PATERSON GROUP

Environmental Noise Control Study

Proposed Residential Development

5000 Robert Grant Avenue
Ottawa, Ontario

Prepared for Canadian Rental Development Services

Report PG6800-1 Revision 3 - Dated May 23, 2024

Table of Contents

Appendices

1.0 Introduction

Paterson Group (Paterson) was commissioned by Canadian Rental Development Services to conduct an environmental noise control study for the proposed residential development to be located at 5000 Robert Grant Avenue, 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 residential 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 residential development will consist of three (3) multi-storey buildings. Associated at-grade roadways, parking areas, landscaped areas and outdoor living areas are also anticipated as a part of the proposed residential development.

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

The City of Ottawa's Official Plan, in addition to the ENCG, dictate 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 NPC-300 outlines the limitations of the stationary and environmental noise levels in relation to the location of the receptors. These can be found below in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas	
Time Period	**Required $L_{eq(16)}$ (dBA)**
16-hour, 7:00-23:00	55
I. Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail	

Table 2 - Sound Level Limits for Indoor Living Area			
Type of Space	**Time Period**	**Required L_{eq} (dBA)**	
		Road	**Rail**
Living/Dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc	7:00-23:00	45	40
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms	23:00-7:00	45	40
Sleeping quarters	7:00-23:00	45	40
	23:00-7:00	40	35
I. Standards taken from Table 2.2b; Sound Level Limit for Indoor Living Areas - Road and Rail			

It is noted in ENCG that the limits outlined in Table 2 are for the sound levels on the interior of the glass pane. The ENCG further goes on to state that the limit for the exterior of the pane of glass will be 55 dBA.

If the sound level limits are exceeded at the window panes for the indoor living areas, the following Warning Clauses may be referenced:

Table 3 - Warning Clauses for Sound Level Exceedances	
Warning Clause	**Description**
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."
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."
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."
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."
I. Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - 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 proposed residential development is not in proximity to any existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required with respect to off-site stationary noise sources impacting the proposed development.

However, it is understood that this development will include roof top units that will be classified as a stationary noise source. A stationary noise study with respect to these new stationary noise sources will be completed under a separate cover.

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 Methodology and Vibration Assessment Criteria

Due to the locations of the classified area of the Canadian Pacific Rail Corridor (CP Rail Corridor), ground vibration and ground-borne noise reviews were also performed for this development.

Effects of the Rail Corridor on the Proposed Residential Development

The human body can be affected by exposure to vibration, in particular ground-borne vibrations occurring at low frequencies. These can be caused by the surrounding vibration sources previously identified, such as wheels on a road or rail system. These ground-borne vibrations can cause the building to shake (ground-borne vibration) and/or cause rumbling sounds (ground-borne noise).

The methods of defining and measuring vibrations have their own challenges, based on the oscillatory motion identified as a vibration. Due to the nature of the oscillatory motion of the vibration, there is no net movement of the vibration element, and therefore motion descriptors are zero.

There are two (2) main methods of defining the magnitude of the overall vibration. The industry standard approach utilized in construction activities is the peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal and is often used when monitoring blasting vibrations and is ideal for evaluating the potential for building damage.

However, human responses require a different method of analysis as the human body requires time to respond to vibration signals. The average vibration amplitude would be an applicable method of reporting the ground-borne vibrations that humans would respond to, however, with the vibration being represented as a sine wave, the average vibration amplitude would be zero. Therefore, the root mean square (RMS) amplitude, typically calculated over a 1-second interval, is utilized for the analysis. The RMS value is always less than the PPV.

General factors that could affect the magnitude of the created vibrations include, but are not limited to: whether the rail is above grade or below grade, speed, vehicle suspension, wheel and track condition, track support system, depth of system and soil conditions. It should be noted that vibrations that travel through the bedrock surface should be minimal but can travel a further distance.

The Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual: FTA Report No. 0123 dated September 2018 outlines the vibration standards caused by rail sources. Upon review of this document, the following standards were obtained that apply to this analysis.

Screening distances are based on land-use categories and the type of project vehicles. The Canadian Pacific (CP) Carleton Place Rail Line is currently non-active but for the study is considered a Locomotive Powered Passenger or Freight Vehicle. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". Therefore, the screening distance is 61 metres (200 ft). Vibration assessment is required only when the proposed residential buildings are located within the screening distance from the railway.

The criteria for the environmental impact from vibrations are based on the RMS vibration levels for repeated events. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". The following table outlines the limits for ground-borne vibrations.

Table 4 - Ground-Borne Vibration (GBV) for General Assessment

Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	**Occasional Events**	**Infrequent Events**
Category 2	72 VdB	75 VdB	80 VdB

Notes:

- Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment.
- Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
- Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
- Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

Ground-borne vibration can also result in ground-borne noise. This is separate from the noise caused by the trains directly and instead focuses on the vibration of objects to emit noise. Similar to ground-borne vibration, the noise impacts are based on criteria for human annoyance and activity interference. For residential buildings, the criteria for acceptability is given in the table on the following page:

Table 5 - Ground-Borne Noise (GBN) for General Assessment

Land Use Category	GBN Impact Levels (dBA re 20 micro Pascals)		
	Frequent Events	**Occasional Events**	**Infrequent Events**
Category 2	35 dBA	38 dBA	43 dBA

Notes:

- Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment.
- Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
- Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
- Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

5.0 Analysis

Surface Transportation Noise

The subject site is currently undeveloped and bordered by Robert Grant Avenue to the southwest, residential dwellings to the northeast, and further by residential dwellings to the south. A future bus route running along Robert Grant Avenue, Robert Grant Avenue and Livery Street was identified within the 100 m radius of the proposed residential development.

Based on the new City of Ottawa Official Plan, Schedule F, Robert Grant Avenue is considered a 4-lane urban arterial road (4-UAD). Other roads within the 100 m radius of the proposed residential development are not classified as either arterial, collector or major collector roads and therefore are not included in this study.

The Canadian Pacific (CP) Carleton Place Rail Line is identified within 300 m of the proposed development. It is understood that the Carleton Place Rail line was historically used by Canadian Pacific Rail. The rail line currently is non-active therefore, the volume of trains is based on typical conservative values.

All noise sources are presented in Drawing PG6800-1-Site Geometry located in Appendix 1.

The noise levels from road traffic are provided by the City of Ottawa which takes into consideration the right-of-way width and the implied roadway class. 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. Based on conversation with City of Ottawa officials it is expected that the bus route along Robert Grant Avenue will have approximately 640 buses daily. However, the modelling software does not allow for an AADT lower than 4100. Therefore to complete the study an AADT of 4100.

Table 6 - Traffic and Road Parameters

Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Robert Grant Avenue	4-UAD	35000	60	92/8	7	5
Future Robert Grant Avenue Bus Route	n/a	4100	60	92/8	90	10
Data obtained from the City of Ottawa document ENCG or City of Ottawa Officials						

Table 7 - Rail Parameters - Daytime (0700-2300)				
Rail Line	**Engine Type**	**Maximum Speed (km/hr)**	**Number of Trips/day**	**Length of Train**
CP Rail Line	Diesel	100	15	10

Table 8 - Rail Parameters – Nighttime (2300-0700)				
Rail Line	**Engine Type**	**Maximum Speed (km/hr)**	**Number of Trips/day**	**Length of Train**
CP Rail Line	Diesel	100	1	10

Nine (9) 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 buildings.

Table 9 - Elevation of Reception Points			
Floor Number	**Elevation at the Centre of Window / Ground Surface (m)**	**Floor Use**	**Daytime/Nighttime Analysis**
Ground Surface	1.5	Outdoor Living Area	-
Ground Floor	1.5	Living Area/Bedroom	Daytime/nighttime
Fourth Floor	11.5	Living Area/Bedroom	Daytime/nighttime
Fourth Floor	11.5	Outdoor Living Area	-
Fifth Floor	13.5	Living Area/Bedroom	Daytime/nighttime
Fifth Floor	13.5	Outdoor Area	-
Eighth Floor	24.5	Living Area/Bedroom	Daytime/nighttime
Ninth Floor	27.0	Living Area/Bedroom	Daytime/nighttime
Nineteenth Floor	56.5	Living Area/Bedroom	Daytime/nighttime

For this analysis, a reception point was taken at the centre of each floor at the ground floor, fourth floor, fifth floor, eighth floor, ninth floor and nineteenth floor of the structures. Additionally, receptor points for the outdoor living areas were taken at 1.5 m above either the ground floor or 1.5 m above the elevation of the terrace. Reception points are detailed in Drawing PG6800-2-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 roadways were analyzed where they intersected the 100m buffer zone, and the rail lines were analyzed where they intersected the 300m buffer zone which is reflected in the local angles described in Paterson Drawings PG6800-3A to 5F-Site Geometry in Appendix 1.

Table 12 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry concerning the noise sources. The analysis is completed so that no effects of sound reflection off the building facade are considered, as stipulated by the ENGC. It should be noted that one receptor is assigned to the side of the building affected by noise. There are three noise sources: Robert Grant Avenue, the future Robert Grant BRT to be located to the south, and the CP Carleton Place Rail located to the west of the buildings. The anticipated noise at each receptor represents the worst-case scenario for each building.

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.

The subject site is relatively level and at grade with the neighbouring roads within a 100 to 300 m radius.

Ground-borne vibration assessment is required for the CP Carleton Place Rail Line. However, it is noted that the distance between the CP Carleton Place Rail and the proposed residential buildings is greater than 120 m. This distance is greater than the screening distances specified in The City of Ottawa Noise Control Study Guidelines. Therefore, a ground-borne vibration assessment is not required.

6.0 Results

Surface Transportation

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

The proposed traffic noise levels were analyzed at all reception points. The results of the STAMSON software are located in Appendix 2, and the summary of the results is noted in Table 10 below.

Table 10– Proposed Noise Levels

Reception Point	Description	OLA (dBA)	Daytime at Facade $L_{eq(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 1-1	Building B, Western Elevation, 1st Floor	-	59.55	51.93
REC 1-9	Building B, Western Elevation, 9th Floor	-	62.63	54.94
REC 2-1	Building B, Southern Elevation, 1st Floor	-	63.74	56.13
REC 2-9	Building B, Southern Elevation, 9th Floor	-	67.73	60.12
REC 3-1	Building B, Eastern Elevation, 1st Floor	-	55.43	47.83
REC 3-9	Building B, Eastern Elevation, 9th Floor	-	60.35	52.75
REC 4-1	Building C, Western Elevation, 1st Floor	-	61.77	54.11
REC 4-8	Building C, Western Elevation, 8th Floor	-	65.85	58.13
REC 4-19	Building C, Western Elevation, 19th Floor	-	65.85	58.13
REC 5-1	Building C, Southern Elevation, 1st Floor	-	66.86	59.26
REC 5-8	Building C, Southern Elevation, 8th Floor	-	69.96	62.35
REC 5-19	Building C, Southern Elevation, 19th Floor	-	69.96	62.35
REC 6-1	Building C, Eastern Elevation, 1st Floor	-	59.97	52.37
REC 6-8	Building C, Eastern Elevation, 8th Floor	-	63.84	56.24
REC 6-19	Building C, Eastern Elevation,19th Floor	-	63.84	56.24
REC 9-1	Building C, Northern Elevation, 1st Floor	-	44.79	36.04
REC 9-8	Building C, Northern Elevation, 9th Floor	-	51.31	42.56
REC 9-19	Building C, Northern Elevation, 18th Floor	-	51.31	42.56
REC 10-1	Building B, Northern Elevation, 1st Floor	-	41.08	32.33
REC 10-9	Building B, Northern Elevation, 9th Floor	-	48.24	39.49

Reception Point	Description	OLA (dBA)	Daytime at Facade $L_{eq(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 11-1	Building A, Western Elevation, 1st Floor	-	49.29	40.54
REC 11-5	Building A, Western Elevation, 5th Floor	-	54.23	45.48
REC 12-1	Building A, Southern Elevation, 1st Floor	-	45.55	36.80
REC 12-5	Building A, Southern Elevation, 5th Floor	-	50.63	41.88
REC 13-1	Building A, Southern Elevation, 1st Floor	-	42.14	33.39
REC 13-4	Building A, Southern Elevation, 4th Floor	-	46.84	38.09
REC 14-1	Building A, Northern Elevation, 1st Floor	-	41.93	33.18
REC 14-4	Building A, Northern Elevation, 4th Floor	-	46.60	37.85
REC 15-1	Building A, Northern Elevation, 1st Floor	-	45.34	36.59
REC 15-5	Building A, Northern Elevation, 5th Floor	-	50.36	41.61
REC 7-4	Building C, Southern Elevation, 4th Floor Terrace	68.63	n/a	n/a
REC 8	Outside Living Area	53.08	n/a	n/a
REC 16-4	Building A, Northern Elevation, 4th Floor Terrace	46.23	n/a	n/a
REC 17-4	Building C, Northern Elevation, 4th Floor Terrace	46.16	n/a	n/a

7.0 Discussion and Recommendations

7.1 Outdoor Living Areas

Four outdoor living areas were analyzed as part of the current study. The first outdoor living area is centrally located between Building A and Building C on the northeastern side of the subject site as indicated by REC 8. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources will be 53.08 dBA. This value is below the 55 dBA limit that was specified in Table 1 and no noise attenuation features will be required.

Two additional outdoor living areas are located on the northern and southern sides of Building C, on 4th-floor terraces. A noise analysis was performed for these locations, specified as REC 7-4 and REC 17-4. Based on drawings provided to Paterson by Canadian Rental Development Services the 4th floor will be approximately 10.0 m above the ground surface. The two points analyzed were located at the center of the terrace, 1.5 m above the fourth-floor level. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources for REC 17-4 will be 46.16 dBA. This is below the 55 dBA limit as specified in table 1. Additionally the results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources for REC 7-4 will be 68.63 dBA which exceeds the 55 dBA limit that was specified in Table 1.

Further analysis was performed for REC 7-4 with the addition of a 1.0 m sound barrier wall along the 4th-floor terrace. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources was 64.77 dBA, this value remains above the 55 dBA limit specified in Table 1. While this remains above the 55 dBA limit, it is considered acceptable as there are alternative outdoor living areas provided to the property owners. Therefore, Warning Clause Type B will be required on all deeds of sale that would utilize this outdoor terrace as an outdoor living area.

Warning Clause 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."

The final outdoor living is located on the northern side of Building A on a 4th-floor terrace. Based on drawings provided to Paterson by Canadian Rental Development Services the 4th floor will be approximately 10.0 m above the ground surface. The point analyzed is located in the center of the terrace, 1.5 m above the 4th-floor level. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources will be 46.23 dBA. This value does not exceed the 55 dBA limit that was specified in Table 1 and no noise attenuation features will be required.

7.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling indicate that the $L_{eq(16)}$ ranges between 41.08 dBA and 67.73 dBA. Some of the values calculated exceed the limit of 55 dBA as specified by the ENGCC and therefore warning clauses will be required to be stated on any deeds of sale. The applicable warning clauses are summarized in Table 11 on the following page.

Table 11 - Summary of Warning Clauses – Indoor Living Areas

Building	Elevation	Floor	Applicable Warning Clause	Additional Considerations
A	Northern	All	n/a	n/a
	Eastern	All	n/a	n/a
	Southern	All	n/a	n/a
	Western	All	n/a	n/a
B	Northern	All	n/a	n/a
	Eastern	1st to 9th	Warning Clause Type C	This dwelling 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.
	Southern	1st to 9th	Warning Clause 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."
	Western	1st to 9th	Warning Clause Type C	This dwelling 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.
C	Northern	n/a	n/a	n/a
	Eastern	1st to 19th	Warning Clause Type C	This dwelling 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.

C	Western	1st	Warning Clause Type C	This dwelling 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.
		2nd to 19th	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."
	Southern	1st to 19th	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."

Various receptors as noted in Building C and Building B exceed the 65 dBA threshold for noise on the western and southern elevations. Therefore, an analysis of the building materials will be required. However, at this time the building materials and exterior wall construction details have not been finalized. Therefore, a review of the proposed building materials will need to be completed.

Proposed Construction Specifications

It is understood that typical window and wall details are proposed for the residential buildings. The effectiveness of the noise insulation can be expressed as the Acoustical Insulation Factor (AIF), calculated as follows:

$$AIF = L_{eq(16)(Exterior)} - L_{eq(16)(Interior)} + 10\log_{10}(N) + 2 \text{ dBA}$$

Where:

$L_{eq(16)(Exterior)}$ = Calculated value at the window pane
$L_{eq(16)(Interior)}$ = 45 dBA
N = number of components in the room

No floor plans or detailed design drawings were provided for this portion of the review. A conservative approach is to assume that there are 2 components per room. Therefore, the AIF would need to be at least 30 dBA.

A conversion from AIF to a Standard Transmission Class (STC) rating will require knowledge of room dimensions in addition to the wall and window dimensions. However, a conservative approach would be to increase the AIF factor by 3. **Therefore, provided the building materials of either the windows and/or exterior walls have an STC rating of 33 or higher, this would be a sufficient noise attenuation device.**

The wall details for this development were provided by Mr. Alexandre Lalonde and are included in Appendix 3. A review of these wall details indicates that the materials have an STC rating of greater than 33 and are considered acceptable. Reference can be made to Appendix C for building material industry standards. If alternative materials are to be utilized on the southern elevation, then a review will need to be completed once design details are finalized.

8.0 Summary of Findings

The subject site is located at 5000 Robert Grant Avenue, in the City of Ottawa. It is understood that the proposed residential development will consist of three multi-storey residential buildings. The associated analysis identified one surface transportation noise source: Robert Grant Avenue.

Several reception points were selected for the analysis, consisting of panes of glass reception points on both the first, middle and top levels, terrace levels and outdoor living areas.

All anticipated noise levels from Building A are below 55 dBA and no additional noise mitigation measures are required.

All units apart from the northern elevation of Building B exceeded the 55 dBA guideline specified by the ENGCC and will require Warning Clause Type C for all units on the eastern and western elevation, and Warning Clause Type D for all units on the southern elevation.

All units apart from the northern elevation of Building C exceeded the 55 dBA guideline specified by the ENGCC and will require Warning Clause Type C for all units on the eastern elevation in addition to any units on the first floor of the western elevation, and Warning Clause Type D for all remaining units on the western and southern elevation.

A review of building materials was completed as part of this analysis, and the materials are considered to be acceptable for the required soundproofing measures.

All warning clauses are reiterated below and are to be included on all Offers of Purchase and Sale:

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."

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."

Further analysis of the outdoor living areas was performed consisting of the at-grade outdoor living area located between Building A and Building C (REC 8), two 4th-floor terraces of Building C (REC 7-4 and REC 17-4), and an additional 4th-floor terrace of Building A (REC 16-4).

The analysis showed the 4th-floor terrace of Building C (REC 7-4) resulted in a noise level exceeding 55 dBA. Additional noise attenuation measures were analyzed, however, there is no feasible or economical method to reduce the noise levels below 55 dBA at this location. Therefore, any property owner that can access this outdoor living area should have a warning clause Type B listed on all Offers of Purchase and Sale. All other outdoor living areas were considered acceptable without additional noise mitigation measures.

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."

9.0 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 Canadian Rental Development Services Inc. and Design 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.

Otillia McLaughlin, B.Eng.

Stephanie A. Boisvenue, P.Eng.

