

**ROADWAY TRAFFIC  
NOISE ASSESSMENT**

2829 Dumauiier Avenue  
Ottawa, Ontario

Report: 20-150 – Detailed Traffic Noise R1



May 14, 2024

PREPARED FOR

**Brigil**

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## EXECUTIVE SUMMARY

This report describes a detailed roadway traffic noise assessment performed in support of a Zoning By-Law Amendment (ZBA) and Site Plan Control (SPA) applications for the proposed mixed-use development located at 2829 Dumaaurier Avenue in Ottawa, Ontario. The building is located to the west of Dumaaurier Avenue at the northwest corner of Dumaaurier Avenue and Ramsey Crescent intersection. The proposed development comprises a 40-storey rectangular tower rising on a 4-storey L-shaped podium. The building steps back from all elevations at Level 5 creating a residential amenity terrace to the north. The tower steps back from the north elevation at Level 38 creating a terrace and is topped by a mechanical penthouse (MPH). This study is based on drawings prepared by RLA Architecture, provided in March 2024.

The major source of roadway traffic noise is Highway 417 which is located to the south of the study site. Future LRT was not included in the assessment as it is located more than 100 metres away from the study site. The site is surrounded by low to high-rise residential and commercial buildings from south to north clockwise. Dumaaurier Park is located to the west of the study site just across Dumaaurier Avenue. Figure 1 illustrates the site plan with the surrounding context.

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) drawings prepared by RLA Architecture, provided in March 2024.

The results of the current analysis indicate that noise levels will range between 52 and 67 dBA at Plane of Window (POW) receptors during the daytime period (07:00-23:00) and 44 and 59 dBA during the nighttime period (23:00-07:00). The highest noise levels occur along the south façade, which is most exposed to Highway 417.

The results of the calculations indicate that the south and east facades of the building will require upgraded building components. Building components compliant with the Ontario Building Code (OBC 2020) will be sufficient for north and west facades.



The noise levels at the Level 5 residential amenity terrace and Level 38 terrace do not exceed the 60 dBA criterion. Therefore, the standard height (1.1 m) railings surrounding the area will be sufficient.

The results of the calculations also indicate that the building will require central air conditioning, or a similar ventilation system for the residential units, which will allow occupants to keep windows closed and maintain a comfortable working environment. A Type D warning clause will also be required to be placed on all Lease, Purchase and Sale Agreements, as summarized in Section 6.

With regard to stationary noise impacts, a stationary noise study is required to be performed once mechanical plans for the proposed building become available. This study should assess the stationary noise impacts from rooftop mechanical units serving the proposed building on surrounding noise-sensitive areas. This study would include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. As the proposed building is much taller than the surroundings, locating larger pieces of outdoor mechanical equipment, such as cooling towers, and emergency generators on the roof will help attenuate noise emissions from these and similar pieces of equipment.

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## 1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Brigil to undertake a roadway traffic noise assessment for the proposed mixed-use development located at 2829 Dumaaurier Avenue in Ottawa, Ontario. This report summarizes the methodology, results and recommendations related to the assessment of exterior noise levels generated by local roadway traffic.

This assessment is based on theoretical noise calculation methods conforming to the City of Ottawa<sup>1</sup> and the Ministry of the Environment, Conservation and Parks (MECP)<sup>2</sup> guidelines. Noise calculations were based on drawings prepared by RLA Architecture, provided in March 2024, with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

## 2. TERMS OF REFERENCE

The study site is a high-rise mixed-use development located at 2829 Dumaaurier Avenue. The building is located to the west of Dumaaurier Avenue at the northwest corner of Dumaaurier Avenue and Ramsey Crescent intersection. The proposed development comprises a 40-storey rectangular tower rising on a 4-storey L-shaped podium.

The building steps back from all elevations at Level 5 creating a residential amenity terrace to the north. The tower steps back from the north elevation at Level 38 creating a terrace and is topped by a mechanical penthouse (MPH).

Above the underground parking levels, the ground floor includes an indoor amenity to the north, commercial units to the east, a lobby and main entrance to the southeast, shared building support spaces to the southwest, and bike storage to the west. A drive aisle along the south and west elevations provides access to at-grade parking along the southwest elevation of the subject site and to the underground parking entrance to the northwest. Level 5 includes an indoor amenity to the north and residential units to the south, and the remaining levels of the podium and tower comprise residential occupancy.

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<sup>1</sup> City of Ottawa Environmental Noise Control Guidelines, January 2016

<sup>2</sup> Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013



The Level 5 residential amenity terrace and Level 38 terrace are considered as Outdoor Living Areas (OLA) in this study and included in the calculations. Other balconies and terraces are not considered OLAs as only balconies and terraces with a minimum depth of 4 metres are considered Outdoor Living Areas (OLA) as per the ENCG. This study is based on drawings prepared by RLA Architecture, provided in March 2024.

The primary sources of roadway traffic noise are Highway 417 and Dumaaurier Avenue which are located to the south and east of the study site, respectively. Future LRT was not included in the assessment as it is located more than 100 metres away from the study site. The site is surrounded by low to high-rise residential and commercial buildings from south to north clockwise. Dumaaurier Park is located to the west of the study site. Figure 1 illustrates the site plan with the surrounding context.

### **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) ensure that interior and exterior noise levels do not exceed the allowable limits specified by the City of Ottawa’s Environmental Noise Control Guidelines (ENCG) as outlined in Section 4.2 of this report.

### **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 level 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 sound pressure level ( $2 \times 10^{-5}$  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 vehicular 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 and LRT, 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 indoor noise limit range (that is relevant to this study) for roadways is 45 and 40 dBA for living rooms and sleeping quarters, respectively, and 50 for retail stores as listed in Table 1. Based on Gradient Wind’s experience, more comfortable indoor noise levels should be targeted, towards 42 and 37, respectively, to control peak noise and deficiencies in building envelope construction.

**TABLE 1: INDOOR SOUND LEVEL CRITERIA**

Type of Space	Time Period	Leq (dBA)
General offices, reception areas, <b>retail stores</b> , etc.	07:00 – 23:00	50
<b>Living/dining/den areas of residences</b> , hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, etc.	07:00 – 23:00	45
Sleeping quarters of hotels/motels	23:00 – 07:00	45
<b>Sleeping quarters of residences</b> , hospitals, nursing/retirement homes, etc.	23:00 – 07:00	40

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise, while a standard closed window is capable of providing a minimum 20 dBA noise reduction<sup>3</sup>. A closed window due to a ventilation requirement will bring noise levels down to achieve an acceptable indoor

<sup>3</sup> Burberry, P.B. (2014). Mitchell’s Environment and Services. Routledge, Page 125

environment<sup>4</sup>. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the need for having windows and doors closed, which triggers the need for forced air heating with provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, air conditioning will be required and building components will require higher levels of sound attenuation<sup>5</sup>.

The sound level criterion for outdoor living areas (OLA) is 55 dBA, which applies during the daytime period (07:00 to 23:00). When noise levels exceed 55 dBA and are less than or equal to 60 dBA, mitigation should be considered to reduce noise levels to as close to 55 dBA if technically, economically, and administratively feasible. If noise levels exceed 60 dBA, mitigation must be provided to reduce noise levels below 60 dBA.

