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## **Environmental Noise Control Study**

Proposed Multi-Storey Apartment Buildings 1244 Kilborn Place, Ottawa

**Prepared For** 

Archdiocese of Ottawa

#### **Paterson Group Inc.**

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Report: PG6128-1



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#### 1.0 Introduction

Paterson Group (Paterson) was commissioned by Archdiocese of Ottawa to conduct an environmental noise control study for the proposed multi-storey apartment buildings to be located at 1244 Kilborn Place, in the City of Ottawa.

The objective of the current study is to:

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

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

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

## 2.0 Proposed Development

It is understood that the proposed residential development will consist of two buildings (Building A and Building B). Each building will consist of four (4) stories and one (1) basement level. An approximate building height of 12 metres above grade is proposed for both buildings. Associated at-grade landscaped terraces, bicycle racks, parking areas, and driveways are also anticipated. An at-grade amenity area at the terrace between Building A and Building B that will serve as an Outdoor Living Area (OLA) is further anticipated.



## 3.0 Methodology and Noise Assessment Criteria

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

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

#### **Surface Transportation Noise**

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

The City of Ottawa's Official Plan dictates that the influence area must contain any of 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.

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

Table 1 – Noise Level Limit for Outdoor Living Areas										
Time Period	L <sub>eq</sub> Level (dBA)									
Daytime, 7:00-23:00	55									
<ul> <li>Standard taken from Table 2.2a; Sound and Rail</li> </ul>	d Level Limit for Outdoor Living Areas – Road									

Table 2 – Noise Level Limits for Indoor Living A	reas		
Type of Space	Time Period	•	∟evel BA)
туре от орисе	Time Teriou	Road	Rail
General offices, reception areas, retail stores, etc.	Daytime 7:00-23:00	50	45
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime 7:00-23:00	45	40
Living/dining/den areas of <b>residences</b> , hospitals, nursing/retirement homes, schools, day-care centres	Daytime 7:00-23:00	45	40
Living/dining/den areas of <b>residences</b> , hospitals, nursing/retirement homes etc. (except schools or day-care centres)	Nighttime 23:00-7:00	45	40
Sleeping quarters of hotels/motels	Nighttime 23:00-7:00	45	40
Sleeping quarters of <b>residences</b> , hospitals, nursing/retirement homes, etc.	Nighttime 23:00-7:00	40	35

Standards taken from Table 2.2b, Sound Level Limit for Indoor Living Areas – Road and Rail and Table 2.2c, Supplementary Sound Level Limits for Indoor Spaces – Road and Rail

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



If the noise level limits are exceeded, the following Warning Clauses should be included in related deeds of sale:

Table 3 – Warning C	Clauses for Noise 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."
	n from section C8 Warning Clauses; Environmental Noise Guidelines for Transportation Sources - NPC-300

#### **Stationary Noise**

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

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

#### **Aircraft / Airport Noise**

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



## 4.0 Analysis

#### **Surface Transportation Noise**

The subject buildings are bordered to the north by Kilborn Place followed by an institutional building, to the east by Kilborn Avenue and Lamira Street followed by residential dwellings, Utah Street, Essex Street, and Snowdon Street, to the south by commercial buildings and Rooney's Lane, to the west by residential dwellings followed by Bank Street. Kilborn Place, Kilborn Avenue, Lamira Street, Utah Street, Essex Street, Snowdon Street, Rooney's Lane, and Bank Street are identified within the 100 m radius of proposed buildings.

Based on the City of Ottawa's Official Plan, Schedule E, Kilborn Avenue is considered a 2-lane urban collector road (2-UCU), Lamira Street is considered a 2 lane urban collector road (2-UCU), and Bank Street is considered a 4 lane urban arterial road — divided (4-UAD). All other roads within the 100 m radius of the proposed development are not classified as either arterial, collector or major collector roads and therefore are not included in this study. The major sources of traffic noise are due to the Kilborn Avenue and Lamira Street to the east and Bank Street to the west of the proposed buildings.

All noise sources are presented in Drawings PG6128-3 and PG6128-4 - Site Geometry located in Appendix 1.

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

Table 4 – Traffic a	Table 4 – Traffic and Road Parameters													
Segment	Roadway Classification	AADT Veh/Day	Speed Limit (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %								
Kilborn Avenue	2-UCU	8000	40	92/8	7	5								
Lamira Street	2-UCU	8000	40	92/8	7	5								
Bank Street 4-UAD 35000 60 92/8 7 5														
Data obtain	ed from the City o	of Ottawa doc	cument EN	CG										

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



Table 5 – Elevations 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									
Fourth Floor	10.5	Living Area/Bedroom	Daytime / Nighttime									
At-Grade Terrace	1.5		Outdoor Living Area									

For this analysis, a reception point was taken at the centre of each floor, at the first floor and top floor. An Outdoor Living Area – at-grade terrace is anticipated at the area between Building A and Building B. A reception point in the centre of at-grade terrace, 1.5 m high, was selected for the analysis of this area. Reception points are detailed on Drawing PG6128-2 - Receptor Locations presented in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The roadway was analyzed where it intersected the 100 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG6128-3A to 3F and PG6128-4A to 4G - 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 gently sloping downward to the west and at grade with the neighbouring roads within 100 m radius.

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



## 5.0 Results

## **Surface Transportation Noise**

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

The exterior noise levels due to roadway traffic sources were analyzed with the STAMSON version 5.04 software at all reception points. The input and output data of the STAMSON modeling can be found in Appendix 2, and the summary of the results can be found in Table 6.

Table 6: Exte	erior Noise Levels	due to Roadway Traffic Sources	S	
Reception Point	Height Above Grade (m)	Receptor Location	Daytime L <sub>eq(16)</sub> (dBA)	Nighttime L <sub>eq(8)</sub> (dBA)
REC 1-1	1.5	Building A, Northern Elevation, 1st Floor	44	36
REC 1-4	10.5	Building A, Northern Elevation, 4th Floor	45	38
REC 2-1	1.5	Building A, Eastern Elevation, 1st Floor	48	40
REC 2-4	10.5	Building A, Eastern Elevation, 4th Floor	49	42
REC 3-1	1.5	Building A, Northern Elevation, 1st Floor	50	43
REC 3-4	10.5	Building A, Northern Elevation, 4th Floor	52	44
REC 4-1	1.5	Building A, Eastern Elevation, 1st Floor	62	55
REC 4-4	10.5	Building A, Eastern Elevation, 4th Floor	63	55
REC 5-1	1.5	Building A, Southern Elevation, 1st Floor	53	47
REC 5-4	10.5	Building A, Southern Elevation, 4th Floor	55	49
REC 6-1	1.5	Building A, Western Elevation, 1st Floor	51	43
REC 6-4	10.5	Building A, Western Elevation, 4th Floor	53	45
REC 7-1	1.5	Building B, Northern Elevation, 1st Floor	57	49
REC 7-4	10.5	Building B, Northern Elevation, 4th Floor	58	50
REC 8-1	1.5	Building B, Eastern Elevation, 1st Floor	62	55
REC 8-4	10.5	Building B, Eastern Elevation, 4th Floor	63	55



Table 6: Exte	erior Noise Levels	due to Roadway Traffic Source	s	
Reception Point	Height Above Grade (m)	Receptor Location	Daytime L <sub>eq(16)</sub> (dBA)	Nighttime L <sub>eq(8)</sub> (dBA)
REC 9-1	1.5	Building B, Southern Elevation, 1st Floor	56	48
REC 9-4	10.5	Building B, Southern Elevation, 4th Floor	58	50
REC 10-1	1.5	Building B, Western Elevation, 1st Floor	56	48
REC 10-4	10.5	Building B, Western Elevation, 4th Floor	58	50
REC 11-1	1.5	Building B, Northern Elevation, 1st Floor	45	37
REC 11-4	10.5	Building B, Northern Elevation, 4th Floor	47	40
REC 12-1	1.5	Building B, Western Elevation, 1st Floor	46	39
REC 12-4	10.5	Building B, Western Elevation, 4th Floor	49	41
REC 13	1.5	At-Grade Terrace	51	



### 6.0 Discussion and Recommendations

### 6.1 Outdoor Living Areas

An amenity area is anticipated at the at-grade terrace in between Building A and Building B. One (1) receptor point was selected for the analysis at outdoor living area (REC 13). It is assumed that the at-grade terrace will only be utilized as an outdoor living area provided that the proposed buildings are constructed. The proposed noise levels at the at-grade terrace will be 51 dBA during the daytime, which is below the 55 dBA threshold value specified by the ENCG.

## 6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modeling indicate that the noise levels at Building A will range between 44 dBA and 63 dBA during the daytime period (07:00-23:00) and between 36 dBA and 55 dBA during the nighttime period (23:00-7:00). The noise levels on the eastern and southern elevations will exceed the limit for the exterior of the pane of glass (55 dBA) specified by the ENCG. Therefore, the units at the eastern and southern elevations of this building should be designed with the provision for adding a central air conditioning unit, along with the warning clause Type C, as outlined in Table 3.

The results of the STAMSON modeling indicate that the noise levels at Building B will range between 45 dBA and 63 dBA during the daytime period (07:00-23:00) and between 37 dBA and 55 dBA during the nighttime period (23:00-7:00). The noise levels on the northern, eastern, southern, and western elevations will exceed the limit for the exterior of the pane of glass (55 dBA) specified by the ENCG. Therefore, all units of this building should be designed with the provision for adding a central air conditioning unit, along with the warning clause Type C, as outlined in Table 3.

It is also noted that the results of STAMSON modeling indicate that the noise levels at both Building A and Building B will be below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.



## 7.0 Summary of Findings

The subject site is located at 1244 Kilborn Place, in the City of Ottawa. It is understood that the proposed development will consist of two buildings – Building A and Building B. Each building has four (4) storey apartment buildings and rise approximately 12 metres above grade. There are three major sources of surface transportation noise to the proposed buildings: Kilborn Avenue, Lamira Street, and Bank Street.

The surface transportation noise analysis was completed at the Outdoor Living Area – at-grade terrace. The results of STAMSON modeling indicate that the noise levels at the rooftop deck is expected to be 51 dBA during the daytime period, which is below the 55 dBA threshold value specified by the ENCG.

Several reception points were selected for the surface transportation noise analysis, consisting of the centre of first level and top level. The results of STAMSON modeling indicate that the northern, eastern, southern, and western elevations of both subject buildings (Building A and Building B) are expected to exceed the 55 dBA threshold specified by the ENCG. The results of STAMSON modeling indicate that the eastern and southern elevations of the proposed Building A and the northern, eastern, southern, and western elevations of Building B are expected to exceed the 55 dBA threshold specified by the ENCG. Therefore, the design with the provision for a central air conditioning unit, along with a warning clause Type C, will be required for the units at the eastern and southern elevations of Building A, and all units of Building B. It is also noted that the modeling indicates that the noise levels at Building A and Building B are below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

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

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



### 8.0 Statement of Limitations

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

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Archdiocese of Ottawa 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.

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#### **Report Distribution:**

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## **APPENDIX 1**

TABLE 7 - SUMMARY OF RECEPTION POINTS AND GEOMETRY

**DRAWING PG6128-1 - SITE PLAN** 

**DRAWING PG6128-2 - RECEPTOR LOCATION PLAN** 

DRAWING PG6128-3 – SITE GEOMETRY (Building A)

DRAWING PG6128-3A - SITE GEOMETRY (REC 1-1 and REC 1-4)

DRAWING PG6128-3B - SITE GEOMETRY (REC 2-1 and REC 2-4)

DRAWING PG6128-3C - SITE GEOMETRY (REC 3-1 and REC 3-4)

DRAWING PG6128-3D - SITE GEOMETRY (REC 4-1 and REC 4-4)

DRAWING PG6128-3E - SITE GEOMETRY (REC 5-1 and REC 5-4)

DRAWING PG6128-3F - SITE GEOMETRY (REC 6-1 and REC 6-4)

DRAWING PG6128-4 – SITE GEOMETRY (Building B)

DRAWING PG6128-4A - SITE GEOMETRY (REC 7-1 and REC 7-4)

DRAWING PG6128-4B - SITE GEOMETRY (REC 8-1 and REC 8-4)

DRAWING PG6128-4C - SITE GEOMETRY (REC 9-1 and REC 9-4)

DRAWING PG6128-4D - SITE GEOMETRY (REC 10-1 and REC 10-4)

DRAWING PG6128-4E - SITE GEOMETRY (REC 11-1 and REC 11-4)

DRAWING PG6128-4F - SITE GEOMETRY (REC 12-1 and REC 12-4)

DRAWING PG6128-4G - SITE GEOMETRY (REC 13)

Table 7 - Summary of Reception Points and Geometry
1244 Kilborn Place

Point of		Les Dev			K	ilborn Avenue					L	.amira Street		
Reception	Location	Leq Day (dBA)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 1-1	Building A, Northern Elevation, 1st Floor	44	60	1.5	60.0	-21, -4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 1-4	Building A, Northern Elevation, 4th Floor	45	60	10.5	60.9	-21, -4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 2-1	Building A, Eastern Elevation, 1st Floor	48	55	1.5	55.0	-29, -7	n/a	n/a	55	1.5	55.0	-7, 10	n/a	n/a
REC 2-4	Building A, Eastern Elevation, 4th Floor	49	55	10.5	56.0	-29, -7	n/a	n/a	55	10.5	56.0	-7, 10	n/a	n/a
REC 3-1	Building A, Northern Elevation, 1st Floor	50	38	1.5	38.0	47, 78	n/a	n/a	38	1.5	38.0	-19, 0	n/a	n/a
REC 3-4	Building A, Northern Elevation, 4th Floor	52	38	10.5	39.4	47, 78	n/a	n/a	38	10.5	39.4	-19, 0	n/a	n/a
REC 4-1	Building A, Eastern Elevation, 1st Floor	62	30	1.5	n/a	-78, -21	n/a	n/a	15	1.5	15.1	-43, 90	n/a	n/a
REC 4-4	Building A, Eastern Elevation, 4th Floor	63	30	10.5	n/a	-78, -21	n/a	n/a	15	10.5	18.3	-43, 90	n/a	n/a
REC 5-1	Building A, Southern Elevation, 1st Floor	53	n/a	n/a	n/a	n/a	n/a	n/a	55	1.5	55.0	0, 72	n/a	n/a
REC 5-4	Building A, Southern Elevation, 4th Floor	55	n/a	n/a	n/a	n/a	n/a	n/a	55	10.5	56.0	0, 72	n/a	n/a
REC 6-1	Building A, Western Elevation, 1st Floor	51	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 6-4	Building A, Western Elevation, 4th Floor	53	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 7 - Summary of Reception Points and Geometry
1244 Kilborn Place

