2345 Mer-Bleue Road

Environmental Noise Assessment

Orleans, ON

SLR Project No: 241.30289.00000

November 2021

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ENVIRONMENTAL NOISE ASSESSMENT
2345 Mer-Bleue Road
Orleans, Ontario
SLR Project No: 241.30289.00000

Submitted by:
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Prepared for:
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361 Trailsedge Way,
Ottawa, ON K1W 0G7

November 02, 2021

This document has been prepared by SLR Canada. The material and data in this report were prepared under the supervision and direction of the undersigned.

Prepared by:

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1. INTRODUCTION

SLR Consulting (SLR) was retained by Ziad Zamat to conduct an environmental noise assessment for the proposed development at 2345 and 2351 Mer-Bleue Road in Orleans, Ontario. The Environmental Noise Assessment is used to support the Zoning Bylaw Amendment (ZBA) and Site Plan Application (SPA) for the proposed development and supports the planning requirements for the City of Ottawa.

1.1 FOCUS OF REPORT

In keeping with the City of Ottawa and the Ontario Ministry of the Environment, Conservation and Parks requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on itself; and
- Impacts of the proposed development on the surrounding environment.

1.2 NATURE OF THE SUBJECT LANDS

The proposed development is located at 2345 and 2351 Mer-Bleue Road, on the east side of Mer-Bleue Road. The site is currently occupied by two single-storey residential homes, which will be demolished as part of the proposed development.

The proposed development will consist of two 3-storey, stacked apartments containing approximately 15 units in each building. The proposed development has no noise designated outdoor amenity spaces associated with its design.

The proposed layout of the future development is provided in Figure 1. A copy of the site plan is provided in Appendix A.

1.3 NATURE OF THE SURROUNDINGS

Immediately surrounding the site are low-rise residential homes to the north, east and south of the site. Land to the west of the site across Mer-Bleue Road is currently undeveloped. Beyond the immediate surroundings, the area is dominated by residential homes, open space and a college.

The topography of the immediate surrounding area is essentially flat.

A context plan is shown in Figure 1.

IMPACTS OF THE ENVIRONMENT ON THE DEVELOPMENT

In assessing potential impacts of the environment on the proposed development, the focus of this report is to assess the potential for roadway noise impacts on the development and stationary noise impacts from the surrounding commercial and industries lands.

There are no railway lines within 1000 m from the proposed development, therefore, there are no concerns related to railway noise or vibration, and further assessments of these sources are not required.

There are no existing significant industrial vibration sources within 75 m of the Project, such as large stamping presses or forges. Under applicable MECP guidelines, a detailed vibration assessment is not required.

There are no airports in the immediate vicinity of the proposed development, and an assessment of aircraft noise impacts is not required.

2. TRANSPORTATION NOISE IMPACTS

2.1 TRANSPORTATION NOISE SOURCES

The only transportation source of interest with the potential to produce noise at the proposed development is roadway noise from Mer-Bleue Road and Renaud Road.

The level of noise from this source has been predicted, and this information has been used to identify façade, ventilation, and warning clause requirements.

2.2 SURFACE TRANSPORTATION NOISE CRITERIA

2.2.1 MINISTRY OF ENVIRONMENT PUBLICATION NPC-300

Noise Sensitive Developments

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. Tables 1 to 4 below summarizes the applicable surface transportation (road and rail) criteria limits.

Location Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

Outdoor Amenity Areas

Table 2 summarizes the noise mitigation requirements for communal outdoor amenity areas ("Outdoor Living Areas" or "OLAs").

For the assessment of outdoor sound levels, the surface transportation noise impact is determined by combining road and rail traffic sound levels. Whistle noise due to railway trains is not included in the determination of levels.

Ventilation and Warning Clauses

Table 3 summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite implementation of ventilation measures where required, if sound exposure levels exceed the guideline limits in Tables 1, warning clauses advising future occupants of the potential excesses are required. Warning clauses also apply to OLAs.

Building Shell Requirements

Table 4 provides sound level thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the Tables 3 and 4 indoor sound criteria are met.

