

# **Environmental Noise Control Study Proposed Residential Development**

283 – 285 McLeod Street  
Ottawa, Ontario

Prepared for Zyer Developments

Report PG5490-1 Revision 2 dated December 20, 2023

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## 1.0 Introduction

Paterson Group (Paterson) was commissioned by Zyer Developments to conduct an environmental noise control study for the proposed multi-storey building to be located at 283-285 McLeod Street, in the City of Ottawa.

The objective of the current study is to:

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

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

This study has been conducted according to 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 project will consist of a five (5) storey residential building with one (1) underground level. The proposed residential building consists of a total of 28 units, one basement parking level, and landscaped areas. The development is further anticipated to be municipally serviced.

### 3.0 Methodology and Noise Assessment Criteria

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

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

#### Surface Transportation Noise

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

The NPC-300 dictates that the influence area must contain any of following conditions to classify as a surface transportation noise source for a subject site:

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

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

<b>Time Period</b>	<b>L<sub>eq</sub> Level (dBA)</b>
Daytime, 7:00-23:00	55
➤ Standard taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas – Road and Rail	

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

Predicted noise levels at the pane of window dictate the action required to achieve recommended noise levels. It is noted in NPC-300 that the limits outlined in Table 2 are for the noise levels on the interior of the window glass pane. An open window is considered to provide a 10 dBA noise reduction, while a standard closed window is capable to provide a minimum 20 dBA noise reduction. The noise level limits of residential building are 45 dBA daytime and 40 dBA nighttime. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the provision for central air conditioning.

Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, central air conditioning will be required, and the building components will require higher levels of sound attenuation. When the noise levels are equal to or less than the specified criteria, no noise attenuation (control) measures are required.

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

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

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

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

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

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

### **Stationary Noise**

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

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

### **Aircraft / Airport Noise**

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



## 4.0 Analysis

### Surface Transportation Noise

The proposed building is bordered to the north by commercial buildings and residential dwellings, Gladstone Avenue, and Frank Street, to the east by commercial buildings and residential dwellings, to the west by commercial buildings and residential dwellings followed by O'Connor Street, a parking lot, and commercial buildings, to the south by McLeod Street followed by a park and a parking lot. Gladstone Avenue, Frank Street, O'Connor Street, and McLeod Street are identified within the 100 m radius of the proposed building.

Based on the City of Ottawa Official Plan, Schedule F, Gladstone Avenue is considered a 2 lane major collector road (2-UMCU). O'Connor Street is considered a 2 lane urban arterial road (2-UAU). All other roads within the 100 m radius are not classified as either arterial, collector or major collector roads and therefore are not included in this study. Additionally, the 3 lane highway 417 westbound and the 3 lane highway 417 eastbound are within the 500 m radius from the proposed building.

All noise sources are presented in Drawing PG5490-3 - Site Geometry, located in Appendix 1.

The noise levels from road traffic are provided by the City of Ottawa, taking into consideration the right-of-way width and the implied roadway 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.

<b>Segment</b>	<b>Roadway Classification</b>	<b>AADT Veh/Day</b>	<b>Speed Limit (km/h)</b>	<b>Day/Night Split %</b>	<b>Medium Truck %</b>	<b>Heavy Truck %</b>
Highway 417 Eastbound	3-Queensway	54999	100	92/8	7	5
Highway 417 Westbound	3-Queensway	54999	100	92/8	7	5
Gladstone Avenue	2-UMCU	12000	50	92/8	7	5
O'Connor Street	2-UAU	15000	50	92/8	7	5

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

<b>Table 6 – Elevations of Reception Points</b>			
<b>Floor Number</b>	<b>Elevation at Centre of Window (m)</b>	<b>Floor Use</b>	<b>Daytime / Nighttime Analysis</b>
First Floor	1.5	Living Area/Bedroom	Daytime / Nighttime
Third Floor	7.5	Living Area/Bedroom	Daytime / Nighttime
Fifth Floor	16.5	Living Area/Bedroom	Daytime / Nighttime

For this analysis, a reception point was taken at the centre of each floor, at the first floor, third floor and fifth floor. Reception points are detailed on Drawing PG5490-2 - 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 highway was analyzed where it intersected the 500 m buffer zone, and the roadways were analyzed where they intersected the 100 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG5490-3A to 3D - Site Geometry in Appendix 1.

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

The subject site is relatively flat and at grade with the neighbouring roads within the 500 m radius. The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

## 5.0 Results

### Surface Transportation Noise

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

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

<b>Reception Point</b>	<b>Height Above Grade (m)</b>	<b>Receptor Location</b>	<b>Daytime <math>L_{eq(16)}</math> (dBA)</b>	<b>Nighttime <math>L_{eq(8)}</math> (dBA)</b>
REC 1-1	1.5	Western Elevation, 1st floor	54.79	47.08
REC 1-5	16.5	Western Elevation, 5th floor	63.70	56.10
REC 2-1	1.5	Northern Elevation, 1st floor	43.83	36.23
REC 2-3	7.5	Northern Elevation, 3rd floor	45.17	37.57
REC 3-1	1.5	Eastern Elevation, 1st floor	46.68	39.68
REC 3-5	16.5	Eastern Elevation, 5th floor	56.26	46.59
REC 4-1	1.5	Southern Elevation, 1st floor	54.66	47.06
REC 4-5	16.5	Southern Elevation, 5th floor	57.86	47.06

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## 6.0 Discussion and Recommendations

### 6.1 Outdoor Living Areas

A depressed patio area was identified for the proposed multi-storey building. A review of this outdoor living area was performed and it was determined that due to the location of the proposed and neighbouring buildings, that there would be no noise sources in the area that would impact this amenity. Therefore, this outdoor living area is considered acceptable and no mitigation measures are required.

### 6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modeling indicates that the daytime  $L_{eq(16)}$  ranges between 43.83 dBA and 63.70 dBA. The ENCG states that the limits for the exterior of the pane of glass is 55 dBA. This value was exceeded on western, eastern and southern elevations. Therefore, units on the western, eastern and southern elevations should be designed with the provision for a central air conditioning unit. Additionally, warning clause Type C, as outlined in Table 3, is required for all units on the western, eastern and southern elevations of the building. It is also noted that the modeling indicates that the  $L_{eq(16)}$  is below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

## 7.0 Summary of Findings

The subject site is located at 283 to 285 McLeod Street. It is understood that the development will consist of a 5 storey residential building. The associated analysis identified four surface transportation noise sources: Highway 417 Westbound, Highway 417 Eastbound, Gladstone Avenue, O'Connor Street.

Several reception points were selected for the analysis, consisting of pane of glass reception points on both the first, third and top level. The western, eastern and southern elevations of the proposed building exceeded the 55 dBA guideline specified by the ENCG. Therefore, a warning clause Type C will be required for units on the western, eastern and southern elevations. Additionally, units on the western, eastern and southern elevations should be designed with the provision for a central air conditioning unit.

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

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

## 8.0 Statement of Limitations

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

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

### Paterson Group Inc.



Otilia McLaughlin, B.Eng.



Stephanie A. Boisvenue, P.Eng.

### Report Distribution:

- Zyer Developments. (email copy)
- Paterson Group (1 copy)

# **APPENDIX 1**

**Table 8 – Summary of Reception Points and Geometry**

**Drawing PG5490 – 1 – Site Plan (REV.02)**

**Drawing PG5490 – 2 – Receptor Location Plan (REV.02)**

**Drawing PG5490 – 3 – Site Geometry (REV.02)**

**Drawing PG5490 – 3A – REC 1-1 and REC 1-5 (REV.02)**

**Drawing PG5490 – 3B – REC 2-1 and REC 2-3 (REV.02)**

**Drawing PG5490 – 3C – REC 3-1 and REC 3-5 (REV.02)**

**Drawing PG5490 – 3D – REC 4-1 and REC 4-5 (REV.02)**

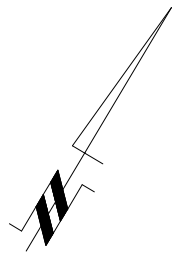
Table 8 - Summary of Reception Points and Geometry

283 and 285 McLeod Street

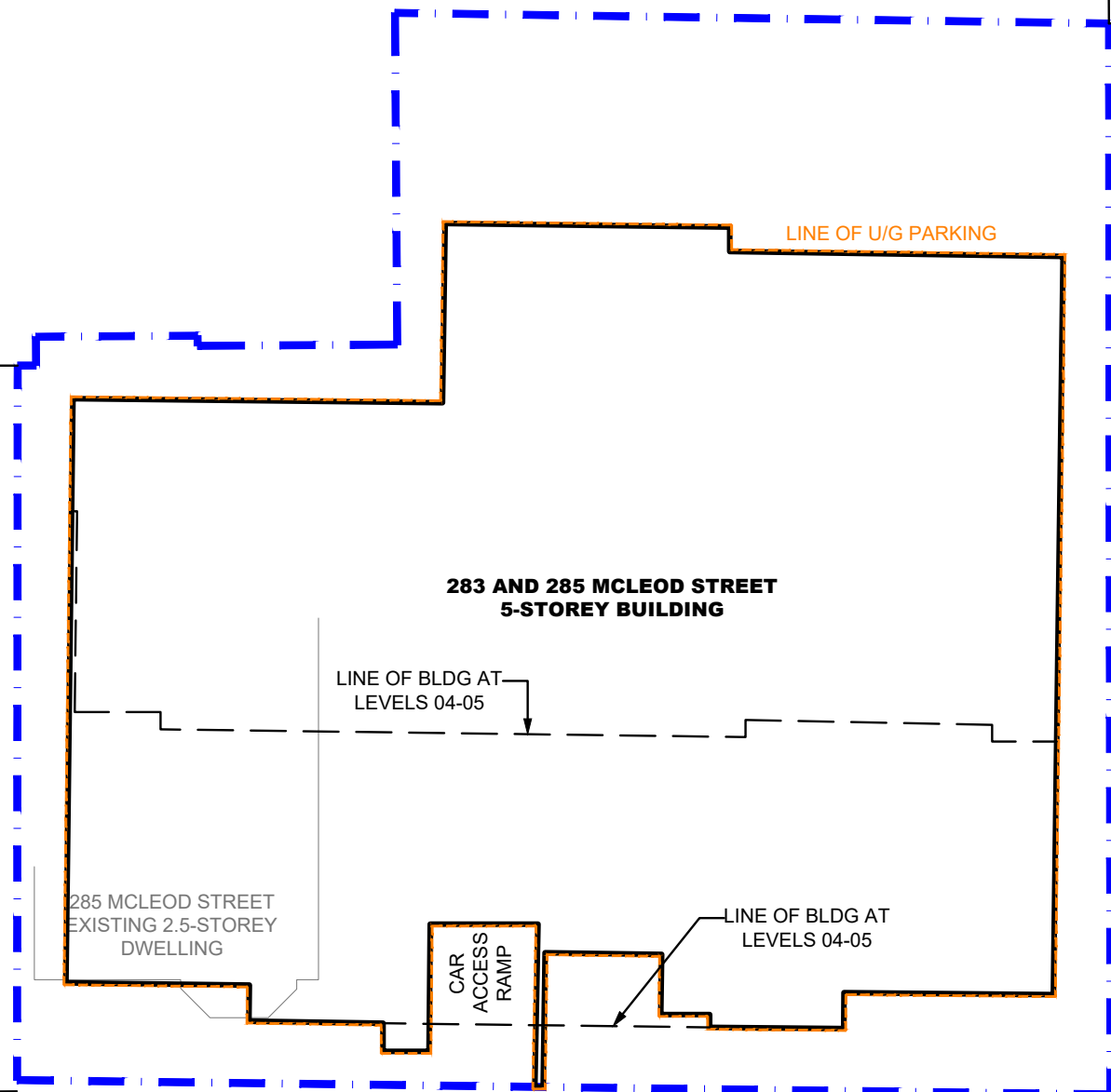
Point of Reception	Location	Leq Day (dBA)	Leq Night (dBA)	Gladstone Avenue								O'Connor Street							
				Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)
REC 1-1	Western Elevation, 1st Floor	54.79	47.08	57	1.5	57.02	-47,0 -47, -60	n/a	n/a	24 8.5	48	28	1.5	28.04	80, 48 48, 0 0, -48 -48, -80	n/a	n/a	24 8.5 8.5 n/a	18 18 18 n/a
REC 1-5	Western Elevation, 5th Floor	63.70	56.10	59	16.5	61.26	-55, 0	n/a	n/a	24	30	31	16.5	35.12	-75, 40 40, 76	n/a	n/a	24 8.5	30 20
REC 2-1	Northern Elevation, 1st Floor	43.83	36.23	44	1.5	44.03	50, 72 -71, 50	n/a	n/a	9 24	25 35	46	1.5	46.02	23, 71 0, 23	n/a	n/a	24 8.5	33
REC 2-3	Northern Elevation, 3rd Floor	45.17	37.57	44	7.5	44.63	50, 72 -71, 50	n/a	n/a	9 24	33 21	46	7.5	46.61	23, 71 0, 23	n/a	n/a	24 8.5	34
REC 3-1	Eastern Elevation, 1st Floor	46.68	39.68	58	1.5	58.02	0, 47 47, 63	n/a	n/a	9 n/a	40 n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 3-5	Eastern Elevation, 5th Floor	56.26	46.59	58	16.5	60.3	0, 63	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4-1	Southern Elevation, 1st Floor	54.66	47.06	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	51	1.5	51.02	-58, 0	n/a	n/a	n/a	n/a
REC 4-5	Southern Elevation, 5th Floor	57.86	47.06	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	51	16.5	53.60	-58, 0	n/a	n/a	n/a	n/a

