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Environmental Noise Control Study

Proposed Multi-Storey Building
283-285 McLeod Street
Ottawa, Ontario

Prepared For

Zyer Developments Inc.

July 28, 2021

Report: PG5490-1 Revision 1

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Appendices

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 Background

It is understood that the proposed project will consist of a eight storey residential building with one (1) underground level and a roof top terrace on the 8th floor. The building consists of a total 36 units. The underground level will consist of parking areas, mechanical/electrical rooms, waste storage, building storage and bike storage. Associated egress paths, patio and outdoor amenity spaces are further anticipated at the ground level.

3.0 Methodology and Noise Assessment Criteria

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

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

Surface Transportation Noise

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

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

The NPC-300 outlines the limitations of the stationary and environmental noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas

Time Period	Required $L_{eq(16)}$ (dBA)
16-hour, 7:00-23:00	55

- Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail

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

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

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

Table 3 - Warning Clauses for Sound Level Exceedances	
Warning Clause	**Description**
Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type B	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type C	"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
❑ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - NPC-300	

Stationary Noise

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

This development 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 the proposed development 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.

Table 4 - Traffic and Road Parameters

Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
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

❑ Data obtained from the City of Ottawa document ENCG

Three (3) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the building elevation plans for this development.

Table 5 - Elevation of Reception Points

Floor Number	Elevation at Centre of Window (m)	Floor Use	Daytime/Nighttime Analysis
First Floor	1.5	Living Area/Bedroom	daytime/nighttime
Eighth Floor	23.0	Living Area/Bedroom	daytime/nighttime
Roof Top Patio	26.5	--	Outdoor Living Area

For this analysis, a reception point was taken at the centre of each floor, at the first floor and eighth floor. A reception point in the centre of this area, 26.5 m high was selected for the analysis of this area. 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 3E - Site Geometry in Appendix 1.

Table 7 - 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

5.1 Surface Transportation Noise

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

The proposed traffic noise levels were analyzed at all reception points. The results of the STAMSON software can be located in Appendix 2, and the summary of the results can be noted in Table 6.

Table 6 - Proposed Noise Levels

Reception Point	Description	Daytime at Facade $L_{EQ(16)}$ (dBA)	Nighttime at Facade $L_{EQ(16)}$ (dBA)	Outdoor Living Area $L_{EQ(16)}$ (dBA)
REC 1-1	Western elevation, first floor	46.02	38.42	--
REC 1-8	Western elevation, eighth floor	58.47	50.87	--
REC 2-1	Northern elevation, first floor	42.35	34.75	--
REC 2-8	Northern elevation, eighth floor	44.71	37.11	--
REC 3-1	Eastern elevation, first floor	45.50	37.91	--
REC 3-8	Eastern elevation, eighth floor	56.82	49.22	--
REC 4-1	Southern elevation, first floor	55.07	47.47	--
REC 4-8	Southern elevation, eighth floor	59.76	52.16	--
REC 5	Outdoor Living Area	--	--	54.04

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

A roof top patio was identified in the centre of the proposed building. One (1) receptor point was selected for the analysis at outdoor living area (REC 5). It is assumed that the roof top patio will only be utilized as an outdoor living area provided that the proposed building is constructed. The proposed $L_{eq(16)}$ at the roof top patio will be 54.04 dBA. The value is below the 55 dBA threshold that is specified by the MOECC and the City of Ottawa. Therefore, no mitigation measures will be required.

6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modeling indicates that the daytime $L_{eq(16)}$ ranges between 42.35 dBA and 59.76 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 Conclusion

The subject site is located at 283 to 285 McLeod Street. It is understood that the development will consist of a 8 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 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.

A review of the outdoor living area (roof top patio) was completed as well. It is assumed that the roof top patio will only be utilized as an outdoor living area provided that the proposed building is constructed. The anticipated noise level at roof top patio is below the 55 dBA threshold. Therefore, no mitigation measures will be required.

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.

Yolanda Tang, M.Sc.Eng.

Stephanie A. Boisvenue, P.Eng.

Report Distribution:

- ❑ Zyer Developments (e-mail copy)
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APPENDIX 1

TABLE 7 - SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG5490-2 - RECEPTOR LOCATION PLAN

DRAWING PG5490-3 - SITE GEOMETRY

DRAWING PG5490-3A - SITE GEOMETRY (REC 1-1 and REC 1-8)

DRAWING PG5490-3B - SITE GEOMETRY (REC 2-1 and REC 2-8)

DRAWING PG5490-3C - SITE GEOMETRY (REC 3-1 and REC 3-8)

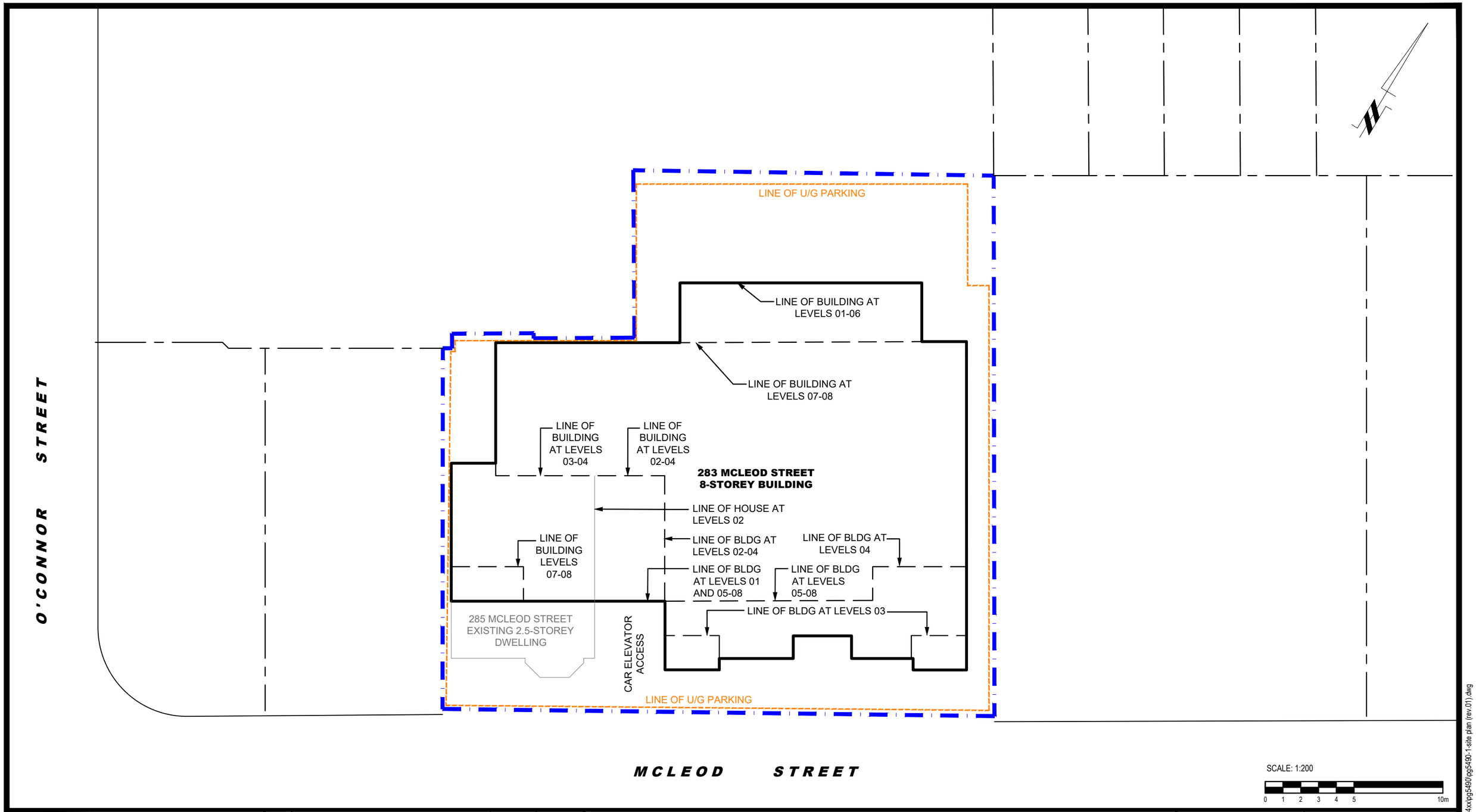
DRAWING PG5490-3D - SITE GEOMETRY (REC 4-1 and REC 4-8)

DRAWING PG5490-3E - SITE GEOMETRY (REC 5)

Table 7 - Summary of Reception Points and Geometry
283 and 285 McLeod Street

Point of Reception	Location	Leq Day (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	46.02	70	1.5	70.02	-55,0	n/a	n/a	24	30	35	1.5	35.03	-75, 40 40, 76	n/a	n/a	24 8.5	30 20
REC 1-8	Western Elevation, 8th Floor	58.47	70	23	73.68	-55, 0	n/a	n/a	24	30	35	23	41.88	-75, 40 40, 76	n/a	n/a	24 8.5	30 20
REC 2-1	Northern Elevation, 1st Floor	42.35	60	1.5	60.02	-67, 47 47, 68	n/a	n/a	24 9	30 45	60	1.5	60.02	0, 66	n/a	n/a	24	45
REC 2-8	Northern Elevation, 8th Floor	44.71	60	23	64.26	-65, 47 47, 67	n/a	n/a	24 9	33 47	60	23	64.26	0, 66	n/a	n/a	24	48
REC 3-1	Eastern Elevation, 1st Floor	45.50	70	1.5	70.02	0, 47 47, 63	n/a 1	n/a 20	9 n/a	43 n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 3-8	Eastern Elevation, 8th Floor	56.82	70	23	73.68	0, 47 47, 63	n/a 1	n/a 20	9 n/a	43 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	55.07	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	50	1.5	50.02	-66, 0	n/a	n/a	n/a	n/a
REC 4-8	Southern Elevation, 8th Floor	59.76	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	50	23	55.04	-66, 0	n/a	n/a	n/a	n/a
REC 5	Outdoor Living Area	54.04	65	26.5	70.19	-62, 65	n/a	n/a	n/a	n/a	55	26.5	61.05	-67, 69	n/a	n/a	n/a	n/a