Table 1: MECP Publication NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Equivalent Sound Exposure Level - L_{eq} (dBA)		Assessment Location
		Road	Rail [1]	
Outdoor Living Area (OLA)	Daytime (0700-2300h)	55	55	Outdoors [2]
Living / Dining Room	Daytime (0700-2300h)	45	40	Indoors [4]
	Night-time (2300-0700h)	45	40	Indoors [4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors [4]
	Night-time (2300-0700h)	40	35	Indoors [4]

Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living / Dining Room and Sleeping Quarter assessments.
[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.
[3] An assessment of indoor noise levels is required only if the criteria in **Table 4** are exceeded.

Table 2: MECP Publication NPC-300 Outdoor Living Area Mitigation Requirements

Time Period	Equivalent Sound Level in Outdoor Living Area (dBA)	Ventilation Requirements
Daytime (0700-2300h)	≤ 55	• None
	55 to 60 incl.	• Noise barrier **OR** Warning Clause A
	> 60	• Noise barrier to reduce noise to 55 dBA **OR** • Noise barrier to reduce noise to 60 dBA and Warning Clause B

Table 3: MECP Publication NPC-300 Ventilation & Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Ventilation and Warning Claus Requirements [2]
		Road	Rail [1]	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating /provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating/ provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

Notes: [1] Rail whistle noise is excluded.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

Table 4: MECP Publication NPC-300 Building Component Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA))		Component Requirements
		Road	Rail [1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements [2]
	Night-time (2300-0700h)	> 60	> 55	

Notes: [1] Including whistle noise.
[2] Building component requirements are assessed separately for Road and Railway noise. The resultant sound isolation parameter is required to be combined to determine and overall acoustic parameter.

2.3 TRAFFIC DATA

2.3.1 ROADWAY TRAFFIC DATA

Road traffic data for Mer-Bleue Road and Renaud Road were obtained from The City of Ottawa's Environmental Noise Control Guideline [ENCG]. The ENCG document provides the mature state (Ultimate) traffic volumes, day/night traffic split and commercial truck breakdown % of various roadway types.

Relevant sections of the ENCG document and calculations can be found in Appendix B. The following table summarizes the road traffic volumes used in the analysis.

Table 5: Summary of Road Traffic Data Used in the Transportation Analysis

Roadway Link	Traffic Volumes (AADT)	% Day/ Night Volume Split [1]		Commercial Traffic Breakdown [1]		Vehicle Speed (km/h)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Mer-Bleue Road (4 Lane UAD)	35000[1]	92	8	7	5	60
Mer-Bleue Road (2 Lane UAU)	15000[1]	92	8	7	5	60
Renaud Road (2 Lane UCU)	8000[1]	92	8	7	5	50

Notes: [1] Based on traffic data obtained from the City of Ottawa ENCG, Road types assumed to be 4-lane urban arterial divided, 2-lane urban arterial undivided and 2-lane urban collector undivided, respectively.

2.4 PROJECTED SOUND LEVELS

Road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP's ORNAMENT or STAMSON v5.04 road traffic noise models. STAMSON validation files are included in Appendix C.

The ground in the study area corresponds mostly to asphalt and dirt/vegetation; however, a reflective ground type has been assigned in the modelling. This is considered conservative, as the project area and the surrounding lands area mix of asphalt and dirt and grassy lands.

Sound levels were predicted along the facades of the proposed development using the "building evaluation" feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure.

2.4.1 FAÇADE SOUND LEVELS

Predicted worst-case façade sound levels are presented in Table 6. The transportation façade sound levels of the development, showing the ranges of predicted daytime and night-time sound levels are shown in Figures 2 and 3.

Table 6: Summary of Transportation Facade Sound Levels

Building	Façade [1]	Roadway Sound Levels [2]	
		L_{eq} Day (dBA)	L_{eq} Night (dBA)
Building A (Western)	North	68	60
	East	58	51
	South	66	58
	West	70	62
Building B (Eastern)	North	61	53
	East	53	45
	South	61	53
	West	62	54

Notes: [1] Façade locations are shown in **Figures 2 and 3**.
[2] The sound levels presented are for the worst-case exposed façade.