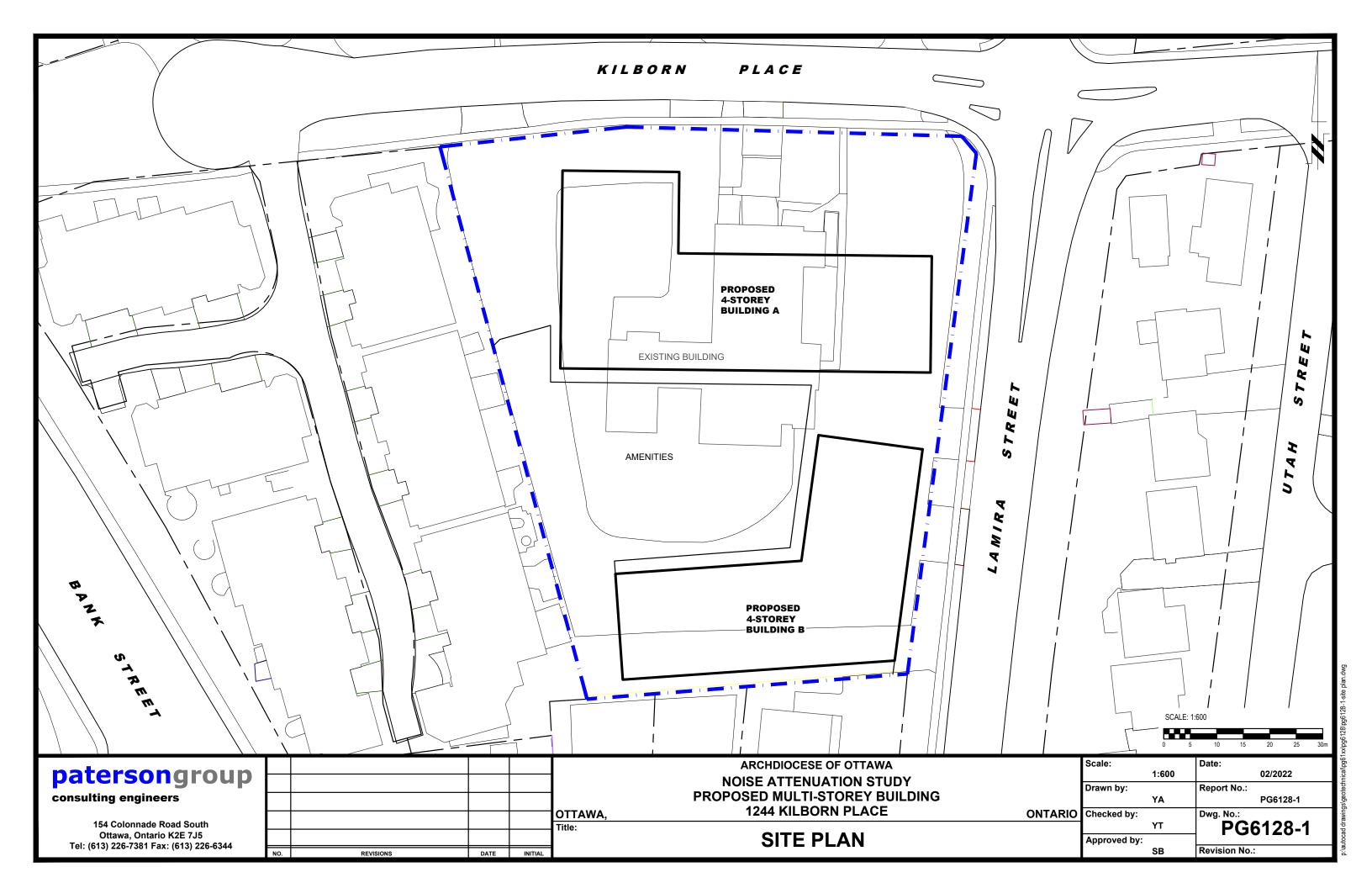
Point of		Log Day	Kilborn Avenue							Lamira Street					
Reception	Location	Leq Day (dBA)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	
REC 7-1	Building B, Northern Elevation, 1st Floor	57	65	1.5	65.0	-80, -41	n/a	n/a	20	1.5	20.1	-60, 0	n/a	n/a	
REC 7-4	Building B, Northern Elevation, 4th Floor	58	65	10.5	65.8	-80, -41	n/a	n/a	20	10.5	22.6	-60, 0	n/a	n/a	
REC 8-1	Building B, Eastern Elevation, 1st Floor	62	80	1.5	80.0	3, 38	n/a	n/a	15	1.5	15.1	-75, 87	n/a	n/a	
REC 8-4	Building B, Eastern Elevation, 4th Floor	63	80	10.5	80.7	3, 38	n/a	n/a	15	10.5	18.3	-75, 87	n/a	n/a	
REC 9-1	Building B, Southern Elevation, 1st Floor	56	n/a	n/a	n/a	n/a	n/a	n/a	35	1.5	35.0	0, 83	1	20	
REC 9-4	Building B, Southern Elevation, 4th Floor	58	n/a	n/a	n/a	n/a	n/a	n/a	35	10.5	36.5	0, 83	1	20	
REC 10-1	Building B, Western Elevation, 1st Floor	56	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
REC 10-4	Building B, Western Elevation, 4th Floor	58	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 11-1	Building B, Northern Elevation, 1st Floor	45	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 11-4	Building B, Northern Elevation, 4th Floor	47	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 12-1	Building B, Western Elevation, 1st Floor	46	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 12-4	Building B, Western Elevation, 4th Floor	49	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
REC 13	At-Grade Terrace	51	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

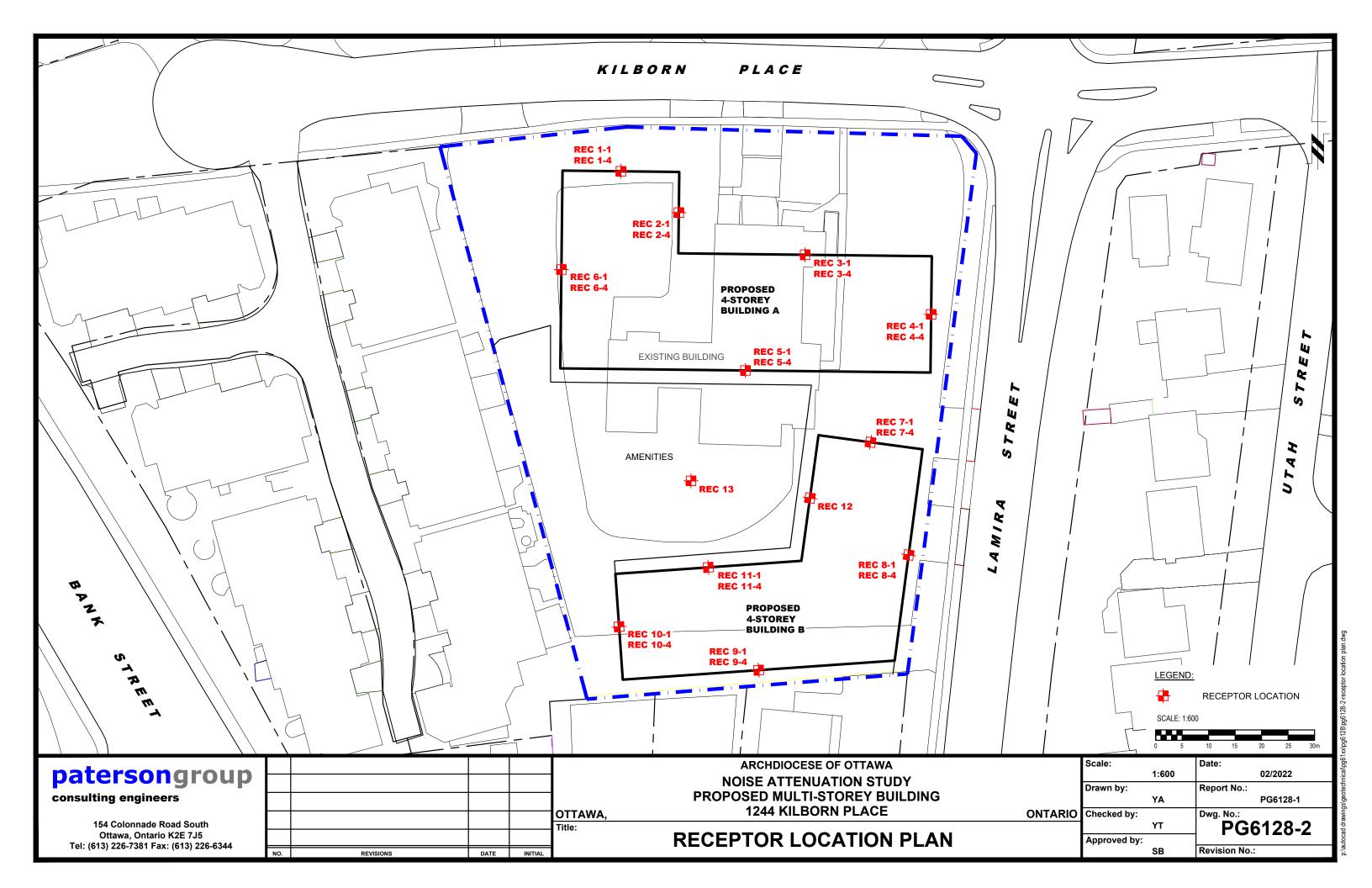
Table 7 - Summary of Reception Points and Geometry
1244 Kilborn Place

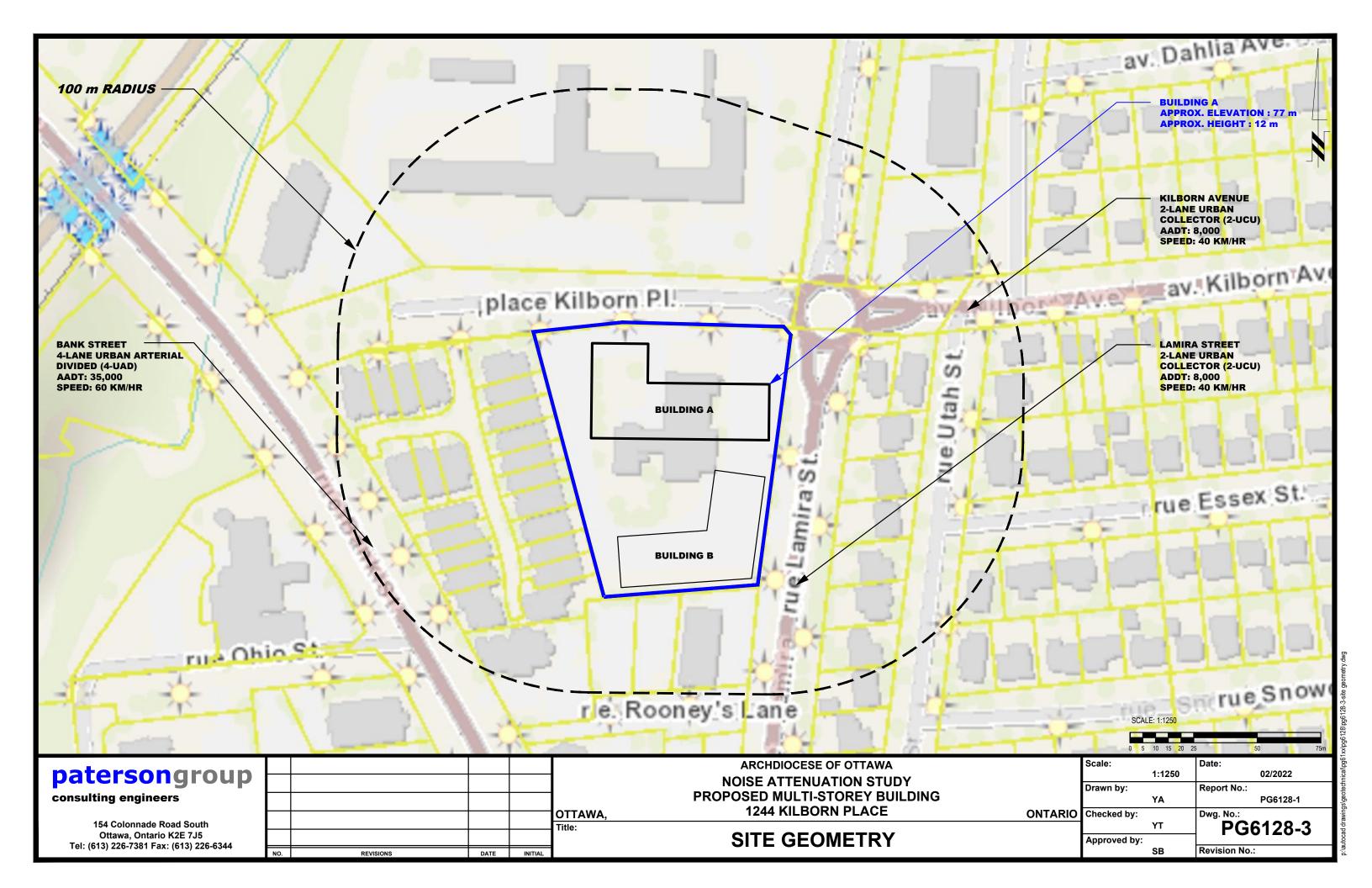
Daint of		Law Davi				Bank Street								
Point of Reception	Location	Leq Day (dBA)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	$\sim$	$\sim$	$\mathbb{X}$	>>	>>	
REC 1-1	Building A, Northern Elevation, 1st Floor	44	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	$\times$	$\times$			
REC 1-4	Building A, Northern Elevation, 4th Floor	45	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	$\times$	$\times$			
REC 2-1	Building A, Eastern Elevation, 1st Floor	48	n/a	n/a	n/a	n/a	n/a	n/a			$\times$			
REC 2-4	Building A, Eastern Elevation, 4th Floor	49	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	$\times$	$\times$			
REC 3-1	Building A, Northern Elevation, 1st Floor	50	n/a	n/a	n/a	n/a	n/a	n/a	$\times$		$\times$			
REC 3-4	Building A, Northern Elevation, 4th Floor	52	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	$\times$	$\times$			><
REC 4-1	Building A, Eastern Elevation, 1st Floor	62	n/a	n/a	n/a	n/a	n/a	n/a	$\geq$	$\geq$	$\geq$			
REC 4-4	Building A, Eastern Elevation, 4th Floor	63	n/a	n/a	n/a	n/a	n/a	n/a	><	$\times$	$\times$			
REC 5-1	Building A, Southern Elevation, 1st Floor	53	110	1.5	110.0	-46, 0	2	40	><	><	$\times$			
REC 5-4	Building A, Southern Elevation, 4th Floor	55	110	10.5	110.5	-46, 0	2	40			><			><
REC 6-1	Building A, Western Elevation, 1st Floor	51	100	1.5	100.0	-65, -10	2	40			><			
REC 6-4	Building A, Western Elevation, 4th Floor	53	100	10.5	100.6	-65, -10	2	40			>			