Point of Reception	Location	Leq Day (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	46.02	360	1.5	360	0, 52	7	80	n/a	n/a	370	1.5	370	0, 49	7	80	n/a	n/a
REC 1-8	Western Elevation, 8th Floor	58.47	360	23	360.73	0, 52	7	80	n/a	n/a	370	23	370.7	0, 49	7	80	n/a	n/a
REC 2-1	Northern Elevation, 1st Floor	42.35	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 2-8	Northern Elevation, 8th Floor	44.71	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	45.50	350	1.5	350	-50, 0	7	80	n/a	n/a	355	1.5	355	-47, 0	7	80	n/a	n/a
REC 3-8	Eastern Elevation, 8th Floor	56.82	350	23	350.75	-50, 0	7	80	n/a	n/a	355	23	355.74	-47, 0	7	80	n/a	n/a
REC 4-1	Southern Elevation, 1st Floor	55.07	345	1.5	345	-52, 53	7	80	n/a	n/a	350	1.5	350	-49, 50	7	80	n/a	n/a
REC 4-8	Southern Elevation, 8th Floor	59.76	345	23	345.77	-52, 53	7	80	n/a	n/a	350	23	350.75	-49, 50	7	80	n/a	n/a
REC 5	Outdoor Living Area	54.04	355	26.5	355.99	-51, 53	7	80	n/a	n/a	360	26.5	360.97	-49, 50	7	80	n/a	n/a



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ZYER DEVELOPMENTS

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

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: 1:200	Date: 09/2020
Drawn by: YA	Report No.: PG5490-1
Checked by: SB	Dwg. No.: PG5490-1
Approved by: DJG	Revision No.: 1

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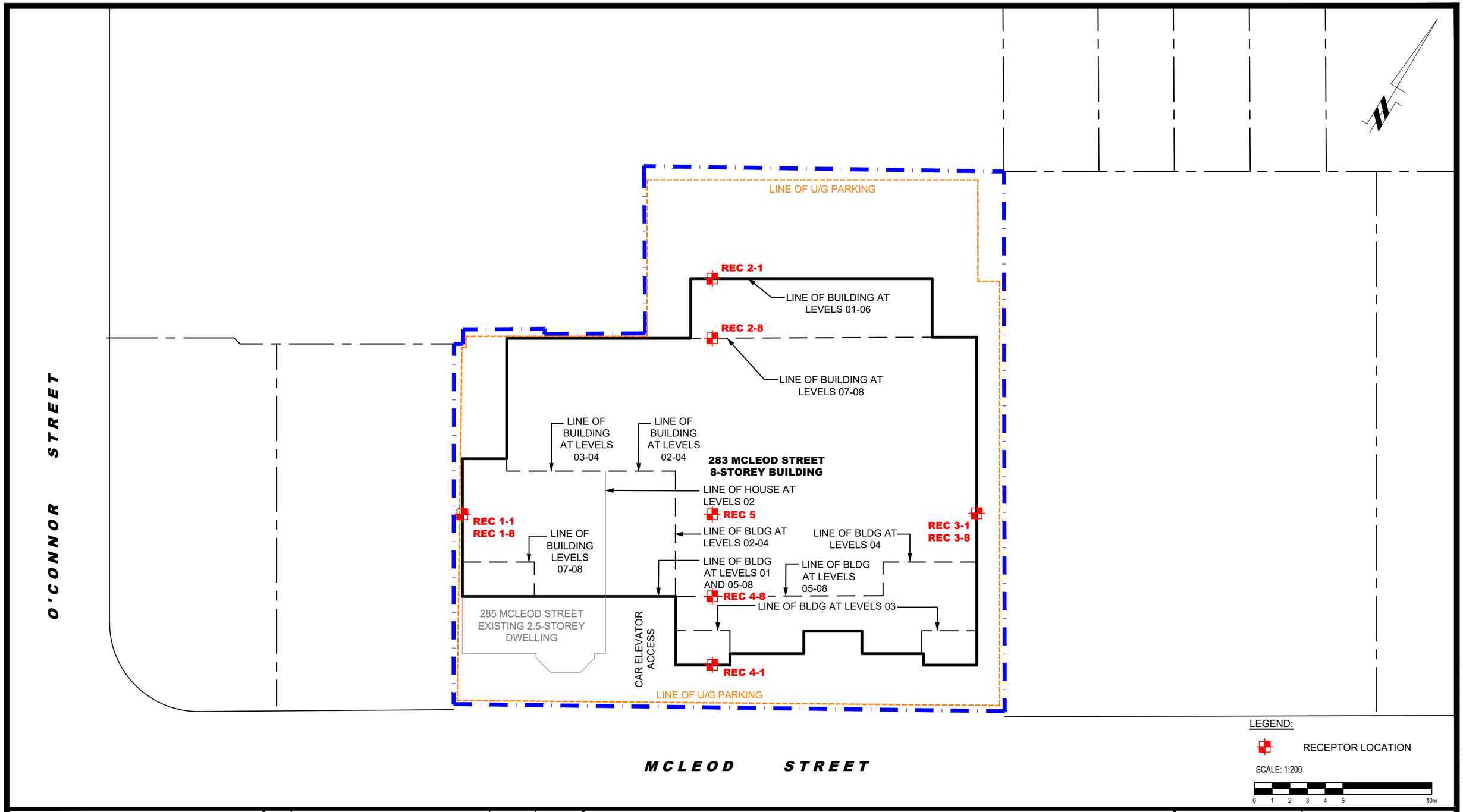

LEGEND:

RECEPTOR LOCATION

SCALE: 1:200

0 1 2 3 4 5 10m

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Drawn by: YA	Report No.: PG5490-1
Checked by: SB	Dwg. No.: PG5490-2
Approved by: DJG	Revision No.: 1

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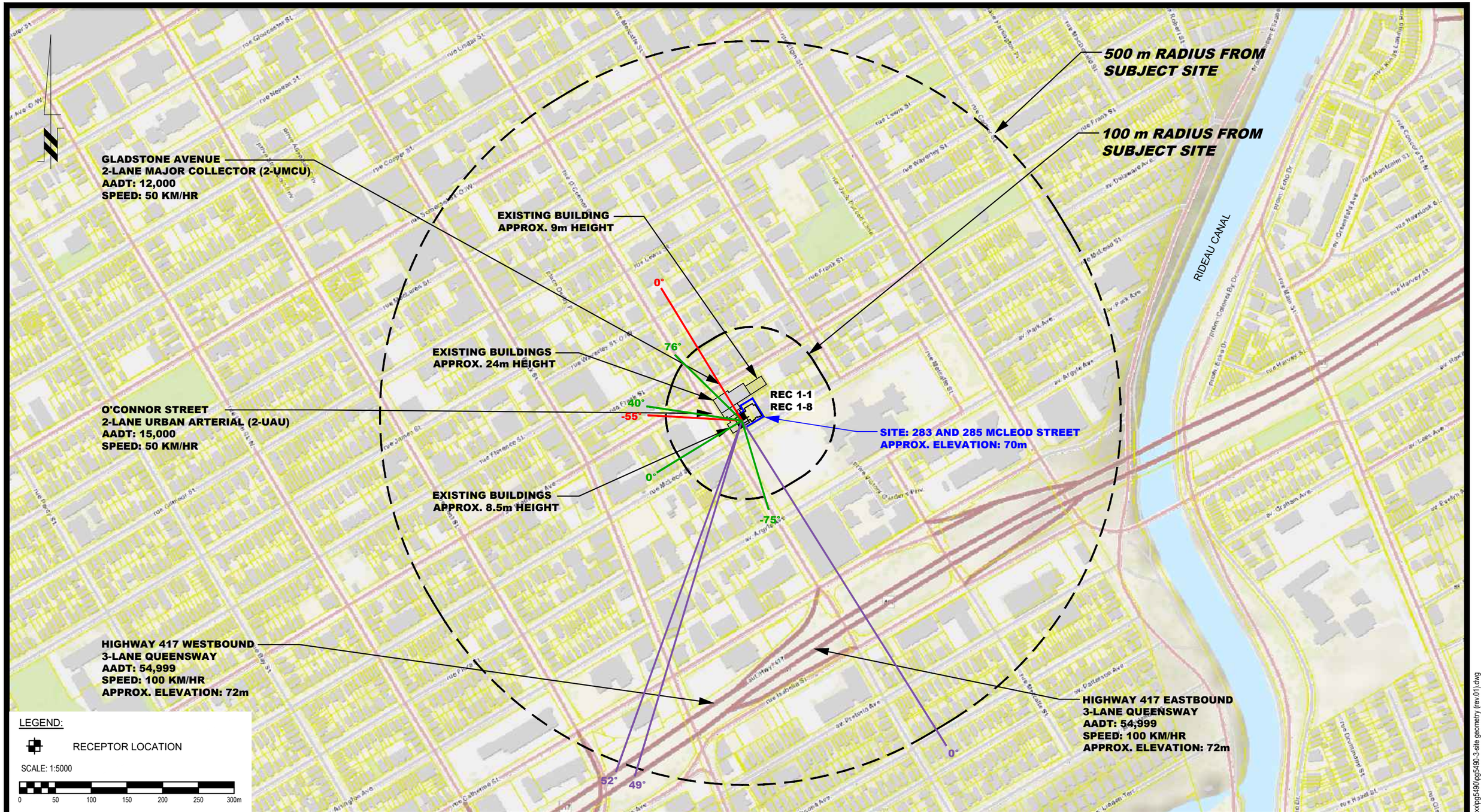