The façade roadway sound levels are predicted to be over 65 dBA and 60 dBA at the north, west and south facades of Building A, during the daytime and nighttime periods, respectively. Therefore, an assessment of building components would be required for the development.

2.4.2 OUTDOOR LIVING AREAS

The project only has an outdoor at grade landscaped area associated with its design. As a result, this proposed development ahs no space deemed to be an outdoor amenity spaces from an acoustic reporting perspective.

2.5 FAÇADE ASSESSMENT

2.5.1 GLAZING ASSUMPTIONS AND CALCULATIONS

The following assumptions were considered for the development, as detailed floor plans were not available at the time of the assessment:

- 70% glazing for bedroom facades;
- 70% glazing for living room facades;
- bedrooms were assumed to have a floor area of 3m x 3m;
- living/dining rooms were assumed to have a floor area of 3m x 6m;
- non-glazing portion of wall was assumed to have a rating of STC 43 for all locations.

2.5.2 GLAZING REQUIREMENTS

An assessment of indoor noise levels is required providing the façade sound levels due to road traffic exceed 65 dBA during the daytime and 60 dBA during the night-time, as indicated in Table 4. Based on the roadway noise levels shown in Table 6, façade sound levels were predicted to exceed 65 dBA and 60 dBA during the daytime and night-time, respectively, on the north, west and south façades of the development. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements.

The acoustical requirements are provided below in Table 7. Detailed Façade Calculations are included in Appendix C.

Table 7: Façade Sound Transmission Class (STC) Requirements

Building	Building Facade	Non-Glazing Component	Glazing Requirements	
			Living Room	Bedroom
Building A (Western)	North	43	OBC	OBC
	East	43	OBC	OBC
	South	43	OBC	OBC
	West	43	OBC	30
Building B (Eastern)	North	43	OBC	OBC
	East	43	OBC	OBC
	South	43	OBC	OBC
	West	43	OBC	OBC

Notes: OBC = Ontario Building Code, meeting a rating of STC 29

It is anticipated that all facades will meet with OBC requirements. The slight excess at the south façade of Building A will likely be met with OBC construction. In addition, updated calculations should be completed once room layout and locations have been confirmed.

The combined glazing and frame assembly must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended window manufacturers test data be reviewed to confirm acoustical performance is met. As the design progresses, final acoustical requirements should be reviewed.

2.5.3 VENTILATION AND WARNING CLAUSE REQUIREMENTS

2.5.3.1 Residential Units

The requirements regarding warning clauses are summarized in Table 2. Where required, the Warning Clauses should be included in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease, and all rental agreements. Warning Clauses are summarized in Appendix D.

Based on the predicted façade noise levels, A Type D warning clause is recommended for Building A and a Type C warning clause for Building B. See **Appendix D** for all warning clause details.

3. STATIONARY SOURCE NOISE IMPACTS

A review was completed of the surrounding area, based on the current aerial photography and site visit to the area was conducted by SLR personnel on September 16, 2021.

The acoustic environment of the site and surrounding area is dominated by roadway noise from Mer-Bleue Road and surrounding roadways. There is some sparse commercial in the area, but these are expected to meet at the closer existing intervening noise sensitive receptors. Therefore, negligible

impacts are expected at the proposed development. Hence, a detailed assessment of surrounding stationary noise impacts was not completed.

IMPACTS OF THE DEVELOPMENT ON ITSELF

Based on preliminary design drawings, each unit will have their own dedicated indoor air handler and water heater. As a result, there is no anticipated common mechanical noise for this proposed development. As individual air conditioning systems are to be implemented for each residential unit for the proposed site, the sound levels from each unit should meet MECP Publication NPC-216.

IMPACTS OF THE DEVELOPMENT ON THE SURROUNDING AREA

As individual air conditioning systems are to be implemented for each residential unit for the proposed site, there will be very little chance of offsite impacts as compliance is required to be met onsite.

