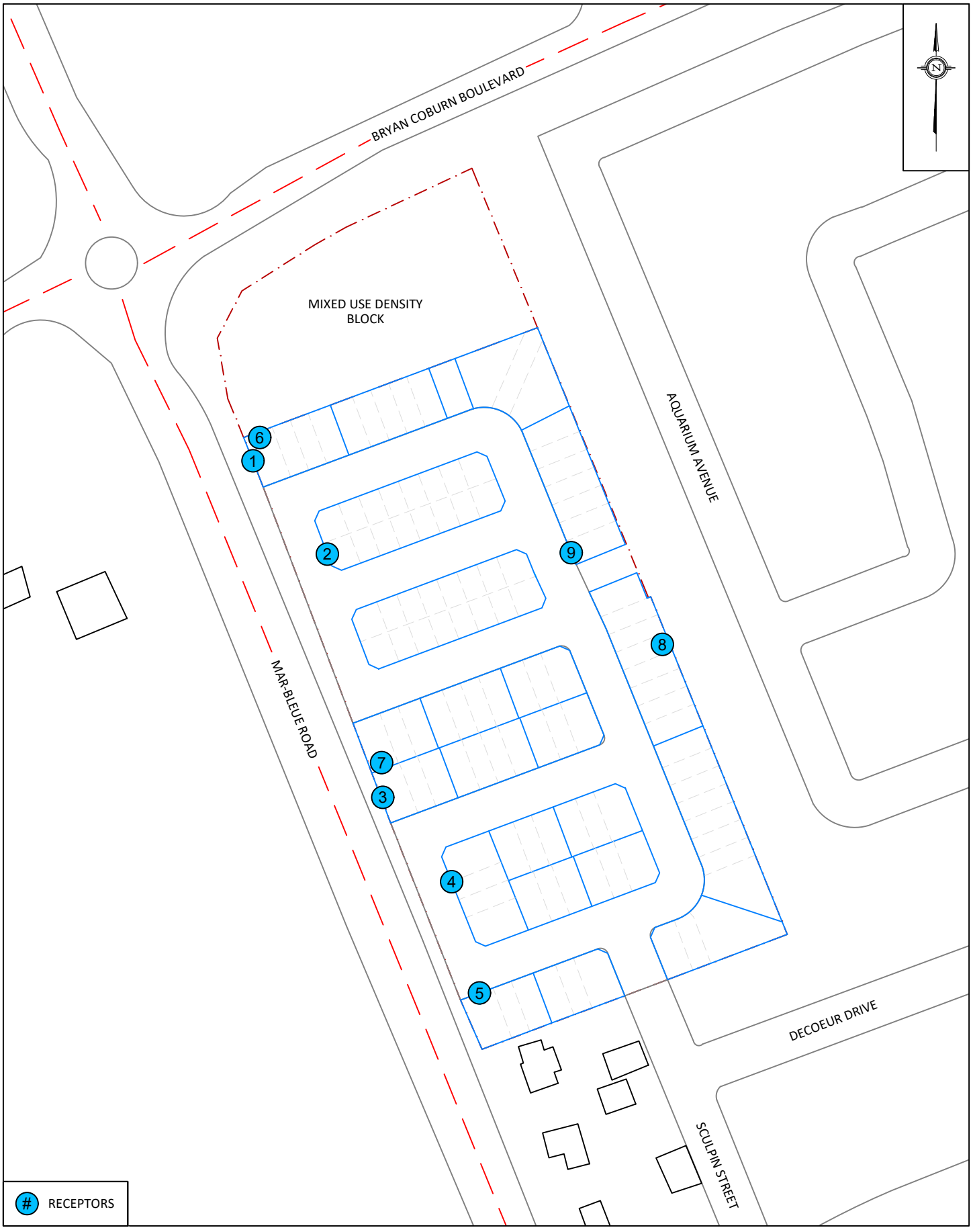
PROJECT	2275 MER-BLEUE ROAD, OTTAWA TRAFFIC NOISE FEASIBILITY ASSESSMENT		DESCRIPTION
SCALE	1:3000 (APPROX.)	DRAWING NO.	20-281-1
DATE	DECEMBER 22, 2020	DRAWN BY	N.M.P. & E.K.