Point of Reception	Location	Leq Day (dBA)	Leq Night (dBA)	Highway 417 Westbound								Highway 417 Eastbound							
				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 1-1	Western Elevation, 1st Floor	54.79	47.08	303	1.5	303	0, 51	7	80	0.5	301	322	1.5	322	0, 48	7	80	0.5	320
REC 1-5	Western Elevation, 5th Floor	63.70	56.10	360	16.5	360.38	0, 52	7	80	0.5	3.1	370	16.5	370.4	0, 49	7	80	0.5	320
REC 2-1	Northern Elevation, 1st Floor	43.83	36.23	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
REC 2-3	Northern Elevation, 3rd Floor	45.17	37.57	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
REC 3-1	Eastern Elevation, 1st Floor	46.68	39.68	301	1.5	301	-52, 0	7	80	0.5	299	315	1.5	315	-49, 0	7	80	0.5	313
REC 3-5	Eastern Elevation, 5th Floor	56.26	46.59	301	16.5	301	-52, 0	7	80	0.5	299	215	16.5	215.63	-49, 0	7	80	0.5	313
REC 4-1	Southern Elevation, 1st Floor	54.66	47.06	297	1.5	297	-53, 53	7	80	0.5	295	313	1.5	313	-50, 50	7	80	0.5	311
REC 4-5	Southern Elevation, 5th Floor	57.86	47.06	297	16.5	297	-53, 53	7	80	0.5	295	313	16.5	313.43	-50, 50	7	80	0.5	311

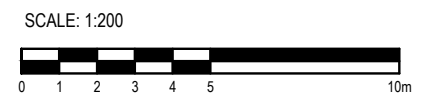




O'CONNOR STREET



MCLEOD STREET



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

NO.	REVISIONS	DATE	INITIAL
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1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

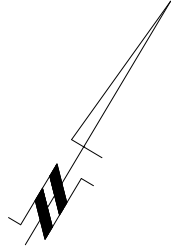
ZYER DEVELOPMENTS  
NOISE ATTENUATION STUDY  
PROPOSED MULTI-STOREY BUILDING  
283 AND 285 MCLEOD STREET

**SITE PLAN**

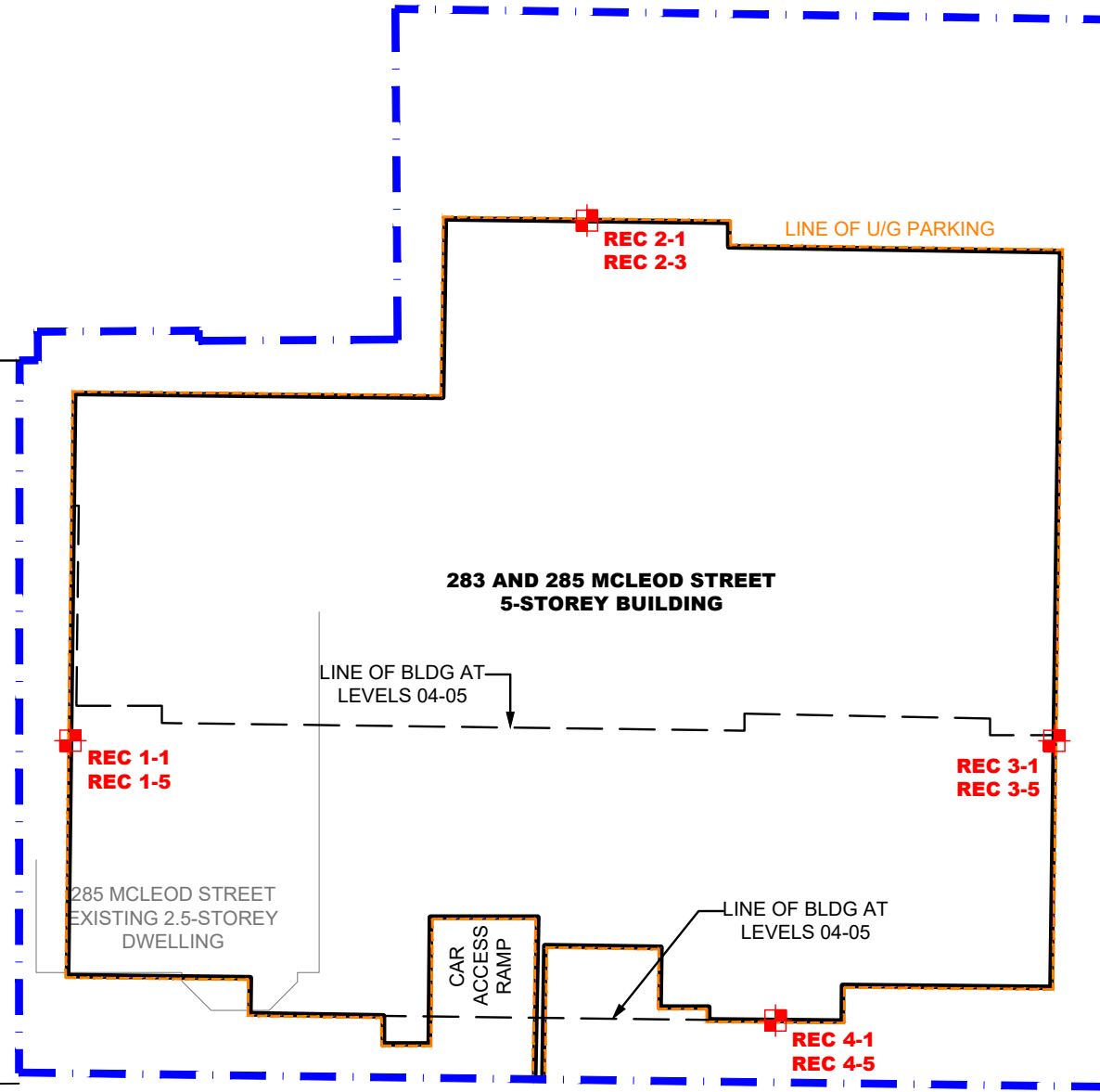
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Checked by:	SB	Dwg. No.:	<b>PG5490-1</b>
Approved by:	DJG	Revision No.:	2

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O'CONNOR STREET



MCLEOD STREET

LEGEND:

RECEPTOR LOCATION

SCALE: 1:200



9 AURIGA DRIVE  
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K2E 7T9  
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NO.	REVISIONS	DATE	INITIAL
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1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

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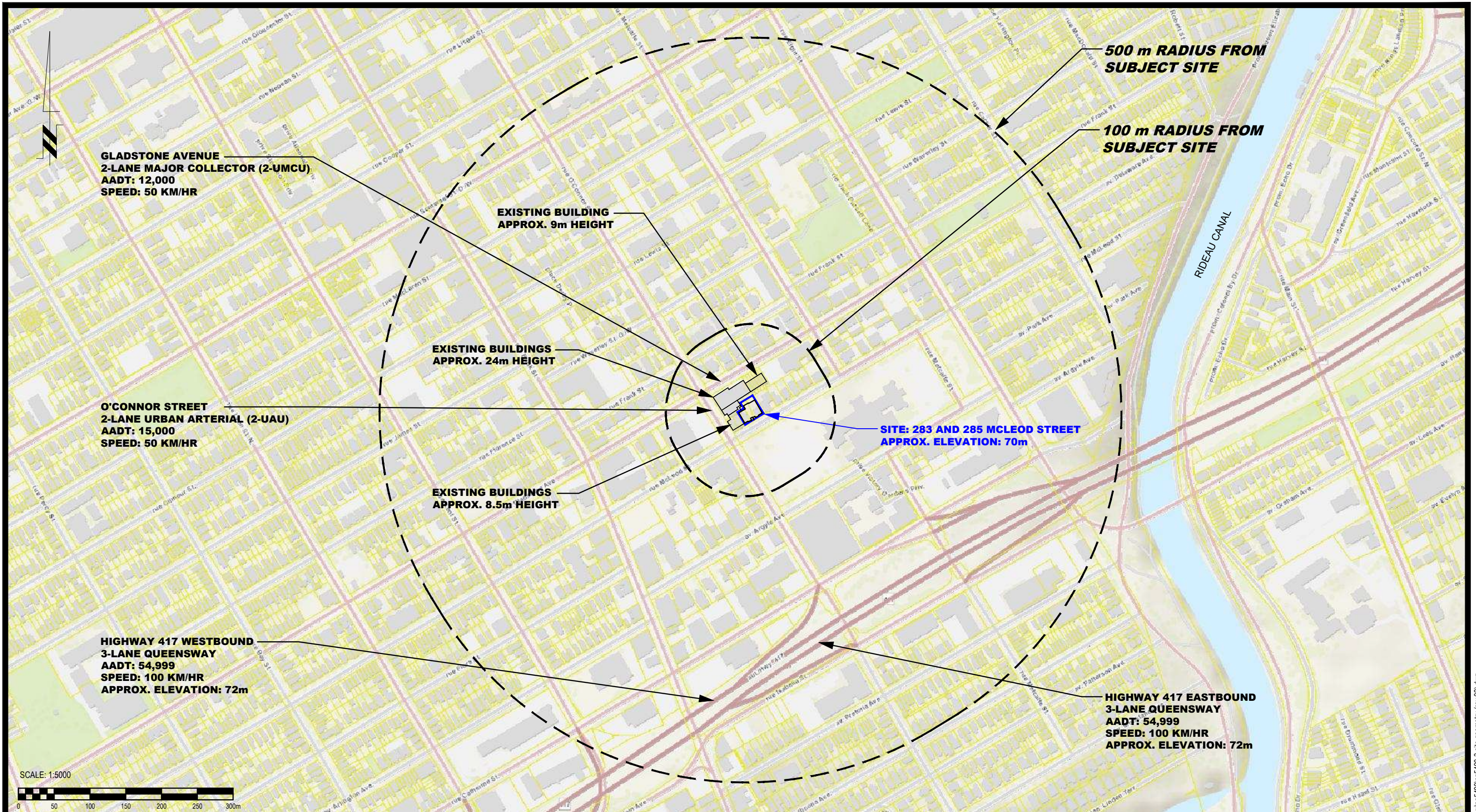
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NOISE ATTENUATION STUDY  
PROPOSED MULTI-STOUREY BUILDING  
283 AND 285 MCLEOD STREET  
**RECEPTOR LOCATION PLAN**

