Noise Impact Assessment
6171 Hazeldean Road, Ottawa, ON

Client:
11654128 Canada Inc.
768 Boulevard St. Joseph
Gatineau, QC

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

Project Name:
6171 Hazeldean Road

Project Number:
OTT-258780-A0

Prepared By:
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Date Submitted:
August 5, 2020

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B. M. THOMAS
2020-08-05
PROVINCE OF ONTARIO

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1 Introduction

1.1 Overview

EXP Services Inc. (EXP) was retained by 11654128 Canada Inc. to undertake a noise feasibility study in support of a Zoning By-law Amendment and Plan of Subdivision appliation. The proposed development will consist of twenty (20) single family homes, one-hundred and fifty-four (154) townhomes, five (5) 3-storey condominium buildings (36 units each), and a 9-storey mixed use rental building (160 units), located at 6171 Hazeldean Road in the City of Ottawa. The 9.021-hectare site is situated along Hazeldean Road as illustrated in **Figure 1-1** below.

The site is located within 100m of transportation two noise sources. The source is Hazeldean Road, which classified as a 4-Lane Urban Arterial-Divided (4-UAD) roadway, and the second source is Kimpton Dr, which is a 2-Lane Urban Collector (2-UCU). Therefore, 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	45
	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 below:

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." *"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." *"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." *"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." *"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." *"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

Noise sensitive locations within the proposed site are located less than 100m of two transportation noise sources. The first one being Hazeldean Road, which is as a 4-Lane Urban Arterial-Divided (4-UAD) roadway, and the second one is Kimpton Dr, which is a 2-Lane Urban Collector (2-UCU).

Figure 2 in Appendix A illustrates the noise source and receiver locations used. Noise levels are predicted at OLA's during the daytime and 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 thirteen (13) 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 also receiver locations that were assessed as outdoor living areas as there were 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 Hazeldean Road, and Kimpton Drive 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 reflective 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	Hazeldean Road	Kimpton Drive
R.O.W. WIDTH (m)	Approx. 30-35 m	20-22m
Roadway Type	4-Lane Urban Arterial-Divided (4-UAD)	2-Lane Urban Collector (2-UCU)
Posted Speed Limit (km/hr)	60 km/hr	40 km/hr
Passenger Cars	88%	88%
Medium trucks (%)	7%	7%
Heavy trucks (%)	5%	5%
A.A.D.T. (veh/day) both directions	35,000	8,000
Day/night split (%)	92 / 8	92 / 8
East Bound / West Bound lane split (%)	50/50	50/50
Vehicles day/night split (West Bound Lane)	14,168 / 1,232 (15,400)	6,477/563
Vehicles day/night split (East Bound Lane)	14,168 / 1,232 (15,400)	
Medium trucks day/night split (West Bound Lane)	1,127 / 98 (1,225)	515/45
Medium trucks day/night split (East Bound Lane)	1,127 / 98 (1,225)	
Heavy trucks day/night split (West Bound Lane)	805 /70 (875)	368/32
Heavy trucks day/night split (East Bound Lane)	805 /70 (875)	

Based on the proposed site, the ground between the proposed subdivision and Hazeldean Road, and Kimpton Drive 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 some of these units are not considered as typical homes, where the condominium buildings have 3 floors, and the mixed-use building have 9-storeys.

Topography between the source and receiver were assumed to be flat 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 51.2-71.7dBa during the daytime and between 45.0-64.2dBa 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.

Table 5-1: Summary of Anticipated Noise Levels

Receiver Location	Block Number/Type	Receptor Type	Unattenuated Noise Level Leq (dBa)	
			Daytime (07:00 – 23:00)	Nightime (23:00– 07:00)
R1	9-Storey Apartment (mixed-use)	façade	70.62	63.02
R2	3 Storey Apartment (Block C)	façade	71.65	64.05
R3	3 Storey Apartment (Block D)	façade	71.74	64.15
R4	3 Storey Apartment (Block E)	façade	71.69	64.09
R5	9-Storey Apartment (mixed-use)	façade	66.81	59.21
R6	Townhome	OLA	57.20	49.96
R7	Townhome	OLA	54.98	47.39
R8	Townhome	façade	53.12	45.53
R9	Townhome	OLA	51.22	45.00
R10	Single Family Home	OLA	54.86	49.25
R11	Single Family Home	OLA	51.77	45.19
R12	Single Family Home	façade	52.25	45.56
R13	Single Family Home	OLA	52.43	45.74

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	Block Number/Type	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	9-Storey Apartment (mixed-use)	Type D	Type D	Non-Compliant	Non-Compliant
R2	N/A	3 Storey Apartment (Block C)	Type D	Type D	Non-Compliant	Non-Compliant
R3	N/A	3 Storey Apartment (Block D)	Type D	Type D	Non-Compliant	Non-Compliant
R4	N/A	3 Storey Apartment (Block E)	Type D	Type D	Non-Compliant	Non-Compliant
R5	N/A	9-Storey Apartment (mixed-use)	Type D	Type C	Non-Compliant	Compliant
R6	Type B	Townhome	Type C	None	Compliant	Compliant
R7	None	Townhome	None	None	Compliant	Compliant
R8	N/A	Townhome	None	None	Compliant	Compliant
R9	None	Townhome	None	None	Compliant	Compliant
R10	Type A	Single Family Home	None	None	Compliant	Compliant
R11	None	Single Family Home	None	None	Compliant	Compliant
R12	N/A	Single Family Home	None	None	Compliant	Compliant
R13	None	Single Family Home	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

The single family homes along Kimpton Drive shall not require any attention noise barriers, as the noise levels do not exceed sound level criteria.

