



## Proposed 7-Storey Apartment Building

958-960 East Avenue, Mississauga, Ontario

### Noise Impact Study

SACL #SW19573.A2

April 9, 2020

Submitted to:

**Yuen Lee**

Capital Projects Manager, Construction  
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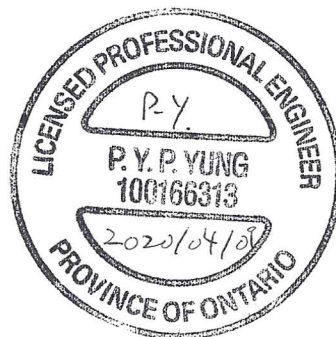
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## Table of Contents

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Site .....</b>	<b>1</b>
<b>3. Noise Sources .....</b>	<b>1</b>
<b>4. Transportation Noise Sources .....</b>	<b>2</b>
4.1. Critical Noise Receptors .....	2
4.2. Sound Levels .....	2
4.3. Sound Level Limits .....	3
4.3.1. Outdoor Sound Level Limits .....	3
4.3.2. Indoor Sound Level Limits .....	4
4.4. Noise Control Measures .....	5
4.4.1. Outdoor Living Area .....	6
4.4.2. Ventilation .....	7
4.4.3. Building Components .....	7
4.4.4. Warning Clauses .....	7
<b>5. Stationary and Community Noise Sources .....</b>	<b>7</b>
5.1. Existing Stationary Noise Sources .....	7
5.2. Noise Criteria for Stationary Noise Sources .....	8
5.3. Sound Level Measurements and Assessment .....	8
5.4. Noise Control Recommendations for Existing Stationary Noise Sources .....	9
5.5. Future Potential Stationary Noise Sources .....	9
<b>6. Concluding Comments .....</b>	<b>9</b>
<b>Figures .....</b>	<b>10</b>
<b>Appendices .....</b>	<b>17</b>

## LIST OF TABLES

<b>Table 1: Critical Noise Receptors .....</b>	<b>2</b>
<b>Table 2: Traffic Data Summary .....</b>	<b>2</b>
<b>Table 3: Calculated Outdoor Sound Levels .....</b>	<b>3</b>
<b>Table 4: MECP Outdoor Sound Level Limit .....</b>	<b>3</b>
<b>Table 5: MECP Noise Control Requirements for Outdoor Receptors .....</b>	<b>4</b>
<b>Table 6: MECP Indoor Sound Level Limit .....</b>	<b>4</b>
<b>Table 7: Road Noise Ventilation and Warning Clause Requirements .....</b>	<b>5</b>
<b>Table 8: Road Noise Building Component Requirements .....</b>	<b>5</b>
<b>Table 9: Noise Control Measures .....</b>	<b>6</b>



<b>Table 10: Noise Level Criteria at Plane of Window – Stationary Noise Sources.....</b>	<b>8</b>
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## **LIST OF FIGURES**

**Figure 1: Site Plan**

**Figure 2: Aerial Photo**

**Figure 3a & 3b: Zoning Maps**

**Figure 4: Noise Control Measures**

## **LIST OF APPENDICES**

**APPENDIX A: Traffic Data**

**APPENDIX B: STAMSON Calculations**



## 1. Introduction

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At the request of the Region of Peel, Swallow Acoustic Consultants Ltd. (SACL) has completed a Noise Impact Study for a proposed apartment development for the East Avenue Affordable Housing Redevelopment (Project), which is located at 958-960 East Avenue in Mississauga Ontario (Site). This report has been prepared in support of the application for Official Plan and Zoning By-Law Amendments Approval (OPA).

The purpose of this study is to assess the noise impact to the proposed apartment development from surrounding noise sources, and to provide noise control recommendations to meet the requirements of the Region of Peel based on the Ontario Ministry of the Environment, Conservation, and Parks (MECP) document *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning* (NPC-300). Noise control recommendations are summarized in Section 4.4 for transportation noise sources.

## 2. Site

---

The Project is located at the southwest quadrant of the intersection of Lakeshore Road East and East Avenue. The proposed development consists of a 7-storey L-shaped apartment building with one level of underground parking garage and residential units from the ground floor to the 7<sup>th</sup> floor. The indoor amenity area is located on the ground floor and the designated outdoor amenity area is immediately west of the building facing Lakeshore Road East. There is a surface parking area on the west side of the Site. A site plan is provided in Figure 1.