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PROPOSED MULTI-STOREY BUILDING - 283 AND 285 MCLEOD STREET
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 1-1 AND REC 1-8

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Approved by: DJG	Revision No.: 1

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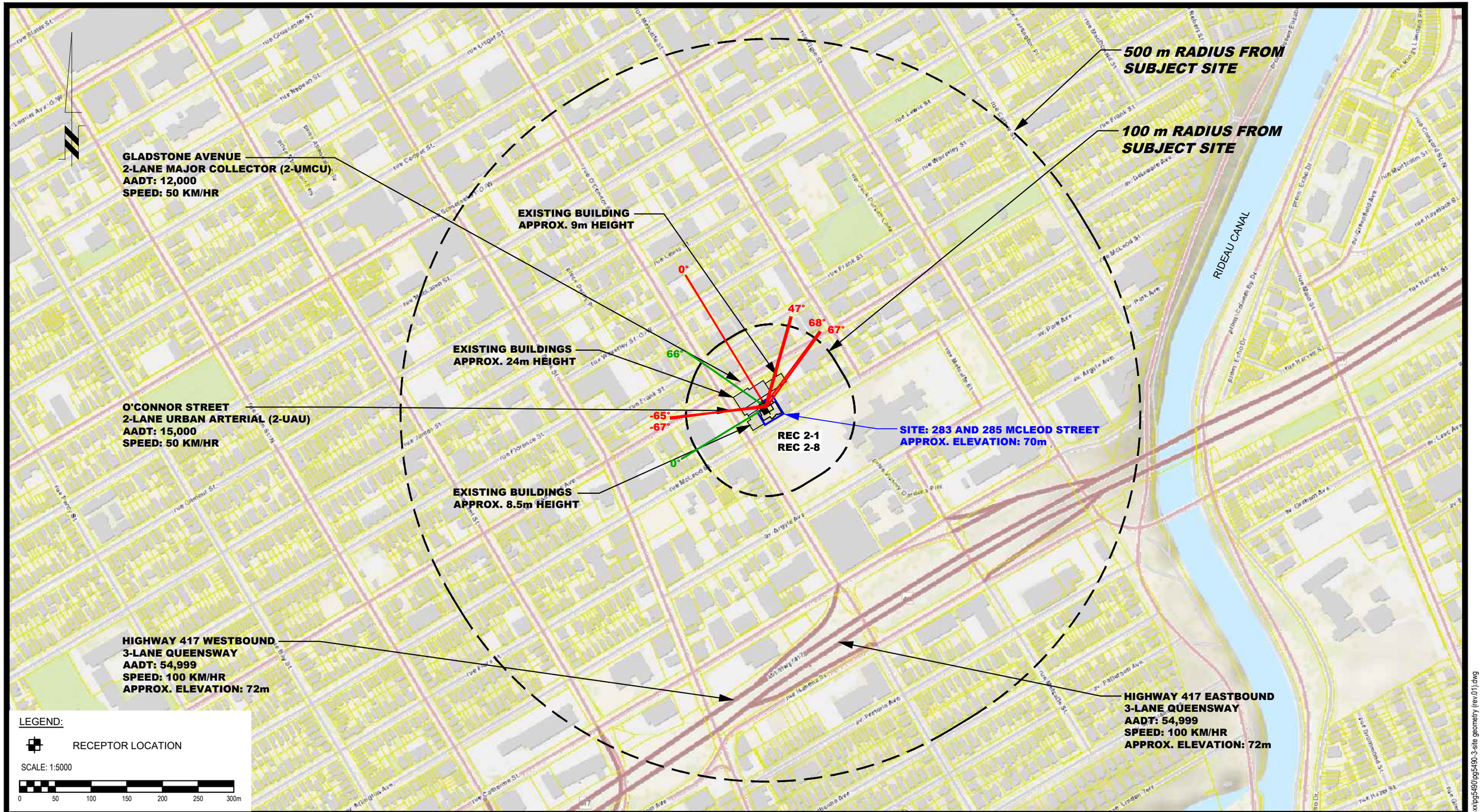

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PROPOSED MULTI-STOREY BUILDING - 283 AND 285 MCLEOD STREET
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 2-1 AND REC 2-8

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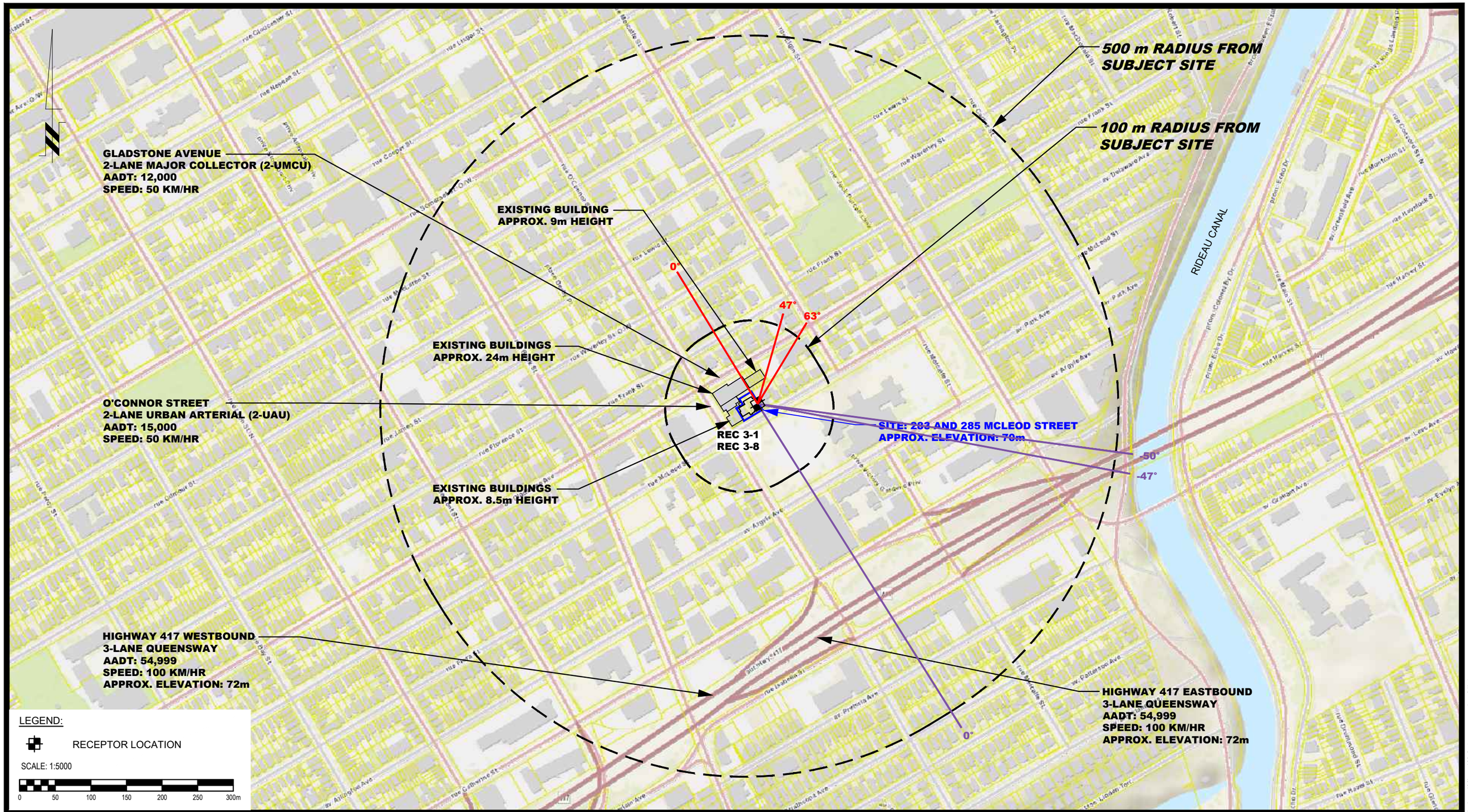