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT



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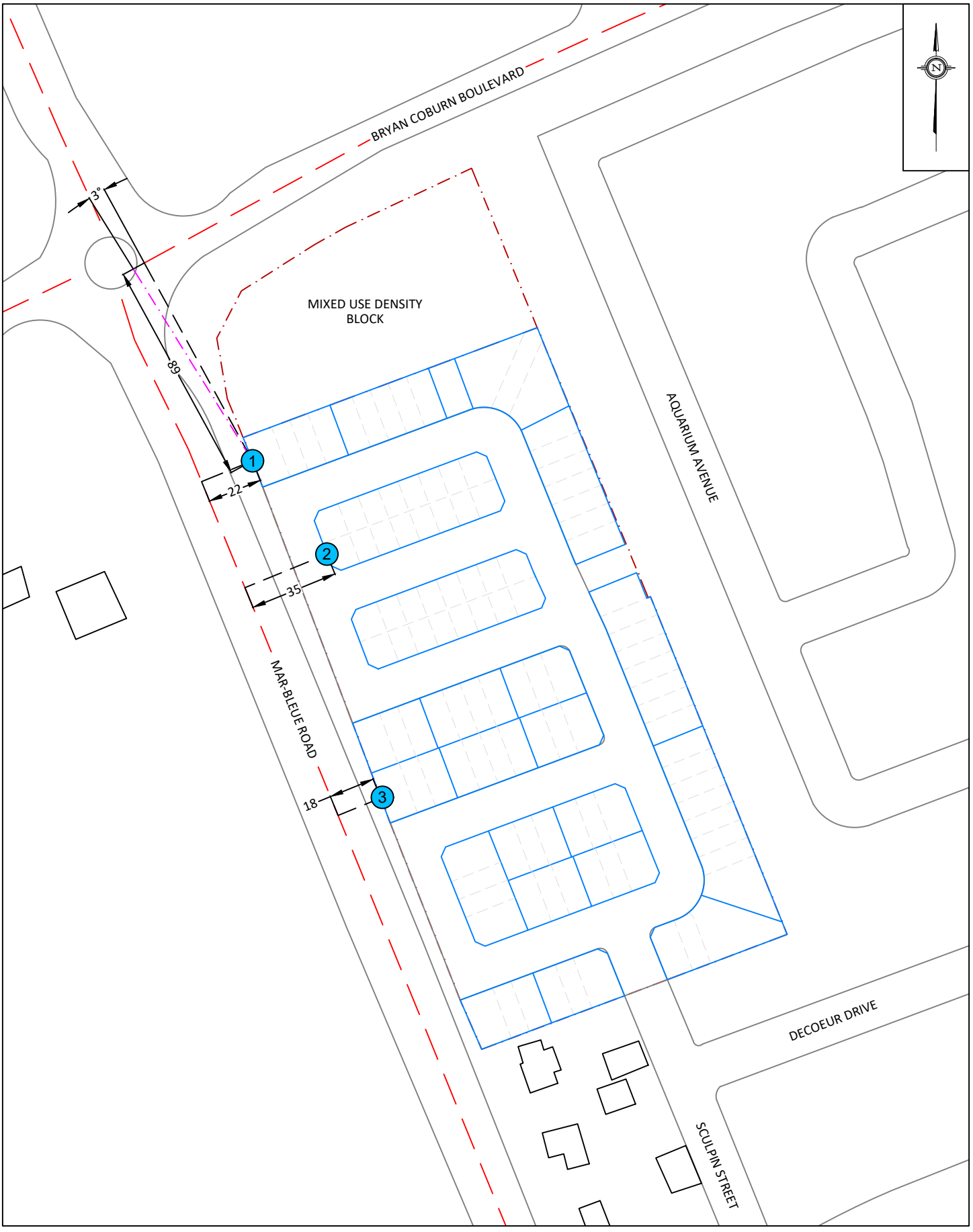
PROJECT	2275 MER-BLEUE ROAD, OTTAWA TRAFFIC NOISE FEASIBILITY ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	20-281-2
DATE	DECEMBER 23, 2020
DRAWN BY	E. K.