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Checked by: SB  
Approved by: DJG

Date: 09/2020  
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Dwg. No.: **PG5490-2**  
Revision No.: 2

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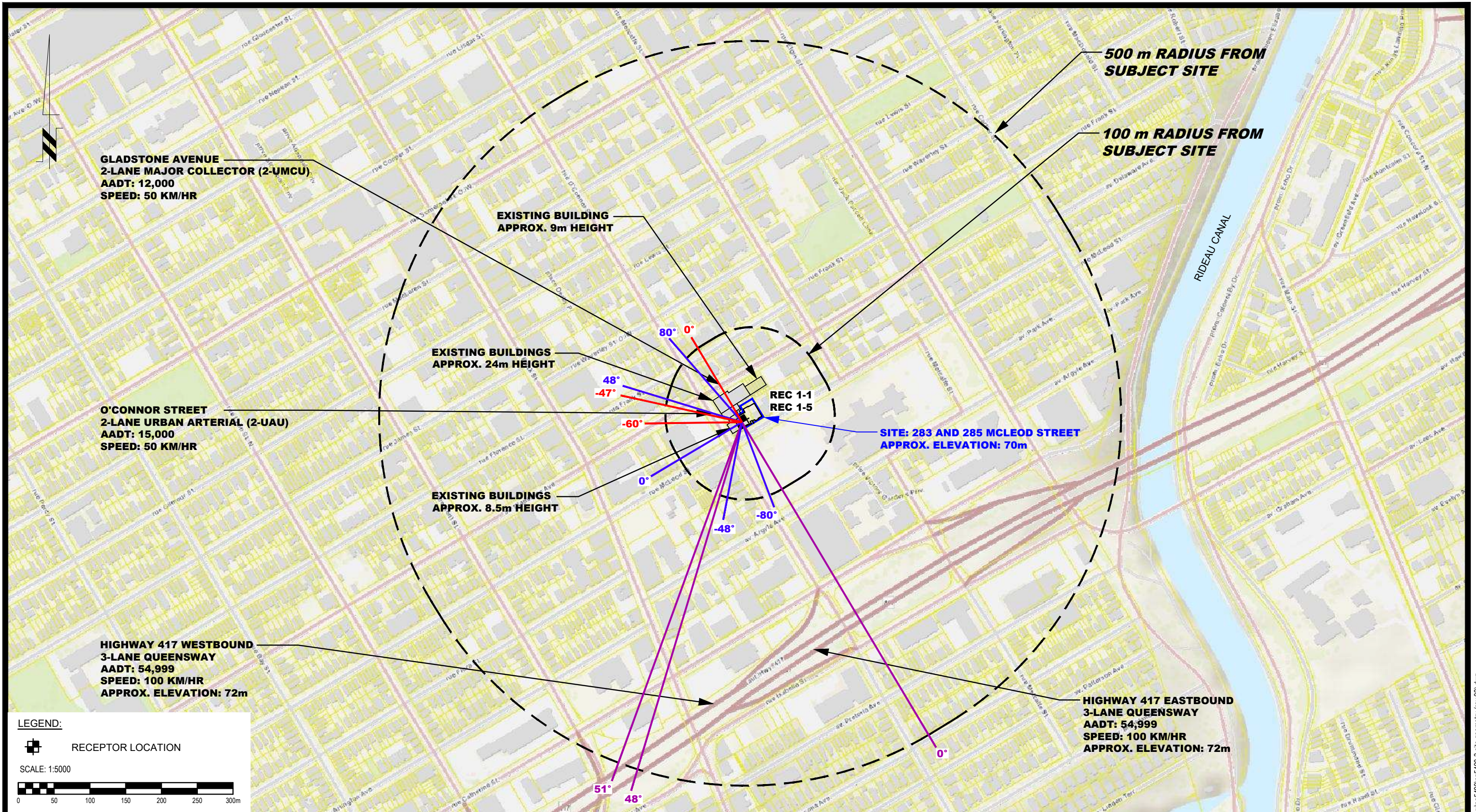
**ZYER DEVELOPMENTS  
 NOISE ATTENUATION STUDY  
 PROPOSED MULTI-STOREY BUILDING  
 283 AND 285 MCLEOD STREET**

**OTTAWA, ONTARIO**

**SITE GEOMETRY**

Scale:	1:5000	Date:	10/2020
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Checked by:	SB	Dwg. No.:	<b>PG5490-3</b>
Approved by:	DJG	Revision No.:	2

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TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
2	UPDATED TO NEW CONCEPTUAL PLAN	14/12/2023	OM
1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

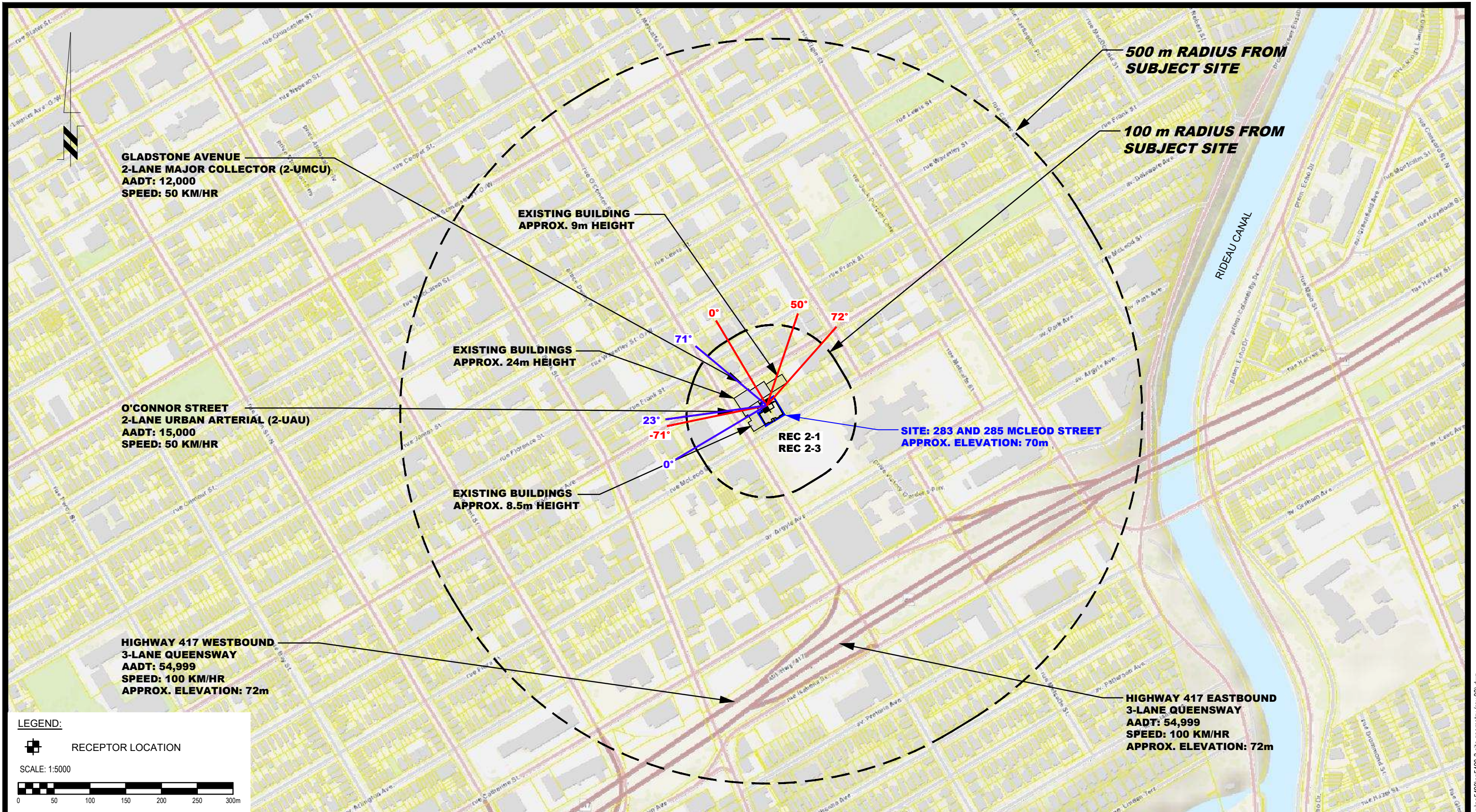
**ZYER DEVELOPMENTS**  
**NOISE ATTENUATION STUDY**  
**PROPOSED MULTI-STORY BUILDING**  
**283 AND 285 MCLEOD STREET**

**OTTAWA, ONTARIO**


**Title: SITE GEOMETRY - REC 1-1 AND REC 1-5**

Scale:	1:5000	Date:	10/2020
Drawn by:	YA	Report No.:	PG5490-1
Checked by:	SB	Dwg. No.:	<b>PG5490-3A</b>
Approved by:	DJG	Revision No.:	2


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**LEGEND:**

 RECEPTOR LOCATION

SCALE: 1:5000




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

NO.	REVISIONS	DATE	INITIAL
2	UPDATED TO NEW CONCEPTUAL PLAN	14/12/2023	OM
1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