An illustration of the units that require Outdoor Control Measures Warning Clause is provided in **Figure A-2**.

An illustration of the units that require Ventilation Requirement is provided in **Figure A-3**.

An illustration of the units that require Building Component Requirement **Figure A-4**.

7 Recommendations

This feasibility noise impact assessment has identified preliminary noise abatement requirements. Further review of noise requirements project will be updated as the project advances:

The anticipated daytime and nighttime noise levels adjacent to Hazeldean Road exceeding acceptable levels due to road traffic, therefore building components for windows/walls etc., will need to be designed to reduce indoor noise levels to acceptable levels. It is recommended that a qualified acoustic consultant inspect the building plans to certify that construction will be adequate in this regard.

Condominium Blocks C, D, & E, & 9-Storey Mixed Use Building as Identified in Figure A-1

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 1 (units 1-6) and lot 15 as Identified in Figure A-1

A Type "A" Warning Clause for the Outdoor Living Area is required along with a Provision for Central Air Conditioning Type "C" Warning Clause for the indoor areas. 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 A Warning Clause: "Purchasers/tenants are advised that sound levels due to increasing road 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."

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."

A detailed noise study will be required to specify detailed noise reduction measures (section of building components) necessary to meet indoor noise criteria.

8 Legal Notification

This report was prepared by EXP Services Inc. for the account of 11654128 Canada Inc.

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 A-1 – Source/Receiver Locations for Building Façade

Figure A-2 – Outdoor Control Measures Warning Clause

Figure A-3 – Ventilation Requirement

Figure A-4 – Building Component Requirement

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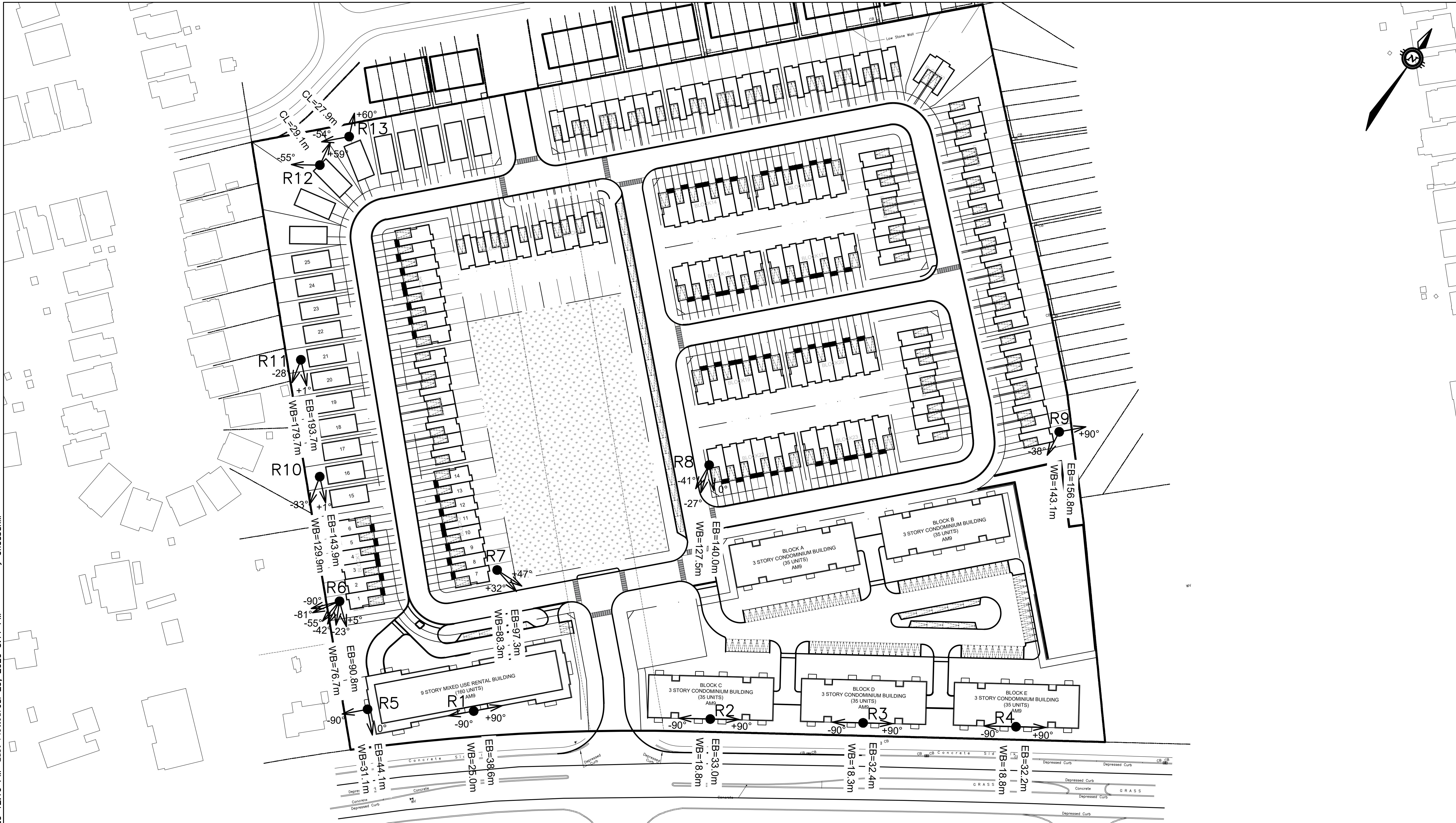

