# Noise Impact Assessment
# 1869 Maple Grove Road
# Ottawa, Ontario

**Client:**
10886378 Canada Incorporated
190 Lisgar Street
Ottawa, ON K2P OCA

**Submitted for:**
Zoning By-law Amendment, Plan of Subdivision

**Project Name:**
1869 Maple Grove Road

**Project Number:**
OTT-00254810-A0

**Prepared By:**
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**Date Submitted:**
December 10, 2020

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**Date Submitted:**
December 10, 2020

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# 1 Introduction

## 1.1 Overview

EXP Services Inc. (EXP) was retained by 10886378 Canada Incorporated to undertake a noise impact assessment study in support of a Plan of Subdivision, Zoning By-law Amendment and Part Lot Control applications for a proposed residential development containing 18 town home units, located at 1869 Maple Grove Road in the City of Ottawa. The 0.41-hectare site is situated along Maple Grove Road as illustrated in **Figure 1-1** below.

Since the site is located within 100m of Maple Grove Road, which is as an undivided 2-Lane Major Collector (2-UMCU) roadway, a noise impact assessment due to traffic is required.

**Figure 1-1 - Site Location**

This report assesses noise impact from surface transportation sources only. No stationary noise sources were noted at the site which would exceed the sound level criteria, and therefore an assessment of stationary noise sources was not completed as part of project report.

This study was carried out in accordance with the Ministry of the Environment Conservation & Parks (MECP) Environmental Noise Control Guideline NPC-300 and the City of Ottawa's Environmental Noise Control Guidelines (COENCG). The findings of

the study will address noise levels and recommend if noise abatement measures are necessary to bring noise levels to acceptable levels. This noise impact study is prepared to address the following requirements as identified in Section 2.1 of the COENCG and Section 4.8.7 of the City of Ottawa's Official Plan (COOP):

Development proposals for new noise sensitive land uses are required to include a noise feasibility study and/or detailed noise study in the following locations:

- Mixed Use Centre, Town Centre and Mainstreets as identified on Schedule B;

or within

- 100 metres from the right-of-way of:
  - an existing or proposed arterial, collector or major collector road identified on Schedules E and F; or
  - a light rail transit corridor; bus rapid transit, or transit priority corridor identified on Schedule D;
- 250 metres from the right-of-way of:
  - an existing or proposed highway;
- 300 metres from the right of way of
  - a proposed or existing rail corridor or;
  - secondary main railway line;
- 500 metres from the right-of-way of:
  - a 400-series provincial highway, freeway or
  - a principle main railway line.

# 2 References

A summary of the documents that were referenced during the preparation of this report include the following:

- Ministry of the Environment Technical Document, ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Sept 1999.
- Ministry of the Environment Publication NPC-300, Stationery and Transportation Sources-Approvals and Planning, August 2013.
- City of Ottawa Official Plan (COOP), 2013.
- City of Ottawa Transportation Master Plan (COTMP), November 2013.
- City of Ottawa Environmental Noise Control Guidelines (COENCG), January 2016.

# 3 Sound Level Criteria

Ministry of the Environment and the City of Ottawa Guidelines place limitations on indoor and outdoor sound levels from road traffic which are summarized in Table 3-1 below. Noise criteria is taken from Tables 2.2a and 2.2b from the COENCG.

**Table 3-1: MECP and City of Ottawa Indoor and Outdoor Criteria for Noise from Road Traffic**

| Location | Space | Time Period | Equivalent Level Leq (dBA) |
|---|---|---|---|
| Indoors | Sleeping quarters of residences, hospitals, schools, nursing / retirement homes, etc. | Nighttime 23:00 to 07:00 | 40 |
| | Sleeping quarters of hotels/motels | Nighttime 23:00 to 07:00 | 45 |
| | Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc. | Daytime 07:00 to 23:00 | 45 |
| | Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc. | Nighttime 23:00 to 07:00 | 40 |
| | General offices, reception areas, retail stores, etc. | Daytime 07:00 to 23:00 | 50 |
| Outdoors | Outdoor Living Areas | Daytime 07:00 to 23:00 | 55 |

The basic physical measurement of noise used in this report is the A-weighted sound level measured in dBA, which is an overall measurement of sound over a full range of frequencies. Because noise from roadway traffic fluctuates over the audible range of hearing, it is convenient to describe noise in terms of an equivalent 24-hour sound level (denoted as Leq). MECP Guidelines require that traffic noise be evaluated in relation to specific locations during certain time periods.