#### 4.2.2 Theoretical Roadway Noise Predictions

Noise predictions were performed with the aid of the Ministry of the Environment, Conservations and Parks' (MECP) computerized noise assessment program, STAMSON 5.04, for road analysis. Appendix A includes the STAMSON 5.04 input and output data.

Roadway traffic noise calculations were performed by treating each roadway segment as separate line sources of noise. In addition to the traffic volumes summarized in Table 2, 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 for all roads was taken to be 92% / 8%, respectively.
- Ground surfaces were taken to be absorptive due to the presence of soft ground (grass, park areas) on the path of Highway 417 and reflective on the path of Dumaaurier Avenue.
- Topography was assumed to be a flat/gentle slope surrounding the study site.
- A total of seven (7) receptor locations were chosen around the study site; five (5) of them are at the facades of the building as Plane of Window (POW) receptors and two (2) of them as Outdoor

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<sup>4</sup> MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.8

<sup>5</sup> MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3



Living Area (OLA) receptors; one of them on the rooftop terrace of the podium to the north (Level 7) and the other one on the Level 7 balcony to the south.

- POW receptor heights were taken to be at the centre of the highest-level windows of the related façade. The OLA receptor heights were taken at 21.5 m above grade, 1.5 metres above the Level 7 floor.
- The receptor distances to roadway traffic and exposure angles are illustrated in Figures 3-6.

### 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<sup>6</sup> 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 2 (below) summarizes the AADT values used for each roadway included in this assessment.

**TABLE 2: ROADWAY TRAFFIC DATA**

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Dumaurier Avenue	2-Lane Urban Collector (2-UCU)	40	<b>8,000</b>
Highway 417	8-Freeway	100	<b>146,664</b>

### 4.3 Indoor Noise Calculations

The difference between outdoor and indoor noise levels is the noise attenuation provided by the building envelope. According to common industry practice, complete walls and individual wall elements are rated according to the Sound Transmission Class (STC). The STC ratings of common residential walls built in conformance with the Ontario Building Code (2020) typically exceed STC 35, depending on exterior cladding, thickness and interior finish details. For example, brick veneer walls can achieve STC 50 or more.

<sup>6</sup> City of Ottawa Transportation Master Plan, November 2013

Standard commercially sided exterior metal stud walls have around STC 45. Standard good quality double-glazed non-operable windows can have STC ratings ranging from 25 to 40, depending on the window manufacturer, pane thickness and inter-pane spacing. As previously mentioned, the windows are the known weak points in a partition.

As per Section 4.2, when daytime noise levels from road sources at the plane of the window exceed 65 dBA, calculations must be performed to evaluate the sound transmission quality of the building components to ensure acceptable indoor noise levels are achieved. The calculation procedure<sup>7</sup> considers:

- Window type and total area as a percentage of total room floor area
- Exterior wall type and total area as a percentage of the total room floor area
- Acoustic absorption characteristics of the room
- Outdoor noise source type and approach geometry
- Indoor sound level criteria, which varies according to the intended use of a space

Based on published research<sup>8</sup>, exterior walls possess specific sound attenuation characteristics that are used as a basis for calculating the required STC ratings of windows in the same partition. Due to the limited information available at the time of the study, detailed floor layouts have not been finalized; therefore, detailed STC calculations could not be performed at this time. As a guideline, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels).

## **5. ROADWAY TRAFFIC NOISE RESULTS AND DISCUSSION**

### **5.1 Roadway Traffic Noise Levels**

The results of the roadway traffic noise calculations are summarized in Table 3 below. A complete set of input and output data from all STAMSON 5.04 calculations are available in Appendix A.

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<sup>7</sup> Building Practice Note: Controlling Sound Transmission into Buildings by J.D. Quirt, National Research Council of Canada, September 1985

<sup>8</sup> CMHC, Road & Rail Noise: Effects on Housing

**TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROAD TRAFFIC**

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
1	120.5	POW West Façade – Level 40	62	55
2	120.5	POW North Façade – Level 40	52	44
3	120.5	POW East Façade – Level 40	66	58
4	120.5	POW South Façade – Level 40	67	59
5	15.5	OLA – L5 Residential Amenity Terrace (North)	59	N/A*
6	12.5	POW East Façade – Level 4 (Podium)	63	56
7	12.5	POW East Façade – Level 4 (Podium)	63	56
8	114.5	OLA – L38 Terrace (North)	35	N/A*

\* OLA noise levels during the nighttime are not considered, as per the ENCG.

The results of the current analysis indicate that noise levels will range between 52 and 67 dBA at Plane of Window (POW) receptors during the daytime period (07:00-23:00) and 44 and 59 dBA during the nighttime period (23:00-07:00). The highest noise levels occur along the south façade, which is most exposed to Highway 417. The noise levels at the podium rooftop (Receptor 5) do not exceed the 60 dBA criterion. Therefore, standard height (1.1 m) railings surrounding the area will be sufficient.

The results of the calculations indicate that the south and east facades of the building will require upgraded building components. Building components compliant with the Ontario Building Code (OBC 2020) will be sufficient for north and west facades.

## 5.2 Noise Control Measures

The noise levels predicted due to roadway traffic exceed the criteria listed in Section 4.2 for building components. As discussed in Section 4.3, the anticipated STC requirements for windows and walls have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels). As per the City of Ottawa requirements, detailed STC calculations will be required to be completed prior to building permit application. The STC requirements for the windows are summarized below for various units within the development (see Figure 7):

- **Bedroom Windows**
  - (i) Bedroom windows facing south and east will require a minimum STC of 30
  - (ii) All other bedroom windows are to satisfy Ontario Building Code (OBC 2020) requirements
  
- **Living Room Windows**
  - (i) Living room windows facing south and east will require a minimum STC of 25
  - (ii) All other living room windows are to satisfy Ontario Building Code (OBC 2020) requirements
  
- **Retail Windows**
  - (i) Retail windows facing south and east will require a minimum STC of 20
  - (ii) All other living room windows are to satisfy Ontario Building Code (OBC 2020) requirements
  
- **Exterior Walls**
  - (i) Exterior wall components on the south and east façades will require a minimum STC of 45, which will be achieved with brick cladding or an acoustical equivalent according to NRC test data<sup>9</sup>

The STC requirements apply to windows, doors, spandrel panels and curtainwall elements. Exterior wall components on these façades are recommended to have a minimum STC of 45, where a punched window and wall system is used. A review of window supplier literature indicates that the specified STC ratings can be achieved by a variety of window systems that have a combination of glass thickness and inter-pane spacing. It is the responsibility of the manufacturer to ensure that the specified window achieves the required STC. This can only be assured by using window configurations that have been certified by laboratory testing. The requirements for STC ratings assume that the remaining components of the building are constructed and installed according to the minimum standards of the Ontario Building Code. The specified STC requirements also apply to swinging and/or sliding patio doors.

The results of the calculations also indicate that the building will require central air conditioning, or a similar ventilation system for the residential units, which will allow occupants to keep windows closed and maintain a comfortable working environment. In addition to ventilation requirements, warning clauses will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6.