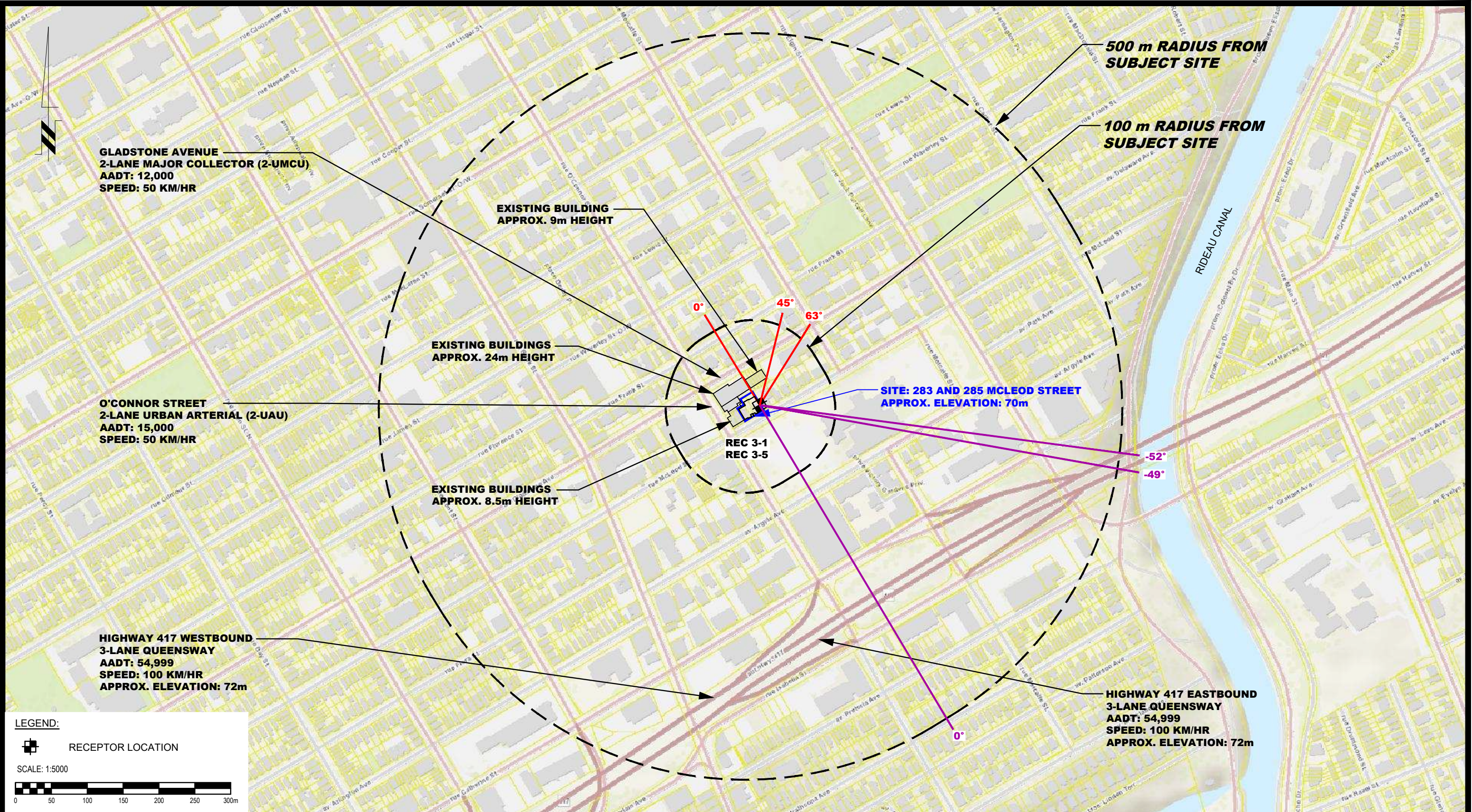
**ZYER DEVELOPMENTS**  
**NOISE ATTENUATION STUDY**  
**PROPOSED MULTI-STOREY BUILDING**  
**283 AND 285 MCLEOD STREET**

OTTAWA, ONTARIO

**SITE GEOMETRY - REC 2-1 AND REC 2-3**

Scale:	1:5000	Date:	10/2020
Drawn by:	YA	Report No.:	PG5490-1
Checked by:	SB	Dwg. No.:	<b>PG5490-3B</b>
Approved by:	DJG	Revision No.:	2

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**GLADSTONE AVENUE**  
 2-LANE MAJOR COLLECTOR (2-UMCU)  
 AADT: 12,000  
 SPEED: 50 KM/HR

**O'CONNOR STREET**  
 2-LANE URBAN ARTERIAL (2-UAU)  
 AADT: 15,000  
 SPEED: 50 KM/HR

**HIGHWAY 417 WESTBOUND**  
 3-LANE QUEENSWAY  
 AADT: 54,999  
 SPEED: 100 KM/HR  
 APPROX. ELEVATION: 72m

**500 m RADIUS FROM SUBJECT SITE**

**100 m RADIUS FROM SUBJECT SITE**

**EXISTING BUILDING**  
 APPROX. 9m HEIGHT

**EXISTING BUILDINGS**  
 APPROX. 24m HEIGHT

**EXISTING BUILDINGS**  
 APPROX. 8.5m HEIGHT

**REC 3-1**  
**REC 3-5**

**SITE: 283 AND 285 MCLEOD STREET**  
 APPROX. ELEVATION: 70m

**HIGHWAY 417 EASTBOUND**  
 3-LANE QUEENSWAY  
 AADT: 54,999  
 SPEED: 100 KM/HR  
 APPROX. ELEVATION: 72m

**LEGEND:**  
 RECEPTOR LOCATION

SCALE: 1:5000

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

NO.	REVISIONS	DATE	INITIAL
2	UPDATED TO NEW CONCEPTUAL PLAN	14/12/2023	OM
1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

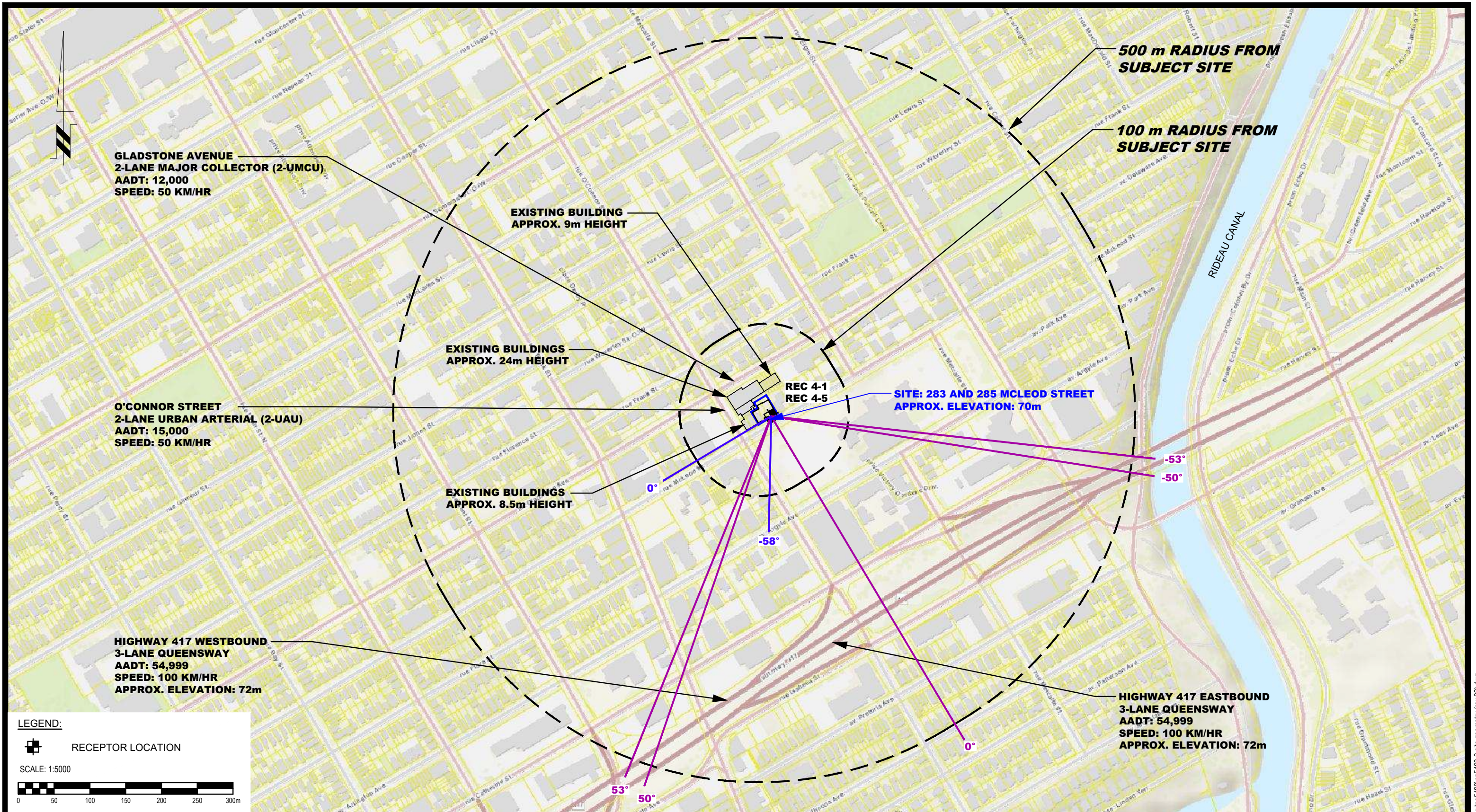
**OTTAWA, ONTARIO**

**ZYER DEVELOPMENTS**  
**NOISE ATTENUATION STUDY**  
**PROPOSED MULTI-STORY BUILDING**  
**283 AND 285 MCLEOD STREET**

**SITE GEOMETRY - REC 3-1 AND REC 3-5**

Scale:	1:5000	Date:	10/2020
Drawn by:	YA	Report No.:	PG5490-1
Checked by:	SB	Dwg. No.:	<b>PG5490-3C</b>
Approved by:	DJG	Revision No.:	2

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**GLADSTONE AVENUE**  
**2-LANE MAJOR COLLECTOR (2-UMCU)**  
**AADT: 12,000**  
**SPEED: 50 KM/HR**

**O'CONNOR STREET**  
**2-LANE URBAN ARTERIAL (2-UAU)**  
**AADT: 15,000**  
**SPEED: 50 KM/HR**

**HIGHWAY 417 WESTBOUND**  
**3-LANE QUEENSWAY**  
**AADT: 54,999**  
**SPEED: 100 KM/HR**  
**APPROX. ELEVATION: 72m**

**500 m RADIUS FROM SUBJECT SITE**

**100 m RADIUS FROM SUBJECT SITE**

**EXISTING BUILDING APPROX. 9m HEIGHT**

**EXISTING BUILDINGS APPROX. 24m HEIGHT**

**EXISTING BUILDINGS APPROX. 8.5m HEIGHT**

**REC 4-1**  
**REC 4-5**

**SITE: 283 AND 285 MCLEOD STREET**  
**APPROX. ELEVATION: 70m**

**-53°**

**-50°**

**0°**


**-58°**

**0°**


**53°**

**50°**

**HIGHWAY 417 EASTBOUND**  
**3-LANE QUEENSWAY**  
**AADT: 54,999**  
**SPEED: 100 KM/HR**  
**APPROX. ELEVATION: 72m**

**LEGEND:**  
 RECEPTOR LOCATION

SCALE: 1:5000




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

NO.	REVISIONS	DATE	INITIAL
2	UPDATED TO NEW CONCEPTUAL PLAN	14/12/2023	OM
1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

**ZYER DEVELOPMENTS**  
**NOISE ATTENUATION STUDY**  
**PROPOSED MULTI-STORY BUILDING**  
**283 AND 285 MCLEOD STREET**

**OTTAWA, ONTARIO**

**Title: SITE GEOMETRY - REC 4-1 AND REC 4-5**

Scale:	1:5000	Date:	10/2020
Drawn by:	YA	Report No.:	PG5490-1
Checked by:	SB	Dwg. No.:	<b>PG5490-3D</b>
Approved by:	DJG	Revision No.:	2