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APPENDIX 1

TABLE 12 – SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG6800-1 – SITE PLAN

DRAWING PG6800-2 – RECEPTOR LOCATION PLAN

DRAWING PG6800-3 – SITE GEOMETRY (BUILDING A)

DRAWING PG6800-3A- SITE GEOMETRY (REC11-1 and REC11-5)

DRAWING PG6800-3B- SITE GEOMETRY (REC12-1 and REC12-5)

DRAWING PG6800-3C- SITE GEOMETRY (REC13-1 and REC13-4)

DRAWING PG6800-3D- SITE GEOMETRY (REC14-1 and REC14-4)

DRAWING PG6800-3E- SITE GEOMETRY (REC15-1 and REC15-5)

DRAWING PG6800-3F- SITE GEOMETRY (REC16-4)

DRAWING PG6800-4 – SITE GEOMETRY (BUILDING B)

DRAWING PG6800-4A – SITE GEOMETRY (REC 1-1 and REC 1-9)

DRAWING PG6800-4B - SITE GEOMETRY (REC 2-1 and REC 2-9)

DRAWING PG6800-4C – SITE GEOMETRY (REC 3-1 and REC 3-9)

DRAWING PG6800-4D- SITE GEOMETRY (REC10-1 and 10-9)

DRAWING PG6800-5 - SITE GEOMETRY (BUILDING C)

DRAWING PG6800-5A - SITE GEOMETRY (REC 4-1, REC 4-8, and REC 4-19)

DRAWING PG6800-5B - SITE GEOMETRY (REC 5-1, REC 5-8, and REC 5-19)

DRAWING PG6800-5C - SITE GEOMETRY (REC 6-1 REC 6-8, and REC 6-19)

DRAWING PG6800-5D – SITE GEOMETRY (REC 7-4)

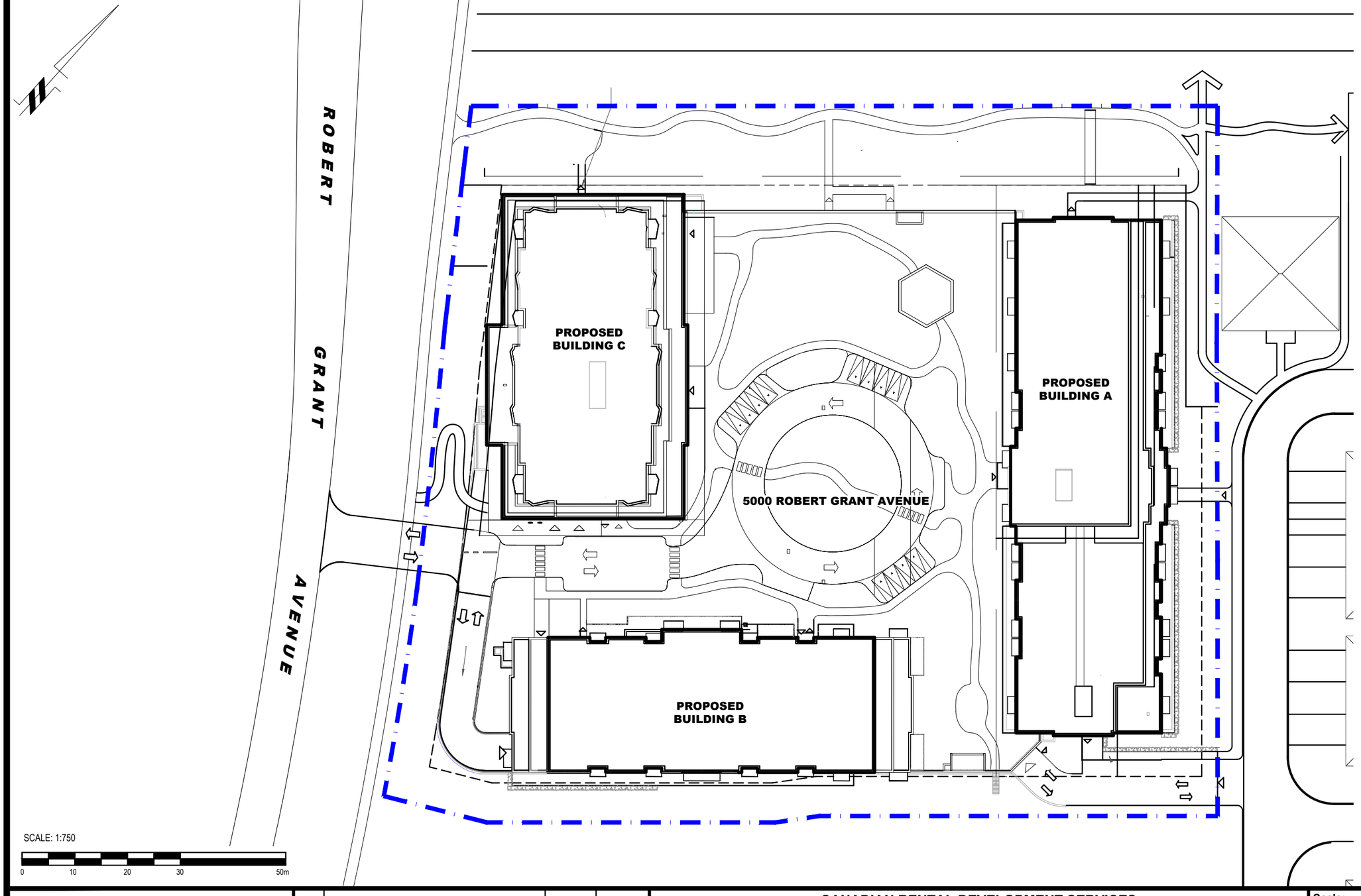
DRAWING PG6800-5E – SITE GEOMETRY (REC 8)

DRAWING PG6800-5F- SITE GEOMETRY (REC 9-1, REC 9-8, and REC 9-19)

Table 12 Revision 3 - Summary of Reception Points and Geometry

5000 Robert Grant Avenue

Point of Reception	Location	Total Leq Day (dBA)	Total Leq Night (dBA)	Robert Grant Avenue								Robert Grant Avenue BRT								Carleton Place Rail Corridor							
				Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)
REC 11-1	Building A, Western Elevation, 1st Floor	49.29	40.54	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	128	1.5	128.0	-66, 65	n/a	n/a	n/a	n/a
REC 11-5	Building A, Western Elevation, 5th Floor	54.23	45.48	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	128	17.5	129.2	-66, 65	n/a	n/a	n/a	n/a
REC 12-1	Building A, Southern Elevation, 1st Floor	45.55	36.80	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	140	1.5	140.0	-63, 0	n/a	n/a	n/a	n/a
REC 12-5	Building A, Southern Elevation, 5th Floor	50.63	41.88	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	140	17.5	141.1	-63, 0	n/a	n/a	n/a	n/a
REC 13-1	Building A, Southern Elevation, 1st Floor	42.14	33.39	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	211	1.5	211.0	-53, 0	n/a	n/a	n/a	n/a
REC 13-4	Building A, Southern Elevation, 4th Floor	46.84	38.09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	211	14.5	211.5	-53, 0	n/a	n/a	n/a	n/a
REC 14-1	Building A, Northern Elevation, 1st Floor	41.93	33.18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	211	1.5	211.0	0, 50	n/a	n/a	n/a	n/a
REC 14-4	Building A, Northern Elevation, 4th Floor	46.60	37.85	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	211	14.5	211.5	0, 50	n/a	n/a	n/a	n/a
REC 15-1	Building A, Northern Elevation, 1st Floor	45.34	36.59	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	140	1.5	140.0	0, 59	n/a	n/a	n/a	n/a
REC 15-5	Building A, Northern Elevation, 5th Floor	50.36	41.61	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	140	17.5	141.1	0, 59	n/a	n/a	n/a	n/a
REC 16-4	Building A, Northern Elevation, 4th Floor Terrace	46.23	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	223	14.5	223.5	0, 49	n/a	n/a	n/a	n/a
REC 1-1	Building B, Western Elevation, 1st Floor	59.55	51.93	74	1.5	74.0	0, 54	n/a	n/a	n/a	n/a	74	1.5	74.0	0, 54	n/a	n/a	n/a	n/a	208	1.5	208.0	-49, 50	n/a	n/a	n/a	n/a
REC 1-9	Building B, Western Elevation, 9th Floor	62.63	54.94	74	27	78.8	0, 54	n/a	n/a	n/a	n/a	74	27	78.8	0, 54	n/a	n/a	n/a	n/a	208	27	209.8	-49, 50	n/a	n/a	n/a	n/a
REC 2-1	Building B, Southern Elevation, 1st Floor	63.74	56.13	48	1.5	48.02	-52, 71	n/a	n/a	n/a	n/a	48	1.5	48.02	-52, 71	n/a	n/a	n/a	n/a	221	1.5	221.01	-46, 0	n/a	n/a	n/a	n/a
REC 2-9	Building B, Southern Elevation, 9th Floor	67.73	60.12	48	27	55.1	-52, 71	n/a	n/a	n/a	n/a	48	27	55.1	-52, 71	n/a	n/a	n/a	n/a	221	27	222.6	-46, 0	n/a	n/a	n/a	n/a
REC 3-1	Building B, Eastern Elevation, 1st Floor	55.43	47.83	78	1.5	78.01	-37, 0	n/a	n/a	n/a	n/a	78	1.5	78.01	-37, 0	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 3-9	Building B, Eastern Elevation, 9th Floor	60.35	52.75	78	27	82.5	-37, 0	n/a	n/a	n/a	n/a	78	27	82.5	-37, 0	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 10-1	Building B, Northern Elevation, 1st Floor	41.08	32.33	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	220	1.5	220.01	0, 43	n/a	n/a	n/a	n/a
REC 10-9	Building B, Northern Elevation, 9th floor	48.24	39.49	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	220	27	221.65	0, 43	n/a	n/a	n/a	n/a
REC 4-1	Building C, Western Elevation, 1st Floor	61.77	54.11	45	1.5	45.02	0, 68	n/a	n/a	n/a	n/a	45	1.5	45.02	0, 68	n/a	n/a	n/a	n/a	123	1.5	123.01	-67, 67	n/a	n/a	n/a	n/a
REC 4-8	Building C, Western Elevation, 8th Floor	65.83	58.13	45	24.5	51.24	0, 68	n/a	n/a	n/a	n/a	45	24.5	51.24	0, 68	n/a	n/a	n/a	n/a	123	24.5	125.42	-67, 67	n/a	n/a	n/a	n/a
REC 4-19	Building C, Western Elevation, 19th Floor	65.85	58.13	45	56.5	72.23	0, 68	n/a	n/a	n/a	n/a	45	56.5	72.23	0, 68	n/a	n/a	n/a	n/a	123	56.5	135.36	-67, 67	n/a	n/a	n/a	n/a
REC 5-1	Building C, Southern Elevation, 1st Floor	66.86	59.26	33	1.5	33.03	-67, 74	n/a	n/a	n/a	n/a	33	1.5	33.03	-67, 74	n/a	n/a	n/a	n/a	154	1.5	154.01	-67, 0	n/a	n/a	n/a	n/a
REC 5-8	Building C, Southern Elevation, 8th Floor	69.96	62.35	33	24.5	41.1	-67, 74	n/a	n/a	n/a	n/a	33	24.5	41.1	-67, 74	n/a	n/a	n/a	n/a	154	24.5	155.94	-67, 0	n/a	n/a	n/a	n/a
REC 5-19	Building C, Southern Elevation, 19th Floor	69.96	62.35	33	56.5	65.43	-67, 74	n/a	n/a	n/a	n/a	33	56.5	65.43	-67, 74	n/a	n/a	n/a	n/a	154	56.5	164.04	-67, 0	n/a	n/a	n/a	n/a
REC 6-1	Building C, Eastern Elevation, 1st Floor	59.97	52.37	50	1.5	50.02	-53, 0	n/a	n/a	n/a	n/a	50	1.5	50.02	-53, 0	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 6-8	Building C, Eastern Elevation, 8th Floor	63.84	56.24	50	24.5	55.68	-53, 0	n/a	n/a	n/a	n/a	50	24.5	55.68	-53, 0	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 6-19	Building C, Eastern Elevation, 19th Floor	63.84	56.24	50	56.5	75.45	-53, 0	n/a	n/a	n/a	n/a	50	56.5	75.45	-53, 0	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 9-1	Building C, Northern Elevation, 1st Floor	44.79	36.04	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	154	1.5	154.01	0, 61	n/a	n/a	n/a	n/a
REC 9-8	Building C, Northern Elevation, 9th Floor	51.31	42.56	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	154	24.5	155.94	0, 61	n/a	n/a	n/a	n/a
REC 9-19	Building C, Northern Elevation, 19th Floor	51.31	42.56	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	154	56.5	164.04	0, 61	n/a	n/a	n/a	n/a
REC 7-4	Building C, Southern Elevation, 4th Floor Terrace	68.63	-	31.5	11.5	33.53	-66, 81	n/a	n/a	n/a	n/a	31.5	11.5	33.53	-66, 81	n/a	n/a	n/a	n/a	160	11.5	160.41	-60, 0	n/a	n/a	n/a	n/a
REC 17-4	Building C, Northern Elevation, 4th Floor Terrace	46.16	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	154	11.5	154.43	0, 61	n/a	n/a	n/a	n/a
REC 8	Outside Living Area	53.08	-	88	13.5	89.03	-49, 54	n/a	n/a	n/a	n/a	88	13.5	89.03	-49, 54	n/a	n/a	n/a	n/a	140	1.5	140.01	-68, 0	n/a	n/a	n/a	n/a



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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: 1:750	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-1
Approved by: SB	Revision No.: 1

11x17

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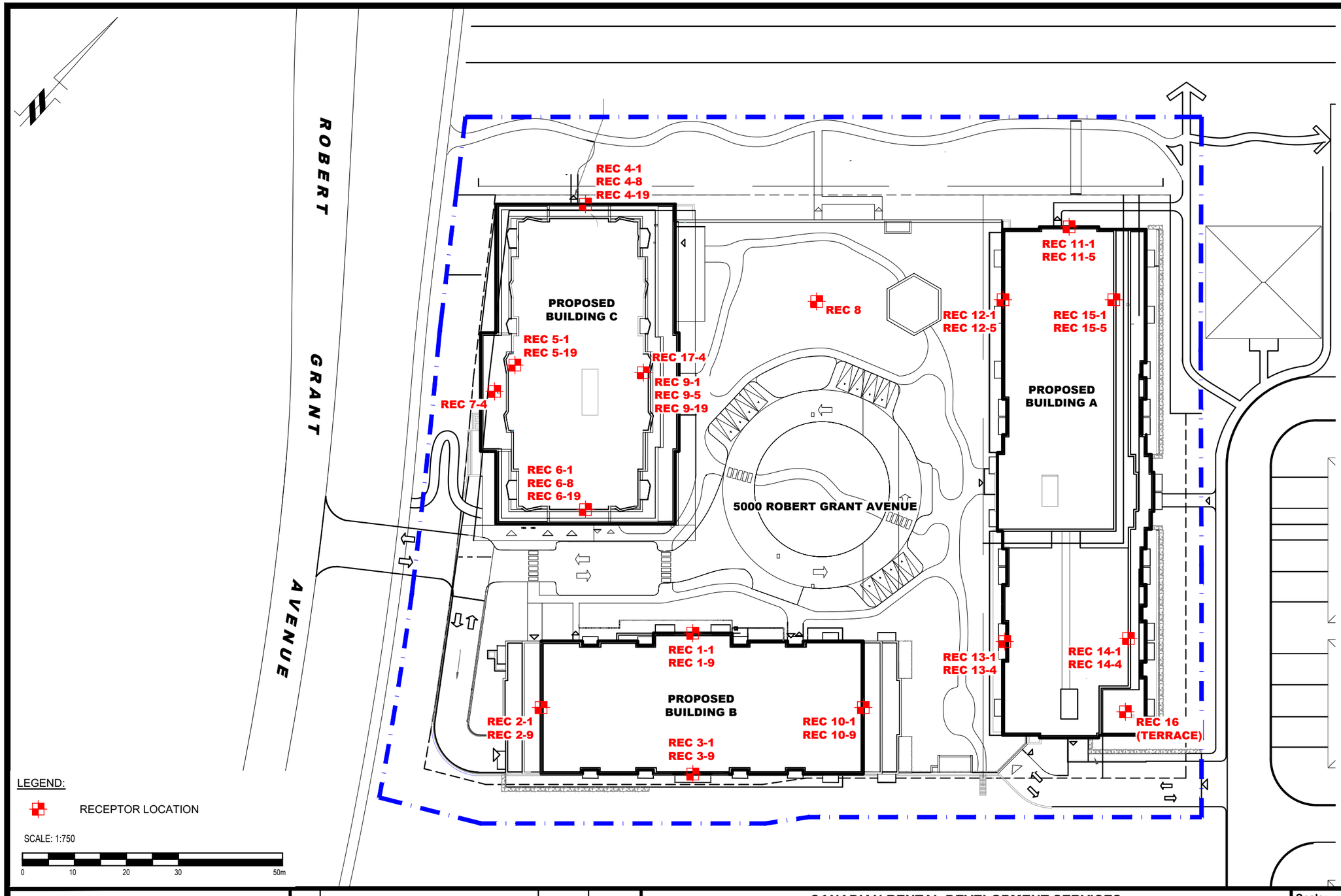

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1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

RECEPTOR LOCATION PLAN

Scale: 1:750	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-2
Approved by: SB	Revision No.: 1

11x17

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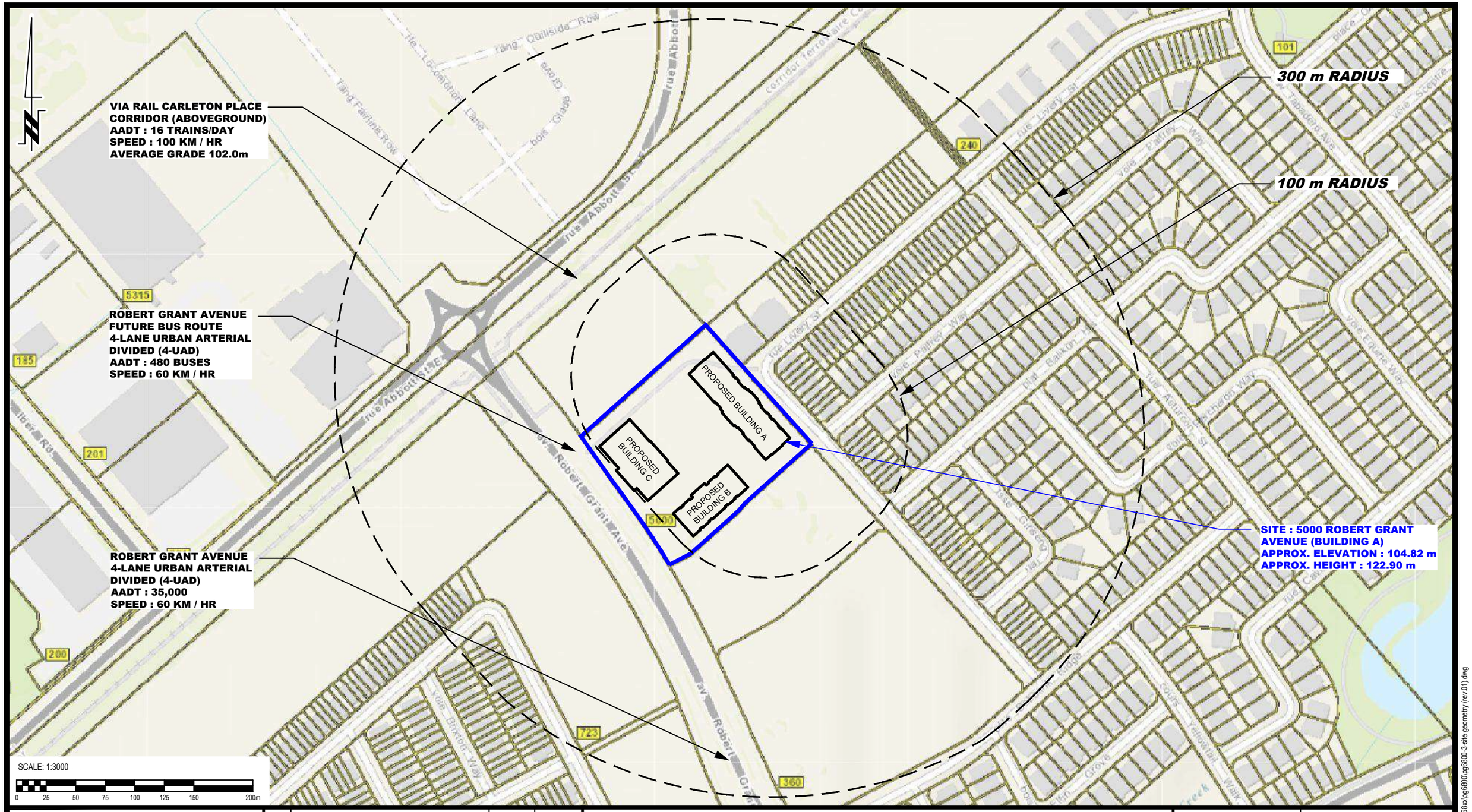

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1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - BUILDING A

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3
Approved by: SB	Revision No.: 1