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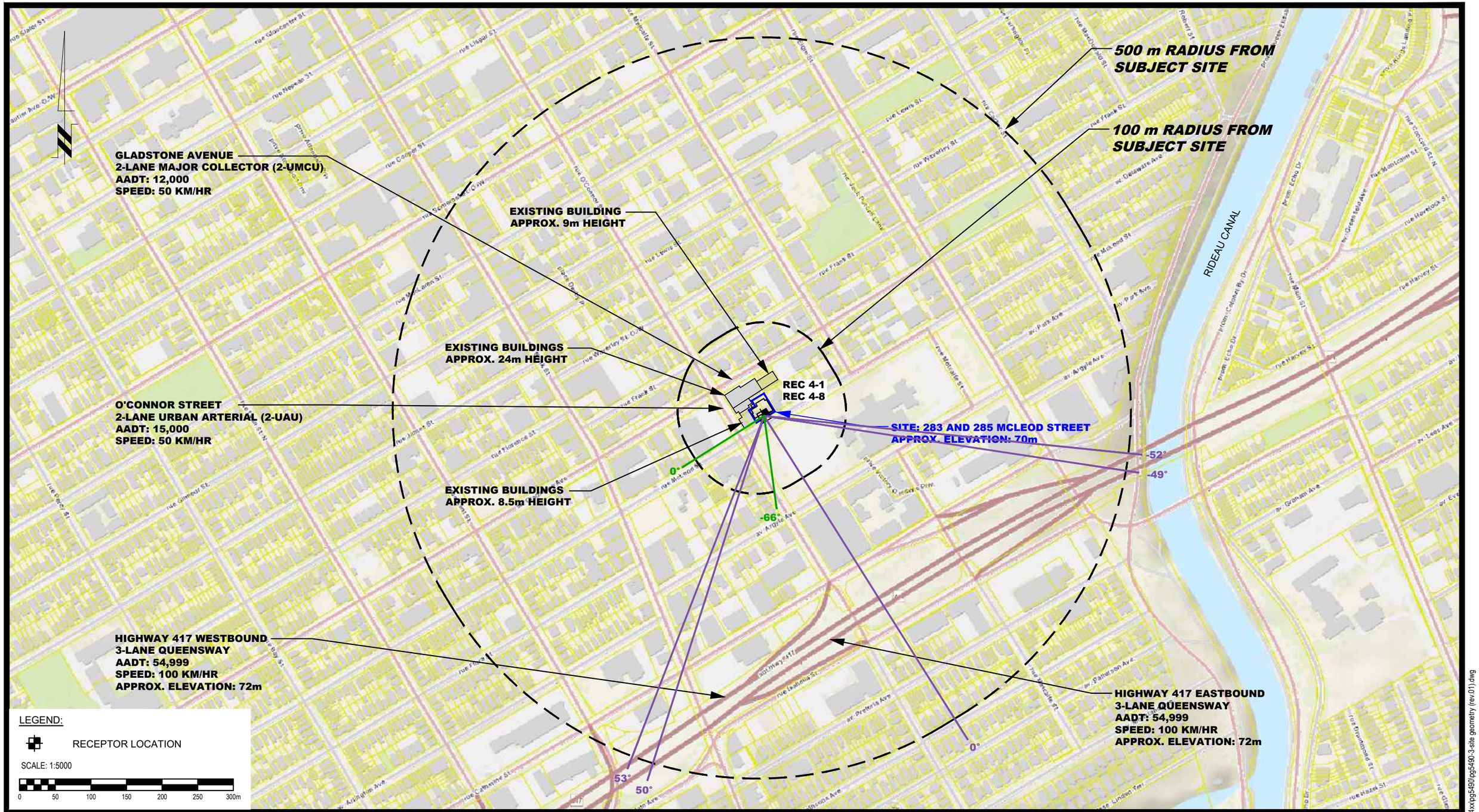

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NOISE ATTENUATION STUDY
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OTTAWA, ONTARIO

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SITE GEOMETRY - REC 4-1 AND REC 4-8

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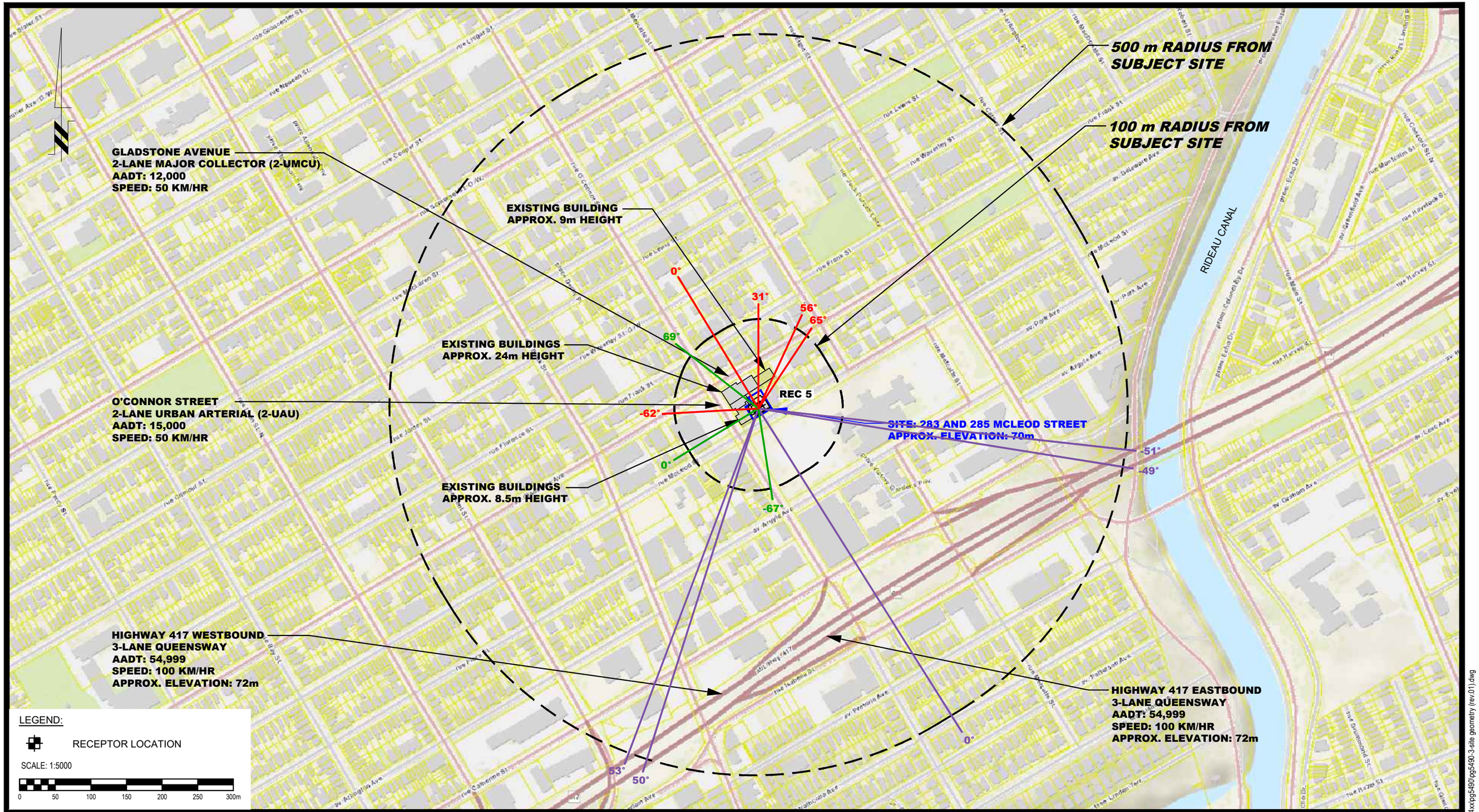

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Title:

SITE GEOMETRY - REC 5

Scale: 1:5000	Date: 10/2020
Drawn by: YA	Report No.: PG5490-1
Checked by: SB	Dwg. No.: PG5490-3E
Approved by: DJG	Revision No.: 1

