BURNSIDE

Guideline D-6 Compatibility Study for Proposed Residential Development

LANDWISE

Guideline D-6 Compatibility Study for Proposed Residential Development

LANDWISE

R.J. Burnside & Associates Limited
1465 Pickering Parkway Suite 200
Pickering ON L1V 7G7 CANADA

October 2025
300059257.0000

Distribution List

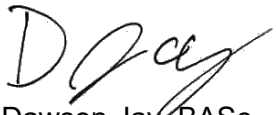
No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	LANDWISE
0	Yes	Yes	R.J. Burnside & Associates Limited

Record of Revisions

Revision	Date	Description
0	February 14, 2025	Draft Submission for Client Review
1	June 4, 2025	Changes made based on client's comments
2	October 30, 2025	Changes made based on client's comments

R.J. Burnside & Associates Limited

Report Prepared By:



Dawson Jay, BASc
Engineer in Training
DJ:rk

Report Reviewed By:



Kristina Zeromskiene, Ph.D., LEL
Air and Noise Scientist
KZ:rk

Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by LANDWISE to document potential noise, odour, and dust impacts of local industry on the proposed mixed-use development at 198-200, 206 Plains Road East, Ontario (the Site).

Guideline D-6 Compatibility Study (D-6 Study) was prepared in accordance with Guideline D-6 “Compatibility between Industrial Facilities and Sensitive Land Uses” to determine if any facilities in the surrounding area could have an impact on the proposed development and vice versa.

Potential noise, dust and odour sources surrounding the proposed development area are reviewed and assessed in this study.

The following findings are presented based on the results of this D-6 Study:

- Adverse effects from odour, dust and noise are not expected at the proposed development from the surrounding industrial/commercial operations.
- A potential air quality and noise impact from a nearby Aldershot Yard was identified in the vicinity of the proposed development.
- No compatibility issues were identified between the surrounding vacant lots and the proposed development.

The following recommendations are presented based on the collected information and the findings of this D-6 Study:

1. This report should be updated to ensure compliance with the City and regulatory agency requirements should the current development plan and layout for the Site change significantly.

2. A Noise Impact Assessment should be completed to ensure that sound levels at the proposed development will be below Ministry of the Environment, Conservation and Parks limits. The Noise Impact Assessment is being prepared by Burnside at the same time as this D-6 Study. Any mitigation measures (if required) will be evaluated and recommended in the assessment.

3. An Air Quality Assessment should be completed to ensure no adverse impact from Aldershot Yard on the proposed development.

Table of Contents

1.0 Introduction 1
2.0 Guideline D-6 2
3.0 Zoning 3
4.0 Study Area 4
5.0 Impact Study 5
5.1 Off-Site Businesses of Interest 6
5.1.1 West Burlington Dentistry (ID #1) 6
5.1.2 Indi Mortgage (ID #2) 6
5.1.3 3 Peaks Inc. (ID #3) 6
5.1.4 G1 G2 Driving School Burlington (ID #4) 6
5.1.5 Neena Dry Cleaners (ID #5) 6
5.1.6 Famous Cuts Barbershop (ID #6) 7
5.1.7 The Olive Oil Dispensary (ID #7) 7
5.1.8 Merry Maids of Burlington (ID #8) 7
5.1.9 Plains Natural & Wellness (ID #9) 7
5.1.10 Wellbeings Medical Centre for Innovation & Excellence (ID #10) 7
5.1.11 Guardian Pharmacy (ID #11) 7
5.1.12 Mystic Stained Glass Studio Ltd (ID #12) 7
5.1.13 The Cino Group (ID #13) 8
5.1.14 King Paving & Construction Ltd. (ID #14) 8
5.1.15 BAM Trucking Inc. (ID #15) 8
5.1.16 A Cosmos Concrete & Paving Ltd. (ID #16) 9
5.1.17 St Mary's Cement Inc. (ID #17) 9
5.1.18 CN Rail Aldershot Yard (ID #18) 9
5.2 Vacant Lots 10
6.0 Vibration 11
7.0 Conclusions 12
8.0 Recommendations 13
9.0 Limitations and Use of Report 14

Tables

Table 1: Recommended Minimum Separation Distances and Potential Influence Areas
Table 2: Businesses within the Study Area

Figures

Figure 1: Site Location Map
Figure 2: Zoning and Land Use Plan
Figure 3: Businesses Assessed

Appendices

Appendix A King Paving ECA
Appendix B BAM Trucking ECA
Appendix C St. Marys ECA
Appendix D Air Quality Impact Assessment
Appendix E Noise Impact Assessment

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including, but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations, and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by LANDWISE to document potential noise, odour, and dust impacts of local industry on the proposed mixed-use development at 198-200, 206 Plains Road East, Ontario (the Site).

Guideline D-6 Compatibility Study (D-6 Study) was prepared in accordance with Ministry of the Environment, Conservation and Parks (MECP) Guideline D-6 "Compatibility between Industrial Facilities and Sensitive Land Uses" (Guideline D-6). The objective of the guideline is *"to prevent or minimize the encroachment of sensitive land use upon industrial land use and vice versa, as these two types of land uses are normally incompatible, due to possible adverse effects on sensitive land use created by industrial operations"*[1].

All the facilities surrounding the development area that fall under the definition of "Facility" as per MECP Procedure D-1-3[2] and could have an impact on the proposed development are reviewed in this study.

A Facility is defined as "a transportational, commercial, industrial, agricultural, intensive recreational or utilities/services building or structure and/or associated lands (e.g., abattoir, airport, railway, sewage treatment plant, landfill, manufacturing plant, generation stations, sports/concerts stadium, etc.) which produce(s) one or more 'adverse effect(s)' on a neighbouring property or properties".

It is assumed that all industrial facilities that require an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR) for all contaminants discharging to the air would have one. An ECA/EASR requires all contaminants emitted to the air to meet MECP standards and guidelines at the property line; therefore, sources of air contaminants were not assessed. Dust is often handled using a best management practice plan so may not meet the criteria at the property line. Noise and odour impacts are assessed at the sensitive receptors. A D-6 Study assesses these three contaminants to ensure compatibility between proposed new sensitive receptors and existing surrounding environment.