11x17

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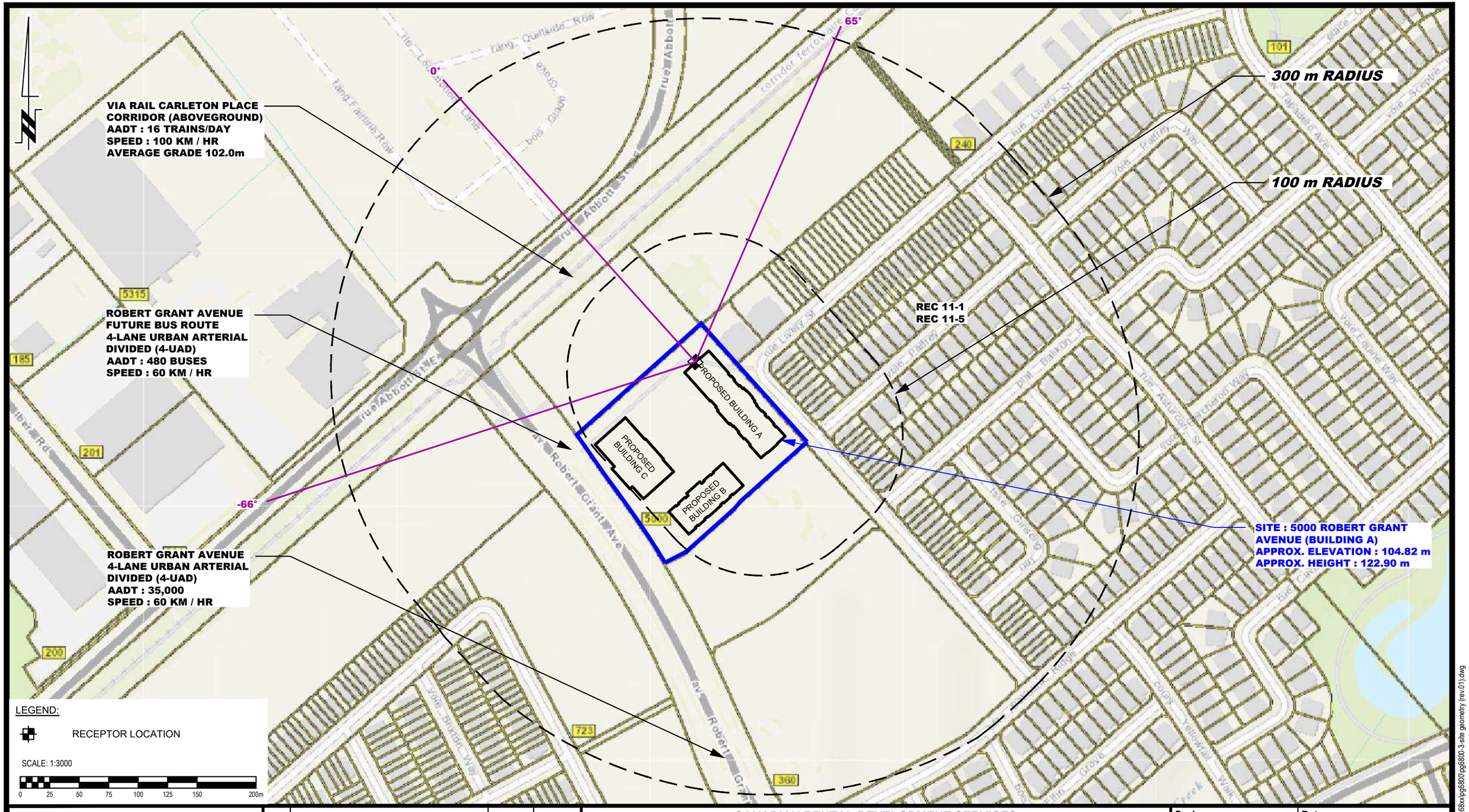

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1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 11-1 AND REC 11-5

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3A
Approved by: SB	Revision No.: 1

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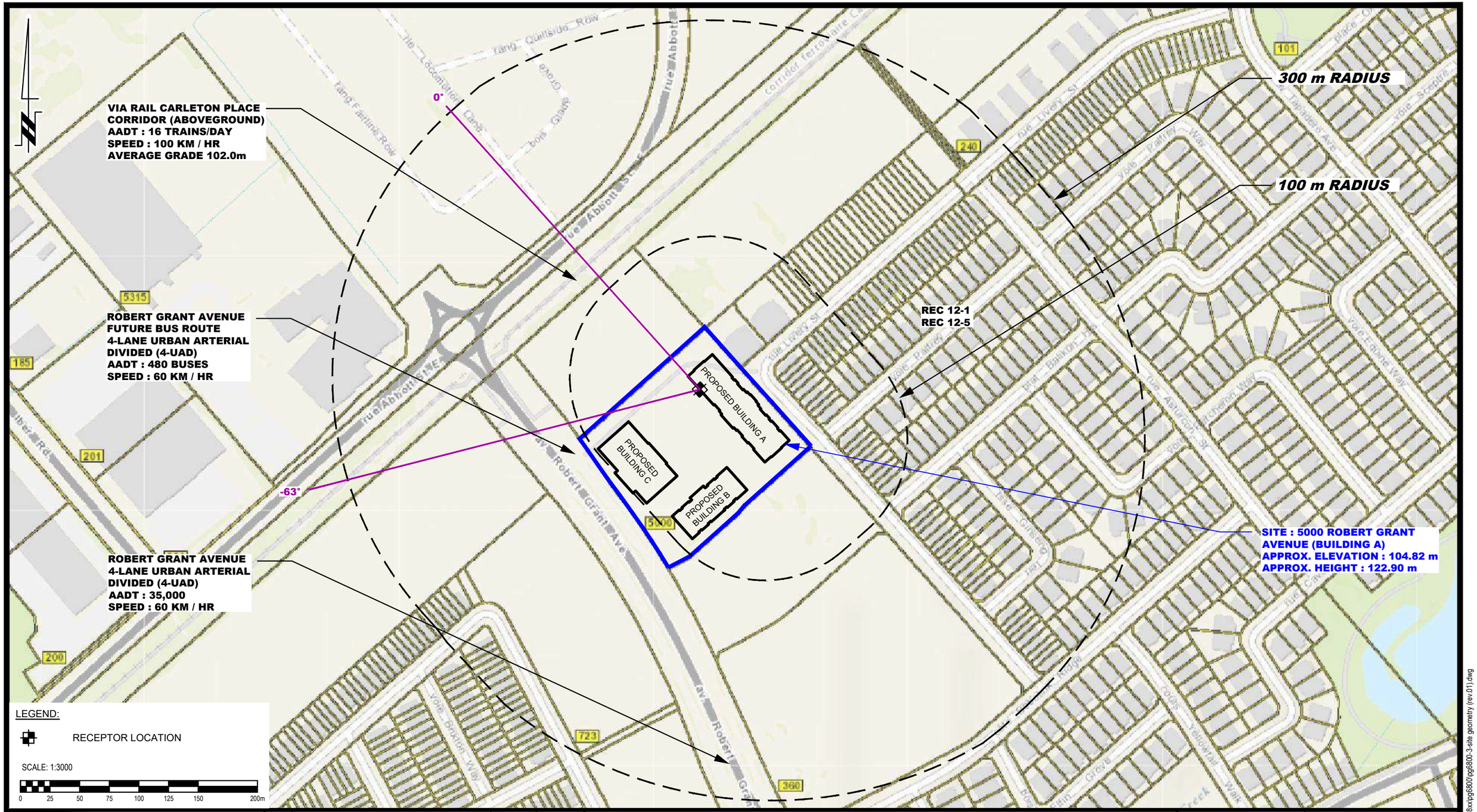

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 12-1 AND REC 12-5

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3B
Approved by: SB	Revision No.: 1

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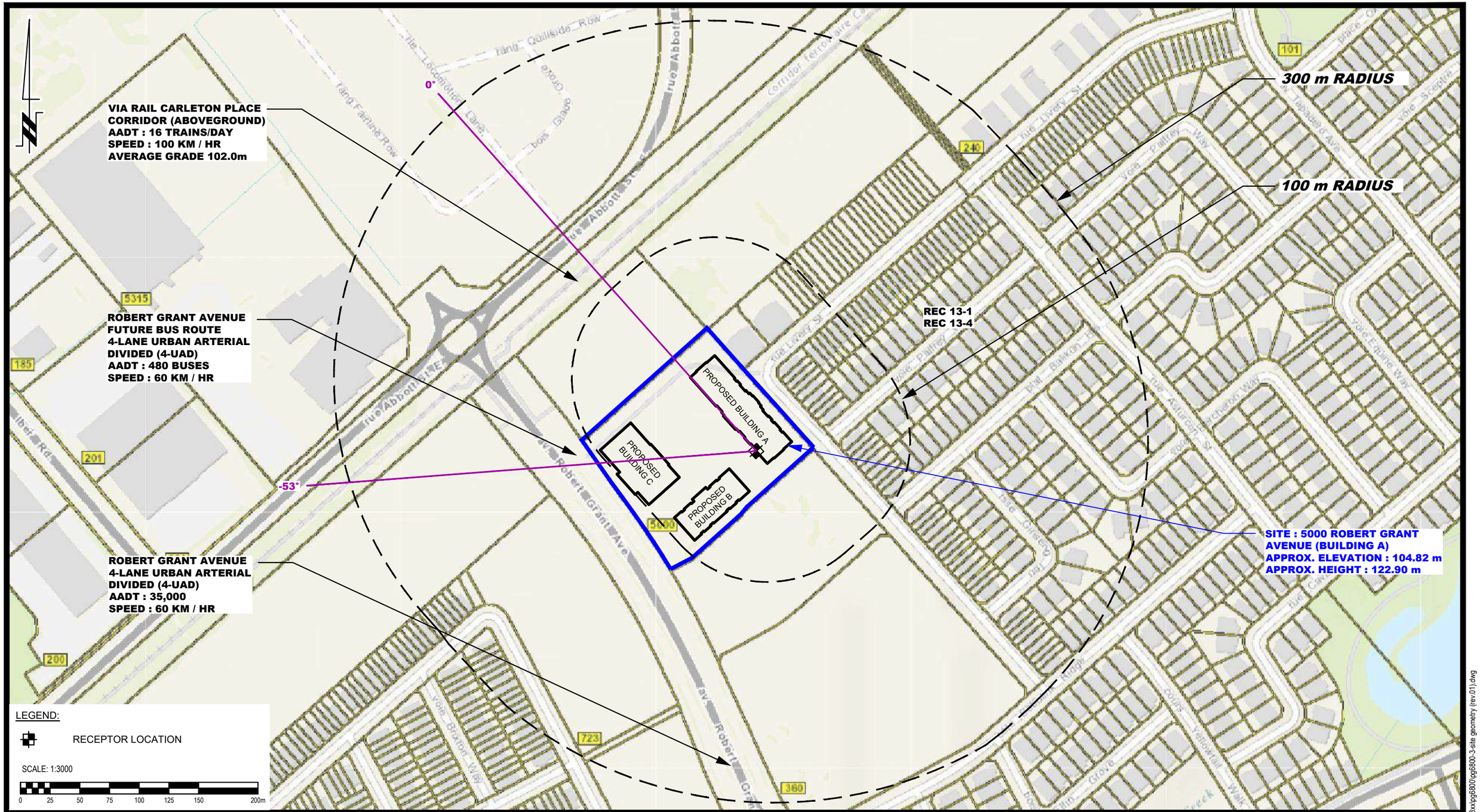

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1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 13-1 AND REC 13-4

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3C
Approved by: SB	Revision No.: 1

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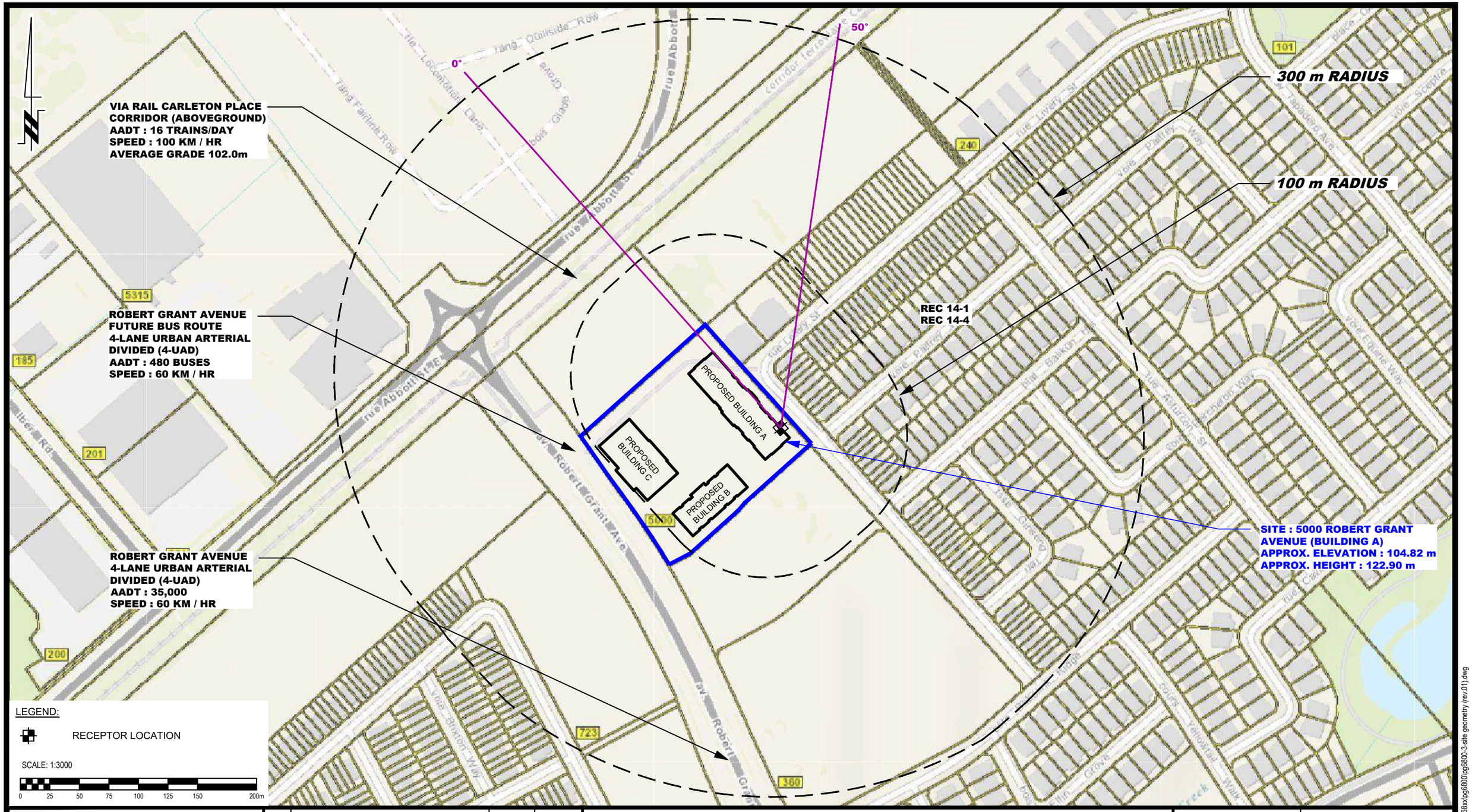

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1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 14-1 AND REC 14-4

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3D
Approved by: SB	Revision No.: 1

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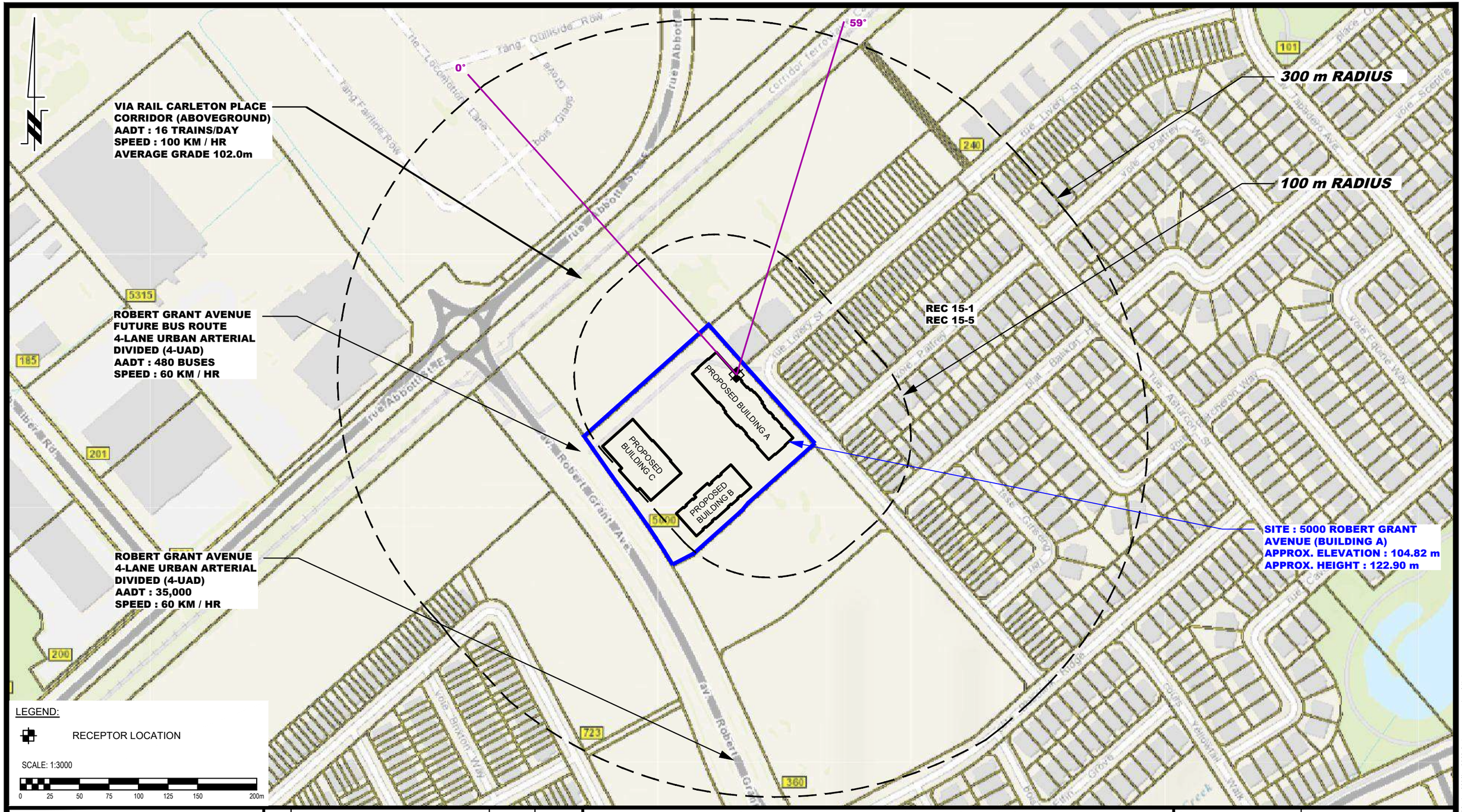

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 15-1 AND REC 15-5

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3E
Approved by: SB	Revision No.: 1

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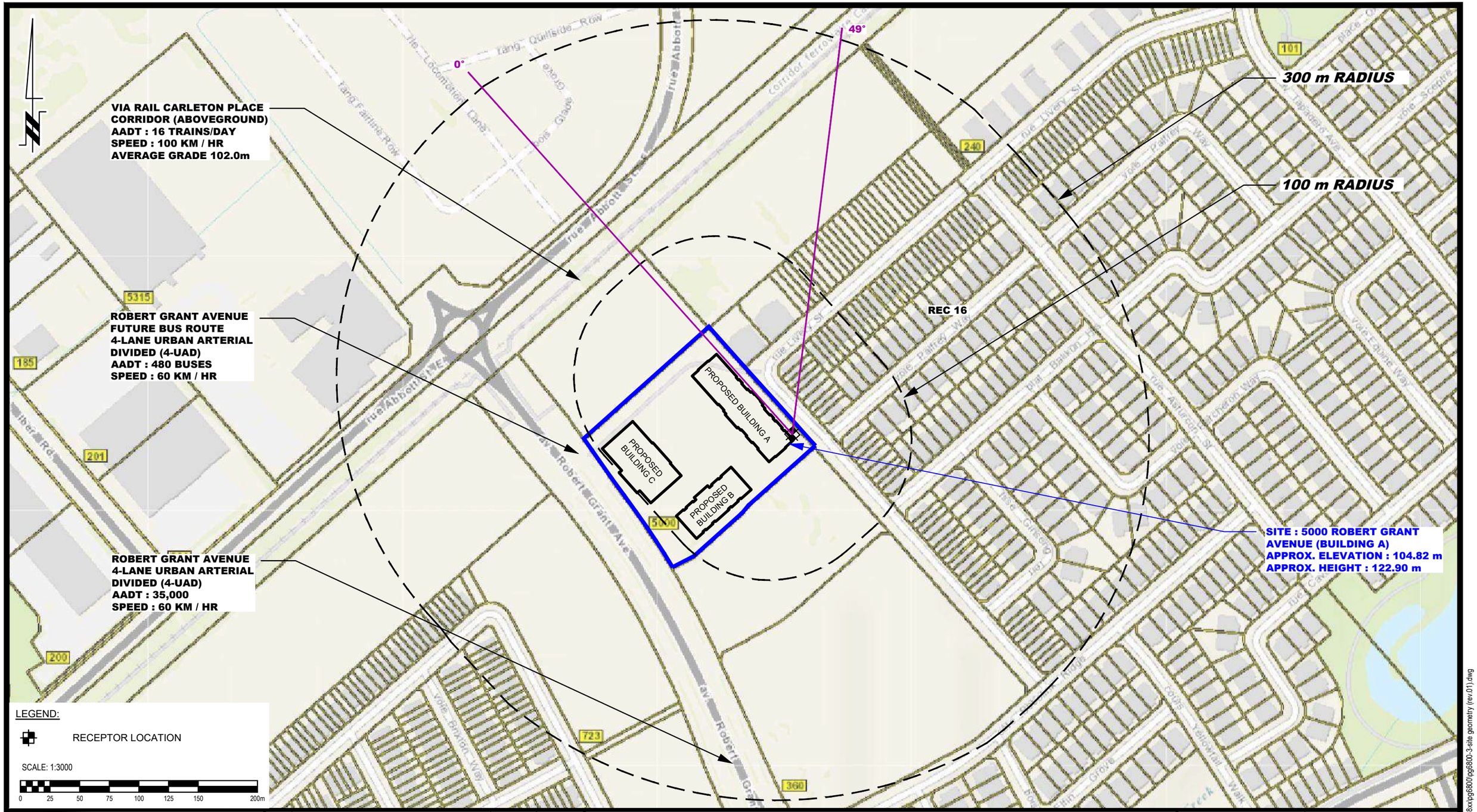