The land south of the Project is zoned residential. There is currently a parking area and a new Peel Regional Paramedic Services station at 938 East Avenue. Further south is a park. The land east of the Project is zoned for employment and there are existing one-storey commercial buildings. North of Lakeshore Road East is zoned commercial with one or two-storey high commercial or mixed-use developments. The land west of the Project is zoned for residential land use with existing houses along Byngmount Avenue and a block of 3-storey mixed-use building on Lakeshore Road East. An aerial photo showing the Project location and the surrounding area is provided in Figure 2. Zoning maps of the area are provided in Figure 3a and 3b.

## 3. Noise Sources

---

The significant noise source that impacts the Project is the road traffic on Lakeshore Road East and East Avenue. Stationary noise sources in the area are discussed in Section 5 of this report.



## 4. Transportation Noise Sources

### 4.1. Critical Noise Receptors

The critical noise receptors are the noise sensitive areas of the proposed development most likely to be affected by the traffic noise. Thus, critical noise receptors were chosen at the façades of the buildings that are most exposed to Lakeshore Road East and East Avenue. The locations of the critical noise receptors are summarized in Table 1 and shown in [Figure 1](#).

Points of Reception (PORs) at the plane-of-window on the highest residential levels of the buildings are used as typical critical noise receptors. The designated outdoor amenity area (OLA) is located immediately west of the building.

**Table 1: Critical Noise Receptors**

<i>Receptor ID</i>	<i>Height (m)</i>	<i>Receptor Location</i>
POR1	20.75	Residential unit on the 7 <sup>th</sup> floor at the northeast corner of building.
POR2	20.75	Residential unit on the 7 <sup>th</sup> floor on the north façade of the building.
POR3	20.75	Residential unit on the 7 <sup>th</sup> floor along the east façade of the building.
POR4	20.75	Residential unit on the 7 <sup>th</sup> floor along the south façade of the building near East Avenue.
POR5	20.75	Residential unit on the 7 <sup>th</sup> floor along the west façade of the building near Lakeshore Road East.
OLA	1.5	Designated outdoor amenity area immediately west of the building.

### 4.2. Sound Levels

Traffic data of Lakeshore Road East and East Avenue were obtained from the City of Mississauga. The traffic data is provided in [Appendix A](#) and are summarised in Table 2.

**Table 2: Traffic Data Summary**

<i>Parameter</i>	<i>Lakeshore Road East</i>	<i>East Avenue</i>
Ultimate AADT	38,500	5,000
Total Truck Percentage	6	2
Medium Versus Heavy Truck Ratio	55/45	55/45
Day/Night Split	90/10	90/10



<i><b>Parameter</b></i>	<i><b>Lakeshore Road East</b></i>	<i><b>East Avenue</b></i>
Speed Limit	50 km/h	40 km/h
Right of Way	30 m	20 m

Calculations of traffic sound levels were performed using STAMSON 5.04, the software implementation of the MECP ORNAMENT model for road traffic which was developed and published by the MECP for transportation noise prediction. The calculated sound levels are summarized in Table 3. STAMSON calculation output reports for the traffic noise predictions are attached in Appendix B.

**Table 3: Calculated Outdoor Sound Levels**

<i><b>Receptor ID</b></i>	<i><b>Sound Level (dBA)</b></i>	
	<i><b>Day Leq (16 hrs)</b></i>	<i><b>Night Leq (8 hrs)</b></i>
POR1	65	59
POR2	65	58
POR3	62	56
POR4	53	47
POR5	62	55
OLA	58	-

### 4.3. Sound Level Limits

Guidelines for acceptable sound levels of road traffic on residential developments are given in Part C of the MECP publication NPC-300.

#### 4.3.1. Outdoor Sound Level Limits

The MECP outdoor sound level limit developed is as follow:

**Table 4: MECP Outdoor Sound Level Limit**

<i><b>Time Period</b></i>	<i><b>Sound Level (Leq)</b></i>
Day-time (07:00 - 23:00)	55

In addition to the above outdoor levels, the MECP has a sliding scale to determine the need for



outdoor noise reduction measures depending on outdoor sound levels:

**Table 5: MECP Noise Control Requirements for Outdoor Receptors**

<b>Outdoor Sound Level (Day-time Leq)</b>	<b>Need for Noise Reduction Measures</b>
56 to 60 dBA	Noise control measures may be implemented. If no noise control measures are planned, a warning clause must be included in the unit title or lease agreement.
Above 60 dBA	Control measures (barriers) required to reduce the Leq to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible. A warning clause is required if resultant Leq exceeds 55 dBA.