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DESIGN MZG	**11654128 CANADA INC.**		SCALE 1:1000
DRAWN MZG	**768 BOULEVARD ST. JOSEPH**		SKETCH NO
DATE 04/05/20	**GATINEAU, QC**		
FILE NO OTT-00258780-A0	NOISE RECEIVER LOCATIONS		FIG A-1

FIGURE A-2 Outdoor Control Measures Warning Clause

FIGURE A-3 Ventilation Requirement

FIGURE A-4 Building Component Requirement

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	Unit Type	Angles		Source to Receiver Dist (m) West Bound Lane	Source to Receiver Dist (m) East Bound Lane	Source Ground Elev (m)	Receiver Ground Elev (m)	Receiver Height (m)	Barrier to Receiver Dist (m)	Base of Barrier Elev (m)	Height of Wall Determined	AADT	Speed Limit (km/h)	Combined Equivalent Noise Level Leq (dBa)	
				From	To											Daytime (7:00-23:00)	Nighttime (23:00-7:00)
R1	façade	Hazeldean Road	9-Storey Apartment (mixed-use)	-90	90	25.0	38.6	NA	NA	1.5	NA	NA	NA	35,000	60	70.62	63.02
R2	façade	Hazeldean Road	3 Storey Apartment (Block C)	-90	90	18.8	33.0	NA	NA	1.5	NA	NA	NA	35,000	60	71.65	64.05
R3	façade	Hazeldean Road	3 Storey Apartment (Block D)	-90	90	18.3	32.4	NA	NA	1.5	NA	NA	NA	35,000	60	71.74	64.15
R4	façade	Hazeldean Road	3 Storey Apartment (Block E)	-90	90	18.8	32.2	NA	NA	1.5	NA	NA	NA	35,000	60	71.69	64.09
R5	façade	Hazeldean Road	9-Storey Apartment (mixed-use)	-90	0	31.1	44.1	NA	NA	1.5	NA	NA	NA	35,000	60	66.81	59.21
R6	OLA	Hazeldean Road	Townhome	-90	-81	76.7	90.8	NA	NA	1.5	NA	NA	NA	35,000	60	57.20	49.96
				-55	-42												
				-23	5												
R7	OLA	Hazeldean Road	Townhome	32	47	88.3	97.3	NA	NA	1.5	NA	NA	NA	35,000	60	54.98	47.39
R8	façade	Hazeldean Road	Townhome	-41	-27	125.7	140.0	NA	NA	1.5	NA	NA	NA	35,000	60	53.12	45.53
R9	OLA	Hazeldean Road	Townhome	-38	90	143.1	156.8	NA	NA	1.5	NA	NA	NA	35,000	60	51.22	45.00
R10	OLA	Hazeldean Road	Single Family Home	-90	1	129.9	143.9	NA	NA	1.5	NA	NA	NA	35,000	60	54.86	49.25
R11	OLA	Hazeldean Road	Single Family Home	-28	1	179.7	193.7	NA	NA	1.5	NA	NA	NA	35,000	60	51.77	45.19
R12	façade	Hazeldean Road	Single Family Home	-55	59	29.1		NA	NA	1.5	NA	NA	NA	8,000	40	52.25	45.56
R13	OLA	Hazeldean Road	Single Family Home	-54	60	27.9		NA	NA	1.5	NA	NA	NA	8,000	40	52.43	45.74

`TABLE B2- SUMMARY OF WARNING CLAUSES - SORTED BY RECEIVER LOCATIONS								
Receiver Location	Assessment 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	**façade**		Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R2	**façade**		Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R3	**façade**		Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R4	**façade**		Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R5	**façade**		Type D	Type C	Type D	Non-Compliant	Compliant	Non-Compliant
R6	**OLA**	Type A	Type C	None	Type C	Compliant	Compliant	Compliant
R7	**OLA**	None	None	None	None	Compliant	Compliant	Compliant
R8	**façade**		None	None	None	Compliant	Compliant	Compliant
R9	**OLA**	None	None	None	None	Compliant	Compliant	Compliant
R10	**OLA**	None	None	None	None	Compliant	Compliant	Compliant
R11	**OLA**	None	None	None	None	Compliant	Compliant	Compliant
R12	**façade**		None	None	None	Compliant	Compliant	Compliant
R13	**OLA**	None	None	None	None	Compliant	Compliant	Compliant

Appendix C – Architectural Plan

SITE INFORMATION

ZONING	AM9
MAX BUILDING HEIGHT (WITHIN 20 M. OF RESIDENTIAL)	11.0 M.
MAX BUILDING HEIGHT (ALL OTHER CASES)	15.0 M.
LOT AREA	90,187.6 SQ. M.

6171 HAZELDEAN RD
STITTSVILLE, ONTARIO,
CANADA

SITE SETBACKS	PROVIDED
FRONT YARD (HAZELDEAN)	5.0 M.
CORNER SIDE YARD	N/A
INTERIOR SIDE YARD	7.5 M.
REAR YARD	7.5 M.