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<sup>9</sup> J.S. Bradley and J.A. Birta. Laboratory Measurements of the Sound Insulation of Building Façade Elements, National Research Council October 2000.

## 6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 52 and 67 dBA at Plane of Window (POW) receptors during the daytime period (07:00-23:00) and 44 and 59 dBA during the nighttime period (23:00-07:00). The highest noise levels occur along the south façade, which is most exposed to Highway 417.

The results of the calculations indicate that the south and east facades of the building will require upgraded building components. Building components compliant with the Ontario Building Code (OBC 2020) will be sufficient for north and west facades.

The noise levels at the Level 5 residential amenity terrace and Level 38 terrace do not exceed the 60 dBA criterion. Therefore, the standard height (1.1 m) railings surrounding the area will be sufficient.

The results of the calculations also indicate that the building will require central air conditioning, or a similar ventilation system for the residential units, which will allow occupants to keep windows closed and maintain a comfortable working environment. The following Warning Clause<sup>10</sup> will also be required to be placed on all Lease, Purchase and Sale Agreements, as summarized below:

### **Type D**

*“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.”*

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<sup>10</sup> City of Ottawa Environmental Noise Control Guidelines, January 2016

With regard to stationary noise impacts, a stationary noise study is required to be performed once mechanical plans for the proposed building become available. This study should assess the stationary noise impacts from rooftop mechanical units serving the proposed building on surrounding noise-sensitive areas. This study would include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. As the proposed building is much taller than the surroundings, locating larger pieces of outdoor mechanical equipment, such as cooling towers, and emergency generators on the roof will help attenuate noise emissions from these and similar pieces of equipment.

This concludes our traffic noise 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.**