CONCLUSION AND RECOMMENDATIONS

The potential for noise impacts on the environment on the proposed development have been assessed. Based on the results of our studies, the following conclusions have been reached:

3.1 TRANSPORTATION NOISE

- An assessment of transportation noise impacts from surrounding roadways has been completed.
- Based on transportation façade sound levels upgraded glazing is not anticipated to be required within the development. Detailed calculations should be completed as the design progresses and additional details are available.
- As required by MECP Publication NPC-300, a number of transportation Warning Clauses must be included in agreements registered on Title and included in all agreements of purchase and sale or lease and all rental agreements for the development, which are outlined in Section 2.5.2. Warning Clauses are summarized in Appendix D.

3.2 STATIONARY NOISE

- Due to the mix of existing sparse commercial mixed in with residential homes, stationary noise is not expected to be a concern.

3.3 OVERALL ASSESSMENT

- Impacts of the environment on the proposed development can be adequately controlled with the inclusion of provision of ventilation and warning clause requirements.

4. REFERENCES

International Organization for Standardization, ISO 9613-2: *Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation*, Geneva, Switzerland, 1996.

Ontario Ministry of the Environment, Conservation and Parks, 1989, Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT).

Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300: *Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*, 2013.

Ontario Ministry of the Environment, Conservation and Parks, 1996, STAMSON v5.03: Road, Rail and Rapid Transit Noise Prediction.

City of Ottawa, Planning and Growth Management: Environmental Noise Control Guidelines – January 2016

STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Ziad Zamat, hereafter referred to as the "Client". It is intended for the sole and exclusive use of the Client. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

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Figures

Environmental Noise Assessment
2345 Mer-Bleue Road
SLR Project No.: 241.30289.00000

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MR. ZIAD ZAMAT	True North	Scale: 1:6,000	METRES	SLR global environmental solutions
2345 MER-BLEUE ROAD, ORLEANS		Date: Nov 2, 2021 Rev 1.0	Figure No. 1	
CONTEXT PLAN		Project No. 241.30289.00000		

MR. ZIAD ZAMAT	True North	Scale: 1:650	METRES	SLR global environmental solutions
2345 MER-BLEUE ROAD, ORLEANS		Date: Nov 2, 2021 Rev 1.0	Figure No. **2**	
FAÇADE SOUND LEVELS – DAYTIME ROAD IMPACTS		Project No. 241.30289.00000		

MR. ZIAD ZAMAT	True North	Scale: 1:650	METRES	SLR global environmental solutions
2345 MER-BLEUE ROAD, ORLEANS		Date: Nov 2, 2021 Rev 1.0	Figure No. 3	
FAÇADE SOUND LEVELS – NIGHT-TIME ROAD IMPACTS		Project No. 241.30289.00000		

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Appendix A
Development Drawings

Environmental Noise Assessment
2345 Mer-Bleue Road
SLR Project No.: 241.30289.00000