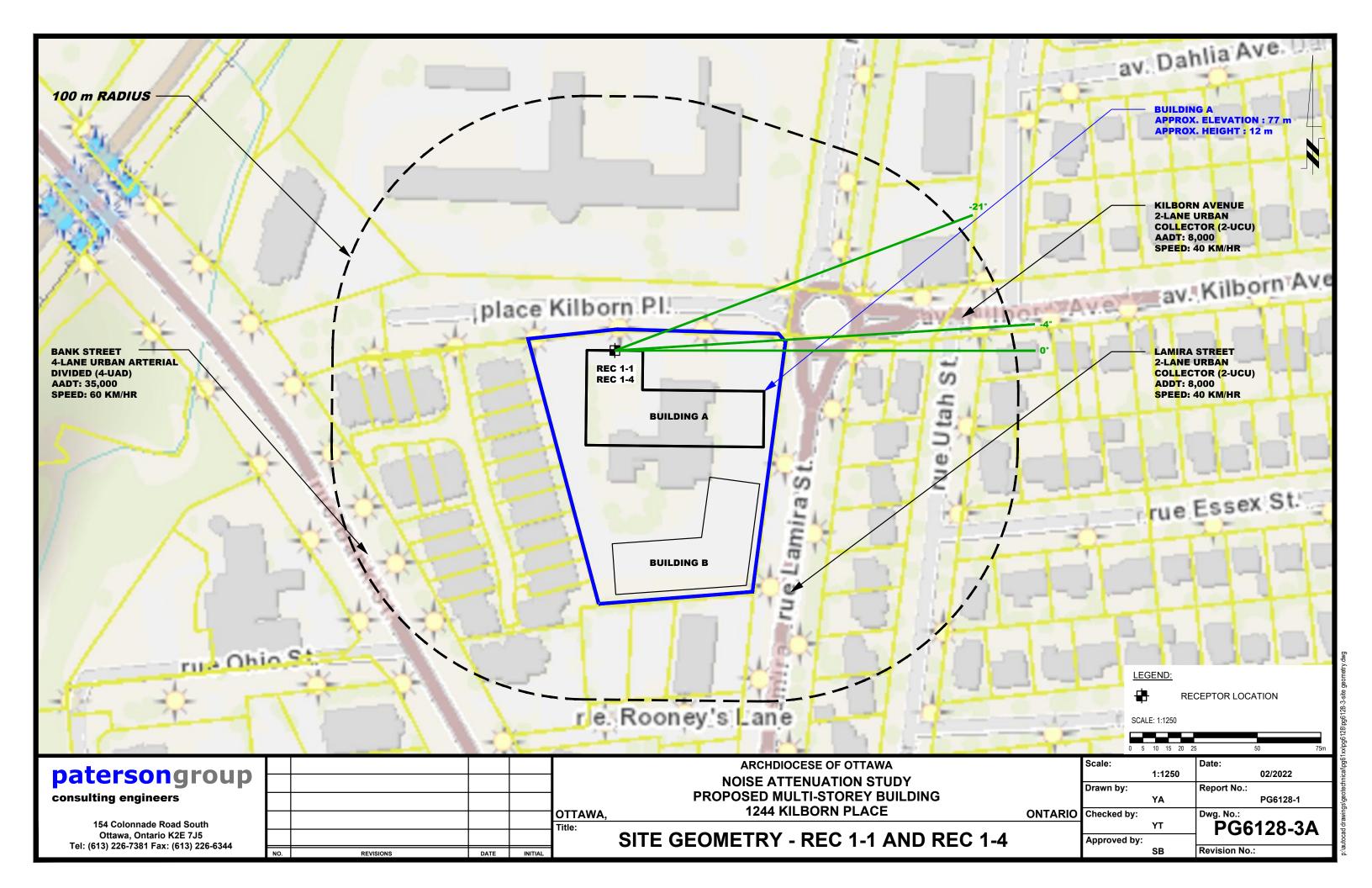
Table 7 - Summary of Reception Points and Geometry
1244 Kilborn Place

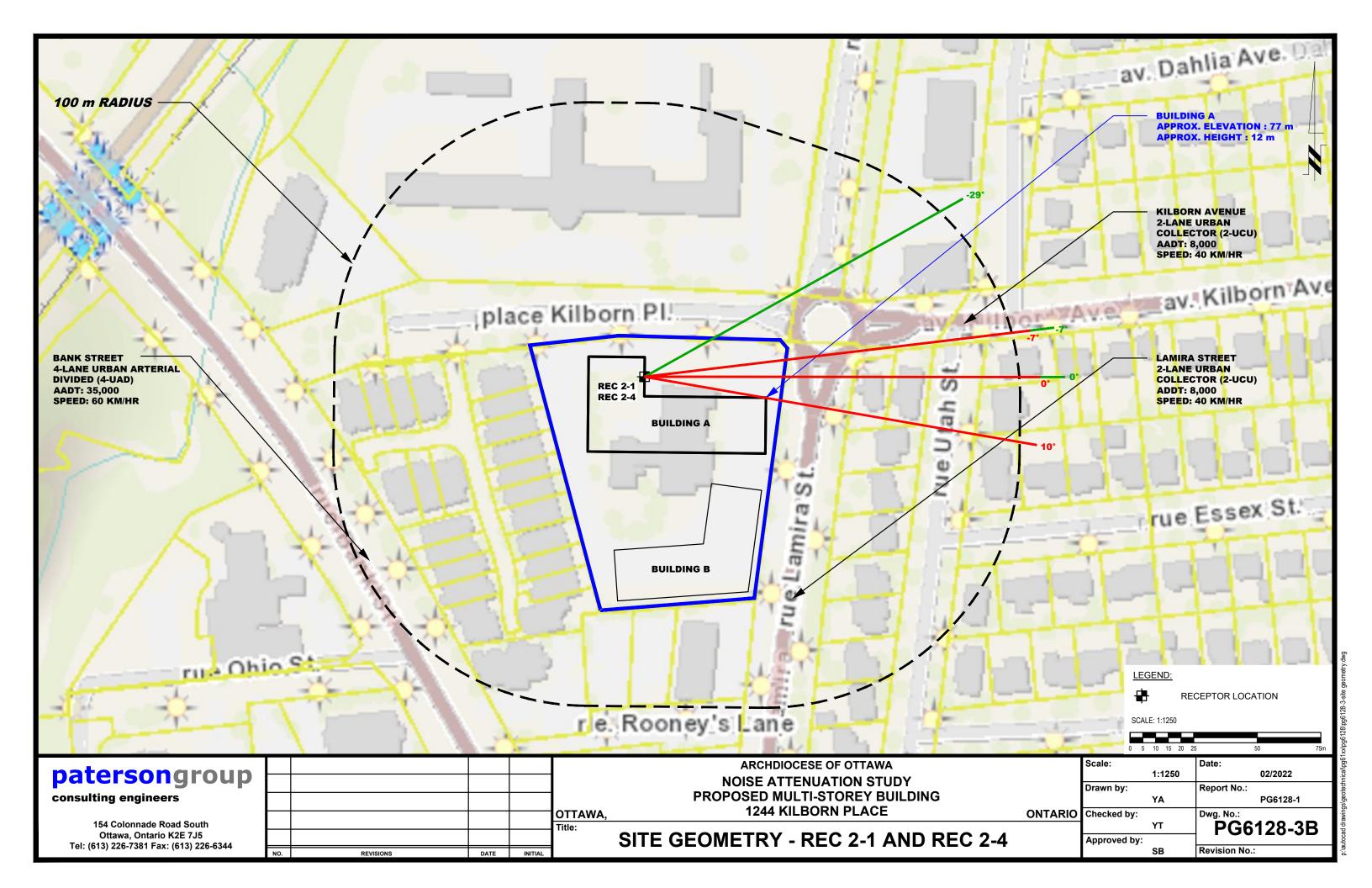
Point of		Log Dov				Bank Street								
Reception	Location	Leq Day (dBA)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	$\sim$	$\gg$	$\gg$			
REC 7-1	Building B, Northern Elevation, 1st Floor	57	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	> <	><			><
REC 7-4	Building B, Northern Elevation, 4th Floor	58	n/a	n/a	n/a	n/a	n/a	n/a	><	$\times$	> <			><
REC 8-1	Building B, Eastern Elevation, 1st Floor	62	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	><	> <			
REC 8-4	Building B, Eastern Elevation, 4th Floor	63	n/a	n/a	n/a	n/a	n/a	n/a	$\times$	>	><			><
REC 9-1	Building B, Southern Elevation, 1st Floor	56	90	1.5	90.0	-61, 0	1	40	$\times$	$\times$	>			
REC 9-4	Building B, Southern Elevation, 4th Floor	58	90	10.5	90.6	-61, 0	1	40	$\times$	$\times$	$\times$			
REC 10-1	Building B, Western Elevation, 1st Floor	56	70	1.5	70.0	-76, 21	2	40	$\times$	$\times$	>			><
REC 10-4	Building B, Western Elevation, 4th Floor	58	70	10.5	70.8	-76, 21	2	40	X		>			
REC 11-1	Building B, Northern Elevation, 1st Floor	45	105	1.5	105.0	0, 14	2	40	$\times$	$\times$	>>			><
REC 11-4	Building B, Northern Elevation, 4th Floor	47	105	10.5	105.5	0, 14	2	40	$\times$	$\times$	><			
REC 12-1	Building B, Western Elevation, 1st Floor	46	120	1.5	120.0	-30, -6	2	40	$\times$		$\geq$			
REC 12-4	Building B, Western Elevation, 4th Floor	49	120	10.5	120.5	-30, -6	2	40	$\times$	$\geq$	>			
REC 13	At-Grade Terrace	51	95	1.5	95.0	-45, 6	2	40	><	><	><			><