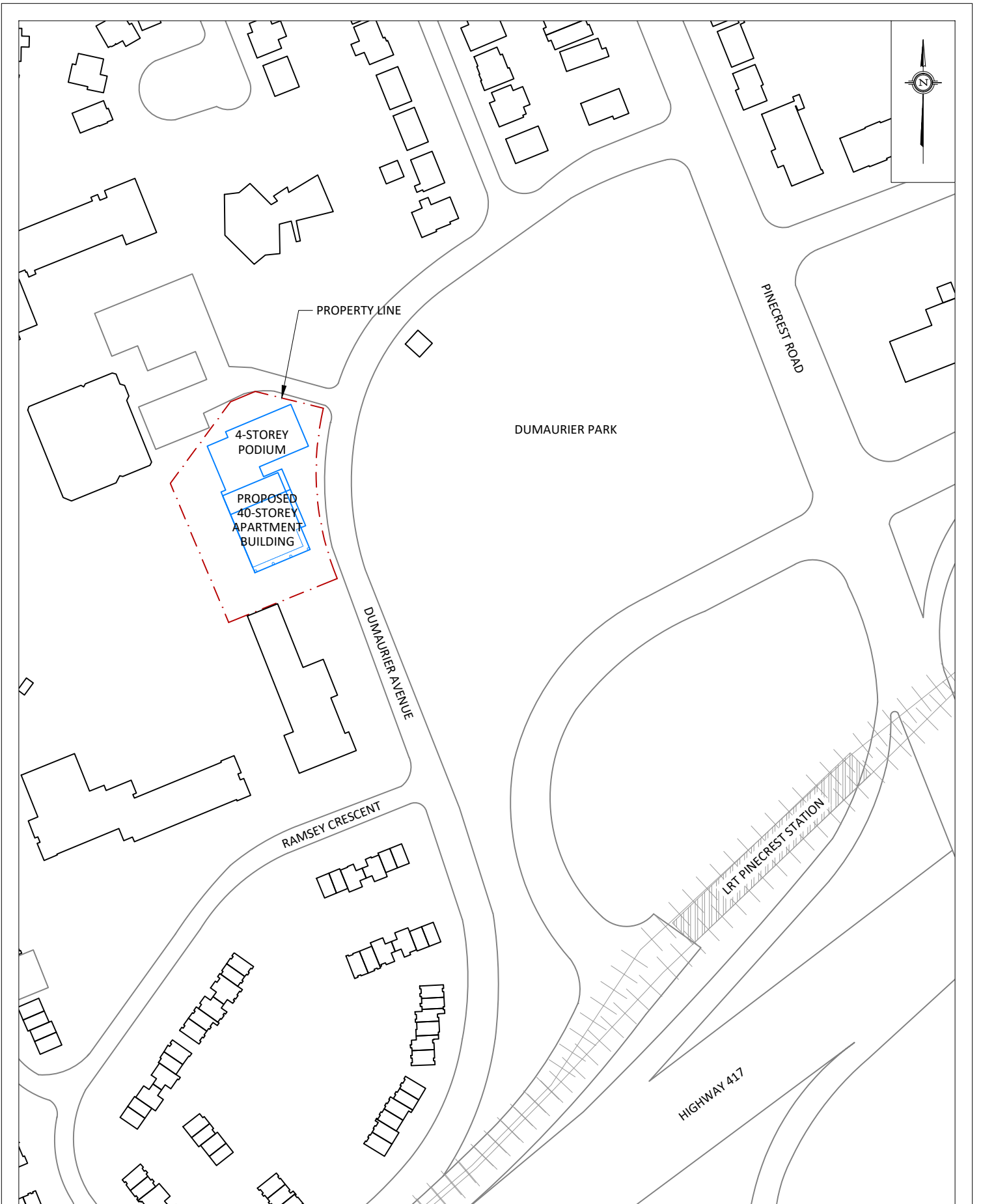


Efser Kara, MSc, LEED GA  
Acoustic Scientist

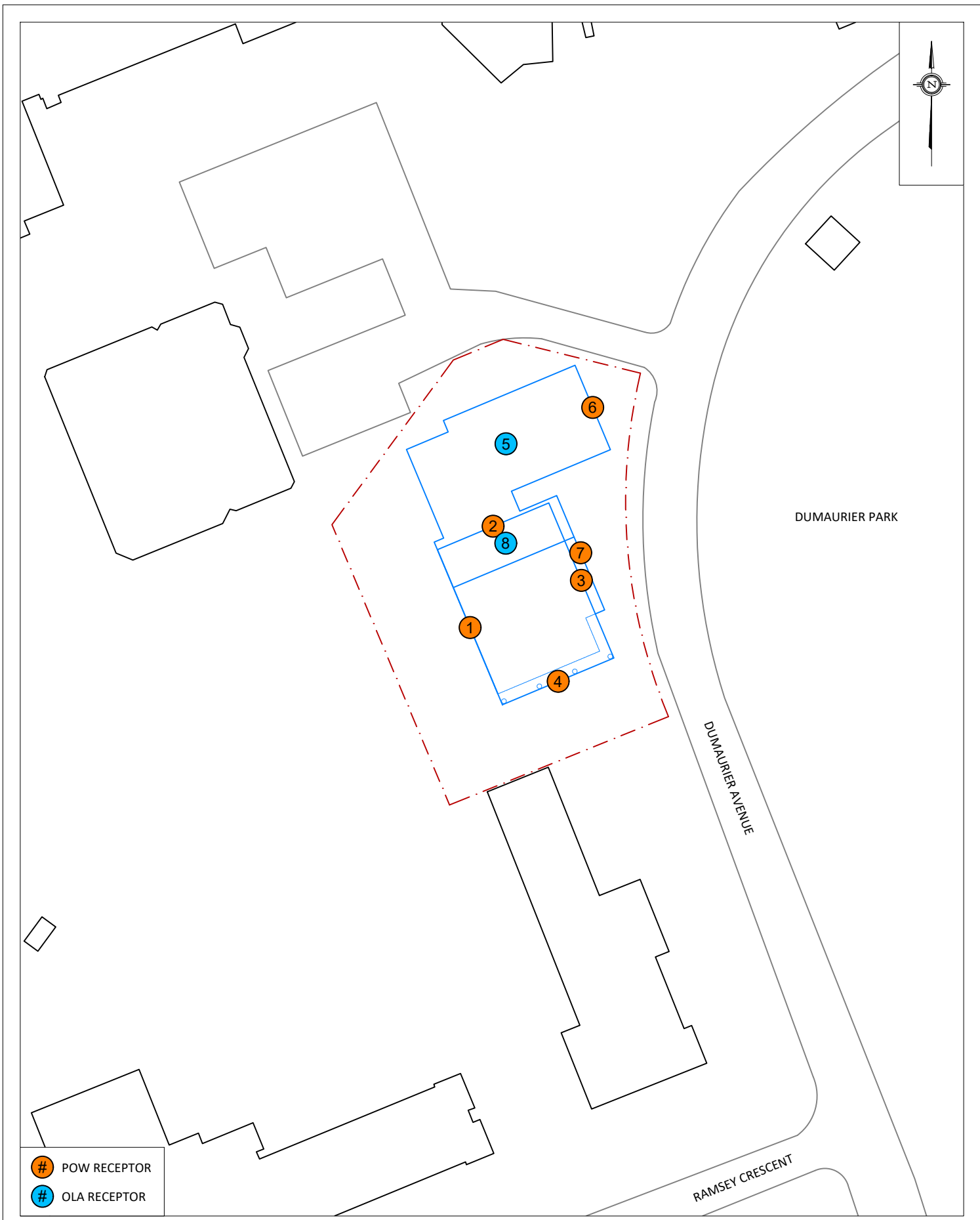
*Gradient Wind File #20-150 – Detailed Traffic Noise R1*



Joshua Foster, P.Eng.  
Lead Engineer



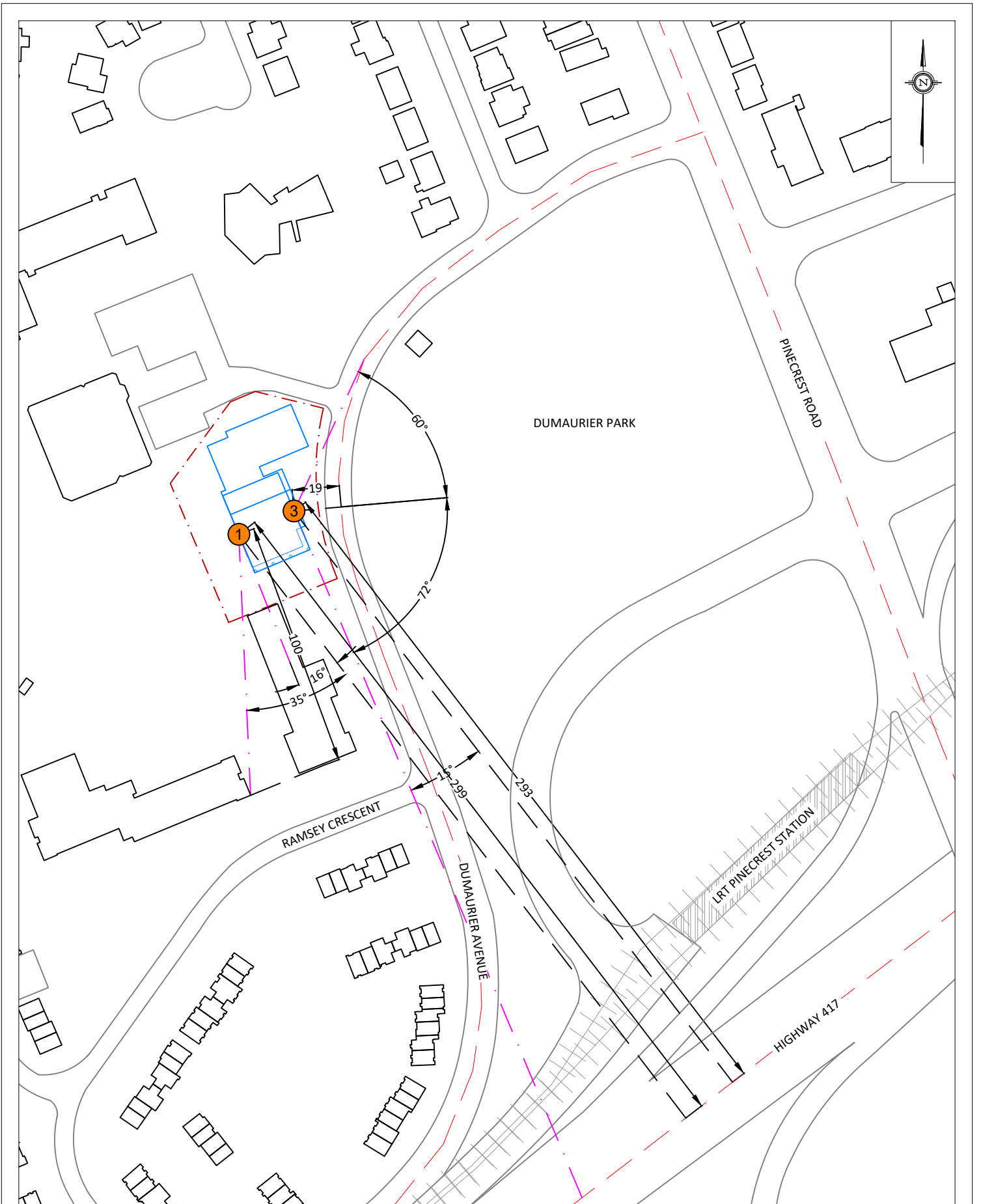
<b>GRADIENTWIND</b> ENGINEERS & SCIENTISTS 127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM	PROJECT	2829 DUMAUIIER AVENUE, OTTAWA TRAFFIC NOISE ASSESSMENT		DESCRIPTION	<b>FIGURE 1:</b> SITE PLAN AND SURROUNDING CONTEXT
	SCALE	1:2000 (APPROX.)	DRAWING NO.	GWE20-150-1	
	DATE	MARCH 25, 2024	DRAWN BY	E.K.	