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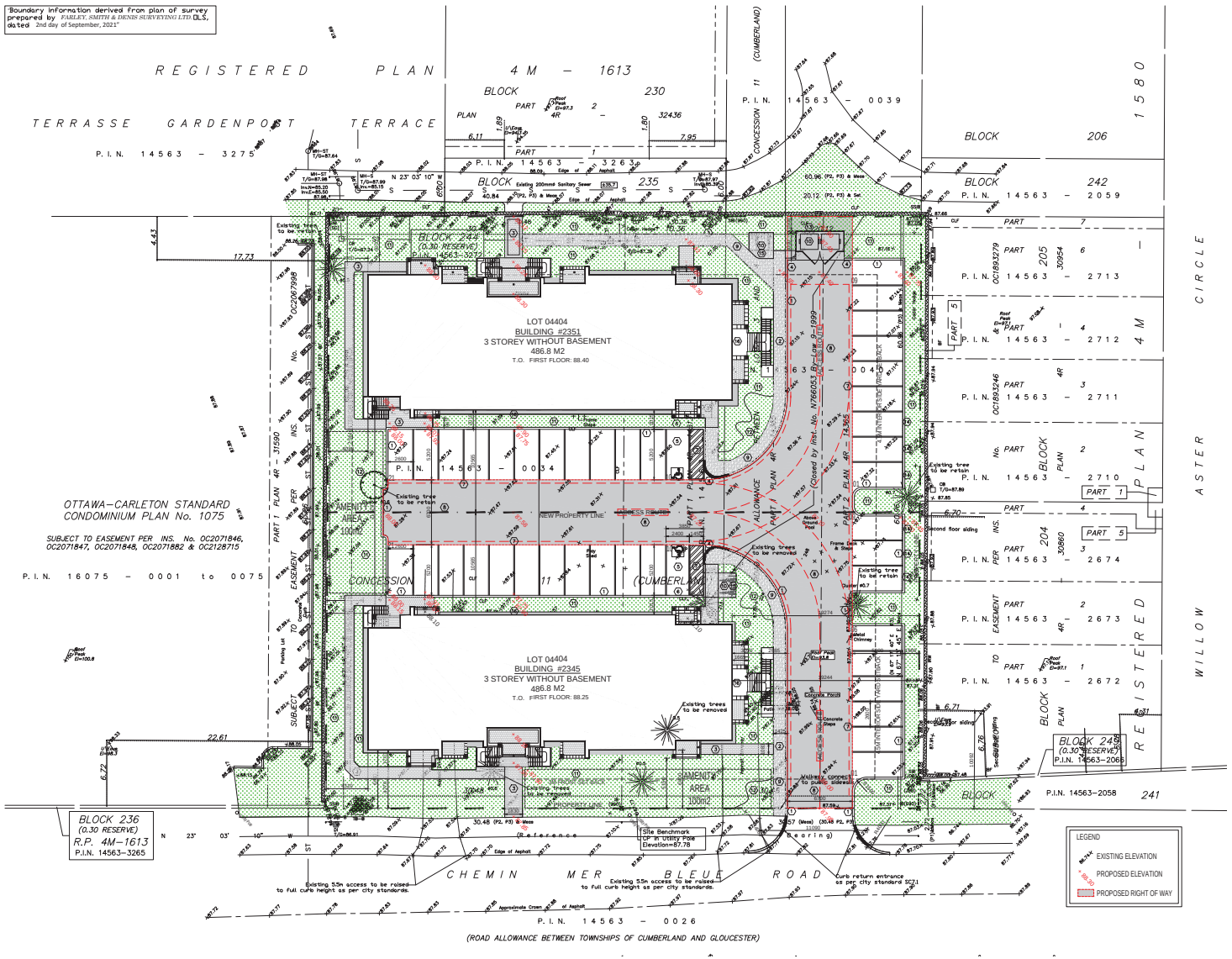

CURRENT ZONING DR TO BE CHANGED FOR R4-Z (By-law 2020-290)
TABLE 162A-R4 SUBZONE Z, OUTSIDE OF AREA A OF SCHEDULE 342

DESCRIPTION	REQUIREMENTS	PROVIDED
MINIMUM LOT AREA	450m²	LOT I: 1 860.64m² LOT II:1 859.32m²
MINIMUM LOT WIDTH	18m	61.05m
FRONT YARD AND CORNER SIDE YARD	3m*	6m
MINIMUM REAR YARD	6m	6m
MINIMUM REAR YARD FOR AN ABUTTING LOT II	6m	10.5m
MINIMUM INTERIOR SIDE YARD	1.5m	4m & 19.2m
MAXIMUM BUILDING HEIGHT	11M For roof slopes of 1 in 3 or steeper	11m
MAXIMUM FLOOR SPACE INDEX	n/a	3,5
MINIMUM WIDTH OF LANDSCAPED AREA AROUND A PARKING LOT ABUTTING A STREET	3m	3.2m
MINIMUM WIDTH OF LANDSCAPED AREA AROUND A PARKING LOT NOT ABUTTING A STREET	1.5m	1.5m

SECTION 131 - PLANNED UNIT DEVELOPMENT

DESCRIPTION	REQUIREMENTS	PROVIDED
MINIMUM WIDTH OF PRIVATE WAY	6m	6.7m
MINIMUM SETBACK FOR ANY WALL OF A RESIDENTIAL USE BUILDING TO A PRIVATE WAY	1.8m	Min. 2.01m
MINIMUM SETBACK FOR ANY GARAGE OR CARPORT ENTRANCE FROM A PRIVATE WAY (BY-LAW 2012-33)	5.2m	n/a
MINIMUM SEPARATION AREA BETWEEN BUILDINGS WITHIN A PLANNED UNIT DEVELOPMENT	1.2m	21.1m
MINIMUM REAR YARD FOR AN ABUTTING LOT II	6m	5.6m
PARALLEL VISITOR PARKING ON A PRIVATE WAY	Permitted for 8.5m private way	n/a