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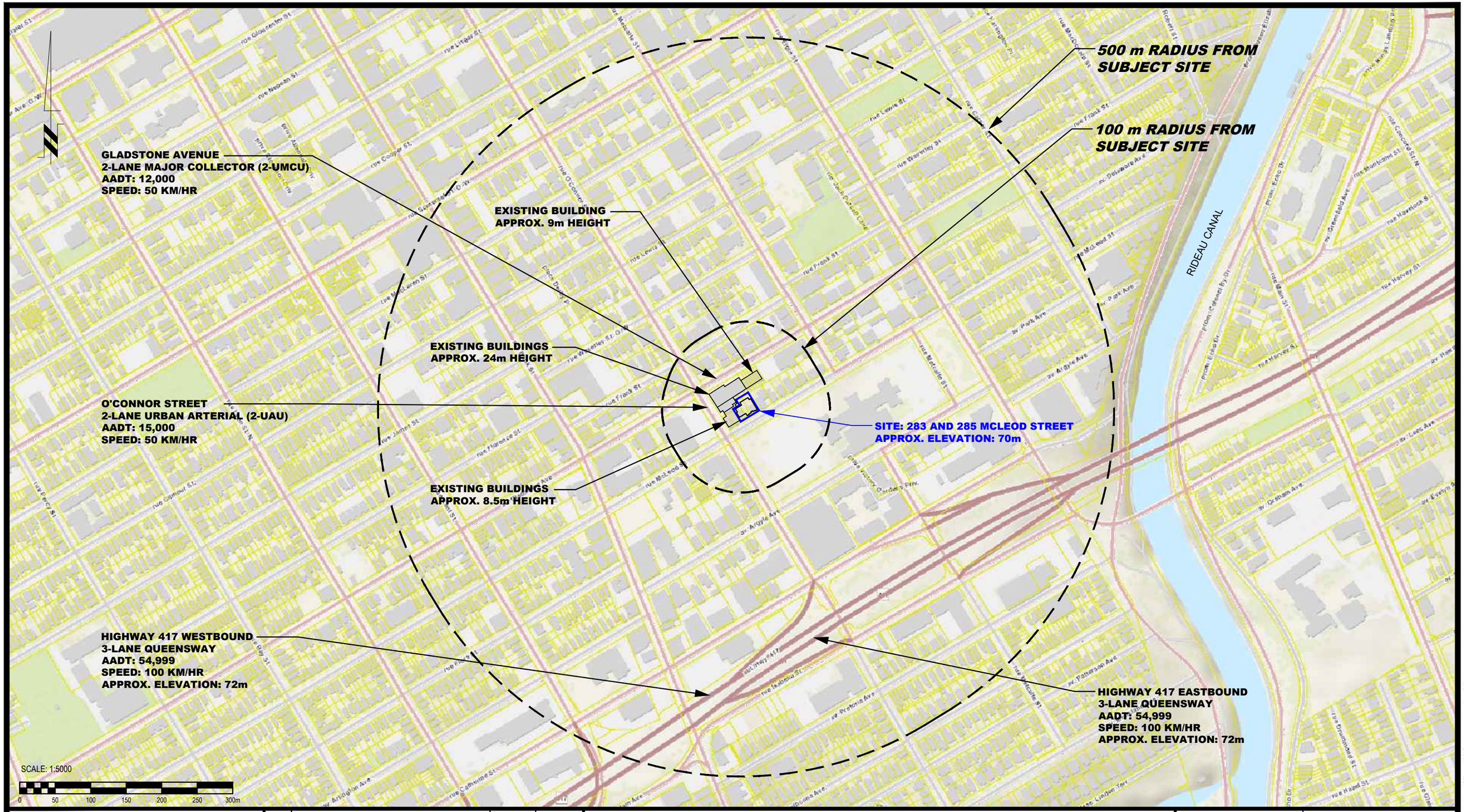

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED TO NEW CONCEPTUAL PLAN	23/07/2021	YT

ZYER DEVELOPMENTS

NOISE ATTENUATION STUDY
PROPOSED MULTI-STOREY BUILDING - 283 AND 285 MCLEOD STREET
OTTAWA, ONTARIO

Title:

SITE GEOMETRY

Scale: 1:5000	Date: 10/2020
Drawn by: YA	Report No.: PG5490-1
Checked by: SB	Dwg. No.: **PG5490-3**
Approved by: DJG	Revision No.: 1

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APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:10:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-1

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

Angle1 Angle2 : -55.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 0.00 deg
Barrier height : 24.00 m
Barrier receiver distance : 30.00 / 30.00 m
Source elevation : 70.00 m
Receiver elevation : 70.00 m
Barrier elevation : 70.00 m
Reference angle : 0.00

Road data, segment # 2: O'ConnorSt A (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 # 2: O'ConnorSt A (day/night)
-----------------------------------------------
Angle1   Angle2           : -75.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -75.00 deg   Angle2 : 40.00 deg
Barrier height            :  24.00 m
Barrier receiver distance :  30.00 / 30.00  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'ConnorSt B (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'ConnorSt B (day/night)
-----------------------------------------------
Angle1   Angle2           :  40.00 deg   76.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  40.00 deg   Angle2 : 76.00 deg
Barrier height            :   8.50 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          :  70.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
Reference angle           :   0.00
```



```
Road data, segment # 4: 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 # 4: Hwy417 West (day/night)
---------------------------------------------
Angle1   Angle2           :   0.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 360.00 / 360.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 52.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 358.00 / 358.00 m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  72.00 m
Reference angle           :   0.00
```

Road data, segment # 5: 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 # 5: Hwy417 East (day/night)

Angle1 Angle2 : 0.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 370.00 / 370.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 49.00 deg
Barrier height : 0.50 m
Barrier receiver distance : 368.00 / 368.00 m
Source elevation : 72.00 m
Receiver elevation : 70.00 m
Barrier elevation : 72.00 m
Reference angle : 0.00

Results segment # 1: GladstoneAve (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 + 35.67 + 0.00) = 35.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	67.51	0.00	-6.69	-5.15	0.00	0.00	-20.00	35.67

Segment Leq : 35.67 dBA

↟

Results segment # 2: O'ConnorSt A (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 + 42.85 + 0.00) = 42.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	40	0.00	68.48	0.00	-3.68	-1.95	0.00	0.00	-20.00	42.85

Segment Leq : 42.85 dBA

↟

Results segment # 3: O'ConnorSt B (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 + 38.16 + 0.00) = 38.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	76	0.15	68.48	0.00	-4.23	-7.44	0.00	0.00	-18.65	38.16

Segment Leq : 38.16 dBA

Results segment # 4: 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 + 37.38 + 0.00) = 37.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	52	0.66	80.15	0.00	-22.91	-5.81	0.00	-14.05	0.00	37.38
0	52	0.63	80.15	0.00	-22.50	-5.79	0.00	0.00	0.00	51.86*
0	52	0.66	80.15	0.00	-22.91	-5.81	0.00	0.00	0.00	51.43

* Bright Zone !

Segment Leq : 37.38 dBA

Results segment # 5: 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 + 36.99 + 0.00) = 36.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.66	80.15	0.00	-23.11	-6.02	0.00	-14.03	0.00	36.99
0	49	0.63	80.15	0.00	-22.69	-6.00	0.00	0.00	0.00	51.45*
0	49	0.66	80.15	0.00	-23.11	-6.02	0.00	0.00	0.00	51.02

* Bright Zone !

Segment Leq : 36.99 dBA

Total Leq All Segments: 46.02 dBA

↟
Results segment # 1: GladstoneAve (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 + 28.07 + 0.00) = 28.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	59.91	0.00	-6.69	-5.15	0.00	0.00	-20.00	28.07

Segment Leq : 28.07 dBA

↟
Results segment # 2: O'ConnorSt A (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 + 35.26 + 0.00) = 35.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	40	0.00	60.88	0.00	-3.68	-1.95	0.00	0.00	-20.00	35.26

Segment Leq : 35.26 dBA

↟
Results segment # 3: O'ConnorSt B (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 !        1.50 !        71.50

ROAD (0.00 + 30.56 + 0.00) = 30.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    40     76   0.15  60.88   0.00  -4.23  -7.44   0.00   0.00 -18.65  30.56
-------------------------------------------------------------------------------

Segment Leq : 30.56 dBA

🠉
Results segment # 4: Hwy417 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 !        1.50 !        1.48 !        73.48

ROAD (0.00 + 29.78 + 0.00) = 29.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     52   0.66  72.55   0.00 -22.91  -5.81   0.00 -14.05   0.00  29.78
     0     52   0.63  72.55   0.00 -22.50  -5.79   0.00   0.00   0.00  44.26*
     0     52   0.66  72.55   0.00 -22.91  -5.81   0.00   0.00   0.00  43.83
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 29.78 dBA

🠉
Results segment # 5: 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 + 29.40 + 0.00) = 29.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.66	72.55	0.00	-23.11	-6.02	0.00	-14.03	0.00	29.40
0	49	0.63	72.55	0.00	-22.69	-6.00	0.00	0.00	0.00	43.86*
0	49	0.66	72.55	0.00	-23.11	-6.02	0.00	0.00	0.00	43.43

* Bright Zone !

Segment Leq : 29.40 dBA

Total Leq All Segments: 38.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.02
(NIGHT): 38.42

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:12:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec18.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-8

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

Angle1 Angle2 : -55.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 23.00 / 23.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 0.00 deg
Barrier height : 24.00 m
Barrier receiver distance : 30.00 / 30.00 m
Source elevation : 70.00 m
Receiver elevation : 70.00 m
Barrier elevation : 70.00 m
Reference angle : 0.00

Road data, segment # 2: O'ConnorSt A (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 # 2: O'ConnorSt A (day/night)
-----------------------------------------------
Angle1   Angle2           : -75.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -75.00 deg   Angle2 : 40.00 deg
Barrier height            :  24.00 m
Barrier receiver distance :  30.00 / 30.00  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'ConnorSt B (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'ConnorSt B (day/night)
-----------------------------------------------
Angle1   Angle2           :  40.00 deg   76.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  40.00 deg   Angle2 : 76.00 deg
Barrier height            :   8.50 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          :  70.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
Reference angle           :   0.00
```



```
Road data, segment # 4: 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 # 4: Hwy417 West (day/night)
---------------------------------------------
Angle1   Angle2           :   0.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      7 / 7
House density             :     80 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 360.00 / 360.00 m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 52.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 358.00 / 358.00 m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  72.00 m
Reference angle           :   0.00
```

Road data, segment # 5: 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 # 5: Hwy417 East (day/night)

Angle1 Angle2 : 0.00 deg 49.00 deg
Wood depth : 0 (No woods.)
No of house rows : 7 / 7
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 370.00 / 370.00 m
Receiver height : 23.00 / 23.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 0.00 deg Angle2 : 49.00 deg
Barrier height : 0.50 m
Barrier receiver distance : 368.00 / 368.00 m
Source elevation : 72.00 m
Receiver elevation : 70.00 m
Barrier elevation : 72.00 m
Reference angle : 0.00

Results segment # 1: GladstoneAve (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	23.00	13.78	83.78

ROAD (0.00 + 35.69 + 0.00) = 35.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	67.51	0.00	-6.69	-5.15	0.00	0.00	-19.98	35.69

Segment Leq : 35.69 dBA

↟

Results segment # 2: O'ConnorSt A (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	23.00	4.57	74.57

ROAD (0.00 + 42.85 + 0.00) = 42.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	40	0.00	68.48	0.00	-3.68	-1.95	0.00	0.00	-20.00	42.85

Segment Leq : 42.85 dBA

↟

Results segment # 3: O'ConnorSt B (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	23.00	10.71	80.71

ROAD (0.00 + 57.71 + 0.00) = 57.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	76	0.00	68.48	0.00	-3.68	-6.99	0.00	0.00	-0.20	57.61*
40	76	0.02	68.48	0.00	-3.74	-7.04	0.00	0.00	0.00	57.71

 * Bright Zone !