DESCRIPTION

FIGURE 2:
RECEPTOR LOCATIONS



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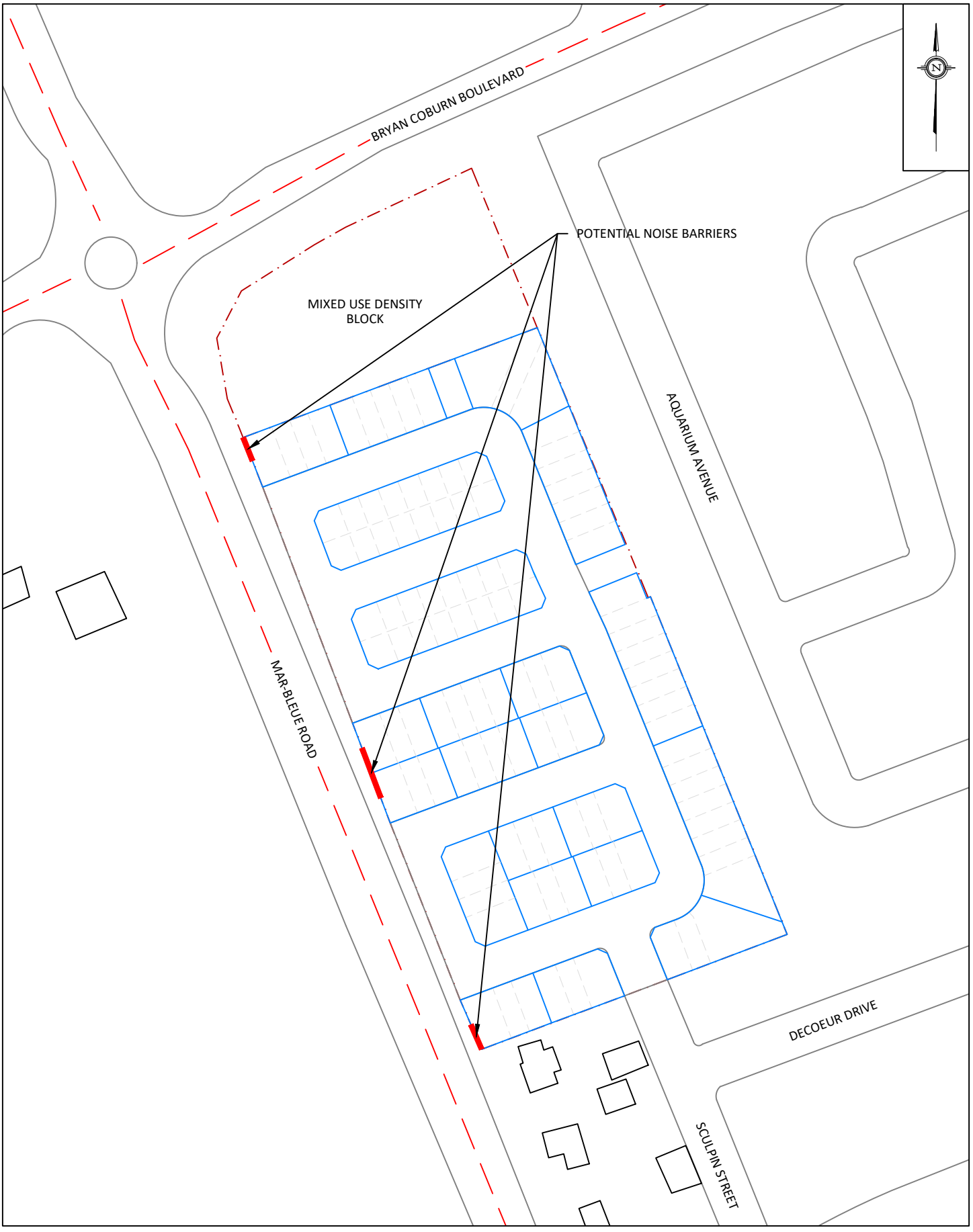
PROJECT	2275 MER-BLEUE ROAD, OTTAWA TRAFFIC NOISE FEASIBILITY ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	20-281-3
DATE	DECEMBER 23, 2020
DRAWN BY	E. K.

