

Noise Impact Study – Wellington Hotel, 192 Main Street, Wellington, Ontario



April 27, 2022

Prepared for:
EcoVue Consulting Services Inc.

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CAMBIUM INC.
866.217.7900
cambium-inc.com

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VERSION CONTROL

Revision	Date	Revision Description	Prepared By:	Submitted To:
Version 1.0	October 6, 2021	Original Noise Impact Study	Cambium Inc.	EcoVue Consulting Services Inc.
Version 2.0	April 19, 2022	Prince Edward County Comments	Cambium Inc.	EcoVue Consulting Services Inc.



EXECUTIVE SUMMARY

Cambium Inc. has been retained by EcoVue Consulting Services Inc. in response to a request by the County of Prince Edward to complete a noise impact study of the proposed Wellington Hotel located at 192 Main Street in Wellington, Ontario. The development involves the renovation and restoration of an existing 3-storey hotel building, proposed outdoor gathering area, cabin rentals, and storage buildings.

Cambium's understanding is that County of Prince Edward is concerned with the potential compatibility of the Site with nearby traffic noise, stationary noise sources, and the potential impact of the proposed development onto the surroundings. Cambium has also screened other potential noise sources in the area and has not identified any significant industrial or commercial facilities near the site based upon Provincial guidelines. In addition to the impacts of the environment onto the proposed development, Cambium has also conducted a feasibility level assessment of the proposed development's impacts onto the surrounding area.

Construction noise is generally exempt from most provincial noise guidelines, and is largely constrained by municipal noise by-laws.

Cambium has assessed the impacts from local road traffic on the proposed development following applicable guidelines, including those in *NPC-300 Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning* (NPC-300) (MOECC, 2017). Cambium has assessed in detail the potential noise from Wellington Main Street. The results of the measured and calculated noise impacts were compared against applicable guidelines to assess the potential impact to noise sensitive commercial uses, and to determine the potentially required mitigation measures and warning clauses for the proposed development.

The results of this Noise Impact Study indicate the proposed development is feasible with respect to noise under the defined conditions, assumptions, and recommendations within. No specific noise control measures are required and typical Ontario Building Code facade constructions should be generally sufficient to achieve the indoor sound level criteria.



TABLE OF CONTENTS

1.0	INTRODUCTION AND SITE DESCRIPTION	1
1.1	SITE DESCRIPTION	2
2.0	IMPACT OF THE ENVIRONMENT ON THE PROPOSED DEVELOPMENT.....	3
2.1	ASSESSMENT CRITERIA.....	3
2.2	ROAD TRAFFIC NOISE	3
2.2.1	Traffic Noise Assessment	5
2.3	STATIONARY NOISE SOURCES	6
2.3.1	Description of stationary noise sources	7
2.4	NOISE IMPACT PREDICTIONS.....	8
2.4.1	Noise impact predictions – outdoor living spaces.....	8
2.4.2	Noise impact predictions – Building façade	9
3.0	IMPACT OF THE PROPOSED DEVELOPMENT ON THE ENVIRONMENT.....	10
4.0	CONSTRUCTION ACTIVITES	12
4.1	LOCAL NOISE BYLAW	12
5.0	RECOMMENDATIONS	13
6.0	CONCLUSIONS.....	14
7.0	REFERENCES.....	15

REFERENCES

LIST OF EMBEDDED TABLES

Table 1 Outdoor and Indoor Sound Level Limits (Road Noise Criteria)

Table 2 Stationary Noise Criteria Outdoor Living Areas (Proposed Development is Class 2)

Table 3 Stationary Noise Criteria Plane of Window (Proposed Development is Class 2)

LIST OF APPENDED FIGURES

- Figure 1 Site Location Map
- Figure 2 Site Plan and Roof Layout
- Figure 3 Land Use Zoning Map



LIST OF APPENDED TABLES

Table 4 Traffic Noise Results Summary

Table 5 Results Summary

LIST OF APPENDICES

Appendix A Road Traffic Data Requests

Appendix B STAMSON Calculations

Appendix C Existing Stationary Noise Source Assessment

Appendix D Proposed Stationary Noise Source Assessment



1.0 INTRODUCTION AND SITE DESCRIPTION

Cambium Inc. has been retained by EcoVue Consulting Services Inc. in response to a request by the County of Prince Edward to complete a noise impact study of the proposed Wellington Hotel located at 192 Main Street in Wellington, Ontario. The development involves the renovation and restoration of an existing 3-storey hotel building, proposed outdoor gathering area, cabin rentals, and storage buildings.

Cambium's understanding is that County of Prince Edward is concerned with the potential compatibility of the Site with nearby traffic noise, stationary noise sources, and the potential impact of the proposed development onto the surroundings. Cambium has assessed in detail the potential noise from traffic on Wellington Main Street. Cambium has also screened other potential noise sources in the area and has not identified any significant industrial or commercial facilities near the site based upon NPC-300 (MOECC, 2017) guidelines. In addition to the impacts of the environment onto the proposed development, Cambium has also conducted a feasibility level assessment of the proposed developments impacts onto the surrounding area.

An evaluation of railway impacts was not required as the proposed development exceeds the 75 metre vibration, and 300 metre noise influence distance published by the Rail Authorities (RAC and FCM, 2013).

Airport noise is not a concern at this location as the nearest airport is more than 15 km away. As such, the site will be well outside any Noise Exposure Contours.



1.1 SITE DESCRIPTION

The proposed commercial development with noise sensitive commercial uses is located at 192 Main Street in Wellington, Ontario. The development involves the renovation and restoration of an existing 3-storey hotel building, proposed outdoor gathering area, cabin rentals, and storage buildings. The proposed cabin rentals consist of six, 1-bedroom rental cabins, and a single 2-bedroom rental cabin.

The outdoor dining and gathering area is located to the west of the existing 3-storey brick building. There are two proposed storage buildings located to the northeast of the existing dwelling. In addition, an annex is located on the east side of the property.

Access to the property will be located off Main Street, and parking will be provided to the north and east of the existing 3-storey dwelling.

The Site is in an urban area as defined by NPC-300 (MOECC, 2017), surrounded by existing residential housing, nearby commercial developments, and arterial roadways in generally close proximity. There is a small existing commercial building located to the southeast of the proposed development. This small commercial space consists of a pizzeria, ice cream shop, and unoccupied or seasonal units.

The general site location is shown in Figure 1 and Figure 2 provides a site plan showing nearby transportation and stationary noise sources near the site.



2.0 IMPACT OF THE ENVIRONMENT ON THE PROPOSED DEVELOPMENT

Cambium has completed an assessment of the potential for noise impacts onto the proposed development from the surrounding environment, including road noise and stationary noise sources. Railway and aircraft noise are not concerns at this location due significant setback distances. The MECP has developed a series of environmental considerations and requirements for both industrial land use (noise sources) and sensitive lands. The MECP has issued these D-Series Guidelines to aid in minimizing potential environmental impacts between industrial and sensitive land uses. We have applied these guidelines in determining the recommended influence distances between the Site and nearby industrial land uses.