Potential noise, dust and odour sources close to the proposed mixed-use development are reviewed and assessed in this study.

[1] Ministry of the Environment. Guideline D-6: Compatibility Between Industrial Facilities and Sensitive Land Uses, July 1995.
[2] Ministry of the Environment. Guideline D-1, Procedure D-1-3: Land Use Compatibility: Definitions, July 1995.

2.0 Guideline D-6

The Guideline D-6 *"is intended to be applied in the land use planning process to prevent or minimize future land use problems due to the encroachment of sensitive land uses and industrial land uses on one another"*[1].

An Industrial Facility is considered a facility or activity related to the assemblage and storage of substances/goods/raw materials, their processing and manufacturing; and/or the packaging and shipping of finished products[3]. The guideline categorizes industrial facilities into three classes (Class I, II, or III) according to the nature of their emissions, physical size, production volumes and intensity/scheduling of their operations. Each category has a defined minimum separation distance between a sensitive land use and an industrial facility, and a potential influence area. If a sensitive land use is found within the minimum separation distance, a detailed assessment of the impacts is usually required to determine whether the two uses are compatible unless it's clear that the impacts will be negligible.

If a sensitive land use is found within the potential influence area, then a qualitative assessment should be done to determine whether a detailed assessment is required. Table 1 contains a summary of the minimum separation distance and potential influence areas for each class category.

Noise, dust, and odour assessments must be completed to determine if the surrounding industry will have an impact on the proposed development.

[3] Ministry of the Environment. Guideline D-1, Procedure D-1-3: Land Use Compatibility: Definitions, July 1995.

3.0 Zoning

The location of the Site is presented in Figure 1 and the land use designation of the Site and surrounding area is presented in Figure 2.

The Site of the proposed mixed-use development is currently zoned as Medium Density Residential – RM2 and Medium Density Residential – RM1. This application is in respect to increase the density of the proposed development. The areas to the north are zoned as Mixed-Use Corridor – MXG and Low Density Residential – RM1. The areas to the south are zoned Low Density Residential – RM1 and Medium Density Residential – RM2.

4.0 Study Area

According to Guideline D-6, the impact from the potential influence areas has to be evaluated for all sensitive land uses. Residential land use is considered sensitive land 24 hours/day. Potential influence areas are defined as the areas within which adverse effects may be experienced.

All the facilities within the study area of 300 m were considered in the assessment. The area within 1,000 m was screened for Class III industrial facilities. The initial screening of the area determined that there were two likely Class I facilities, within the study area.

According to Guideline D-6, the potential influence area for Class III Industrial Facility is 1,000 m. The initial screening determined that there were five Class III facilities between the 300 m and 1,000 m radius around the proposed development. These facilities (King Paving & Construction Ltd, B A M Trucking Inc., A Cosmos Concrete & Paving, St Mary's Cement Inc., and CN Rail Aldershot Yard) were included in the assessment.

5.0 Impact Study

The purpose of this study is to evaluate any potential noise, odour and dust impacts from the already existing industry. All the facilities within the defined area were considered in the study.

It is assumed that all industrial facilities would have an ECA/EASR for all contaminants discharging to the air. An ECA/EASR requires all contaminants emitted to the air to meet MECP standards and guidelines at the property line; therefore, sources of air contaminants were not assessed. Criteria for noise, dust and odour must be met at sensitive receptors instead of the source property line. As a result, sources of noise, dust and odour are assessed in this study to determine if the addition of a sensitive land use will not result in an adverse effect at the proposed mixed-use development and whether it will allow an existing industry to remain in compliance after the new sensitive land used is introduced.

An initial survey of the surrounding industrial sources, their locations and potential emissions was conducted using aerial imagery. 17 businesses are considered within the study area. A summary of all businesses included in the assessment is shown in Table 2. Table 2 includes the business name, description and address, the direction relative to the proposed development, the separation distance, potential contaminants (e.g., noise), the MECP Industrial Class, and whether the facility is further from the proposed development than the recommended separation distances set out in Guideline D-6.

If a business was identified to have potential emissions of odour, dust or noise, the next step was to determine if the facility; a) met the minimum separation distance, and b) if the facility was outside the potential influence area. If the answer to either of those questions was “no”, then further investigation was done to determine if there would be an adverse effect on the proposed development.

The majority of the businesses were deemed to be negligible as odour, dust and noise are not expected to be emitted. Six of the businesses were identified as being possible sources of odour, dust, and/or noise and being located within the potential areas of influence. Vacant lots were also assessed to determine if any future businesses that could be developed on these lands would pose a potential adverse effect on the proposed development. These businesses and vacant lots are described in more detail in the sections below. Refer to Figure 3 for the location of all the businesses assessed in this study.

5.1 Off-Site Businesses of Interest

5.1.1 West Burlington Dentistry (ID #1)

West Burlington Dentistry is a dental office located southwest of the proposed development at 192 Plains Road East, sharing the property line. There is no separation between the properties; however, no noise, odour, or dust emissions are expected from this business.

5.1.2 Indi Mortgage (ID #2)

Indi Mortgage is a mortgage brokerage office located southwest of the proposed development at 184 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.3 3 Peaks Inc. (ID #3)

3 Peaks Inc. is a software company located in the dwelling southwest of the proposed development at 172 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.4 G1 G2 Driving School Burlington (ID #4)

G1 G2 Driving School Burlington is a driving school located northwest of the proposed development at 195 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.5 Neena Dry Cleaners (ID #5)

Neena Dry Cleaners is a dry-cleaning service located northwest of the proposed development at 195 Plains Road East. The minimum separation distance for Class I facility is met, but the facility is within the potential influence area. There is no dust at this facility.

Due to the facilities dry cleaning services, there is a potential for nuisance odour. However, there are existing residential units above this business; any nuisance issues would have been addressed within the same building. In addition, the property has already been zoned as a medium density residential zone prior to the application for this development; therefore, the new development does not change the need for the site to mitigate any odour associated with this operation.

