

Environmental Noise Control Study Proposed Residential Building

266 Park Street
Ottawa, Ontario

Prepared for Concorde Properties

Report PG6501-1 Revision 4 dated July 19, 2024

City of Ottawa Application Number: D02-02-23-0024 & D07-12-23-0038

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1.0 Introduction

Paterson Group (Paterson) was commissioned by Concorde Properties to conduct an environmental noise control study for the proposed residential building to be located at 266 Park Street, in the City of Ottawa.

The objective of the current study is to:

- Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Climate Change (MOECC) and the City of Ottawa.
- Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

This study has been conducted according to the City of Ottawa document - Engineering Noise Control Guidelines (ENCG), dated January 2016, and the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Proposed Development

It is understood that the proposed development will consist of a three (3) storey residential building and a level of daylight basement. The building will rise 11 metres above grade. Associated walkways, driveways, parking areas, and landscaped areas are further anticipated. Outdoor living area – at-grade rear yard was identified for this project.

3.0 Methodology and Noise Assessment Criteria

The City of Ottawa outlines three (3) sources of environmental noise that must be analyzed separately:

- Surface Transportation Noise
- Stationary Noise
 - new noise-sensitive development applications (noise receptors) in proximity to existing or approved stationary sources of noise, and
 - new stationary sources of noise (noise generating) in proximity to existing or approved noise-sensitive developments
- Aircraft Noise

Surface Transportation Noise

Surface roadway traffic noise, equivalent to sound level energy L_{eq} , provides a measure of the time-varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated based on 16-hour (L_{eq16}) daytime (07:00-23:00) and 8-hour (L_{eq8}) nighttime (23:00-7:00) split to assess its impact on residential, commercial and institutional buildings.

The City of Ottawa's Official Plan dictates that the influence area must contain any of the following conditions to classify as a surface transportation noise source for a subject site:

- Within 100 m of the right-of-way of an existing or proposed arterial, collector or major collector road; a light rail transit corridor; bus rapid transit, or transit priority corridor
- Within 250 m of the right-of-way for an existing or proposed highway or secondary rail line
- Within 300 m from the right of way of a proposed or existing rail corridor or a secondary main railway line
- Within 500 m of an existing 400 series provincial highway, freeway or principle main railway line.

The Environmental Noise Guidelines for Stationary and Transportation Sources – NPC-300 outlines the limitations of noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 – Noise Level Limit for Outdoor Living Areas	
Time Period	L_{eq} Level (dBA)
Daytime, 7:00-23:00	55
➤ Standard taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas – Road and Rail	

Table 2 – Noise Level Limits for Indoor Living Areas			
Type of Space	Time Period	L_{eq} Level (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	Daytime 7:00-23:00	50	45
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime 7:00-23:00	45	40
Living/dining/den areas of residences , hospitals, nursing/retirement homes, schools, and day-care centres	Daytime 7:00-23:00	45	40
Living/dining/den areas of residences , hospitals, nursing/retirement homes etc. (except schools or day-care centres)	Nighttime 23:00-7:00	45	40
Sleeping quarters of hotels/motels	Nighttime 23:00-7:00	45	40
Sleeping quarters of residences , hospitals, nursing/retirement homes, etc.	Nighttime 23:00-7:00	40	35
➤ Standards taken from Table 2.2b, Sound Level Limit for Indoor Living Areas – Road and Rail and Table 2.2c, Supplementary Sound Level Limits for Indoor Spaces – Road and Rail			

Predicted noise levels at the window pane dictate the action required to achieve recommended noise levels. It is noted in ENCG that the limits outlined in Table 2 are for the noise levels on the interior of the window glass pane. An open window is considered to provide a 10 dBA noise reduction, while a standard closed window is capable of providing a minimum 20 dBA noise reduction. The noise level limits of residential buildings are 45 dBA daytime and 40 dBA nighttime. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the provision for central air conditioning. Where noise levels exceed 65 dBA during daytime and 60 dBA at nighttime, central air conditioning will be required, and the building components will require higher levels of sound attenuation.

When the noise levels are equal to or less than the specified criteria, no noise attenuation (control) measures are required.

When the exceedance of the recommended noise level limits is between 1 dBA and 5 dBA for outdoor living areas ($55 \text{ dBA} < L_{eq} \leq 60 \text{ dBA}$), the proposed development can be completed with no noise control measures incorporated into the site, but the prospective purchasers/tenants should be made aware by suitable Warning Clauses. When the exceedance of recommended noise level limits is more than 5 dBA for outdoor living areas ($L_{eq} > 60 \text{ dBA}$), noise control measures are required to reduce L_{eq} to below 60 dBA and as close as 55 dBA as it is technically and economically feasible.

Noise attenuation (control) measures include any or all of the following:

- Noise attenuation barrier
- Provisions for the installation of central air conditioning
- Central air conditioning
- Architectural components designed to provide additional acoustic insulation

In addition to the implementation of noise attenuation features, if required, the following Warning Clauses may be recommended to advise the prospective purchasers/tenants of affected units of potential environmental noise problems:

Table 3 – Warning Clauses for Outdoor Living Areas		
Leq (dBA)	Warning Clause	Description
$55 \text{ dBA} < L_{eq(16)} \leq 60 \text{ dBA}$	Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
$60 \text{ dBA} < L_{eq(16)}$	Warning Clause Type B	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
<ul style="list-style-type: none"> ➤ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300 		

Table 4 – Warning Clauses for Indoor Living Areas		
Leq (dBA)	Warning Clause	Description
$55 \text{ dBA} < L_{\text{eq}(16)} \leq 65 \text{ dBA}$ $50 \text{ dBA} < L_{\text{eq}(8)} \leq 60 \text{ dBA}$	Warning Clause Type C	"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium-density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
$65 \text{ dBA} < L_{\text{eq}(16)}$ $60 \text{ dBA} < L_{\text{eq}(8)}$	Warning Clause 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."
➤ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300		

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities.

The subject site is not in proximity to existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required.

Aircraft / Airport Noise

The subject site is not located within the Airport Vicinity Development Zone. Therefore this project will not require an aircraft/airport noise analysis. No warning clauses regarding aircraft or airport noise will be required.

4.0 Analysis

Surface Transportation Noise

The subject development is bordered to the north by residential dwellings, commercial buildings, Carillon Park, Deschamps Avenue, and Carillon Street, to the east by Park Street, followed by residential dwellings, commercial buildings, and Lalemant Street, to the south by commercial buildings and Montreal Road followed by Begin Street, Lajole Street, grassed field, residential dwellings, and commercial buildings, and to the west by residential dwellings, commercial buildings, and Marier Avenue followed by Deschamps Avenue, residential dwellings, and institutional building. Deschamps Avenue, Carillon Street, Park Street, Lalemant Street, Montreal Road, Begin Street, Lajole Street, and Marier Avenue are identified within the 100 m radius of the proposed development.

Based on the City of Ottawa’s Official Plan, Schedule C4, Montreal Road is considered a 2-lane urban arterial road (2-UAU). Marier Avenue and Deschamps Avenue are considered 2-lane urban collector roads (2-UCU). Other roads within the 100 m radius of the proposed development are not classified as either arterial, collector or major collector roads and therefore are not included in this study. The major sources of traffic noise are due to the Montreal Road to the south and Marier Avenue and Deschamps Avenue to the west of the proposed development.

All noise sources are presented in Drawing PG6501-3 - Site Geometry located in Appendix 1.

The noise levels from road traffic are provided by the City of Ottawa, taking into consideration the right-of-way width and the implied roadway classification. It is understood that these values represent the maximum allowable capacity of the proposed roadways. The parameters to be used for sound-level predictions can be found below.

Segment	Roadway Classification	AADT Veh/Day	Speed Limit (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Montreal Road	2-UAU	15000	40	92/8	7	5
Marier Avenue	2-UCU	8000	50	92/8	7	5
Deschamps Avenue	2-UCU	8000	50	92/8	7	5

➤ Data obtained from the City of Ottawa document ENCG

Three (3) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the survey plan for the subject building.

Floor Number	Elevation at the Centre of the Window (m)	Floor Use	Daytime / Nighttime Analysis
First Floor	1.5	Living Area/Bedroom	Daytime / Nighttime
Third Floor	9.5	Living Area/Bedroom	Daytime / Nighttime
At-Grade Rear Yard	1.5	--	Outdoor Living Area

For this analysis, a reception point was taken at the centre of each floor, at the first floor and top floor. Outdoor living area – at-grade rear yard is anticipated at the proposed development. One receptor (REC 5) was selected in the centre of the rear yard, 1.5 m. Reception points are detailed in Drawing PG6501-2 - Receptor Locations presented in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The roadway was analyzed where it intersected the 100 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG6501-3A to 3F - Site Geometry in Appendix 1.