#### 4.3.2. Indoor Sound Level Limits

The indoor sound levels limits developed by MECP for road sources are as follows:

**Table 6: MECP Indoor Sound Level Limit**

<b>Room</b>	<b>Time Period</b>	<b>Road Sound Level (Leq)</b>
Living rooms	Day-time (07:00 - 23:00)	45 dBA
	Night-time (23:00 - 07:00)	45 dBA
Bedrooms	Day-time (07:00 - 23:00)	45 dBA
	Night-time (23:00 - 07:00)	40 dBA
General Offices, Reception Areas, Retail Stores Etc.	Day-time (07:00 – 23:00)	50 dBA

In addition to the above indoor levels, the MECP has a sliding scale to determine the need for noise reduction measures depending on the outdoor sound level:





**Table 7: Road Noise Ventilation and Warning Clause Requirements**

<b>ASSESSMENT LOCATION</b>	<b><i>Leq</i></b>	<b>VENTILATION REQUIREMENTS</b>	<b>WARNING CLAUSE</b>
PLANE OF LIVING ROOM WINDOW (07:00-23:00)	Greater than 55 dBA to less than or equal to 65 dBA.	Forced air heating with provision for central air conditioning.	Type C
	Greater than 65 dBA.	Central air conditioning	Type D
PLANE OF BEDROOM WINDOW (23:00-07:00)	Greater than 50 dBA to less than or equal to 60 dBA.	Forced air heating with provision for central air conditioning.	Type C
	Greater than 60 dBA	Central air conditioning	Type D

**Table 8: Road Noise Building Component Requirements**

<b>ASSESSMENT LOCATION</b>	<b>Noise Source</b>	<b><i>Leq</i></b>	<b>BUILDING COMPONENT REQUIREMENTS</b>
PLANE OF BEDROOM, LIVING OR DINING ROOM WINDOW (07:00-23:00)	Road	Less than or equal to 65 dBA	Building compliant with the Ontario Building Code.
	Road	Greater than 65 dBA	Building components must be designed to achieve indoor sound level criteria.
PLANE OF BEDROOM, LIVING OR DINING ROOM WINDOW (23:00-07:00)	Road	Less than or equal to 60 dBA	Building compliant with the Ontario Building Code.
	Road	Greater than 60 dBA	Building components must be designed to achieve indoor sound level criteria

#### **4.4. Noise Control Measures**

Noise control recommendations for the critical receptors and the corresponding areas that they represent in the proposed development are summarized in Table 9 and discussed in the subsequent sections.





**Table 9: Noise Control Measures**

<b><i>Receptor and Representative Areas</i></b>	<b><i>Noise Barrier</i></b>	<b><i>Ventilation</i></b>	<b><i>Building Components</i></b>	<b><i>Warning Clause</i></b>
POR1 – Residential units at northeast corner	-	Forced air heating with provision for central air conditioning	Building compliant with the Ontario Building Code	Type C
POR2 – Residential units along north facade	-	Forced air heating with provision for central air conditioning	Building compliant with the Ontario Building Code	Type C
POR3 – Residential units along east facade	-	Forced air heating with provision for central air conditioning	Building compliant with the Ontario Building Code	Type C
POR4 – Residential units along the south facade	-	-	Building compliant with the Ontario Building Code	-
POR5 – Residential units along the west façade and along the south façade that face the courtyard	-	Forced air heating with provision for central air conditioning	Building compliant with the Ontario Building Code	Type C
OLA – Designated outdoor amenity space	No	-	-	Type A

#### **4.4.1. Outdoor Living Area**

The calculated sound level at OLA is between 55 dBA and 60 dBA. Noise control measure is not necessary if Type A warning clause is used.

A noise barrier that is at least 1.8 m high along the north and west perimeter of the designated outdoor amenity area can break the line of sight of Lakeshore Road East and can attenuate the sound level at OLA to below 55 dBA. The noise barrier should have a surface density of 20 kg/sq. m and has no holes or gaps on the surface. If the noise barrier is installed, Type A warning clause is not required.



#### **4.4.2. Ventilation**

As the calculated daytime sound levels at POR1 and POR2 are between 55 dBA and 65 dBA at the plane of window for the residential units exposed to Lakeshore Road East and East Avenue, forced air heating with provision for central air conditioning is required for these residential units.

According to the proposed design brief for the mechanical system for the Project, central air conditioning will be provided for all dwellings in the building.

#### **4.4.3. Building Components**

As the calculated daytime sound levels are at or below 65 dBA during daytime and below 60 dBA during night-time, building components that meet the Ontario Building Codes can achieve the indoor sound level limits.

#### **4.4.4. Warning Clauses**

As the calculated sound level is between 55 dBA and 60 dBA, the following “Type A” warning clause is required in all development agreements of the dwellings if no noise barrier is installed around the outdoor amenity area:

“Purchasers/tenants are advised that sound levels due to increasing road 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.”