2.1 ASSESSMENT CRITERIA

For land use planning purposes, the noise criteria are provided in NPC-300 (MOECC, 2017). The guideline limits are set for road noise impacts onto a proposed noise sensitive land use, as well as limits for the impacts of stationary noise sources (commercial/industrial operations).

In the case of this proposed developments, the important limits are:

- Sound level limits for road noise impacts onto the proposed facility;
- Sound level limits for Stationary Noise Sources;

An assessment of the existing ambient sound levels due to road traffic in the area is also relevant. The limits for Stationary Noise Sources can be increased in the situation of high ambient sound levels. Specifically, if the ambient noise in an area exceeds the exclusionary limits published in NPC-300 (MOECC, 2017) that ambient noise level may act as the new sound level limit. This only applies to stationary noise sources.

2.2 ROAD TRAFFIC NOISE

The criteria for acceptable levels of road traffic noise at noise sensitive commercial uses are provided in NPC-300 (MOECC, 2017). It requires that for land use compatibility, a future sound level be used for assessment. Generally, a 10 year prediction is considered appropriate unless otherwise directed by the municipal authority having jurisdiction.

Noise controls, or warning clauses are not specifically required if predicted sound levels are less than 55 dBA in outdoor living areas, and less than 50 dBA in the plane of bedroom windows during daytime or nighttime.

If the sound level thresholds listed above are exceeded, the recommended outdoor and indoor sound level criteria for road noise impacts for different noise sensitive commercial use impacts are included in Table 1 below. In the case of interior noise limits, these values assume closed windows and doors.



Embedded Table 1: Outdoor and Indoor Sound Level Limits (Road Noise Criteria)

Type of Space	07:00 to 23:00	23:00 to 07:00
	Road (dBA)	Road (dBA)
Outdoor Living Area (NPC-300 Table C-1)	55	-
Living/Dining/Den Areas (NPC-300 Table C-2)	45	45
Sleeping Quarters Indoor (NPC-300 Table C-2)	45	40
Sleeping Quarters Indoor Hotel-Motel (NPC-300 Table C-9)	45	45

In NPC-300 (MOECC, 2017), an outdoor living area (OLA) is part of a noise sensitive land use that is intended and designed for the quiet enjoyment of the outdoor environment, and is readily accessible from the building. In the context of noise sensitive commercial uses, the outdoor living area rules require that at least 56 square metres of space (if available) should be compliant with the above limits for road traffic noise.

If the predicted 16-hour equivalent sound level ($L_{eq(16)}$) for an OLA is greater than 55 dBA and less than or equal to 60 dBA, then noise control measures may be applied to reduce the sound level to 55 dBA. If noise control measures are not applied, then prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type A as defined in NPC-300) (MOECC, 2017).

If the Predicted $L_{eq(16)}$ for an OLA is greater than 60 dBA, then noise control measures shall be applied to reduce the sound level to 55 dBA. In cases where noise control measures are not feasible for technical, economic, or administrative purposes, then an excess above the 55 dBA limit is acceptable with a warning clause (Type B as defined in NPC-300) (MOECC, 2017); though excesses above 60 dBA are not acceptable.

For indoor living areas and sleeping quarters, the sound level criteria is used to determine transmission loss requirements for the building facade based on the predicted sound level at the plane of a window (POW). If the $L_{eq(16)}$ daytime predicted sound level in the plane of a window is less than or equal to 55 dBA, then typical building code facade constructions are generally sufficient to achieve the indoor sound level criteria, and additional noise controls may not be required. If the predicted sound level at the plane of a window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling shall be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. In addition, prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300) (MOECC, 2017).

If the predicted daytime 16 hour equivalent sound level ($L_{eq(16)}$) in the plane of a window is greater than 65 dBA, installation of central air conditioning shall be implemented, and prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type D as defined in NPC-300) (MOECC, 2017). Additionally,



building facade components shall be designed so that the indoor sound level criterion can be achieved when doors and windows are closed.

In addition, for indoor living areas and sleeping quarters the sound level criteria are used to determine transmission loss requirements for the building facade based on the predicted nighttime sound level at the plane of a window (POW). If the eight hour equivalent ($L_{eq(8)}$) nighttime predicted sound level in the plane of a window is less than or equal to 50 dBA, then typical facade constructions are generally sufficient to achieve the indoor sound level criteria, and additional noise controls may not be required. If the predicted sound level in the plane of a window is greater than 50 dBA and less than or equal to 60 dBA, then the dwelling shall be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. The prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300) (MOECC, 2017).

If the predicted nighttime $L_{eq(8)}$ in the plane of a window is greater than 60 dBA, installation of central air conditioning shall be implemented, and prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type D as defined in NPC-300) (MOECC, 2017). Additionally, building facade components shall be designed so that the indoor sound level criterion can be achieved when doors and windows are closed. The purpose of central air conditioning is to allow the occupant to keep windows and doors closed to achieve a quiet indoor acoustic environment, if required.

Installation of all residential sized central air conditioning for noise sensitive commercial uses shall comply with ministry guidelines including NPC-216 for residential air conditioning devices. As well as the "Environmental Noise Guidelines for installation of Residential Air Conditions Devices" September 1994.

2.2.1 TRAFFIC NOISE ASSESSMENT

Our noise assessment was conducted using predictive calculations of road and rail noise developed by the Ministry: *Ontario Road Noise Analysis Method for Environment and Transportation* (ORNAMENT) (MOE, 1989).

We evaluated noise impact at the upper storey plane of window receptor locations, and at potential outdoor living areas located at ground level.

Where,

- POW – Plane of window receptors representative of the worst case exposure on each side of the buildings in the proposed development; and
- OLA – Potential outdoor living area receptor located at ground level.

The traffic data used for the road noise assessment is from an average 24-hour traffic volume based upon a week study conducted in July of 2019, and provided by the County of Prince Edward. The provided average 24-hour traffic volume is considered appropriate for this study as it was based upon increased traffic volumes during summer



months. The County of Price Edward did not specify the percentages of medium and heavy trucks. As such, Cambium has assumed a truck percentage of 3 percent, applied as medium (1.5%) and heavy (1.5%). Cambium also used the ORNAMENT (MOE, 1989) recommended day/night split of 90/10 percent for regional roads, which assumes 90 percent of the daily traffic occurs between 07:00 and 23:00.

Appendix A provides traffic data and Appendix B provides ORNAMENT calculations.