Table 8 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry with respect to the noise sources. The analysis is completed so that no effects of sound reflection off of the building facade are considered, as stipulated by the ENGC.

The subject site is gently sloping down to the north and at grade with the neighbouring roads within the 100 m radius.

The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

5.0 Results

Surface Transportation Noise

The primary descriptors are the 16-hour daytime (7:00-23:00) and the 8-hour nighttime (23:00-7:00) equivalent sound levels, $L_{eq(16)}$ and $L_{eq(8)}$ for City roads.

The exterior noise levels due to roadway traffic sources were analyzed with the STAMSON version 5.04 software at all reception points. The input and output data of the STAMSON modelling can be found in Appendix 2, and the summary of the results can be found in Table 7.

Reception Point	Height Above Grade (m)	Receptor Location	Daytime $L_{eq(16)}$ (dBA)	Nighttime $L_{eq(8)}$ (dBA)
REC 1-1	1.5	Western Elevation, 1st Floor	53	45
REC 1-3	9.5	Western Elevation, 3rd Floor	54	47
REC 2-1	1.5	Southern Elevation, 1st Floor	56	48
REC 2-3	9.5	Southern Elevation, 3rd Floor	57	49
REC 3-1	1.5	Northern Elevation, 1st Floor	45	37
REC 3-3	9.5	Northern Elevation, 3rd Floor	46	39
REC 4-1	1.5	Eastern Elevation, 1st Floor	50	43
REC 4-3	9.5	Eastern Elevation, 3rd Floor	52	44
REC 5	1.5	At-Grade Rear Yard	54	--

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

Outdoor living area – at-grade rear yard is anticipated at the proposed development. One (1) receptor point was selected for the analysis at the outdoor living area (REC 5). It is assumed that the rear yard will only be utilized as an outdoor living area provided that the proposed building is constructed. Utilizing the exteriors of the proposed building as noise barriers, the proposed $Leq(16)$ at the rear yard will be 54 dBA, which is below the 55 dBA threshold value specified by the ENCG. Therefore, further noise attenuation measure is not required.

6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling indicate that the noise levels at the proposed residential building will range between 45 dBA and 57 dBA during the daytime period (07:00-23:00) and between 37 dBA and 49 dBA during the nighttime period (23:00-07:00). The noise levels on the southern elevation of the proposed building will exceed the limit for the exterior of the pane of glass (55 dBA) specified by the ENCG. Therefore, the units on the southern elevation of this building should be designed with the provision of a central air conditioning unit, along with the warning clause Type C, as outlined in Table 3. It is also noted that the results of STAMSON modelling indicate that the noise levels at the proposed building will be below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

7.0 Summary of Findings

The subject site is located at 266 Park Street, in the City of Ottawa. It is understood that the proposed development will consist of a third (3) storey residential building. The building will rise 11 metres above grade. There are three major sources of surface transportation noise to the proposed building: Montreal Road, Marier Avenue, and Deschamps Avenue.

Outdoor Living Area – at-grade rear yard is anticipated at the proposed development. Utilizing the exteriors of the proposed building as noise barriers, the result of STAMSON modelling indicates that the noise level at the rear yard of the proposed development is expected to be 53 dBA, during the daytime period, which is below the 55 dBA threshold value specified by the ENCG. Therefore, further noise attenuation measure is not required.

Several reception points were selected for the surface transportation noise analysis, consisting of the centre of the first level and the top level. The results of STAMSON modelling indicate that the southern elevation of the proposed building is expected to exceed the 55 dBA threshold specified by the ENCG. Therefore, design with the provision for a central air conditioning unit, along with a warning clause Type C, will be required for the units on the southern elevation of the proposed building. It is also noted that the modelling indicates that the noise levels are below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

The following warning clause is to be included on all Offers of Purchase and Sale and/or lease agreements:

" This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium-density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

8.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Concorde Properties or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



Otilia McLaughlin B.Eng.



Stephanie A. Boisvenue, P.Eng.

Report Distribution:

- Concorde Properties (email copy)
- Paterson Group (1 copy)

APPENDIX 1

TABLE 8 - SUMMARY OF RECEPTION POINTS AND GEOMETRY

Drawing PG6501-1 - Site Plan

Drawing PG6501-2 - Receptor Location Plan

Drawing PG6501-3 - Site Geometry

Drawing PG6501-3A - Site Geometry (REC 1-1 and REC 2-3)

Drawing PG6501-3B - Site Geometry (REC 2-1 and REC 2-3)

Drawing PG6501-3C - Site Geometry (REC 3-1 and REC 3-3)

Drawing PG6501-3D - Site Geometry (REC 4-1)

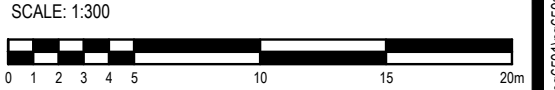
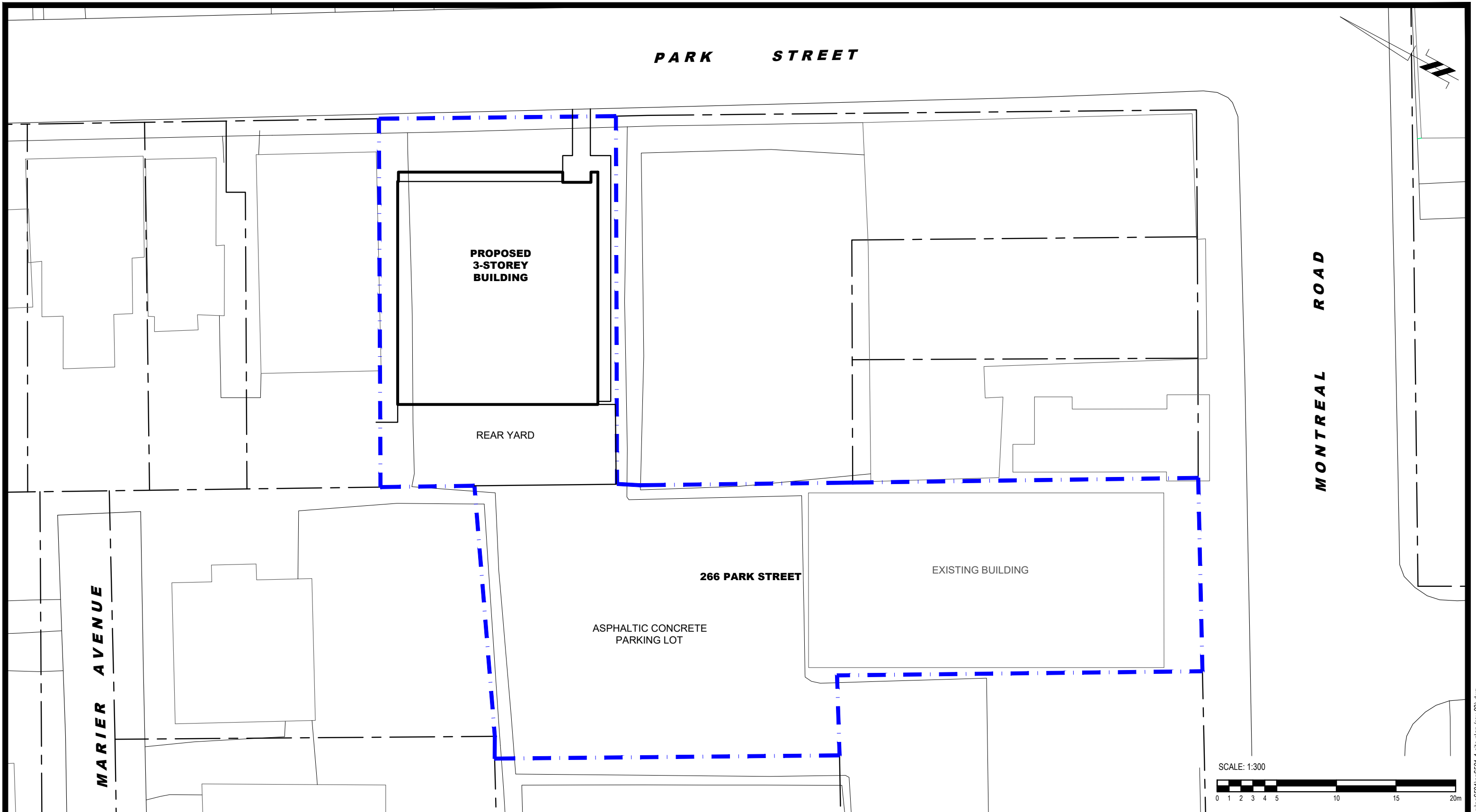
Drawing PG6501-3E - Site Geometry (REC 4-3)