RESIDENTIAL UNITS	
DETACHED HOMES:	20
TOWNHOUSES:	154
CONDOMINIUM UNITS:	180
APARTMENT UNITS:	175
TOTAL UNITS:	529

PARKING	REQUIRED
DETACHED & TOWNHOUSE	
RESIDENTIAL:	1.2 PER DWELLING
VISITOR:	0.2 PER DWELLING
CONDOMINIUM & APARTMENT	
RESIDENTIAL:	1.0 PER DWELLING
VISITOR:	0.2 PER DWELLING

DEVELOPMENT STATISTICS

PARKING	REQUIRED	PROVIDED
DETACHED HOUSES		
RESIDENTIAL:	20	20
VISITOR:	4	20
TRADITIONAL TOWNS		
RESIDENTIAL:	154	154
VISITOR:	31	154
CONDOMINIUM UNITS		
RESIDENTIAL:	216	216
VISITOR:	36	36
BICYCLE:	90	**90
APARTMENT UNITS		
RESIDENTIAL:	210	**210
VISITOR:	35	**35
COMMERCIAL SPACE:	58	**58
BICYCLE	88	**88
DEDICATED PARKLAND		
STREET PARKING:	0	21
TOTAL		
CAR SPACES:	764	**924
BICYCLE SPACES:	178	**178

DETACHED HOUSES		BLD. FOOTPRINT AREA	UNITS	NET UNIT AREA
MODEL 1	-	**1,309 SQFT	5	**2,309 SQFT
MODEL 2	-	**1,309 SQFT	5	**2,309 SQFT
MODEL 3	-	**1,309 SQFT	5	**2,309 SQFT
MODEL 4	-	**1,309 SQFT	5	**2,309 SQFT
TOTAL	-	**26,180 SQFT **(2,432.2 SQM)	20	**46,180 SQFT ** (4,290.3 SQM)

TOWNHOUSES		BLD. FOOTPRINT AREA	UNITS	NET UNIT AREA
BLOCK 1	-	6,056 SQFT	6	13,946 SQFT
BLOCK 2	-	8,000 SQFT	8	18,450 SQFT
BLOCK 2	-	6,627 SQFT	8	17,420 SQFT
BLOCK 4	-	8,000 SQFT	8	18,450 SQFT
BLOCK 5	-	4,201 SQFT	5	10,962 SQFT
BLOCK 6	-	4,201 SQFT	5	10,962 SQFT
BLOCK 7	-	6,627 SQFT	8	17,420 SQFT
BLOCK 8	-	6,627 SQFT	8	17,420 SQFT
BLOCK 9	-	6,627 SQFT	8	17,420 SQFT
BLOCK 10	-	1,767 SQFT	8	4,504 SQFT
BLOCK 11	-	6,627 SQFT	8	17,420 SQFT
BLOCK 12	-	6,627 SQFT	8	17,420 SQFT
BLOCK 13	-	6,627 SQFT	8	17,420 SQFT
BLOCK 14	-	6,056 SQFT	6	13,946 SQFT
BLOCK 15	-	6,056 SQFT	6	13,946 SQFT
BLOCK 16	-	6,056 SQFT	6	13,946 SQFT
BLOCK 17	-	6,056 SQFT	6	13,946 SQFT
BLOCK 18	-	6,627 SQFT	8	17,420 SQFT
BLOCK 19	-	6,056 SQFT	6	13,946 SQFT
BLOCK 20	-	6,056 SQFT	6	13,946 SQFT
BLOCK 21	-	6,056 SQFT	6	13,946 SQFT
BLOCK 22	-	6,056 SQFT	6	13,946 SQFT
BLOCK 23	-	6,627 SQFT	8	17,420 SQFT
TOTAL	-	140,316 SQFT (13,035.8 SQM)	154	345,622 SQFT (32,109.3 SQM)

TYP. CONDO BLD. (x5)		GROSS FLOOR AREA	UNITS	NET UNIT AREA
PARKING LEVEL	-	10,440 SQFT	-	N/A
Ground FLOOR	-	10,171 SQFT	12	8,530 SQFT
2nd FLOOR	-	10,171 SQFT	12	8,971 SQFT
3rd FLOOR	-	10,171 SQFT	12	8,971 SQFT
TOTAL	-	40,953 SQFT (3,804.7 SQM)	36	26,472 SQFT (2,459.3 SQM)
ALL BLD. TOTAL	-	204,765 SQFT (19,023.3 SQM)	180	132,360 SQFT (12,296.5 SQM)

APARTMENT BLD.		GROSS FLOOR AREA	UNITS	NET UNIT AREA
PARKING LEVEL	-	0,000 SQFT	-	N/A
GROUND FLOOR (RES.)	-	19,834 SQFT	11	7,756 SQFT
GROUND FLOOR (COM.)	-	N/A	3	6,190 SQFT
TYPICAL FLOOR (2-7)	-	19,360 SQFT x6 =116,160 SQFT	22 x6 =132	17,358 SQFT x6 =104,148 SQFT
8th FLOOR	-	14,154 SQFT	16	12,318 SQFT
9th FLOOR	-	14,154 SQFT	16	12,318 SQFT
TOTAL	-	164,302 SQFT (15,264.2 SQM)	178	142,730 SQFT (13,260.1 SQM)