2.3 STATIONARY NOISE SOURCES

NPC-300 Part C (MOECC, 2017) provides limits for stationary noise source impacts onto proposed residential or commercial developments with noise sensitive commercial uses. Receptors are classified as Class 1, Class 2, Class 3 or Class 4. The definitions of these classifications are:

- Class 1: an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum."
- Class 2: an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas:
 - Sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00); and,
 - Low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 (19:00 or 23:00 to 07:00).
- Class 3: a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:
 - a small community;
 - agricultural area;
 - a rural recreational area such as a cottage or a resort area; or
 - a wilderness area.
- Class 4: an area or specific site that would otherwise be defined as Class 1 or 2 and which:
 - is an area intended for development with new noise sensitive land use(s) that are not yet built;
 - is in proximity to existing, lawfully established stationary source(s); and
 - has formal confirmation from the land use planning authority with the Class 4 area classification which is determined during the land use planning process.
 - Additionally, areas with existing noise sensitive land use(s) cannot be classified as Class 4 areas.



Based on a review of the traffic analysis and observations on site, the proposed development is best described as a Class 2 receptor. The stationary noise source limits for each of the receptor classes are included in the following tables:

Embedded Table 2: Stationary Noise Criteria Outdoor Living Areas (Proposed Development is Class 2)

Time of Day	Class 1	Class 2	Class 3	Class 4
	(dBA)	(dBA)	(dBA)	(dBA)
07:00-19:00	50	50	45	55
19:00-23:00	50	45	40	55

Embedded Table 3: Stationary Noise Criteria Plane of Window (Proposed Development is Class 2)

Time of Day	Class 1	Class 2	Class 3	Class 4
	(dBA)	(dBA)	(dBA)	(dBA)
07:00-19:00	50	50	45	60
19:00-23:00	50	50	40	60
23:00-07:00	45	45	40	55

These limits are exclusionary for each class and time period under NPC-300 (MOECC, 2017), the higher of either the exclusionary limits, or the current ambient noise levels measured or predicted in accordance with Ministry guidelines in the area shall be used as the sound level limits. The noise impact predictions within this study have been based upon the exclusionary limits, as provided in Table 2 and Table 3.

2.3.1 DESCRIPTION OF STATIONARY NOISE SOURCES

The following relates to the impacts of existing stationary noise sources in the vicinity to the proposed development. NPC-300 (MOECC, 2017) states that a proposed sensitive land use is required to ensure that compliance is maintained for any nearby stationary noise source. Ontario Regulation 524/98 exempts many types of smaller stationary noise sources from approval. Therefore, many nearby businesses may not have approvals in place. An exemption from approval does not mean exemption from noise guidelines so Cambium has reviewed nearby smaller commercial operations, as well as those that have approvals or registrations in place.

Cambium personnel conducted a site visit on July 20, 2021. During the site visit, a noise survey was completed in order to identify all off-site potential sources of noise that should be considered. These include traffic noise, commercial, institutional, and industrial noise sources as applicable.



Based upon a review of access environment, no Air related Environmental Compliance Approvals or Registrations were identified within 1 km of the site. With consideration for the MECP D-series guideline, a review of aerial imagery of Wellington, indicates that there does not appear to be any heavy Class III type industries located within 1 km of the site. Furthermore there were no Class II industries within 300 metres. Within 70 metres of the site however there are existing commercial uses that could potentially be considered Class I industry these include commercial operations to the southeast mainly store fronts and restaurant type businesses. Aside from this adjacency, it is notable that the majority of surrounding land uses are residential and therefore noise sensitive.

The assessment of aerial imagery was confirmed during the site visit, no significant sources of stationary noise have been observed which would be expected to generate a significant noise impact on the proposed development. With the exception of a small HVAC condenser and upblast exhaust fan which were observed on the north side of the local pizzeria to the south of the proposed development. Cambium conducted a sound level measurement of these sources to determine the impact onto the development. It was also confirmed during the site visit that the exhaust fan was fully operational. As such, Cambium has modeled a new representative noise impact scenario based upon on site observations and sound level measurements.

Noise sources included:

- EX01 – This point source represents the small HVAC condenser unit and upblast exhaust fan, modelled at a height of 3 metres. Per Cambium measurements, a sound power level of 67 dBA was used. This source was modeled as active for 100% during daytime hours, and 50% during evening and nighttime hours. Any shielding provided by existing buildings was captured in the noise model.

The supporting calculations and impact results are provided in Appendix C. Based upon the predicted noise impacts and observations made during the site visit, these sources are considered insignificant in comparison to other local noise sources such as traffic noise.

2.4 NOISE IMPACT PREDICTIONS

The following section provides the results of our analysis.

2.4.1 NOISE IMPACT PREDICTIONS – OUTDOOR LIVING SPACES

Road traffic noise must be assessed using potential future traffic conditions. The south side of the development, closest to Main Street, is assumed to be the worst case location of the OLA as per the preliminary site plan. As noted in Section 2.1, the predicted impacts at the OLA due to road traffic that are less than 55 dBA would not require noise controls, levels between 55 dBA and 60 dBA would require either noise controls or warning clauses. Sound levels above 60 dBA would require noise controls in addition to warning clauses.



Based on the noise impact calculations completed using STAMSON software, the noise impact from Wellington Main Street is expected to be less than 55 dBA for all outdoor living area receptor locations provided in the amended Figure 1. As such, warning clauses or noise mitigation are not required.

2.4.2 NOISE IMPACT PREDICTIONS – BUILDING FAÇADE

As noted in Section 3.2, the sound level limits for the windows of noise sensitive land uses are 55 dBA at the window during daytime hours (07:00-23:00) and 50 dBA during nighttime hours (23:00-07:00) for typical building construction and without warning clauses.

If the predicted daytime sound level at the plane of a window is greater than 55 dBA and less than or equal to 65 dBA, the dwelling shall be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. In addition, prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300) (MOECC, 2017).

If the predicted nighttime sound level in the plane of a window is greater than 50 dBA and less than or equal to 60 dBA, then the dwelling shall be designed with a provision for the installation of central air conditioning in the future, at the occupant's discretion. The prospective purchasers or tenants shall be informed of potential noise concerns by a warning clause (Type C as defined in NPC-300) (MOECC, 2017).

The noise impacts from Main Street were calculated at the nearest noise sensitive building façades. The results are then compared to the applicable limits and used to recommend building façade requirements if required. The proposed location of the Annex was not calculated, as the setback distance from Main Street is significantly greater than the selected nearest noise sensitive dwellings.

The results of Cambium's analysis are summarized in appended Table 4 and Table 5. Noise impacts due to road traffic noise at the proposed noise sensitive building façades (POR01 to POR02) are predicted to be less than 55 dBA during daytime hours, and less than 50 dBA during nighttime hours. As such, warning clauses or noise mitigation are not required.



3.0 IMPACT OF THE PROPOSED DEVELOPMENT ON THE ENVIRONMENT

The development is in the preliminary design stages, thus detailed mechanical designs have not been produced. Therefore, this assessment is included as a feasibility check to confirm that the facility is likely capable of complying with NPC-300 at the nearby sensitive receptors.