In general, noise levels are predicted for outdoor living areas (generally the backyard of a residential home) during the day and for indoor areas (living areas during the day and bedrooms) during the nighttime. A summary of these requirements is shown

**Table 3-2: Outdoor, Ventilation & Warning Clause Requirements Road Noise, Daytime (0700-2300)**

| Assessment Location | Leq (16 Hr) (Dba) | Ventilation Requirements | Outdoor Control Measures | Warning Clause |
|---|---|---|---|---|
| Outdoor Living Area (OLA) | Less than or equal to 55 dBA | N/A | None required | Not required |
| | Greater than 55 dBA to less than or equal to 60 dBA | N/A | Control measures (barriers) may not required but should be considered | Required if resultant Leq exceeds 55 dBA, Type A |
| | Greater than 60 dBA | N/A | Control measures (barriers) required to reduce the Leq to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible | Required if resultant Leq exceeds 55 dBA, Type B |

| | | | | |
|---|---|---|---|---|
| Plane of Living Room Window | Greater than 50 dBA to less than or equal to 55 dBA | None required | N/A | Not required |
| | Greater than 55 dBA to less than or equal to 65 dBA | Forced air heating with provision for central air conditioning | N/A | Required Type C |
| | Greater than 65 dBA | Central air conditioning | N/A | Required Type D |

**Table 3-3: Ventilation and Warning Clause Requirements Road Noise, Nighttime (2300-0700)**

| Assessment Location | Leq (8 Hr) (Dba) | Ventilation Requirements | Warning Clause |
|---|---|---|---|
| Plane of Bedroom Window | Greater than 50 dBA to less or equal to 60 dBA | Forced air heating with provision for central air conditioning | Required Type C |
| | Greater than 60 dBA | Central air conditioning | Required Type D |

**Table 3-4: Building Component Requirements Road Noise, Daytime (0700-2300)**

| Assessment Location | Noise Source | $L_{eq}$ (16 Hr) (Dba) | Warning Clause |
|---|---|---|---|
| Plane of Living Room Window | Road | Less than or equal to 65 dBA | Building compliant with Ontario Building Code |
| | | Greater than 65 dBA | Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria |

**Table 3-5: Building Component Requirements Road Noise, Nighttime (2300-0700)**

| Assessment Location | Noise Source | Leq (8 hr) (dBA) | WARNING CLAUSE |
|---|---|---|---|
| Plane of Bedroom Window | Road | Less than or equal to 60 dBA | Building compliant with Ontario Building Code |
| | | Greater than 60 dBA | Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria |

The warning clauses referred to above are contained in Table 3-6 below. Ministry of the Environment warning clauses and City of Ottawa specific warning clauses (red italics) are shown. Where applicable, these clauses are to be inserted on all Offers/Agreements of Purchase and Sale or Leases to notify potential purchasers and tenants of these environmental concerns. The City of Ottawa warning clauses were taken from Table A1 of the COENCG.

**Table 3-6: MECP Warning Clauses**

| | |
|---|---|
| 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."<br>*"Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment."* |
| 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."<br>*"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/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment."* |
| 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."<br>*"This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."* |
| 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."<br>*"This dwelling unit has been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment."* |
| Type E | "Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."<br>*"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times interfere with outdoor activities."* |

## 3.1 Vehicular Traffic Noise

The site is located within 100 meters from the right-of-way of an existing 2 lane major collector roadway (Maple Grove Road) therefore a noise assessment is required.

Figure 2 in Appendix A illustrates the noise source and receiver locations used. In general, noise levels are predicted at the building façade or plane of window (POW) during the daytime and nighttime.

The predicted noise levels were used to dictate the action required to achieve the recommended sound abatement requirements. The mitigation of the indoor sound levels is achieved by selection of building architectural components (walls, windows, doors), based on the noise reduction required to meet the indoor noise level criteria. The 16-hour daytime and 8-hour nighttime sound levels were calculated at five (5) locations around the site. The results of the predicted noise levels at these locations stipulate the ventilation, building code and associated warning clause requirements. There were no receiver locations that were assessed as outdoor living areas as there were no outdoor amenity areas that met the requirements to be considered as an Outdoor Living Area (OLA).

STAMSON file names used were denoted based on the receiver used location.

## 3.2 Aircraft/Airport Noise

The site is located outside the Airport Vicinity Development Zone and outside the Airport Operating Influence Zone as per Schedule K of the Ottawa Official Plan. The site is also outside both the 25 NEF and NEP contours therefore noise from air traffic does not impact this site.