Segment Leq : 57.71 dBA

↟
Results segment # 4: 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	23.00	1.60	73.60

ROAD (0.00 + 46.68 + 0.00) = 46.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	52	0.02	80.15	0.00	-14.01	-5.40	0.00	-14.05	0.00	46.68
0	52	0.00	80.15	0.00	-13.80	-5.39	0.00	0.00	0.00	60.95*
0	52	0.02	80.15	0.00	-14.01	-5.40	0.00	0.00	0.00	60.73

 * Bright Zone !

Segment Leq : 46.68 dBA

↟
Results segment # 5: 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	23.00	1.60	73.60

ROAD (0.00 + 46.33 + 0.00) = 46.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.02	80.15	0.00	-14.13	-5.66	0.00	-14.03	0.00	46.33
0	49	0.00	80.15	0.00	-13.92	-5.65	0.00	0.00	0.00	60.58*
0	49	0.02	80.15	0.00	-14.13	-5.66	0.00	0.00	0.00	60.36

```
 * Bright Zone !

Segment Leq : 46.33 dBA

Total Leq All Segments: 58.47 dBA

↟
Results segment # 1: GladstoneAve (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 !       23.00 !       13.78 !        83.78

ROAD (0.00 + 28.10 + 0.00) = 28.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -55      0   0.00  59.91   0.00  -6.69  -5.15   0.00   0.00 -19.98  28.10
-------------------------------------------------------------------------------

Segment Leq : 28.10 dBA

↟
Results segment # 2: O'ConnorSt A (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 !       23.00 !        4.57 !        74.57

ROAD (0.00 + 35.26 + 0.00) = 35.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -75     40   0.00  60.88   0.00  -3.68  -1.95   0.00   0.00 -20.00  35.26
-------------------------------------------------------------------------------

Segment Leq : 35.26 dBA

↟
Results segment # 3: O'ConnorSt B (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 !       23.00 !       10.71 !        80.71

ROAD (0.00 + 50.11 + 0.00) = 50.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    40     76   0.00  60.88   0.00  -3.68  -6.99   0.00   0.00  -0.20  50.01*
    40     76   0.02  60.88   0.00  -3.74  -7.04   0.00   0.00   0.00  50.11
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 50.11 dBA

↟
Results segment # 4: Hwy417 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 !       23.00 !        1.60 !        73.60

ROAD (0.00 + 39.09 + 0.00) = 39.09 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     52   0.02  72.55   0.00 -14.01  -5.40   0.00 -14.05   0.00  39.09
     0     52   0.00  72.55   0.00 -13.80  -5.39   0.00   0.00   0.00  53.36*
     0     52   0.02  72.55   0.00 -14.01  -5.40   0.00   0.00   0.00  53.14
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 39.09 dBA

↟
Results segment # 5: 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	23.00	1.60	73.60

ROAD (0.00 + 38.73 + 0.00) = 38.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	49	0.02	72.55	0.00	-14.13	-5.66	0.00	-14.03	0.00	38.73
0	49	0.00	72.55	0.00	-13.92	-5.65	0.00	0.00	0.00	52.98*
0	49	0.02	72.55	0.00	-14.13	-5.66	0.00	0.00	0.00	52.76

* Bright Zone !

Segment Leq : 38.73 dBA

Total Leq All Segments: 50.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.47
(NIGHT): 50.87

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 10:42:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-1

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

Angle1 Angle2 : -67.00 deg 47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -67.00 deg Angle2 : 47.00 deg
Barrier height : 24.00 m
Barrier receiver distance : 30.00 / 30.00 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 B (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 B (day/night)
-----------------------------------------------
Angle1   Angle2           :  47.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  47.00 deg   Angle2 : 68.00 deg
Barrier height            :   9.00 m
Barrier receiver distance :  45.00 / 45.00  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 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 # 3: O'Connor St (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   66.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 66.00 deg
Barrier height            :  24.00 m
Barrier receiver distance :  45.00 / 45.00  m
Source elevation          :  70.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
Reference angle           :   0.00
```

↟

```
Results segment # 1: Gladstone A (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 + 39.51 + 0.00) = 39.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     47   0.00  67.51   0.00  -6.02  -1.98   0.00   0.00 -20.00  39.51
-------------------------------------------------------------------------------

Segment Leq : 39.51 dBA
```

↟

```
Results segment # 2: Gladstone B (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 + 32.53 + 0.00) = 32.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
    47     68   0.12  67.51   0.00  -6.74  -9.66   0.00   0.00 -18.57  32.53
-------------------------------------------------------------------------------

Segment Leq : 32.53 dBA

↟
Results segment # 3: O'Connor St (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 + 38.10 + 0.00) = 38.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     66   0.00  68.48   0.00  -6.02  -4.36   0.00   0.00 -20.00  38.10
-------------------------------------------------------------------------------

Segment Leq : 38.10 dBA

Total Leq All Segments: 42.35 dBA

↟
Results segment # 1: Gladstone A (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 !        1.50 !        71.50

ROAD (0.00 + 31.91 + 0.00) = 31.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67     47   0.00  59.91   0.00  -6.02  -1.98   0.00   0.00 -20.00  31.91
-------------------------------------------------------------------------------

Segment Leq : 31.91 dBA
```

↟
Results segment # 2: Gladstone B (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 + 24.93 + 0.00) = 24.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	68	0.12	59.91	0.00	-6.74	-9.66	0.00	0.00	-18.57	24.93

Segment Leq : 24.93 dBA

↟
Results segment # 3: O'Connor St (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 + 30.51 + 0.00) = 30.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	66	0.00	60.88	0.00	-6.02	-4.36	0.00	0.00	-20.00	30.51

Segment Leq : 30.51 dBA

Total Leq All Segments: 34.75 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 42.35
(NIGHT): 34.75

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 10:46:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec28.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-8

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

Angle1 Angle2 : -65.00 deg 47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 23.00 / 23.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -65.00 deg Angle2 : 47.00 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 # 2: Gladstone B (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 B (day/night)
---------------------------------------------
Angle1   Angle2           :  47.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  47.00 deg   Angle2 : 67.00 deg
Barrier height            :   9.00 m
Barrier receiver distance :  47.00 / 47.00  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 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 # 3: O'Connor St (day/night)
---------------------------------------------
Angle1   Angle2           :   0.00 deg   66.00 deg
```

```
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 66.00 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
```

↟

```
Results segment # 1: Gladstone A (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 !       23.00 !       11.17 !        81.17

ROAD (0.00 + 39.43 + 0.00) = 39.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -65     47   0.00  67.51   0.00  -6.02  -2.06   0.00   0.00 -20.00  39.43
-------------------------------------------------------------------------------

Segment Leq : 39.43 dBA
```

↟

```
Results segment # 2: Gladstone B (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 !       23.00 !        6.15 !        76.15

ROAD (0.00 + 41.56 + 0.00) = 41.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
    47     67   0.00  67.51   0.00  -6.02  -9.54   0.00   0.00 -10.38  41.56
-------------------------------------------------------------------------------

Segment Leq : 41.56 dBA

↟
Results segment # 3: O'Connor St (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 !       23.00 !        5.80 !        75.80

ROAD (0.00 + 38.10 + 0.00) = 38.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     66   0.00  68.48   0.00  -6.02  -4.36   0.00   0.00 -20.00  38.10
-------------------------------------------------------------------------------

Segment Leq : 38.10 dBA

Total Leq All Segments: 44.71 dBA

↟
Results segment # 1: Gladstone A (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 !       23.00 !       11.17 !        81.17

ROAD (0.00 + 31.83 + 0.00) = 31.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -65     47   0.00  59.91   0.00  -6.02  -2.06   0.00   0.00 -20.00  31.83
-------------------------------------------------------------------------------

Segment Leq : 31.83 dBA
```

↟
Results segment # 2: Gladstone B (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	23.00	6.15	76.15

ROAD (0.00 + 33.96 + 0.00) = 33.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	67	0.00	59.91	0.00	-6.02	-9.54	0.00	0.00	-10.38	33.96

Segment Leq : 33.96 dBA

↟
Results segment # 3: O'Connor St (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	23.00	5.80	75.80

ROAD (0.00 + 30.51 + 0.00) = 30.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	66	0.00	60.88	0.00	-6.02	-4.36	0.00	0.00	-20.00	30.51

Segment Leq : 30.51 dBA

Total Leq All Segments: 37.11 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 44.71
(NIGHT): 37.11

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:07:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-1

Road data, segment # 1: Gladstone A (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 A (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 : 70.00 / 70.00 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 : 43.00 / 43.00 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 B (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 B (day/night)
---------------------------------------------
Angle1   Angle2           :  47.00 deg   63.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  70.00 / 70.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 3: 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           : -50.00 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  : 350.00 / 350.00 m
```

```
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 0.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 348.00 / 348.00 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           : -47.00 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  : 355.00 / 355.00 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            :   0.50 m
Barrier receiver distance : 353.00 / 353.00 m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  72.00 m
Reference angle           :   0.00
```