Forced air heating with provision for central air conditioning is required for all residential units exposed to Lakeshore Road East and East Avenue. However, central air conditioning will be provided for all dwellings in the building. The following ‘Type D’ warning clause should be inserted in all development agreements of these dwellings as indicated in Figure 4:

“This dwelling unit has been supplied with a central air conditioning 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”

## **5. Stationary and Community Noise Sources**

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The following sections describe the noise impact assessment for stationary noise sources.

### **5.1. Existing Stationary Noise Sources**

Site visits were conducted on November 22, 2019 and November 25, 2019 to identify any significant stationary noise sources at the commercial and industrial developments in the vicinity. It was found that the sound level at the Project is dominated by the traffic noise on Lakeshore Road East.



Two printing companies, Lakefront Graphix Technology and Wellington Printworks Inc., occupy 832 and 830 Lakeshore Road East respectively, which are located east of the Site. A moving company, Collins & Greig Cartage Ltd., and an Italian food store, Molinaro's, occupies 851 and 855 Rangeview Road respectively, which are located southeast of the site. The commercial unit further east in the same building is currently vacant. The loading docks of these 2 occupied commercial buildings are opposite from the southeast corner of the Site. Delivery trucks may idle at the loading docks. According to the observation during the site visits, trucks arriving at these loading docks are infrequent and is expected to be 1 truck per hour.

## 5.2. Noise Criteria for Stationary Noise Sources

The guidelines for assessing the noise impact of noise generating facilities on proposed noise sensitive areas in Ontario are given in Part C of the MECP publication NPC-300 "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning" dated 2013. It outlines the minimum noise criteria for stationary sources of noise. The site specific noise criteria for each time of day are either the values in Table 10 or the minimum hourly background noise level ( $L_{EQ-1hr}$ ), whichever is higher. The Project is considered to be located in a Class 1 area due its proximity and exposure to Lakeshore Road East.

**Table 10: Noise Level Criteria at Plane of Window – Stationary Noise Sources**

Time Period	Class 1 Area (Urban) $L_{EQ-1hr}$ (dBA)	
	Plane of Window	Outdoor Points of Reception
Day-time (0700 – 1900)	50	50
Evening (1900 – 2300)	50	50
Night-time (2300 – 0700)	45	-

## 5.3. Sound Level Measurements and Assessment

Sound levels were measured in the afternoon of November 25, 2019 using a Bruel & Kjaer Type 2250 sound level meter near the southeast corner of the Site when a box truck was idling at a loading dock of Wellington Printworks Inc. and then a trailer truck at the loading dock of Collins & Greig Cartage Ltd. Figure 2 shows the idling truck locations and measurement location. The measured sound level was 55 dBA and 56 dBA respectively. The duration of idling was less than 10 minutes for each truck. To be conservative, it is assumed that one trailer truck arrives at the loading dock of Collins & Greig, which is the closest designated loading dock to the Site, in an hour and idles for 15 minutes, the one hour Leq due to truck idling is 50 dBA at the property line of the Project, which meets the daytime and evening sound level limits. The business hours of Wellington Printworks Inc. and Colling & Greig are between 8 a.m. and 5 p.m. Therefore night-time truck idling is not expected.



Sound levels were also measured near the southeast corner of the Site when there were no trucks at the loading docks and no traffic on East Avenue. This measurement location has maximum exposure to existing industrial developments further east and southeast of the Project. The measured sound level was 52 dBA and it was dominated by road traffic noise along Lakeshore Road East.

#### **5.4. Noise Control Recommendations for Existing Stationary Noise Sources**

Although the sound level due to truck idling meets the daytime and evening sound level limits, we recommend the following 'Type E' warning clause to be inserted in all development agreements of all residential units:

"Purchasers/tenants are advised that due to the proximity of loading docks of adjacent commercial buildings, truck idling noise from the commercial buildings may at times be audible."

#### **5.5. Future Potential Stationary Noise Sources**

There are no known future potential stationary noise sources associated with other developments in the vicinity of the project. Potential stationary noise sources associated with this project such as outdoor mechanical equipment should be selected to ensure that indoor noise level limits are met.

### **6. Concluding Comments**

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The noise impact of the nearby transportation noise sources on the Project is expected to meet MECP criteria, provided the recommended noise mitigation as described in Section 4.4 and 5.4 is implemented. The proposed development should therefore be approved from a noise perspective.