# 4 Road Noise Prediction Procedures

All noise levels have been predicted using MECP's software and methodology. STAMSON Version 5.03 (1999), which is based on the Ontario Road Noise Analysis Method for Environment and Transportation ("ORNAMENT") Model, was used for all calculations in this report. Detailed output files are attached in Appendix D for reference. In addition to the traffic data that was used in the analysis, theoretical noise predictions were based on the following information:

- Truck traffic on Maple Grove Road Rd consists of 5% heavy trucks, 7% medium trucks.
- The Day/Night split used was 92% and 8%.
- Intermediate surfaces between the source and receiver locations were assessed as an absorptive ground surface.
- Topography was assessed as flat/gentle slope between the noise source and the receivers.
- Road pavement and road gradient was assessed as typical asphalt or concrete and flat grade.

Traffic information used for this study was obtained from the review of the City of Ottawa's Noise Control Guidelines. Road and traffic parameters used in our analysis are summarized in Table 4-1 below.

**Table 4-1: Traffic and Road Parameters**

| Traffic Parameters | Maple Grove Road |
|---|---|
| R.O.W. WIDTH (m) | Approx. 10-12 m |
| Roadway Type | 2 Lane Major Collector (4-UMCU) |
| Posted Speed Limit (km/hr) | 50 km/hr |
| Passenger Cars | 88% |
| Medium trucks (%) | 7% |
| Heavy trucks (%) | 5% |
| A.A.D.T. (veh/day) both directions | 12,000 |
| Day/night split (%) | 92 / 8 |
| Vehicles day/night split (total) | 9,715 / 845(10560) |
| Medium trucks day/night split (total) | 773 / 67 (840) |
| Heavy trucks day/night split (total) | 552 / 48 (600) |

Based on the proposed site, the ground between the proposed blocks and Maple Grove Road would be considered as a reflective surface due to the surface being comprised of mostly asphalt and concrete.

Different receiver heights will be considered as these units are not considered as typical homes, where the stacked town homes have 3 floors, including a living space on the top floor as well as the basement.

Since the site is being modeled under reflective conditions, the height of the receiver location does not matter as the noise levels will remain the same at any height when modeling with Stamson. However, it is affected when there is a noise wall which is situation with an existing noise wall adjacent to the west side of the site. The receiver height that is highest for either living room areas and bedroom areas shall be used in order to obtain the worst-case scenario.

Noise levels are assessed at different receiver heights since the limits are stacked having 3 above grade floors. Receiver heights were assessed at the center of the windows for modelling with Stamson, source and receiver were assumed to be elevated with a reflective surface. This ensures that no ground absorption is applied to the mediated results. Therefore, when ground absorption is applied, the height of the receiver, and the results are the same for all floors. Thus, a conservative assumption amplifies the prediction of sound levels on all floors.

# 5 Summary of Results

The anticipated noise levels at the assessed receiver locations range from approximately 67.1-48.6 dBa during the daytime and between 59.5-41.0 dBa during the nighttime.

A summary of predicted noise levels for various assessment locations is summarized below in Table 5-1 below. Detailed results and output from STAMSON Version 5.03 are contained in Appendix D.

Noise levels were only assessed at the building façade, as there were no amenity areas that met the definition of an OLA. Sewage Flows within the property were estimated in order to compare with developed conditons. **Table 5-1** below summarizes the approxiamete sewage flows generated from the proposed properties, based on a commerical flow and infiltration allowance.

**Table 5-1: Summary of Anticipated Noise Levels**

| Receiver Location | Block Number | Receptor Type | Unattenuated Noise Level Leq (dBa) | |
|---|---|---|---|---|
| | | | Daytime (07:00 – 23:00) | Nightime (23:00– 07:00) |
| | | | | |
| R1 | Block 3 | Façade | 67.12 | 59.52 |
| R2 | Block 3 | Façade | 60.53 | 52.93 |
| R3 | Block 3 | Façade | 56.44 | 48.84 |
| R4 | Block 3 | Façade | 60.96 | 53.36 |
| R5 | Block 1 | Façade | 48.59 | 40.99 |
| | | | | |

# 6 Mitigation Measures

Table 6-1 below summarizes the requirements for ventilation, outdoor control measures and building components for all assessment locations.

**Table 6-1: Summary of Requirements based on Receiver Location**

| Receiver Location | Outdoor Control Measures Warning Clause | Ventilation Requirement | | *Building Component Requirement | |
|---|---|---|---|---|---|
| | | Plane of Living Room Windows (Daytime) | Plane of Bedroom Windows (Nighttime) | Plane of Living Room Windows (Daytime) | Plane of Bedroom Windows (Nighttime) |
| | | | | | |
| R1 | N/A | Type D | Type C | Non-Compliant | Compliant |
| R2 | N/A | Type C | Type C | Compliant | Compliant |
| R3 | N/A | Type C | None | Compliant | Compliant |
| R4 | N/A | Type C | Type C | Compliant | Compliant |
| R5 | N/A | None | None | Compliant | Compliant |
| | | | | | |