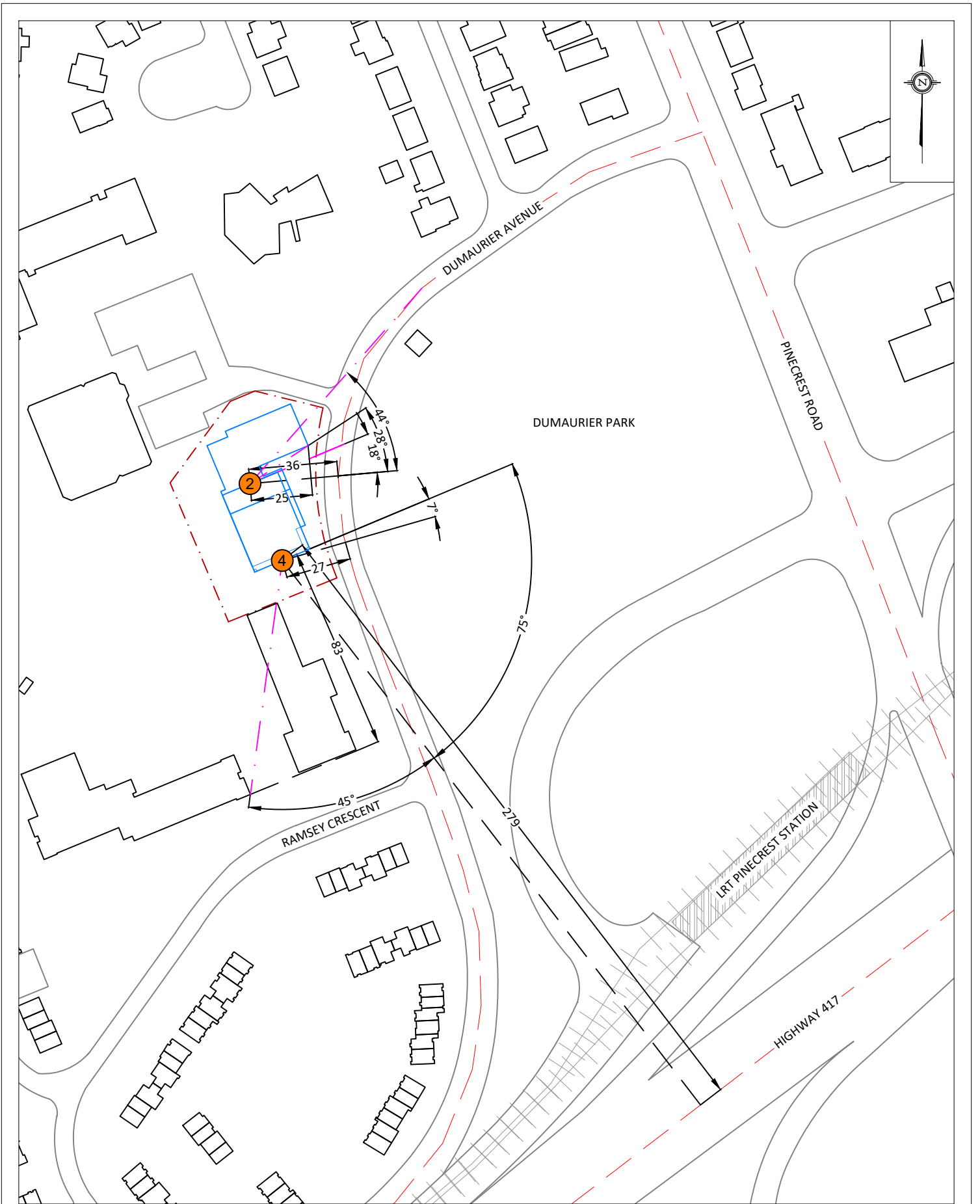
- POW RECEPTOR
- OLA RECEPTOR

<b>GRADIENTWIND</b> ENGINEERS & SCIENTISTS 127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM	PROJECT	2829 DUMAURIER AVENUE, OTTAWA TRAFFIC NOISE ASSESSMENT	DESCRIPTION
	SCALE	1:1000 (APPROX.)	DRAWING NO.
	DATE	MARCH 25, 2024	DRAWN BY
			<b>FIGURE 2: RECEPTOR LOCATIONS</b>