The expected noise sources on site would typically include heating, ventilation, and air conditioning equipment installed at the development. The proposed detached cabin dwellings and units will likely only include residential air conditioning units, and therefore will be required to comply with Ministry publication *NPC-216 Residential Air Conditioning Devices* (NPC-216) (Ontario Ministry of Environment and Energy, 1993) and the *Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices* (Ontario Ministry of Environment and Energy, 1994). The proposed development will also not result in a significant increase of road traffic in the area.

It is Cambium's understanding that a kitchen and bar will be located in the existing 3-storey brick building that is currently undergoing renovation. The kitchen and bar will be located on the north side of the building. As the development is in preliminary design stages, detailed mechanical designs or equipment selections have not been produced. As such, Cambium has conducted noise modelling with a source that best represents the potential kitchen exhaust system for the proposed kitchen and a summary is provided below.

- EX-02 – This point source represents the potential ventilation exhaust for the proposed kitchen. A sound power level of 73 dBA was used. This source was modeled as active for 100% during daytime hours, and 50% during evening and nighttime hours. Any shielding provided by existing buildings was captured in the noise model.

The supporting calculations and impact results are provided in Appendix D. Based upon the predicted noise impacts and observations made during the site visit, these potential sources do not exceed the applicable limits for stationary noise sources.

It is Cambium's understanding that the proposed hotel will not have an amplified sound system located outside and all amplified systems will support low level background music in the lobby and dining areas. As a conservative approach and to address any future operational considerations, Cambium has also assessed potential outdoor activities such as amplified music. As discussed in the Prince Edward By-law 221-2021, no person shall, at any time, make, cause or permit the making of noise within the municipality that is the result of any activities described in Schedule A and that is audible to a person in a residence other than the residence from which the noise is originating, such as outdoor amplified sound. In addition, amplified sound within a hamlet or urban area is prohibited from 11:00 pm of one day to 9:00 am of the next day. The nearest residential dwelling is located approximately 130 metres to the southwest of the main brick building on site.

To satisfy the requirements of the noise by-law, Cambium recommends that if outdoor amplified music occurs on site, the overall sound level from all emitting sources such as speakers should be limited to 80 dBA at a distance of



3 metres outside of the prohibited hours of 11:00 pm of one day to 9:00 am of the next day. Again, this source was not included in NPC-300 analysis since it is not considered a noise source under NPC-300, noise sources such as this are anticipated by NPC-300 to be dealt with via local noise bylaws.

If the venue does not intend to purchase their own sound system, meaning that amplified sound systems will be provided via rental, or provided by a third party for the given event in the future. This may create number of difficulties related to compatibility of the sound limiter to whichever sound system is being utilized, as well as difficulties related to calibration of the sound limiter with the potentially variable sound systems.

Therefore, Cambium would propose that a sound limiter system recommendation be included, however that it be conditional on being technically feasible. If it is not technically feasible, then the venue should be required to maintain a sound level meter on site to confirm compliance with the local noise bylaw based upon recommendations above.



4.0 CONSTRUCTION ACTIVITIES

Typical construction activities are exempt from provincial noise guidelines related to land use compatibility. We have summarized the local bylaws relating to construction noise here, as well as good practice considerations for construction vibration.

4.1 LOCAL NOISE BYLAW

Typically, construction activities are not included in noise studies as they are usually exempt from guidelines. Despite this the Ministry and the Municipality both have guidelines and by-laws that may apply as follows:

- The Corporation of the County of Prince Edward By-law 221-2021 will apply to the site, unless a specific exemption has been obtained. The bylaw states that the operation of any construction equipment in connection with construction, unless otherwise exempt under the provisions of this by-law is prohibited from 07:00 pm of one day to 07:00 am of the next day. The operation of any construction equipment without the originally installed muffling devices or equivalent in good working order and in constant operation is prohibited at any time.
- In addition to construction noise, no person shall, at any time, make, cause or permit the making of noise within the municipality that is the result of any activities described in Schedule A and that is audible to a person in a residence other than the residence from which the noise is originating, such as outdoor amplified sound. In addition, amplified sound within a hamlet or urban area is prohibited from 11:00 pm of one day to 9:00 am of the next day.



5.0 RECOMMENDATIONS

In summary Cambium has made the following recommendations:

- Any heating, ventilation, and air conditioning equipment installed at the development is recommended to comply with NPC-216 and the Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices.
- Construction activity may not occur from 07:00 pm of one day to 07:00 am of the next day , as per the noise by-law; and.
- Amplified sound within a hamlet or urban area is prohibited from 11:00 pm of one day to 9:00 am of the next day. As described in Section 3.0, the proposed hotel does not contain outdoor amplified music and this recommendation has been included to address potential future considerations for outdoor music if desired.



6.0 CONCLUSIONS

Cambium Inc. has been retained by the EcoVue response to a request by the County of Prince Edward, to complete a Noise Impact Study for the proposed Wellington Hotel in Wellington, Ontario.

This report was prepared to support the proposed site design and feasibility. The contents of this report, including its analysis, shall be reviewed during the final design to ensure any alterations made will not affect compliance.

Based on the terms and the information provided to Cambium, it is our opinion that the proposed Wellington Hotel is feasible from a noise perspective.

Respectfully submitted,

Cambium Inc.

Trevor Ross, EIT
Senior Technologist

James Sellars
Project Coordinator

Trevor Copeland, P. Eng.
Project Engineer

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7.0 REFERENCES

- MOE. (1989). *ORNAMENT Ontario Road Noise Analysis Method for Environment and Transportation*. Ontario Ministry of the Environment.
- MOECC. (2017). *NPC-300 - Environmental Noise Guideline Stationary and Transportation Sources - Approval and Planning*. Ontario Ministry of the Environment and Climate Change.
- Ontario Ministry of Environment and Energy. (1993). *NPC-216*.
- Ontario Ministry of Environment and Energy. (1994). *Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices*.
- RAC and FCM. (2013). *Guidelines for New Development in Proximity to Railway Operations*. Railway Association of Canada and Federation of Canadian Municipalities.
- The Corporation of the County of Prince Edward. *Noise By-Law 221-2021*.