**Building Code Requirements.*
*Required = Building components must be designed to achieve indoor sound levels criteria, or*
*Compliant = Building compliant with Ontario Building Code*

# 7 Recommendations

We recommend that this application for the proposed development at 1869 Maple Grove Road be approved from a "Noise Study" assessment perspective, based on the following:

As the anticipated nighttime noise levels exceeding acceptable levels due to road traffic, building components for windows/walls etc., will need to be designed to reduce indoor noise levels to acceptable levels. The recommended AIF requirements for the exterior window and walls of individual residential blocks is provided in Table 6-2. It is also recommended that a qualified acoustic consultant inspect the building plans to certify that construction will be adequate in this regard.

**Block 3 (Front of Block Facing Maple Grove as Identified in Figure A2)**

A requirement for Central Air Conditioning Type "D" Warning Clause for the indoor areas is required for these units. The following Notices on Title for these residential lots shall be included in all Agreements of Purchase and Sale in accordance with the terms specified by the Development Agreement:

*Type D Warning Clause: "This dwelling unit has been supplied with a central air conditioning system and other measures 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 City and the Ministry of the Environment."*

**Block 3 (All Other Sides of Block Not Facing Maple Grove as Identified in Figure A2)**

A requirement for Central Air Conditioning Type "C" Warning Clause for the indoor areas is required for these units. The following Notices on Title for these residential lots shall be included in all Agreements of Purchase and Sale in accordance with the terms specified by the Development Agreement:

*Type C Warning Clause: "This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."*