PATERSON GROUP
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K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 16

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-3F
Approved by: SB	Revision No.: 1

11x17

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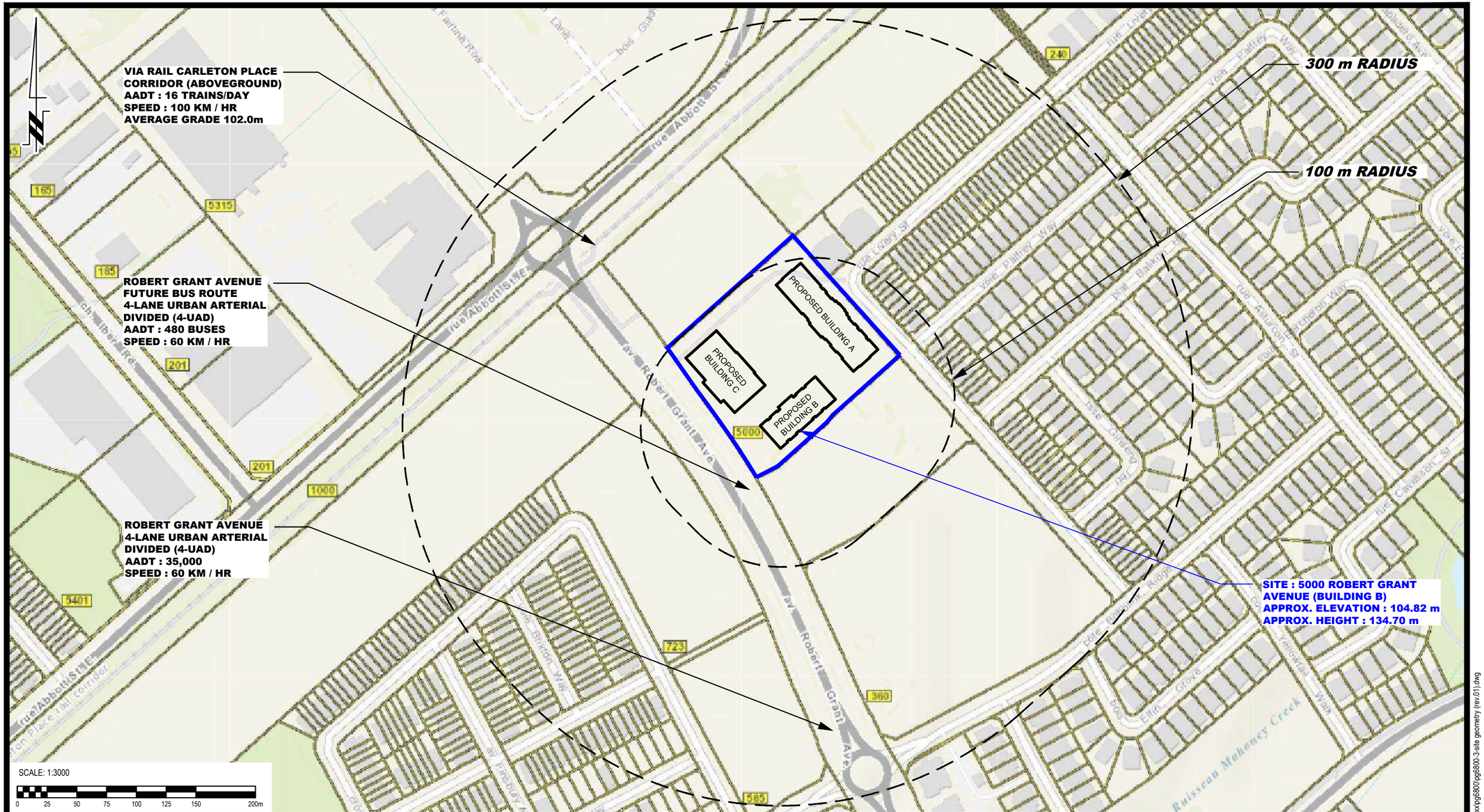

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TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - BUILDING B

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-4
Approved by: DJG	Revision No.: 1

11x17

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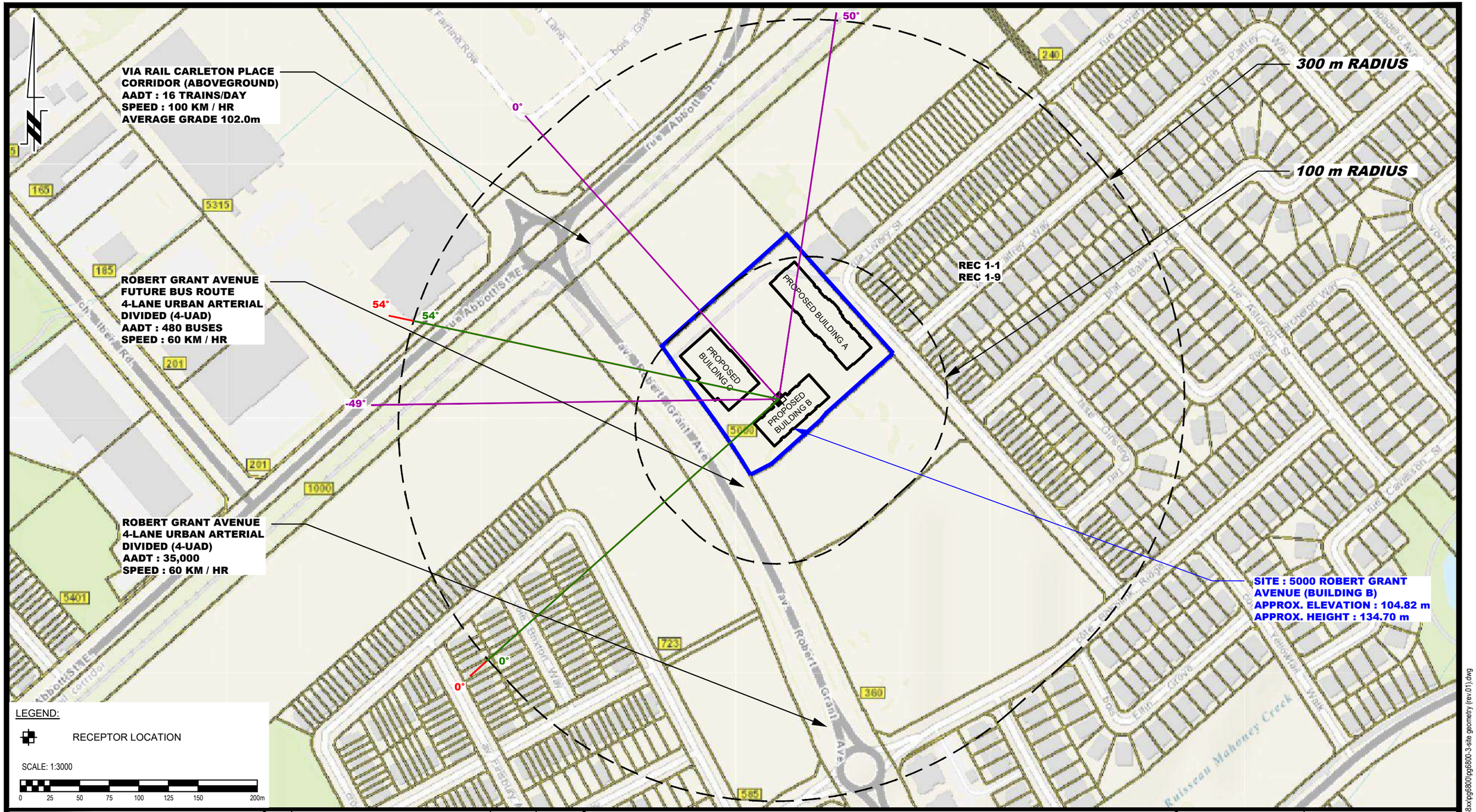

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 1-1 AND REC 1-9

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-4A
Approved by: SB	Revision No.: 1

11x17

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VIA RAIL CARLETON PLACE
CORRIDOR (ABOVEGROUND)
AADT : 16 TRAINS/DAY
SPEED : 100 KM / HR
AVERAGE GRADE 102.0m

ROBERT GRANT AVENUE
FUTURE BUS ROUTE
4-LANE URBAN ARTERIAL
DIVIDED (4-UAD)
AADT : 480 BUSES
SPEED : 60 KM / HR

ROBERT GRANT AVENUE
4-LANE URBAN ARTERIAL
DIVIDED (4-UAD)
AADT : 35,000
SPEED : 60 KM / HR

300 m RADIUS

100 m RADIUS

REC 2-1
REC 2-9

PROPOSED BUILDING A

PROPOSED BUILDING B

PROPOSED BUILDING C

SITE : 5000 ROBERT GRANT AVENUE (BUILDING B)
APPROX. ELEVATION : 104.82 m
APPROX. HEIGHT : 134.70 m

0°
71°
71°
-46°
0°
0°
-52°
-52°

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 2-1 AND REC 2-9

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-4B
Approved by: SB	Revision No.: 1

11x17

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VIA RAIL CARLETON PLACE CORRIDOR (ABOVEGROUND)
AADT : 16 TRAINS/DAY
SPEED : 100 KM / HR
AVERAGE GRADE 102.0m

ROBERT GRANT AVENUE
FUTURE BUS ROUTE
4-LANE URBAN ARTERIAL
DIVIDED (4-UAD)
AADT : 480 BUSES
SPEED : 60 KM / HR

ROBERT GRANT AVENUE
4-LANE URBAN ARTERIAL
DIVIDED (4-UAD)
AADT : 35,000
SPEED : 60 KM / HR

300 m RADIUS

100 m RADIUS

REC 3-1
REC 3-9

PROPOSED BUILDING A

PROPOSED BUILDING B

PROPOSED BUILDING C

5000

SITE : 5000 ROBERT GRANT AVENUE (BUILDING B)
APPROX. ELEVATION : 104.82 m
APPROX. HEIGHT : 134.70 m

0°

0°

-37°

-37°

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 3-1 AND REC 3-9

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-4C
Approved by: SB	Revision No.: 1

11x17

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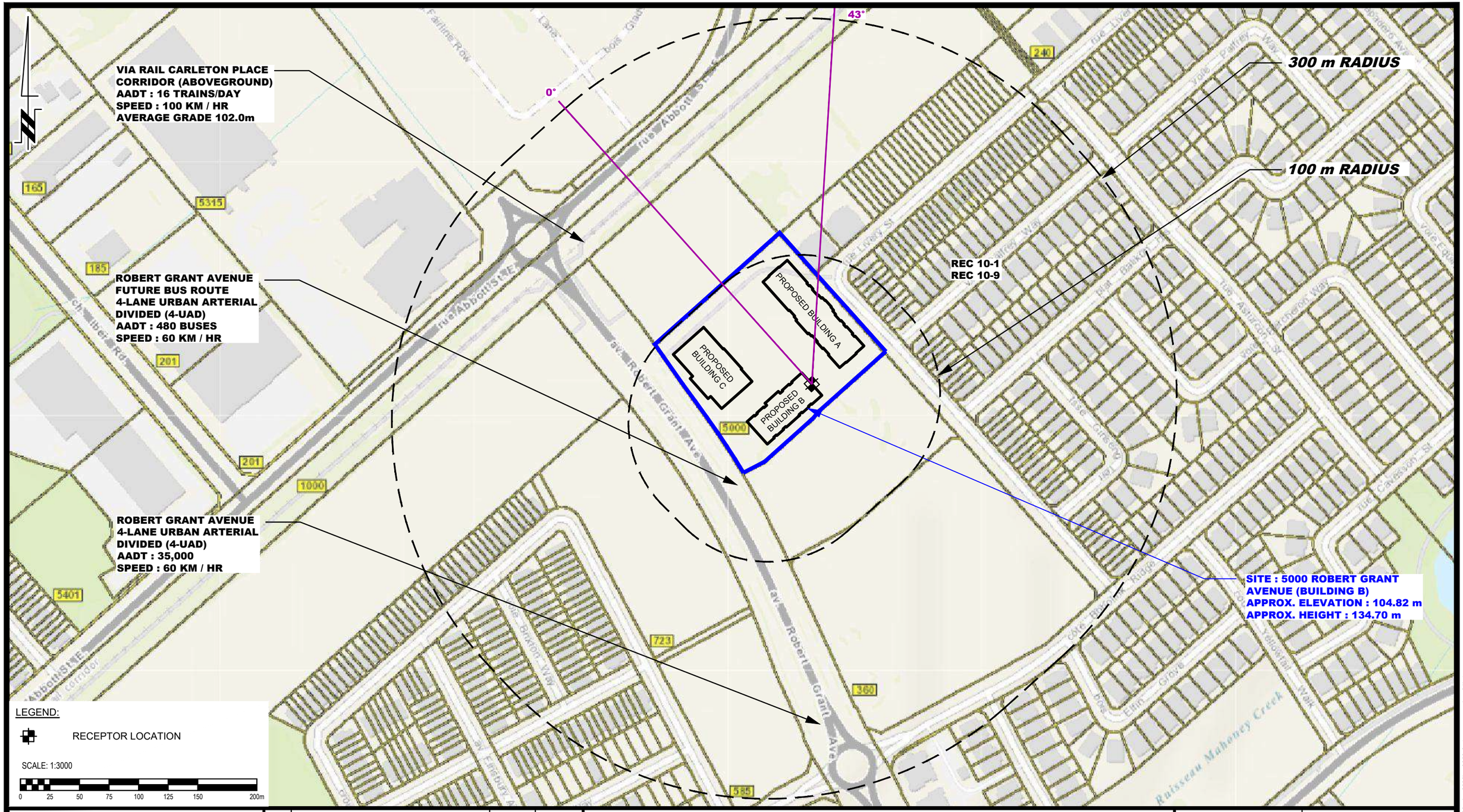

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 10-1 AND REC 10-9

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-4D
Approved by: SB	Revision No.: 1

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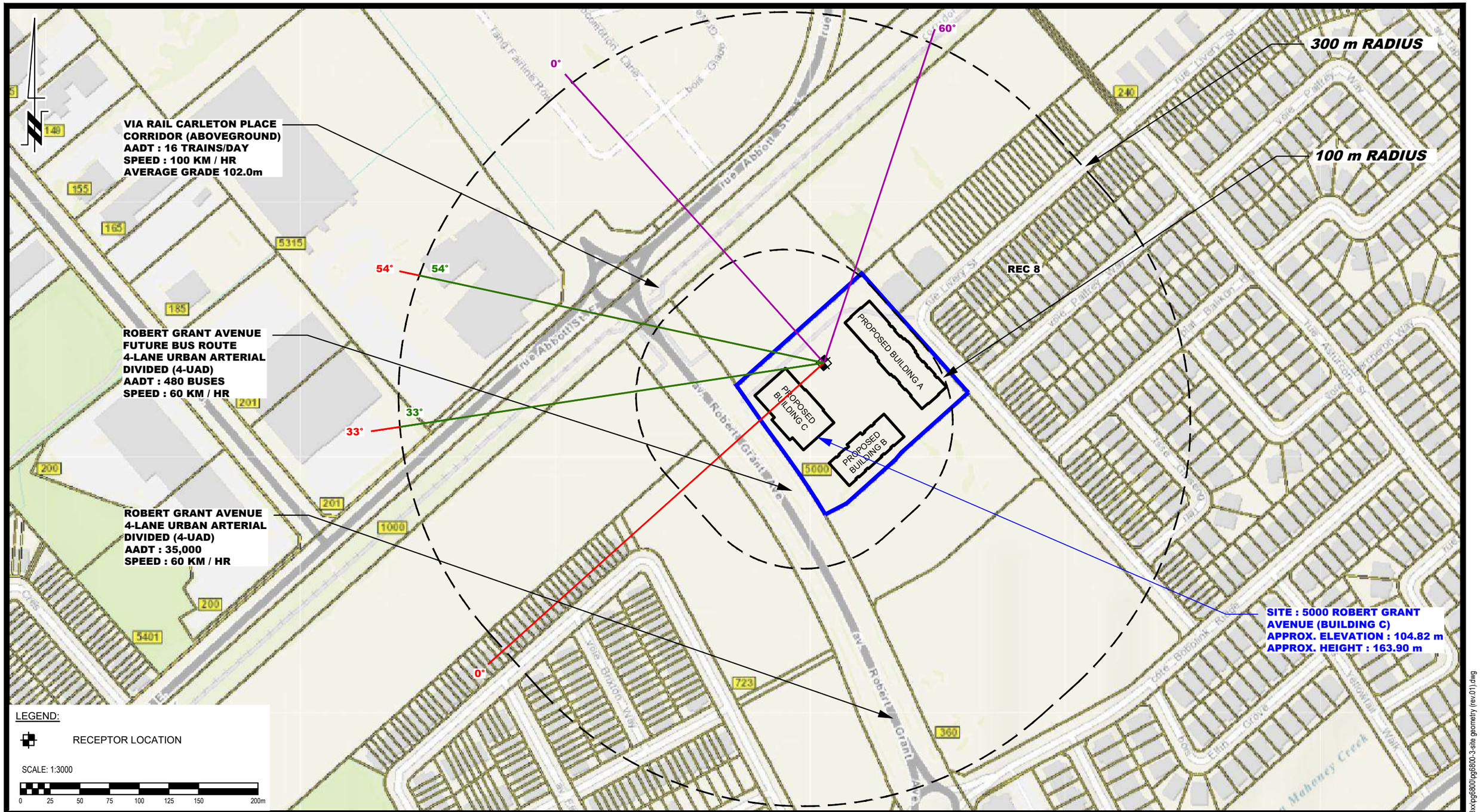

PATERSON GROUP
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TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 8

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5E
Approved by: SB	Revision No.: 1

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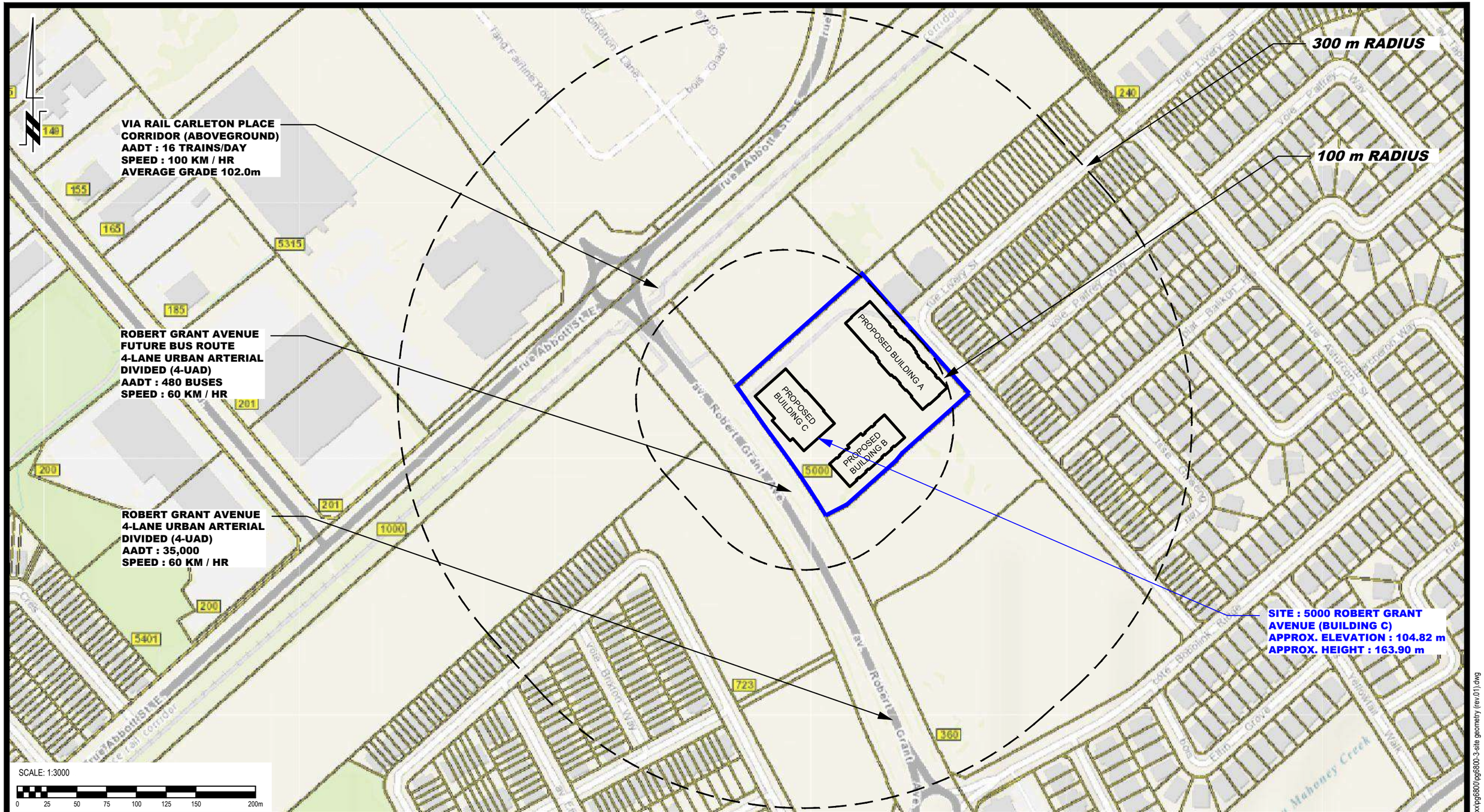