↟

```
Results segment # 1: Gladstone A (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 + 34.81 + 0.00) = 34.81 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	-7.49	-5.89	0.00	0.00	-19.31	34.81

Segment Leq : 34.81 dBA

Results segment # 2: Gladstone B (day)

Source height = 1.50 m

ROAD (0.00 + 43.38 + 0.00) = 43.38 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	-11.11	-12.12	0.00	-0.90	0.00	43.38

Segment Leq : 43.38 dBA

Results segment # 3: 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 + 37.42 + 0.00) = 37.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.66	80.15	0.00	-22.71	-5.94	0.00	-14.07	0.00	37.42
-50	0	0.63	80.15	0.00	-22.30	-5.93	0.00	0.00	0.00	51.92*

```
   -50      0   0.66  80.15   0.00 -22.71  -5.94   0.00   0.00   0.00  51.49
--------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 37.42 dBA

↟
Results segment # 4: Hwy417 East (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 + 37.11 + 0.00) = 37.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
   -47      0   0.66  80.15   0.00 -22.81  -6.17   0.00 -14.06   0.00  37.11
   -47      0   0.63  80.15   0.00 -22.40  -6.15   0.00   0.00   0.00  51.60*
   -47      0   0.66  80.15   0.00 -22.81  -6.17   0.00   0.00   0.00  51.17
--------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 37.11 dBA

Total Leq All Segments: 45.50 dBA

↟
Results segment # 1: Gladstone A (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 !        1.50 !        71.50

ROAD (0.00 + 27.21 + 0.00) = 27.21 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  -7.49  -5.89   0.00   0.00 -19.31  27.21
-------------------------------------------------------------------------------

Segment Leq : 27.21 dBA

↟
Results segment # 2: Gladstone B (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 35.79 + 0.00) = 35.79 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 -11.11 -12.12   0.00  -0.90   0.00  35.79
-------------------------------------------------------------------------------

Segment Leq : 35.79 dBA

↟
Results segment # 3: Hwy417 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 !        1.50 !        1.48 !        73.48

ROAD (0.00 + 29.83 + 0.00) = 29.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50      0   0.66  72.55   0.00 -22.71  -5.94   0.00 -14.07   0.00  29.83
   -50      0   0.63  72.55   0.00 -22.30  -5.93   0.00   0.00   0.00  44.32*
   -50      0   0.66  72.55   0.00 -22.71  -5.94   0.00   0.00   0.00  43.90
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 29.83 dBA

↟
Results segment # 4: 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 + 29.51 + 0.00) = 29.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.66	72.55	0.00	-22.81	-6.17	0.00	-14.06	0.00	29.51
-47	0	0.63	72.55	0.00	-22.40	-6.15	0.00	0.00	0.00	44.00*
-47	0	0.66	72.55	0.00	-22.81	-6.17	0.00	0.00	0.00	43.57

* Bright Zone !

Segment Leq : 29.51 dBA

Total Leq All Segments: 37.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 45.50
(NIGHT): 37.91

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:08:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec38.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-8

Road data, segment # 1: Gladstone A (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 A (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 : 70.00 / 70.00 m
Receiver height : 23.00 / 23.00 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 : 43.00 / 43.00 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 B (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 B (day/night)
---------------------------------------------
Angle1   Angle2           :  47.00 deg   63.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  70.00 / 70.00  m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  47.00 deg   Angle2 : 63.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :  43.00 / 43.00  m
Source elevation          :  70.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
Reference angle           :   0.00

↟
Road data, segment # 3: 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           : -50.00 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  : 350.00 / 350.00 m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : 0.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 348.00 / 348.00 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           : -47.00 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  : 355.00 / 355.00 m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -47.00 deg   Angle2 : 0.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 353.00 / 353.00 m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
```

```
Barrier elevation         :  72.00 m
Reference angle           :   0.00

↟
Results segment # 1: Gladstone A (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 !       23.00 !        9.79 !        79.79

ROAD (0.00 + 54.88 + 0.00) = 54.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     47   0.00  67.51   0.00  -6.69  -5.83   0.00   0.00  -4.17  50.82*
     0     47   0.02  67.51   0.00  -6.79  -5.84   0.00   0.00   0.00  54.88
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 54.88 dBA

↟
Results segment # 2: Gladstone B (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 !       23.00 !        9.79 !        79.79

ROAD (0.00 + 49.27 + 0.00) = 49.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    47     63   0.02  67.51   0.00  -6.79 -10.55   0.00  -0.90   0.00  49.27
    47     63   0.02  67.51   0.00  -6.79 -10.55   0.00   0.00   0.00  50.17*
    47     63   0.02  67.51   0.00  -6.79 -10.55   0.00   0.00   0.00  50.17
-------------------------------------------------------------------------------

 * Bright Zone !
```

Segment Leq : 49.27 dBA

↟
Results segment # 3: 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	23.00	1.61	73.61

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
-50	0	0.02	80.15	0.00	-13.89	-5.57	0.00	-14.07	0.00	46.62
-50	0	0.00	80.15	0.00	-13.68	-5.56	0.00	0.00	0.00	60.90*
-50	0	0.02	80.15	0.00	-13.89	-5.57	0.00	0.00	0.00	60.69

* Bright Zone !

Segment Leq : 46.62 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	23.00	1.61	73.61

ROAD (0.00 + 46.30 + 0.00) = 46.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.02	80.15	0.00	-13.95	-5.84	0.00	-14.06	0.00	46.30
-47	0	0.00	80.15	0.00	-13.74	-5.83	0.00	0.00	0.00	60.57*
-47	0	0.02	80.15	0.00	-13.95	-5.84	0.00	0.00	0.00	60.36

* Bright Zone !

Segment Leq : 46.30 dBA

Total Leq All Segments: 56.82 dBA

↟
Results segment # 1: Gladstone A (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	23.00	9.79	79.79

ROAD (0.00 + 47.28 + 0.00) = 47.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	47	0.00	59.91	0.00	-6.69	-5.83	0.00	0.00	-4.17	43.22*
0	47	0.02	59.91	0.00	-6.79	-5.84	0.00	0.00	0.00	47.28

* Bright Zone !

Segment Leq : 47.28 dBA

↟
Results segment # 2: Gladstone B (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	23.00	9.79	79.79

ROAD (0.00 + 41.67 + 0.00) = 41.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
47	63	0.02	59.91	0.00	-6.79	-10.55	0.00	-0.90	0.00	41.67
47	63	0.02	59.91	0.00	-6.79	-10.55	0.00	0.00	0.00	42.57*
47	63	0.02	59.91	0.00	-6.79	-10.55	0.00	0.00	0.00	42.57

* Bright Zone !

Segment Leq : 41.67 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	23.00	1.61	73.61

ROAD (0.00 + 39.02 + 0.00) = 39.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.02	72.55	0.00	-13.89	-5.57	0.00	-14.07	0.00	39.02
-50	0	0.00	72.55	0.00	-13.68	-5.56	0.00	0.00	0.00	53.31*
-50	0	0.02	72.55	0.00	-13.89	-5.57	0.00	0.00	0.00	53.09

* Bright Zone !

Segment Leq : 39.02 dBA

↟
Results segment # 4: 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	23.00	1.61	73.61

ROAD (0.00 + 38.70 + 0.00) = 38.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-47	0	0.02	72.55	0.00	-13.95	-5.84	0.00	-14.06	0.00	38.70
-47	0	0.00	72.55	0.00	-13.74	-5.83	0.00	0.00	0.00	52.98*
-47	0	0.02	72.55	0.00	-13.95	-5.84	0.00	0.00	0.00	52.76

* Bright Zone !

Segment Leq : 38.70 dBA

Total Leq All Segments: 49.22 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.82
(NIGHT): 49.22

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:04:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41.te Time Period: Day/Night 16/8 hours
Description: Reception Point 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 : -66.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: 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           : -52.00 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  : 345.00 / 345.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -52.00 deg   Angle2 : 53.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 343.00 / 343.00 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   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  : 350.00 / 350.00 m
```

```
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -49.00 deg   Angle2 : 50.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 348.00 / 348.00 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 + 54.75 + 0.00) = 54.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66      0   0.66  68.48   0.00  -8.68  -5.05   0.00   0.00   0.00  54.75
-------------------------------------------------------------------------------

Segment Leq : 54.75 dBA
```