Drawing PG6501-3F - Site Geometry (REC 5)

Table 8 - Summary of Reception Points and Geometry
266 Park Street

Point of Reception	Location	Leq Day (dBA)	Marier Avenue						Deschamps Avenue					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 1-1	Western Elevation, 1st Floor	53	70	1.5	70.0	-42, 51	2	40	75	1.5	75.0	15, 25	2	40
REC 1-3	Western Elevation, 3rd Floor	54	70	9.5	70.6	-42, 51	2	40	75	9.5	75.6	15, 25	2	40
REC 2-1	Southern Elevation, 1st Floor	56	80	1.5	80.0	-35, 0	1	20	n/a	n/a	n/a	n/a	n/a	n/a
REC 2-3	Southern Elevation, 3rd Floor	57	80	9.5	80.6	-35, 0	1	20	n/a	n/a	n/a	n/a	n/a	n/a
REC 3-1	Northern Elevation, 1st Floor	45	80	1.5	80.0	0, 45	2	40	85	1.5	85.0	11, 19	2	40
REC 3-3	Northern Elevation, 3rd Floor	46	80	9.5	80.6	0, 45	2	40	85	9.5	85.5	11, 19	2	40
REC 4-1	Eastern Elevation, 1st Floor	50	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4-3	Eastern Elevation, 3rd Floor	52	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 5	Outdoor Living Area	54	67	1.5	67.0	-43, 53	2.0	40	70	1.5	70.0	11, 22	2	40

Point of Reception	Location	Leq Day (dBA)	Montreal Road											
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)						
REC 1-1	Western Elevation, 1st Floor	53	60	1.5	60.0	0, 64	1	20						
REC 1-3	Western Elevation, 3rd Floor	54	60	9.5	60.8	0, 64	1	20						
REC 2-1	Southern Elevation, 1st Floor	56	50	1.5	50.0	-65, 69	1	20						
REC 2-3	Southern Elevation, 3rd Floor	57	50	9.5	50.9	-65, 69	1	20						
REC 3-1	Northern Elevation, 1st Floor	45	n/a	n/a	n/a	n/a	n/a	n/a						
REC 3-3	Northern Elevation, 3rd Floor	46	n/a	n/a	n/a	n/a	n/a	n/a						
REC 4-1	Eastern Elevation, 1st Floor	50	60	1.5	60.0	-59, 0	1	20						
REC 4-3	Eastern Elevation, 3rd Floor	52	60	9.5	60.8	-59, 0	1	20						
REC 5	Outdoor Living Area	54	60	1.5	60.0	-21, 63	1	20						

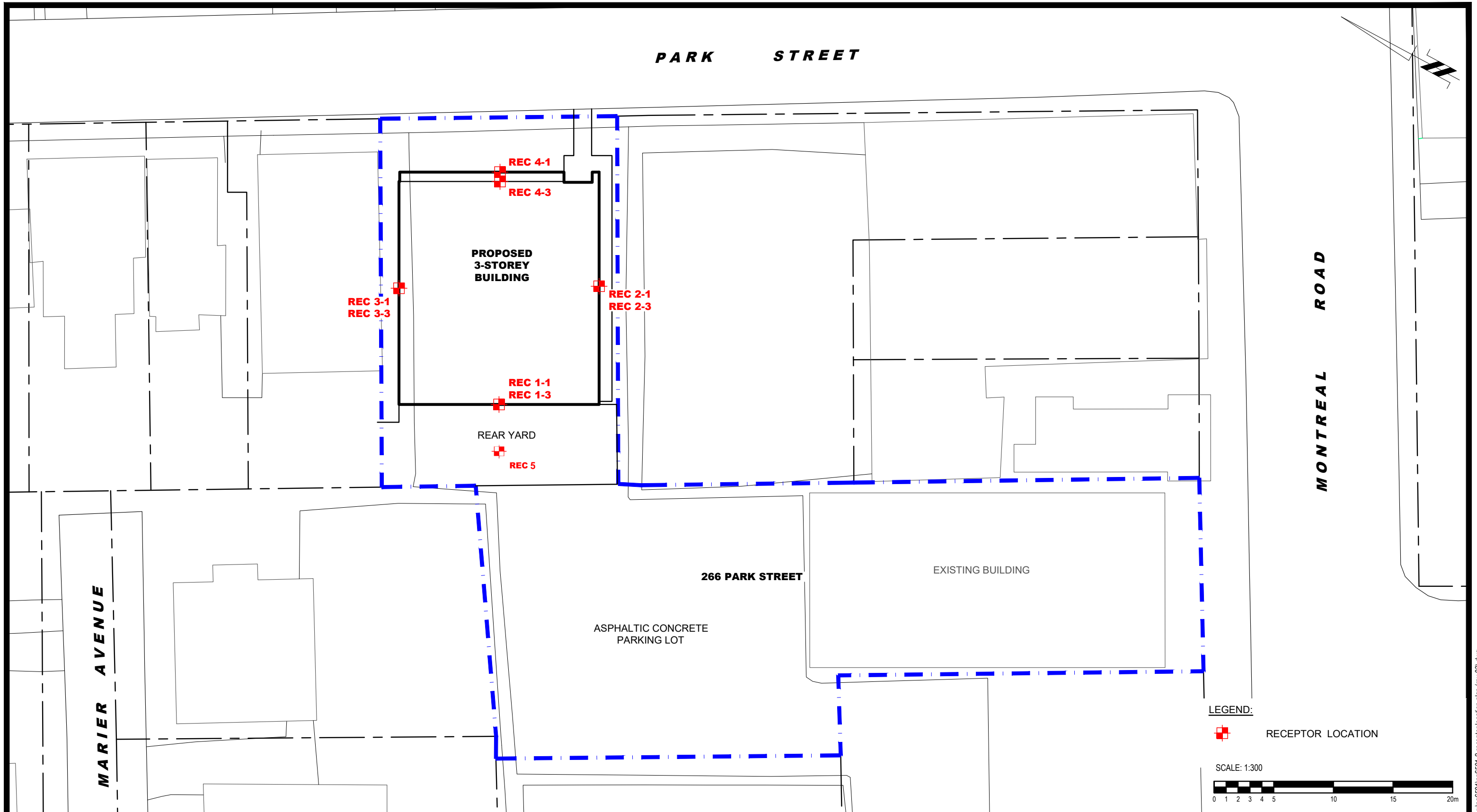


NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET **ONTARIO**

OTTAWA,
 Title:
SITE PLAN

Scale:	1:300	Date:	11/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-1
Approved by:	SB	Revision No.:	3



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

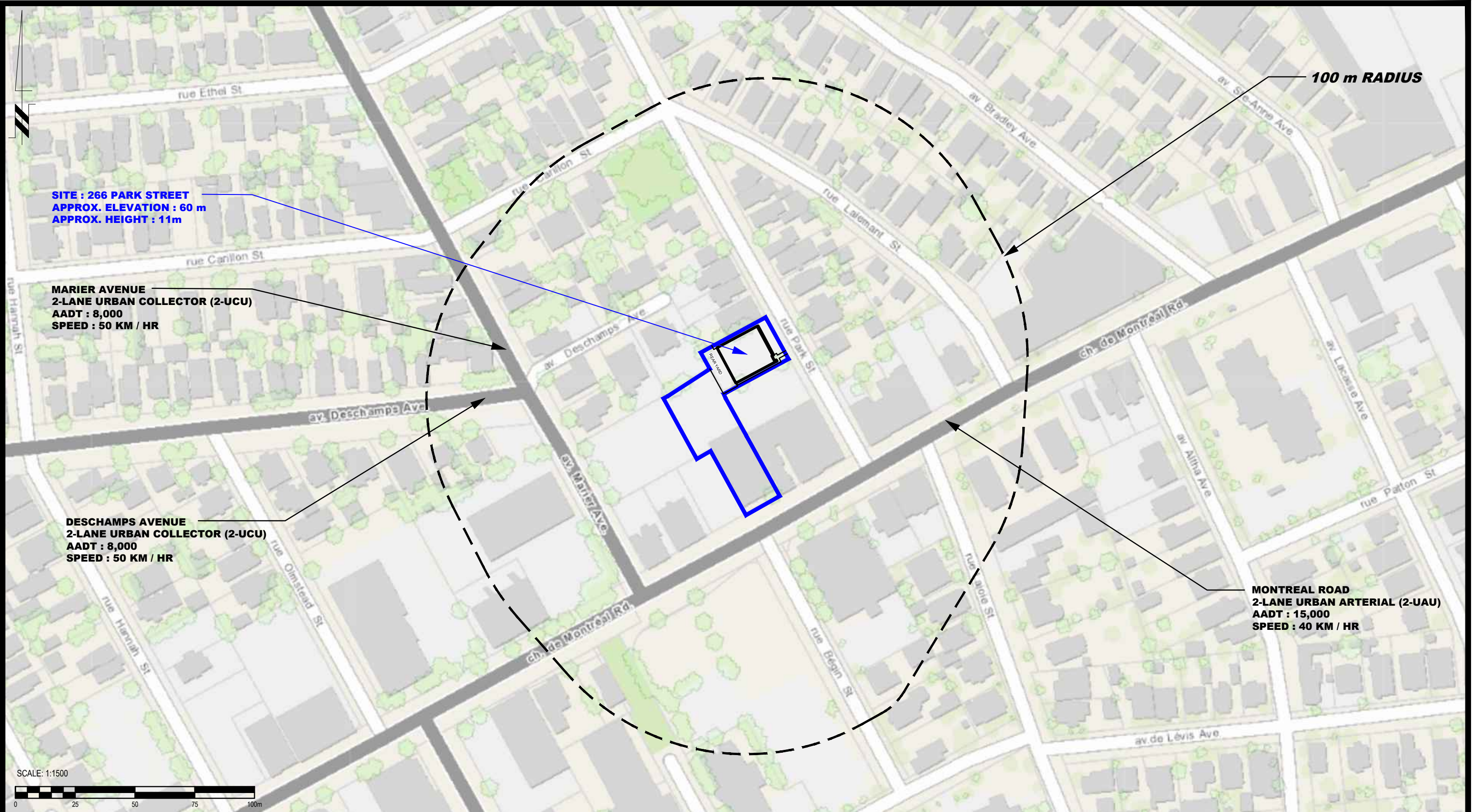
OTTAWA,
Title:

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET
RECEPTOR LOCATION PLAN

ONTARIO

Scale:	1:300
Drawn by:	YA
Checked by:	YT
Approved by:	SB

Date:	11/2022
Report No.:	PG6501-1
Dwg. No.:	PG6501-2
Revision No.:	3

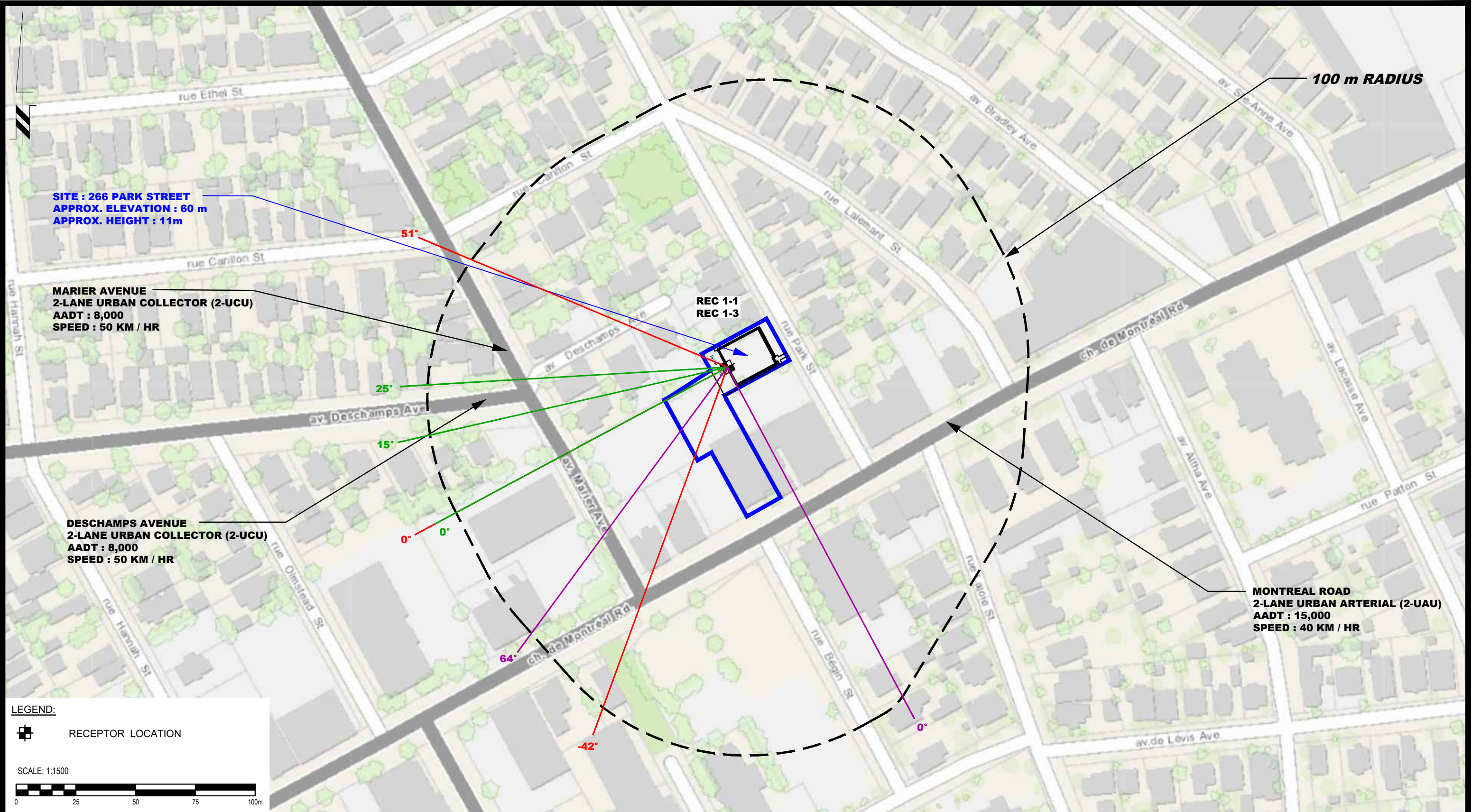


NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET
SITE GEOMETRY

OTTAWA, ONTARIO

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3
Approved by:	SB	Revision No.:	3



LEGEND:
 RECEPTOR LOCATION

SCALE: 1:1500

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
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 TEL: (613) 226-7381

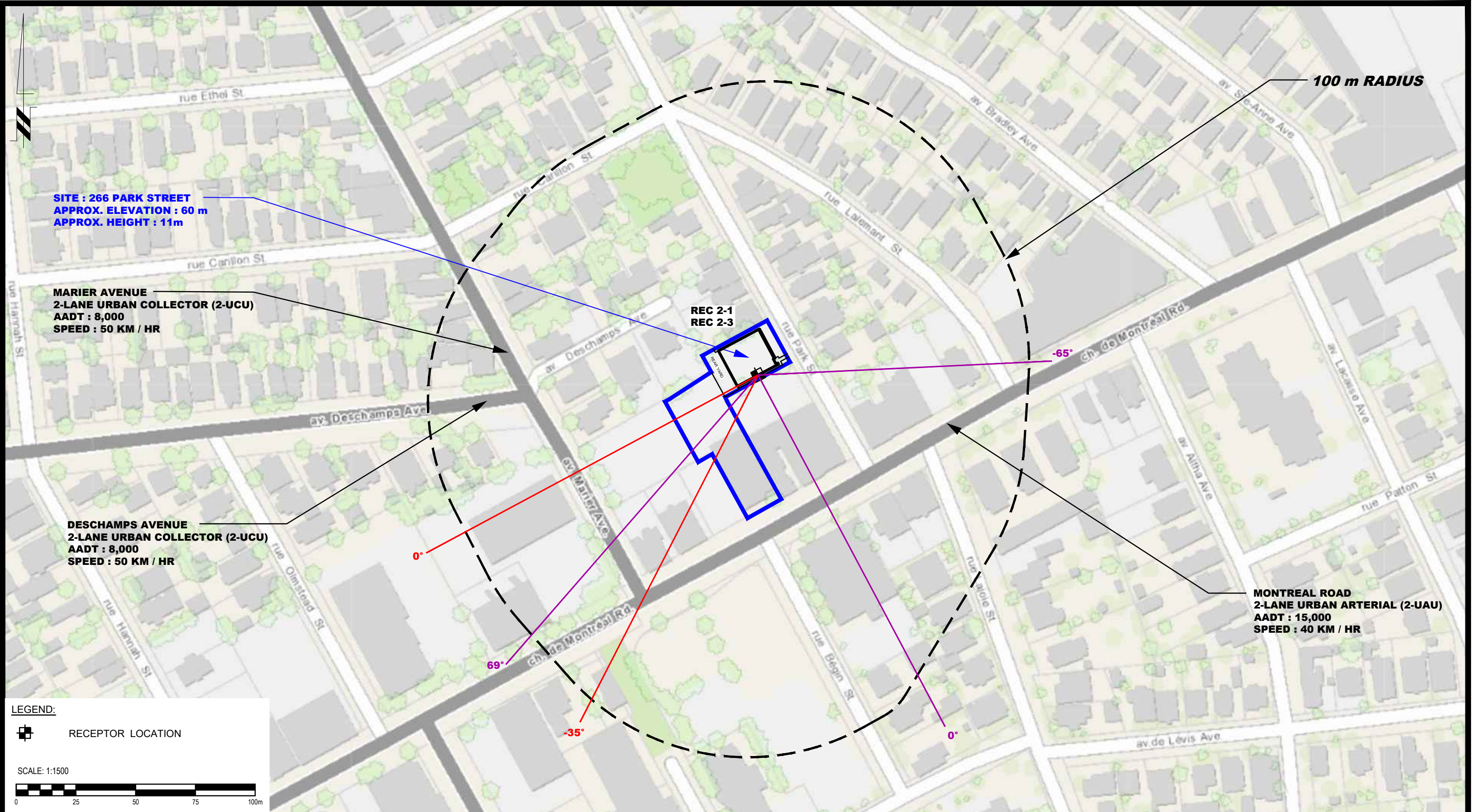
NO.	REVISIONS	DATE	INITIAL
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2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