5.1.6 Famous Cuts Barbershop (ID #6)

Famous Cuts Barbershop is a barber shop located northwest of the proposed development at 195 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.7 The Olive Oil Dispensary (ID #7)

The Olive Oil Dispensary is a grocery store located northwest of the proposed development at 175 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.8 Merry Maids of Burlington (ID #8)

Merry Maids of Burlington is a house cleaning service located northwest of the proposed development at 195 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.9 Plains Natural & Wellness (ID #9)

Plains Natural & Wellness is a massage spa located northwest of the proposed development at 195 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.10 Wellbeings Medical Centre for Innovation & Excellence (ID #10)

Wellbeings Medical Centre for Innovation & Excellence is a pain management physician's office located northwest of the proposed development at 185 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.11 Guardian Pharmacy (ID #11)

Guardian Pharmacy is a pharmacy located west of the proposed development at 185 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.12 Mystic Stained Glass Studio Ltd. (ID #12)

Mystic Stained Glass Studio Ltd. is a stained glass studio located west of the proposed development at 185 Plains Road East. No noise, odour, or dust emissions are expected from this business.

5.1.13 The Cino Group (ID #13)

The Cino Group is an accounting office located west of the proposed development at 185 Plains Road East, located west of the proposed development. No noise, odour, or dust emissions are expected from this business.

5.1.14 King Paving & Construction Ltd. (ID #14)

King Paving & Construction Ltd. is a paving contractor located southwest of the proposed development at 60 Railway Road. The facility is considered as Class III industrial facility based on the nature and the size of their operation. The minimum separation distance is met, but the facility is within the potential influence area.

King Paving & Construction Ltd. provides aggregate, asphalt, concrete, roller compacted concrete, and excavation. There is nuisance dust, with the potential for odour and noise emissions. The site is located 795 m from the proposed development with residential dwellings in between. Furthermore, as per the facility's ECA included in Appendix A, Noise Control Measures are required and expected to be implemented. The Best Management Practice Plan is on site to control fugitive dust emissions. Considering facility's ECA conditions, large separation distance and the existing residential area between the sites, no negative impact is anticipated from this operation at the proposed development. In addition, the proposed development is not anticipated to restrict the operation anymore that it is already restricted by the existing residential areas surrounding the facility.

5.1.15 BAM Trucking Inc. (ID #15)

BAM Trucking Inc owns the property at 1140 Waterdown Road, located southwest of the proposed development. The facility is considered as Class III industrial facility based on the nature and the size of their operation. The minimum separation distance is met, but the facility is within the potential influence area.

BAM Trucking Inc. is a recycling center which dismantles, repairs, and builds wood pallets. There is a potential for nuisance dust and noise emissions. The site is located 930 m from the proposed development with residential dwellings in between. Furthermore, as per the facility's ECA included in Appendix B, Noise Control Measures are required and expected to be implemented. The Best Management Practice Plan is on site to control fugitive dust emissions. Considering facility's ECA conditions, large separation distance and the existing residential area between the sites, no negative impact is anticipated from this operation at the proposed development. In addition, the proposed development is not anticipated to restrict the operation anymore that it is already restricted by the existing residential areas surrounding the facility.

5.1.16 A Cosmos Concrete & Paving Ltd. (ID #16)

A Cosmos Concrete & Paving Ltd. owns the property at 1160 Waterdown Road, located southwest of the proposed development. The facility is considered as Class III industrial facility based on the nature and the size of their operation. The minimum separation distance is met, but the facility is within the potential influence area.

A Cosmos Concrete & Paving Ltd. is located 968 m from the proposed development with residential dwellings in between. There is a potential for nuisance dust and noise. Considering the large separation distance and existing residential area between the sites, no negative impact is anticipated from this operation at the proposed development. In addition, the proposed development is not anticipated to restrict the operation anymore that it is already restricted by the existing residential areas.

5.1.17 St Mary's Cement Inc. (ID #17)

St Mary's Cement owns the property at 1093 Howard Road, located southwest of the proposed development. The facility is considered as Class III industrial facility based on the nature and size of their operation. The minimum separation distance is met, but the facility is within the potential influence area.

St Mary's Cement Inc. is a ready-mix concrete plan with nuisance dust, and the potential for nuisance odour and noise. However, the site is located 946 m from the proposed development with residential dwellings in between. Furthermore, as per the facility's ECA included in Appendix C, Noise Control Measures are required and expected to be implemented. The Best Management Practice Plan is on site to control fugitive dust emissions. Considering facility's ECA conditions, large separation distance and the existing residential area between the sites, no negative impact is anticipated from this operation at the proposed development. In addition, the proposed development is not anticipated to restrict the operation anymore as it is already restricted by the existing residential areas.

5.1.18 CN Rail Aldershot Yard (ID #18)

The CN Aldershot Yard is located northwest of the proposed development. The operation is not considered an industrial facility and railway operations do not fall under MECP D-Series guidelines. However, based on the nature and the size of the operation, it was considered to be equivalent to Class III Industrial facility. As a result, the minimum separation distance is met, but the facility is within the potential influence area.

Air, noise and vibration emissions are expected from this operation. An air quality and noise studies are recommended as the proposed development is 1,000 m of the railyard.

Following the City of Burlington guidance, a noise and vibration studies from the railway are required if the development is within 300 m and 75 m, respectively. As the separation distance is more than 300 m, no adverse impact is anticipated form noise and vibration perspective and neither requires further assessment.

5.2 Vacant Lots

Typically, following Guideline D-6 (Section 4.4.5), the separation distance for vacant industrial lands must be based on a worst-case scenario, and therefore the potential influence area must be used as an appropriate separation distance. However, considering the proposed area is already zoned for residential use and zoning was not changed in connection with this development, we believe this conservative approach is not warranted. The vacant lots are assessed using a potential influence area determined by reviewing nature of allowed operations.

Where infilling and urban redevelopment occurs, it may not be possible to achieve the minimum separation distance; however, it may be deemed acceptable if a justifying assessment is provided.

There are no vacant lots within 300 m of the site to be reviewed and assessed.

6.0 Vibration

No significant industrial vibration sources were identified in the vicinity of the proposed development.

While noise and vibration impact from the railway is not considered in the D-6 Guideline, as a standard practice both, noise and vibration, should be considered as part of the planning approval.