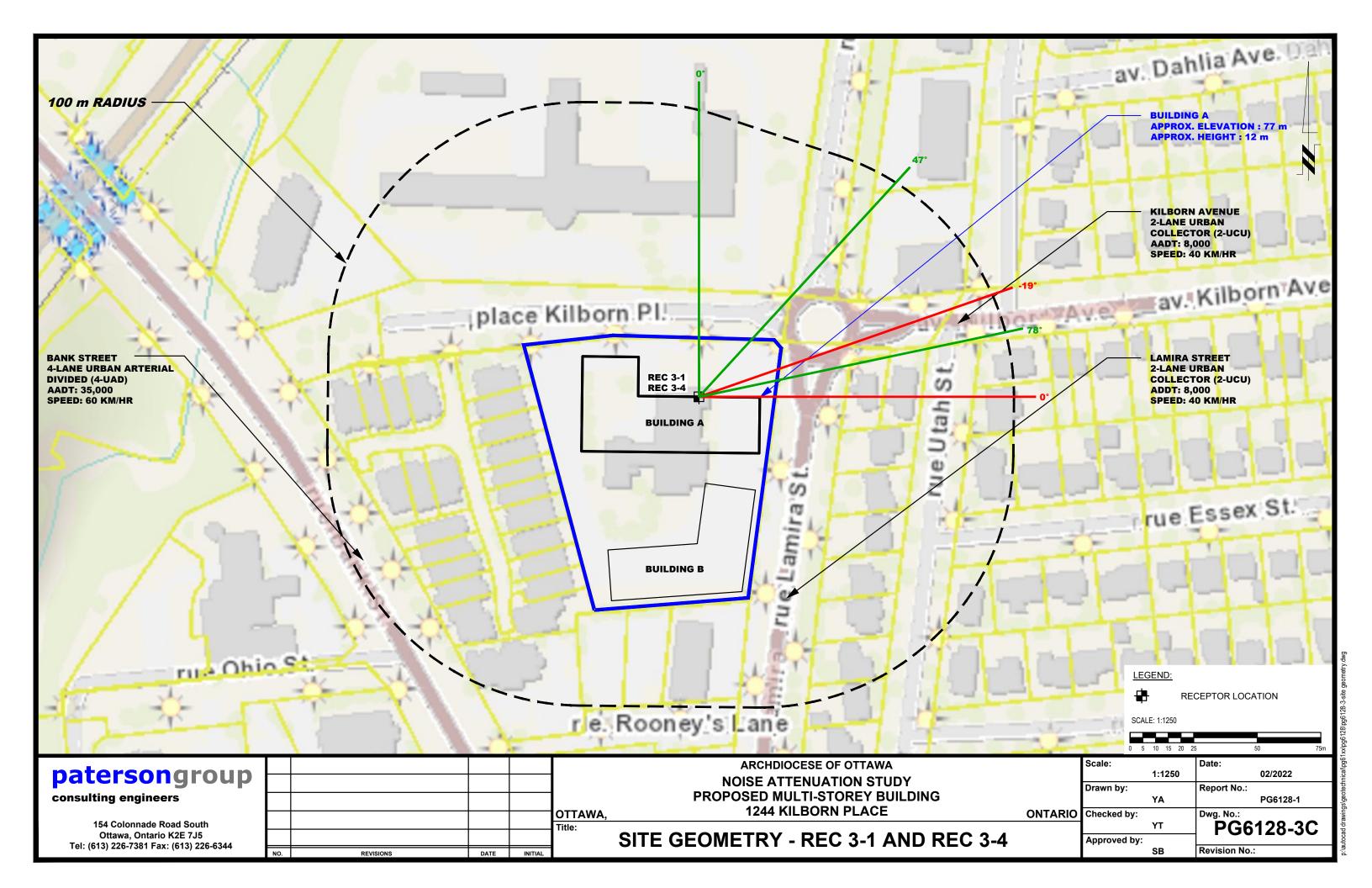


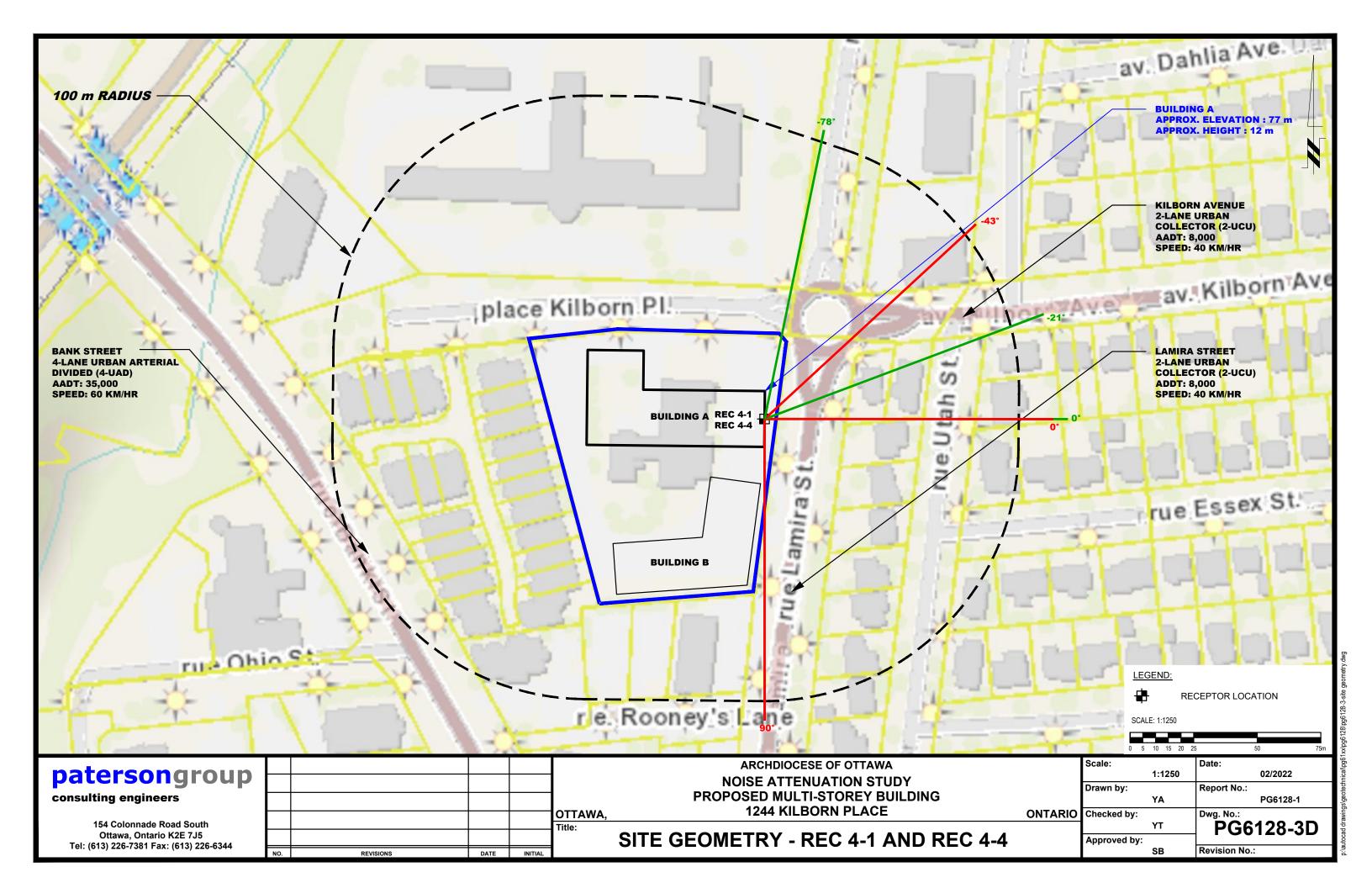


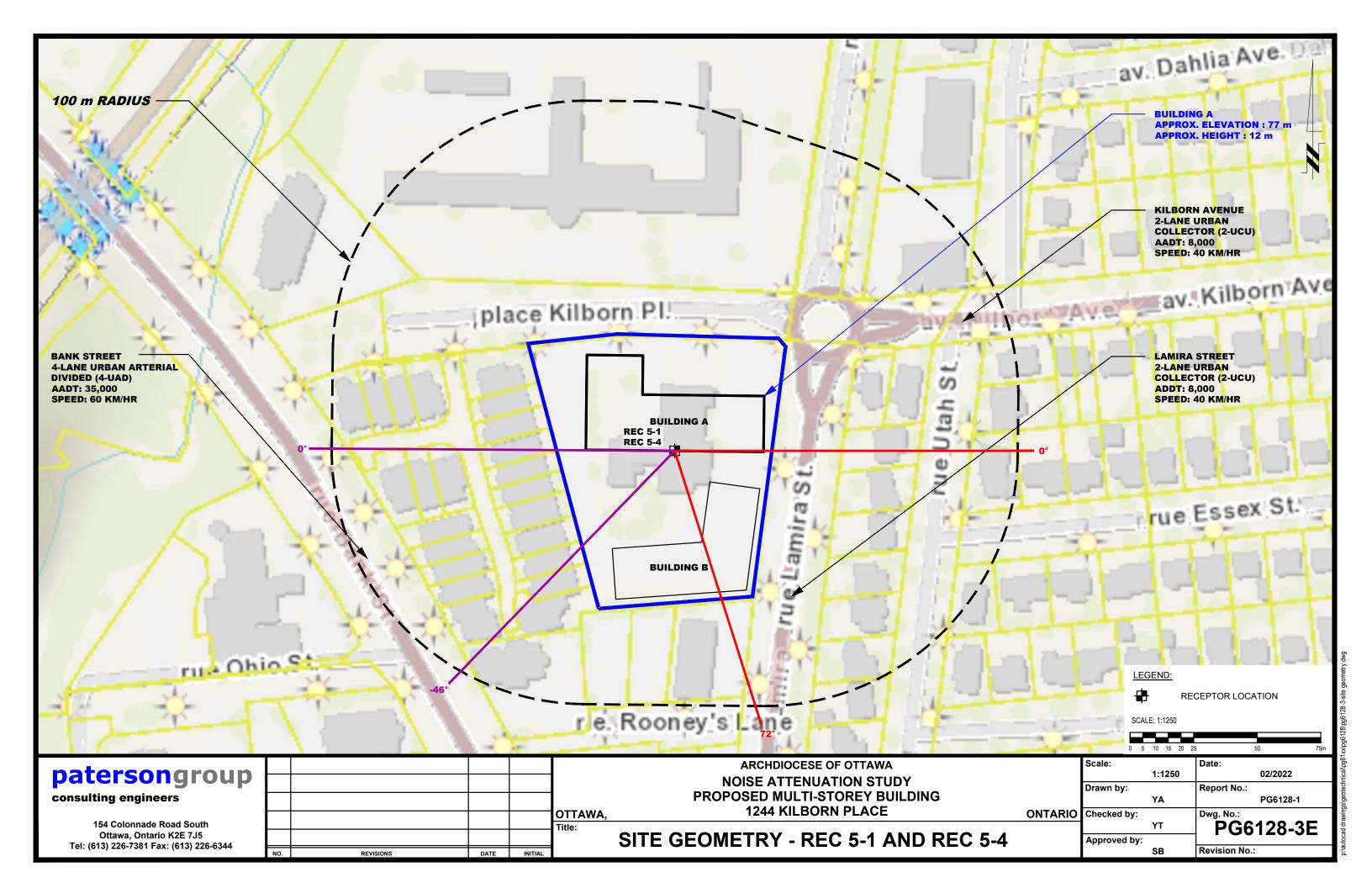


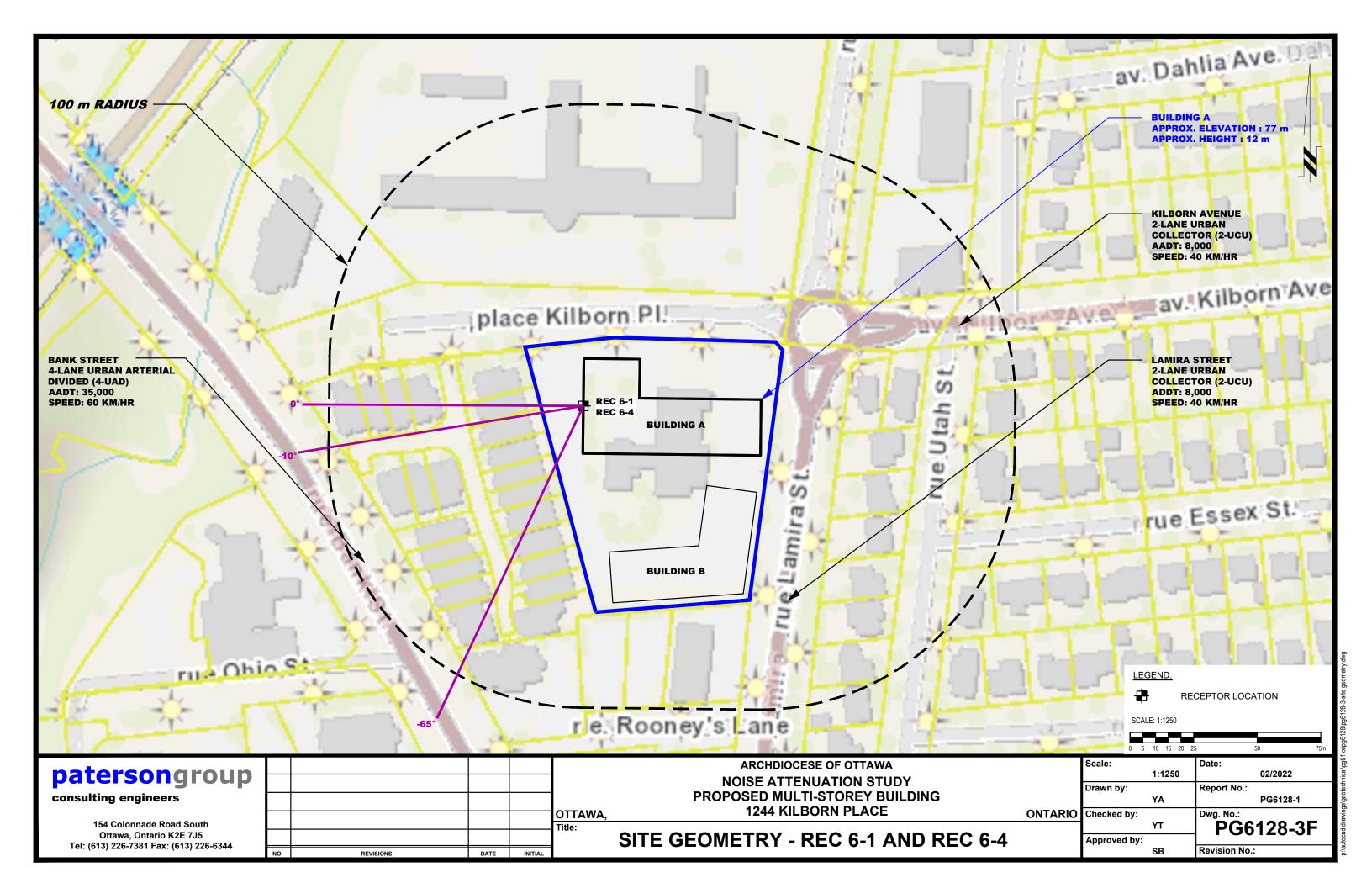


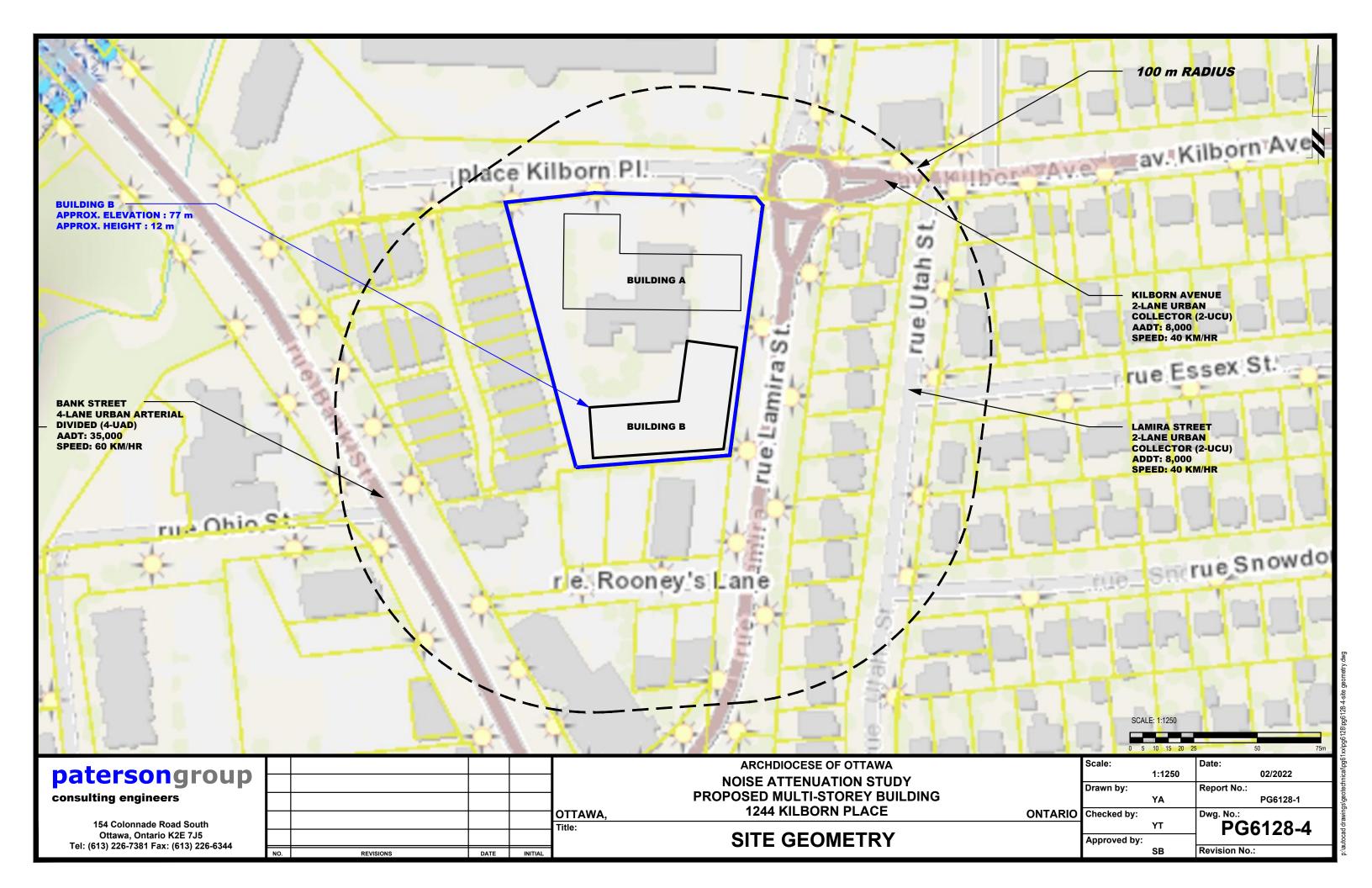


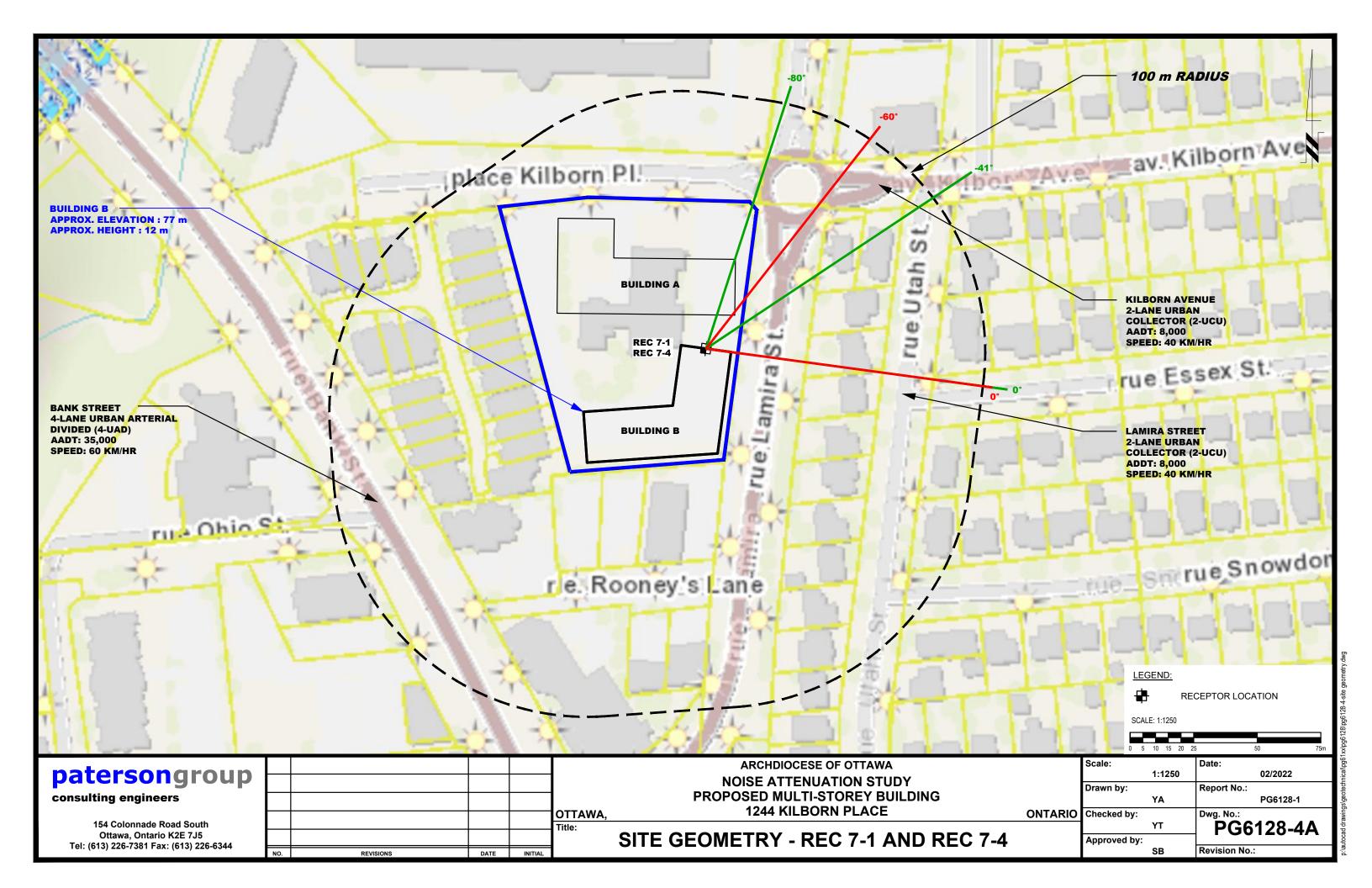


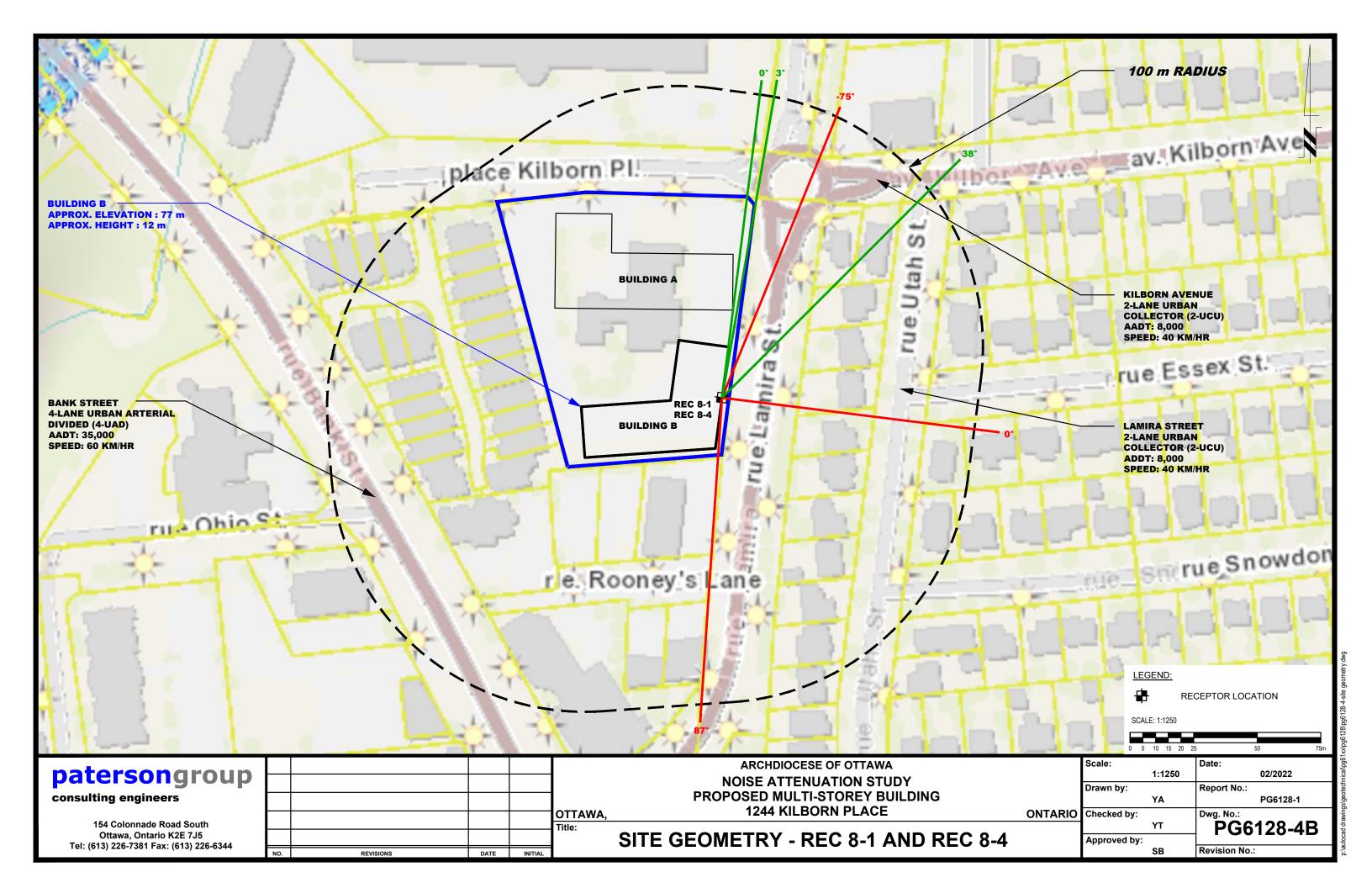


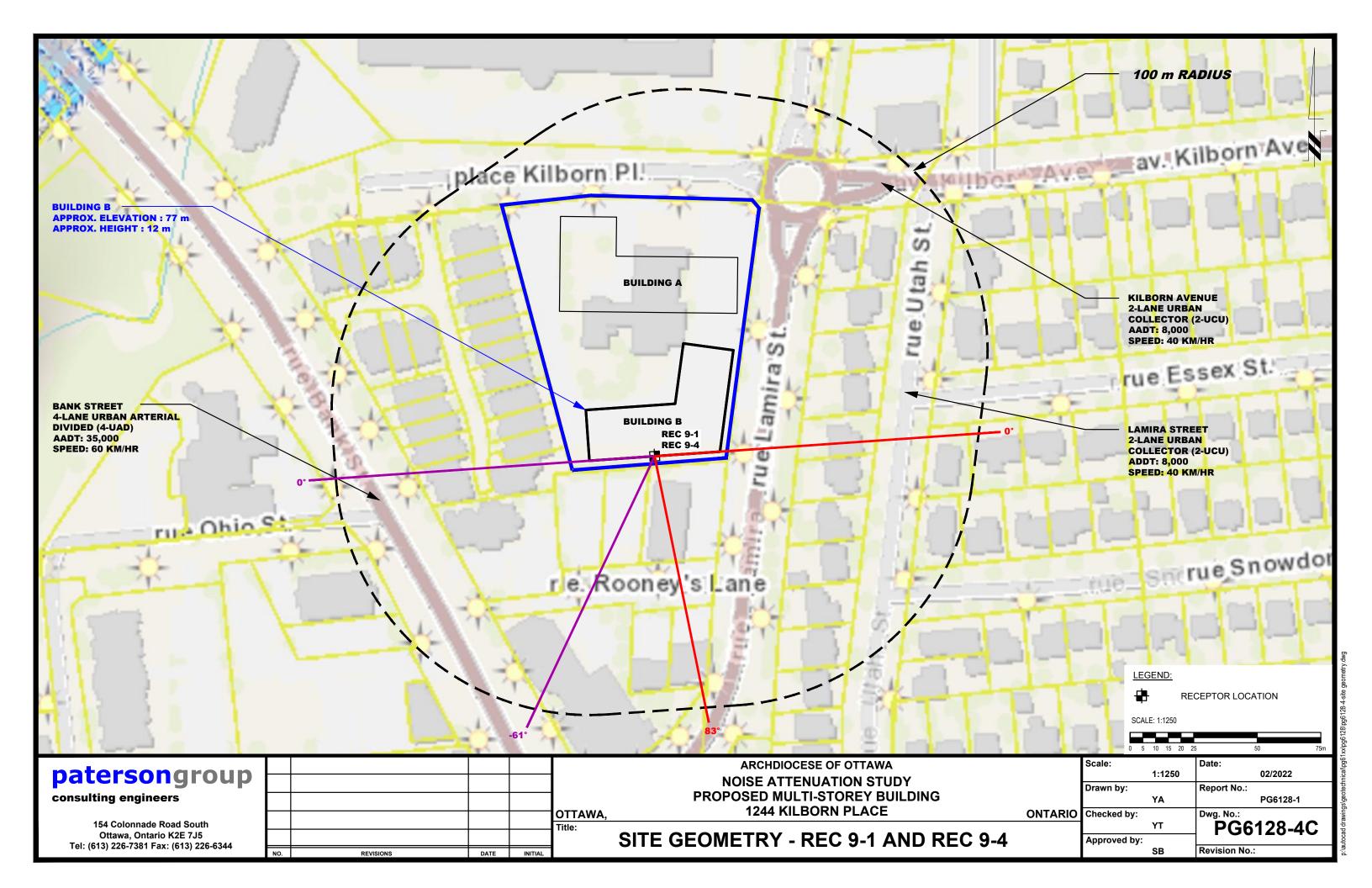


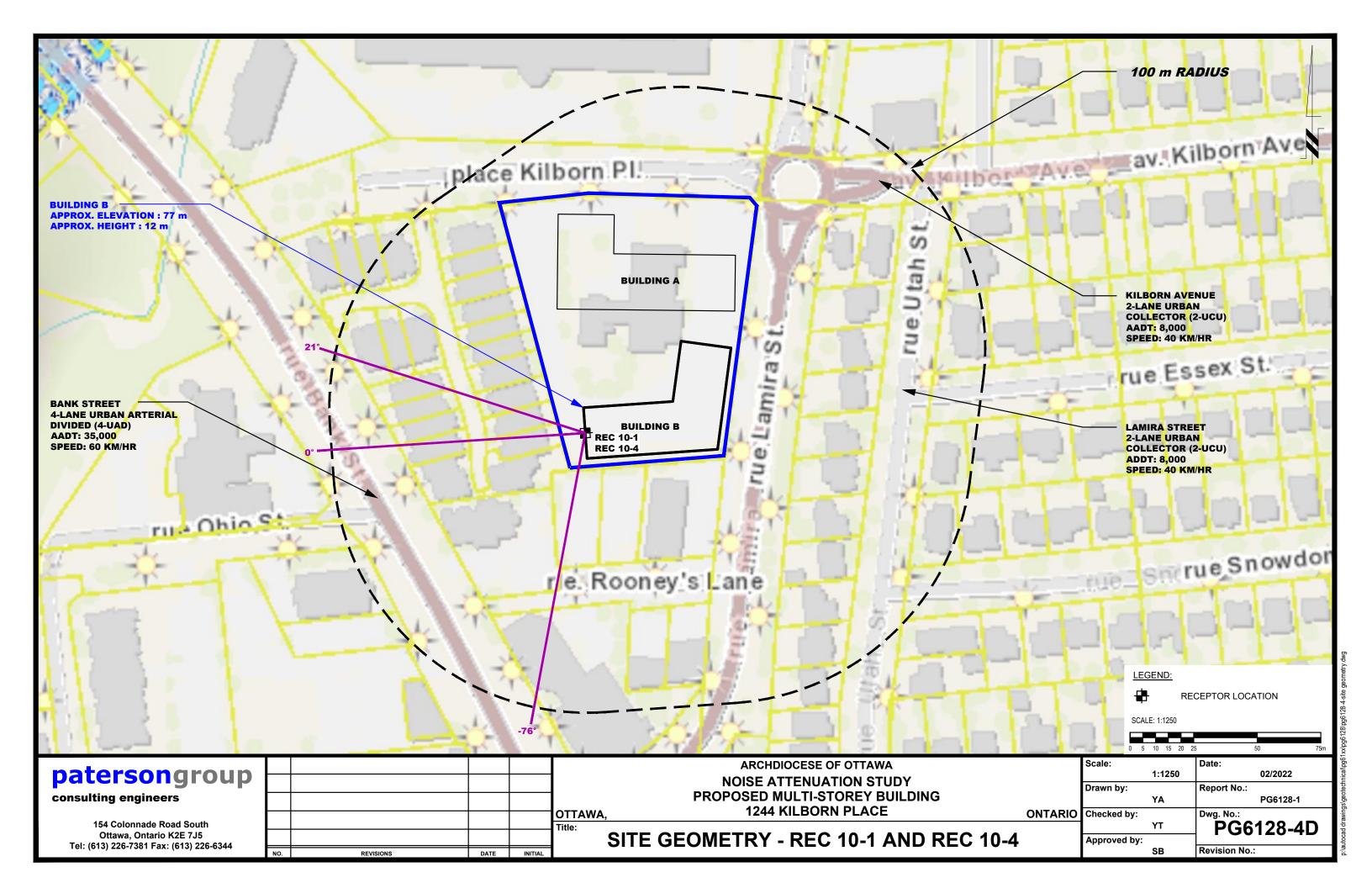


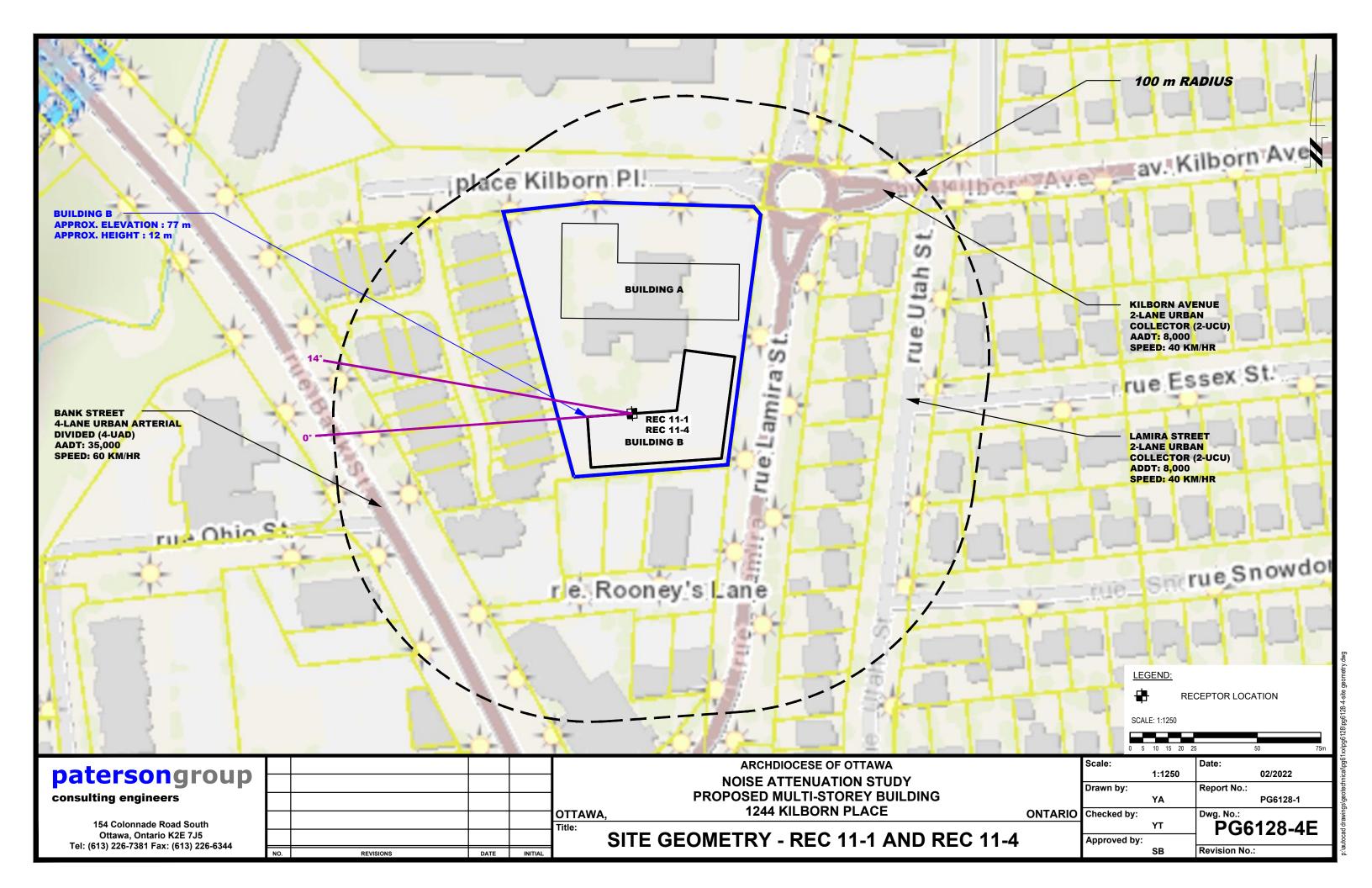


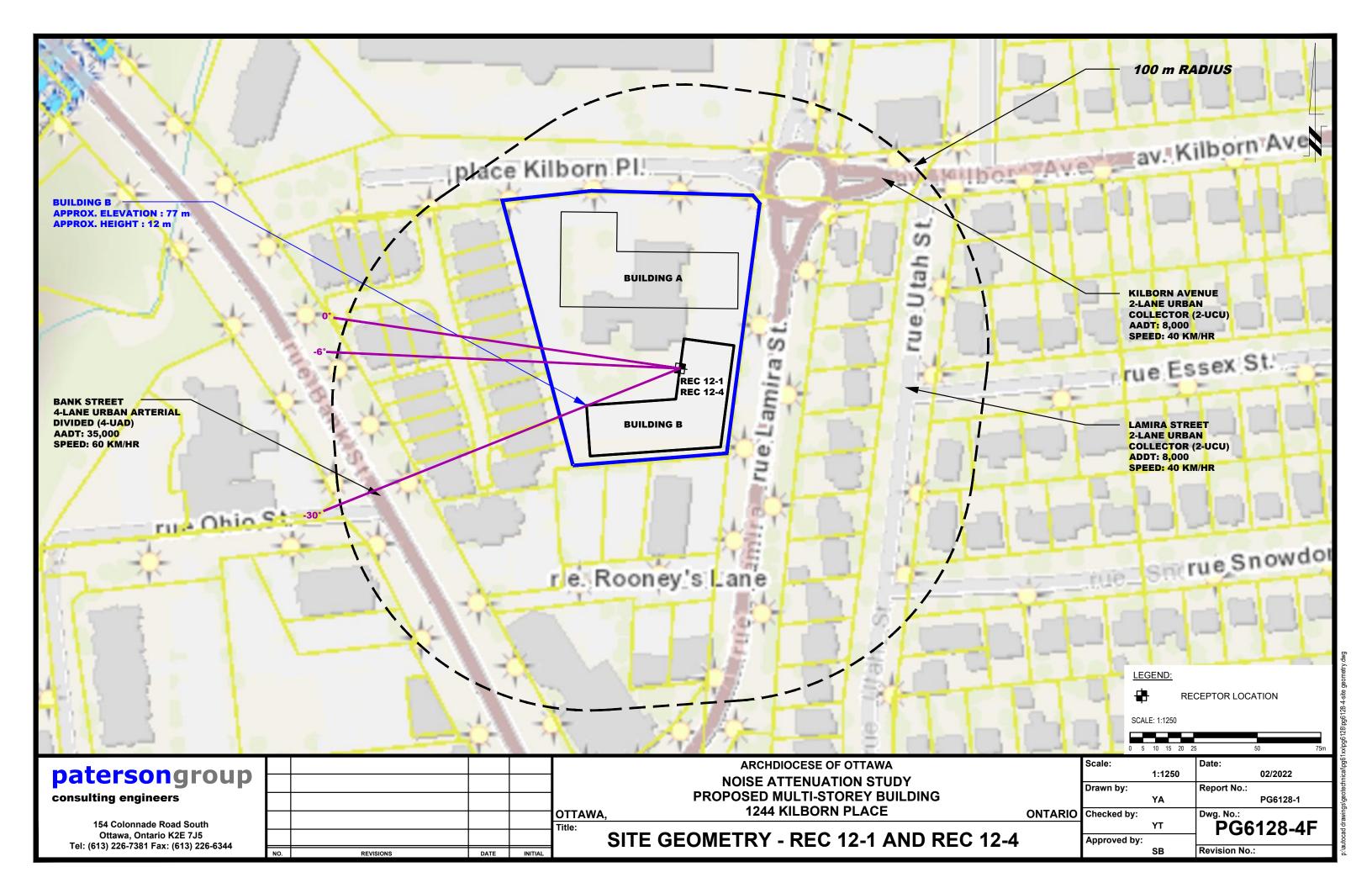


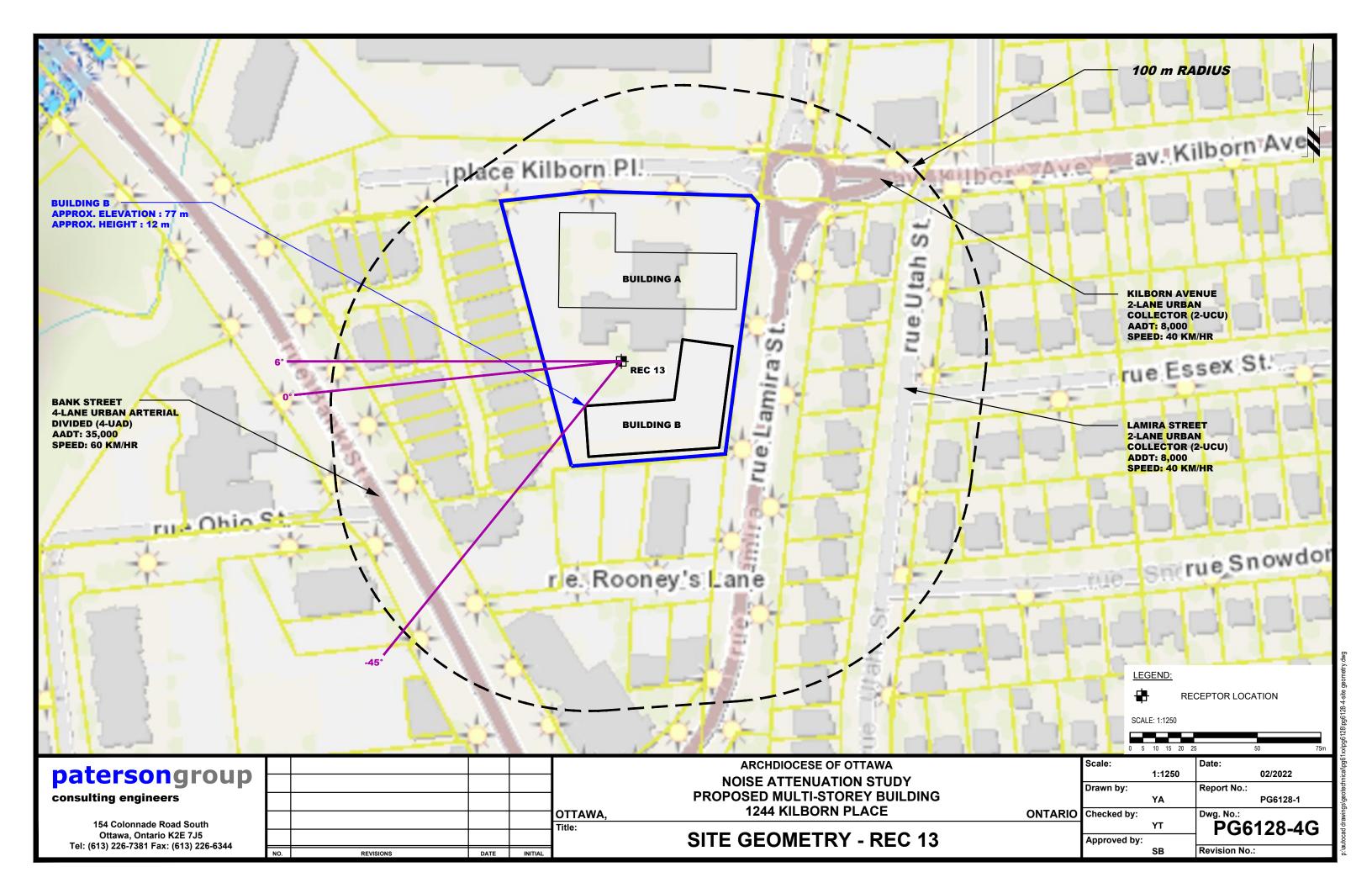














# **APPENDIX 2**

**STAMSON RESULTS** 

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 09:54:10

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 1-1

Road data, segment # 1: Kilborn Ave (day/night) \_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h

Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night) 

Angle1 Angle2 : -21.00 deg -4.00 deg

: 0 (No woods.) Wood depth Wood depth :
No of house rows :

0 , 1 ′ 60 (Absorptive ground surface)

Receiver source distance : 60.00 / 60.00 m Receiver height : 1.50 / 1.50 m

: Topography 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 43.63 + 0.00) = 43.63 dBA

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

-21 -4 0.66 63.96 0.00 -9.99 -10.33 0.00 0.00 0.00 43.63

Segment Leq: 43.63 dBA

```
Total Leq All Segments: 43.63 dBA

Results segment # 1: Kilborn Ave (night)

Source height = 1.50 m

ROAD (0.00 + 36.04 + 0.00) = 36.04 dBA