AMENITY SPACE	REQUIRED	PROVIDED
CONDOMINIUM UNITS		
INTERIOR - PRIVATE:	N/A	12,240 SQFT
INTERIOR - COMMUNAL:	N/A	0,000 SQFT
EXTERIOR - COMMUNAL:	MIN. 6,975 SQFT	7,787 SQFT
TOTAL:	11,625 SQFT (1,080.0 SQM)	20,027 SQFT (1,860.6 SQM)
APARTMENT UNITS		
INTERIOR - PRIVATE:	N/A	15,700 SQFT
INTERIOR - COMMUNAL:	MIN. 6,781 SQFT	3,036 SQFT
EXTERIOR - COMMUNAL:		7,601 SQFT
TOTAL:	11,302 SQFT (1,050.0 SQM)	26,337 SQFT (2,446.8 SQM)
DEDICATED PARKLAND		
TOTAL:	78,150 SQFT (7,260.3 SQM)	78,151 SQFT (7,260.5 SQM)

SITE COVERAGE

SPACE		AREA
BUILDING FOOTPRINT	-	**22,038.0 SQM
PARKING LOT	-	4,812.9 SQM
SIDEWALKS	-	3,443.3 SQM
DRIVEWAYS (TOWNHOUSE)	-	4,247. SQM
DRIVEWAYS (DETACHED HOUSE)	-	**480.0 SQM
CITY STREETS	-	10,711.4 SQM
LOT AREA		
6171 HAZELDEAN RD.	-	90,187.6 SQM
LANDSCAPE SPACE	-	52,625.3 SQM
TOTAL LANDSCAPE SPACE (%)	-	58.4%

QUALIFICATIONS

** TARGET VALUE

DRAWING NOTES

1. SWITCHGEAR
2. TRANSFORMER
3. NEW CONCRETE SIDEWALK BUILT TO CITY OF OTTAWA STANDARDS
4. CITY OWNED BOULEVARD PARKING
5. EXISTING WOOD FENCE
6. SITE APPROACH
7. --
8. 350mm WIDE MOUNTABLE CURB
9. DEPRESSED AND CONTINUOUS SIDEWALK
10. NEW FIRE HYDRANT (EXACT LOCATION TO BE CONFIRMED BY CIVIL ENGINEER)
11. PROVIDE TWSI AND DEPRESSED AND CONTINUOUS SIDEWALK
12. PROVIDE DEPRESSED CURB AND CROSSWALK
13. SHORT TERM PARKING
14. PICK UP AND PROP OFF LOCATION
15. PROVIDE CONCRETE PAD FOR GARBAGE PICK-UP STAGING AREA
16. --
17. NEW "BICYCLE RACK" AND OR "BICYCLE PARKING" (STRUCTURE TO BE DESIGNED)
18. --
19. --
20. --

LEGEND

ORGANICS BIN — O
3 YRD. GARBAGE BIN — G3
4 YRD. GARBAGE BIN — G4
3 YRD. FIBROUS RECYCLING BIN — R3
2 YRD. GLASS AND PLASTIC RECYCLING BIN — R2
TYPICAL PARKING SPACE — 5200 × 2600
SMALL PARKING SPACE — 5200 × 2400
SMALL PARKING SPACE — 4600 × 2600
UNIT ENTRY POINT
TRAFFIC FLOW
FIRE HYDRANT
NEW LIGHT STANDARD
EXISTING LIGHT STANDARD
VISITOR PARKING — V#
RESIDENT PARKING — R#
GEODETIC ELEVATION MARKER — ×117.69
BICYCLE PARKING — 1800 × 600
PROPERTY LINE
SETBACK LINE
FIRE TRUCK AND GARBAGE PICK UP ROUTE
SUBDIVISION LINE
LOT LINE
PROPOSED BUILDING OUTLINE
NEW PRIVATE DRIVEWAY
NEW SIDEWALKS

NOTATION SYMBOLS:

(00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
◇00 INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
⬡00 INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
(000) INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
DETAIL NUMBER
00 TITLE
SCALE
A000 A000
DETAIL REFERENCE PAGE
DETAIL CROSS REFERENCE PAGE

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 TO BE TYPE 'W1' UNLESS NOTED OTHER WISE.
F. ALL INTERIOR PARTITIONS ARE TO BE TYPE 'P1' UNLESS NOTED OTHER WISE.
G. ALL REINFORCED CONCRETE SUSPENDED SLABS, COLUMNS & BEAMS HAVE A MIN. FRR OF 1.5 HRS (AS DETERMINED BY OBC SB-2) UNLESS OTHERWISE STATED.

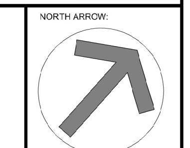
DRAFT

No.	DESCRIPTION	DATE
1	ISSUED FOR COORDINATION	08-05-2020

REVISIONS:

ARCHITECT SEAL:

NORTH ARROW:



CLIENT: LATITUDE Homes

ARCHITECT: rla/architecture roderick lahey architect inc. 56 beech street, ottawa, ontario K1S 3J6 t. 613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE:

6171 HAZELDEAN ROAD

OTTAWA ONTARIO

SHEET TITLE:

SITE PLAN

DRAWN: L.M.	CHECKED: R.V.
SCALE: 1:750	SHEET No. SP-00
PROJECT No. 1831	

F:\2019\1961 - 6171 Hazeldean Road - GNCR\00_Site Plan\1961_6171 Hazeldean Road_Site Plan DRAFT_30-06-2020.dwg
PLOT SCALE: 1:0.943
PEN STYLE: 0_RLA Mas[illegible] PAPER SIZE: ARCH D
PLOT DATE: Tuesday, June 30, 2020

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Appendix D – STAMSON Output

STAMSON 5.0 NORMAL REPORT Date: 28-04-2020 13:23:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (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 : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (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 : 38.60 / 38.60 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 68.45 + 0.00) = 68.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-2.22	0.00	0.00	0.00	0.00	68.45

Segment Leq : 68.45 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 66.56 + 0.00) = 66.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-4.10	0.00	0.00	0.00	0.00	66.56

Segment Leq : 66.56 dBA

Total Leq All Segments: 70.62 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 60.85 + 0.00) = 60.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-2.22	0.00	0.00	0.00	0.00	60.85

Segment Leq : 60.85 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 58.96 + 0.00) = 58.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-4.10	0.00	0.00	0.00	0.00	58.96

Segment Leq : 58.96 dBA

Total Leq All Segments: 63.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.62
(NIGHT): 63.02

```
STAMSON 5.0        NORMAL REPORT        Date: 28-04-2020 13:24:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: WB (day/night)
---------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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: WB (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  :  18.80 / 18.80  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 2: EB (day/night)
---------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: EB (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  :  33.00 / 33.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: WB (day)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 69.69 + 0.00) = 69.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  70.67   0.00  -0.98   0.00   0.00   0.00   0.00  69.69
-------------------------------------------------------------------------------

Segment Leq : 69.69 dBA

↟
Results segment # 2: EB (day)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.24 + 0.00) = 67.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  70.67   0.00  -3.42   0.00   0.00   0.00   0.00  67.24
-------------------------------------------------------------------------------

Segment Leq : 67.24 dBA

Total Leq All Segments: 71.65 dBA

↟
Results segment # 1: WB (night)
------------------------------
```

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
-90	90	0.00	63.07	0.00	-0.98	0.00	0.00	0.00	0.00	62.09

Segment Leq : 62.09 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 59.64 + 0.00) = 59.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-3.42	0.00	0.00	0.00	0.00	59.64

Segment Leq : 59.64 dBA

Total Leq All Segments: 64.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.65
(NIGHT): 64.05

STAMSON 5.0 NORMAL REPORT Date: 28-04-2020 13:27:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (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 : 18.30 / 18.30 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (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 : 32.40 / 32.40 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 69.80 + 0.00) = 69.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-0.86	0.00	0.00	0.00	0.00	69.80

Segment Leq : 69.80 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 67.32 + 0.00) = 67.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-3.34	0.00	0.00	0.00	0.00	67.32

Segment Leq : 67.32 dBA

Total Leq All Segments: 71.74 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 62.21 + 0.00) = 62.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-0.86	0.00	0.00	0.00	0.00	62.21

Segment Leq : 62.21 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 59.72 + 0.00) = 59.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-3.34	0.00	0.00	0.00	0.00	59.72

Segment Leq : 59.72 dBA

Total Leq All Segments: 64.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.74
(NIGHT): 64.15

STAMSON 5.0 NORMAL REPORT Date: 28-04-2020 13:29:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (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 : 18.80 / 18.80 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (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 : 32.20 / 32.20 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 69.69 + 0.00) = 69.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-0.98	0.00	0.00	0.00	0.00	69.69

Segment Leq : 69.69 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 67.35 + 0.00) = 67.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.67	0.00	-3.32	0.00	0.00	0.00	0.00	67.35

Segment Leq : 67.35 dBA

Total Leq All Segments: 71.69 dBA

Results segment # 1: WB (night)

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
-90	90	0.00	63.07	0.00	-0.98	0.00	0.00	0.00	0.00	62.09

Segment Leq : 62.09 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.07	0.00	-3.32	0.00	0.00	0.00	0.00	59.75

Segment Leq : 59.75 dBA

Total Leq All Segments: 64.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.69
(NIGHT): 64.09

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 15:16:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 31.10 / 31.10 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 44.10 / 44.10 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 64.49 + 0.00) = 64.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	70.67	0.00	-3.17	-3.01	0.00	0.00	0.00	64.49

Segment Leq : 64.49 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 62.97 + 0.00) = 62.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	70.67	0.00	-4.68	-3.01	0.00	0.00	0.00	62.97

Segment Leq : 62.97 dBA

Total Leq All Segments: 66.81 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 56.89 + 0.00) = 56.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	63.07	0.00	-3.17	-3.01	0.00	0.00	0.00	56.89

Segment Leq : 56.89 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 55.38 + 0.00) = 55.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	63.07	0.00	-4.68	-3.01	0.00	0.00	0.00	55.38

Segment Leq : 55.38 dBA

Total Leq All Segments: 59.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.81
(NIGHT): 59.21

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 23:33:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: WB1 (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB1 (day/night)

Angle1 Angle2 : -90.00 deg -81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 76.70 / 76.70 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WB2 (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: WB2 (day/night)

Angle1 Angle2 : -55.00 deg -42.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 76.70 / 76.70 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: WB3 (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: WB3 (day/night)