Considering the Site will be located 565 m from the existing rail line, noise and vibration are not expected to impact the proposed development.

7.0 Conclusions

This report was prepared in order to document the potential noise, odour and dust impacts of local industry on the proposed mixed-use development at 198-200, 206 Plains Road East, Ontario. All the facilities within the study area of 300 m were considered in the assessment. The area within 1,000 m was screened for Class III industrial facilities. The majority of the sources were deemed to be negligible as no potential contaminants were expected to be emitted. Four facilities, King Paving & Construction Ltd, BAM Trucking Inc., A Cosmos Concrete & Paving Ltd., and St Mary's Cement Inc. were flagged as potential emission sources. There are no vacant lots within 300 m of the site.

The following findings are presented based on the results of this D-6 Study:

- Adverse effects from odour, dust and noise are not expected at the proposed development from the surrounding industrial/commercial operations.
- A potential air quality and noise impact from a nearby Aldershot Yard was identified in the vicinity of the proposed development.
- No compatibility issues were identified between the surrounding vacant lots and the proposed development.

The required Air Quality Impact Assessment is Found in Appendix D.

The required Noise Impact Assessment is Found in Appendix E.

8.0 Recommendations

The following recommendation is presented based on the information collected and the findings of this D-6 Study:

1. This report should be updated to ensure compliance with the City and regulatory agency requirements should the current development plan and layout for the Site change significantly.

2. A Noise Impact Assessment should be completed to ensure that sound levels at the proposed development will be below Ministry of the Environment, Conservation and Parks limits. The Noise Impact Assessment is being prepared by Burnside at the same time as this D-6 Study. Any mitigation measures (if required) will be evaluated and recommended in the assessment.

3. An Air Quality Assessment should be completed to ensure no adverse impact from Aldershot Yard on the proposed development.

9.0 Limitations and Use of Report

R.J. Burnside & Associates Limited (Burnside) has completed this report in accordance with generally accepted standards and practices. The conclusions and recommendations in this report are professional opinions based upon our understanding of anticipated Site conditions at the time of this assessment. To the best of our knowledge, the information contained in our report is accurate; however, Burnside does not guarantee the accuracy and reliability of the information provided by other persons or agencies. Burnside is not responsible for environmental concerns that are not visible or otherwise disclosed to us.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Tables

Table 1: Recommended Minimum Separation Distances and Potential Influence Areas

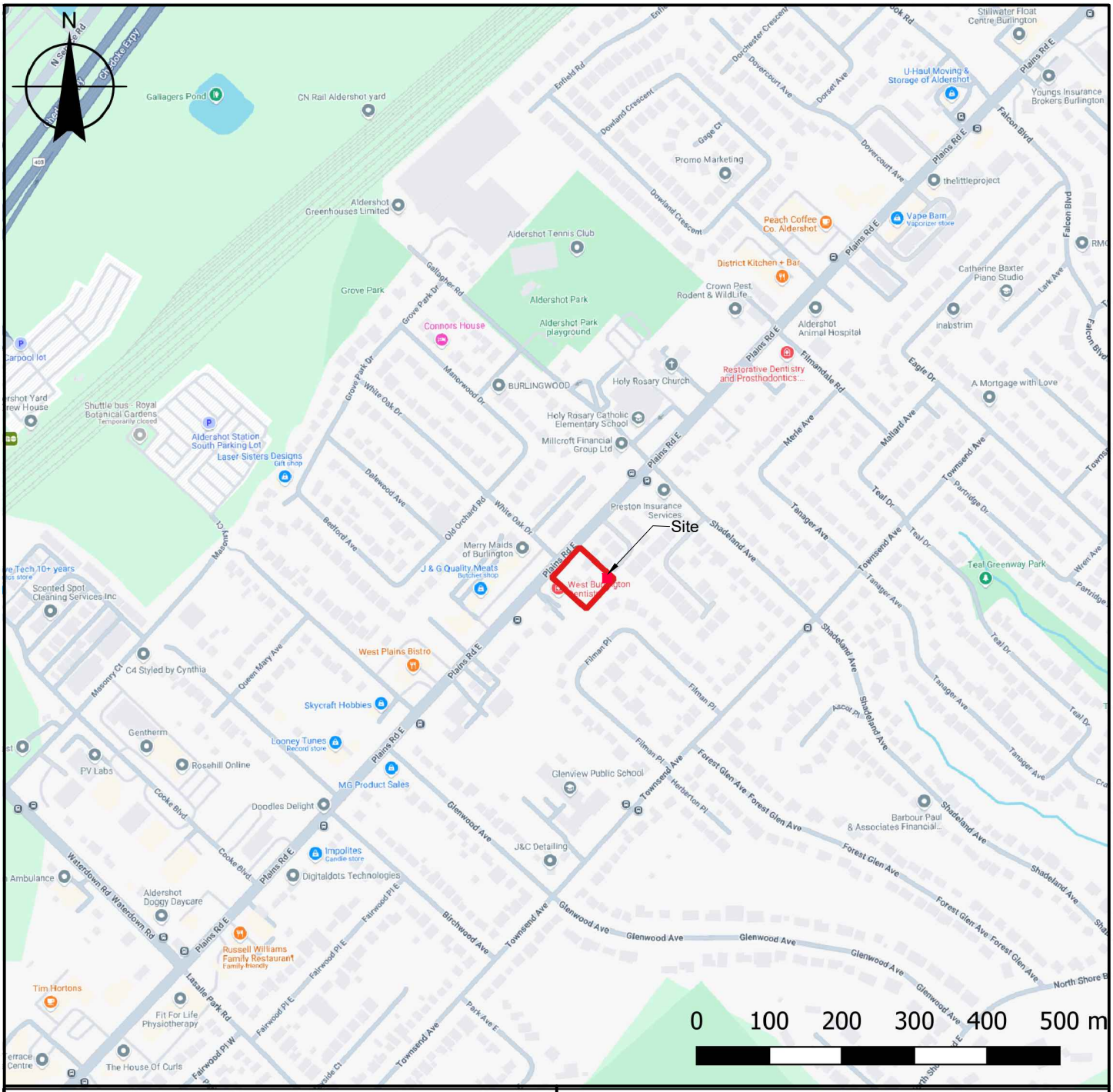
Class	Recommended Minimum Separation Distance (m)	Potential Influence Area (m)
1	20	70
2	70	300
3	300	1000