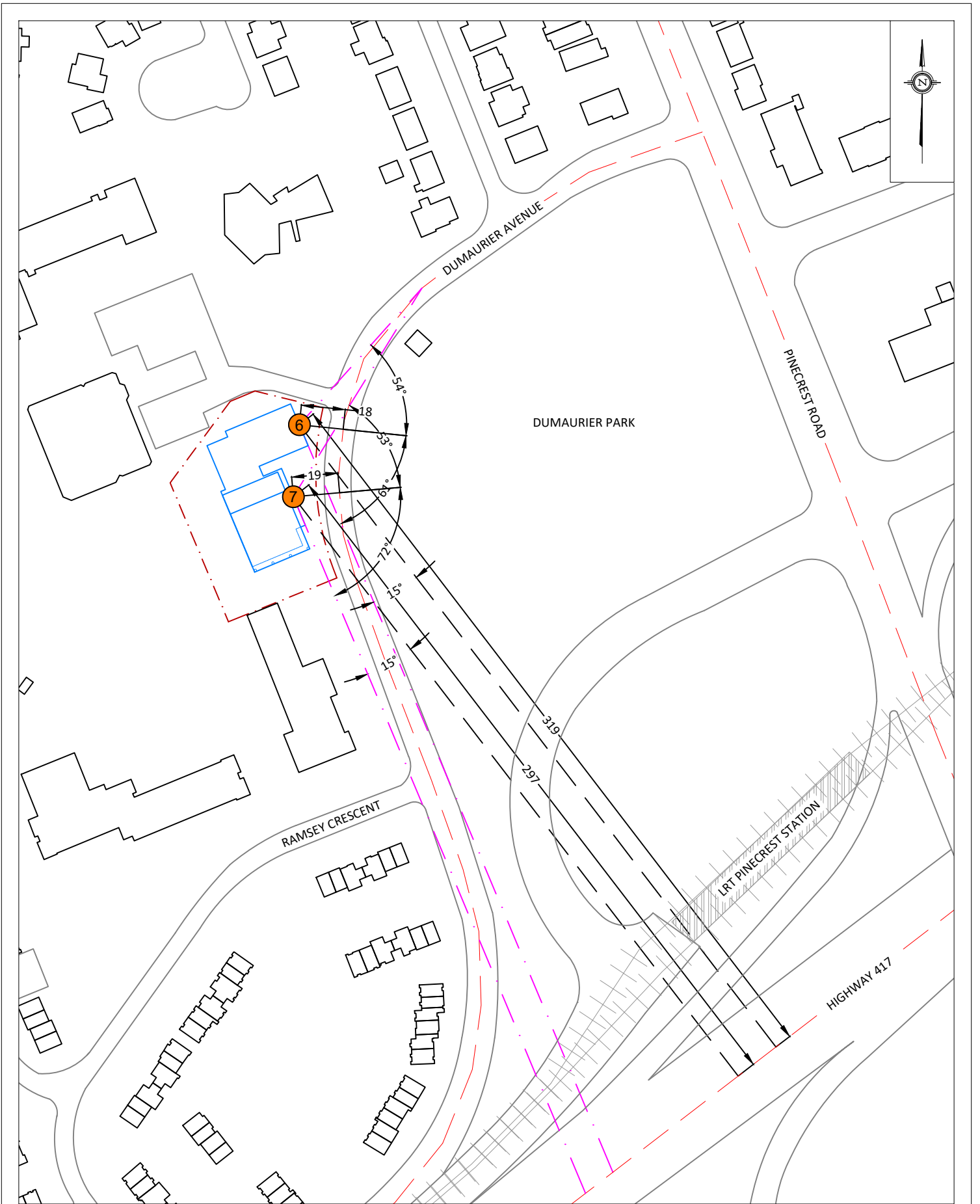




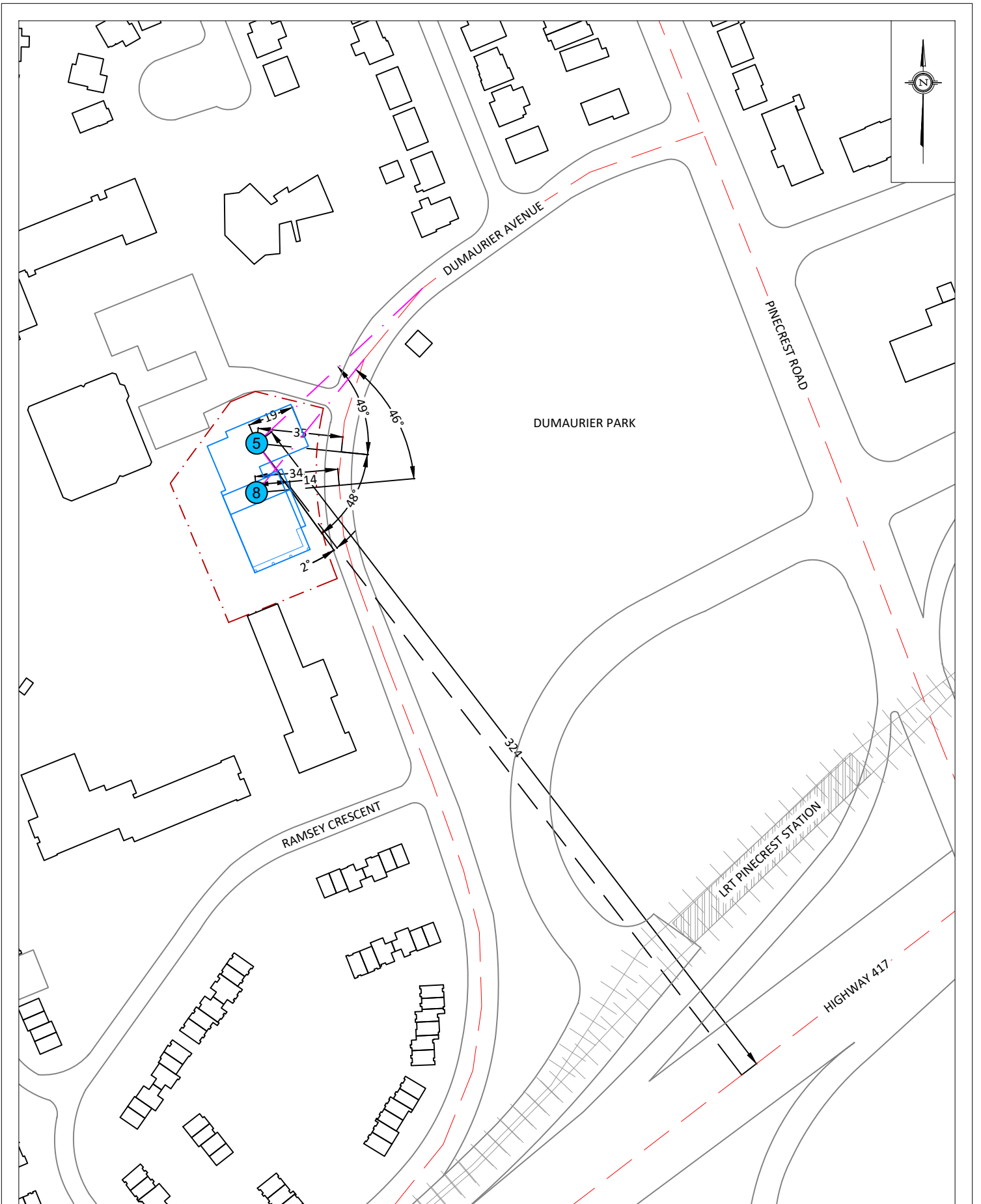
<b>GRADIENTWIND</b> ENGINEERS & SCIENTISTS 127 WALGREEN ROAD, OTTAWA, ON 613 836 0934 • GRADIENTWIND.COM	PROJECT	2829 DUMAURIER AVENUE, OTTAWA TRAFFIC NOISE ASSESSMENT		DESCRIPTION	FIGURE 3: STAMSON INPUT DATA FOR RECEPTORS 1 & 3
	SCALE	1:2000 (APPROX.)	DRAWING NO.	GWE20-150-3	
	DATE	MARCH 25, 2024	DRAWN BY	E.K.	



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	SCALE 1:2000 (APPROX.)	DRAWING NO. GWE20-150-4	
	DATE MARCH 25, 2024	DRAWN BY E.K.	



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	SCALE	1:2000 (APPROX.)	DRAWING NO.	GWE20-150-5	
	DATE	MARCH 25, 2024	DRAWN BY	E.K.	



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	SCALE 1:2000 (APPROX.)	DRAWING NO. GWE20-150-6	FIGURE 6: STAMSON INPUT DATA FOR RECEPTORS 5 & 8
	DATE MARCH 25, 2024	DRAWN BY E.K.	



DUMAURIER AVENUE

 BEDROOM / LIVING ROOM / RETAIL STC 30 / 25 / 20

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PROJECT

2829 DUMAURIER AVENUE, OTTAWA  
TRAFFIC NOISE ASSESSMENT

SCALE

1:500 (APPROX.)

DRAWING NO.

GWE20-150-7

DATE

MARCH 25, 2024

DRAWN BY

E.K.

DESCRIPTION

FIGURE 7:  
STC REQUIREMENTS

# GRADIENTWIND

ENGINEERS & SCIENTISTS



## APPENDIX A

### STAMSON INPUT-OUTPUT DATA

**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 15:00:53**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

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

Road data, segment # 1: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : 16.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 299.00 / 299.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 35.00 deg Angle2 : 90.00 deg  
Barrier height : 40.00 m  
Barrier receiver distance : 100.00 / 100.00 m  
Source elevation : 0.00 m  
Receiver elevation : 0.00 m  
Barrier elevation : 0.00 m  
Reference angle : 0.00



Results segment # 1: Highway 417 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	120.50	80.70	80.70

ROAD (56.35 + 60.96 + 0.00) = 62.25 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

16	35	0.00	84.41	0.00	-13.00	-9.77	0.00	-5.30	0.00	56.35
35	90	0.00	84.41	0.00	-13.00	-5.15	0.00	-5.30	0.00	60.96
35	90	0.00	84.41	0.00	-13.00	-5.15	0.00	0.00	-0.01	66.25*
35	90	0.00	84.41	0.00	-13.00	-5.15	0.00	0.00	0.00	66.26

\* Bright Zone !