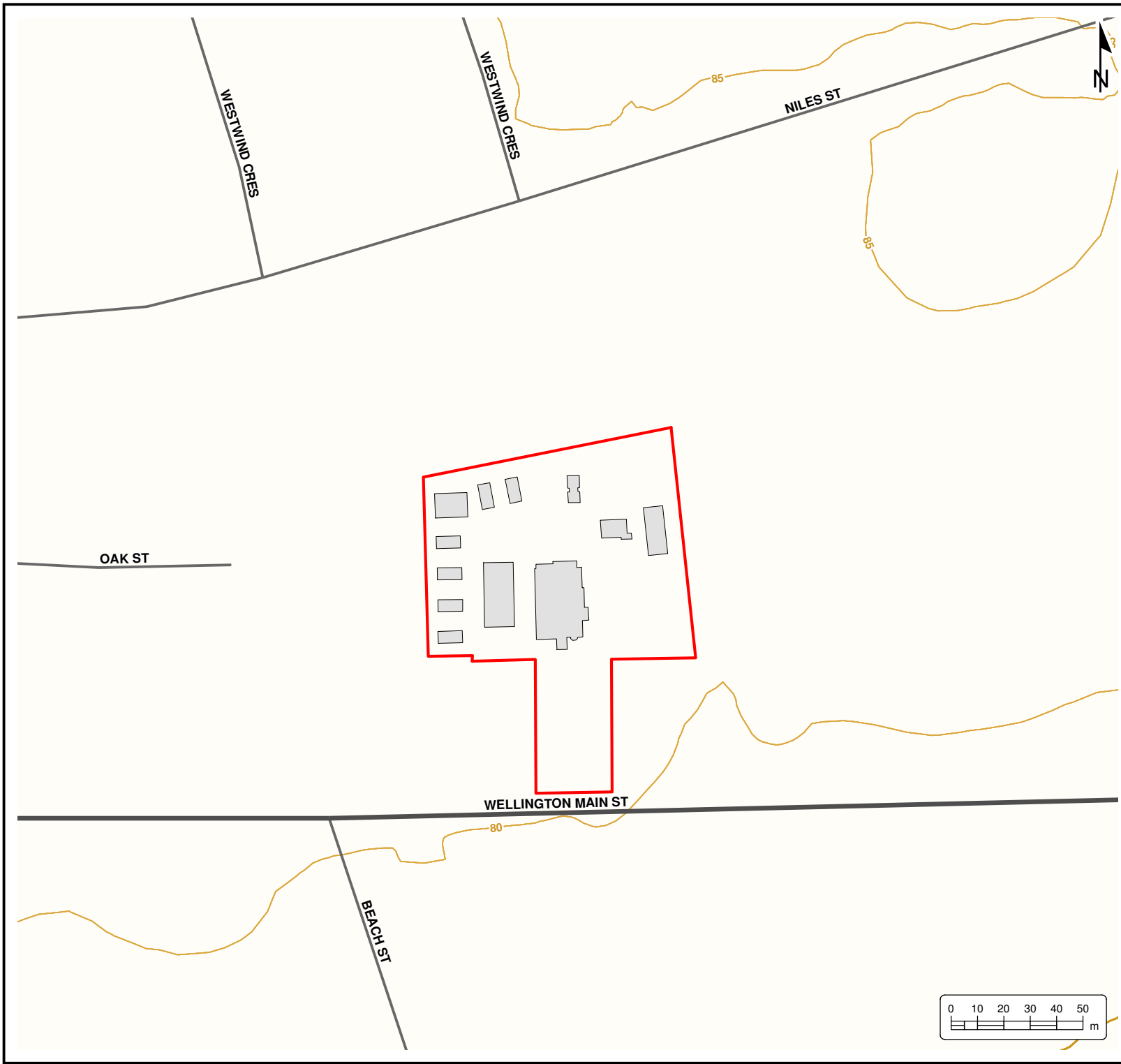
Appended Figures



Figure 1 Site Location Map

Figure 2 Site Plan

Figure 3 Land Use Zoning Map







NOISE IMPACT STUDY

ECOVUE

192 Wellington Street
Newtonville, Ontario

LEGEND

-  Major Road
-  Minor Road
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Building
-  Site (approximate)

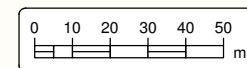
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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE LOCATION PLAN

Project No.:	13371-001	Date:	September 2021
Scale:	1:2,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 18N
Checked by:	JWS	Figure:	1



NOISE IMPACT STUDY

ECOVUE
192 Wellington Street
Newtonville, Ontario

LEGEND

- Receptor
- Building
- Site (approximate)

Notes:
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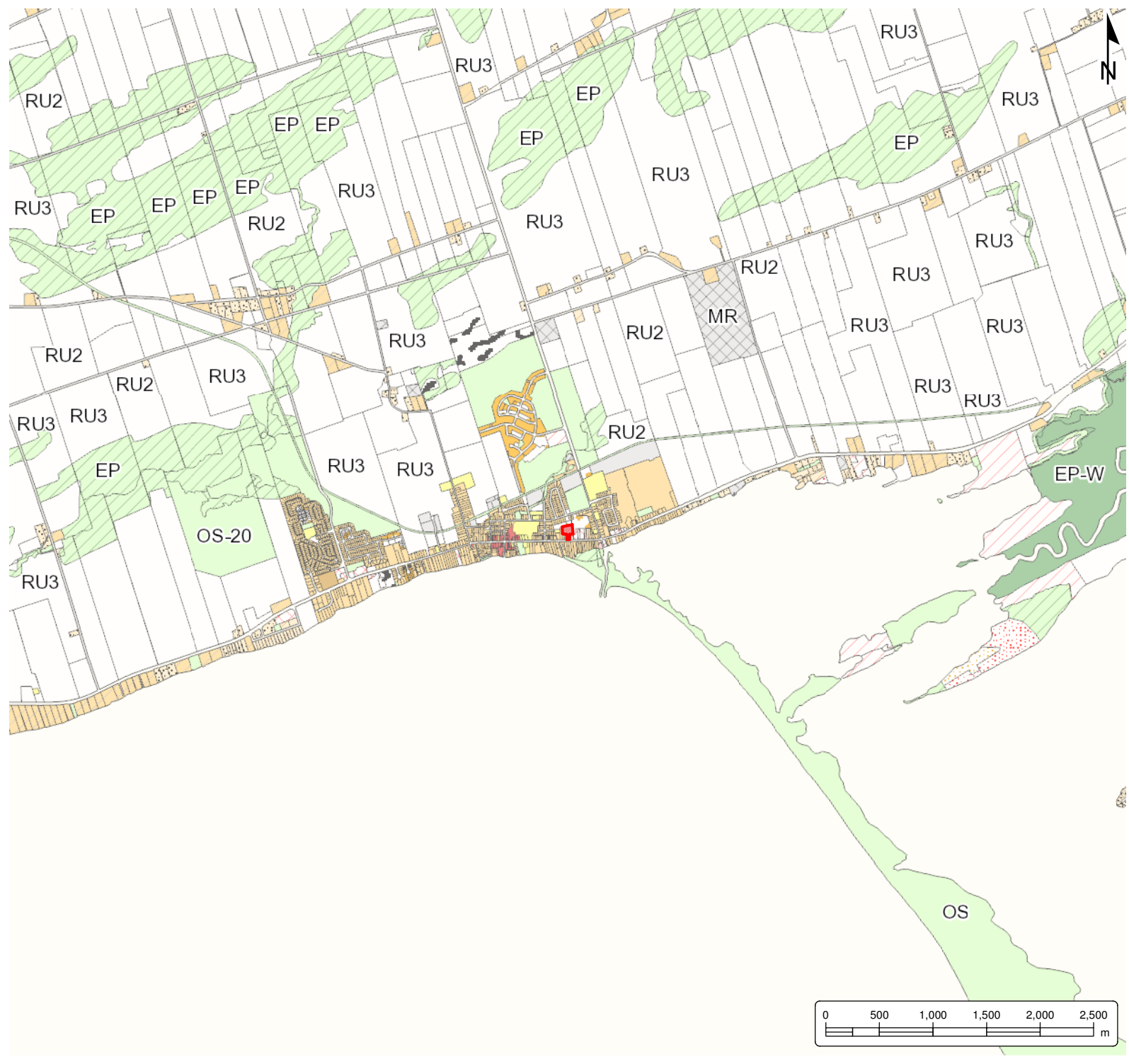
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE PLAN