Angle1 Angle2 : -23.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 76.70 / 76.70 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: EB1 (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *

```
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: EB1 (day/night)
--------------------------------------
Angle1   Angle2           : -90.00 deg   -81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  90.80 / 90.80  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 5: EB2 (day/night)
---------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: EB2 (day/night)
--------------------------------------
Angle1   Angle2           : -55.00 deg   -42.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  90.80 / 90.80  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Road data, segment # 6: EB3 (day/night)
---------------------------------------
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  17500
    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 # 6: EB3 (day/night)
--------------------------------------
Angle1   Angle2           : -23.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  90.80 / 90.80  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: WB1 (day)
------------------------------

Source height = 1.50 m

ROAD (0.00 + 50.57 + 0.00) = 50.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -81   0.00  70.67   0.00  -7.09 -13.01   0.00   0.00   0.00  50.57
-------------------------------------------------------------------------------

Segment Leq : 50.57 dBA
```

Results segment # 2: WB2 (day)

Source height = 1.50 m

ROAD (0.00 + 52.17 + 0.00) = 52.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-42	0.00	70.67	0.00	-7.09	-11.41	0.00	0.00	0.00	52.17

Segment Leq : 52.17 dBA

Results segment # 3: WB3 (day)

Source height = 1.50 m

ROAD (0.00 + 50.76 + 0.00) = 50.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	5	0.66	70.67	0.00	-11.76	-8.15	0.00	0.00	0.00	50.76

Segment Leq : 50.76 dBA

Results segment # 4: EB1 (day)

Source height = 1.50 m

ROAD (0.00 + 37.16 + 0.00) = 37.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-81	0.66	70.67	0.00	-12.98	-20.52	0.00	0.00	0.00	37.16

Segment Leq : 37.16 dBA

Results segment # 5: EB2 (day)

Source height = 1.50 m

ROAD (0.00 + 45.08 + 0.00) = 45.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-42	0.66	70.67	0.00	-12.98	-12.60	0.00	0.00	0.00	45.08

Segment Leq : 45.08 dBA

Results segment # 6: EB3 (day)

Source height = 1.50 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	5	0.66	70.67	0.00	-12.98	-8.15	0.00	0.00	0.00	49.54

Segment Leq : 49.54 dBA

Total Leq All Segments: 57.20 dBA

Results segment # 1: WB1 (night)

Source height = 1.50 m

ROAD (0.00 + 42.97 + 0.00) = 42.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-81	0.00	63.07	0.00	-7.09	-13.01	0.00	0.00	0.00	42.97

Segment Leq : 42.97 dBA

Results segment # 2: WB2 (night)

Source height = 1.50 m

ROAD (0.00 + 44.57 + 0.00) = 44.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-42	0.00	63.07	0.00	-7.09	-11.41	0.00	0.00	0.00	44.57

Segment Leq : 44.57 dBA

↟
Results segment # 3: WB3 (night)

Source height = 1.50 m

ROAD (0.00 + 43.80 + 0.00) = 43.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	5	0.57	63.07	0.00	-11.13	-8.14	0.00	0.00	0.00	43.80

Segment Leq : 43.80 dBA

↟
Results segment # 4: EB1 (night)

Source height = 1.50 m

ROAD (0.00 + 31.23 + 0.00) = 31.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-81	0.57	63.07	0.00	-12.28	-19.56	0.00	0.00	0.00	31.23

Segment Leq : 31.23 dBA

↟
Results segment # 5: EB2 (night)

Source height = 1.50 m

ROAD (0.00 + 38.35 + 0.00) = 38.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-42	0.57	63.07	0.00	-12.28	-12.44	0.00	0.00	0.00	38.35

Segment Leq : 38.35 dBA

↟
Results segment # 6: EB3 (night)

Source height = 1.50 m

ROAD (0.00 + 42.65 + 0.00) = 42.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-23	5	0.57	63.07	0.00	-12.28	-8.14	0.00	0.00	0.00	42.65

Segment Leq : 42.65 dBA

Total Leq All Segments: 49.96 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 57.20
(NIGHT): 49.96
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 17:29:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : 32.00 deg 47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 88.30 / 88.30 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : 32.00 deg 47.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 97.30 / 97.30 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 52.18 + 0.00) = 52.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
32	47	0.00	70.67	0.00	-7.70	-10.79	0.00	0.00	0.00	52.18

Segment Leq : 52.18 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 51.75 + 0.00) = 51.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
32	47	0.00	70.67	0.00	-8.12	-10.79	0.00	0.00	0.00	51.75

Segment Leq : 51.75 dBA

Total Leq All Segments: 54.98 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 44.58 + 0.00) = 44.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
32	47	0.00	63.07	0.00	-7.70	-10.79	0.00	0.00	0.00	44.58

Segment Leq : 44.58 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 44.16 + 0.00) = 44.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
32	47	0.00	63.07	0.00	-8.12	-10.79	0.00	0.00	0.00	44.16

Segment Leq : 44.16 dBA

Total Leq All Segments: 47.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.98
(NIGHT): 47.39

STAMSON 5.0 NORMAL REPORT Date: 28-04-2020 13:50:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : -41.00 deg -27.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 125.70 / 125.70 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : -41.00 deg -27.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 140.00 / 140.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 50.34 + 0.00) = 50.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	70.67	0.00	-9.23	-11.09	0.00	0.00	0.00	50.34

Segment Leq : 50.34 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 49.87 + 0.00) = 49.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	70.67	0.00	-9.70	-11.09	0.00	0.00	0.00	49.87