Segment Leq : 62.25 dBA

Total Leq All Segments: 62.25 dBA



Results segment # 1: Highway 417 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of  
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

-----+-----+-----+-----  
1.50 ! 120.50 ! 80.70 ! 80.70

ROAD (48.75 + 53.37 + 0.00) = 54.65 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	35	0.00	76.81	0.00	-13.00	-9.77	0.00	-5.30	0.00	48.75
35	90	0.00	76.81	0.00	-13.00	-5.15	0.00	-5.30	0.00	53.37
35	90	0.00	76.81	0.00	-13.00	-5.15	0.00	0.00	-0.01	58.65*
35	90	0.00	76.81	0.00	-13.00	-5.15	0.00	0.00	0.00	58.67

\* Bright Zone !

Segment Leq : 54.65 dBA

Total Leq All Segments: 54.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.25  
(NIGHT): 54.65

**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 14:43:29**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

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

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -44.00 deg -18.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 36.00 / 36.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -44.00 deg Angle2 : -28.00 deg  
Barrier height : 14.00 m  
Barrier receiver distance : 25.00 / 25.00 m  
Source elevation : 0.00 m  
Receiver elevation : 0.00 m  
Barrier elevation : 0.00 m  
Reference angle : 0.00



Results segment # 1: Dumaurier Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of  
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

-----+-----+-----+-----  
1.50 ! 120.50 ! 37.86 ! 37.86

ROAD (0.00 + 49.64 + 47.60) = 51.75 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-44 -28 0.00 63.96 0.00 -3.80 -10.51 0.00 0.00 0.00 49.64\*  
-44 -28 0.00 63.96 0.00 -3.80 -10.51 0.00 0.00 0.00 49.64  
-----  
-28 -18 0.00 63.96 0.00 -3.80 -12.55 0.00 0.00 0.00 47.60  
-----

\* Bright Zone !

Segment Leq : 51.75 dBA

Total Leq All Segments: 51.75 dBA

Results segment # 1: Dumaurier Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of  
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

-----+-----+-----+-----  
1.50 ! 120.50 ! 37.86 ! 37.86

ROAD (0.00 + 42.05 + 40.01) = 44.16 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-44 -28 0.00 56.36 0.00 -3.80 -10.51 0.00 0.00 0.00 42.05\*  
-44 -28 0.00 56.36 0.00 -3.80 -10.51 0.00 0.00 0.00 42.05  
-----  
-28 -18 0.00 56.36 0.00 -3.80 -12.55 0.00 0.00 0.00 40.01  
-----

\* Bright Zone !

Segment Leq : 44.16 dBA

Total Leq All Segments: 44.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.75  
(NIGHT): 44.16



**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 14:53:22**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

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

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -60.00 deg 72.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 19.00 / 19.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00



Road data, segment # 2: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : -90.00 deg 15.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 293.00 / 293.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00



Results segment # 1: Dumaurier Rd (day)

-----

Source height = 1.50 m

ROAD (0.00 + 61.58 + 0.00) = 61.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-----

-60	72	0.00	63.96	0.00	-1.03	-1.35	0.00	0.00	0.00	61.58
-----	----	------	-------	------	-------	-------	------	------	------	-------

-----

Segment Leq : 61.58 dBA

Results segment # 2: Highway 417 (day)

-----

Source height = 1.50 m

ROAD (0.00 + 63.86 + 0.00) = 63.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-----

-90	15	0.00	84.41	0.00	-12.91	-2.34	0.00	-5.30	0.00	63.86
-----	----	------	-------	------	--------	-------	------	-------	------	-------

-----

Segment Leq : 63.86 dBA

Total Leq All Segments: 65.88 dBA

Results segment # 1: Dumaurier Rd (night)

-----

Source height = 1.50 m

ROAD (0.00 + 53.99 + 0.00) = 53.99 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-60 72 0.00 56.36 0.00 -1.03 -1.35 0.00 0.00 0.00 53.99

-----

Segment Leq : 53.99 dBA

Results segment # 2: Highway 417 (night)

-----

Source height = 1.50 m

ROAD (0.00 + 56.26 + 0.00) = 56.26 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-90 15 0.00 76.81 0.00 -12.91 -2.34 0.00 -5.30 0.00 56.26

-----

Segment Leq : 56.26 dBA

Total Leq All Segments: 58.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.88

(NIGHT): 58.28





**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 15:07:18**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

**Filename: r4.te                    Time Period: Day/Night 16/8 hours**  
**Description:**

Road data, segment # 1: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : -75.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 279.00 / 279.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 45.00 deg Angle2 : 90.00 deg  
Barrier height : 40.00 m  
Barrier receiver distance : 83.00 / 83.00 m  
Source elevation : 0.00 m  
Receiver elevation : 0.00 m  
Barrier elevation : 0.00 m  
Reference angle : 0.00



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

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier (day/night)

-----  
Angle1 Angle2 : -7.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 27.00 / 27.00 m  
Receiver height : 120.50 / 120.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00



Results segment # 1: Highway 417 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	120.50	85.10	85.10

ROAD (64.65 + 60.39 + 0.00) = 66.03 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-75	45	0.00	84.41	0.00	-12.70	-1.76	0.00	-5.30	0.00	64.65
45	90	0.00	84.41	0.00	-12.70	-6.02	0.00	-5.30	0.00	60.39
45	90	0.00	84.41	0.00	-12.70	-6.02	0.00	0.00	-0.01	65.68*
45	90	0.00	84.41	0.00	-12.70	-6.02	0.00	0.00	0.00	65.69

\* Bright Zone !

Segment Leq : 66.03 dBA



Results segment # 2: Dumaurier (day)

Source height = 1.50 m

ROAD (0.00 + 58.72 + 0.00) = 58.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-7	90	0.00	63.96	0.00	-2.55	-2.69	0.00	0.00	0.00	58.72
----	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 58.72 dBA

Total Leq All Segments: 66.77 dBA

Results segment # 1: Highway 417 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
-------------------	---------------------	--------------------	------------------------------

1.50	120.50	85.10	85.10
------	--------	-------	-------

ROAD (57.05 + 52.80 + 0.00) = 58.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-75	45	0.00	76.81	0.00	-12.70	-1.76	0.00	-5.30	0.00	57.05
-----	----	------	-------	------	--------	-------	------	-------	------	-------

45	90	0.00	76.81	0.00	-12.70	-6.02	0.00	-5.30	0.00	52.80
45	90	0.00	76.81	0.00	-12.70	-6.02	0.00	0.00	-0.01	58.08*
45	90	0.00	76.81	0.00	-12.70	-6.02	0.00	0.00	0.00	58.10

\* Bright Zone !