Project No.:	13371-001	Date:	September 2021
Scale:	1:1,000	Rev.:	
Created by:	TLC	Checked by:	JWS
		Figure:	2



O:\GIS\MXDs\13000-13999\1371-001 EcoVue - Wellington Main Street\2021-09-24 FIG 3 - Land Use Zoning Plan.mxd



NOISE IMPACT STUDY
ECOVUE
 192 Wellington Street
 Newtonville, Ontario

LEGEND

- Site (approximate)
- RU1 - RURAL 1
- RU3 - RURAL 3
- RU2 - RURAL 2
- R1 - URBAN RESIDENTIAL TYPE 1
- R2 - URBAN RESIDENTIAL TYPE 2
- R3 - URBAN RESIDENTIAL TYPE 3
- HR - HAMLET RESIDENTIAL
- LSR - LIMITED SERVICE RESIDENTIAL
- MHR - MOBILE HOME RESIDENTIAL
- RR1 - RURAL RESIDENTIAL 1
- RR2 - RURAL RESIDENTIAL 2
- CC - CORE COMMERCIAL
- CG - GENERAL COMMERCIAL
- CL - LOCAL COMMERCIAL
- CH - HIGHWAY COMMERCIAL
- TC - TOURIST COMMERCIAL
- TPC - TRAILER PARK COMMERCIAL
- MG - GENERAL INDUSTRIAL
- MH - HEAVY INDUSTRIAL
- MR - RURAL INDUSTRIAL
- MX - EXTRACTIVE INDUSTRIAL
- MD - WASTE DISPOSAL INDUSTRIAL
- I - INSTITUTIONAL
- OS - OPEN SPACE
- EP - ENVIRONMENTAL PROTECTION
- EP-W - ENVIRONMENTAL PROTECTION PSW (NOTE 1)
- FD - FUTURE DEVELOPMENT

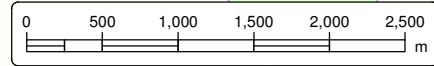
Notes:
 - Land Use Zoning was obtained from the Prince Edward County Zoning By-Law No. 1815-2008
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



194 Sophia Street
 Peterborough, Ontario, K9H 1E5
 Tel: (705) 742.7900 Fax: (705) 742.7907
 www.cambium-inc.com

LAND USE ZONING PLAN

Project No.:	13371-001	Date:	September 2021
Scale:	1:50,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	JWS
			3





Appended Tables



Table 4 Traffic Noise Results Summary

Table 5 Results Summary



Table 4 - Traffic Noise Results Summary

Source	Ref. Forecasted 24-Hour Traffic Volume ¹	Traffic Breakdown, (Day/Night) ²			Receptor	Notes	Impact due to background traffic (dBA) ³	
		Cars	Med. Trucks	Heavy Trucks			Day	Night
Main Street (Regional Road 33)	6723	7290/810	192/21	192/21	POR01 - 65 m from Main St., South	4.5 m Height	52.7	46.1
Main Street (Regional Road 33)	6723	7290/810	192/21	192/21	POR02 - 68 m from Main St., South	4.5 m Height	51.7	45.1
Main Street (Regional Road 33)	6723	7290/810	192/21	192/21	POR01_OLA - 55 m from Main St., South	1.5 m Height	52.6	46.0
Main Street (Regional Road 33)	6723	7290/810	192/21	192/21	POR02_OLA - 60 m from Main St., South	1.5 m Height	51.9	45.4

1 - 24-Hour Traffic Volume from County of Prince Edward expanded to 10 years future at 2% growth per year

2 - 90% day-night split from Ministry ORNAMENT, Percentage trucks assumed.



Table 5 - Combined Traffic Noise Results Summary and Noise Controls

Receptor	Description	Noise Impact (dBA, Leq)			
		07:00 to 23:00		23:00 to 07:00	
		Road	Controls	Road	Controls
POR01	South Facing Façade	52.7	None/OBC	46.1	None/OBC
POR1_OLA	South Facing OLA	52.6	None/OBC	46.0	None/OBC
POR02	South Facing Façade	51.7	None/OBC	45.1	None/OBC
POR02_OLA	South Facing OLA	51.9	None/OBC	45.4	None/OBC

Notes

WC - Warning Clause

Implement AC - ensure central air conditioning is installed

Design AC - Ensure it is possible for tenant to upgrade to central air conditioning in future

STC - indicates windows and walls should be acoustically designed to meet indoor noise targets Per NPC-300

OBC - Ontario building code standard construction should be satisfactory



Appendix A

Road Traffic Data Requests

Trevor Copeland

From: James Griffin <jgriffin@pecounty.on.ca>
Sent: July-20-21 11:38 AM
To: James Sellars
Cc: Aynsley Osborne
Subject: RE: Traffic Data - Noise Impact Study

Good morning James,

Unfortunately, we don't have a lot of urban counts. These are the only counts we have for Wellington Main Street:

COUNTY ROADS	DESCRIPTION	TRAFFIC VOLUME (24h)	POSTED SPEED	Date of Counts
WELLINGTON MAIN STREET	250 Wellington Main Street (week of counts conducted)	6723	50	July 18, 201

If you have any questions please do not hesitate to ask.

James

From: James Sellars <James.Sellars@cambium-inc.com>
Sent: July 20, 2021 9:54 AM
To: James Griffin <jgriffin@pecounty.on.ca>
Subject: Traffic Data - Noise Impact Study

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi James,

Further to my voicemail, we're currently conducting a noise impact study and would like to request the most recent AADT counts for Wellington Main Street, near the intersection of Belleville Street. I've also attached a screenshot of the location.

Thanks for the time and assistance.



Appendix B

STAMSON Calculations

Filename: POR10LA.te Time Period: Day/Night 16/8 hours
 Description:

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

 Car traffic volume : 7290/810 veh/TimePeriod *
 Medium truck volume : 192/21 veh/TimePeriod *
 Heavy truck volume : 192/21 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): 6723
 Percentage of Annual Growth : 2.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 2.50
 Heavy Truck % of Total Volume : 2.50
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main Street (day/night)

 Angle1 Angle2 : -80.00 deg 80.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 55.00 / 55.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Main Street (day)

 Source height = 1.26 m

ROAD (0.00 + 52.55 + 0.00) = 52.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.66	63.51	0.00	-9.37	-1.59	0.00	0.00	0.00	52.55

Segment Leq : 52.55 dBA

Total Leq All Segments: 52.55 dBA

↑
 Results segment # 1: Main Street (night)

 Source height = 1.25 m

ROAD (0.00 + 45.98 + 0.00) = 45.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.66	56.93	0.00	-9.37	-1.59	0.00	0.00	0.00	45.98

Segment Leq : 45.98 dBA

Total Leq All Segments: 45.98 dBA

↑

Cambium Inc.