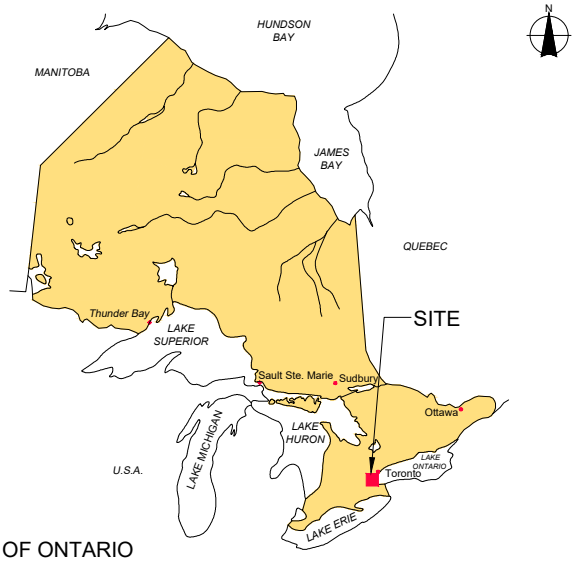
Guideline D-6 Minimum Separation Distances and Potential Influence Areas

ID	Facility Name	Business Description	Address	Relative Direction	Minimum Distance (Property Line to Property Line) (m)	Potential Contaminants	ECA/EASR Check	ERO Check (Is facility in ERO)	Industrial Class[1]	Comments
Off-Site Businesses within 300 m										
1	West Burlington Dentistry	Dentist	192 Plains Rd E, Burlington, ON L7T 2C3	SW	0	none	NO		n/a	No Adverse Effects
2	Indi Mortgage	Mortgage broker	184 Plains Rd E Suite 2, Burlington, ON L7T 2C3	SW	26	none	NO		n/a	No Adverse Effects
3	3 Peaks Inc	Software Company	172 Plains Rd E, Burlington, ON L7T 2C4	SW	68	none	NO		n/a	No Adverse Effects
4	G1 G2 Driving School Burlington	Driving school	195 Plains Rd E, Burlington, ON L7T 2C4	NW	27	none	NO		n/a	No Adverse Effects
5	Neena Dry Cleaners	Dry Cleaner	195 Plains Rd E, Burlington, ON L7T 2C4	NW	27	Odour	NO		I	Minimum separation distance met, but within potential
6	Famous Cuts Barber Shop	Barber Shop	195 Plains Rd E, Burlington, ON L7T 2C4	NW	27	Odour	NO		I	Minimum separation distance met, but within potential influence area
7	The Olive Oil Dispensary Ltd.	Gourmet Grocery Store	175 Plains Rd E #5, Burlington, ON L7T 2C4	NW	27	none	NO		n/a	No Adverse Effects
8	Merry Maids of Burlington	House Cleaning Service	195 Plains Rd E #3, Burlington, ON L7T 2C4	NW	29	none	NO		n/a	No Adverse Effects
9	Plains Natural & Wellness	Massage Spa	CA Ontario, 195 Plains Rd E Unit 2, Burlington, ON L7T 2C4	NW	31	none	NO		n/a	No Adverse Effects
10	Wellbeings Medical Centre For Innovation & Excellence	Pain Management Physician	185 Plains Rd E #1, Burlington, ON L7T 2C4	NW	45	none	NO		n/a	No Adverse Effects
11	Guardian	Pharmacy	185 Plains Rd E, Burlington, ON L7T 2C4	W	52	none	NO		n/a	No Adverse Effects
12	Mystic Stained Glass Studio Ltd	Stained Glass studio	185 Plains Rd E, Burlington, ON L7T 2C4	W	60	none	NO		n/a	No Adverse Effects
13	The Cino Group	Certified public accountant	185 Plains Rd E #6, Burlington, ON L7T 2C4	W	67	none	NO		n/a	No Adverse Effects
Off-Site Businesses between 300-1000 m										
14	King Paving & Construction Ltd - Asphalt Plant	Paving Contractor	60 Railway Rd, Burlington, ON L7T 4A8	SW	795	Noise, Dust	YES		III	Minimum separation distance met, but within potential influence area
15	B A M Trucking Inc	Recycling Centre	1140 Waterdown Rd, Burlington, ON L7T 4A8	SW	930	Noise, Dust	YES		III	Minimum separation distance met, but within potential influence area
16	A Cosmos Concrete & Paving Ltd	Paving Contractor	1160 Waterdown Rd, Burlington, ON L7T 4A8	SW	968	Noise, Dust	NO		III	Minimum separation distance met, but within potential influence area
17	St Mary's Cement Inc.	Ready mix concrete supplier	1093 Howard Rd, Burlington, ON L7R 3X5	SW	946	Noise, Dust	YES		III	Minimum separation distance met, but within potential influence area
18	CN Aldershot Yard	Railyard	1199 Waterdown Rd, Burlington, ON L7T 4A8	NW	555	Noise, Dust, Vibration	YES		III	Minimum separation distance met, but within potential influence area