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# **APPENDIX 2**

## **STAMSON RESULTS**



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

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : -47.00 deg    0.00 deg  
Wood depth                : 0            (No woods.)  
No of house rows         : 0 / 0  
Surface                    : 1            (Absorptive ground surface)  
Receiver source distance : 57.00 / 57.00 m  
Receiver height           : 1.50 / 1.50 m  
Topography                : 2            (Flat/gentle slope; with barrier)  
Barrier angle1            : -47.00 deg    Angle2 : 0.00 deg  
Barrier height            : 24.00 m  
Barrier receiver distance : 48.00 / 48.00 m  
Source elevation         : 70.00 m  
Receiver elevation        : 70.00 m  
Barrier elevation         : 70.00 m  
Reference angle           : 0.00

↑

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod  
Medium truck volume : 773/67    veh/TimePeriod  
Heavy truck volume : 552/48    veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Gladstone 2 (day/night)

-----  
Angle1 Angle2 : -60.00 deg -47.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 57.00 / 57.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -60.00 deg Angle2 : -47.00 deg  
Barrier height : 24.00 m  
Barrier receiver distance : 25.00 / 25.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 3: O'Connor 1 (day/night)

-----  
Car traffic volume : 12144/845 veh/TimePeriod  
Medium truck volume : 966/67 veh/TimePeriod  
Heavy truck volume : 690/48 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: O'Connor 1 (day/night)

-----  
Angle1 Angle2 : 48.00 deg 80.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 48.00 deg Angle2 : 80.00 deg  
Barrier height : 24.00 m  
Barrier receiver distance : 18.00 / 18.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 4: O'Connor 2 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*

Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 4: O'Connor 2 (day/night)

-----  
Angle1 Angle2 : 0.00 deg 48.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 7  
House density : 20 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 0.00 deg Angle2 : 48.00 deg  
Barrier height : 8.50 m  
Barrier receiver distance : 18.00 / 18.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 5: O'Connor 3 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod  
Medium truck volume : 966/84 veh/TimePeriod  
Heavy truck volume : 690/60 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 5: O'Connor 3 (day/night)

-----  
Angle1 Angle2 : -48.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m

Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -48.00 deg Angle2 : 0.00 deg  
Barrier height : 8.50 m  
Barrier receiver distance : 18.00 / 18.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 6: O'Connor 4 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod  
Medium truck volume : 966/84 veh/TimePeriod  
Heavy truck volume : 690/60 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: O'Connor 4 (day/night)

-----  
Angle1 Angle2 : -80.00 deg -48.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 7: HWY West (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
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 # 7: HWY West (day/night)

-----  
Angle1 Angle2 : 0.00 deg 51.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 303.00 / 303.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 0.00 deg Angle2 : 51.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 301.00 / 301.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Road data, segment # 8: HWY East (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod  
Medium truck volume : 3542/308 veh/TimePeriod  
Heavy truck volume : 2530/220 veh/TimePeriod  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 8: HWY East (day/night)

-----  
Angle1 Angle2 : 0.00 deg 48.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 322.00 / 322.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 0.00 deg Angle2 : 48.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 320.00 / 320.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Results segment # 1: Gladstone 1 (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 !          1.50 !          1.50 !          71.50
```

ROAD (0.00 + 35.88 + 0.00) = 35.88 dBA

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq  
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----  
   -47     0    0.00  67.51   0.00  -5.80  -5.83   0.00   0.00 -20.00  35.88
```

Segment Leq : 35.88 dBA

↑

Results segment # 2: Gladstone 2 (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 !          1.50 !          1.50 !          71.50
```

ROAD (0.00 + 30.30 + 0.00) = 30.30 dBA

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq  
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----  
   -60   -47    0.00  67.51   0.00  -5.80 -11.41   0.00   0.00 -20.00  30.30
```

Segment Leq : 30.30 dBA

↑

Results segment # 3: O'Connor 1 (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 !          1.50 !          1.50 !          71.50
```

ROAD (0.00 + 38.27 + 0.00) = 38.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
48	80	0.00	68.48	0.00	-2.71	-7.50	0.00	0.00	-20.00	38.27

Segment Leq : 38.27 dBA

↑  
Results segment # 4: O'Connor 2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 39.54 + 0.00) = 39.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	48	0.15	68.48	0.00	-3.12	-5.82	0.00	0.00	-20.00	39.54

Segment Leq : 39.54 dBA

↑  
Results segment # 5: O'Connor 3 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 39.54 + 0.00) = 39.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-48	0	0.15	68.48	0.00	-3.12	-5.82	0.00	0.00	-20.00	39.54

Segment Leq : 39.54 dBA

↑  
Results segment # 6: O'Connor 4 (day)

-----  
Source height = 1.50 m

ROAD (0.00 + 54.02 + 0.00) = 54.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	-48	0.66	68.48	0.00	-4.50	-9.96	0.00	0.00	0.00	54.02

-----

Segment Leq : 54.02 dBA

↑  
Results segment # 7: HWY West (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.48	73.48

ROAD (0.00 + 38.44 + 0.00) = 38.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	51	0.66	80.15	0.00	-21.67	-5.87	0.00	-14.17	0.00	38.44
0	51	0.63	80.15	0.00	-21.28	-5.86	0.00	0.00	0.00	53.01*
0	51	0.66	80.15	0.00	-21.67	-5.87	0.00	0.00	0.00	52.60

-----

\* Bright Zone !

Segment Leq : 38.44 dBA

↑  
Results segment # 8: HWY East (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.48	73.48



```

-----+-----+-----+-----
          1.50 !           1.50 !           1.48 !           73.48

```

ROAD (0.00 + 37.82 + 0.00) = 37.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	48	0.66	80.15	0.00	-22.11	-6.09	0.00	-14.13	0.00	37.82
0	48	0.63	80.15	0.00	-21.71	-6.07	0.00	0.00	0.00	52.36*
0	48	0.66	80.15	0.00	-22.11	-6.09	0.00	0.00	0.00	51.95

\* Bright Zone !

Segment Leq : 37.82 dBA

Total Leq All Segments: 54.70 dBA

↑  
Results segment # 1: Gladstone 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	1.50 !	1.50 !	71.50

ROAD (0.00 + 28.28 + 0.00) = 28.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.00	59.91	0.00	-5.80	-5.83	0.00	0.00	-20.00	28.28

Segment Leq : 28.28 dBA

↑  
Results segment # 2: Gladstone 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	1.50 !	1.50 !	71.50

ROAD (0.00 + 22.70 + 0.00) = 22.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	-47	0.00	59.91	0.00	-5.80	-11.41	0.00	0.00	-20.00	22.70

Segment Leq : 22.70 dBA

↑  
Results segment # 3: O'Connor 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 29.70 + 0.00) = 29.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
48	80	0.00	59.91	0.00	-2.71	-7.50	0.00	0.00	-20.00	29.70

Segment Leq : 29.70 dBA

↑  
Results segment # 4: O'Connor 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 31.94 + 0.00) = 31.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	48	0.66	60.88	0.00	-4.50	-6.09	0.00	-9.90	0.00	40.39
0	48	0.15	60.88	0.00	-3.12	-5.82	0.00	0.00	-20.00	31.94

Segment Leq : 31.94 dBA

↑  
Results segment # 5: O'Connor 3 (night)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 31.94 + 0.00) = 31.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-48	0	0.15	60.88	0.00	-3.12	-5.82	0.00	0.00	-20.00	31.94

Segment Leq : 31.94 dBA

↑  
Results segment # 6: O'Connor 4 (night)  
-----

Source height = 1.50 m

ROAD (0.00 + 46.42 + 0.00) = 46.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	-48	0.66	60.88	0.00	-4.50	-9.96	0.00	0.00	0.00	46.42

Segment Leq : 46.42 dBA

↑  
Results segment # 7: HWY West (night)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.48	73.48

ROAD (0.00 + 30.84 + 0.00) = 30.84 dBA

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

0	51	0.66	72.55	0.00	-21.67	-5.87	0.00	-14.17	0.00	30.84
0	51	0.63	72.55	0.00	-21.28	-5.86	0.00	0.00	0.00	45.41*
0	51	0.66	72.55	0.00	-21.67	-5.87	0.00	0.00	0.00	45.01

\* Bright Zone !

Segment Leq : 30.84 dBA

↑

Results segment # 8: HWY East (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	1.50 !	1.48 !	73.48

ROAD (0.00 + 30.22 + 0.00) = 30.22 dBA

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

0	48	0.66	72.55	0.00	-22.11	-6.09	0.00	-14.13	0.00	30.22
0	48	0.63	72.55	0.00	-21.71	-6.07	0.00	0.00	0.00	44.77*
0	48	0.66	72.55	0.00	-22.11	-6.09	0.00	0.00	0.00	44.35

\* Bright Zone !

Segment Leq : 30.22 dBA

Total Leq All Segments: 47.08 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.70  
(NIGHT): 47.08

↑

↑

Filename: REC15.te                            Time Period: Day/Night 16/8 hours  
Description: REC 1-5

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : -47.00 deg    0.00 deg  
Wood depth                : 0            (No woods.)  
No of house rows         : 0 / 0  
Surface                    : 1            (Absorptive ground surface)  
Receiver source distance : 57.00 / 57.00 m  
Receiver height            : 16.50 / 16.50 m  
Topography                : 2            (Flat/gentle slope; with barrier)  
Barrier angle1            : -47.00 deg    Angle2 : 0.00 deg  
Barrier height             : 24.00 m  
Barrier receiver distance : 48.00 / 48.00 m  
Source elevation          : 70.00 m  
Receiver elevation        : 70.00 m  
Barrier elevation         : 70.00 m  
Reference angle            : 0.00

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod  
Medium truck volume : 773/67    veh/TimePeriod  
Heavy truck volume : 552/48    veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Gladstone 2 (day/night)

-----  
Angle1 Angle2 : -60.00 deg -47.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 57.00 / 57.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 3: O'Connor 1 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: O'Connor 1 (day/night)

-----  
Angle1 Angle2 : 48.00 deg 80.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 48.00 deg Angle2 : 80.00 deg  
Barrier height : 24.00 m  
Barrier receiver distance : 18.00 / 18.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 4: O'Connor 2 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 4: O'Connor 2 (day/night)

-----  
Angle1 Angle2 : -80.00 deg 48.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 28.00 / 28.00 m  
Receiver height : 16.50 / 16.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 5: HWY West (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
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 # 5: HWY West (day/night)

-----

Angle1 Angle2 : 0.00 deg 51.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 7 / 7  
 House density : 80 %  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 303.00 / 303.00 m  
 Receiver height : 16.50 / 16.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 0.00 deg Angle2 : 51.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 301.00 / 301.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑

Road data, segment # 6: HWY East (day/night)

-----  
 Car traffic volume : 44527/3872 veh/TimePeriod  
 Medium truck volume : 3542/308 veh/TimePeriod  
 Heavy truck volume : 2530/220 veh/TimePeriod  
 Posted speed limit : 100 km/h  
 Road gradient : 0 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 6: HWY East (day/night)

-----  
 Angle1 Angle2 : 0.00 deg 48.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 7 / 7  
 House density : 80 %  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 322.00 / 322.00 m  
 Receiver height : 16.50 / 16.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 0.00 deg Angle2 : 48.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 320.00 / 320.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑

Results segment # 1: Gladstone 1 (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 !      16.50 !      3.86 !      73.86
```