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - BUILDING C

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5
Approved by: DJG	Revision No.: 1

11x17

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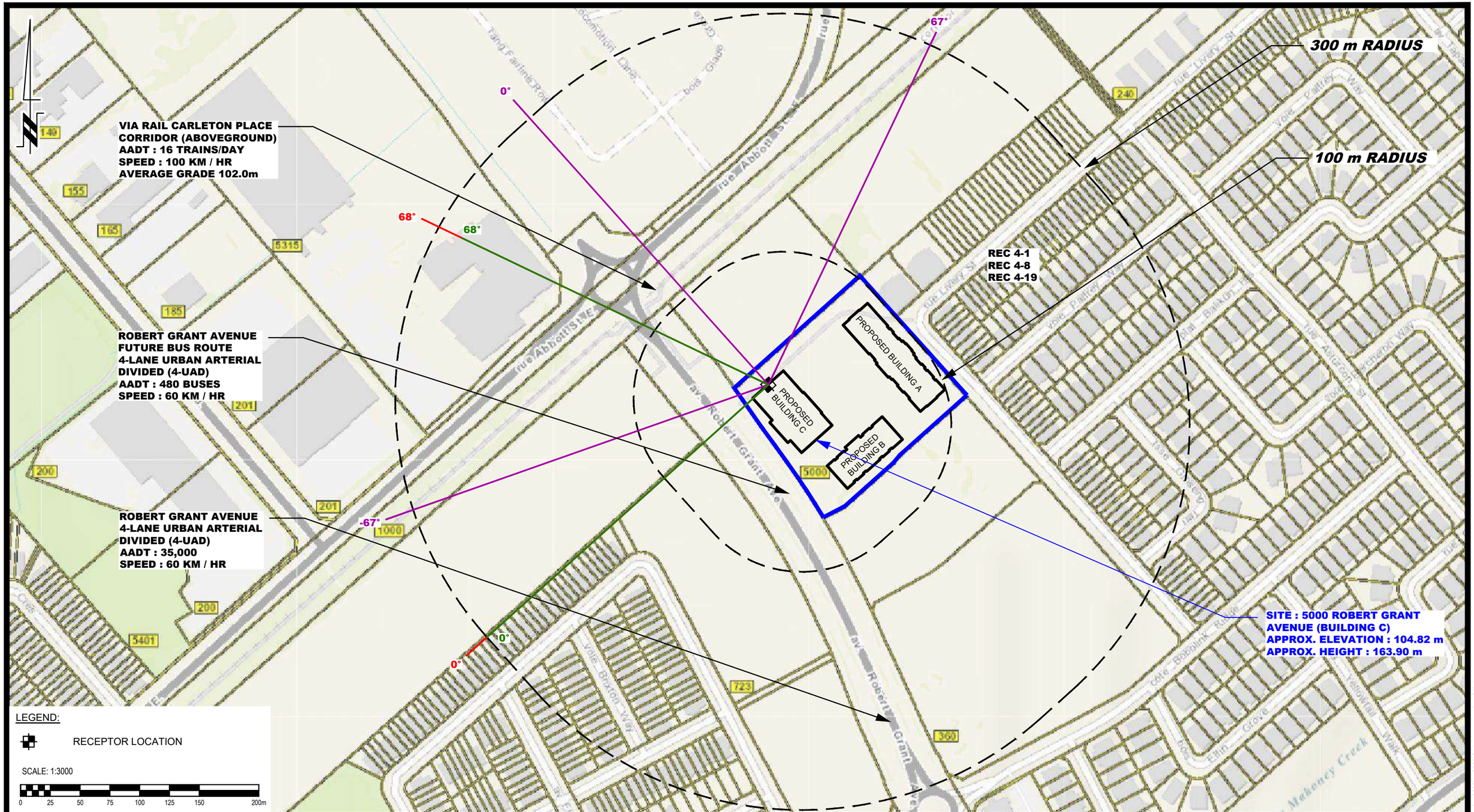

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 4-1, REC 4-8 AND REC 4-19

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5A
Approved by: SB	Revision No.: 1

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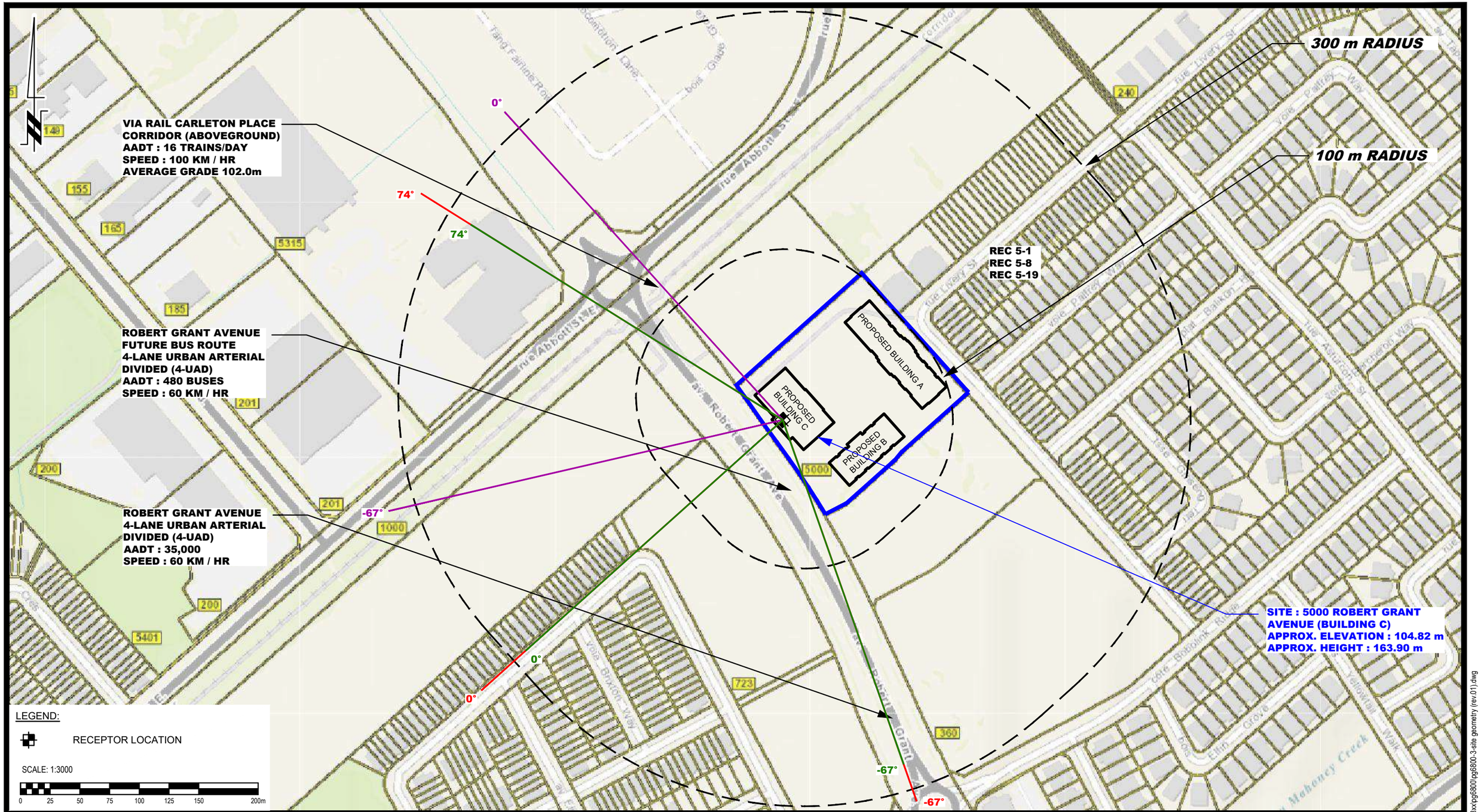

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE
OTTAWA, ONTARIO

Title: SITE GEOMETRY - REC 5-1, REC 5-8 AND REC 5-19

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5B
Approved by: SB	Revision No.: 1

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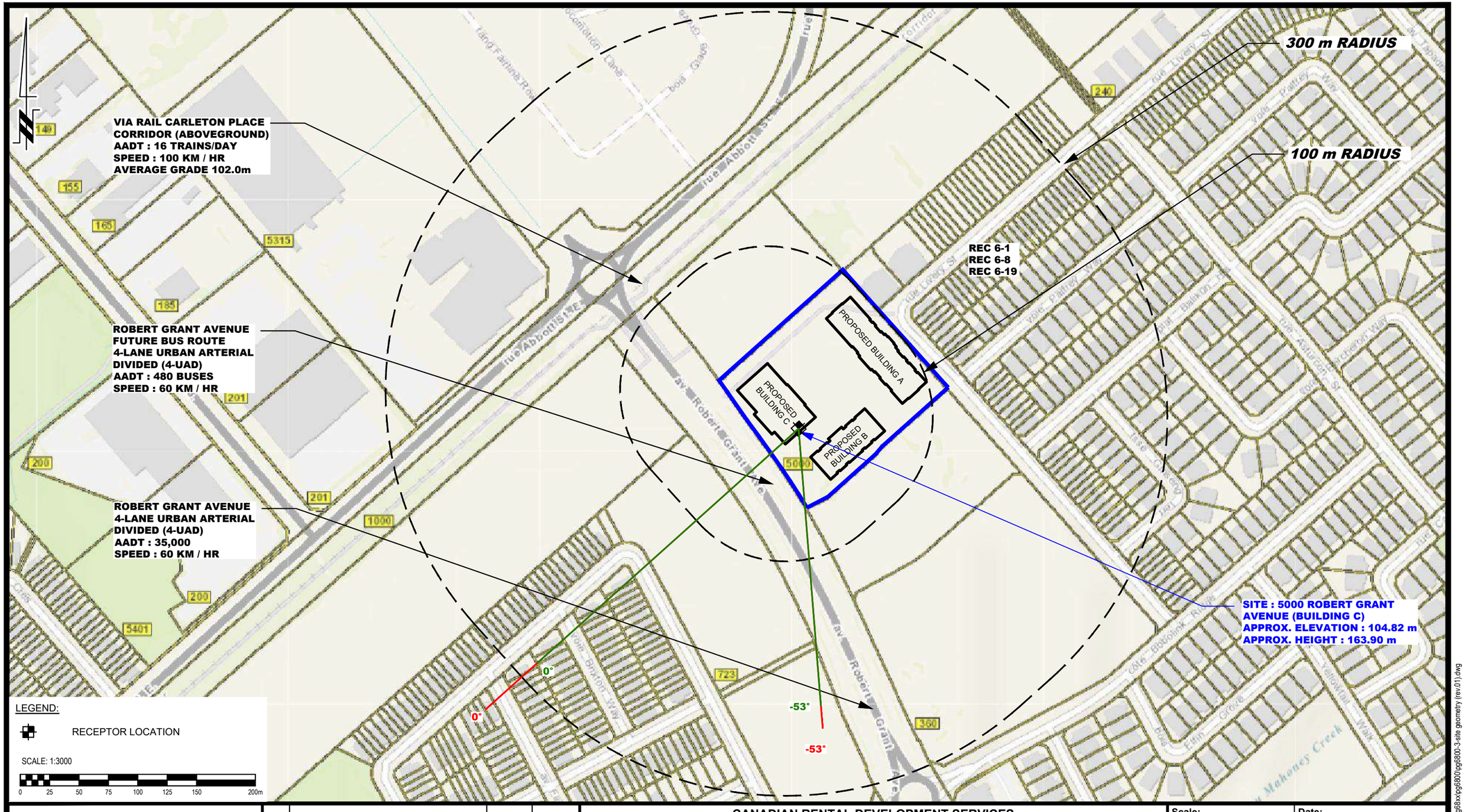

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 6-1, REC 6-8 AND REC 6-19

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5C
Approved by: SB	Revision No.: 1

11x17

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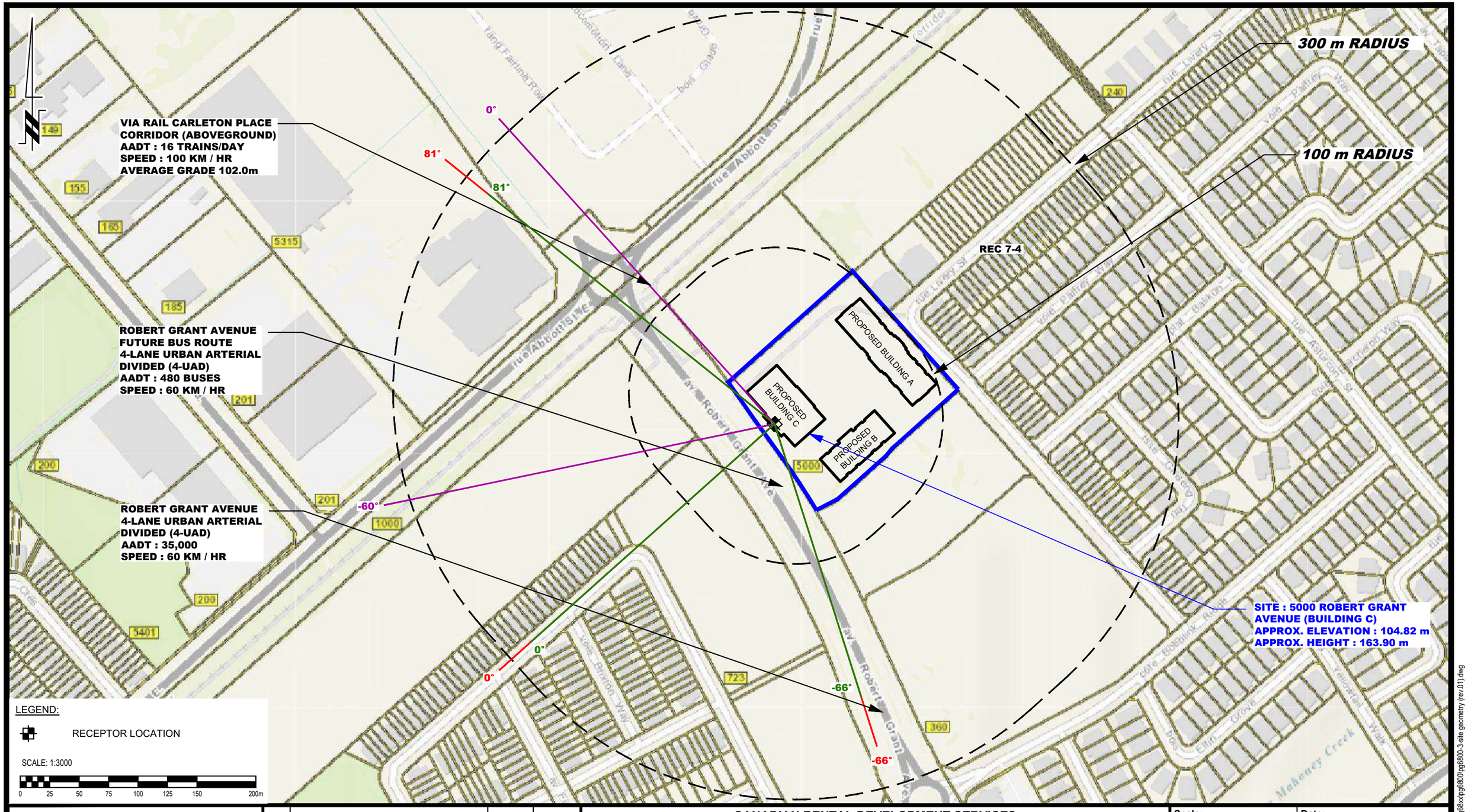

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 7-4

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5D
Approved by: SB	Revision No.: 1

11x17

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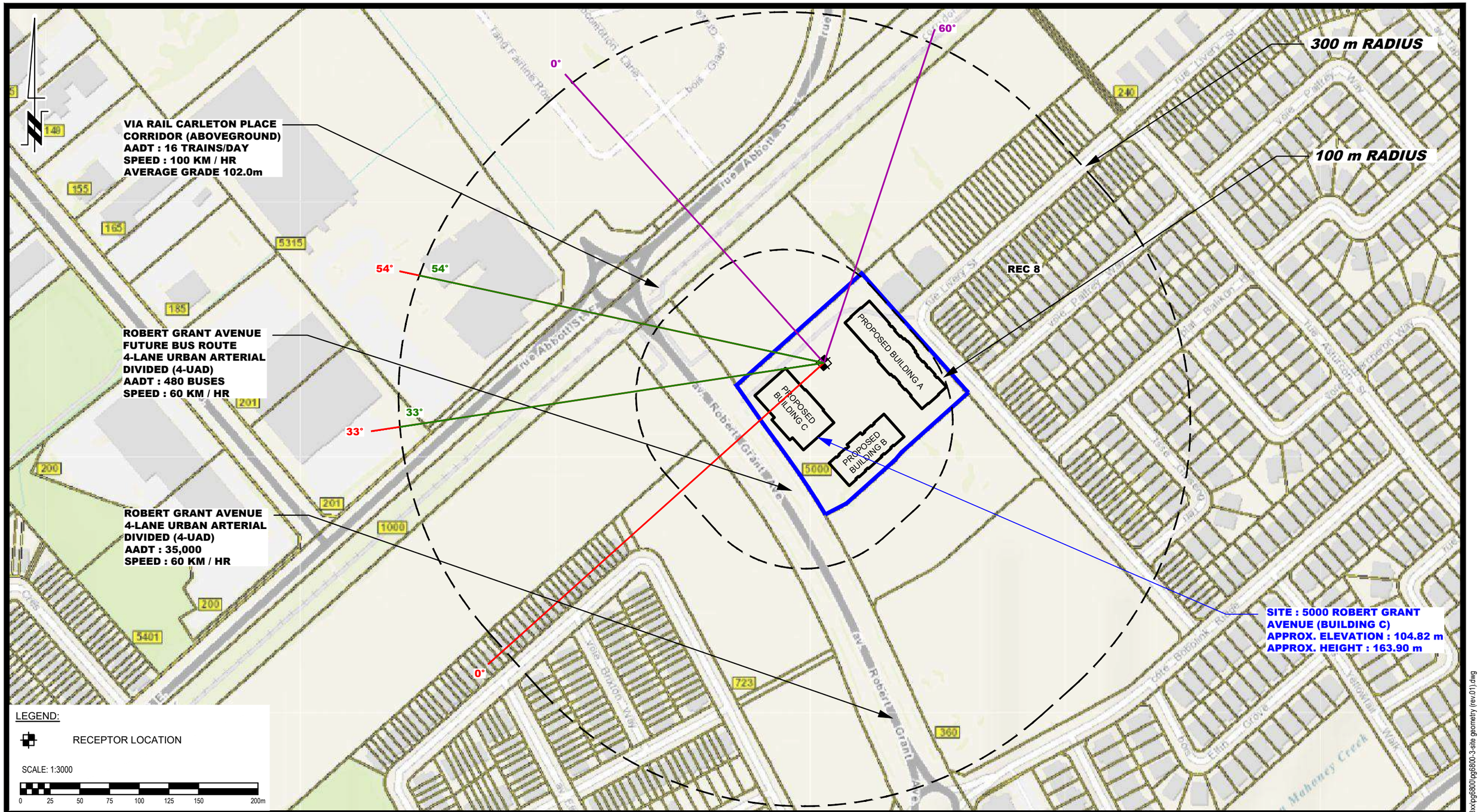

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 8

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5E
Approved by: SB	Revision No.: 1