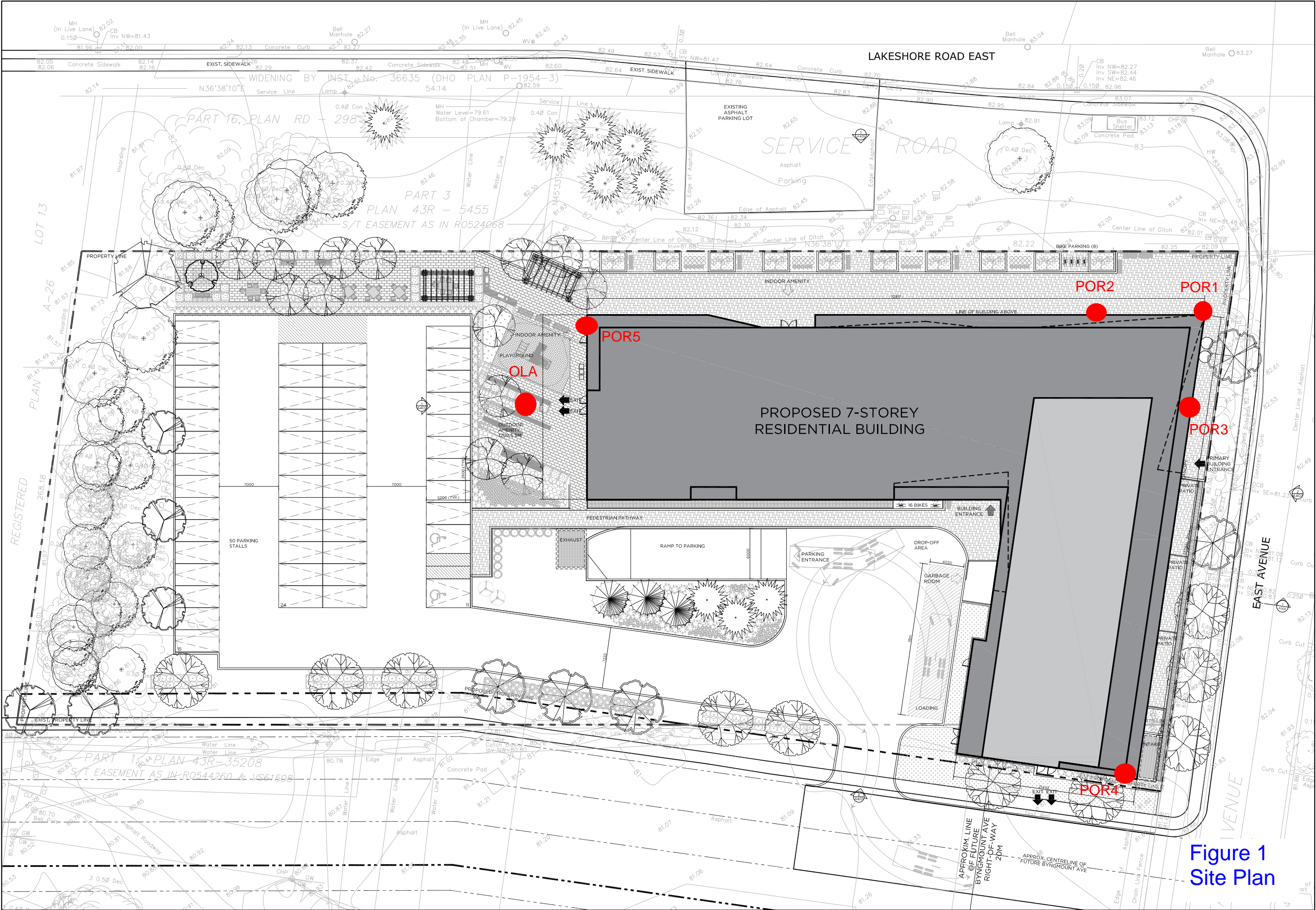
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## Figures

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2019.08.26 - ISSUED FOR DARC