ROAD (0.00 + 35.88 + 0.00) = 35.88 dBA

```
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----  
   -47     0   0.00  67.51   0.00  -5.80  -5.83   0.00   0.00  -20.00  35.88
```

Segment Leq : 35.88 dBA

↑

Results segment # 2: Gladstone 2 (day)

Source height = 1.50 m

ROAD (0.00 + 48.60 + 0.00) = 48.60 dBA

```
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----  
   -60   -47   0.21  67.51   0.00  -7.02 -11.89   0.00   0.00   0.00  48.60
```

Segment Leq : 48.60 dBA

↑

Results segment # 3: O'Connor 1 (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 !      16.50 !      6.85 !      76.85
```

ROAD (0.00 + 38.27 + 0.00) = 38.27 dBA

```
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----  
    48    80   0.00  68.48   0.00  -2.71  -7.50   0.00   0.00  -20.00  38.27
```

Segment Leq : 38.27 dBA

↑  
Results segment # 4: O'Connor 2 (day)

-----  
Source height = 1.50 m

ROAD (0.00 + 63.44 + 0.00) = 63.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	48	0.21	68.48	0.00	-3.28	-1.76	0.00	0.00	0.00	63.44

-----

Segment Leq : 63.44 dBA

↑  
Results segment # 5: HWY West (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	16.50	1.58	73.58

ROAD (0.00 + 44.57 + 0.00) = 44.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	51	0.21	80.15	0.00	-15.80	-5.61	0.00	-14.17	0.00	44.57
0	51	0.18	80.15	0.00	-15.40	-5.59	0.00	0.00	0.00	59.15*
0	51	0.21	80.15	0.00	-15.80	-5.61	0.00	0.00	0.00	58.74

-----

\* Bright Zone !

Segment Leq : 44.57 dBA

↑  
Results segment # 6: HWY East (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	16.50	1.58	73.58

1.50 !          16.50 !          1.58 !          73.58

ROAD (0.00 + 44.05 + 0.00) = 44.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	48	0.21	80.15	0.00	-16.12	-5.85	0.00	-14.13	0.00	44.05
0	48	0.18	80.15	0.00	-15.72	-5.84	0.00	0.00	0.00	58.59*
0	48	0.21	80.15	0.00	-16.12	-5.85	0.00	0.00	0.00	58.18

\* Bright Zone !

Segment Leq : 44.05 dBA

Total Leq All Segments: 63.70 dBA

↑

Results segment # 1: Gladstone 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	16.50 !	3.86 !	73.86

ROAD (0.00 + 28.28 + 0.00) = 28.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.00	59.91	0.00	-5.80	-5.83	0.00	0.00	-20.00	28.28

Segment Leq : 28.28 dBA

↑

Results segment # 2: Gladstone 2 (night)

Source height = 1.50 m

ROAD (0.00 + 41.00 + 0.00) = 41.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	-47	0.21	59.91	0.00	-7.02	-11.89	0.00	0.00	0.00	41.00

Segment Leq : 41.00 dBA

↑  
Results segment # 3: O'Connor 1 (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 ! 16.50 ! 6.85 ! 76.85

ROAD (0.00 + 30.67 + 0.00) = 30.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
48	80	0.00	60.88	0.00	-2.71	-7.50	0.00	0.00	-20.00	30.67

-----

Segment Leq : 30.67 dBA

↑  
Results segment # 4: O'Connor 2 (night)

-----  
Source height = 1.50 m

ROAD (0.00 + 55.84 + 0.00) = 55.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	48	0.21	60.88	0.00	-3.28	-1.76	0.00	0.00	0.00	55.84

-----

Segment Leq : 55.84 dBA

↑  
Results segment # 5: HWY West (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 ! 16.50 ! 1.58 ! 73.58

ROAD (0.00 + 36.98 + 0.00) = 36.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	51	0.21	72.55	0.00	-15.80	-5.61	0.00	-14.17	0.00	36.98
0	51	0.18	72.55	0.00	-15.40	-5.59	0.00	0.00	0.00	51.56*
0	51	0.21	72.55	0.00	-15.80	-5.61	0.00	0.00	0.00	51.15

\* Bright Zone !

Segment Leq : 36.98 dBA

↑

Results segment # 6: HWY East (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	16.50 !	1.58 !	73.58

ROAD (0.00 + 36.45 + 0.00) = 36.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	48	0.21	72.55	0.00	-16.12	-5.85	0.00	-14.13	0.00	36.45
0	48	0.18	72.55	0.00	-15.72	-5.84	0.00	0.00	0.00	51.00*
0	48	0.21	72.55	0.00	-16.12	-5.85	0.00	0.00	0.00	50.58

\* Bright Zone !

Segment Leq : 36.45 dBA

Total Leq All Segments: 56.10 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 63.70  
(NIGHT): 56.10

↑

↑

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

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : 50.00 deg    72.00 deg  
Wood depth : 0            (No woods.)  
No of house rows : 0 / 0  
Surface : 1            (Absorptive ground surface)  
Receiver source distance : 44.00 / 44.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2            (Flat/gentle slope; with barrier)  
Barrier angle1 : 50.00 deg    Angle2 : 72.00 deg  
Barrier height : 9.00 m  
Barrier receiver distance : 25.00 / 25.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Gladstone 2 (day/night)

-----  
Angle1 Angle2 : -71.00 deg 50.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 44.00 / 44.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -71.00 deg Angle2 : 50.00 deg  
Barrier height : 24.00 m  
Barrier receiver distance : 33.00 / 33.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 3: O'Connor 1 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: O'Connor 1 (day/night)

-----  
Angle1 Angle2 : 23.00 deg 70.00 deg

Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 46.00 / 46.00 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 23.00 deg Angle2 : 70.00 deg  
 Barrier height : 24.00 m  
 Barrier receiver distance : 34.00 / 34.00 m  
 Source elevation : 70.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 70.00 m  
 Reference angle : 0.00

↑

Road data, segment # 4: O'Connor 2 (day/night)

-----  
 Car traffic volume : 12144/1056 veh/TimePeriod \*  
 Medium truck volume : 966/84 veh/TimePeriod \*  
 Heavy truck volume : 690/60 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 0 %  
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
 Percentage of Annual Growth : 0.00  
 Number of Years of Growth : 0.00  
 Medium Truck % of Total Volume : 7.00  
 Heavy Truck % of Total Volume : 5.00  
 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 4: O'Connor 2 (day/night)

-----  
 Angle1 Angle2 : 0.00 deg 23.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 46.00 / 46.00 m  
 Receiver height : 1.50 / 1.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 0.00 deg Angle2 : 23.00 deg  
 Barrier height : 8.50 m  
 Barrier receiver distance : 34.00 / 34.00 m  
 Source elevation : 70.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 70.00 m  
 Reference angle : 0.00



↑  
Results segment # 1: Gladstone 1 (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 !        1.50 !        1.50 !        71.50

ROAD (0.00 + 34.45 + 0.00) = 34.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	72	0.12	67.51	0.00	-5.24	-9.52	0.00	0.00	-18.30	34.45

-----

Segment Leq : 34.45 dBA

↑  
Results segment # 2: Gladstone 2 (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 !        1.50 !        1.50 !        71.50

ROAD (0.00 + 41.11 + 0.00) = 41.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-71	50	0.00	67.51	0.00	-4.67	-1.72	0.00	0.00	-20.00	41.11

-----

Segment Leq : 41.11 dBA

↑  
Results segment # 3: O'Connor 1 (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 37.78 + 0.00) = 37.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
23	70	0.00	68.48	0.00	-4.87	-5.83	0.00	0.00	-20.00	37.78

Segment Leq : 37.78 dBA

↑  
Results segment # 4: O'Connor 2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 33.93 + 0.00) = 33.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	23	0.15	68.48	0.00	-5.60	-8.95	0.00	0.00	-20.00	33.93

Segment Leq : 33.93 dBA

Total Leq All Segments: 43.83 dBA

↑  
Results segment # 1: Gladstone 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 26.86 + 0.00) = 26.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	72	0.12	59.91	0.00	-5.24	-9.52	0.00	0.00	-18.30	26.86

Segment Leq : 26.86 dBA

↑  
Results segment # 2: Gladstone 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 33.51 + 0.00) = 33.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-71	50	0.00	59.91	0.00	-4.67	-1.72	0.00	0.00	-20.00	33.51

Segment Leq : 33.51 dBA

↑  
Results segment # 3: O'Connor 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 30.18 + 0.00) = 30.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
23	70	0.00	60.88	0.00	-4.87	-5.83	0.00	0.00	-20.00	30.18

Segment Leq : 30.18 dBA

↑

Results segment # 4: O'Connor 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	71.50

ROAD (0.00 + 26.33 + 0.00) = 26.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	23	0.15	60.88	0.00	-5.60	-8.95	0.00	0.00	-20.00	26.33

Segment Leq : 26.33 dBA

Total Leq All Segments: 36.23 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 43.83  
(NIGHT): 36.23

↑

↑

Filename: REC25.te                            Time Period: Day/Night 16/8 hours  
Description: REC 2-3

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : 50.00 deg    72.00 deg  
Wood depth                : 0            (No woods.)  
No of house rows         : 0 / 0  
Surface                    : 1            (Absorptive ground surface)  
Receiver source distance : 44.00 / 44.00 m  
Receiver height            : 7.50 / 7.50 m  
Topography                : 2            (Flat/gentle slope; with barrier)  
Barrier angle1            : 50.00 deg    Angle2 : 72.00 deg  
Barrier height             : 9.00 m  
Barrier receiver distance : 21.00 / 21.00 m  
Source elevation          : 70.00 m  
Receiver elevation        : 70.00 m  
Barrier elevation         : 70.00 m  
Reference angle            : 0.00

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Gladstone 2 (day/night)

-----  
Angle1 Angle2 : -71.00 deg 50.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 44.00 / 44.00 m  
Receiver height : 7.50 / 7.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -71.00 deg Angle2 : 50.00 deg  
Barrier height : 24.00 m  
Barrier receiver distance : 33.00 / 33.00 m  
Source elevation : 70.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 70.00 m  
Reference angle : 0.00

↑

Road data, segment # 3: O'Connor 1 (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: O'Connor 1 (day/night)

-----  
Angle1 Angle2 : 23.00 deg 70.00 deg

Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 46.00 / 46.00 m  
 Receiver height : 7.50 / 7.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 23.00 deg Angle2 : 70.00 deg  
 Barrier height : 24.00 m  
 Barrier receiver distance : 34.00 / 34.00 m  
 Source elevation : 70.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 70.00 m  
 Reference angle : 0.00

↑

Road data, segment # 4: O'Connor 2 (day/night)

-----  
 Car traffic volume : 12144/1056 veh/TimePeriod \*  
 Medium truck volume : 966/84 veh/TimePeriod \*  
 Heavy truck volume : 690/60 veh/TimePeriod \*  
 Posted speed limit : 50 km/h  
 Road gradient : 0 %  
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
 Percentage of Annual Growth : 0.00  
 Number of Years of Growth : 0.00  
 Medium Truck % of Total Volume : 7.00  
 Heavy Truck % of Total Volume : 5.00  
 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 4: O'Connor 2 (day/night)

-----  
 Angle1 Angle2 : 0.00 deg 23.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 46.00 / 46.00 m  
 Receiver height : 7.50 / 7.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : 0.00 deg Angle2 : 23.00 deg  
 Barrier height : 8.50 m  
 Barrier receiver distance : 33.00 / 33.00 m  
 Source elevation : 70.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 70.00 m  
 Reference angle : 0.00

↑  
Results segment # 1: Gladstone 1 (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 !         7.50 !         4.63 !         74.63

ROAD (0.00 + 40.10 + 0.00) = 40.10 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
      50     72    0.00 67.51   0.00 -4.67 -9.13   0.00   0.00 -13.61 40.10  
-----

Segment Leq : 40.10 dBA

↑  
Results segment # 2: Gladstone 2 (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 !         7.50 !         3.00 !         73.00

ROAD (0.00 + 41.11 + 0.00) = 41.11 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
      -71     50    0.00 67.51   0.00 -4.67 -1.72   0.00   0.00 -20.00 41.11  
-----

Segment Leq : 41.11 dBA

↑  
Results segment # 3: O'Connor 1 (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

-----



Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	3.06	73.06

ROAD (0.00 + 37.78 + 0.00) = 37.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
23	70	0.00	68.48	0.00	-4.87	-5.83	0.00	0.00	-20.00	37.78

Segment Leq : 37.78 dBA

↑  
Results segment # 4: O'Connor 2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	3.19	73.19

ROAD (0.00 + 35.73 + 0.00) = 35.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	23	0.00	68.48	0.00	-4.87	-8.94	0.00	0.00	-18.95	35.73

Segment Leq : 35.73 dBA

Total Leq All Segments: 45.17 dBA

↑  
Results segment # 1: Gladstone 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	4.63	74.63

ROAD (0.00 + 32.50 + 0.00) = 32.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
50	72	0.00	59.91	0.00	-4.67	-9.13	0.00	0.00	-13.61	32.50

Segment Leq : 32.50 dBA

↑  
Results segment # 2: Gladstone 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	3.00	73.00

ROAD (0.00 + 33.51 + 0.00) = 33.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-71	50	0.00	59.91	0.00	-4.67	-1.72	0.00	0.00	-20.00	33.51

Segment Leq : 33.51 dBA

↑  
Results segment # 3: O'Connor 1 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	3.06	73.06

ROAD (0.00 + 30.18 + 0.00) = 30.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
23	70	0.00	60.88	0.00	-4.87	-5.83	0.00	0.00	-20.00	30.18

Segment Leq : 30.18 dBA

↑

Results segment # 4: O'Connor 2 (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	7.50	3.19	73.19

ROAD (0.00 + 28.14 + 0.00) = 28.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	23	0.00	60.88	0.00	-4.87	-8.94	0.00	0.00	-18.95	28.14

Segment Leq : 28.14 dBA

Total Leq All Segments: 37.57 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 45.17  
(NIGHT): 37.57

↑

↑

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

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : 0.00 deg    47.00 deg  
Wood depth                : 0            (No woods.)  
No of house rows         : 0 / 0  
Surface                    : 1            (Absorptive ground surface)  
Receiver source distance : 58.00 / 58.00 m  
Receiver height            : 1.50 / 1.50 m  
Topography                : 2            (Flat/gentle slope; with barrier)  
Barrier angle1            : 0.00 deg    Angle2 : 47.00 deg  
Barrier height             : 9.00 m  
Barrier receiver distance : 40.00 / 40.00 m  
Source elevation          : 70.00 m  
Receiver elevation        : 70.00 m  
Barrier elevation         : 70.00 m  
Reference angle            : 0.00

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod    \*  
Medium truck volume : 773/67    veh/TimePeriod    \*  
Heavy truck volume : 552/48    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Gladstone 2 (day/night)

-----  
Angle1 Angle2 : 47.00 deg 63.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 1 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 58.00 / 58.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 3: Hwy417 West (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: Hwy417 West (day/night)

-----  
Angle1 Angle2 : -52.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 301.00 / 301.00 m  
Receiver height : 1.50 / 1.50 m

Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -52.00 deg Angle2 : 0.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 299.00 / 299.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Road data, segment # 4: Hwy417 East (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
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 # 4: Hwy417 East (day/night)

-----  
Angle1 Angle2 : -49.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 315.00 / 315.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -49.00 deg Angle2 : 0.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 313.00 / 313.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Results segment # 1: Gladstone 1 (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 !         1.50 !         1.50 !         71.50
```