TOTAL Leq FROM ALL SOURCES (DAY): 52.55
(NIGHT): 45.98

↑
↑

Filename: POR01.te Time Period: Day/Night 16/8 hours
 Description:

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

 Car traffic volume : 7290/810 veh/TimePeriod *
 Medium truck volume : 192/21 veh/TimePeriod *
 Heavy truck volume : 192/21 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): 6723
 Percentage of Annual Growth : 2.00
 Number of Years of Growth : 12.00
 Medium Truck % of Total Volume : 2.50
 Heavy Truck % of Total Volume : 2.50
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Main Street (day/night)

 Angle1 Angle2 : -80.00 deg 80.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 65.00 / 65.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

↑
 Results segment # 1: Main Street (day)

 Source height = 1.26 m

ROAD (0.00 + 52.70 + 0.00) = 52.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.49	63.51	0.00	-9.47	-1.34	0.00	0.00	0.00	52.70

Segment Leq : 52.70 dBA

Total Leq All Segments: 52.70 dBA

↑
 Results segment # 1: Main Street (night)

 Source height = 1.25 m

ROAD (0.00 + 46.12 + 0.00) = 46.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	80	0.49	56.93	0.00	-9.47	-1.34	0.00	0.00	0.00	46.12

Segment Leq : 46.12 dBA

Total Leq All Segments: 46.12 dBA

↑

Cambium Inc.

TOTAL Leq FROM ALL SOURCES (DAY): 52.70
(NIGHT): 46.12

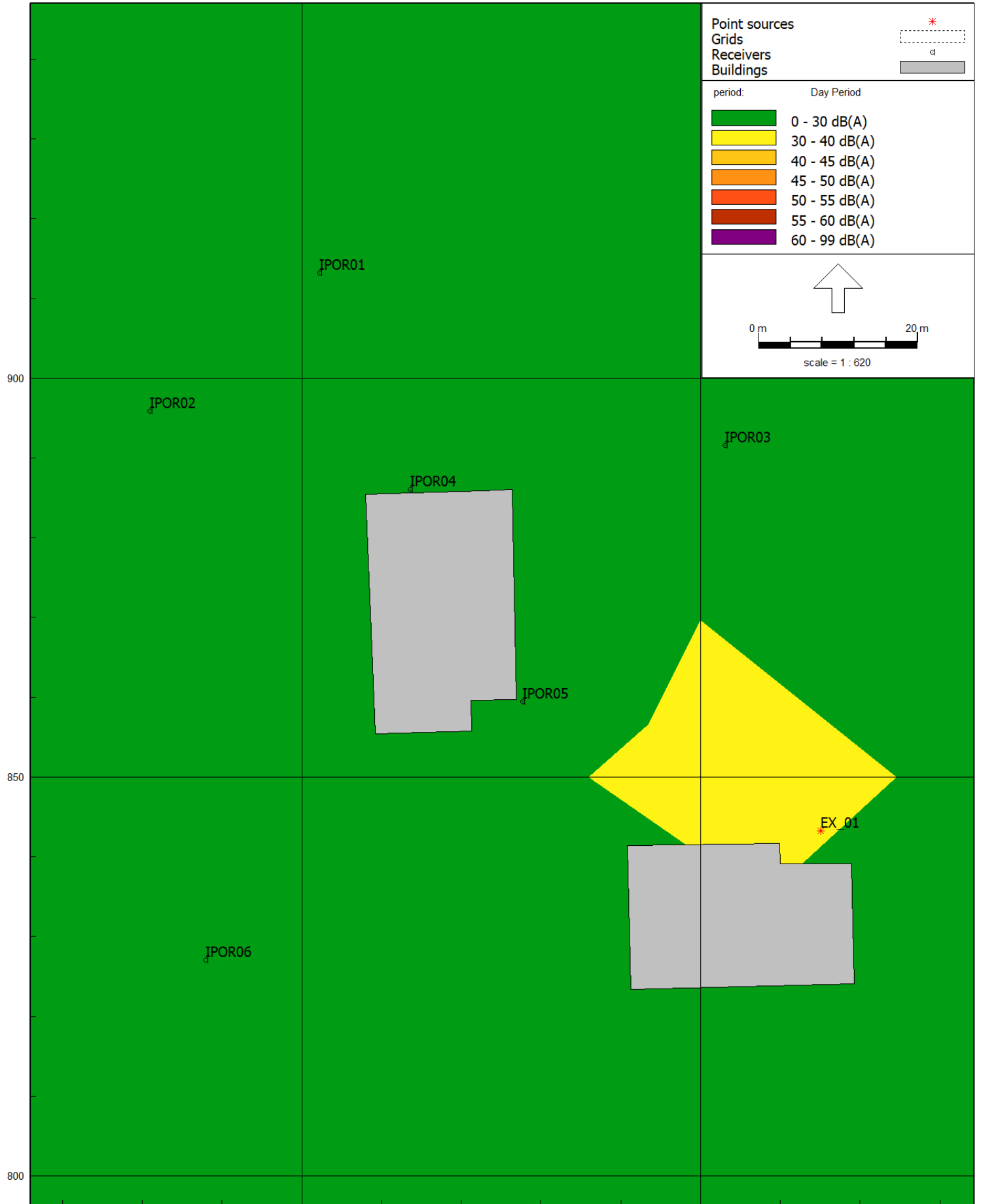
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Appendix C

Existing Stationary Noise Source Assessment

6 Oct 2021, 14:00





Appendix C- Noise Impact Summary - Existing Stationary Sources (EX-01)