1. MOE Procedure D-6-1 Appendix A: Industrial Categorization Criteria. Last Revision July 1995. Page 2

Figures





KEY MAP OF ONTARIO

BURNSIDE

Client

LANDWISE

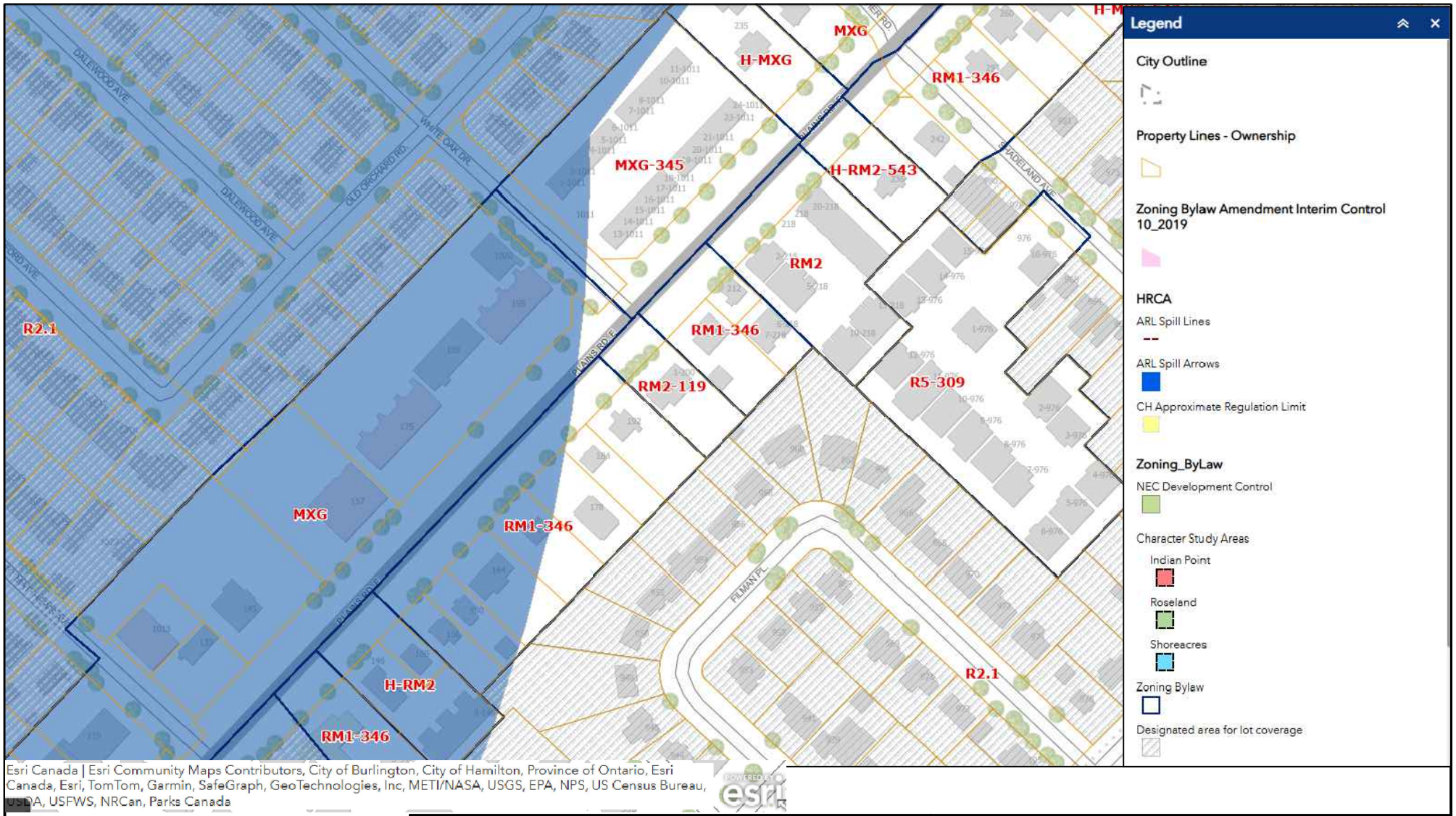
Figure Title

Site Location Map

Land Use Compatibility Study

Drawn	Checked	Date	Figure No.
DJ	HW	January 2025	1
Scale		Project No.	
1:3000		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:32 AM