DESCRIPTION

FIGURE 3:
STAMSON INPUT DATA FOR RECEPTORS 1, 2, & 3



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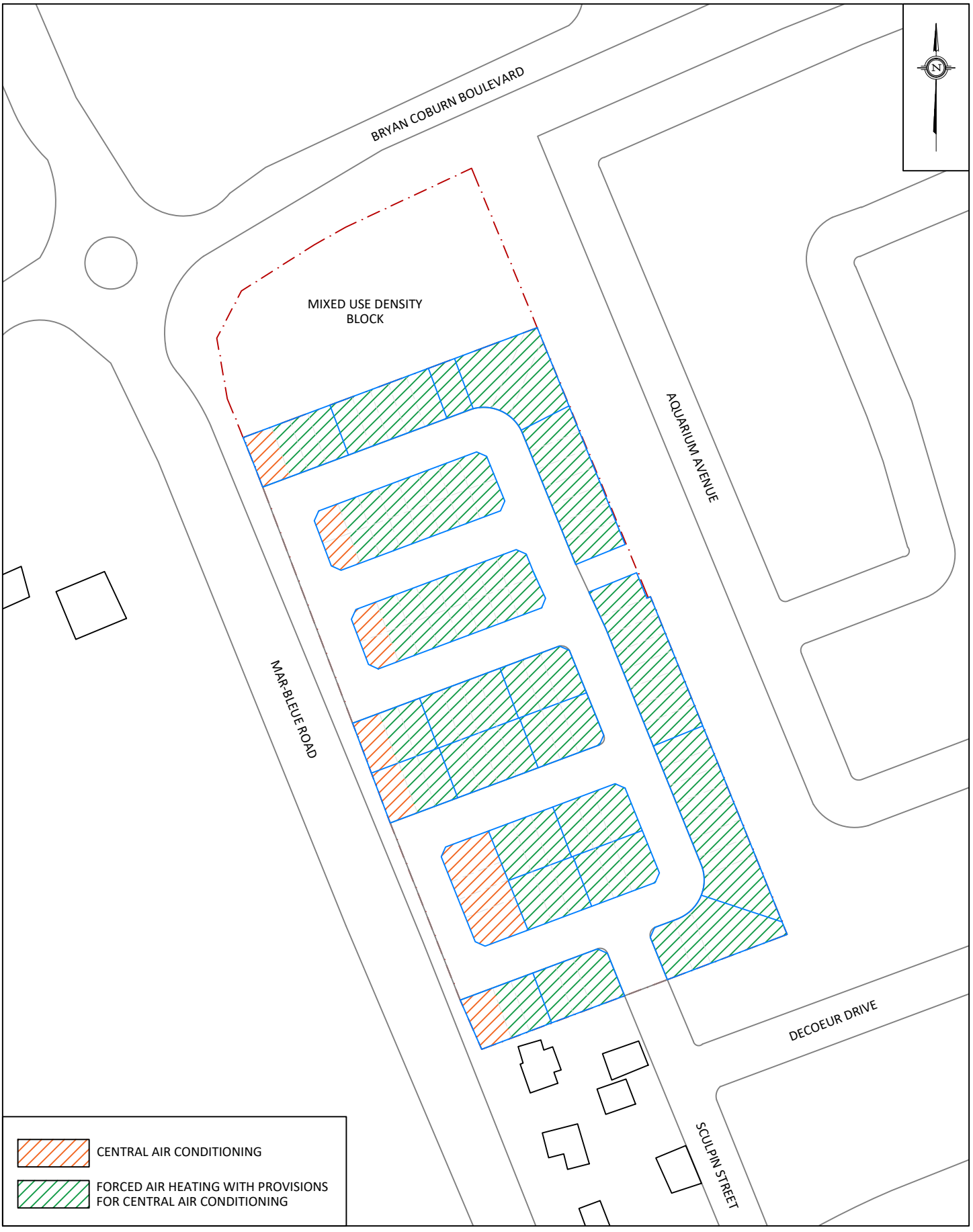
PROJECT	2275 MER-BLEUE ROAD, OTTAWA TRAFFIC NOISE FEASIBILITY ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	20-281-4
DATE	DECEMBER 23, 2020
DRAWN BY	E. K.