Title: SITE GEOMETRY - REC 1-1 AND REC 1-3

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3A
Approved by:	SB	Revision No.:	3



SITE : 266 PARK STREET
APPROX. ELEVATION : 60 m
APPROX. HEIGHT : 11m

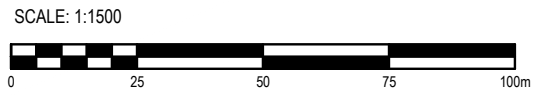
MARIER AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

DESCHAMPS AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

100 m RADIUS

MONTREAL ROAD
2-LANE URBAN ARTERIAL (2-UAU)
AADT : 15,000
SPEED : 40 KM / HR

LEGEND:
 RECEPTOR LOCATION




PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

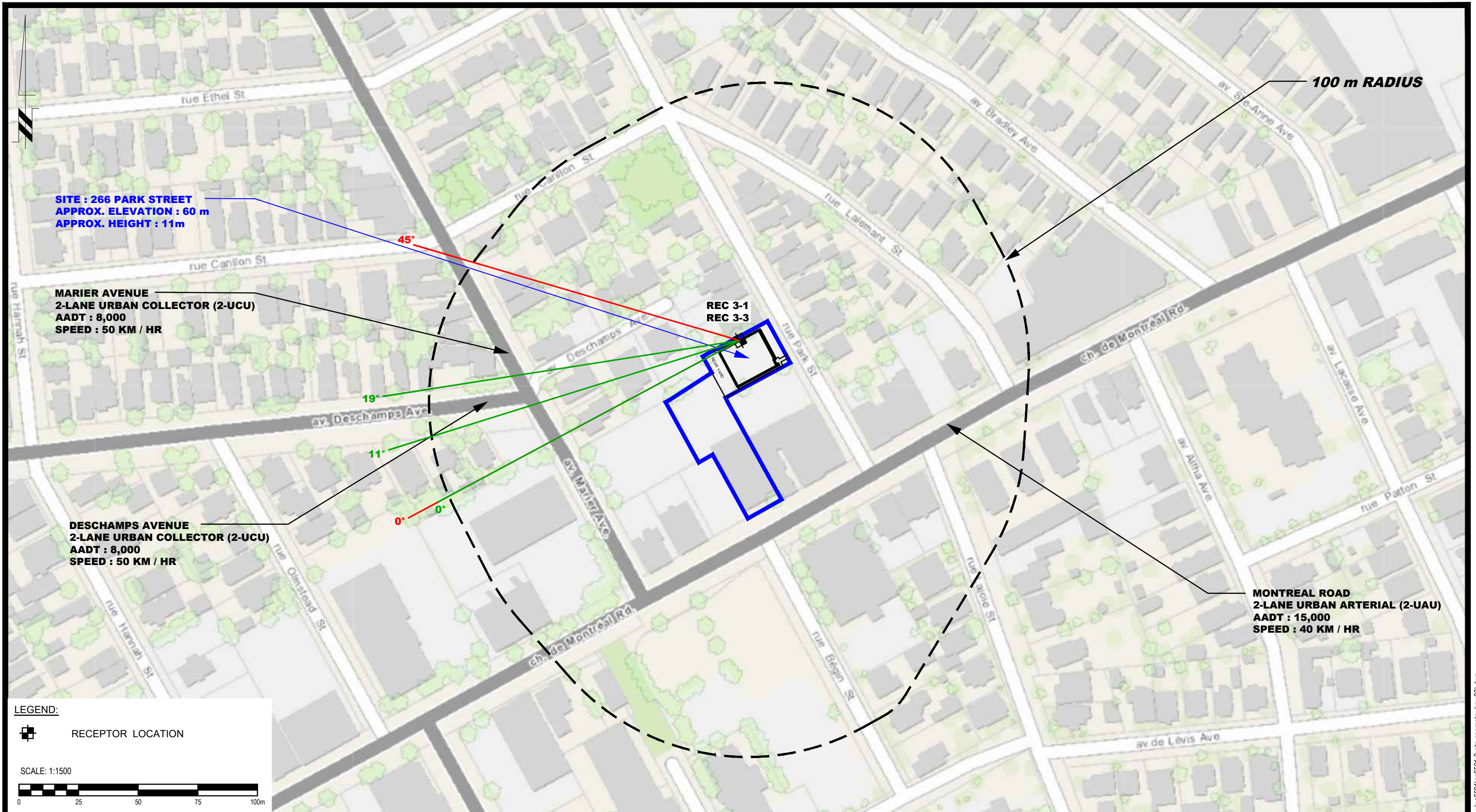
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CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

Title: SITE GEOMETRY - REC 2-1 AND REC 2-3

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3B
Approved by:	SB	Revision No.:	3



SITE : 266 PARK STREET
APPROX. ELEVATION : 60 m
APPROX. HEIGHT : 11m

MARIER AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

DESCHAMPS AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

MONTREAL ROAD
2-LANE URBAN ARTERIAL (2-UAU)
AADT : 15,000
SPEED : 40 KM / HR

LEGEND:
 RECEPTOR LOCATION

SCALE: 1:1500

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

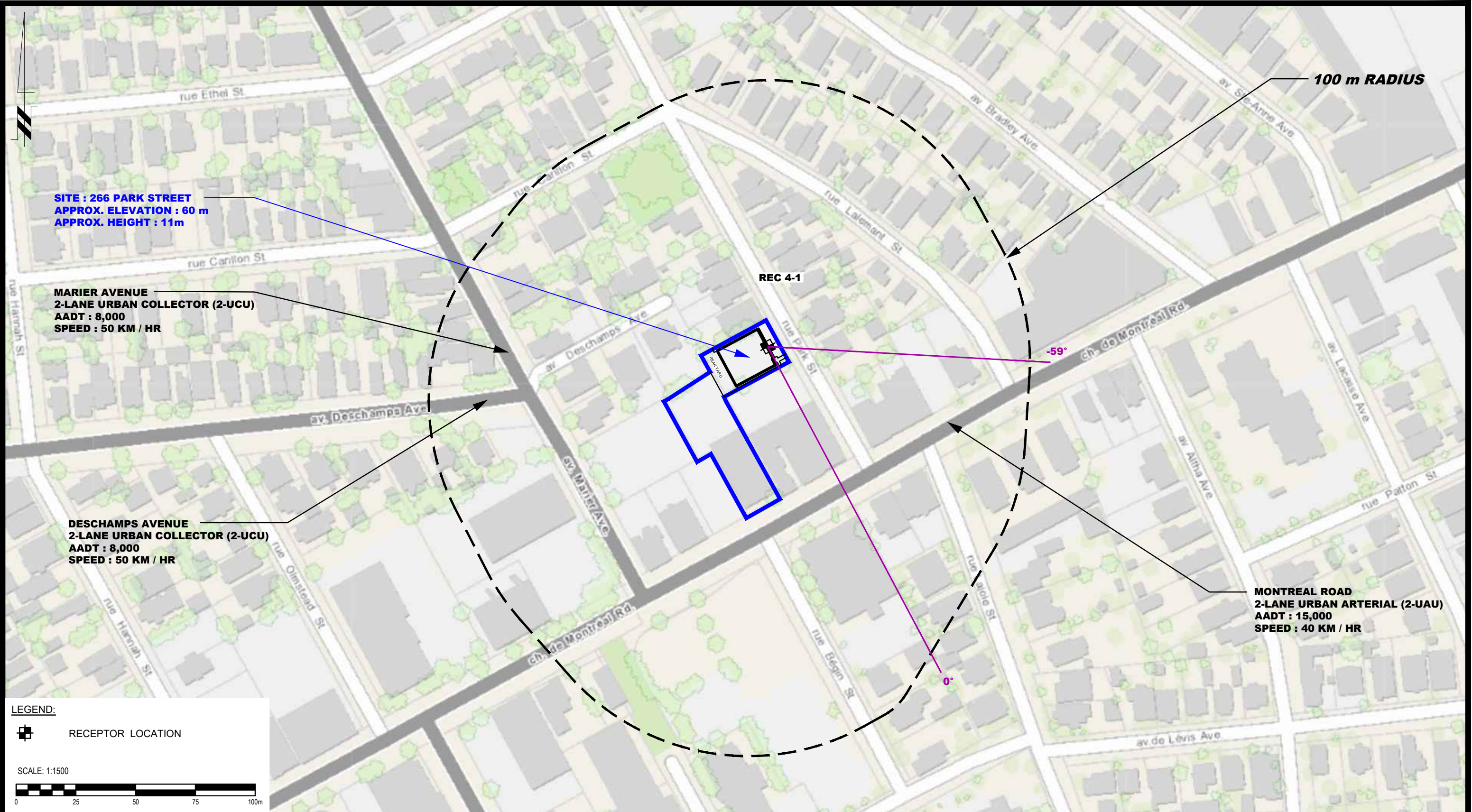
NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