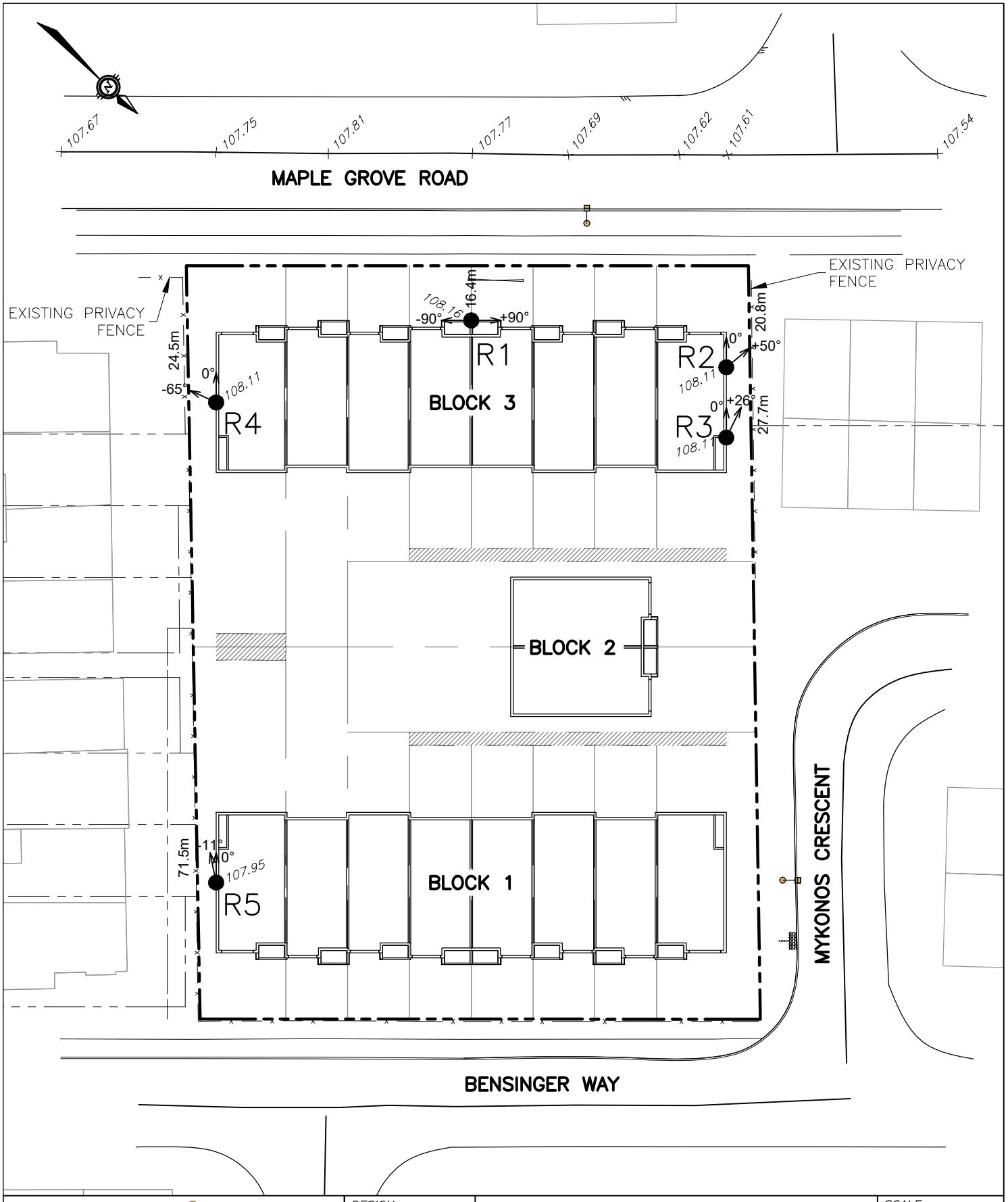
# 8 Legal Notification

This report was prepared by EXP Services Inc. for the account of 10886378 Canada Incorporated.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

# Appendix A - Figures

**Figure A1 – Source/Receiver Locations for Building Facade**

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| | |
|---|---|
| DESIGN | MZG |
| DRAWN | MZG |
| DATE | 28-02-20 |
| FILE NO | OTT-00254810-A0 |

# 1869 MAPLE GROVE ROAD
**GNCR DEVELOPMENTS**

## NOISE SOURCE/RECEIVER LOCATIONS

SCALE 1:500

SKETCH NO FIG A1

# Appendix B –Tables

**Table B1- Noise Source/Receiver Data**

**Table B2- Summary of Warning Clauses**

**TABLE B1 - SOURCE/Combined Stamson DATA**

| Location | Assessment Location | Noise Source | Block Number | Angles | | Source to Receiver Distance (m) | Source Ground Elev (m) | Receiver Ground Elev (m) | Source-Reciever Ground, e (m) | Receiver Height (m) (DayTime) | Receiver Height (m) (Night Time) | Combined Equivalent Noise Level Leq (dBa) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | From | To | | | | | | | Daytime (7:00-23:00) | Nighttime (23:00-7:00) |
| **R1** | **Façade** | **Maple Grove** | **Block 3** | **-90** | **90** | **16.4** | **107.77** | **108.16** | **0.39** | **1.5** | **4.5** | **67.12** | **59.52** |
| **R2** | **Façade** | | **Block 3** | **0** | **50** | **20.8** | **107.61** | **108.11** | **0.50** | **1.5** | **4.5** | **60.53** | **52.93** |
| **R3** | **Façade** | | **Block 3** | **0** | **26** | **27.7** | **107.61** | **108.11** | **0.50** | **1.5** | **4.5** | **56.44** | **48.84** |
| **R4** | **Façade** | | **Block 3** | **-65** | **0** | **24.5** | **107.75** | **108.11** | **0.36** | **1.5** | **4.5** | **60.96** | **53.36** |
| **R5** | **Façade** | | **Block 1** | **-11** | **0** | **71.5** | **107.75** | **107.95** | **0.20** | **1.5** | **4.5** | **48.59** | **40.99** |

AADT = 12,000
2-lane Major Collector (2-UMCU)
Speed limmit = 50km/hr

## TABLE B2- SUMMARY OF WARNING CLAUSES - SORTED BY RECEIVER LOCATIONS

| Receiver Location | Outdoor Control Measures Warning Clause | Ventilation Requirement | | | *Building Component Requirement | | |
|---|---|---|---|---|---|---|---|
| | | Plane of Living Room Windows (Daytime) | Plane of Bedroom Windows (Nighttime) | Governing Warning Clause Requirement | Plane of Living Room Windows (Daytime) | Plane of Bedroom Windows (Nighttime) | Governing BC Requirement |
| R1 | N/A | Type D | Type C | Type D | Non-Compliant | Compliant | Non-Compliant |
| R2 | N/A | Type C | Type C | Type C | Compliant | Compliant | Compliant |
| R3 | N/A | Type C | None | Type C | Compliant | Compliant | Compliant |
| R4 | N/A | Type C | Type C | Type C | Compliant | Compliant | Compliant |
| R5 | N/A | None | None | None | Compliant | Compliant | Compliant |

*Compliant - compliant with Ontario Building Code

*Non-Compliant - not compliant with Ontario Building Code

# Appendix C – Architectural Plan

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

## NOTATION SYMBOLS:

- (ID) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- (ID) INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- (ID) INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- (DR) INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER
- TITLE
- SCALE
- DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