↟

```
Results segment # 2: 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 + 40.70 + 0.00) = 40.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     53   0.66  80.15   0.00 -22.60  -2.76   0.00 -14.08   0.00  40.70
   -52     53   0.63  80.15   0.00 -22.20  -2.75   0.00   0.00   0.00  55.20*
   -52     53   0.66  80.15   0.00 -22.60  -2.76   0.00   0.00   0.00  54.78
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 40.70 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 + 40.40 + 0.00) = 40.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.66	80.15	0.00	-22.71	-2.97	0.00	-14.07	0.00	40.40
-49	50	0.63	80.15	0.00	-22.30	-2.95	0.00	0.00	0.00	54.89*
-49	50	0.66	80.15	0.00	-22.71	-2.97	0.00	0.00	0.00	54.47

* Bright Zone !

Segment Leq : 40.40 dBA

Total Leq All Segments: 55.07 dBA

↟

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

Source height = 1.50 m

ROAD (0.00 + 47.15 + 0.00) = 47.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	0	0.66	60.88	0.00	-8.68	-5.05	0.00	0.00	0.00	47.15

Segment Leq : 47.15 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 + 33.10 + 0.00) = 33.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     53   0.66  72.55   0.00 -22.60  -2.76   0.00 -14.08   0.00  33.10
   -52     53   0.63  72.55   0.00 -22.20  -2.75   0.00   0.00   0.00  47.61*
   -52     53   0.66  72.55   0.00 -22.60  -2.76   0.00   0.00   0.00  47.18
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 33.10 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 + 32.80 + 0.00) = 32.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49     50   0.66  72.55   0.00 -22.71  -2.97   0.00 -14.07   0.00  32.80
   -49     50   0.63  72.55   0.00 -22.30  -2.95   0.00   0.00   0.00  47.30*
   -49     50   0.66  72.55   0.00 -22.71  -2.97   0.00   0.00   0.00  46.87
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 32.80 dBA

Total Leq All Segments: 47.47 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 55.07
                           (NIGHT): 47.47
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 13:01:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec48.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-8

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 : -66.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 23.00 / 23.00 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           : -52.00 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  : 345.00 / 345.00 m
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -52.00 deg   Angle2 : 53.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 343.00 / 343.00 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   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  : 350.00 / 350.00 m
```

```
Receiver height           :  23.00 / 23.00  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -49.00 deg   Angle2 : 50.00 deg
Barrier height            :   0.50 m
Barrier receiver distance : 348.00 / 348.00 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 + 58.80 + 0.00) = 58.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -66      0   0.02  68.48   0.00  -5.31  -4.37   0.00   0.00   0.00  58.80
-------------------------------------------------------------------------------

Segment Leq : 58.80 dBA
```



```
Results segment # 2: 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 !       23.00 !        1.61 !        73.61

ROAD (0.00 + 49.89 + 0.00) = 49.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     53   0.02  80.15   0.00 -13.82  -2.35   0.00 -14.08   0.00  49.89
   -52     53   0.00  80.15   0.00 -13.62  -2.34   0.00   0.00   0.00  64.19*
   -52     53   0.02  80.15   0.00 -13.82  -2.35   0.00   0.00   0.00  63.97
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 49.89 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	23.00	1.61	73.61

ROAD (0.00 + 49.58 + 0.00) = 49.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.02	80.15	0.00	-13.89	-2.61	0.00	-14.07	0.00	49.58
-49	50	0.00	80.15	0.00	-13.68	-2.60	0.00	0.00	0.00	63.87*
-49	50	0.02	80.15	0.00	-13.89	-2.61	0.00	0.00	0.00	63.66

* Bright Zone !

Segment Leq : 49.58 dBA

Total Leq All Segments: 59.76 dBA

↟

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

Source height = 1.50 m

ROAD (0.00 + 51.20 + 0.00) = 51.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-66	0	0.02	60.88	0.00	-5.31	-4.37	0.00	0.00	0.00	51.20

Segment Leq : 51.20 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 !       23.00 !        1.61 !        73.61

ROAD (0.00 + 42.30 + 0.00) = 42.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -52     53   0.02  72.55   0.00 -13.82  -2.35   0.00 -14.08   0.00  42.30
   -52     53   0.00  72.55   0.00 -13.62  -2.34   0.00   0.00   0.00  56.59*
   -52     53   0.02  72.55   0.00 -13.82  -2.35   0.00   0.00   0.00  56.38
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 42.30 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 !       23.00 !        1.61 !        73.61

ROAD (0.00 + 41.99 + 0.00) = 41.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49     50   0.02  72.55   0.00 -13.89  -2.61   0.00 -14.07   0.00  41.99
   -49     50   0.00  72.55   0.00 -13.68  -2.60   0.00   0.00   0.00  56.27*
   -49     50   0.02  72.55   0.00 -13.89  -2.61   0.00   0.00   0.00  56.06
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 41.99 dBA

Total Leq All Segments: 52.16 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 59.76
                           (NIGHT): 52.16
↟
↟
```

STAMSON 5.0 NORMAL REPORT Date: 28-07-2021 15:49:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5.te Time Period: Day/Night 16/8 hours
Description: Reception Point 5

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

Angle1 Angle2 : -62.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height : 26.50 / 26.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -62.00 deg Angle2 : 65.00 deg
Barrier height : 25.00 m
Barrier receiver distance : 17.00 / 17.00 m
Source elevation : 70.00 m
Receiver elevation : 70.00 m
Barrier elevation : 70.00 m
Reference angle : 0.00

Road data, segment # 2: 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 # 2: O'Connor St (day/night)
---------------------------------------------
Angle1   Angle2           : -67.00 deg   69.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  55.00 / 55.00  m
Receiver height           :  26.50 / 26.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -67.00 deg   Angle2 : 69.00 deg
Barrier height            :  25.00 m
Barrier receiver distance :  14.00 / 14.00  m
Source elevation          :  70.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
Reference angle           :   0.00

♠
Road data, segment # 3: 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           : -51.00 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  : 355.00 / 355.00 m
Receiver height           :  26.50 / 26.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -51.00 deg   Angle2 : 53.00 deg
Barrier height            :  25.00 m
Barrier receiver distance :  14.00 / 14.00  m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 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   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  : 360.00 / 360.00 m
Receiver height           :  26.50 / 26.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -49.00 deg   Angle2 : 50.00 deg
Barrier height            :  25.00 m
Barrier receiver distance :  14.00 / 14.00  m
Source elevation          :  72.00 m
Receiver elevation        :  70.00 m
Barrier elevation         :  70.00 m
```

Reference angle : 0.00

↟
Results segment # 1: GladstoneAve (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	26.50	19.96	89.96

ROAD (0.00 + 43.75 + 0.00) = 43.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	65	0.00	67.51	0.00	-6.37	-1.51	0.00	0.00	-15.88	43.75

Segment Leq : 43.75 dBA

↟
Results segment # 2: O'Connor St (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	26.50	20.14	90.14

ROAD (0.00 + 45.72 + 0.00) = 45.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	69	0.00	68.48	0.00	-5.64	-1.22	0.00	0.00	-15.90	45.72

Segment Leq : 45.72 dBA

↟
Results segment # 3: 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	26.50	25.59	95.59

ROAD (0.00 + 49.96 + 0.00) = 49.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	53	0.00	80.15	0.00	-13.74	-2.38	0.00	-14.06	0.00	49.96
-51	53	0.00	80.15	0.00	-13.74	-2.38	0.00	0.00	-4.37	59.65*
-51	53	0.00	80.15	0.00	-13.74	-2.38	0.00	0.00	0.00	64.02

* Bright Zone !

Segment Leq : 49.96 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	26.50	25.61	95.61

ROAD (0.00 + 49.70 + 0.00) = 49.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-49	50	0.00	80.15	0.00	-13.80	-2.60	0.00	-14.05	0.00	49.70
-49	50	0.00	80.15	0.00	-13.80	-2.60	0.00	0.00	-4.34	59.41*
-49	50	0.00	80.15	0.00	-13.80	-2.60	0.00	0.00	0.00	63.75

* Bright Zone !

Segment Leq : 49.70 dBA

Total Leq All Segments: 54.04 dBA

Results segment # 1: GladstoneAve (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	26.50	19.96	89.96

ROAD (0.00 + 36.15 + 0.00) = 36.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	65	0.00	59.91	0.00	-6.37	-1.51	0.00	0.00	-15.88	36.15

Segment Leq : 36.15 dBA

↟

Results segment # 2: O'Connor St (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	26.50	20.14	90.14

ROAD (0.00 + 38.12 + 0.00) = 38.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-67	69	0.00	60.88	0.00	-5.64	-1.22	0.00	0.00	-15.90	38.12

Segment Leq : 38.12 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	26.50	25.59	95.59

```
ROAD (0.00 + 42.37 + 0.00) = 42.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -51     53   0.00  72.55   0.00 -13.74  -2.38   0.00 -14.06   0.00  42.37
   -51     53   0.00  72.55   0.00 -13.74  -2.38   0.00   0.00  -4.37  52.05*
   -51     53   0.00  72.55   0.00 -13.74  -2.38   0.00   0.00   0.00  56.43
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 42.37 dBA

↟
Results segment # 4: Hwy417 East (night)
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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 !       26.50 !       25.61 !        95.61

ROAD (0.00 + 42.10 + 0.00) = 42.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49     50   0.00  72.55   0.00 -13.80  -2.60   0.00 -14.05   0.00  42.10
   -49     50   0.00  72.55   0.00 -13.80  -2.60   0.00   0.00  -4.34  51.82*
   -49     50   0.00  72.55   0.00 -13.80  -2.60   0.00   0.00   0.00  56.15
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 42.10 dBA

Total Leq All Segments: 46.44 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 54.04
                           (NIGHT): 46.44
↟
↟
```