DESCRIPTION	REQUIREMENTS	PROVIDED
AMENITY AREA: 6m² PER DWELLING Communal Amenity area : 50% of total amenity area	TOTAL: min. 180 m² COMMUNAL: min. 90m²	Total: 200m² Com.: 100m²
Min. PARKING SPACE	1.2 PER DWELLING	36
Min. VISITOR PARKING	0.2 PER DWELLING	6
Min. ACCESSIBLE PARKING	1 PARKING SPACE TYPE B FOR 13-25 SPACES	2
BICYCLE PARKING SPACE REQUIRED	0.5 PER DWELLING	15
TOTAL PARKING LOT AREA	-	1270m²
MIN. LANDSCAPING BUFFER	min.1.5m perimiter	min. 1.5m
LANDSCAPING PROVIDE FOR THE PARKING LOTS	15% OF PARKING AREA: 190.5 m²	239 m²
TOTAL SOFT & HARD LANDSCAPED AREA	30% OF LOT AREA : 1116 m²	1 317.1 m²

LEGEND

1. CONCRETE CURB.
2. CONCRETE WALKWAY.
3. INTERLOCK SIDEWALK.
4. DEPRESSED SIDEWALK.
5. PARKING SPACE FOR DISABLED.
6. MUNICIPAL SIGN FOR DISABLED PARKING .
7. PAINT MARKS.
8. ASPHALT.
9. CONCRETE PAVEMENT .
10. SLAB ON GROUND CONCRETE.
11. GRASS.
12. LANDSCAPED AREA.
13. 1.8m HEIGHT TRASH ENCLOSURE.
14. VISITOR PARKING SIGN.
15. 8 OUTDOOR BICYCLE STALLS.
16. **WALL MOUNTED LIGHTING ON BUILDING.**

ISSUED FOR			
No	DATE	DESCRIPTION	App.
	2021.04.01	PRELIMINARIES	P.T.

REVISION			
No	DATE	DESCRIPTION	App.
	2021.10.14	ACCORDING TO SURVEY & CITY COMMENTS	P.T.

Stamps

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E-maill : ptabetarchitecte@outlook.com

Project: Planned Unit Development
30 DWELLING UNITS
2345 & 2351 MER-BLEUE, Orléans, ON.

Title: SITE PLAN

Scale:

Sheet:

Date: 2021/10/14 | Drawn /: A. Aldu.

Revision: 0 | Verify /: P.Tabet

Drawing No. A-100

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Appendix B

Traffic Data and Calculations

Environmental Noise Assessment

2345 Mer-Bleue Road

SLR Project No.: 241.30289.00000

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Note:
1) This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.
2) This schedule is intended as a framework for planning and design;consequently alignments of proposed roads are approximate and subject to detailed study.
3) An unidentified new facility from Highway 416 to Highway 417 East is not shown.

Note:
1) La présente annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) La présente annexe doit servir de guide en matière de planification et de conception;il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) **Une nouvelle installation non identifiée et située entre l'autoroute 416 et l'autoroute 417E n'apparaît pas.**

SEE SCHEDULE F
VOIR ANNEXE F

City of Ottawa Official Plan Consolidation and Amendments

Ville d'Ottawa Plan officiel Amendement au plan directeur approuvé

# 14 (09/2004)	# 96 (03/2012)	# 192 (08/2017)
# 44 (06/2006)	# 97 (03/2012)	# 213 (07/2018)
# 50 (06/2006)	#113 (11/2012)	
# 77 (06/2009)	#123 (09/2019)	
# 76	#173 (01/2017)	