**REVISION RECORD**



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19006

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**SITE PLAN**

1:400

**A100**

**Figure 1**  
**Site Plan**





Figure 2 Aerial Photo



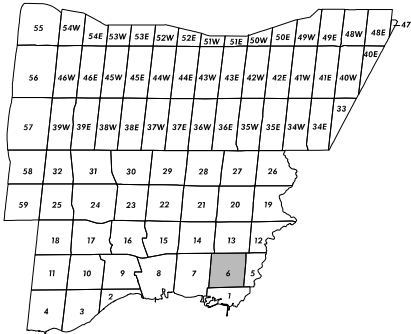


Figure 3a Zoning Map

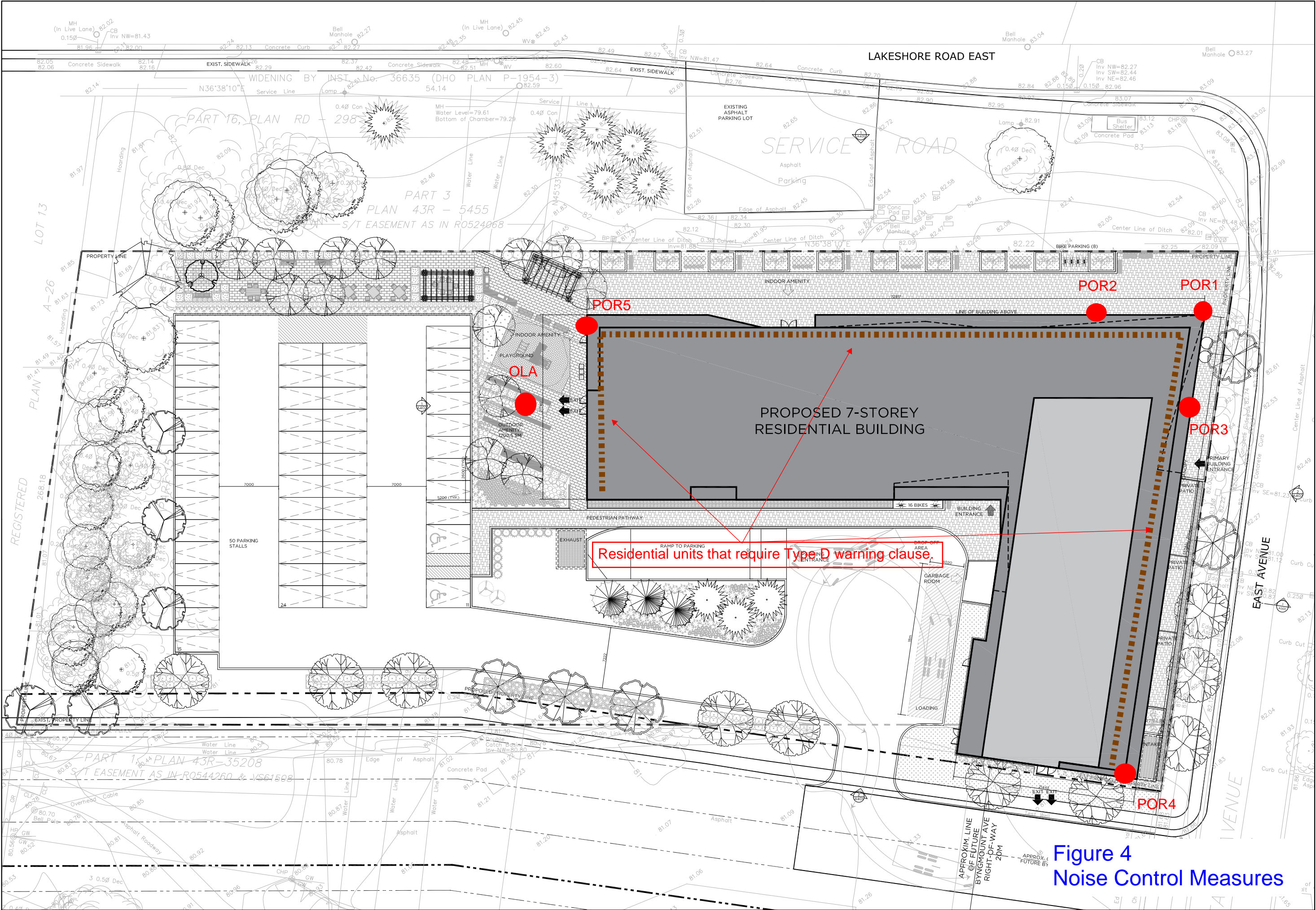
Zoning Map 06

Schedule "B" To By-law No. 0225-2007  
Revised: 2019 February 28

Greenlands Overlay  
Zoning Notation Example:  
R4-12 = R4-Exception 12







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**SITE PLAN**

1:400

**A100**

**Figure 4**  
**Noise Control Measures**



## Appendices

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## APPENDIX A: Traffic Data

---



Date: 26-Nov-19

## NOISE REPORT FOR PROPOSED DEVELOPMENT

### REQUESTED BY:

Name: Pearlie Yung

Company: Swallow Acoustic Consultant



### PREPARED BY:

Name: Bertuen Mickle

Tel#: (905) 615-3200

Location: (1) Lakeshore Road East, west of East Avenue  
(2) East Avenue, north of Lakeshore Road East  
(3) East Avenue, south of Lakeshore Road East