DESCRIPTION

FIGURE 4:
POTENTIAL NOISE BARRIERS



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PROJECT	2275 MER-BLEUE ROAD, OTTAWA TRAFFIC NOISE FEASIBILITY ASSESSMENT		DESCRIPTION
SCALE	1:2000 (APPROX.)	DRAWING NO.	20-281-5
DATE	DECEMBER 23, 2020	DRAWN BY	E. K.

FIGURE 5:
POTENTIAL HEATING/VENTILATION REQUIREMENTS

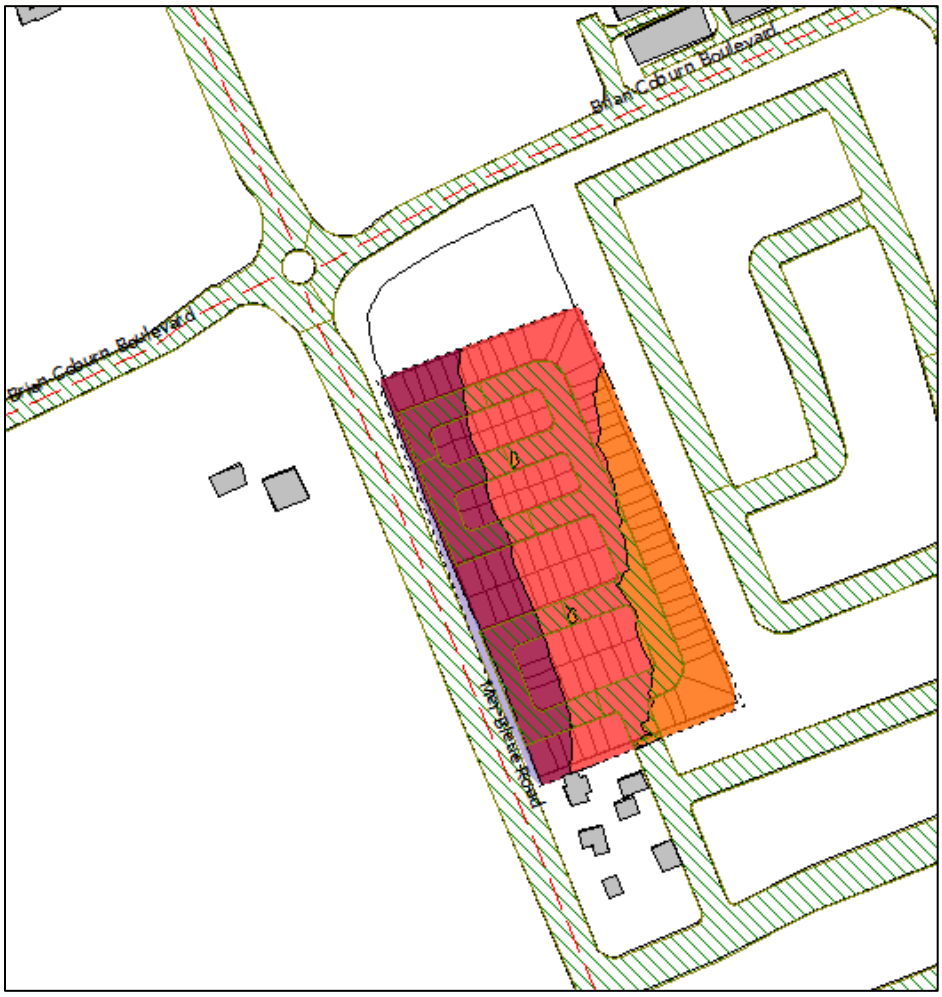


FIGURE 6: DAYTIME TRAFFIC NOISE CONTOURS (1.5 M ABOVE GRADE)

80 – 85 dB
75 – 80 dB
70 – 75 dB
65 – 70 dB
60 – 65 dB
55 – 60 dB
50 – 55 dB
45 – 50 dB
40 – 45 dB
35 – 40 dB
0 – 35 dB