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

-21 -4 0.66 56.36 0.00 -9.99 -10.33 0.00 0.00 0.00 36.04

Segment Leq : 36.04 dBA

Total Leq All Segments: 36.04 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 43.63 (NIGHT): 36.04

**^** 

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:00:56

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec14.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 1-4

Road data, segment # 1: Kilborn Ave (day/night) \_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h

Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night) 

Angle1 Angle2 : -21.00 deg -4.00 deg : 0 (No woods.)

Wood depth :
No of house rows : 0 / 0

0 / 0 1 (Absorptive ground surface)

Receiver source distance : 60.00 / 60.00 m Receiver height : 10.50 / 10.50 m

: 1 (Flat/gentle slope; no barrier) Topography

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day)

\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 45.29 + 0.00) = 45.29 dBA

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

-21 -4 0.39 63.96 0.00 -8.37 -10.30 0.00 0.00 0.00 45.29

Segment Leq: 45.29 dBA

```
Total Leq All Segments: 45.29 dBA

Results segment # 1: Kilborn Ave (night)

Source height = 1.50 m

ROAD (0.00 + 37.70 + 0.00) = 37.70 dBA

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

-21 -4 0.39 56.36 0.00 -8.37 -10.30 0.00 0.00 0.00 37.70

Segment Leq : 37.70 dBA

Total Leq All Segments: 37.70 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 45.29 (NIGHT): 37.70

**^** 

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:18:11

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 2-1

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : -29.00 deg -7.00 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 : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

## $\wedge$

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

-----

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

## Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -7.00 deg 10.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive) 0 (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 55.00 / 55.00 m Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat

1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 45.30 + 0.00) = 45.30 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------29 -7 0.66 63.96 0.00 -9.37 -9.29 0.00 0.00 0.00 45.30 \_\_\_\_\_\_

Segment Leq: 45.30 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 44.33 + 0.00) = 44.33 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------7 10 0.66 63.96 0.00 -9.37 -10.26 0.00 0.00 0.00 44.33 \_\_\_\_\_\_

Segment Leq: 44.33 dBA

Total Leq All Segments: 47.85 dBA

Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m

ROAD (0.00 + 37.70 + 0.00) = 37.70 dBA

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

-29 -7 0.66 56.36 0.00 -9.37 -9.29 0.00 0.00 0.00 37.70

Segment Leq : 37.70 dBA

Results segment # 2: Lamira St (night)