## PROJECT NOTES

1. TRANSFORMER
2. RESERVED
3. CONCRETE SIDEWALK BUILT TO CITY OF OTTAWA STANDARDS
4. BUS STOP TO POTENTIALLY BE RELOCATED
5. EXISTING LIGHT STANDARD (EXACT LOCATION TO BE CONFIRMED BY SURVEYOR)
6. EXISTING UTILITY POLE (EXACT LOCATION TO BE CONFIRMED ON SURVEY DRAWING)
7. 1300mm WIDE REAR YARD ACCESS EASEMENT (TO BE CONFIRMED ON SURVEY DRAWING)
8. 150mm WIDE MOUNTABLE CURB
9. EXISTING LIGHT STANDARD TO BE RELOCATED
10. NEW FIRE HYDRANT (EXACT LOCATION TO BE CONFIRMED BY CIVIL ENGINEER)
11. COMMON MAIL BOXES
12. PROVIDE DEPRESSED SIDEWALK
13. RESERVED
14. RESERVED
15. RESERVED
16. RESERVED
17. RESERVED
18. RESERVED
19. RESERVED
20. RESERVED

## GENERAL NOTES:

- (A) REFER TO TYPICAL ASSEMBLIES SHEET FOR WALL, PARTITION, ROOF CEILING & FLOOR TYPES.
- (B) FOR DOOR TYPES AND HARDWARE REQUIREMENTS REFER TO DOOR SCHEDULE ON A900 SERIES.
- (C) ALL INTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF STUD
- (D) ALL EXTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF STUD
- (E) ALL EXTERIOR WALLS ARE "D BY TYPE 'W1' UNLESS NOTED OTHERWISE.
- (F) ALL INTERIOR PARTITIONS ARE "D BE TYPE 'P1' UNLESS NOTED OTHERWISE.
- (G) ALL REINFORCED CONCRETE SUSPENDED SLABS COLUMNS & BEAMS HAVE A MIN FIRE OF 1.5 HRS AS DETERMINED BY OBC S9-2) UNLESS OTHERWISE STATED.

## LEGEND

- UNIT ENTRY POINT
- GEODETIC ELEVATION MARKER
- TOP OF CURB MARKER
- FIRE HYDRANT
- UTILITY POLE
- LIGHT STANDARD
- PROPERTY LINE
- SETBACK LINE
- SUBDIVIDED PROPERTY LINE
- EASEMENT OUTLINE
- NEW 2.5m HT PRIVACY FENCE
- PROPOSED BUILDING OUTLINE
- NEW PRIVATE DRIVEWAY
- PUBLIC SIDEWALKS

| No. | DESCRIPTION | DATE |
|---|---|---|
| 2 | ISSUED FOR COORDINATION | 10-07-2020 |
| 1 | ISSUED FOR COORDINATION | 10-07-2020 |

REVISIONS

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY — LICENCE 4178 — SEAL DATE STAMP DATE

NORTH ARROW

CLIENT: gncr DEVELOPMENTS

ARCHITECT: rla/architecture — roderick lahey architect inc. — 56 beech street, ottawa, ontario K1S 3J6 — t 613.724.9922 f 613.724.1209 rlaarchitecture.ca

PROJECT TITLE: 1869 MAPLE GROVE ROAD — OTTAWA ONTARIO

SHEET TITLE: SITE PLAN

DRAWN: L.M. | CHECKED: R.V

SCALE: 1:200 | SHEET No.: SP-00

PROJECT No.: 1921

D07-12-19-0089

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PHONE: 613 688 1899

## TRAFFIC ENGINEER
EXP SERVICES INC.

2650 QUEENSVIEW DRIVE
SUITE 100
OTTAWA, ONTARIO
K2B 8H6

PHONE: 613 688 1899

## LANDSCAPE ARCHITECT
JAMES B. LENNOX AND ASSOCIATES INC

3332 CARLING AVE.
OTTAWA, ONTARIO, CANADA
K2H 5A8

PHONE: 613 722 5168
FAX: 1 866 343 3942

## SURVEYOR
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.

14 CONCOURSE GATE, SUITE 500
NEPEAN ONTARIO, CANADA
K2E 7S6

PHONE: 313 727 0850
FAX: 313 727 1079

## SITE INFORMATION

| ZONING | DR |
|---|---|
| MAX BUILDING HEIGHT | 11.0 M. |
| LOT AREA | 4,051.7 SQ. M. |
| 1869 MAPLE GROVE RD STITTSVILLE, ONTARIO, CANADA K2S 1B9 | |
| RE-ZONE TO | R3YY |
| MAX BUILDING HEIGHT | 12.0 M. |
| LOT AREA | 4,051.7 SQ. M. |
| 1869 MAPLE GROVE RD STITTSVILLE, ONTARIO, CANADA K2S 1B9 | |
| SITE AREA | |
| TOTAL SITE AREA | 4,051.7 SQ. M. |
| **RESIDENTIAL UNITS** | |
| TRADITIONAL TOWNHOUSES: | 16 |
| SEMI-DETACHED HOUSES: | 2 |
| TOTAL UNITS: | 18 |