ROAD (0.00 + 35.09 + 0.00) = 35.09 dBA

```
-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
          0    47   0.12 67.51  0.00 -6.58 -5.89  0.00  0.00 -19.94 35.09
-----
```

Segment Leq : 35.09 dBA

↑

Results segment # 2: Gladstone 2 (day)

Source height = 1.50 m

ROAD (0.00 + 44.74 + 0.00) = 44.74 dBA

```
-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
          47   63   0.66 67.51  0.00 -9.75 -12.12  0.00 -0.90  0.00 44.74
-----
```

Segment Leq : 44.74 dBA

↑

Results segment # 3: Hwy417 West (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 !         1.50 !         1.48 !         73.48
```

ROAD (0.00 + 38.55 + 0.00) = 38.55 dBA

```
-----
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
 -52    0    0.66 80.15  0.00 -21.62 -5.81  0.00 -14.17  0.00 38.55
 -52    0    0.63 80.15  0.00 -21.23 -5.79  0.00  0.00  0.00 53.13*
 -52    0    0.66 80.15  0.00 -21.62 -5.81  0.00  0.00  0.00 52.72
-----
```

-----  
\* Bright Zone !

Segment Leq : 38.55 dBA

↑  
Results segment # 4: Hwy417 East (day)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.50 !	1.50 !	1.48 !	73.48

ROAD (0.00 + 38.04 + 0.00) = 38.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	0	0.66	80.15	0.00	-21.95	-6.02	0.00	-14.14	0.00	38.04
-49	0	0.63	80.15	0.00	-21.55	-6.00	0.00	0.00	0.00	52.59*
-49	0	0.66	80.15	0.00	-21.95	-6.02	0.00	0.00	0.00	52.18

-----

\* Bright Zone !

Segment Leq : 38.04 dBA

Total Leq All Segments: 46.68 dBA

↑  
Results segment # 1: Gladstone 1 (night)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	! Receiver ! Height (m)	! Barrier ! Height (m)	! Elevation of ! Barrier Top (m)
1.50 !	1.50 !	1.50 !	71.50

ROAD (0.00 + 27.49 + 0.00) = 27.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	47	0.12	59.91	0.00	-6.58	-5.89	0.00	0.00	-19.94	27.49



-----  
Segment Leq : 27.49 dBA

↑  
Results segment # 2: Gladstone 2 (night)  
-----

Source height = 1.50 m

ROAD (0.00 + 38.04 + 0.00) = 38.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	63	0.66	59.91	0.00	-9.75	-12.12	0.00	0.00	0.00	38.04

-----

Segment Leq : 38.04 dBA

↑  
Results segment # 3: Hwy417 West (night)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.48	73.48

ROAD (0.00 + 30.95 + 0.00) = 30.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	0	0.66	72.55	0.00	-21.62	-5.81	0.00	-14.17	0.00	30.95
-52	0	0.63	72.55	0.00	-21.23	-5.79	0.00	0.00	0.00	45.53*
-52	0	0.66	72.55	0.00	-21.62	-5.81	0.00	0.00	0.00	45.12

-----

\* Bright Zone !

Segment Leq : 30.95 dBA

↑  
Results segment # 4: Hwy417 East (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 !          1.50 !          1.48 !          73.48

```

ROAD (0.00 + 30.44 + 0.00) = 30.44 dBA

```

Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  -49    0    0.66  72.55    0.00 -21.95  -6.02   0.00 -14.14  0.00  30.44
  -49    0    0.63  72.55    0.00 -21.55  -6.00   0.00  0.00  0.00  45.00*
  -49    0    0.66  72.55    0.00 -21.95  -6.02   0.00  0.00  0.00  44.59
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----

```

\* Bright Zone !

Segment Leq : 30.44 dBA

Total Leq All Segments: 39.68 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 46.68  
(NIGHT): 39.68

↑

↑

Filename: REC35.te                            Time Period: Day/Night 16/8 hours  
Description: REC 3-5

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

-----  
Car traffic volume : 9715/845    veh/TimePeriod \*  
Medium truck volume : 773/67    veh/TimePeriod \*  
Heavy truck volume : 552/48    veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000  
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: Gladstone 1 (day/night)

-----  
Angle1    Angle2            : 0.00 deg    63.00 deg  
Wood depth : 0            (No woods.)  
No of house rows : 0 / 0  
Surface : 1            (Absorptive ground surface)  
Receiver source distance : 58.00 / 58.00 m  
Receiver height : 16.50 / 1.50 m  
Topography : 1            (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 2: HWY417 West (day/night)

-----  
Car traffic volume : 44527/3872    veh/TimePeriod  
Medium truck volume : 3542/308    veh/TimePeriod  
Heavy truck volume : 2530/220    veh/TimePeriod  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: HWY417 West (day/night)

-----  
Angle1    Angle2            : -52.00 deg    0.00 deg  
Wood depth : 0            (No woods.)

No of house rows : 7 / 7  
 House density : 80 %  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 301.00 / 301.00 m  
 Receiver height : 16.50 / 16.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : -52.00 deg Angle2 : 0.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 299.00 / 299.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑

Road data, segment # 3: HWY417 East (day/night)

-----  
 Car traffic volume : 44527/3872 veh/TimePeriod \*  
 Medium truck volume : 3542/308 veh/TimePeriod \*  
 Heavy truck volume : 2530/220 veh/TimePeriod \*  
 Posted speed limit : 100 km/h  
 Road gradient : 0 %  
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
 Percentage of Annual Growth : 0.00  
 Number of Years of Growth : 0.00  
 Medium Truck % of Total Volume : 7.00  
 Heavy Truck % of Total Volume : 5.00  
 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: HWY417 East (day/night)

-----  
 Angle1 Angle2 : -49.00 deg 0.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 7 / 7  
 House density : 80 %  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 315.00 / 315.00 m  
 Receiver height : 16.50 / 1635.00 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : -49.00 deg Angle2 : 0.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 313.00 / 313.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑  
Results segment # 1: Gladstone 1 (day)

-----  
Source height = 1.50 m

ROAD (0.00 + 55.64 + 0.00) = 55.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	63	0.21	67.51	0.00	-7.11	-4.77	0.00	0.00	0.00	55.64

-----

Segment Leq : 55.64 dBA

↑  
Results segment # 2: HWY417 West (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	16.50	1.58	73.58

ROAD (0.00 + 44.68 + 0.00) = 44.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	0	0.21	80.15	0.00	-15.76	-5.53	0.00	-14.17	0.00	44.68
-52	0	0.18	80.15	0.00	-15.37	-5.51	0.00	0.00	0.00	59.27*
-52	0	0.21	80.15	0.00	-15.76	-5.53	0.00	0.00	0.00	58.86

-----

\* Bright Zone !