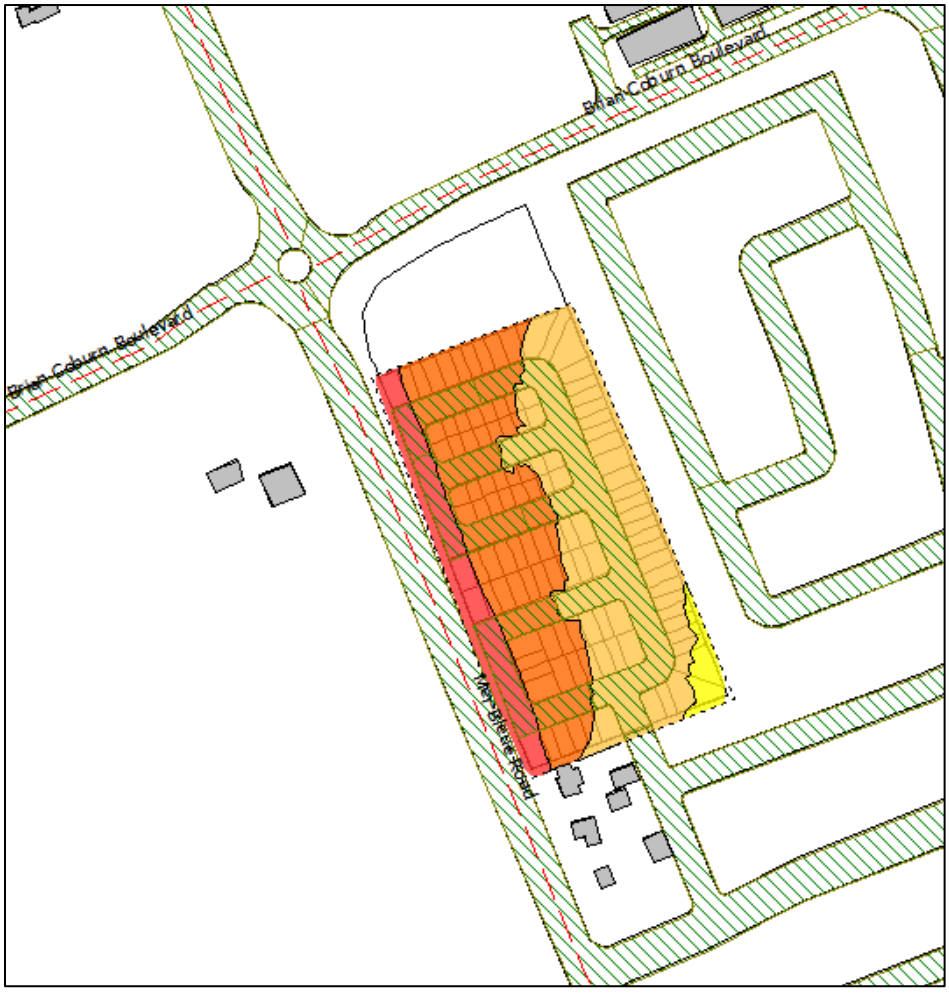
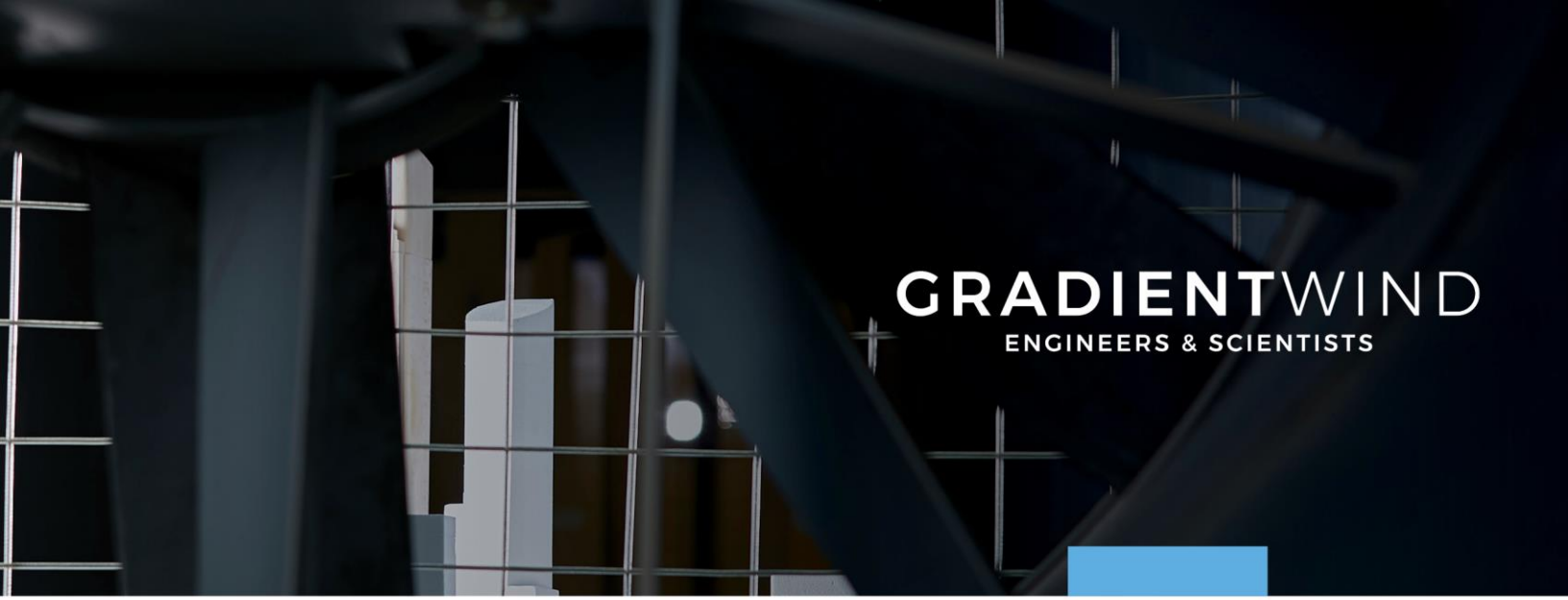
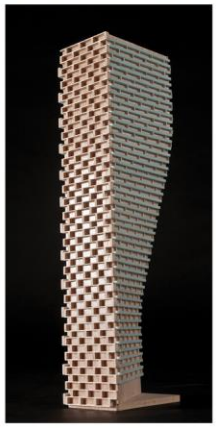
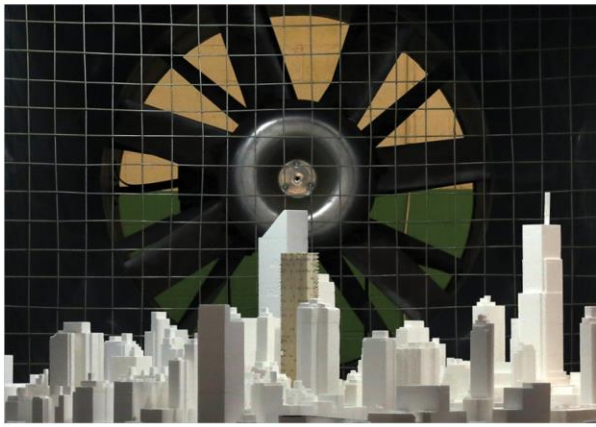