Source height = 1.50 m

ROAD (0.00 + 36.74 + 0.00) = 36.74 dBA

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

-7 10 0.66 56.36 0.00 -9.37 -10.26 0.00 0.00 0.00 36.74

Segment Leq : 36.74 dBA

Total Leq All Segments: 40.26 dBA
```

TOTAL Leg FROM ALL SOURCES (DAY): 47.85

(NIGHT): 40.26

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:19:35

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec24.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 2-4

Road data, segment # 1: Kilborn Ave (day/night) -----

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night) 

: -29.00 deg

Angle1 Angle2 -7.00 deg Wood depth 0 (No woods.)

No of house rows 0 / 0

(Absorptive ground surface) Surface 1

Receiver source distance : 55.00 / 55.00 m Receiver height : 10.50 / 10.50 m

Topography (Flat/gentle slope; no barrier) : 1

Reference angle : 0.00

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

\_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -7.00 deg 10.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive) 0 (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 55.00 / 55.00 m

Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 46.89 + 0.00) = 46.89 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------29 -7 0.39 63.96 0.00 -7.84 -9.22 0.00 0.00 0.00 46.89 -----

Segment Leq: 46.89 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 45.86 + 0.00) = 45.86 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------7 10 0.39 63.96 0.00 -7.84 -10.26 0.00 0.00 0.00 45.86 \_\_\_\_\_\_

Segment Leq: 45.86 dBA

Total Leq All Segments: 49.42 dBA

Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m

ROAD (0.00 + 39.29 + 0.00) = 39.29 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-29 -7 0.39 56.36 0.00 -7.84 -9.22 0.00 0.00 0.00 39.29

Segment Leq : 39.29 dBA

Results segment # 2: Lamira St (night)

Source height = 1.50 m

ROAD (0.00 + 38.26 + 0.00) = 38.26 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-7 10 0.39 56.36 0.00 -7.84 -10.26 0.00 0.00 0.00 38.26

Segment Leq : 38.26 dBA

Total Leq All Segments: 41.82 dBA
```

TOTAL Leg FROM ALL SOURCES (DAY): 49.42

(NIGHT): 41.82

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:29:37

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 3-1

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : 47.00 deg 78.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 38.00 / 38.00 m Receiver height : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

## 1

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

\_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Lamira St (day/night) -----

Angle1 Angle2 : -19.00 deg 0.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorpts (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 38.00 / 38.00 m Receiver height : 1.50 / 1.50 m Topography : 1 (Flat

1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 47.32 + 0.00) = 47.32 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----47 78 0.66 63.96 0.00 -6.70 -9.94 0.00 0.00 0.00 47.32

\_\_\_\_\_\_

Segment Leq: 47.32 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 47.44 + 0.00) = 47.44 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -19 0 0.66 63.96 0.00 -6.70 -9.82 0.00 0.00 0.00 47.44 \_\_\_\_\_\_

Segment Leq: 47.44 dBA

Total Leq All Segments: 50.39 dBA

Results segment # 1: Kilborn Ave (night)

TOTAL Leg FROM ALL SOURCES (DAY): 50.39

(NIGHT): 42.79

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:30:53

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec34.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 3-4

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : 47.00 deg 78.00 deg

Wood depth : 0 (No woods.)

No of house rows : 0/0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 38.00 / 38.00 m Receiver height : 10.50 / 10.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

 $\wedge$ 

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

-----

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -19.00 deg 0.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorpt: (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 38.00 / 38.00 m

Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 49.32 + 0.00) = 49.32 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----47 78 0.39 63.96 0.00 -5.61 -9.02 0.00 0.00 0.00 49.32 -----

Segment Leq: 49.32 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 48.55 + 0.00) = 48.55 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -19 0 0.39 63.96 0.00 -5.61 -9.80 0.00 0.00 0.00 48.55 \_\_\_\_\_\_

Segment Leq: 48.55 dBA

Total Leq All Segments: 51.96 dBA

Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 41.73 + 0.00) = 41.73 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  Segment Leq: 41.73 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 40.95 + 0.00) = 40.95 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -19 0 0.39 56.36 0.00 -5.61 -9.80 0.00 0.00 0.00 40.95
______
Segment Leq: 40.95 dBA
Total Leq All Segments: 44.37 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 51.96
```

(NIGHT): 44.37

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:37:41

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 4-1

Road data, segment # 1: Kilborn Ave (day/night) -----

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod Heavy truck volume : 368/32 veh/TimePeriod veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

: 1 (Typical asphalt or concrete) Road pavement

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night) 

Angle1 Angle2 : -78.00 deg

-21.00 deg Wood depth 0 (No woods.)

No of house rows 0 / 0

(Absorptive ground surface) Surface 1

Receiver source distance : 30.00 / 30.00 m Receiver height : 1.50 / 1.50

Topography (Flat/gentle slope; no barrier) 1

Reference angle : 0.00

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

\_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Lamira St (day/night) -----Angle1 Angle2 : -43.00 deg 90.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive (No woods.) 1 (Absorptive ground surface) Receiver source distance : 15.00 / 15.00 m Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00 Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_ Source height = 1.50 m ROAD (0.00 + 52.54 + 0.00) = 52.54 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------78 -21 0.66 63.96 0.00 -5.00 -6.42 0.00 0.00 0.00 52.54 \_\_\_\_\_\_ Segment Leq: 52.54 dBA Results segment # 2: Lamira St (day) \_\_\_\_\_ Source height = 1.50 m ROAD (0.00 + 61.60 + 0.00) = 61.60 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -43 90 0.66 63.96 0.00 0.00 -2.35 0.00 0.00 0.00 61.60 \_\_\_\_\_\_

Segment Leq : 61.60 dBA

Total Leq All Segments: 62.11 dBA

♠
Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 44.95 + 0.00) = 44.95 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -78 -21 0.66 56.36 0.00 -5.00 -6.42 0.00 0.00 0.00 44.95
Segment Leq: 44.95 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 54.01 + 0.00) = 54.01 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -43 90 0.66 56.36 0.00 0.00 -2.35 0.00 0.00 0.00 54.01
______
Segment Leq: 54.01 dBA
Total Leq All Segments: 54.52 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 62.11
                    (NIGHT): 54.52
```

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:39:40

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec44.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 4-4

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : -78.00 deg -21.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 30.00 / 30.00 m Receiver height : 10.50 / 10.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

## $\blacksquare$

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

\_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Lamira St (day/night) -----Angle1 Angle2 : -43.00 deg 90.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive (No woods.) 1 (Absorptive ground surface) Receiver source distance : 15.00 / 15.00 m Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier) : 0.00 Reference angle Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_ Source height = 1.50 m ROAD (0.00 + 53.90 + 0.00) = 53.90 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------78 -21 0.39 63.96 0.00 -4.18 -5.87 0.00 0.00 0.00 53.90 \_\_\_\_\_\_ Segment Leq: 53.90 dBA Results segment # 2: Lamira St (day) \_\_\_\_\_ Source height = 1.50 m ROAD (0.00 + 61.95 + 0.00) = 61.95 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_

-43 90 0.39 63.96 0.00 0.00 -2.00 0.00 0.00 0.00 61.95

Segment Leq : 61.95 dBA

Total Leq All Segments: 62.58 dBA

↑
Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 46.31 + 0.00) = 46.31 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -78 -21 0.39 56.36 0.00 -4.18 -5.87 0.00 0.00 0.00 46.31
Segment Leq: 46.31 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 54.36 + 0.00) = 54.36 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -43 90 0.39 56.36 0.00 0.00 -2.00 0.00 0.00 0.00 54.36
______
Segment Leq: 54.36 dBA
Total Leq All Segments: 54.99 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 62.58
                    (NIGHT): 54.99
```

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:02:44

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec51.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 5-1

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Lamira St (day/night)

Angle1 Angle2 : 0.00 deg 72.00 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 : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

**^** 

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

-----

Car traffic volume : 28336/2464 veh/TimePeriod \*
Medium truck volume : 2254/196 veh/TimePeriod \*
Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

## Data for Segment # 2: Bank St (day/night)

-----

Angle1 Angle2 : -46.00 deg 0.00 deg Wood depth : 0 (No woods.)
No of house rows : 2 / 0
Surface : 1 (Absorptive

1 Surface (Absorptive ground surface)

Receiver source distance : 110.00 / 110.00 m

Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 49.77 + 0.00) = 49.77 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----0 72 0.66 63.96 0.00 -9.37 -4.82 0.00 0.00 0.00 49.77 \_\_\_\_\_\_

Segment Leq: 49.77 dBA

Results segment # 2: Bank St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 49.57 + 0.00) = 49.57 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -46 0 0.66 73.68 0.00 -14.36 -6.25 0.00 -3.50 0.00 49.57 -----

Segment Leq: 49.57 dBA

Total Leq All Segments: 52.68 dBA

Results segment # 1: Lamira St (night)

```
Source height = 1.50 m

ROAD (0.00 + 42.17 + 0.00) = 42.17 dBA

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

0 72 0.66 56.36 0.00 -9.37 -4.82 0.00 0.00 0.00 42.17

Segment Leq : 42.17 dBA

Results segment # 2: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 45.47 + 0.00) = 45.47 dBA

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

-46 0 0.66 66.08 0.00 -14.36 -6.25 0.00 0.00 0.00 45.47

Segment Leq : 45.47 dBA

Total Leq All Segments: 47.14 dBA
```

TOTAL Leg FROM ALL SOURCES (DAY): 52.68

(NIGHT): 47.14

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:05:44

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec54.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 5-4

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Lamira St (day/night)

Angle1 Angle2 : 0.00 deg 72.00 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 : 10.50 / 10.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

1

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

-----

Car traffic volume : 28336/2464 veh/TimePeriod \*
Medium truck volume : 2254/196 veh/TimePeriod \*
Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

# Data for Segment # 2: Bank St (day/night)

-----

Angle1 Angle2 : -46.00 deg 0.00 deg Wood depth : 0 (No woods.)
No of house rows : 2 / 0
Surface : 1 (Absorptive

1 Surface (Absorptive ground surface)

Receiver source distance : 110.00 / 110.00 m

Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 51.61 + 0.00) = 51.61 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----0 72 0.39 63.96 0.00 -7.84 -4.50 0.00 0.00 0.00 51.61 \_\_\_\_\_\_

Segment Leq: 51.61 dBA

Results segment # 2: Bank St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 52.03 + 0.00) = 52.03 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -46 0 0.39 73.68 0.00 -12.03 -6.12 0.00 -3.50 0.00 52.03 \_\_\_\_\_\_

Segment Leq: 52.03 dBA

Total Leq All Segments: 54.84 dBA

Results segment # 1: Lamira St (night)

```
Source height = 1.50 m
ROAD (0.00 + 44.02 + 0.00) = 44.02 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
    0 72 0.39 56.36 0.00 -7.84 -4.50 0.00 0.00 0.00 44.02
Segment Leq: 44.02 dBA
Results segment # 2: Bank St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 47.93 + 0.00) = 47.93 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -46 0 0.39 66.08 0.00 -12.03 -6.12 0.00 0.00 0.00 47.93
______
Segment Leq: 47.93 dBA
Total Leq All Segments: 49.41 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 54.84
```

(NIGHT): 49.41

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:46:08

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec61.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 6-1

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

Car traffic volume : 28336/2464 veh/TimePeriod \*
Medium truck volume : 2254/196 veh/TimePeriod \*
Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night)

-----

Angle1 Angle2 : -65.00 deg -10.00 deg Wood depth : 0 (No woods.)

Surface : 1 (Absorptive ground surface)

Receiver source distance : 100.00 / 100.00 m
Receiver height : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

•

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 50.55 + 0.00) = 50.55 dBA

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

-65 -10 0.66 73.68 0.00 -13.68 -5.95 0.00 -3.50 0.00 50.55

Segment Leq: 50.55 dBA

```
Total Leq All Segments: 50.55 dBA
```

↑ Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 42.95 + 0.00) = 42.95 dBA Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -65 -10 0.66 66.08 0.00 -13.68 -5.95 0.00 -3.50 0.00 42.95

Segment Leq: 42.95 dBA

Total Leq All Segments: 42.95 dBA

lack

TOTAL Leq FROM ALL SOURCES (DAY): 50.55 (NIGHT): 42.95

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STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:47:31

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec64.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 6-4

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night)

\_\_\_\_\_

Angle1 Angle2 : -65.00 deg -10.00 deg Wood depth : 0 (No woods.)

Wood depth

No of house rows

: 2 / 2 40 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 100.00 / 100.00 m Receiver height : 10.50 / 10.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 53.09 + 0.00) = 53.09 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -65 -10 0.39 73.68 0.00 -11.45 -5.63 0.00 -3.50 0.00 53.09

Segment Leq: 53.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.09 (NIGHT): 45.49

т • STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:47:13

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec71.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 7-1

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : -80.00 deg -41.00 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 : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

## **^**

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

-----

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -60.00 deg 0.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorpts (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 20.00 / 20.00 m

Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 44.59 + 0.00) = 44.59 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------80 -41 0.66 63.96 0.00 -10.57 -8.79 0.00 0.00 0.00 44.59 -----

Segment Leq: 44.59 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 56.55 + 0.00) = 56.55 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -60 0 0.66 63.96 0.00 -2.07 -5.33 0.00 0.00 0.00 56.55 \_\_\_\_\_\_

Segment Leq: 56.55 dBA

Total Leq All Segments: 56.82 dBA

Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 37.00 + 0.00) = 37.00 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -80 -41 0.66 56.36 0.00 -10.57 -8.79 0.00 0.00 0.00 37.00
Segment Leq: 37.00 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 48.96 + 0.00) = 48.96 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
      0 0.66 56.36 0.00 -2.07 -5.33 0.00 0.00 0.00 48.96
______
Segment Leq: 48.96 dBA
Total Leq All Segments: 49.23 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 56.82
                    (NIGHT): 49.23
```

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:49:06

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec74.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 7-4

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : -80.00 deg -41.00 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 : 10.50 / 10.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

 $\wedge$ 

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

-----

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -60.00 deg 0.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorpts (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 20.00 / 20.00 m

Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 47.16 + 0.00) = 47.16 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -80 -41 0.39 63.96 0.00 -8.85 -7.95 0.00 0.00 0.00 47.16 -----

Segment Leq: 47.16 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 57.11 + 0.00) = 57.11 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -60 0 0.39 63.96 0.00 -1.74 -5.11 0.00 0.00 0.00 57.11 \_\_\_\_\_\_