## DEVELOPMENT STATISTICS

| SITE SETBACKS (R3YY) | REQUIRED | PROVIDED |
|---|---|---|
| FRONT YARD (MAPLE GROVE ROAD) | 3.0m | 3.0m |
| CORNER SIDE YARD (MYKONOS CRESCENT) | 2.5m | 2.5m |
| TYPICAL INTERIOR SIDE YARD | 1.2m | 1.2m |
| REAR YARD (BENSINGER WAY) | 6.0m | 3.0m |

| BUILDING FOOTPRINTS | # OF UNITS | TOTAL AREA |
|---|---|---|
| BLOCK 1 | 8 | 7,244 SQFT |
| BLOCK 2 | 2 | 1,980 SQFT |
| BLOCK 3 | 8 | 7,244 SQFT |
| TOTAL | | 16,468 SQFT (1,529.9 SQM) |

| BUILDING STATISTICS | AREA | # OF UNITS | TOTAL UNIT AREA |
|---|---|---|---|
| TRADITIONAL TOWN TYPE A - | -,--- SQFT | 4 | -,--- SQFT |
| TRADITIONAL TOWN TYPE B - | -,--- SQFT | 12 | -,--- SQFT |
| SEMI-DETACHED TYPE A - | -,--- SQFT | 2 | -,--- SQFT |
| TOTAL - | -,--- SQFT | 18 | -,--- SQFT (-,---.- SQM) |

| PARKING | REQUIRED | PROVIDED |
|---|---|---|
| **TRADITIONAL TOWNS** | | |
| RESIDENTIAL: | 1.0 PER DWELLING | |
| VISITOR | 0.2 PER DWELLING | |
| **SEMI-DETACHED TOWNS** | | |
| RESIDENTIAL: | 1.0 PER DWELLING | |
| VISITOR | 0.2 PER DWELLING | |
| **PARKING** | **REQUIRED** | **PROVIDED** |
| **TRADITIONAL TOWNS** | | |
| RESIDENTIAL: | 16 | 16 |
| VISITOR | 3.2 | 16 |
| **SEMI-DETACHED TOWNS** | | |
| RESIDENTIAL: | 2 | 2 |
| VISITOR | 0.4 | 2 |
| TOTAL: | 21.6 | 36 |

*REQUIRED BICYCLE PARKING PROVIDED IN GARAGE

## SITE COVERAGE

| SPACE | | AREA (sq.m.) |
|---|---|---|
| BUILDING FOOTPRINT | - | 1,529.9 |
| PARKING LOT | - | 0.0 |
| SIDEWALKS | - | 0.0 |
| DRIVEWAYS | - | 398.3 |
| TOTAL | - | 1928.2 |
| **LOT AREA** | | |
| 1869 MAPLE GROVE ROAD | - | 4,051.7 |
| LANDSCAPE SPACE | - | 2,123.5 |
| TOTAL LANDSCAPE SPACE (%) | - | 52.4 |

## ADDITIONAL NOTES

1. DEDICATED SNOW STORAGE WILL NOT BE PROVIDED ON THIS SITE - AS ALL UNITS FRONT ONTO PUBLIC STREETS, STREET SNOW REMOVAL WILL BE THE RESPONSIBILITY OF THE CITY OF OTTAWA.

2. AS ALL UNITS FRONT ONTO PUBLIC STREETS, ALL UNITS SHOULD BE ELIGIBLE FOR CITY GARBAGE COLLECTION

3. BLOCK 2 WILL REQUIRE A JOINT USE MAINTENANCE AGREEMENT GIVEN THE SHARED DRIVEWAY

4. EXISTING BUILDING TO BE DEMOLISHED PRIOR TO CONSTRUCTION

PLOT DATE: Thursday, January 30, 2020

Plan No.: #18003

# Appendix D – STAMSON Output

STAMSON 5.0 NORMAL REPORT Date: 20-02-2020 11:52:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R1.te Time Period: Day/Night 16/8 hours
Description:

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

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

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

Data for Segment # 1: (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 : 16.40 / 16.40 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: (day)
---

Source height = 1.50 m

ROAD (0.00 + 67.12 + 0.00) = 67.12 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -90 | 90 | 0.00 | 67.51 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 67.12 |

Segment Leq : 67.12 dBA

Total Leq All Segments: 67.12 dBA

Results segment # 1: (night)
---

Source height = 1.50 m

ROAD (0.00 + 59.52 + 0.00) = 59.52 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -90 | 90 | 0.00 | 59.91 | 0.00 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 59.52 |