11x17

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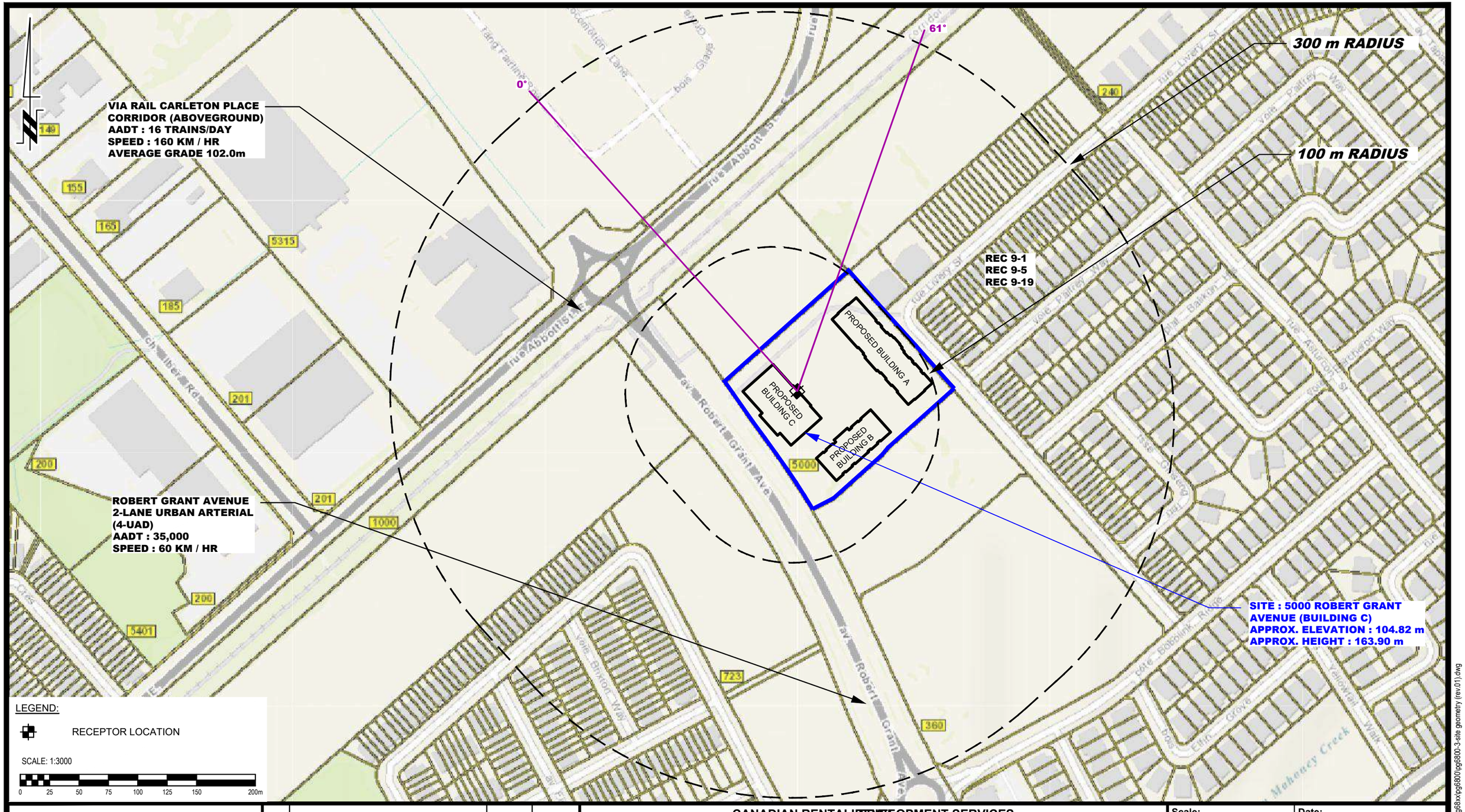

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	24/01/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 9-1, 9-5, 9-19

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5F
Approved by: SB	Revision No.: 1

11x17

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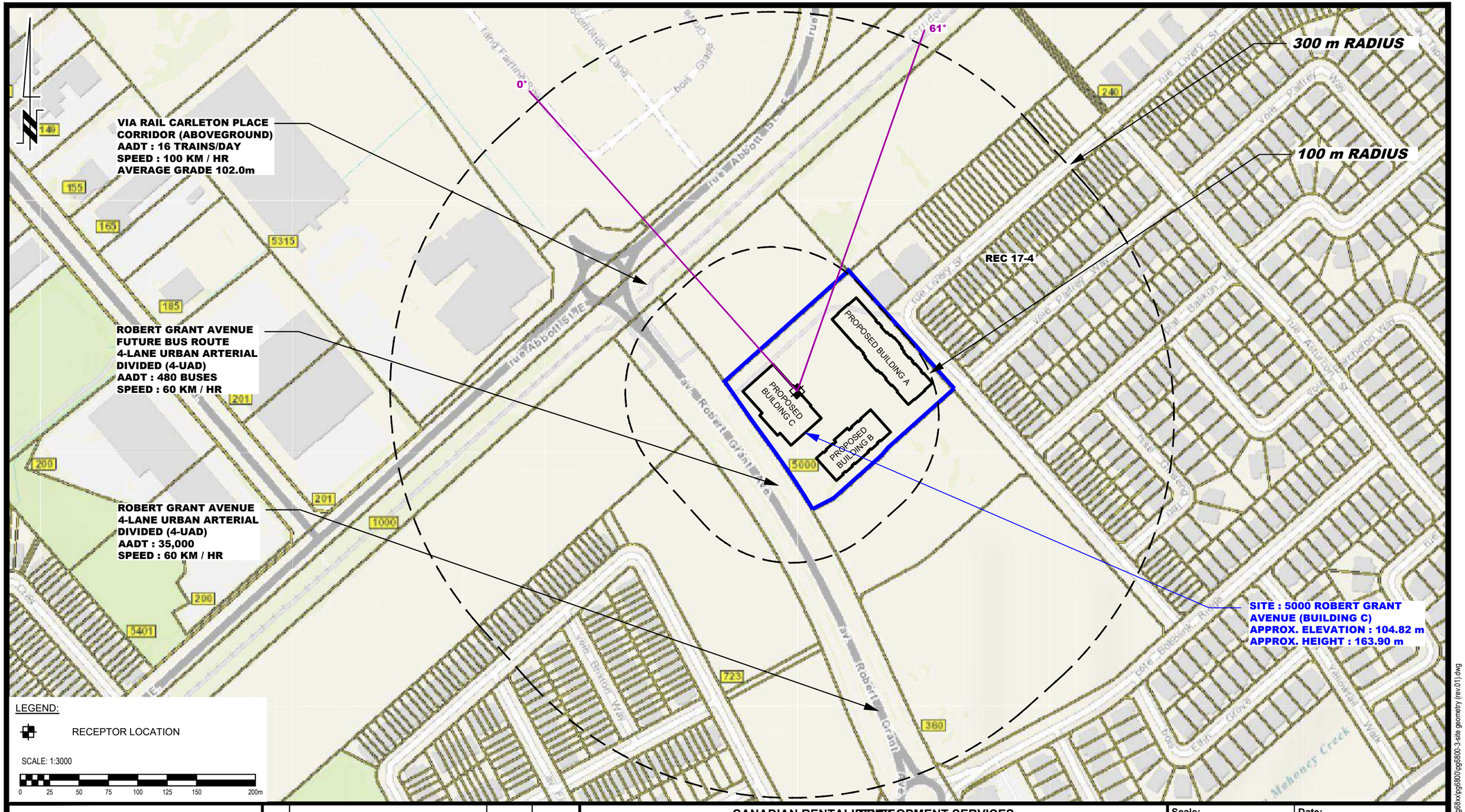

LEGEND:

RECEPTOR LOCATION

SCALE: 1:3000

0 25 50 75 100 125 150 200m

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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED NOISE SOURCES	05/02/2024	OM

CANADIAN RENTAL DEVELOPMENT SERVICES

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
5000 ROBERT GRANT AVEUNUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - 17-4

Scale: 1:3000	Date: 08/2023
Drawn by: YA	Report No.: PG6800-1
Checked by: OM	Dwg. No.: PG6800-5G
Approved by: SB	Revision No.: 1

11x17

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APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:07:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC11.te Time Period: Day/Night 16/8 hours
Description: REC 1-1 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-49.00 deg	50.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	208.00 / 208.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 44.59 + 0.00) = 44.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.58	65.62	-18.10	-2.93	0.00	0.00	0.00	44.59

WHEEL (0.00 + 34.55 + 0.00) = 34.55 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.66	56.47	-18.96	-2.97	0.00	0.00	0.00	34.55

Segment Leq : 45.00 dBA

Total Leq All Segments: 45.00 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 35.84 + 0.00) = 35.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.58	56.87	-18.10	-2.93	0.00	0.00	0.00	35.84

WHEEL (0.00 + 25.80 + 0.00) = 25.80 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.66	47.72	-18.96	-2.97	0.00	0.00	0.00	25.80

Segment Leq : 36.25 dBA

Total Leq All Segments: 36.25 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :   0.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.00 / 74.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.00 / 74.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.98 + 0.00) = 58.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     54   0.66  76.17   0.00 -11.51  -5.68   0.00   0.00   0.00  58.98
-------------------------------------------------------------------------------

Segment Leq : 58.98 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 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
-------------------------------------------------------------------------------
     0     54   0.65  66.13   0.00 -11.45  -5.67   0.00   0.00   0.00  49.01
```

Segment Leq : 49.01 dBA

Total Leq All Segments: 59.40 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	54	0.66	68.57	0.00	-11.51	-5.68	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 41.42 + 0.00) = 41.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	54	0.65	58.54	0.00	-11.45	-5.67	0.00	0.00	0.00	41.42

Segment Leq : 41.42 dBA

Total Leq All Segments: 51.81 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.55
(NIGHT): 51.93

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:08:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC19.te Time Period: Day/Night 16/8 hours
Description: REC 1-9 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-49.00 deg	50.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	208.00 / 208.00 m	
Receiver height	27.00 / 27.00 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 51.61 + 0.00) = 51.61 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.00	65.62	-11.42	-2.60	0.00	0.00	0.00	51.61

WHEEL (0.00 + 42.46 + 0.00) = 42.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.00	56.47	-11.42	-2.60	0.00	0.00	0.00	42.46

Segment Leq : 52.11 dBA

Total Leq All Segments: 52.11 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 42.86 + 0.00) = 42.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.00	56.87	-11.42	-2.60	0.00	0.00	0.00	42.86

WHEEL (0.00 + 33.71 + 0.00) = 33.71 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.00	47.72	-11.42	-2.60	0.00	0.00	0.00	33.71

Segment Leq : 43.36 dBA

Total Leq All Segments: 43.36 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :   0.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.00 / 74.00  m
Receiver height           :  27.00 / 27.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  74.00 / 74.00  m
Receiver height           :  27.00 / 27.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠉
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.52 + 0.00) = 61.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     54   0.00  73.68   0.00  -6.93  -5.23   0.00   0.00   0.00  61.52
-------------------------------------------------------------------------------

Segment Leq : 61.52 dBA

🠉
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 53.97 + 0.00) = 53.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     54   0.00  66.13   0.00  -6.93  -5.23   0.00   0.00   0.00  53.97
```

```
--------------------------------------------------------------------------------

Segment Leq : 53.97 dBA

Total Leq All Segments: 62.22 dBA

↟
Results segment # 1: Robert Grant (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.92 + 0.00) = 53.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     54   0.00  66.08   0.00  -6.93  -5.23   0.00   0.00   0.00  53.92
-------------------------------------------------------------------------------

Segment Leq : 53.92 dBA

↟
Results segment # 2: BRT (night)
--------------------------------

Source height = 1.78 m

ROAD (0.00 + 46.38 + 0.00) = 46.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     54   0.00  58.54   0.00  -6.93  -5.23   0.00   0.00   0.00  46.38
-------------------------------------------------------------------------------

Segment Leq : 46.38 dBA

Total Leq All Segments: 54.62 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 62.63
                           (NIGHT): 54.94
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:09:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC21.te Time Period: Day/Night 16/8 hours
Description: REC 2-1 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-46.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	221.00 / 221.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 40.89 + 0.00) = 40.89 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.58	65.62	-18.52	-6.21	0.00	0.00	0.00	40.89

WHEEL (0.00 + 30.83 + 0.00) = 30.83 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.66	56.47	-19.39	-6.25	0.00	0.00	0.00	30.83

Segment Leq : 41.30 dBA

Total Leq All Segments: 41.30 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 32.14 + 0.00) = 32.14 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.58	56.87	-18.52	-6.21	0.00	0.00	0.00	32.14

WHEEL (0.00 + 22.08 + 0.00) = 22.08 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.66	47.72	-19.39	-6.25	0.00	0.00	0.00	22.08

Segment Leq : 32.55 dBA

Total Leq All Segments: 32.55 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -52.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -52.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠉
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.00 + 0.00) = 63.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.66  73.68   0.00  -8.39  -2.29   0.00   0.00   0.00  63.00
-------------------------------------------------------------------------------

Segment Leq : 63.00 dBA

🠉
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 55.50 + 0.00) = 55.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.65  66.13   0.00  -8.34  -2.29   0.00   0.00   0.00  55.50
```

Segment Leq : 55.50 dBA

Total Leq All Segments: 63.71 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 55.40 + 0.00) = 55.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	71	0.66	66.08	0.00	-8.39	-2.29	0.00	0.00	0.00	55.40

Segment Leq : 55.40 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 47.91 + 0.00) = 47.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	71	0.65	58.54	0.00	-8.34	-2.29	0.00	0.00	0.00	47.91

Segment Leq : 47.91 dBA

Total Leq All Segments: 56.11 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 63.74
(NIGHT): 56.13

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:10:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC29.te Time Period: Day/Night 16/8 hours
Description: REC 2-9 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-46.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	221.00 / 221.00 m	
Receiver height	27.00 / 27.00 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 48.01 + 0.00) = 48.01 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	65.62	-11.68	-5.93	0.00	0.00	0.00	48.01

WHEEL (0.00 + 38.86 + 0.00) = 38.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	56.47	-11.68	-5.93	0.00	0.00	0.00	38.86

Segment Leq : 48.51 dBA

Total Leq All Segments: 48.51 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 39.26 + 0.00) = 39.26 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	56.87	-11.68	-5.93	0.00	0.00	0.00	39.26

WHEEL (0.00 + 30.11 + 0.00) = 30.11 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-46	0	0.00	47.72	-11.68	-5.93	0.00	0.00	0.00	30.11

Segment Leq : 39.76 dBA

Total Leq All Segments: 39.76 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -52.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :  27.00 / 27.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -52.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :  27.00 / 27.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.97 + 0.00) = 66.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.00  73.68   0.00  -5.05  -1.65   0.00   0.00   0.00  66.97
-------------------------------------------------------------------------------

Segment Leq : 66.97 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 59.42 + 0.00) = 59.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.00  66.13   0.00  -5.05  -1.65   0.00   0.00   0.00  59.42
```

```
-------------------------------------------------------------------------------

Segment Leq : 59.42 dBA

Total Leq All Segments: 67.67 dBA

↟
Results segment # 1: Robert Grant (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.37 + 0.00) = 59.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.00  66.08   0.00  -5.05  -1.65   0.00   0.00   0.00  59.37
-------------------------------------------------------------------------------

Segment Leq : 59.37 dBA

↟
Results segment # 2: BRT (night)
--------------------------------

Source height = 1.78 m

ROAD (0.00 + 51.84 + 0.00) = 51.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     71   0.00  58.54   0.00  -5.05  -1.65   0.00   0.00   0.00  51.84
-------------------------------------------------------------------------------

Segment Leq : 51.84 dBA

Total Leq All Segments: 60.08 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 67.73
                           (NIGHT): 60.12
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 01-02-2024 16:34:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC31.te Time Period: Day/Night 16/8 hours
Description: REC 3-1 Building B

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -37.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 78.00 / 78.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -37.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.72 + 0.00) = 54.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37      0   0.66  73.68   0.00 -11.89  -7.07   0.00   0.00   0.00  54.72
-------------------------------------------------------------------------------

Segment Leq : 54.72 dBA
```

↟

```
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 47.23 + 0.00) = 47.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37      0   0.65  66.13   0.00 -11.83  -7.07   0.00   0.00   0.00  47.23
-------------------------------------------------------------------------------

Segment Leq : 47.23 dBA

Total Leq All Segments: 55.43 dBA
```

↟

```
Results segment # 1: Robert Grant (night)
-----------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 47.12 + 0.00) = 47.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	0	0.66	66.08	0.00	-11.89	-7.07	0.00	0.00	0.00	47.12

Segment Leq : 47.12 dBA

Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 39.64 + 0.00) = 39.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	0	0.65	58.54	0.00	-11.83	-7.07	0.00	0.00	0.00	39.64

Segment Leq : 39.64 dBA

Total Leq All Segments: 47.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.43
(NIGHT): 47.83

STAMSON 5.0 SUMMARY REPORT Date: 01-02-2024 19:03:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC39.te Time Period: Day/Night 16/8 hours
Description: REC 3-9 Building B

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -37.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 78.00 / 78.00 m
Receiver height : 27.00 / 27.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -37.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :  27.00 / 27.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Robert Grant	1.50	59.65	59.65
2.BRT	1.78	52.10	52.10
Total			60.35 dBA

↟

Result summary (night)

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.Robert Grant	1.50	52.05	52.05
2.BRT	1.78	44.51	44.51
Total			52.75 dBA

↟

```
TOTAL Leq FROM ALL SOURCES (DAY): 60.35
                           (NIGHT): 52.75
```

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:11:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC41.te Time Period: Day/Night 16/8 hours
Description: REC 4-1 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -67.00 deg	67.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 123.00 / 123.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 49.22 + 0.00) = 49.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.58	65.62	-14.48	-1.92	0.00	0.00	0.00	49.22

WHEEL (0.00 + 39.31 + 0.00) = 39.31 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.66	56.47	-15.17	-2.00	0.00	0.00	0.00	39.31

Segment Leq : 49.64 dBA

Total Leq All Segments: 49.64 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 40.47 + 0.00) = 40.47 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.58	56.87	-14.48	-1.92	0.00	0.00	0.00	40.47

WHEEL (0.00 + 30.56 + 0.00) = 30.56 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.66	47.72	-15.17	-2.00	0.00	0.00	0.00	30.56

Segment Leq : 40.89 dBA

Total Leq All Segments: 40.89 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.79 + 0.00) = 60.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.66  73.68   0.00  -7.92  -4.97   0.00   0.00   0.00  60.79
-------------------------------------------------------------------------------

Segment Leq : 60.79 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 53.29 + 0.00) = 53.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.65  66.13   0.00  -7.88  -4.96   0.00   0.00   0.00  53.29
```

Segment Leq : 53.29 dBA

Total Leq All Segments: 61.50 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 53.19 + 0.00) = 53.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.66	66.08	0.00	-7.92	-4.97	0.00	0.00	0.00	53.19

Segment Leq : 53.19 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 45.70 + 0.00) = 45.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.65	58.54	0.00	-7.88	-4.96	0.00	0.00	0.00	45.70

Segment Leq : 45.70 dBA

Total Leq All Segments: 53.90 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 61.77
(NIGHT): 54.11

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:12:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC48.te Time Period: Day/Night 16/8 hours
Description: REC 4-8 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

```
Angle1   Angle2           : -67.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 123.00 / 123.00 m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00
```

↟

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 55.20 + 0.00) = 55.20 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	65.62	-9.14	-1.28	0.00	0.00	0.00	55.20

WHEEL (0.00 + 46.05 + 0.00) = 46.05 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	56.47	-9.14	-1.28	0.00	0.00	0.00	46.05

Segment Leq : 55.70 dBA

Total Leq All Segments: 55.70 dBA

↟

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 46.45 + 0.00) = 46.45 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	56.87	-9.14	-1.28	0.00	0.00	0.00	46.45

WHEEL (0.00 + 37.30 + 0.00) = 37.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	47.72	-9.14	-1.28	0.00	0.00	0.00	37.30

Segment Leq : 46.95 dBA

Total Leq All Segments: 46.95 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🡅
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.68 + 0.00) = 64.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.00  73.68   0.00  -4.77  -4.23   0.00   0.00   0.00  64.68
-------------------------------------------------------------------------------

Segment Leq : 64.68 dBA

🡅
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 57.13 + 0.00) = 57.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.00  66.13   0.00  -4.77  -4.23   0.00   0.00   0.00  57.13
```

Segment Leq : 57.13 dBA

Total Leq All Segments: 65.38 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 57.08 + 0.00) = 57.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.00	66.08	0.00	-4.77	-4.23	0.00	0.00	0.00	57.08

Segment Leq : 57.08 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.00	58.54	0.00	-4.77	-4.23	0.00	0.00	0.00	49.54

Segment Leq : 49.54 dBA

Total Leq All Segments: 57.78 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 65.83
(NIGHT): 58.13

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:13:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC419.te Time Period: Day/Night 16/8 hours
Description: REC 4-19 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-67.00 deg	67.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	123.00 / 123.00 m	
Receiver height	56.50 / 56.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 55.20 + 0.00) = 55.20 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	65.62	-9.14	-1.28	0.00	0.00	0.00	55.20

WHEEL (0.00 + 46.05 + 0.00) = 46.05 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	56.47	-9.14	-1.28	0.00	0.00	0.00	46.05

Segment Leq : 55.70 dBA

Total Leq All Segments: 55.70 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 46.45 + 0.00) = 46.45 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	56.87	-9.14	-1.28	0.00	0.00	0.00	46.45

WHEEL (0.00 + 37.30 + 0.00) = 37.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	67	0.00	47.72	-9.14	-1.28	0.00	0.00	0.00	37.30

Segment Leq : 46.95 dBA

Total Leq All Segments: 46.95 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :  56.50 / 56.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :  56.50 / 56.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🡅
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.68 + 0.00) = 64.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.00  73.68   0.00  -4.77  -4.23   0.00   0.00   0.00  64.68
-------------------------------------------------------------------------------