Title: SITE GEOMETRY - REC 3-1 AND REC 3-3

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3C
Approved by:	SB	Revision No.:	3



SITE : 266 PARK STREET
APPROX. ELEVATION : 60 m
APPROX. HEIGHT : 11m

MARIER AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

DESCHAMPS AVENUE
2-LANE URBAN COLLECTOR (2-UCU)
AADT : 8,000
SPEED : 50 KM / HR

100 m RADIUS

MONTREAL ROAD
2-LANE URBAN ARTERIAL (2-UAU)
AADT : 15,000
SPEED : 40 KM / HR

LEGEND:
 RECEPTOR LOCATION

SCALE: 1:1500

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

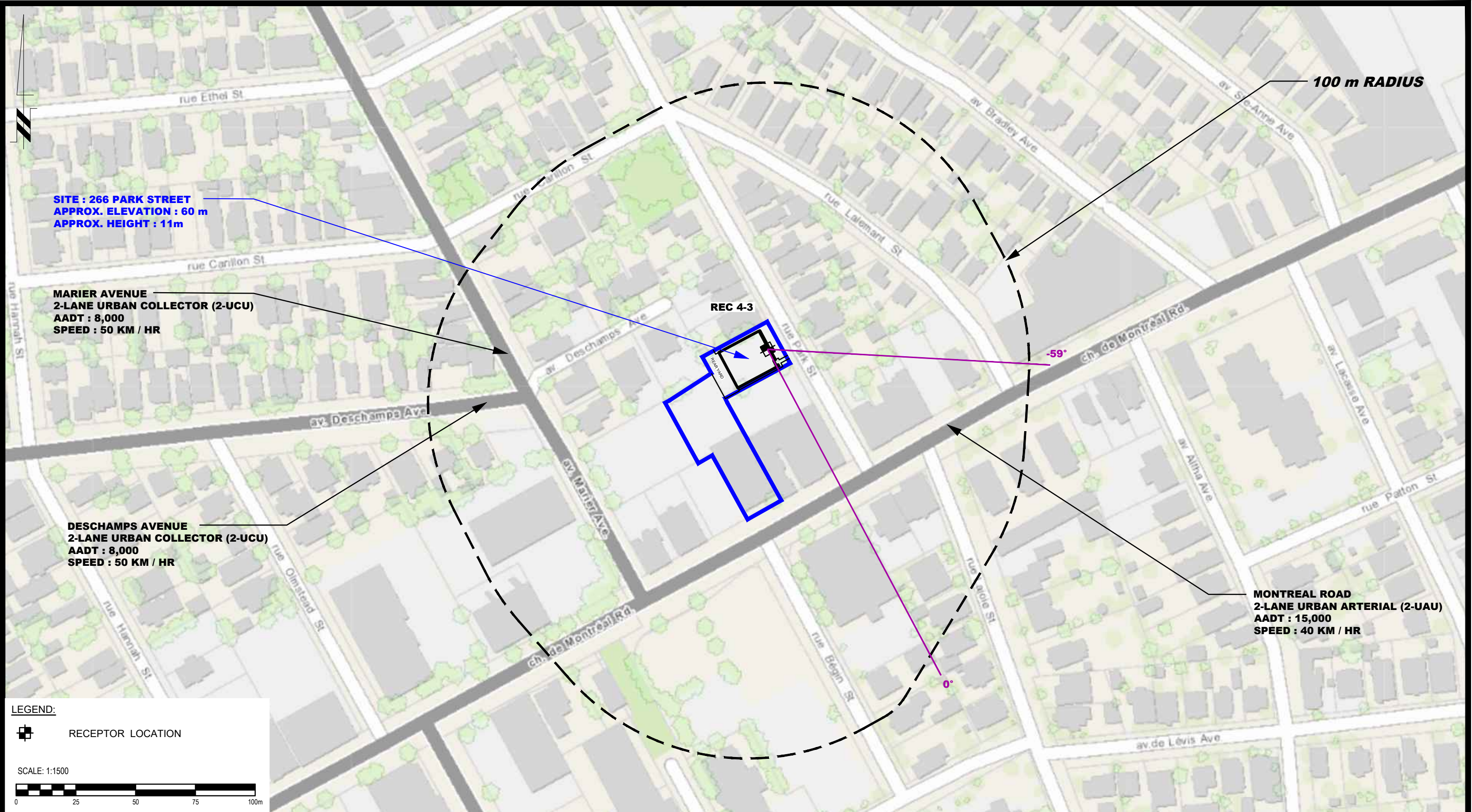
NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

Title: SITE GEOMETRY - REC 4-1

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3D
Approved by:	SB	Revision No.:	3



LEGEND:

RECEPTOR LOCATION

SCALE: 1:1500

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

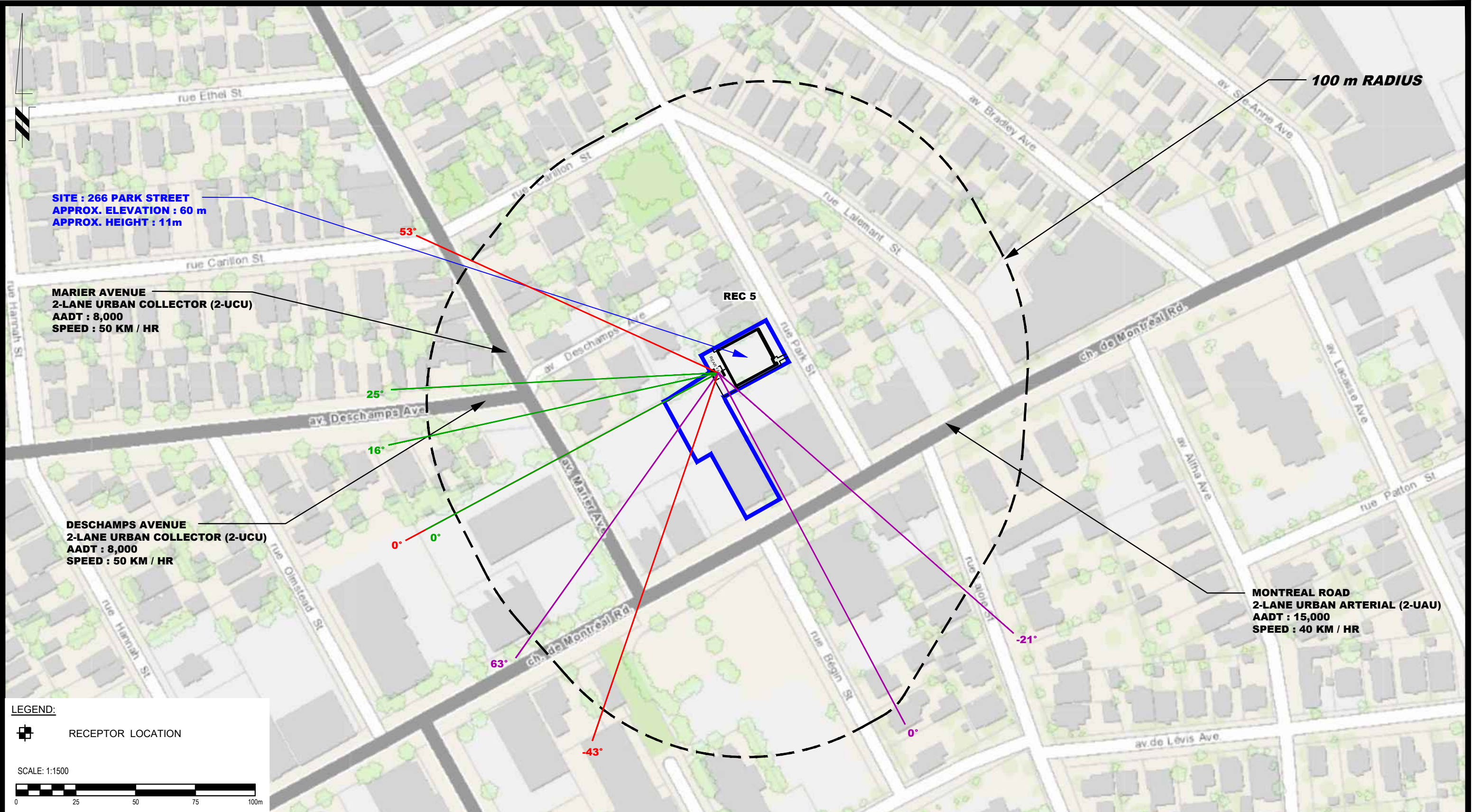
NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