BURNSIDE

Figure Title

Zoning and Land Use Plan

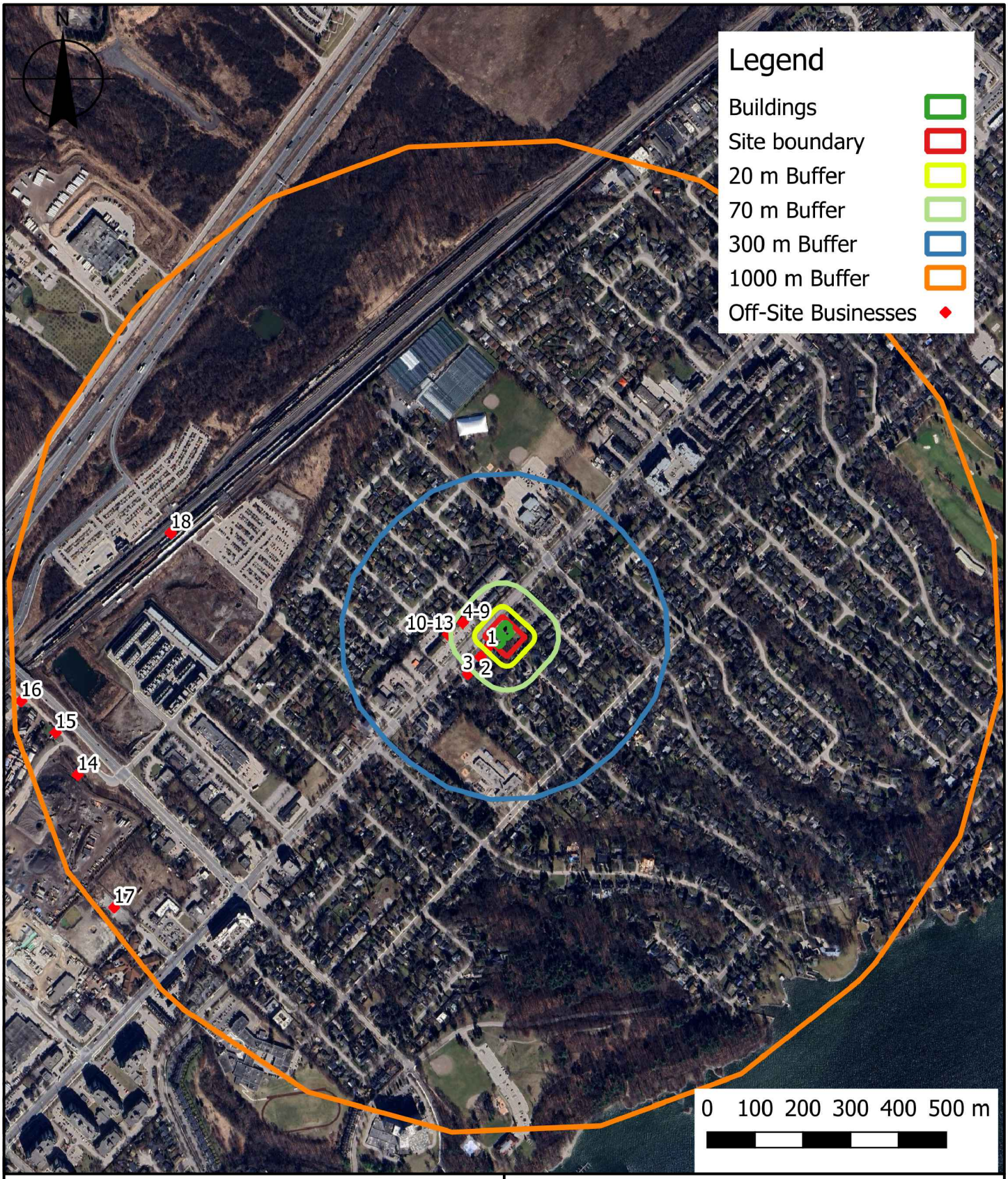
Land Use Compatibility Study

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	January 2025	**2**
Scale		Project No.	
NA		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:33 AM



BURNSIDE

Figure Title

Businesses Assessed

Land Use Compatibility Study

Client	Drawn	Checked	Date	Figure No.
LANDWISE	DJ	HW	January 2025	**3**
	Scale		Project No.	
	1:11,000		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:33 AM

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

King Paving ECA

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 2090-BXNT5G
Issue Date: June 1, 2021

King Paving & Construction Ltd.
3385 Harvester Rd, No. 107
Burlington, Ontario
L7R 3Y5

Site Location: 1077 Howard Road
Burlington City, Regional Municipality of Halton
L7R 3X5

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act , R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Description Section

A facility that operates a batch and/or drum hot mix asphalt (HMA) plant, consisting of the following processes and support units:

- aggregate and Recycled Asphalt Pavement (RAP) receiving, storage, processing and shipping;
- asphalt cement receiving and storage;
- aggregate drying; and
- hot-mix asphalt production, storage and shipping;

including the Equipment and any other ancillary and support processes and activities, operating at a Facility Production Limit of up to 210,000 tonnes per year of hot-mix asphalt production and up to 730,000 tonnes per year of aggregate materials delivered/shipped, discharging to the air as described in the Original ESDM Report.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "ACB list" means the document entitled “Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants”, as amended from time to time and published by the Ministry and available on a Government website;

2. "Acceptable Point of Impingement Concentration" means a concentration accepted by the Ministry as not likely to cause an adverse effect for a Compound of Concern that,
    a. is not identified in the ACB list, or
    b. is identified in the ACB list as belonging to the category “Benchmark 2” and has a concentration at a Point of Impingement that exceeds the concentration set out for the contaminant in that document.
    With respect to the Original ESDM Report, the Acceptable Point of Impingement Concentration for a Compound of Concern mentioned above is the concentration set out in the Original ESDM Report;
3. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 and Appendix A of the Basic Comprehensive User Guide, by Corey D. Kinart, MBA, P.Eng. / HGC Engineering and dated April 29, 2019 submitted in support of the application, that documents all sources of noise emissions and Noise Control Measures present at the Facility, as updated in accordance with Condition 5 of this Approval;
4. "Acoustic Assessment Summary Table" means a table prepared in accordance with the Basic Comprehensive User Guide summarising the results of the Acoustic Assessment Report, as updated in accordance with Condition 5 of this Approval;
5. "Acoustic Audit" means an investigative procedure consisting of measurements and/or acoustic modelling of all sources of noise emissions due to the operation of the Facility, assessed to determine compliance with the performance limits for the Facility regarding noise emissions, completed in accordance with the procedures set in Publication NPC-103 and reported in accordance with Publication NPC-233;
6. "Acoustic Audit Report" means a report presenting the results of an Acoustic Audit, prepared in accordance with Publication NPC-233;
7. "Acoustical Consultant" means a person currently active in the field of environmental acoustics and noise/vibration control, who is familiar with Ministry noise guidelines and procedures and has a combination of formal university education, training and experience necessary to assess noise emissions from a Facility;
8. "Approval" means this entire Environmental Compliance Approval and any Schedules to it;
9. "Basic Comprehensive User Guide" means the Ministry document titled "Basic Comprehensive Certificates of Approval (Air) User Guide” dated March 2011, as amended;
10. "Best Management Practices Plan" means a document or a set of documents which describe measures to minimize dust emissions from the Facility and/or

Equipment;

11. "Company" means King Paving & Construction Ltd. that is responsible for the construction or operation of the Facility and includes any successors and assigns in accordance with section 19 of the EPA;
12. "Compound of Concern" means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged from the Facility in an amount that is not negligible;
13. "Description Section" means the section on page one of this Approval describing the Company's operations and the Equipment located at the Facility and specifying the Facility Production Limit for the Facility;
14. "Director" means a person appointed for the purpose of section 20.3 of the EPA by the Minister pursuant to section 5 of the EPA;
15. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;
16. "Emission Summary Table" means a table described in paragraph 14 of subsection 26 (1) of O. Reg. 419/05;
17. "Environmental Assessment Act" means the Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended;
18. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
19. "Equipment" means equipment or processes described in the ESDM Report, this Approval and in the Schedules referred to herein and any other equipment or processes;
20. "Equipment with Specific Operational Limits" means any Equipment related to the thermal oxidation of waste or waste derived fuels, fume incinerators or any other Equipment that is specifically referenced in any published Ministry document that outlines specific operational guidance that must be considered by the Director in issuing an Approval;
21. "ESDM Report" means the most current Emission Summary and Dispersion Modelling Report that describes the Facility. The ESDM Report is based on the Original ESDM Report and is updated after the issuance of this Approval in accordance with section 26 of O. Reg. 419/05 and the Procedure Document;
22. "Facility" means the entire operation located on the property where the Equipment is located;
23. "Facility Production Limit" means the production limit placed by the Director on the main product(s) or raw materials used by the Facility;