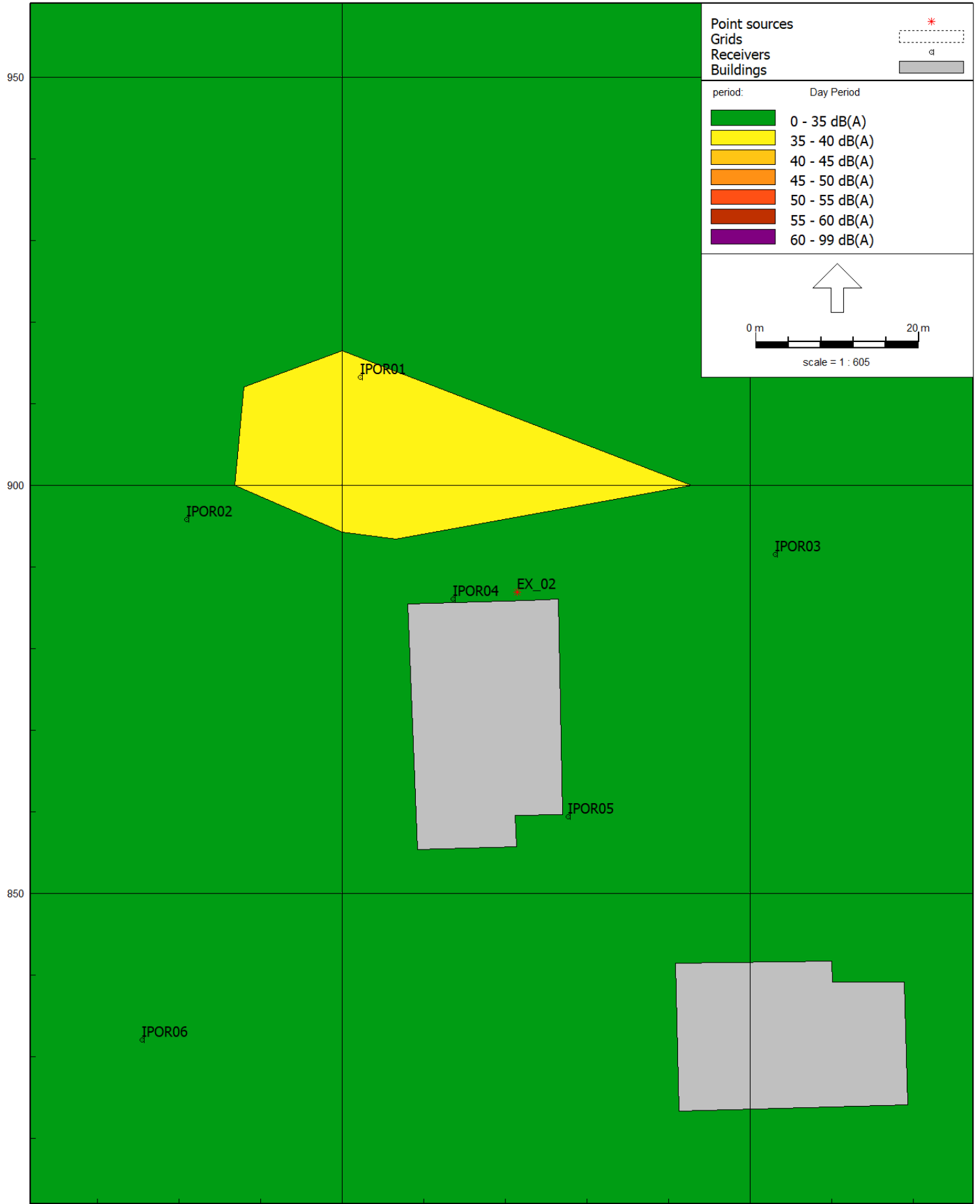
Point of Reception ID	Point of Reception Information			Noise Characteristic	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Compliant with Limit
	Description	Height POW	Height OLA								
IPOR01	Proposed Cabin	#N/A	--	Steady State Leq	18.0	15.0	15.0	50	45	45	Yes
IPOR02	Proposed Cabin	4.5	--	Steady State Leq	4.0	0.0	0.0	50	45	45	Yes
IPOR03	Proposed Annex	4.5	--	Steady State Leq	26.0	23.0	23.0	50	45	45	Yes
IPOR04	3-Storey Brick (North)	7.5	--	Steady State Leq	15.0	12.0	12.0	50	45	45	Yes
IPOR05	3-Storey Brick (South)	7.5	--	Steady State Leq	27.0	24.0	24.0	50	45	45	Yes
IPOR06	Existing 2 Storey Dwelling	4.5	--	Steady State Leq	13.0	10.0	10.0	50	45	45	Yes



Appendix D

Proposed Stationary Noise Source Assessment

6 Oct 2021, 13:59



200

250



Appendix D - Noise Impact Summary - Proposed Stationary Sources (EX-02)

Point of Reception ID	Point of Reception Information			Noise Characteristic	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Compliant with Limit
	Description	Height POW	Height OLA								
IPOR01	Proposed Cabin	#N/A	--	Steady State Leq	37.0	34.0	34.0	50	45	45	Yes
IPOR02	Proposed Cabin	4.5	--	Steady State Leq	34.0	31.0	31.0	50	45	45	Yes
IPOR03	Proposed Annex	4.5	--	Steady State Leq	35.0	32.0	32.0	50	45	45	Yes
IPOR04	3-Storey Brick (North)	7.5	--	Steady State Leq	47.0	44.0	44.0	50	45	45	Yes
IPOR05	3-Storey Brick (South)	7.5	--	Steady State Leq	19.0	16.0	16.0	50	45	45	Yes
IPOR06	Existing 2 Storey Dwelling	4.5	--	Steady State Leq	11.0	8.0	8.0	50	45	45	Yes



Point Source Sound Power Level Calculations

$$^1L_w = L_p + 20 \log(r) + 11 - 10 \log(Q)$$

$$L_p(\text{total}) = 10 \log(10(L_p(31\text{Hz})/10) + 10(L_p(63\text{Hz})/10) + \dots + 10(L_p(8\text{kHz})/10))$$

r is distance measurement was taken, Q is directivity index, t is operating time

Source ID	Source Description	Source Directionality	Operating Condition	Horizontal Measurement Distance (m)	SLM Height (m)	Source Height (m)	Total Measurement Distance (m)	Measurement Directionality (deg)	Source To Receptor Directionality (deg)	Directivity Factor (Q)	Tonal (Yes/No)	Octave Band (Hz)									
												63	125	250	500	1000	2000	4000	8000	Total	
Hidden Row																					
												A-Weighting									
HVAC-01	Upblast Exhaust and Condensor	None	Steady State	1	2	2	1	N/A	N/A	2	No	Measured SPL (dB)	63.91	64.23	58.58	56.23	53.63	51.52	47.00	38.66	68.25
												Calculated PWL (dBA)	45.90	56.22	57.57	61.22	61.62	60.50	55.99	45.65	67.29
												Msmnt Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	45.90	56.22	57.57	61.22	61.62	60.50	55.99	45.65	67.29
HVAC-02	Cook 180 CPA	0	0	5	2	2	1	0	N/A	2	No	Measured SPL (dB)	78.00	77.00	78.00	71.00	68.00	63.00	58.00	56.00	82.97
												Calculated PWL (dBA)	59.99	68.99	76.99	75.99	75.99	71.99	66.99	62.99	82.07
												Msmnt Directionality Correction (dB)	-8.00	-8.00	-8.00	-9.00	-9.00	-10.00	-10.00	-10.00	
												Receptor Directionality Correction (dB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
												Applied PWL with Penalties (dBA)	51.99	60.99	68.99	66.99	66.99	61.99	56.99	52.99	73.35