Title: **SITE GEOMETRY - REC 4-3**

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3E
Approved by:	SB	Revision No.:	3



LEGEND:
 □ RECEPTOR LOCATION

SCALE: 1:1500

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
3	UPDATED ROAD INFORMATION	23/10/2023	SB
2	UPDATED BUILDING LAYOUT	26/06/2023	YT
1	UPDATED ADDRESS	17/03/2023	YT

CONCORDE PROPERTIES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
266 PARK STREET

OTTAWA, ONTARIO

SITE GEOMETRY - REC 5

Scale:	1:1500	Date:	12/2022
Drawn by:	YA	Report No.:	PG6501-1
Checked by:	YT	Dwg. No.:	PG6501-3F
Approved by:	SB	Revision No.:	3

APPENDIX 2

STAMSON RESULTS

Filename: rec11U.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-1

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

Angle1 Angle2 : 0.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: Marier Ave (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 : 50 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: Marier Ave (day/night)

Angle1 Angle2 : -42.00 deg 51.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 70.00 / 70.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Road data, segment # 3: DeschampsAve (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 : 50 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 # 3: DeschampsAve (day/night)

Angle1 Angle2 : 15.00 deg 25.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 75.00 / 75.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Results segment # 1: Montreal Rd (day)

Source height = 1.50 m

ROAD (0.00 + 50.65 + 0.00) = 50.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	64	0.66	66.69	0.00	-9.99	-5.14	0.00	-0.90	0.00	50.65

Segment Leq : 50.65 dBA

↑

Results segment # 2: Marier Ave (day)

Source height = 1.50 m

ROAD (0.00 + 47.94 + 0.00) = 47.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	51	0.66	65.75	0.00	-11.11	-3.20	0.00	-3.50	0.00	47.94

Segment Leq : 47.94 dBA

↑

Results segment # 3: DeschampsAve (day)

Source height = 1.50 m

ROAD (0.00 + 37.91 + 0.00) = 37.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	25	0.66	65.75	0.00	-11.60	-12.73	0.00	-3.50	0.00	37.91

Segment Leq : 37.91 dBA

Total Leq All Segments: 52.66 dBA

↑

Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 43.06 + 0.00) = 43.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	64	0.66	59.09	0.00	-9.99	-5.14	0.00	-0.90	0.00	43.06

Segment Leq : 43.06 dBA

↑
Results segment # 2: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 40.35 + 0.00) = 40.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	51	0.66	58.16	0.00	-11.11	-3.20	0.00	-3.50	0.00	40.35

Segment Leq : 40.35 dBA

↑
Results segment # 3: DeschampsAve (night)

Source height = 1.50 m

ROAD (0.00 + 30.32 + 0.00) = 30.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	25	0.66	58.16	0.00	-11.60	-12.73	0.00	-3.50	0.00	30.32

Segment Leq : 30.32 dBA

Total Leq All Segments: 45.07 dBA

↑
TOTAL Leq FROM ALL SOURCES (DAY): 52.66
(NIGHT): 45.07

↑
↑

Filename: rec13R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-3

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

Angle1 Angle2 : 0.00 deg 64.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 9.50 / 9.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: Marier Ave (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 : 50 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: Marier Ave (day/night)

Angle1 Angle2 : -42.00 deg 51.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 70.00 / 70.00 m
 Receiver height : 9.50 / 9.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Road data, segment # 3: DeschampsAve (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 : 50 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 # 3: DeschampsAve (day/night)

Angle1 Angle2 : 15.00 deg 25.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 75.00 / 75.00 m
 Receiver height : 9.50 / 9.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑

Results segment # 1: Montreal Rd (day)

Source height = 1.50 m

ROAD (0.00 + 52.32 + 0.00) = 52.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	64	0.42	66.69	0.00	-8.55	-4.91	0.00	-0.90	0.00	52.32

Segment Leq : 52.32 dBA

↑

Results segment # 2: Marier Ave (day)

Source height = 1.50 m

ROAD (0.00 + 49.66 + 0.00) = 49.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	51	0.42	65.75	0.00	-9.50	-3.09	0.00	-3.50	0.00	49.66

Segment Leq : 49.66 dBA

↑

Results segment # 3: DeschampsAve (day)

Source height = 1.50 m

ROAD (0.00 + 39.65 + 0.00) = 39.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	25	0.42	65.75	0.00	-9.93	-12.67	0.00	-3.50	0.00	39.65

Segment Leq : 39.65 dBA

Total Leq All Segments: 54.35 dBA

↑

Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 44.73 + 0.00) = 44.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	64	0.42	59.09	0.00	-8.55	-4.91	0.00	-0.90	0.00	44.73

Segment Leq : 44.73 dBA

↑
Results segment # 2: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 42.07 + 0.00) = 42.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-42	51	0.42	58.16	0.00	-9.50	-3.09	0.00	-3.50	0.00	42.07

Segment Leq : 42.07 dBA

↑
Results segment # 3: DeschampsAve (night)

Source height = 1.50 m

ROAD (0.00 + 32.06 + 0.00) = 32.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	25	0.42	58.16	0.00	-9.93	-12.67	0.00	-3.50	0.00	32.06

Segment Leq : 32.06 dBA

Total Leq All Segments: 46.76 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.35
(NIGHT): 46.76

↑
↑

Filename: rec21R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-1

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

Angle1 Angle2 : -65.00 deg 69.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: Marier Ave (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 : 50 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: Marier Ave (day/night)

 Angle1 Angle2 : -35.00 deg 0.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 20 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 80.00 / 80.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Montreal Rd (day)

 Source height = 1.50 m

ROAD (0.00 + 55.11 + 0.00) = 55.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	69	0.66	66.69	0.00	-8.68	-2.00	0.00	-0.90	0.00	55.11

 Segment Leq : 55.11 dBA

↑
 Results segment # 2: Marier Ave (day)

 Source height = 1.50 m

ROAD (0.00 + 45.49 + 0.00) = 45.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.66	65.75	0.00	-12.07	-7.29	0.00	-0.90	0.00	45.49

 Segment Leq : 45.49 dBA

Total Leq All Segments: 55.56 dBA

↑
 Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 47.51 + 0.00) = 47.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	69	0.66	59.09	0.00	-8.68	-2.00	0.00	-0.90	0.00	47.51

Segment Leq : 47.51 dBA

↑
Results segment # 2: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 37.89 + 0.00) = 37.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.66	58.16	0.00	-12.07	-7.29	0.00	-0.90	0.00	37.89

Segment Leq : 37.89 dBA

Total Leq All Segments: 47.96 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 55.56
(NIGHT): 47.96

↑
↑

Filename: rec23R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-3

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

Angle1 Angle2 : -65.00 deg 69.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 9.50 / 9.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: Marier Ave (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 : 50 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: Marier Ave (day/night)

 Angle1 Angle2 : -35.00 deg 0.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 20 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 80.00 / 80.00 m
 Receiver height : 9.50 / 9.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Montreal Rd (day)

 Source height = 1.50 m

ROAD (0.00 + 56.61 + 0.00) = 56.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	69	0.42	66.69	0.00	-7.43	-1.75	0.00	-0.90	0.00	56.61