ID#: 438

## ON SITE TRAFFIC DATA

Specific	Street Names				
	Lakeshore Road East	East Avenue			
AADT:	38,500	5,000			
# of Lanes:	4 Lanes	2 lanes			
% Trucks:	6%	2%			
Medium/Heavy Trucks Ratio:	55/45	55/45			
Day/Night Traffic Split:	90/10	90/10			
Posted Speed Limit:	50 km/h	40 km/h			
Gradient of Road:	<2%	<2%			
Ultimate R O W:	30m	20m			

### Comments:

Ultimate Traffic Data Only



## **APPENDIX B: STAMSON Calculations**

---



Filename: ola.te                      Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at OLA

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

-----  
Car traffic volume : 32571/3619 veh/TimePeriod \*  
Medium truck volume : 1143/127 veh/TimePeriod \*  
Heavy truck volume : 936/104 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 38500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 3.30  
Heavy Truck % of Total Volume : 2.70  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lakeshore (day/night)

-----  
Angle1 Angle2 : -90.00 deg 30.24 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 58.17 / 58.17 m  
Receiver height : 1.50 / 1.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Lakeshore (day)

-----  
Source height = 1.28 m

ROAD (0.00 + 57.78 + 0.00) = 57.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.66	70.39	0.00	-9.77	-2.84	0.00	0.00	0.00	57.78

-----

Segment Leq : 57.78 dBA

Total Leq All Segments: 57.78 dBA

Results segment # 1: Lakeshore (night)

-----  
Source height = 1.28 m

ROAD (0.00 + 51.25 + 0.00) = 51.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.66	63.86	0.00	-9.77	-2.84	0.00	0.00	0.00	51.25

-----

Segment Leq : 51.25 dBA

Total Leq All Segments: 51.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.78  
(NIGHT): 51.25

Filename: por1.te                      Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at POR1

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

-----  
Car traffic volume : 32571/3619    veh/TimePeriod    \*  
Medium truck volume : 1143/127    veh/TimePeriod    \*  
Heavy truck volume : 936/104    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 38500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 3.30  
Heavy Truck % of Total Volume : 2.70  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lakeshore (day/night)

-----  
Angle1    Angle2 : -90.00 deg    90.00 deg  
Wood depth : 0    (No woods.)  
No of house rows : 0 / 0  
Surface : 1    (Absorptive ground surface)  
Receiver source distance : 46.18 / 46.18 m  
Receiver height : 20.75 / 20.75 m  
Topography : 1    (Flat/gentle slope; no barrier)  
Reference angle : 0.00

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

-----  
Car traffic volume : 4410/490    veh/TimePeriod    \*  
Medium truck volume : 50/6    veh/TimePeriod    \*  
Heavy truck volume : 41/5    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): 5000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 1.10  
Heavy Truck % of Total Volume : 0.90  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: East Ave (day/night)

-----  
Angle1    Angle2 : -90.00 deg    90.00 deg

Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 18.17 / 18.17 m  
 Receiver height : 20.75 / 20.75 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Results segment # 1: Lakeshore (day)

Source height = 1.28 m

ROAD (0.00 + 64.82 + 0.00) = 64.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.09	70.39	0.00	-5.32	-0.25	0.00	0.00	0.00	64.82

Segment Leq : 64.82 dBA

Results segment # 2: East Ave (day)

Source height = 0.98 m

ROAD (0.00 + 55.89 + 0.00) = 55.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.72	0.00	-0.83	0.00	0.00	0.00	0.00	55.89

Segment Leq : 55.89 dBA

Total Leq All Segments: 65.34 dBA

Results segment # 1: Lakeshore (night)

Source height = 1.28 m

ROAD (0.00 + 58.29 + 0.00) = 58.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.09	63.86	0.00	-5.32	-0.25	0.00	0.00	0.00	58.29

Segment Leq : 58.29 dBA

Results segment # 2: East Ave (night)

-----  
Source height = 1.00 m

ROAD (0.00 + 49.56 + 0.00) = 49.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	50.39	0.00	-0.83	0.00	0.00	0.00	0.00	49.56

-----

Segment Leq : 49.56 dBA

Total Leq All Segments: 58.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.34  
(NIGHT): 58.84

Filename: por3.te                      Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at POR3

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

-----  
Car traffic volume : 32571/3619    veh/TimePeriod    \*  
Medium truck volume : 1143/127    veh/TimePeriod    \*  
Heavy truck volume : 936/104    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 38500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 3.30  
Heavy Truck % of Total Volume : 2.70  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lakeshore (day/night)

-----  
Angle1    Angle2 : 0.00 deg    90.00 deg  
Wood depth : 0    (No woods.)  
No of house rows : 0 / 0  
Surface : 1    (Absorptive ground surface)  
Receiver source distance : 56.93 / 56.93 m  
Receiver height : 20.75 / 20.75 m  
Topography : 1    (Flat/gentle slope; no barrier)  
Reference angle : 0.00