Segment Leq : 64.68 dBA

🡅
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 57.13 + 0.00) = 57.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     68   0.00  66.13   0.00  -4.77  -4.23   0.00   0.00   0.00  57.13
```

Segment Leq : 57.13 dBA

Total Leq All Segments: 65.38 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 57.08 + 0.00) = 57.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.00	66.08	0.00	-4.77	-4.23	0.00	0.00	0.00	57.08

Segment Leq : 57.08 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	68	0.00	58.54	0.00	-4.77	-4.23	0.00	0.00	0.00	49.54

Segment Leq : 49.54 dBA

Total Leq All Segments: 57.78 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 65.83
(NIGHT): 58.13

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:14:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC51.te Time Period: Day/Night 16/8 hours
Description: REC 5-1 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -67.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 154.00 / 154.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 44.66 + 0.00) = 44.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.58	65.62	-16.03	-4.93	0.00	0.00	0.00	44.66

WHEEL (0.00 + 34.68 + 0.00) = 34.68 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.66	56.47	-16.79	-5.01	0.00	0.00	0.00	34.68

Segment Leq : 45.08 dBA

Total Leq All Segments: 45.08 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 35.91 + 0.00) = 35.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.58	56.87	-16.03	-4.93	0.00	0.00	0.00	35.91

WHEEL (0.00 + 25.93 + 0.00) = 25.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.66	47.72	-16.79	-5.01	0.00	0.00	0.00	25.93

Segment Leq : 36.33 dBA

Total Leq All Segments: 36.33 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.12 + 0.00) = 66.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.66  73.68   0.00  -5.68  -1.87   0.00   0.00   0.00  66.12
-------------------------------------------------------------------------------

Segment Leq : 66.12 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 58.61 + 0.00) = 58.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.65  66.13   0.00  -5.66  -1.86   0.00   0.00   0.00  58.61
```

Segment Leq : 58.61 dBA

Total Leq All Segments: 66.83 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 58.53 + 0.00) = 58.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.66	66.08	0.00	-5.68	-1.87	0.00	0.00	0.00	58.53

Segment Leq : 58.53 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 51.02 + 0.00) = 51.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.65	58.54	0.00	-5.66	-1.86	0.00	0.00	0.00	51.02

Segment Leq : 51.02 dBA

Total Leq All Segments: 59.24 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 66.86
(NIGHT): 59.26

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:15:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC58.te Time Period: Day/Night 16/8 hours
Description: REC 5-8 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -67.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 154.00 / 154.00 m	
Receiver height	: 24.50 / 24.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 51.22 + 0.00) = 51.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	65.62	-10.11	-4.29	0.00	0.00	0.00	51.22

WHEEL (0.00 + 42.07 + 0.00) = 42.07 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	56.47	-10.11	-4.29	0.00	0.00	0.00	42.07

Segment Leq : 51.72 dBA

Total Leq All Segments: 51.72 dBA

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 42.46 + 0.00) = 42.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	56.87	-10.11	-4.29	0.00	0.00	0.00	42.46

WHEEL (0.00 + 33.32 + 0.00) = 33.32 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	47.72	-10.11	-4.29	0.00	0.00	0.00	33.32

Segment Leq : 42.96 dBA

Total Leq All Segments: 42.96 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 69.19 + 0.00) = 69.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.00  73.68   0.00  -3.42  -1.06   0.00   0.00   0.00  69.19
-------------------------------------------------------------------------------

Segment Leq : 69.19 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 61.64 + 0.00) = 61.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.00  66.13   0.00  -3.42  -1.06   0.00   0.00   0.00  61.64
```

Segment Leq : 61.64 dBA

Total Leq All Segments: 69.89 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 61.59 + 0.00) = 61.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.00	66.08	0.00	-3.42	-1.06	0.00	0.00	0.00	61.59

Segment Leq : 61.59 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 54.06 + 0.00) = 54.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.00	58.54	0.00	-3.42	-1.06	0.00	0.00	0.00	54.06

Segment Leq : 54.06 dBA

Total Leq All Segments: 62.30 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 69.96
(NIGHT): 62.35

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:15:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC519.te Time Period: Day/Night 16/8 hours
Description: REC 5-19 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-67.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	154.00 / 154.00 m	
Receiver height	56.50 / 56.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 51.22 + 0.00) = 51.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	65.62	-10.11	-4.29	0.00	0.00	0.00	51.22

WHEEL (0.00 + 42.07 + 0.00) = 42.07 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	56.47	-10.11	-4.29	0.00	0.00	0.00	42.07

Segment Leq : 51.72 dBA

Total Leq All Segments: 51.72 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 42.46 + 0.00) = 42.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	56.87	-10.11	-4.29	0.00	0.00	0.00	42.46

WHEEL (0.00 + 33.32 + 0.00) = 33.32 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	0	0.00	47.72	-10.11	-4.29	0.00	0.00	0.00	33.32

Segment Leq : 42.96 dBA

Total Leq All Segments: 42.96 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  56.50 / 56.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -67.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :  56.50 / 56.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 69.19 + 0.00) = 69.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.00  73.68   0.00  -3.42  -1.06   0.00   0.00   0.00  69.19
-------------------------------------------------------------------------------

Segment Leq : 69.19 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 61.64 + 0.00) = 61.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     74   0.00  66.13   0.00  -3.42  -1.06   0.00   0.00   0.00  61.64
```

Segment Leq : 61.64 dBA

Total Leq All Segments: 69.89 dBA

↟
Results segment # 1: Robert Grant (night)

Source height = 1.50 m

ROAD (0.00 + 61.59 + 0.00) = 61.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.00	66.08	0.00	-3.42	-1.06	0.00	0.00	0.00	61.59

Segment Leq : 61.59 dBA

↟
Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 54.06 + 0.00) = 54.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	74	0.00	58.54	0.00	-3.42	-1.06	0.00	0.00	0.00	54.06

Segment Leq : 54.06 dBA

Total Leq All Segments: 62.30 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 69.96
(NIGHT): 62.35

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 01-02-2024 16:42:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec61.te Time Period: Day/Night 16/8 hours
Description: REC 6-1 Building C

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -53.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
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: BRT (day/night)

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -53.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
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

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.26 + 0.00) = 59.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.66  73.68   0.00  -8.68  -5.74   0.00   0.00   0.00  59.26
-------------------------------------------------------------------------------

Segment Leq : 59.26 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 51.76 + 0.00) = 51.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.65  66.13   0.00  -8.64  -5.74   0.00   0.00   0.00  51.76
-------------------------------------------------------------------------------

Segment Leq : 51.76 dBA

Total Leq All Segments: 59.97 dBA

↟
Results segment # 1: Robert Grant (night)
-----------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 51.66 + 0.00) = 51.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.66	66.08	0.00	-8.68	-5.74	0.00	0.00	0.00	51.66

Segment Leq : 51.66 dBA

↟

Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 44.17 + 0.00) = 44.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.65	58.54	0.00	-8.64	-5.74	0.00	0.00	0.00	44.17

Segment Leq : 44.17 dBA

Total Leq All Segments: 52.37 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.97
(NIGHT): 52.37

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 01-02-2024 16:43:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec68.te Time Period: Day/Night 16/8 hours
Description: REC 6-8 Building C

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -53.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 24.50 / 24.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
------------------------------------
Angle1   Angle2           : -53.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  50.00 / 50.00  m
Receiver height           :  24.50 / 24.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.14 + 0.00) = 63.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.00  73.68   0.00  -5.23  -5.31   0.00   0.00   0.00  63.14
-------------------------------------------------------------------------------

Segment Leq : 63.14 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.00  66.13   0.00  -5.23  -5.31   0.00   0.00   0.00  55.59
-------------------------------------------------------------------------------

Segment Leq : 55.59 dBA

Total Leq All Segments: 63.84 dBA

↟
Results segment # 1: Robert Grant (night)
-----------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 55.54 + 0.00) = 55.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.00	66.08	0.00	-5.23	-5.31	0.00	0.00	0.00	55.54

Segment Leq : 55.54 dBA

Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 48.00 + 0.00) = 48.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.00	58.54	0.00	-5.23	-5.31	0.00	0.00	0.00	48.00

Segment Leq : 48.00 dBA

Total Leq All Segments: 56.24 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.84
(NIGHT): 56.24

STAMSON 5.0 NORMAL REPORT Date: 01-02-2024 16:46:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC619.te Time Period: Day/Night 16/8 hours
Description: REC 6-19 Building C

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -53.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 56.50 / 56.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -53.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  50.00 / 50.00  m
Receiver height           :  56.50 / 56.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.14 + 0.00) = 63.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.00  73.68   0.00  -5.23  -5.31   0.00   0.00   0.00  63.14
-------------------------------------------------------------------------------

Segment Leq : 63.14 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53      0   0.00  66.13   0.00  -5.23  -5.31   0.00   0.00   0.00  55.59
-------------------------------------------------------------------------------

Segment Leq : 55.59 dBA

Total Leq All Segments: 63.84 dBA

↟
Results segment # 1: Robert Grant (night)
-----------------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 55.54 + 0.00) = 55.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.00	66.08	0.00	-5.23	-5.31	0.00	0.00	0.00	55.54

Segment Leq : 55.54 dBA

Results segment # 2: BRT (night)

Source height = 1.78 m

ROAD (0.00 + 48.00 + 0.00) = 48.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.00	58.54	0.00	-5.23	-5.31	0.00	0.00	0.00	48.00

Segment Leq : 48.00 dBA

Total Leq All Segments: 56.24 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.84
(NIGHT): 56.24

STAMSON 5.0 NORMAL REPORT Date: 15-05-2024 16:09:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC74.te Time Period: Day/Night 16/8 hours
Description: REC 7-4 Building C 4th Floor Terrace

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-60.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	154.00 / 154.00 m	
Receiver height	11.50 / 56.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 47.60 + 0.00) = 47.60 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.28	65.62	-13.00	-5.02	0.00	0.00	0.00	47.60

WHEEL (0.00 + 37.30 + 0.00) = 37.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.39	56.47	-14.06	-5.11	0.00	0.00	0.00	37.30

Segment Leq : 47.99 dBA

Total Leq All Segments: 47.99 dBA

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 41.99 + 0.00) = 41.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	56.87	-10.11	-4.77	0.00	0.00	0.00	41.99

WHEEL (0.00 + 32.84 + 0.00) = 32.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	47.72	-10.11	-4.77	0.00	0.00	0.00	32.84

Segment Leq : 42.49 dBA

Total Leq All Segments: 42.49 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           : -66.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  31.50 / 31.50  m
Receiver height           :  11.50 / 11.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           : -66.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  31.50 / 31.50  m
Receiver height           :  11.50 / 11.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Robert Grant (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.88 + 0.00) = 67.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66     81   0.36  73.68   0.00  -4.38  -1.41   0.00   0.00   0.00  67.88
-------------------------------------------------------------------------------

Segment Leq : 67.88 dBA

↟
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 60.37 + 0.00) = 60.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66     81   0.35  66.13   0.00  -4.36  -1.40   0.00   0.00   0.00  60.37
```

```
--------------------------------------------------------------------------------

Segment Leq : 60.37 dBA

Total Leq All Segments: 68.59 dBA

↟
Results segment # 1: Robert Grant (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.29 + 0.00) = 60.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -66     81   0.36  66.08   0.00  -4.38  -1.41   0.00   0.00   0.00  60.29
--------------------------------------------------------------------------------

Segment Leq : 60.29 dBA

↟
Results segment # 2: BRT (night)
--------------------------------

Source height = 1.78 m

ROAD (0.00 + 52.79 + 0.00) = 52.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -66     81   0.35  58.54   0.00  -4.36  -1.40   0.00   0.00   0.00  52.79
--------------------------------------------------------------------------------

Segment Leq : 52.79 dBA

Total Leq All Segments: 61.00 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 68.63
                          (NIGHT): 61.06
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 17-05-2024 15:59:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec74tr.te Time Period: Day/Night 16/8 hours
Description: REC 7-4 with 1m barrier wall

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

```
Angle1   Angle2           : -60.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 154.00 / 154.00 m
Receiver height           :  11.50 / 56.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
No Whistle
Barrier angle1            : -60.00 deg   Angle2 : 0.00 deg
Barrier height            :  11.00 m
Barrier receiver distance :   2.50 / 2.50   m
Source elevation          : 102.00 m
Receiver elevation        : 102.00 m
Barrier elevation         : 102.00 m
Reference angle           :   0.00
```

Results segment # 1: Carlton Rail (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	11.50	11.38	113.38
0.50	11.50	11.32	113.32

LOCOMOTIVE (0.00 + 47.60 + 0.00) = 47.60 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	65.62	-10.11	-4.77	0.00	0.00	-3.58	47.15*
-60	0	0.28	65.62	-13.00	-5.02	0.00	0.00	0.00	47.60

---

 * Bright Zone !

WHEEL (0.00 + 37.30 + 0.00) = 37.30 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	56.47	-10.11	-4.77	0.00	0.00	-4.02	37.57*
-60	0	0.39	56.47	-14.06	-5.11	0.00	0.00	0.00	37.30

 * Bright Zone !

Segment Leq : 47.99 dBA

Total Leq All Segments: 47.99 dBA

↟

Results segment # 1: Carlton Rail (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	56.50	55.65	157.65
0.50	56.50	55.59	157.59

LOCOMOTIVE (0.00 + 41.99 + 0.00) = 41.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	56.87	-10.11	-4.77	0.00	0.00	0.00	41.99*
-60	0	0.00	56.87	-10.11	-4.77	0.00	0.00	0.00	41.99

 * Bright Zone !

WHEEL (0.00 + 32.84 + 0.00) = 32.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	0	0.00	47.72	-10.11	-4.77	0.00	0.00	0.00	32.84*
-60	0	0.00	47.72	-10.11	-4.77	0.00	0.00	0.00	32.84

 * Bright Zone !

Segment Leq : 42.49 dBA

Total Leq All Segments: 42.49 dBA

↟
Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

Angle1 Angle2 : -66.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.50 / 31.50 m
Receiver height : 11.50 / 11.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -66.00 deg Angle2 : 81.00 deg
Barrier height : 11.00 m
Barrier receiver distance : 2.50 / 2.50 m
Source elevation : 104.00 m
Receiver elevation : 104.00 m
Barrier elevation : 104.00 m
Reference angle : 0.00

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

Car traffic volume : 3206/279 veh/TimePeriod *
Medium truck volume : 189/16 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4100
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
------------------------------------
Angle1   Angle2           : -66.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  31.50 / 31.50  m
Receiver height           :  11.50 / 11.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -66.00 deg   Angle2 : 81.00 deg
Barrier height            :  11.00 m
Barrier receiver distance :   2.50 / 2.50   m
Source elevation          : 102.00 m
Receiver elevation        : 102.00 m
Barrier elevation         : 102.00 m
Reference angle           :   0.00

🠉
Results segment # 1: Robert Grant (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 !       11.50 !       10.71 !       114.71

ROAD (0.00 + 63.96 + 0.00) = 63.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66     81   0.00  73.68   0.00  -3.22  -0.88   0.00   0.00  -5.62  63.96
-------------------------------------------------------------------------------

Segment Leq : 63.96 dBA

🠉
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

Barrier height for grazing incidence
```

```
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.78 !       11.50 !       10.73 !       112.73

ROAD (0.00 + 56.49 + 0.00) = 56.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66     81   0.00  66.13   0.00  -3.22  -0.88   0.00   0.00  -5.53  56.49
-------------------------------------------------------------------------------

Segment Leq : 56.49 dBA

Total Leq All Segments: 64.68 dBA

↟
Results segment # 1: Robert Grant (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 !       11.50 !       10.71 !       114.71

ROAD (0.00 + 56.36 + 0.00) = 56.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66     81   0.00  66.08   0.00  -3.22  -0.88   0.00   0.00  -5.62  56.36
-------------------------------------------------------------------------------

Segment Leq : 56.36 dBA

↟
Results segment # 2: BRT (night)
--------------------------------

Source height = 1.78 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.78 !       11.50 !       10.73 !       112.73
```

ROAD (0.00 + 48.91 + 0.00) = 48.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	81	0.00	58.54	0.00	-3.22	-0.88	0.00	0.00	-5.53	48.91

Segment Leq : 48.91 dBA

Total Leq All Segments: 57.08 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.77
(NIGHT): 57.23

STAMSON 5.0 NORMAL REPORT Date: 05-02-2024 16:59:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC8.te Time Period: Day/Night 16/8 hours
Description: REC 8 Outdoor Living Area

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -54.00 deg	60.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 140.00 / 140.00 m	
Receiver height	: 1.50 / 1.50	m
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 47.81 + 0.00) = 47.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	60	0.58	65.62	-15.38	-2.44	0.00	0.00	0.00	47.81

WHEEL (0.00 + 37.88 + 0.00) = 37.88 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	60	0.66	56.47	-16.10	-2.49	0.00	0.00	0.00	37.88

Segment Leq : 48.23 dBA

Total Leq All Segments: 48.23 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 39.06 + 0.00) = 39.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	60	0.58	56.87	-15.38	-2.44	0.00	0.00	0.00	39.06

WHEEL (0.00 + 29.13 + 0.00) = 29.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-54	60	0.66	47.72	-16.10	-2.49	0.00	0.00	0.00	29.13

Segment Leq : 39.48 dBA

Total Leq All Segments: 39.48 dBA

↟

Road data, segment # 1: Robert Grant (day/night)

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

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

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

Data for Segment # 1: Robert Grant (day/night)

```
Angle1   Angle2           :  33.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  88.00 / 88.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  :  3206/279   veh/TimePeriod  *
```

```
Medium truck volume :   189/16    veh/TimePeriod  *
Heavy truck volume  :   377/33    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4100
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: BRT (day/night)
-------------------------------------
Angle1   Angle2           :  33.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  88.00 / 88.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

🠉
Results segment # 1: Robert Grant (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
-------------------------------------------------------------------------------
    33     54   0.66  73.68   0.00 -12.76 -10.27   0.00   0.00   0.00  50.65
-------------------------------------------------------------------------------

Segment Leq : 50.65 dBA

🠉
Results segment # 2: BRT (day)
------------------------------

Source height = 1.78 m

ROAD (0.00 + 43.18 + 0.00) = 43.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    33     54   0.65  66.13   0.00 -12.69 -10.26   0.00   0.00   0.00  43.18
```

```
-------------------------------------------------------------------------------

Segment Leq : 43.18 dBA

Total Leq All Segments: 51.37 dBA

↟
Results segment # 1: Robert Grant (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.05 + 0.00) = 43.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    33     54   0.66  66.08   0.00 -12.76 -10.27   0.00   0.00   0.00  43.05
-------------------------------------------------------------------------------

Segment Leq : 43.05 dBA

↟
Results segment # 2: BRT (night)
--------------------------------

Source height = 1.78 m

ROAD (0.00 + 35.59 + 0.00) = 35.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    33     54   0.65  58.54   0.00 -12.69 -10.26   0.00   0.00   0.00  35.59
-------------------------------------------------------------------------------

Segment Leq : 35.59 dBA

Total Leq All Segments: 43.77 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 53.08
                           (NIGHT): 45.14
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:18:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC91.te Time Period: Day/Night 16/8 hours
Description: REC 9-1 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 61.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	154.00 / 154.00 m
Receiver height	:	1.50 / 1.50 m
Topography	:	1 (Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 44.37 + 0.00) = 44.37 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.58	65.62	-16.03	-5.22	0.00	0.00	0.00	44.37

WHEEL (0.00 + 34.40 + 0.00) = 34.40 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.66	56.47	-16.79	-5.28	0.00	0.00	0.00	34.40

Segment Leq : 44.79 dBA

Total Leq All Segments: 44.79 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 35.62 + 0.00) = 35.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.58	56.87	-16.03	-5.22	0.00	0.00	0.00	35.62

WHEEL (0.00 + 25.65 + 0.00) = 25.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.66	47.72	-16.79	-5.28	0.00	0.00	0.00	25.65

Segment Leq : 36.04 dBA

Total Leq All Segments: 36.04 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 44.79
(NIGHT): 36.04

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:20:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC95.te Time Period: Day/Night 16/8 hours
Description: REC 9-8 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	0.00 deg	61.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	154.00 / 154.00 m	
Receiver height	24.50 / 24.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 50.81 + 0.00) = 50.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	65.62	-10.11	-4.70	0.00	0.00	0.00	50.81

WHEEL (0.00 + 41.66 + 0.00) = 41.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.47	-10.11	-4.70	0.00	0.00	0.00	41.66

Segment Leq : 51.31 dBA

Total Leq All Segments: 51.31 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 42.06 + 0.00) = 42.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.87	-10.11	-4.70	0.00	0.00	0.00	42.06

WHEEL (0.00 + 32.91 + 0.00) = 32.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	47.72	-10.11	-4.70	0.00	0.00	0.00	32.91

Segment Leq : 42.56 dBA

Total Leq All Segments: 42.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.31
(NIGHT): 42.56

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:20:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec919.te Time Period: Day/Night 16/8 hours
Description: REC 9-19 Building C

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 61.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	154.00 / 154.00 m
Receiver height	:	56.50 / 56.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 50.81 + 0.00) = 50.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	65.62	-10.11	-4.70	0.00	0.00	0.00	50.81

WHEEL (0.00 + 41.66 + 0.00) = 41.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.47	-10.11	-4.70	0.00	0.00	0.00	41.66

Segment Leq : 51.31 dBA

Total Leq All Segments: 51.31 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 42.06 + 0.00) = 42.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.87	-10.11	-4.70	0.00	0.00	0.00	42.06

WHEEL (0.00 + 32.91 + 0.00) = 32.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	47.72	-10.11	-4.70	0.00	0.00	0.00	32.91