Segment Leq : 59.52 dBA

Total Leq All Segments: 59.52 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.12
(NIGHT): 59.52

STAMSON 5.0 NORMAL REPORT Date: 20-02-2020 12:14:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R2.te Time Period: Day/Night 16/8 hours
Description:

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

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

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

Data for Segment # 1: (day/night)
---
Angle1 Angle2 : 0.00 deg 50.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.80 / 20.80 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: (day)
---

Source height = 1.50 m

ROAD (0.00 + 60.53 + 0.00) = 60.53 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 50 | 0.00 | 67.51 | 0.00 | -1.42 | -5.56 | 0.00 | 0.00 | 0.00 | 60.53 |

Segment Leq : 60.53 dBA

Total Leq All Segments: 60.53 dBA

Results segment # 1: (night)
---

Source height = 1.50 m

ROAD (0.00 + 52.93 + 0.00) = 52.93 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 50 | 0.00 | 59.91 | 0.00 | -1.42 | -5.56 | 0.00 | 0.00 | 0.00 | 52.93 |

Segment Leq : 52.93 dBA

Total Leq All Segments: 52.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.53
(NIGHT): 52.93

STAMSON 5.0 NORMAL REPORT Date: 20-02-2020 12:28:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R3.te Time Period: Day/Night 16/8 hours
Description:

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

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

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

Data for Segment # 1: (day/night)
---
Angle1 Angle2 : 0.00 deg 26.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 27.70 / 27.70 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: (day)
---

Source height = 1.50 m

ROAD (0.00 + 56.44 + 0.00) = 56.44 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 26 | 0.00 | 67.51 | 0.00 | -2.66 | -8.40 | 0.00 | 0.00 | 0.00 | 56.44 |

Segment Leq : 56.44 dBA

Total Leq All Segments: 56.44 dBA

Results segment # 1: (night)
---

Source height = 1.50 m

ROAD (0.00 + 48.84 + 0.00) = 48.84 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 26 | 0.00 | 59.91 | 0.00 | -2.66 | -8.40 | 0.00 | 0.00 | 0.00 | 48.84 |

Segment Leq : 48.84 dBA

Total Leq All Segments: 48.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.44
(NIGHT): 48.84

STAMSON 5.0 NORMAL REPORT Date: 20-02-2020 12:29:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R4.te Time Period: Day/Night 16/8 hours
Description:

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

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

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

Data for Segment # 1: (day/night)
---
Angle1 Angle2 : -65.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 24.50 / 24.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: (day)
---

Source height = 1.50 m

ROAD (0.00 + 60.96 + 0.00) = 60.96 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -65 | 0 | 0.00 | 67.51 | 0.00 | -2.13 | -4.42 | 0.00 | 0.00 | 0.00 | 60.96 |

Segment Leq : 60.96 dBA

Total Leq All Segments: 60.96 dBA

Results segment # 1: (night)
---

Source height = 1.50 m

ROAD (0.00 + 53.36 + 0.00) = 53.36 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -65 | 0 | 0.00 | 59.91 | 0.00 | -2.13 | -4.42 | 0.00 | 0.00 | 0.00 | 53.36 |

Segment Leq : 53.36 dBA

Total Leq All Segments: 53.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.96
(NIGHT): 53.36

STAMSON 5.0 NORMAL REPORT Date: 20-02-2020 12:30:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R5.te Time Period: Day/Night 16/8 hours
Description:

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

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

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

Data for Segment # 1: (day/night)
---
Angle1 Angle2 : -11.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 71.50 / 71.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: (day)
---

Source height = 1.50 m

ROAD (0.00 + 48.59 + 0.00) = 48.59 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -11 | 0 | 0.00 | 67.51 | 0.00 | -6.78 | -12.14 | 0.00 | 0.00 | 0.00 | 48.59 |

Segment Leq : 48.59 dBA

Total Leq All Segments: 48.59 dBA

Results segment # 1: (night)
---

Source height = 1.50 m

ROAD (0.00 + 40.99 + 0.00) = 40.99 dBA

| Angle1 | Angle2 | Alpha | RefLeq | P.Adj | D.Adj | F.Adj | W.Adj | H.Adj | B.Adj | SubLeq |
|---|---|---|---|---|---|---|---|---|---|---|
| -11 | 0 | 0.00 | 59.91 | 0.00 | -6.78 | -12.14 | 0.00 | 0.00 | 0.00 | 40.99 |

Segment Leq : 40.99 dBA

Total Leq All Segments: 40.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.59
(NIGHT): 40.99