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

-----  
Car traffic volume : 4410/490    veh/TimePeriod    \*  
Medium truck volume : 50/6    veh/TimePeriod    \*  
Heavy truck volume : 41/5    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): 5000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 1.10  
Heavy Truck % of Total Volume : 0.90  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: East Ave (day/night)

-----  
Angle1    Angle2 : -90.00 deg    90.00 deg

Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 2 (Reflective ground surface)  
 Receiver source distance : 18.17 / 18.17 m  
 Receiver height : 20.75 / 20.75 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Results segment # 1: Lakeshore (day)

-----

Source height = 1.28 m

ROAD (0.00 + 60.82 + 0.00) = 60.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.09	70.39	0.00	-6.31	-3.26	0.00	0.00	0.00	60.82

-----

Segment Leq : 60.82 dBA

Results segment # 2: East Ave (day)

-----

Source height = 0.98 m

ROAD (0.00 + 55.89 + 0.00) = 55.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.72	0.00	-0.83	0.00	0.00	0.00	0.00	55.89

-----

Segment Leq : 55.89 dBA

Total Leq All Segments: 62.03 dBA



Results segment # 1: Lakeshore (night)

Source height = 1.28 m

ROAD (0.00 + 54.29 + 0.00) = 54.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.09	63.86	0.00	-6.31	-3.26	0.00	0.00	0.00	54.29

Segment Leq : 54.29 dBA

Results segment # 2: East Ave (night)

Source height = 1.00 m

ROAD (0.00 + 49.56 + 0.00) = 49.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	50.39	0.00	-0.83	0.00	0.00	0.00	0.00	49.56

Segment Leq : 49.56 dBA

Total Leq All Segments: 55.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.03  
(NIGHT): 55.55

STAMSON 5.0                      NORMAL REPORT                      Date: 14-02-2020 21:22:38  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por4.te                      Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at POR4

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

-----  
Car traffic volume : 4410/490      veh/TimePeriod \*  
Medium truck volume : 50/6      veh/TimePeriod \*  
Heavy truck volume : 41/5      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): 5000  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 1.10  
Heavy Truck % of Total Volume : 0.90  
Day (16 hrs) % of Total Volume : 90.00

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

-----  
Angle1    Angle2                      : 0.00 deg    90.00 deg  
Wood depth : 0                      (No woods.)  
No of house rows : 0 / 0  
Surface : 2                      (Reflective ground surface)  
Receiver source distance : 18.17 / 18.17 m  
Receiver height : 20.75 / 20.75 m  
Topography : 1                      (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: East Ave (day)

-----  
Source height = 0.98 m

ROAD (0.00 + 52.88 + 0.00) = 52.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	56.72	0.00	-0.83	-3.01	0.00	0.00	0.00	52.88

-----

Segment Leq : 52.88 dBA

Total Leq All Segments: 52.88 dBA

Results segment # 1: East Ave (night)

-----  
Source height = 1.00 m

ROAD (0.00 + 46.55 + 0.00) = 46.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	50.39	0.00	-0.83	-3.01	0.00	0.00	0.00	46.55

-----

Segment Leq : 46.55 dBA

Total Leq All Segments: 46.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.88  
(NIGHT): 46.55

STAMSON 5.0                      NORMAL REPORT                      Date: 14-02-2020 21:22:51  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por5.te                      Time Period: Day/Night 16/8 hours  
Description: Predicted Traffic Sound Level at POR5

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

-----  
Car traffic volume : 32571/3619 veh/TimePeriod \*  
Medium truck volume : 1143/127 veh/TimePeriod \*  
Heavy truck volume : 936/104 veh/TimePeriod \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 38500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 3.30  
Heavy Truck % of Total Volume : 2.70  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Lakeshore (day/night)

-----  
Angle1 Angle2 : -90.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 46.18 / 46.18 m  
Receiver height : 20.75 / 20.75 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Lakeshore (day)

-----  
Source height = 1.28 m

ROAD (0.00 + 61.81 + 0.00) = 61.81 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 0 0.09 70.39 0.00 -5.32 -3.26 0.00 0.00 0.00 61.81  
-----

Segment Leq : 61.81 dBA

Total Leq All Segments: 61.81 dBA

Results segment # 1: Lakeshore (night)

-----  
Source height = 1.28 m

ROAD (0.00 + 55.28 + 0.00) = 55.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.09	63.86	0.00	-5.32	-3.26	0.00	0.00	0.00	55.28

-----

Segment Leq : 55.28 dBA

Total Leq All Segments: 55.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.81  
(NIGHT): 55.28