Segment Leq : 42.56 dBA

Total Leq All Segments: 42.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.31
(NIGHT): 42.56

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:22:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec101.te Time Period: Day/Night 16/8 hours
Description: REC 10-1 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 43.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	220.00 / 220.00 m
Receiver height	:	1.50 / 1.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 40.67 + 0.00) = 40.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.58	65.62	-18.49	-6.47	0.00	0.00	0.00	40.67

WHEEL (0.00 + 30.62 + 0.00) = 30.62 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.66	56.47	-19.36	-6.50	0.00	0.00	0.00	30.62

Segment Leq : 41.08 dBA

Total Leq All Segments: 41.08 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 31.92 + 0.00) = 31.92 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.58	56.87	-18.49	-6.47	0.00	0.00	0.00	31.92

WHEEL (0.00 + 21.86 + 0.00) = 21.86 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.66	47.72	-19.36	-6.50	0.00	0.00	0.00	21.86

Segment Leq : 32.33 dBA

Total Leq All Segments: 32.33 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 41.08
(NIGHT): 32.33

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:23:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec109.te Time Period: Day/Night 16/8 hours
Description: REC 10-9 Building B

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 43.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	220.00 / 220.00 m
Receiver height	:	27.00 / 27.00 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 47.74 + 0.00) = 47.74 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	65.62	-11.66	-6.22	0.00	0.00	0.00	47.74

WHEEL (0.00 + 38.59 + 0.00) = 38.59 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	56.47	-11.66	-6.22	0.00	0.00	0.00	38.59

Segment Leq : 48.24 dBA

Total Leq All Segments: 48.24 dBA

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 38.99 + 0.00) = 38.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	56.87	-11.66	-6.22	0.00	0.00	0.00	38.99

WHEEL (0.00 + 29.84 + 0.00) = 29.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	47.72	-11.66	-6.22	0.00	0.00	0.00	29.84

Segment Leq : 39.49 dBA

Total Leq All Segments: 39.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.24
(NIGHT): 39.49

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:25:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec111.te Time Period: Day/Night 16/8 hours
Description: REC 11-1 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-66.00 deg	65.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	128.00 / 128.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 48.87 + 0.00) = 48.87 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.58	65.62	-14.76	-1.99	0.00	0.00	0.00	48.87

WHEEL (0.00 + 38.96 + 0.00) = 38.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.66	56.47	-15.46	-2.06	0.00	0.00	0.00	38.96

Segment Leq : 49.29 dBA

Total Leq All Segments: 49.29 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 40.12 + 0.00) = 40.12 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.58	56.87	-14.76	-1.99	0.00	0.00	0.00	40.12

WHEEL (0.00 + 30.20 + 0.00) = 30.20 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.66	47.72	-15.46	-2.06	0.00	0.00	0.00	30.20

Segment Leq : 40.54 dBA

Total Leq All Segments: 40.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 49.29
(NIGHT): 40.54

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:26:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC115.te Time Period: Day/Night 16/8 hours
Description: REC 11-5 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -66.00 deg	65.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 128.00 / 128.00 m	
Receiver height	: 17.50 / 17.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 53.84 + 0.00) = 53.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.10	65.62	-10.29	-1.50	0.00	0.00	0.00	53.84

WHEEL (0.00 + 43.60 + 0.00) = 43.60 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.21	56.47	-11.27	-1.61	0.00	0.00	0.00	43.60

Segment Leq : 54.23 dBA

Total Leq All Segments: 54.23 dBA

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 45.09 + 0.00) = 45.09 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.10	56.87	-10.29	-1.50	0.00	0.00	0.00	45.09

WHEEL (0.00 + 34.85 + 0.00) = 34.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	65	0.21	47.72	-11.27	-1.61	0.00	0.00	0.00	34.85

Segment Leq : 45.48 dBA

Total Leq All Segments: 45.48 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.23
(NIGHT): 45.48

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:27:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC121.te Time Period: Day/Night 16/8 hours
Description: REC 12-1 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-63.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	140.00 / 140.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 45.13 + 0.00) = 45.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.58	65.62	-15.38	-5.12	0.00	0.00	0.00	45.13

WHEEL (0.00 + 35.19 + 0.00) = 35.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.66	56.47	-16.10	-5.18	0.00	0.00	0.00	35.19

Segment Leq : 45.55 dBA

Total Leq All Segments: 45.55 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 36.38 + 0.00) = 36.38 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.58	56.87	-15.38	-5.12	0.00	0.00	0.00	36.38

WHEEL (0.00 + 26.44 + 0.00) = 26.44 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.66	47.72	-16.10	-5.18	0.00	0.00	0.00	26.44

Segment Leq : 36.80 dBA

Total Leq All Segments: 36.80 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 45.55
(NIGHT): 36.80

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:28:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC125.te Time Period: Day/Night 16/8 hours
Description: REC 12-5 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-63.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	140.00 / 140.00 m	
Receiver height	17.50 / 17.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 50.24 + 0.00) = 50.24 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.10	65.62	-10.72	-4.66	0.00	0.00	0.00	50.24

WHEEL (0.00 + 39.97 + 0.00) = 39.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.21	56.47	-11.74	-4.77	0.00	0.00	0.00	39.97

Segment Leq : 50.63 dBA

Total Leq All Segments: 50.63 dBA

Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 41.49 + 0.00) = 41.49 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.10	56.87	-10.72	-4.66	0.00	0.00	0.00	41.49

WHEEL (0.00 + 31.22 + 0.00) = 31.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-63	0	0.21	47.72	-11.74	-4.77	0.00	0.00	0.00	31.22

Segment Leq : 41.88 dBA

Total Leq All Segments: 41.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.63
(NIGHT): 41.88

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:29:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC131.te Time Period: Day/Night 16/8 hours
Description: REC 13-1 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	: -53.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 211.00 / 211.00 m	
Receiver height	: 1.50 / 1.50 m	
Topography	: 1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 41.73 + 0.00) = 41.73 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.58	65.62	-18.20	-5.69	0.00	0.00	0.00	41.73

WHEEL (0.00 + 31.67 + 0.00) = 31.67 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.66	56.47	-19.06	-5.74	0.00	0.00	0.00	31.67

Segment Leq : 42.14 dBA

Total Leq All Segments: 42.14 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 32.98 + 0.00) = 32.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.58	56.87	-18.20	-5.69	0.00	0.00	0.00	32.98

WHEEL (0.00 + 22.92 + 0.00) = 22.92 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.66	47.72	-19.06	-5.74	0.00	0.00	0.00	22.92

Segment Leq : 33.39 dBA

Total Leq All Segments: 33.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 42.14
(NIGHT): 33.39

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:30:33
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC134.te Time Period: Day/Night 16/8 hours
Description: REC 13-4 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	-53.00 deg	0.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	211.00 / 211.00 m	
Receiver height	14.50 / 14.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 46.46 + 0.00) = 46.46 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.19	65.62	-13.72	-5.44	0.00	0.00	0.00	46.46

WHEEL (0.00 + 36.04 + 0.00) = 36.04 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.30	56.47	-14.93	-5.51	0.00	0.00	0.00	36.04

Segment Leq : 46.84 dBA

Total Leq All Segments: 46.84 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 37.71 + 0.00) = 37.71 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.19	56.87	-13.72	-5.44	0.00	0.00	0.00	37.71

WHEEL (0.00 + 27.28 + 0.00) = 27.28 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	0	0.30	47.72	-14.93	-5.51	0.00	0.00	0.00	27.28

Segment Leq : 38.09 dBA

Total Leq All Segments: 38.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.84
(NIGHT): 38.09

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:31:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC141.te Time Period: Day/Night 16/8 hours
Description: REC 14-1 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	0.00 deg	50.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	211.00 / 211.00 m	
Receiver height	1.50 / 1.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 41.52 + 0.00) = 41.52 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.58	65.62	-18.20	-5.90	0.00	0.00	0.00	41.52

WHEEL (0.00 + 31.47 + 0.00) = 31.47 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.66	56.47	-19.06	-5.94	0.00	0.00	0.00	31.47

Segment Leq : 41.93 dBA

Total Leq All Segments: 41.93 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 32.77 + 0.00) = 32.77 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.58	56.87	-18.20	-5.90	0.00	0.00	0.00	32.77

WHEEL (0.00 + 22.72 + 0.00) = 22.72 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.66	47.72	-19.06	-5.94	0.00	0.00	0.00	22.72

Segment Leq : 33.18 dBA

Total Leq All Segments: 33.18 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 41.93
(NIGHT): 33.18

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 13:09:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC144.te Time Period: Day/Night 16/8 hours
Description: REC 14-4 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	0.00 deg	50.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	211.00 / 211.00 m	
Receiver height	14.50 / 14.50 m	
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 46.22 + 0.00) = 46.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.19	65.62	-13.72	-5.68	0.00	0.00	0.00	46.22

WHEEL (0.00 + 35.81 + 0.00) = 35.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.30	56.47	-14.93	-5.74	0.00	0.00	0.00	35.81

Segment Leq : 46.60 dBA

Total Leq All Segments: 46.60 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 37.47 + 0.00) = 37.47 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.19	56.87	-13.72	-5.68	0.00	0.00	0.00	37.47

WHEEL (0.00 + 27.06 + 0.00) = 27.06 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.30	47.72	-14.93	-5.74	0.00	0.00	0.00	27.06

Segment Leq : 37.85 dBA

Total Leq All Segments: 37.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.60
(NIGHT): 37.85

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:33:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC151.te Time Period: Day/Night 16/8 hours
Description: REC 15-1 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	0.00 deg	59.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	140.00 / 140.00 m	
Receiver height	1.50 / 1.50	m
Topography	1	(Flat/gentle slope; no barrier)

No Whistle
Reference angle : 0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 44.92 + 0.00) = 44.92 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.58	65.62	-15.38	-5.33	0.00	0.00	0.00	44.92

WHEEL (0.00 + 34.98 + 0.00) = 34.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.66	56.47	-16.10	-5.39	0.00	0.00	0.00	34.98

Segment Leq : 45.34 dBA

Total Leq All Segments: 45.34 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 36.17 + 0.00) = 36.17 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.58	56.87	-15.38	-5.33	0.00	0.00	0.00	36.17

WHEEL (0.00 + 26.23 + 0.00) = 26.23 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.66	47.72	-16.10	-5.39	0.00	0.00	0.00	26.23

Segment Leq : 36.59 dBA

Total Leq All Segments: 36.59 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 45.34
(NIGHT): 36.59

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:35:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC155.te Time Period: Day/Night 16/8 hours
Description: REC 15-5 Building A

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 59.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	140.00 / 140.00 m
Receiver height	:	17.50 / 17.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 49.97 + 0.00) = 49.97 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.10	65.62	-10.72	-4.93	0.00	0.00	0.00	49.97

WHEEL (0.00 + 39.71 + 0.00) = 39.71 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.21	56.47	-11.74	-5.02	0.00	0.00	0.00	39.71

Segment Leq : 50.36 dBA

Total Leq All Segments: 50.36 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 41.22 + 0.00) = 41.22 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.10	56.87	-10.72	-4.93	0.00	0.00	0.00	41.22

WHEEL (0.00 + 30.96 + 0.00) = 30.96 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	59	0.21	47.72	-11.74	-5.02	0.00	0.00	0.00	30.96

Segment Leq : 41.61 dBA

Total Leq All Segments: 41.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.36
(NIGHT): 41.61

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:37:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC16tr.te Time Period: Day/Night 16/8 hours
Description: REC 16-4 Building A 4th Floor Terrace

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	:	0.00 deg 49.00 deg
Wood depth	:	0 (No woods.)
No of house rows	:	0 / 0
Surface	:	1 (Absorptive ground surface)
Receiver source distance	:	223.00 / 223.00 m
Receiver height	:	14.50 / 14.50 m
Topography	:	1 (Flat/gentle slope; no barrier)
No Whistle		
Reference angle	:	0.00

↟
Results segment # 1: Carlton Rail (day)

LOCOMOTIVE (0.00 + 45.85 + 0.00) = 45.85 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.19	65.62	-14.01	-5.76	0.00	0.00	0.00	45.85

WHEEL (0.00 + 35.41 + 0.00) = 35.41 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.30	56.47	-15.24	-5.82	0.00	0.00	0.00	35.41

Segment Leq : 46.23 dBA

Total Leq All Segments: 46.23 dBA

↟
Results segment # 1: Carlton Rail (night)

LOCOMOTIVE (0.00 + 37.10 + 0.00) = 37.10 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.19	56.87	-14.01	-5.76	0.00	0.00	0.00	37.10

WHEEL (0.00 + 26.66 + 0.00) = 26.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.30	47.72	-15.24	-5.82	0.00	0.00	0.00	26.66

Segment Leq : 37.48 dBA

Total Leq All Segments: 37.48 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.23
(NIGHT): 37.48

STAMSON 5.0 NORMAL REPORT Date: 02-02-2024 12:38:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC174tr.te Time Period: Day/Night 16/8 hours
Description: REC 17-4 Building C 4th Floor Terrace

Rail data, segment # 1: Carlton Rail (day/night)

Train Type	Trains	Speed (km/h)	# loc /Train	# Cars /Train	Eng type	Cont weld
1. Via	15.0/1.0	100.0	1.0	6.0	Diesel	Yes

Data for Segment # 1: Carlton Rail (day/night)

Angle1 Angle2	0.00 deg	61.00 deg
Wood depth	0	(No woods.)
No of house rows	0 / 0	
Surface	1	(Absorptive ground surface)
Receiver source distance	154.00 / 154.00 m	
Receiver height	11.50 / 11.50 m	
Topography	2	(Flat/gentle slope; with barrier)
No Whistle		
Barrier angle1	0.00 deg	Angle2 : 61.00 deg
Barrier height	11.50 m	
Barrier receiver distance	2.50 / 2.50 m	
Source elevation	102.00 m	
Receiver elevation	102.00 m	
Barrier elevation	102.00 m	
Reference angle	0.00	

Results segment # 1: Carlton Rail (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	11.50	11.38	113.38
0.50	11.50	11.32	113.32

LOCOMOTIVE (0.00 + 45.68 + 0.00) = 45.68 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	65.62	-10.11	-4.70	0.00	0.00	-5.13	45.68

WHEEL (0.00 + 36.38 + 0.00) = 36.38 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.47	-10.11	-4.70	0.00	0.00	-5.27	36.38

Segment Leq : 46.16 dBA

Total Leq All Segments: 46.16 dBA

↟

Results segment # 1: Carlton Rail (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	11.50	11.38	113.38
0.50	11.50	11.32	113.32

LOCOMOTIVE (0.00 + 36.93 + 0.00) = 36.93 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	56.87	-10.11	-4.70	0.00	0.00	-5.13	36.93

WHEEL (0.00 + 27.63 + 0.00) = 27.63 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	61	0.00	47.72	-10.11	-4.70	0.00	0.00	-5.27	27.63

Segment Leq : 37.41 dBA

Total Leq All Segments: 37.41 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 46.16
(NIGHT): 37.41

↟
↟

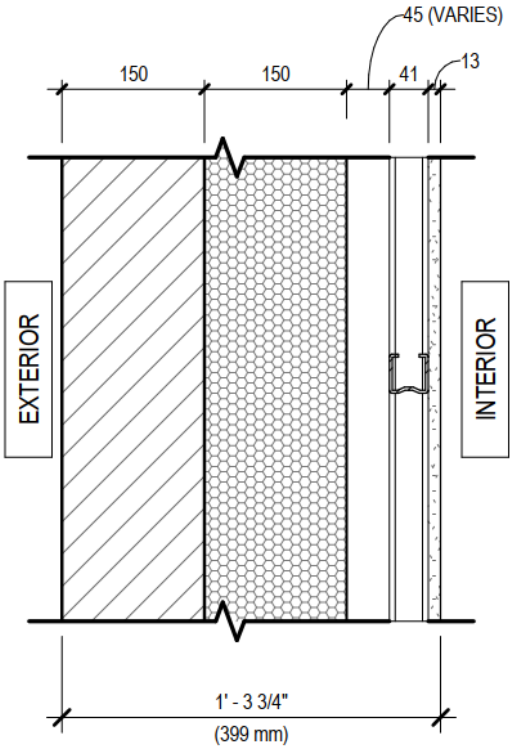
APPENDIX 3

WALL DETAILS

BUILDING MATERIALS INDUSTRY STANDARDS

EXTERIOR WALL TYPES

ALL STEEL STUDS GALVANIZED UNLESS OTHERWISE NOTED. ALL ACOUSTICAL WALLS BASED ON NRC TEST DATA OR ULC/UL TEST DATA.



WT-1

TYPICAL EXTERIOR WALL
PRECAST CONCRETE WALL TYPE

TYPICAL EXTERIOR WALL
PRECAST CONCRETE WALL TYPE

- 150mm PRECAST CONCRETE WALL
- 150mm SPRAYED POLYURETHANE FOAM INSULATION / AIR BARRIER - CLOSED CELL (RSI 5.76)
- 45mm AIR SPACE(VARIES)
- 41mm METAL STUDS @ 600 O/C.
- 13mm GYPSUM BOARD - FULL HEIGHT - TAPED & PAINTED

NOTE:
-FULL HEIGHT FROM SLAB TO SLAB OR TO U/S STEEL DECK.
-ENSURE ALL FOAM PLASTICS ARE COVERED W/ DRYWALL.
-0.38mm SHEET STEEL FOR CONTINUOUS FIRE BLOCKING WHEN WALL HEIGHT EXCEEDS 3000mm A.F.F. FIRECAULK TO PRECAST AND DRYWALL

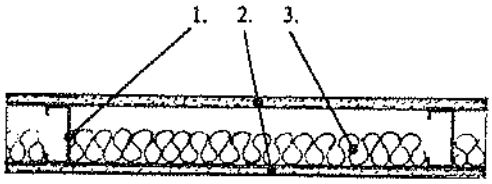
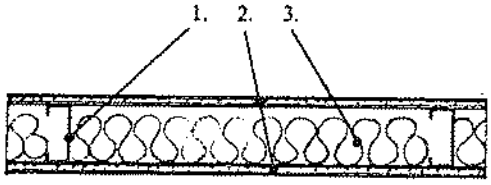
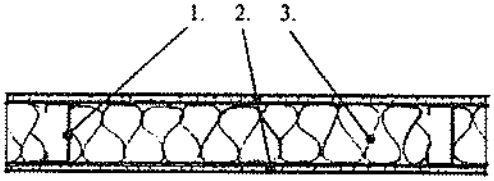
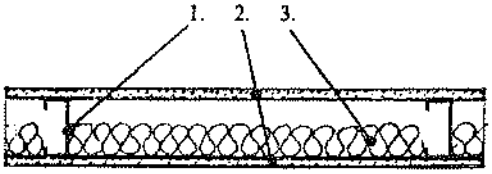
* FOR PRECAST PANEL FINISHES, REFER TO DRAWING SERIES A400 FINISH LEGEND

SLAB EDGE @ ALL EXTERIOR WALL LOCATIONS REQUIRING 2 HR. F.R.R INSTALL FIRE STOP JOINT EQUIVALENT TO cUL SYSTEM No. FW-D-1069 (REFER TO A802)

*AT PARAPET (REFER TO PARAPET DETAILS)
INSTALL 16mm EXTERIOR GRADE PLYWOOD ON INSIDE FACE OF PARAPET FOR LAP JOINT OF TORCH APPLIED MEMBRANE IF PARAPET IS LESS THAN 600mm IN HEIGHT.
NOTE: IF HEIGHT OF PARAPET EXCEEDS 600mm IN HEIGHT, INSTALL 13mm CEMENT BOARD.

NOTE:
AT POOL CONDITIONS REPLACE INTERIOR DRYWALL WITH DENSHIELD BOARD. VAPOUR BARRIER BASE COAT TO BE APPLIED UNDER ADEX COATING ON POOL SIDE.

F.R.R. = N / A	R VALUE = 36	RSI VALUE = 6.3

Sketch	Brief Description	...	Laboratory Test Number Year Frequencies Tested Source of Data	STC	Section Number
	1. 3 5/8" metal studs, 24"o.c. 2. 5/8" gypsum board screwed to studs. 3. 2" thick sound attenuation blanket.	...	National Research Council of Canada NRC #66 1968 16f National Research Council of Canada	47	1.3.3.1.5.7
	1. 3 5/8" metal studs, 24"o.c. 2. 5/8" type X gypsum board screwed to studs. 3. 3" thick sound attenuation blanket.	...	Owens/Corning Fiberglas OCF 469 1967 16f Owens/Corning Fiberglas	44	1.3.3.1.5.8
	1. 3 5/8" metal studs, 24"o.c. 2. 5/8" gypsum board screwed to studs. 3. 4" thick sound attenuation blanket compressed to fit in stud space.	...	National Research Council of Canada NRC #66 1968 16f National Research Council of Canada	45	1.3.3.1.5.9
	1. 3 5/8" metal studs, 24"o.c. 2. 5/8" type X gypsum board spot-laminated to studs with daubs of adhesive 12"o.c. drywall screws at third points along joints and ends. 3. 2" thick sound attenuation blanket.	...	Riverbank Acoustical Labs. TL66-253 1966 16f Celotex Corp.	51	1.3.3.1.5.10