Segment Leq : 58.44 dBA



Results segment # 2: Dumaurier (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 51.12 + 0.00) = 51.12 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-7 90 0.00 56.36 0.00 -2.55 -2.69 0.00 0.00 0.00 51.12  
-----

Segment Leq : 51.12 dBA

Total Leq All Segments: 59.18 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.77  
(NIGHT): 59.18

**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 16:07:02**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

**Filename: r5.te                    Time Period: Day/Night 16/8 hours**  
**Description:**

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -49.00 deg 48.00 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 : 15.50 / 15.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -49.00 deg Angle2 : 48.00 deg  
Barrier height : 14.00 m  
Barrier receiver distance : 19.00 / 19.00 m  
Source elevation : 0.00 m  
Receiver elevation : 0.00 m  
Barrier elevation : 0.00 m  
Reference angle : 0.00



Road data, segment # 2: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : -90.00 deg 2.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 324.00 / 324.00 m  
Receiver height : 15.50 / 15.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Dumaaurier Rd (day)

-----

Source height = 1.50 m

Barrier height for grazing incidence

-----

Source ! Receiver ! Barrier ! Elevation of  
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

-----+-----+-----+-----

1.50 ! 15.50 ! 7.90 ! 7.90

ROAD (0.00 + 38.33 + 0.00) = 38.33 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-49 48 0.00 63.96 0.00 -3.68 -2.69 0.00 0.00 -19.26 38.33

-----

Segment Leq : 38.33 dBA

Results segment # 2: Highway 417 (day)

-----

Source height = 1.50 m

ROAD (0.00 + 59.02 + 0.00) = 59.02 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-90 2 0.24 84.41 0.00 -16.55 -3.53 0.00 -5.30 0.00 59.02

-----

Segment Leq : 59.02 dBA

Total Leq All Segments: 59.06 dBA





Results segment # 1: Dumaurier Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of  
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)

-----+-----+-----+-----  
1.50 ! 15.50 ! 7.90 ! 7.90

ROAD (0.00 + 30.74 + 0.00) = 30.74 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-49 48 0.00 56.36 0.00 -3.68 -2.69 0.00 0.00 -19.26 30.74  
-----

Segment Leq : 30.74 dBA

Results segment # 2: Highway 417 (night)

Source height = 1.50 m

ROAD (0.00 + 51.43 + 0.00) = 51.43 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-90 2 0.24 76.81 0.00 -16.55 -3.53 0.00 -5.30 0.00 51.43  
-----

Segment Leq : 51.43 dBA

Total Leq All Segments: 51.47 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.06  
(NIGHT): 51.47



**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 16:08:33**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

**Filename: r6.te            Time Period: Day/Night 16/8 hours**  
**Description:**

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -54.00 deg 61.00 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 : 12.50 / 12.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00



Road data, segment # 2: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : -90.00 deg 15.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 319.00 / 319.00 m  
Receiver height : 12.50 / 12.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Dumaurier Rd (day)

Source height = 1.50 m

ROAD (0.00 + 61.22 + 0.00) = 61.22 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-54 61 0.00 63.96 0.00 -0.79 -1.95 0.00 0.00 0.00 61.22

Segment Leq : 61.22 dBA

Results segment # 2: Highway 417 (day)

Source height = 1.50 m

ROAD (0.00 + 58.40 + 0.00) = 58.40 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 15 0.33 84.41 0.00 -17.66 -3.05 0.00 -5.30 0.00 58.40

Segment Leq : 58.40 dBA

Total Leq All Segments: 63.05 dBA

Results segment # 1: Dumaurier Rd (night)

-----

Source height = 1.50 m

ROAD (0.00 + 53.62 + 0.00) = 53.62 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-54 61 0.00 56.36 0.00 -0.79 -1.95 0.00 0.00 0.00 53.62

-----

Segment Leq : 53.62 dBA

Results segment # 2: Highway 417 (night)

-----

Source height = 1.50 m

ROAD (0.00 + 50.80 + 0.00) = 50.80 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-90 15 0.33 76.81 0.00 -17.66 -3.05 0.00 -5.30 0.00 50.80

-----

Segment Leq : 50.80 dBA

Total Leq All Segments: 55.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.05  
(NIGHT): 55.45



**STAMSON 5.0    NORMAL REPORT    Date: 25-03-2024 16:14:24**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

**Filename: r7.te                    Time Period: Day/Night 16/8 hours**  
**Description:**

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -53.00 deg 72.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 19.00 / 19.00 m  
Receiver height : 12.50 / 12.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00



Road data, segment # 2: Highway 417 (day/night)

-----  
Car traffic volume : 118739/10325 veh/TimePeriod \*  
Medium truck volume : 9445/821 veh/TimePeriod \*  
Heavy truck volume : 6747/587 veh/TimePeriod \*  
Posted speed limit : 100 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): 146664  
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: Highway 417 (day/night)

-----  
Angle1 Angle2 : -90.00 deg 15.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 4 / 4  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 297.00 / 297.00 m  
Receiver height : 12.50 / 12.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Dumaurier Rd (day)

Source height = 1.50 m

ROAD (0.00 + 61.35 + 0.00) = 61.35 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-53 72 0.00 63.96 0.00 -1.03 -1.58 0.00 0.00 0.00 61.35

Segment Leq : 61.35 dBA

Results segment # 2: Highway 417 (day)

Source height = 1.50 m

ROAD (0.00 + 58.81 + 0.00) = 58.81 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-90 15 0.33 84.41 0.00 -17.25 -3.05 0.00 -5.30 0.00 58.81

Segment Leq : 58.81 dBA

Total Leq All Segments: 63.27 dBA



Results segment # 1: Dumaurier Rd (night)

-----

Source height = 1.50 m

ROAD (0.00 + 53.75 + 0.00) = 53.75 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-53 72 0.00 56.36 0.00 -1.03 -1.58 0.00 0.00 0.00 53.75

-----

Segment Leq : 53.75 dBA

Results segment # 2: Highway 417 (night)

-----

Source height = 1.50 m

ROAD (0.00 + 51.21 + 0.00) = 51.21 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----

-90 15 0.33 76.81 0.00 -17.25 -3.05 0.00 -5.30 0.00 51.21

-----

Segment Leq : 51.21 dBA

Total Leq All Segments: 55.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.27

(NIGHT): 55.67



**STAMSON 5.0    NORMAL REPORT    Date: 03-04-2024 16:04:56**  
**MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT**

**Filename: r8.te                    Time Period: Day/Night 16/8 hours**  
**Description:**

Road data, segment # 1: Dumaurier Rd (day/night)

-----  
Car traffic volume : 6477/563 veh/TimePeriod \*  
Medium truck volume : 515/45 veh/TimePeriod \*  
Heavy truck volume : 368/32 veh/TimePeriod \*  
Posted speed limit : 40 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): 8000  
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: Dumaurier Rd (day/night)

-----  
Angle1 Angle2 : -46.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 2 (Reflective ground surface)  
Receiver source distance : 34.00 / 34.00 m  
Receiver height : 114.50 / 114.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -46.00 deg Angle2 : 0.00 deg  
Barrier height : 113.00 m  
Barrier receiver distance : 14.00 / 14.00 m  
Source elevation : 0.00 m  
Receiver elevation : 0.00 m  
Barrier elevation : 0.00 m  
Reference angle : 0.00



Results segment # 1: Dumaurier Rd (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	114.50	67.97	67.97

ROAD (0.00 + 34.48 + 0.00) = 34.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	63.96	0.00	-3.55	-5.93	0.00	0.00	-20.00	34.48

Segment Leq : 34.48 dBA

Total Leq All Segments: 34.48 dBA

Results segment # 1: Dumaurier Rd (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	114.50	67.97	67.97

ROAD (0.00 + 26.88 + 0.00) = 26.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	56.36	0.00	-3.55	-5.93	0.00	0.00	-20.00	26.88

Segment Leq : 26.88 dBA

Total Leq All Segments: 26.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 34.48  
(NIGHT): 26.88