Segment Leq : 49.87 dBA

Total Leq All Segments: 53.12 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 42.75 + 0.00) = 42.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	63.07	0.00	-9.23	-11.09	0.00	0.00	0.00	42.75

Segment Leq : 42.75 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 42.28 + 0.00) = 42.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	63.07	0.00	-9.70	-11.09	0.00	0.00	0.00	42.28

Segment Leq : 42.28 dBA

Total Leq All Segments: 45.53 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.12
(NIGHT): 45.53

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 17:31:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : -41.00 deg -27.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 143.10 / 143.10 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : -41.00 deg -27.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 156.80 / 156.80 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 48.40 + 0.00) = 48.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	70.67	0.00	-9.80	-11.09	0.00	-1.38	0.00	48.40

Segment Leq : 48.40 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 48.01 + 0.00) = 48.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	70.67	0.00	-10.19	-11.09	0.00	-1.37	0.00	48.01

Segment Leq : 48.01 dBA

Total Leq All Segments: 51.22 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 42.18 + 0.00) = 42.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	63.07	0.00	-9.80	-11.09	0.00	0.00	0.00	42.18

Segment Leq : 42.18 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 41.79 + 0.00) = 41.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	-27	0.00	63.07	0.00	-10.19	-11.09	0.00	0.00	0.00	41.79

Segment Leq : 41.79 dBA

Total Leq All Segments: 45.00 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.22
(NIGHT): 45.00

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 24:12:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : -33.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 129.90 / 129.90 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : -33.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 143.90 / 143.90 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 52.06 + 0.00) = 52.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	1	0.00	70.67	0.00	-9.38	-7.24	0.00	-1.99	0.00	52.06

Segment Leq : 52.06 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 51.63 + 0.00) = 51.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	1	0.00	70.67	0.00	-9.82	-7.24	0.00	-1.98	0.00	51.63

Segment Leq : 51.63 dBA

Total Leq All Segments: 54.86 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 46.46 + 0.00) = 46.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	1	0.00	63.07	0.00	-9.38	-7.24	0.00	0.00	0.00	46.46

Segment Leq : 46.46 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 46.01 + 0.00) = 46.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-33	1	0.00	63.07	0.00	-9.82	-7.24	0.00	0.00	0.00	46.01

Segment Leq : 46.01 dBA

Total Leq All Segments: 49.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.86
(NIGHT): 49.25

STAMSON 5.0 NORMAL REPORT Date: 28-07-2020 24:24:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: WB (day/night)

Angle1 Angle2 : -28.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 179.70 / 179.70 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: EB (day/night)

Angle1 Angle2 : -28.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 193.70 / 193.70 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: WB (day)

Source height = 1.50 m

ROAD (0.00 + 51.10 + 0.00) = 51.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	70.67	0.00	-10.78	-7.93	0.00	-0.85	0.00	51.10

Segment Leq : 51.10 dBA

Results segment # 2: EB (day)

Source height = 1.50 m

ROAD (0.00 + 43.34 + 0.00) = 43.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.66	70.67	0.00	-18.44	-8.04	0.00	-0.84	0.00	43.34

Segment Leq : 43.34 dBA

Total Leq All Segments: 51.77 dBA

Results segment # 1: WB (night)

Source height = 1.50 m

ROAD (0.00 + 44.36 + 0.00) = 44.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	63.07	0.00	-10.78	-7.93	0.00	0.00	0.00	44.36

Segment Leq : 44.36 dBA

Results segment # 2: EB (night)

Source height = 1.50 m

ROAD (0.00 + 37.60 + 0.00) = 37.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.57	63.07	0.00	-17.44	-8.03	0.00	0.00	0.00	37.60

Segment Leq : 37.60 dBA

Total Leq All Segments: 45.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.77
(NIGHT): 45.19

STAMSON 5.0 NORMAL REPORT Date: 05-08-2020 10:04:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

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

Angle1 Angle2 : -28.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 29.10 / 29.10 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Kimpton (day)

Source height = 1.50 m

ROAD (0.00 + 52.25 + 0.00) = 52.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	63.96	0.00	-2.88	-7.93	0.00	-0.90	0.00	52.25

Segment Leq : 52.25 dBA

Total Leq All Segments: 52.25 dBA

Results segment # 1: Kimpton (night)

Source height = 1.50 m

ROAD (0.00 + 45.56 + 0.00) = 45.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	56.36	0.00	-2.88	-7.93	0.00	0.00	0.00	45.56

Segment Leq : 45.56 dBA

Total Leq All Segments: 45.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.25
(NIGHT): 45.56

STAMSON 5.0 NORMAL REPORT Date: 05-08-2020 10:08:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

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

Angle1 Angle2 : -28.00 deg 1.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 27.90 / 27.90 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Kimpton (day)

Source height = 1.50 m

ROAD (0.00 + 52.43 + 0.00) = 52.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	63.96	0.00	-2.70	-7.93	0.00	-0.90	0.00	52.43

Segment Leq : 52.43 dBA

Total Leq All Segments: 52.43 dBA

Results segment # 1: Kimpton (night)

Source height = 1.50 m

ROAD (0.00 + 45.74 + 0.00) = 45.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-28	1	0.00	56.36	0.00	-2.70	-7.93	0.00	0.00	0.00	45.74

Segment Leq : 45.74 dBA

Total Leq All Segments: 45.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.43
(NIGHT): 45.74