Segment Leq : 44.68 dBA

↑  
Results segment # 3: HWY417 East (day)

-----  
Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	16.50	1.58	73.58

-----+-----+-----+-----  
 1.50 !            16.50 !            1.58 !            73.58

ROAD (0.00 + 44.23 + 0.00) = 44.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	0	0.21	80.15	0.00	-16.00	-5.77	0.00	-14.14	0.00	44.23
-49	0	0.18	80.15	0.00	-15.60	-5.75	0.00	0.00	0.00	58.79*
-49	0	0.21	80.15	0.00	-16.00	-5.77	0.00	0.00	0.00	58.38

\* Bright Zone !

Segment Leq : 44.23 dBA

Total Leq All Segments: 56.26 dBA

↑  
 Results segment # 1: Gladstone 1 (night)

Source height = 1.50 m

ROAD (0.00 + 44.98 + 0.00) = 44.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	63	0.66	59.91	0.00	-9.75	-5.18	0.00	0.00	0.00	44.98

Segment Leq : 44.98 dBA

↑  
 Results segment # 2: HWY417 West (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	16.50 !	1.58 !	73.58

ROAD (0.00 + 37.09 + 0.00) = 37.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-52	0	0.21	72.55	0.00	-15.76	-5.53	0.00	-14.17	0.00	37.09
-52	0	0.18	72.55	0.00	-15.37	-5.51	0.00	0.00	0.00	51.67*
-52	0	0.21	72.55	0.00	-15.76	-5.53	0.00	0.00	0.00	51.26

-----  
\* Bright Zone !

Segment Leq : 37.09 dBA

↑

Results segment # 3: HWY417 East (night)  
-----

Source height = 1.50 m

Barrier height for grazing incidence  
-----

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
1.50 !	1635.00 !	11.85 !	83.85

ROAD (0.00 + 39.53 + 0.00) = 39.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	0	0.00	72.55	0.00	-13.22	-5.65	0.00	-14.14	0.00	39.53
-49	0	0.00	72.55	0.00	-13.22	-5.65	0.00	0.00	0.00	53.68*
-49	0	0.00	72.55	0.00	-13.22	-5.65	0.00	0.00	0.00	53.68

-----

\* Bright Zone !

Segment Leq : 39.53 dBA

Total Leq All Segments: 46.59 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 56.26  
(NIGHT): 46.59

↑

↑

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

Road data, segment # 1: O'Connor St (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: O'Connor St (day/night)

-----  
Angle1 Angle2 : -58.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 51.00 / 51.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 2: Hwy417 West (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
Percentage of Annual Growth : 0.00



Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Hwy417 West (day/night)

-----  
Angle1 Angle2 : -53.00 deg 53.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 297.00 / 297.00 m  
Receiver height : 1.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -53.00 deg Angle2 : 53.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 295.00 / 295.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Road data, segment # 3: Hwy417 East (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: Hwy417 East (day/night)

-----  
Angle1 Angle2 : -50.00 deg 50.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 313.00 / 313.00 m

Receiver height : 1.50 / 1.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : -50.00 deg Angle2 : 50.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 311.00 / 311.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑

Results segment # 1: O'Connor St (day)

-----

Source height = 1.50 m

ROAD (0.00 + 54.22 + 0.00) = 54.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.66	68.48	0.00	-8.82	-5.44	0.00	0.00	0.00	54.22

Segment Leq : 54.22 dBA

↑

Results segment # 2: Hwy417 West (day)

-----

Source height = 1.50 m

Barrier height for grazing incidence

-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	1.50 !	1.48 !	73.48

ROAD (0.00 + 41.71 + 0.00) = 41.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	53	0.66	80.15	0.00	-21.52	-2.73	0.00	-14.18	0.00	41.71
-53	53	0.63	80.15	0.00	-21.14	-2.71	0.00	0.00	0.00	56.30*
-53	53	0.66	80.15	0.00	-21.52	-2.73	0.00	0.00	0.00	55.89

\* Bright Zone !

Segment Leq : 41.71 dBA

↑

Results segment # 3: Hwy417 East (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.48	73.48

ROAD (0.00 + 41.16 + 0.00) = 41.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	50	0.66	80.15	0.00	-21.90	-2.93	0.00	-14.15	0.00	41.16
-50	50	0.63	80.15	0.00	-21.51	-2.92	0.00	0.00	0.00	55.72*
-50	50	0.66	80.15	0.00	-21.90	-2.93	0.00	0.00	0.00	55.31

\* Bright Zone !

Segment Leq : 41.16 dBA

Total Leq All Segments: 54.66 dBA

↑

Results segment # 1: O'Connor St (night)

Source height = 1.50 m

ROAD (0.00 + 46.62 + 0.00) = 46.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.66	60.88	0.00	-8.82	-5.44	0.00	0.00	0.00	46.62

Segment Leq : 46.62 dBA

↑

Results segment # 2: Hwy417 West (night)

Source height = 1.50 m

Barrier height for grazing incidence

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

-----+-----+-----+-----  
 1.50 !            1.50 !            1.48 !            73.48

ROAD (0.00 + 34.11 + 0.00) = 34.11 dBA

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

-----+-----+-----+-----  
 -53      53      0.66   72.55   0.00 -21.52 -2.73   0.00 -14.18   0.00   34.11  
 -53      53      0.63   72.55   0.00 -21.14 -2.71   0.00   0.00   0.00   48.70\*  
 -53      53      0.66   72.55   0.00 -21.52 -2.73   0.00   0.00   0.00   48.30  
 -----+-----+-----+-----

\* Bright Zone !

Segment Leq : 34.11 dBA

↑  
 Results segment # 3: Hwy417 East (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 !            1.50 !            1.48 !            73.48

ROAD (0.00 + 33.57 + 0.00) = 33.57 dBA

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

-----+-----+-----+-----  
 -50      50      0.66   72.55   0.00 -21.90 -2.93   0.00 -14.15   0.00   33.57  
 -50      50      0.63   72.55   0.00 -21.51 -2.92   0.00   0.00   0.00   48.12\*  
 -50      50      0.66   72.55   0.00 -21.90 -2.93   0.00   0.00   0.00   47.71  
 -----+-----+-----+-----

\* Bright Zone !

Segment Leq : 33.57 dBA

Total Leq All Segments: 47.06 dBA

↑  
 TOTAL Leq FROM ALL SOURCES (DAY): 54.66  
 (NIGHT): 47.06

↑  
 ↑

Filename: REC45.te                            Time Period: Day/Night 16/8 hours  
Description: REC 4-5

Road data, segment # 1: O'Connor St (day/night)

-----  
Car traffic volume : 12144/1056 veh/TimePeriod \*  
Medium truck volume : 966/84 veh/TimePeriod \*  
Heavy truck volume : 690/60 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 15000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: O'Connor St (day/night)

-----  
Angle1 Angle2 : -58.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 51.00 / 51.00 m  
Receiver height : 16.50 / 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

↑

Road data, segment # 2: Hwy417 West (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Hwy417 West (day/night)

-----  
Angle1 Angle2 : -53.00 deg 53.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 297.00 / 297.00 m  
Receiver height : 16.50 / 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -53.00 deg Angle2 : 53.00 deg  
Barrier height : 0.50 m  
Barrier receiver distance : 295.00 / 295.00 m  
Source elevation : 72.00 m  
Receiver elevation : 70.00 m  
Barrier elevation : 72.00 m  
Reference angle : 0.00

↑

Road data, segment # 3: Hwy417 East (day/night)

-----  
Car traffic volume : 44527/3872 veh/TimePeriod \*  
Medium truck volume : 3542/308 veh/TimePeriod \*  
Heavy truck volume : 2530/220 veh/TimePeriod \*  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 7.00  
Heavy Truck % of Total Volume : 5.00  
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: Hwy417 East (day/night)

-----  
Angle1 Angle2 : -50.00 deg 50.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 7 / 7  
House density : 80 %  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 313.00 / 313.00 m

Receiver height : 16.50 / 1.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : -50.00 deg Angle2 : 50.00 deg  
 Barrier height : 0.50 m  
 Barrier receiver distance : 311.00 / 311.00 m  
 Source elevation : 72.00 m  
 Receiver elevation : 70.00 m  
 Barrier elevation : 72.00 m  
 Reference angle : 0.00

↑

Results segment # 1: O'Connor St (day)

-----

Source height = 1.50 m

ROAD (0.00 + 56.96 + 0.00) = 56.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.21	68.48	0.00	-6.43	-5.09	0.00	0.00	0.00	56.96

Segment Leq : 56.96 dBA

↑

Results segment # 2: Hwy417 West (day)

-----

Source height = 1.50 m

Barrier height for grazing incidence

-----

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	16.50 !	1.58 !	73.58

ROAD (0.00 + 47.83 + 0.00) = 47.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	53	0.21	80.15	0.00	-15.69	-2.44	0.00	-14.18	0.00	47.83
-53	53	0.18	80.15	0.00	-15.30	-2.42	0.00	0.00	0.00	62.42*
-53	53	0.21	80.15	0.00	-15.69	-2.44	0.00	0.00	0.00	62.01

\* Bright Zone !

Segment Leq : 47.83 dBA

↑

Results segment # 3: Hwy417 East (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	16.50	1.58	73.58

ROAD (0.00 + 47.35 + 0.00) = 47.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	50	0.21	80.15	0.00	-15.97	-2.68	0.00	-14.15	0.00	47.35
-50	50	0.18	80.15	0.00	-15.57	-2.66	0.00	0.00	0.00	61.92*
-50	50	0.21	80.15	0.00	-15.97	-2.68	0.00	0.00	0.00	61.50

\* Bright Zone !

Segment Leq : 47.35 dBA

Total Leq All Segments: 57.86 dBA

↑

Results segment # 1: O'Connor St (night)

Source height = 1.50 m

ROAD (0.00 + 46.62 + 0.00) = 46.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	0	0.66	60.88	0.00	-8.82	-5.44	0.00	0.00	0.00	46.62

Segment Leq : 46.62 dBA

↑

Results segment # 2: Hwy417 West (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
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 1.50 !            1.50 !            1.48 !            73.48

ROAD (0.00 + 34.11 + 0.00) = 34.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-53	53	0.66	72.55	0.00	-21.52	-2.73	0.00	-14.18	0.00	34.11
-53	53	0.63	72.55	0.00	-21.14	-2.71	0.00	0.00	0.00	48.70*
-53	53	0.66	72.55	0.00	-21.52	-2.73	0.00	0.00	0.00	48.30

\* Bright Zone !

Segment Leq : 34.11 dBA

↑  
 Results segment # 3: Hwy417 East (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50 !	1.50 !	1.48 !	73.48

ROAD (0.00 + 33.57 + 0.00) = 33.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	50	0.66	72.55	0.00	-21.90	-2.93	0.00	-14.15	0.00	33.57
-50	50	0.63	72.55	0.00	-21.51	-2.92	0.00	0.00	0.00	48.12*
-50	50	0.66	72.55	0.00	-21.90	-2.93	0.00	0.00	0.00	47.71

\* Bright Zone !

Segment Leq : 33.57 dBA

Total Leq All Segments: 47.06 dBA

↑  
 TOTAL Leq FROM ALL SOURCES (DAY): 57.86  
 (NIGHT): 47.06

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