 Segment Leq : 56.61 dBA

↑
 Results segment # 2: Marier Ave (day)

 Source height = 1.50 m

ROAD (0.00 + 47.30 + 0.00) = 47.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.42	65.75	0.00	-10.32	-7.23	0.00	-0.90	0.00	47.30

 Segment Leq : 47.30 dBA

Total Leq All Segments: 57.09 dBA

↑
 Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 49.01 + 0.00) = 49.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	69	0.42	59.09	0.00	-7.43	-1.75	0.00	-0.90	0.00	49.01

Segment Leq : 49.01 dBA

↑

Results segment # 2: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 39.70 + 0.00) = 39.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.42	58.16	0.00	-10.32	-7.23	0.00	-0.90	0.00	39.70

Segment Leq : 39.70 dBA

Total Leq All Segments: 49.49 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 57.09
(NIGHT): 49.49

↑

↑

Filename: rec31R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-1

Road data, segment # 1: Marier Ave (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 : 50 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: Marier Ave (day/night)

Angle1 Angle2 : 0.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 2 / 2
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 80.00 / 80.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: DeschampsAve (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 : 50 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: DeschampsAve (day/night)

 Angle1 Angle2 : 11.00 deg 19.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 85.00 / 85.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Marier Ave (day)

Source height = 1.50 m

ROAD (0.00 + 43.86 + 0.00) = 43.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.66	65.75	0.00	-12.07	-6.33	0.00	-3.50	0.00	43.86

Segment Leq : 43.86 dBA

↑
 Results segment # 2: DeschampsAve (day)

Source height = 1.50 m

ROAD (0.00 + 36.12 + 0.00) = 36.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
11	19	0.66	65.75	0.00	-12.51	-13.62	0.00	-3.50	0.00	36.12

Segment Leq : 36.12 dBA

Total Leq All Segments: 44.54 dBA

↑
 Results segment # 1: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 36.26 + 0.00) = 36.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.66	58.16	0.00	-12.07	-6.33	0.00	-3.50	0.00	36.26

Segment Leq : 36.26 dBA

↑
Results segment # 2: DeschampsAve (night)

Source height = 1.50 m

ROAD (0.00 + 28.53 + 0.00) = 28.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
11	19	0.66	58.16	0.00	-12.51	-13.62	0.00	-3.50	0.00	28.53

Segment Leq : 28.53 dBA

Total Leq All Segments: 36.94 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 44.54
(NIGHT): 36.94

↑
↑

Filename: rec33R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-3

Road data, segment # 1: Marier Ave (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 : 50 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: Marier Ave (day/night)

Angle1 Angle2 : 0.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 2 / 2
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 80.00 / 80.00 m
Receiver height : 9.50 / 9.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: DeschampsAve (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 : 50 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: DeschampsAve (day/night)

 Angle1 Angle2 : 11.00 deg 19.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 2 / 2
 House density : 40 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 85.00 / 85.00 m
 Receiver height : 9.50 / 9.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Marier Ave (day)

 Source height = 1.50 m

ROAD (0.00 + 45.71 + 0.00) = 45.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.42	65.75	0.00	-10.32	-6.22	0.00	-3.50	0.00	45.71

 Segment Leq : 45.71 dBA

↑
 Results segment # 2: DeschampsAve (day)

 Source height = 1.50 m

ROAD (0.00 + 37.96 + 0.00) = 37.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
11	19	0.42	65.75	0.00	-10.70	-13.59	0.00	-3.50	0.00	37.96

 Segment Leq : 37.96 dBA

Total Leq All Segments: 46.38 dBA

↑
 Results segment # 1: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 38.12 + 0.00) = 38.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.42	58.16	0.00	-10.32	-6.22	0.00	-3.50	0.00	38.12

Segment Leq : 38.12 dBA

↑

Results segment # 2: DeschampsAve (night)

Source height = 1.50 m

ROAD (0.00 + 30.37 + 0.00) = 30.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
11	19	0.42	58.16	0.00	-10.70	-13.59	0.00	-3.50	0.00	30.37

Segment Leq : 30.37 dBA

Total Leq All Segments: 38.79 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 46.38
(NIGHT): 38.79

↑

↑

Filename: rec41.te Time Period: Day/Night 16/8 hours
 Description: Reception Point 4-1

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

```
-----
Car traffic volume   : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    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): 15000
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: Montreal Rd (day/night)

```
-----
Angle1  Angle2      : -59.00 deg  0.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      1 / 1
House density   :     20 %
Surface        :      1      (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height :     1.50 / 1.50 m
Topography     :      1      (Flat/gentle slope; no barrier)
Reference angle :     0.00
```

↑
 Results segment # 1: Montreal Rd (day)

Source height = 1.50 m

ROAD (0.00 + 50.41 + 0.00) = 50.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-59	0	0.66	66.69	0.00	-9.99	-5.39	0.00	-0.90	0.00	50.41

Segment Leq : 50.41 dBA

Total Leq All Segments: 50.41 dBA

↑

Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 42.81 + 0.00) = 42.81 dBA

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

-59	0	0.66	59.09	0.00	-9.99	-5.39	0.00	-0.90	0.00	42.81
-----	---	------	-------	------	-------	-------	------	-------	------	-------

Segment Leq : 42.81 dBA

Total Leq All Segments: 42.81 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 50.41

(NIGHT): 42.81

↑

↑

Filename: rec43.te Time Period: Day/Night 16/8 hours
 Description: Reception Point 4-3

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

```
-----
Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

```
-----
Angle1 Angle2 : -59.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 9.50 / 9.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

↑
 Results segment # 1: Montreal Rd (day)

Source height = 1.50 m

ROAD (0.00 + 52.04 + 0.00) = 52.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-59	0	0.42	66.69	0.00	-8.55	-5.20	0.00	-0.90	0.00	52.04

Segment Leq : 52.04 dBA

Total Leq All Segments: 52.04 dBA

↑

Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 44.44 + 0.00) = 44.44 dBA

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

-59 0 0.42 59.09 0.00 -8.55 -5.20 0.00 -0.90 0.00 44.44

Segment Leq : 44.44 dBA

Total Leq All Segments: 44.44 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 52.04

(NIGHT): 44.44

↑

↑

Filename: rec5R.te Time Period: Day/Night 16/8 hours
Description: Reception Point 5

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 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): 15000
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: Montreal Rd (day/night)

Angle1 Angle2 : -21.00 deg 63.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 2: Marier Ave (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 : 50 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: Marier Ave (day/night)

Angle1 Angle2 : -43.00 deg 53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 2 / 2
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Road data, segment # 3: DeschampsAve (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 : 50 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 # 3: DeschampsAve (day/night)

Angle1 Angle2 : 16.00 deg 25.00 deg
Wood depth : 0 (No woods.)
No of house rows : 2 / 2
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Montreal Rd (day)

Source height = 1.50 m

ROAD (0.00 + 52.00 + 0.00) = 52.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-21	63	0.66	66.69	0.00	-9.99	-3.79	0.00	-0.90	0.00	52.00

Segment Leq : 52.00 dBA

↑

Results segment # 2: Marier Ave (day)

Source height = 1.50 m

ROAD (0.00 + 48.37 + 0.00) = 48.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-43	53	0.66	65.75	0.00	-10.79	-3.09	0.00	-3.50	0.00	48.37

Segment Leq : 48.37 dBA

↑

Results segment # 3: DeschampsAve (day)

Source height = 1.50 m

ROAD (0.00 + 37.94 + 0.00) = 37.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	25	0.66	65.75	0.00	-11.11	-13.20	0.00	-3.50	0.00	37.94

Segment Leq : 37.94 dBA

Total Leq All Segments: 53.68 dBA

↑

Results segment # 1: Montreal Rd (night)

Source height = 1.50 m

ROAD (0.00 + 44.41 + 0.00) = 44.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-21	63	0.66	59.09	0.00	-9.99	-3.79	0.00	-0.90	0.00	44.41

Segment Leq : 44.41 dBA

↑
Results segment # 2: Marier Ave (night)

Source height = 1.50 m

ROAD (0.00 + 40.78 + 0.00) = 40.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-43	53	0.66	58.16	0.00	-10.79	-3.09	0.00	-3.50	0.00	40.78

Segment Leq : 40.78 dBA

↑
Results segment # 3: DeschampsAve (night)

Source height = 1.50 m

ROAD (0.00 + 30.35 + 0.00) = 30.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
16	25	0.66	58.16	0.00	-11.11	-13.20	0.00	-3.50	0.00	30.35

Segment Leq : 30.35 dBA

Total Leq All Segments: 46.09 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 53.68
(NIGHT): 46.09

↑
↑