Segment Leq: 57.11 dBA

Total Leq All Segments: 57.53 dBA

Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 39.56 + 0.00) = 39.56 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -80 -41 0.39 56.36 0.00 -8.85 -7.95 0.00 0.00 0.00 39.56
Segment Leq: 39.56 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 49.51 + 0.00) = 49.51 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
      0 0.39 56.36 0.00 -1.74 -5.11 0.00 0.00 0.00 49.51
______
Segment Leq: 49.51 dBA
Total Leq All Segments: 49.93 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 57.53
                    (NIGHT): 49.93
```

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:53:35

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec81.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 8-1

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : 3.00 deg 38.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 80.00 / 80.00 m Receiver height : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

1

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

\_\_\_\_\_

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

# Data for Segment # 2: Lamira St (day/night)

-----

Angle1 Angle2 : -75.00 deg 87.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive (No woods.)

1 (Absorptive ground surface)

Receiver source distance : 15.00 / 15.00 m

Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 44.54 + 0.00) = 44.54 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----3 38 0.66 63.96 0.00 -12.07 -7.35 0.00 0.00 0.00 44.54 \_\_\_\_\_\_

Segment Leq: 44.54 dBA

Results segment # 2: Lamira St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 62.36 + 0.00) = 62.36 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -75 87 0.66 63.96 0.00 0.00 -1.59 0.00 0.00 0.00 62.36 \_\_\_\_\_\_

Segment Leq: 62.36 dBA

Total Leq All Segments: 62.43 dBA

Results segment # 1: Kilborn Ave (night)

TOTAL Leg FROM ALL SOURCES (DAY): 62.43

(NIGHT): 54.84

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 10:54:52

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec84.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 8-4

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

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Kilborn Ave (day/night)

Angle1 Angle2 : 3.00 deg 38.00 deg Wood depth : 0 (No woods.)

No of house rows : 0/0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 80.00 / 80.00 m Receiver height : 10.50 / 10.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

## 1

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

-----

Car traffic volume : 6477/563 veh/TimePeriod \*
Medium truck volume : 515/45 veh/TimePeriod \*
Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Lamira St (day/night) -----Angle1 Angle2 : -75.00 deg 87.00 deg Wood depth : 0 (No woods No of house rows : 0 / 0 Surface : 1 (Absorptive 0 (No woods.) 1 (Absorptive ground surface) Receiver source distance : 15.00 / 15.00 m Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00 Results segment # 1: Kilborn Ave (day) \_\_\_\_\_\_ Source height = 1.50 m ROAD (0.00 + 46.60 + 0.00) = 46.60 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----3 38 0.39 63.96 0.00 -10.11 -7.25 0.00 0.00 0.00 46.60 \_\_\_\_\_\_ Segment Leq: 46.60 dBA Results segment # 2: Lamira St (day) \_\_\_\_\_\_ Source height = 1.50 m

ROAD (0.00 + 62.78 + 0.00) = 62.78 dBA

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

-75 87 0.39 63.96 0.00 0.00 -1.18 0.00 0.00 0.00 62.78

Segment Leq : 62.78 dBA

Total Leq All Segments: 62.88 dBA

♠
Results segment # 1: Kilborn Ave (night)

```
Source height = 1.50 m
ROAD (0.00 + 39.00 + 0.00) = 39.00 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
    3 38 0.39 56.36 0.00 -10.11 -7.25 0.00 0.00 0.00 39.00
Segment Leq: 39.00 dBA
Results segment # 2: Lamira St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 55.18 + 0.00) = 55.18 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -75 87 0.39 56.36 0.00 0.00 -1.18 0.00 0.00 0.00 55.18
______
Segment Leq: 55.18 dBA
Total Leq All Segments: 55.28 dBA
lack
TOTAL Leg FROM ALL SOURCES (DAY): 62.88
```

(NIGHT): 55.28

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:32:41

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec91.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 9-1

Road data, segment # 1: Lamira St (day/night) -----

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Lamira St (day/night)

-----

Angle1 Angle2 : 0.00 deg 83.00 deg 0 (No woods.)

Wood depth
No of house rows : 1 / 1 20 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 35.00 / 35.00 m Receiver height : 1.50 / 1.50 m

: 1 (Flat/gentle slope; no barrier) Topography

Reference angle : 0.00

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

-----

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000

```
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Bank St (day/night)
_____
Angle1 Angle2 : -61.00 deg 0.00 deg Wood depth : 0 (No woods
                              (No woods.)
No of house rows :
                       1 / 1
House density
                       40 %
Surface
                        1
                              (Absorptive ground surface)
Receiver source distance : 90.00 / 90.00 m
Receiver height : 1.50 / 1.50 m
Topography
                       1 (Flat/gentle slope; no barrier)
              : 0.00
Reference angle
Results segment # 1: Lamira St (day)
-----
Source height = 1.50 m
ROAD (0.00 + 52.41 + 0.00) = 52.41 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
   0 83 0.66 63.96 0.00 -6.11 -4.54 0.00 -0.90 0.00 52.41
------
Segment Leq: 52.41 dBA
Results segment # 2: Bank St (day)
_____
Source height = 1.50 m
ROAD (0.00 + 53.48 + 0.00) = 53.48 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -61 0 0.66 73.68 0.00 -12.92 -5.28 0.00 -2.00 0.00 53.48
______
Segment Leq: 53.48 dBA
```

**1** 

Results segment # 1: Lamira St (night)

Total Leq All Segments: 55.99 dBA

-----

Source height = 1.50 m

ROAD (0.00 + 44.81 + 0.00) = 44.81 dBA

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

0 83 0.66 56.36 0.00 -6.11 -4.54 0.00 -0.90 0.00 44.81

Segment Leq: 44.81 dBA

♠

Results segment # 2: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 45.88 + 0.00) = 45.88 dBA

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

-61 0 0.66 66.08 0.00 -12.92 -5.28 0.00 -2.00 0.00 45.88

Segment Leq: 45.88 dBA

Total Leq All Segments: 48.39 dBA

♠

TOTAL Leq FROM ALL SOURCES (DAY): 55.99 (NIGHT): 48.39

♠

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 11:35:04

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec94.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 9-4

Road data, segment # 1: Lamira St (day/night) -----

Car traffic volume : 6477/563 veh/TimePeriod \* Medium truck volume : 515/45 veh/TimePeriod \* Heavy truck volume : 368/32 veh/TimePeriod \*

Posted speed limit : 40 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Lamira St (day/night)

-----

Angle1 Angle2 : 0.00 deg 83.00 deg 0 (No woods.)

Wood depth
No of house rows : 1 / 1 20 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 35.00 / 35.00 m Receiver height : 10.50 / 10.50 m

: 1 (Flat/gentle slope; no barrier) Topography

Reference angle : 0.00

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

-----

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h 0 % Road gradient :

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 35000

Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Bank St (day/night) \_\_\_\_\_ Angle1 Angle2 : -61.00 deg 0.00 deg Wood depth : 0 (No woods (No woods.) 1 / 1 No of house rows : House density 40 % Surface 1 (Absorptive ground surface) Receiver source distance : 90.00 / 90.00 m Receiver height : 10.50 / 10.50 m Topography : 1 (Flat/gentle slope; no barrier) : 0.00 Reference angle Results segment # 1: Lamira St (day) -----Source height = 1.50 m ROAD (0.00 + 53.83 + 0.00) = 53.83 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ 0 83 0.39 63.96 0.00 -5.12 -4.11 0.00 -0.90 0.00 53.83 ------Segment Leq: 53.83 dBA

Results segment # 2: Bank St (day) \_\_\_\_\_

Source height = 1.50 m

ROAD (0.00 + 55.81 + 0.00) = 55.81 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq \_\_\_\_\_\_ -61 0 0.39 73.68 0.00 -10.82 -5.05 0.00 -2.00 0.00 55.81 \_\_\_\_\_\_

Segment Leq: 55.81 dBA

Total Leq All Segments: 57.94 dBA

Results segment # 1: Lamira St (night)

-----

Source height = 1.50 m

ROAD (0.00 + 46.24 + 0.00) = 46.24 dBA

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

0 83 0.39 56.36 0.00 -5.12 -4.11 0.00 -0.90 0.00 46.24

Segment Leq: 46.24 dBA

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Results segment # 2: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 48.21 + 0.00) = 48.21 dBA

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

-61 0 0.39 66.08 0.00 -10.82 -5.05 0.00 -2.00 0.00 48.21

Segment Leq: 48.21 dBA

Total Leq All Segments: 50.35 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 57.94 (NIGHT): 50.35

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STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:03:53

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec101.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 10-1

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night) \_\_\_\_\_

Angle1 Angle2 : -76.00 deg 21.00 deg Wood depth : 0 (No woods.)

Wood depth

No of house rows

2 / 2

House density

40 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 70.00 / 70.00 m Receiver height : 1.50 / 1.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 55.64 + 0.00) = 55.64 dBA

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

-----

Segment Leq: 55.64 dBA

```
Total Leq All Segments: 55.64 dBA

Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 48.04 + 0.00) = 48.04 dBA

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

-76 21 0.66 66.08 0.00 -11.11 -3.43 0.00 -3.50 0.00 48.04

Segment Leq : 48.04 dBA

Total Leq All Segments: 48.04 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 55.64 (NIGHT): 48.04

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STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:05:27 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec104.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 10-4

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night) \_\_\_\_\_

Angle1 Angle2 : -76.00 deg 21.00 deg Wood depth : 0 (No woods.)

No of house rows : 2 / 2
House density : 40 %
Surface : 1

(Absorptive ground surface)

Receiver source distance : 70.00 / 70.00 m Receiver height : 10.50 / 10.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 57.72 + 0.00) = 57.72 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----

Segment Leq: 57.72 dBA

```
Total Leq All Segments: 57.72 dBA
Results segment # 1: Bank St (night)
-----
Source height = 1.50 m
ROAD (0.00 + 50.13 + 0.00) = 50.13 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
 -76 21 0.39 66.08 0.00 -9.30 -3.15 0.00 -3.50 0.00 50.13
______
```

Segment Leq: 50.13 dBA

Total Leq All Segments: 50.13 dBA

♠

TOTAL Leq FROM ALL SOURCES (DAY): 57.72 (NIGHT): 50.13

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:08:16 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec111.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 11-1

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night) \_\_\_\_\_

Angle1 Angle2 : 0.00 deg 14.00 deg Wood depth : 0 (No woods.)

No of house rows : 2 / 2
House density : 40 %
Surface : 1

(Absorptive ground surface)

Receiver source distance : 105.00 / 105.00 m Receiver height : 1.50 / 1.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 45.03 + 0.00) = 45.03 dBA

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

0 14 0.66 73.68 0.00 -14.03 -11.12 0.00 -3.50 0.00 45.03

Segment Leq: 45.03 dBA

```
Total Leq All Segments: 45.03 dBA

Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 37.43 + 0.00) = 37.43 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 14 0.66 66.08 0.00 -14.03 -11.12 0.00 -3.50 0.00 37.43

Segment Leq : 37.43 dBA

Total Leq All Segments: 37.43 dBA
```

(NIGHT): 37.43

TOTAL Leq FROM ALL SOURCES (DAY): 45.03

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:09:30

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec114.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 11-4

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night)

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Angle1 Angle2 : 0.00 deg 14.00 deg Wood depth : 0 (No woods.)

No of house rows : 2 / 2
House density : 40 %
Surface : 1

(Absorptive ground surface)

Receiver source distance : 105.00 / 105.00 m Receiver height : 10.50 / 10.50 m  $\,$ 

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 47.32 + 0.00) = 47.32 dBA

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

0 14 0.39 73.68 0.00 -11.75 -11.11 0.00 -3.50 0.00 47.32

Segment Leq: 47.32 dBA

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Total Leq All Segments: 47.32 dBA

Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 39.72 + 0.00) = 39.72 dBA

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

0 14 0.39 66.08 0.00 -11.75 -11.11 0.00 -3.50 0.00 39.72

Segment Leq : 39.72 dBA

Total Leq All Segments: 39.72 dBA
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TOTAL Leq FROM ALL SOURCES (DAY): 47.32 (NIGHT): 39.72

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STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:11:43

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec121.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 12-1

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

Car traffic volume : 28336/2464 veh/TimePeriod \*
Medium truck volume : 2254/196 veh/TimePeriod \*
Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night)

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Angle1 Angle2 : -30.00 deg -6.00 deg Wood depth : 0 (No woods.)

Surface : 1 (Absorptive ground surface)

Receiver source distance : 120.00 / 120.00 m
Receiver height : 1.50 / 1.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 46.27 + 0.00) = 46.27 dBA

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

-30 -6 0.66 73.68 0.00 -14.99 -8.92 0.00 -3.50 0.00 46.27

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Segment Leq: 46.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.27 (NIGHT): 38.67

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STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:13:22 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec124.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 12-4

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night) \_\_\_\_\_

Angle1 Angle2 : -30.00 deg -6.00 deg Wood depth : 0 (No woods.) Wood depth

No of house rows

:

2 / 2 40 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 120.00 / 120.00 m Receiver height : 10.50 / 10.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 48.77 + 0.00) = 48.77 dBA

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

-30 -6 0.39 73.68 0.00 -12.55 -8.85 0.00 -3.50 0.00 48.77 \_\_\_\_\_\_

Segment Leq: 48.77 dBA

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Total Leq All Segments: 48.77 dBA

Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 41.18 + 0.00) = 41.18 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-30     -6     0.39     66.08     0.00 -12.55     -8.85     0.00     -3.50     0.00     41.18

Segment Leq : 41.18 dBA

Total Leq All Segments: 41.18 dBA
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(NIGHT): 41.18

TOTAL Leq FROM ALL SOURCES (DAY): 48.77

STAMSON 5.0 NORMAL REPORT Date: 25-02-2022 12:17:01

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec13.te Time Period: Day/Night 16/8 hours

Description: Receptor Point 13

Road data, segment # 1: Bank St (day/night) \_\_\_\_\_

Car traffic volume : 28336/2464 veh/TimePeriod \* Medium truck volume : 2254/196 veh/TimePeriod \* Heavy truck volume : 1610/140 veh/TimePeriod \*

Posted speed limit : 60 km/h Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Bank St (day/night) \_\_\_\_\_

Angle1 Angle2 : -45.00 deg 6.00 deg : 0 (No woods.) Wood depth

Wood depth

No of house rows

2 / 2

House density

40 %

Surface : 1 (Absorptive ground surface)

Receiver source distance : 95.00 / 95.00 m Receiver height : 1.50 / 1.50 m

: 1 (Flat/gentle slope; no barrier) Topography

: 0.00 Reference angle

Results segment # 1: Bank St (day)

Source height = 1.50 m

ROAD (0.00 + 51.12 + 0.00) = 51.12 dBA

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

-45 6 0.66 73.68 0.00 -13.31 -5.75 0.00 -3.50 0.00 51.12

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Segment Leq: 51.12 dBA

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Total Leq All Segments: 51.12 dBA
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Results segment # 1: Bank St (night)

Source height = 1.50 m

ROAD (0.00 + 43.53 + 0.00) = 43.53 dBA Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -45 6 0.66 66.08 0.00 -13.31 -5.75 0.00 -3.50 0.00 43.53

Segment Leq: 43.53 dBA

Total Leq All Segments: 43.53 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 51.12 (NIGHT): 43.53

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