OMB decision/Décision de la CAMO - N° 1787; 2711;PL#160875

Official Plan - Schedule E
Urban Road Network

Prepared by: Planning, Infrastructure and Economic Development Department

Plan officiel - Annexe E
Routes Arterial - Urbain

Preparé par : Services de la planification, de l'infrastructure et du développement économique

Provincial Highway / **Route provinciale**
City Freeway / **Autoroute de ville**

Federally Owned Road / **Chemins de propriété fédéral**
Existing / Établie
Proposed / Proposé
(Alignment defined) / (Alignement déterminée)

Arterials / **Artère**
Existing / Établie
Proposed / Proposé
(Alignment Defined) / (Alignement déterminée)
Conceptual / Conceptuelle
(Alignment Undefined) / (Alignement à déterminée)

Major Collectors / **Grande collectrice**
Existing / Établie
Proposed / Proposé

Collectors / **Collectrice**
Existing / Établie
Proposed / Proposé

Ottawa

Scale / Échelle
2km 1 0 1 2 3 4km

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Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

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O R N A M E N T - Sound Power Emissions & Source Heights

Ontario Road Noise Analysis Method for Environment and Transportation

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	Total Traffic Volumes	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	PWL (dBA)	Source Height, s (m)
Mer Bleue Road (4 Lane UAD)	Mer Bleue Road	Daytime Impacts	60	16	32200	88.0%	7.0%	5.0%	28336	2254	1610	0	**88.7**	**1.5**
		Nighttime Impacts	60	8	2800	88.0%	7.0%	5.0%	2464	196	140	0	**81.1**	**1.5**
Mer Bleue Road (2 Lane UAU)	Mer Bleue Road	Daytime Impacts	60	16	13800	88.0%	7.0%	5.0%	12144	966	690	0	**85.1**	**1.5**
		Nighttime Impacts	60	8	1200	88.0%	7.0%	5.0%	1056	84	60	0	**77.5**	**1.5**
Renaud Road (2 Lane UCU)	Renaud Road	Daytime Impacts	50	16	7360	88.0%	7.0%	5.0%	6477	515	368	0	**80.8**	**1.5**
		Nighttime Impacts	50	8	640	88.0%	7.0%	5.0%	563	45	32	0	**73.2**	**1.5**

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Appendix C

STAMSON Output Files

Environmental Noise Assessment

2345 Mer-Bleue Road

SLR Project No.: 241.30289.00000

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MR. ZIAT ZAMAT	True North	Scale: 1:650	METRES	SLR global environmental solutions
2345 MER-BLEUE ROAD, ORLEANS		Date: Oct 27, 2021 Rev 1.0	Figure No. **C.1**	
COMPARISON OF CADNAA AND STAMSON		Project No. 241.30289.00000		

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STAMSON 5.0 NORMAL REPORT Date: 28-10-2021 11:03:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: mbr1.te Time Period: 16 hours
Description:

Road data, segment # 1: MB1

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

Data for Segment # 1: MB1

Angle1 Angle2 : -90.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 2: MB2

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

Data for Segment # 2: MB2

Angle1 Angle2 : 75.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 18.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Results segment # 1: MB1

Source height = 1.50 m

ROAD (0.00 + 68.83 + 0.00) = 68.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	75	0.00	70.00	0.00	-0.79	-0.38	0.00	0.00	0.00	68.83

Segment Leq : 68.83 dBA

Results segment # 2: MB2

Source height = 1.50 m

ROAD (0.00 + 62.09 + 0.00) = 62.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
75	90	0.00	73.68	0.00	-0.79	-10.79	0.00	0.00	0.00	62.09

Segment Leq : 62.09 dBA

Total Leq All Segments: 69.66 dBA

Appendix D

Required Warning Clauses

Environmental Noise Assessment

2345 Mer-Bleue Road

SLR Project No.: 241.30289.00000

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SUMMARY OF MITIGATION MEASURES AND WARNING CLAUSES

Warning Clauses

Warning Clauses may be used individually or in combination. The following Warning Clauses should be included in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements:

Transportation Sources (Road and Rail)

MECP Type C Warning Clause – Building B (All Units)

"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."

MECP Type D Warning Clause - Building A (All Units)

"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."