FIGURE 7: NIGHTTIME TRAFFIC NOISE CONTOURS (1.5 M ABOVE GRADE)

80 – 85 dB
75 – 80 dB
70 – 75 dB
65 – 70 dB
60 – 65 dB
55 – 60 dB
50 – 55 dB
45 – 50 dB
40 – 45 dB
35 – 40 dB
0 – 35 dB







APPENDIX A

STAMSON INPUT-OUTPUT DATA

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
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STAMSON 5.0 NORMAL REPORT Date: 23-12-2020 13:12:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Mer Bleue (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Mer Bleue (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 22.00 / 22.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Brian Coburn (day/night)

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 30000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Brian Coburn (day/night)

Angle1 Angle2 : -3.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 89.00 / 89.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Mer Bleue (day)

Source height = 1.50 m

ROAD (0.00 + 72.01 + 0.00) = 72.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.68	0.00	-1.66	0.00	0.00	0.00	0.00	72.01

Segment Leq : 72.01 dBA

Results segment # 2: Brian Coburn (day)

Source height = 1.50 m

ROAD (0.00 + 57.22 + 0.00) = 57.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-3	90	0.66	74.33	0.00	-12.84	-4.27	0.00	0.00	0.00	57.22

Segment Leq : 57.22 dBA

Total Leq All Segments: 72.15 dBA

Results segment # 1: Mer Bleue (night)

Source height = 1.50 m

ROAD (0.00 + 64.42 + 0.00) = 64.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.08	0.00	-1.66	0.00	0.00	0.00	0.00	64.42

Segment Leq : 64.42 dBA

Results segment # 2: Brian Coburn (night)

Source height = 1.50 m

ROAD (0.00 + 49.62 + 0.00) = 49.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-3	90	0.66	66.73	0.00	-12.84	-4.27	0.00	0.00	0.00	49.62

Segment Leq : 49.62 dBA

Total Leq All Segments: 64.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.15
(NIGHT): 64.56

STAMSON 5.0 NORMAL REPORT Date: 23-12-2020 13:08:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Mer Bleue (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Mer Bleue (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Mer Bleue (day)

Source height = 1.50 m

ROAD (0.00 + 70.00 + 0.00) = 70.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.68	0.00	-3.68	0.00	0.00	0.00	0.00	70.00

Segment Leq : 70.00 dBA

Total Leq All Segments: 70.00 dBA

Results segment # 1: Mer Bleue (night)

Source height = 1.50 m

ROAD (0.00 + 62.40 + 0.00) = 62.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.08	0.00	-3.68	0.00	0.00	0.00	0.00	62.40

Segment Leq : 62.40 dBA

Total Leq All Segments: 62.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.00
(NIGHT): 62.40

STAMSON 5.0 NORMAL REPORT Date: 23-12-2020 13:09:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Mer Bleue (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Mer Bleue (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 18.00 / 18.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Mer Bleue (day)

Source height = 1.50 m

ROAD (0.00 + 72.88 + 0.00) = 72.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.68	0.00	-0.79	0.00	0.00	0.00	0.00	72.88

Segment Leq : 72.88 dBA

Total Leq All Segments: 72.88 dBA

Results segment # 1: Mer Bleue (night)

Source height = 1.50 m

ROAD (0.00 + 65.29 + 0.00) = 65.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.08	0.00	-0.79	0.00	0.00	0.00	0.00	65.29

Segment Leq : 65.29 dBA

Total Leq All Segments: 65.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.88
(NIGHT): 65.29