24. "Independent Acoustical Consultant" means an Acoustical Consultant who is not representing the Company and was not involved in preparing the Acoustic Assessment Report or the design/implementation of Noise Control Measures for the Facility and/or Equipment. The Independent Acoustical Consultant shall not be retained by the Acoustical Consultant involved in the noise impact assessment or the design/implementation of Noise Control Measures for the Facility and/or Equipment;
25. "Log" means a document that contains a record of each change that is required to be made to the ESDM Report and Acoustic Assessment Report, including the date on which the change occurred. For example, a record would have to be made of a more accurate emission rate for a source of contaminant, more accurate meteorological data, a more accurate value of a parameter that is related to a source of contaminant, a change to a Point of Impingement and all changes to information associated with a Modification to the Facility that satisfies Condition 2;
26. "Minister" means the Minister of the Environment, Conservation and Parks or such other member of the Executive Council as may be assigned the administration of the EPA under the Executive Council Act;
27. "Ministry" means the ministry of the Minister;
28. "Modification" means any construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing, or alteration of a process or rate of production at the Facility that may discharge or alter the rate or manner of discharge of a Compound of Concern to the air or discharge or alter noise or vibration emissions from the Facility;
29. "Noise Control Measures" means measures to reduce the noise emissions from the Facility and/or Equipment including, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers, as outlined in the Acoustic Assessment Report;
30. "O. Reg. 419/05" means Ontario Regulation 419/05, Air Pollution – Local Air Quality, as amended;
31. "Original ESDM Report" means the Emission Summary and Dispersion Modelling Report which was prepared in accordance with section 26 of O. Reg. 419/05 and the Procedure Document by BCX Environmental Consulting and dated August 14, 2019 submitted in support of the application, and includes any changes to the report made up to the date of issuance of this Approval;
32. "Point of Impingement" has the same meaning as in section 2 of O. Reg. 419/05;
33. "Point of Reception" means Point of Reception as defined by Publication NPC-300;
34. "Procedure Document" means Ministry guidance document titled "Procedure for

Preparing an Emission Summary and Dispersion Modelling Report" dated March 2018, as amended;

35. "Processes with Significant Environmental Aspects" means the Equipment which, during regular operation, would discharge one or more contaminants into the air in an amount which is not considered as negligible in accordance with section 26 (1) 4 of O. Reg. 419/05 and the Procedure Document;
36. "Publication NPC-103" means the Ministry Publication NPC-103 of the Model Municipal Noise Control By-Law, Final Report, August 1978, as amended;
37. "Publication NPC-207" means the Ministry draft technical publication "Impulse Vibration in Residential Buildings", November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, published by the Ministry, August 1978, as amended;
38. "Publication NPC-233" means the Ministry Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995, as amended;
39. "Publication NPC-300" means the Ministry Publication NPC-300, “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300”, August 2013, as amended;
40. "Schedules" means the following schedules attached to this Approval and forming part of this Approval namely:
    - Schedule A - Supporting Documentation
41. "Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources" means the Ministry publication "Technical Bulletin: management approaches for industrial fugitive dust sources", March 8, 2017, as amended;
42. "Toxicologist" means a qualified professional currently active in the field of risk assessment and toxicology that has a combination of formal university education, training and experience necessary to assess contaminants; and
43. "Written Summary Form" means the electronic questionnaire form, available on the Ministry website, and supporting documentation, that documents the activities undertaken at the Facility in the previous calendar year.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. **GENERAL**
    1. Except as otherwise provided by this Approval, the Facility shall be designed, developed, built, operated and maintained in accordance with the terms and conditions of this Approval and in accordance with the following Schedules attached hereto:
        - Schedule A - Supporting Documentation

2. **LIMITED OPERATIONAL FLEXIBILITY**
    1. Pursuant to section 20.6 (1) of the EPA and subject to Conditions 2.2 and 2.3 of this Approval, future construction, alterations, extensions or replacements are approved in this Approval if the future construction, alterations, extensions or replacements are Modifications to the Facility that:
        a. are within the scope of the operations of the Facility as described in the Description Section of this Approval;
        b. do not result in an increase of the Facility Production Limit above the level specified in the Description Section of this Approval; and
        c. result in compliance with the performance limits as specified in Condition 4.
    2. Condition 2.1 does not apply to,
        a. the addition of any new Equipment with Specific Operational Limits or to the Modification of any existing Equipment with Specific Operational Limits at the Facility; and
        b. Modifications to the Facility that would be subject to the Environmental Assessment Act.
    3. Condition 2.1 of this Approval shall expire ten (10) years from the date of this Approval, unless this Approval is revoked prior to the expiry date. The Company may apply for renewal of Condition 2.1 of this Approval by including an ESDM Report and an Acoustic Assessment Report that describes the Facility as of the date of the renewal application.

3. **REQUIREMENT TO REQUEST AN ACCEPTABLE POINT OF IMPINGEMENT CONCENTRATION**
    1. Prior to making a Modification to the Facility that satisfies Condition 2.1.a. and 2.1.b., the Company shall prepare a proposed update to the ESDM Report to reflect the proposed Modification.
    2. The Company shall request approval of an Acceptable Point of Impingement Concentration for a Compound of Concern if the Compound of Concern is not identified in the ACB list as belonging to the category “Benchmark 1” and a proposed update to an ESDM Report indicates that one of the following

changes with respect to the concentration of the Compound of Concern may occur:

a. The Compound of Concern was not a Compound of Concern in the previous version of the ESDM Report and
    i. the concentration of the Compound of Concern exceeds the concentration set out for the contaminant in the ACB list; or
    ii. the Compound of Concern is not identified in the ACB list; or

b. The concentration of the Compound of Concern in the updated ESDM Report exceeds the higher of,
    i. the most recent Acceptable Point of Impingement Concentration, and
    ii. the concentration set out for the contaminant in the ACB list,if the contaminant is identified in that document.

3. The request required by Condition 3.2 shall propose a concentration for the Compound of Concern and shall contain an assessment, performed by a Toxicologist, of the likelihood of the proposed concentration causing an adverse effect at Points of Impingement.
4. If the request required by Condition 3.2 is a result of a proposed Modification described in Condition 3.1, the Company shall submit the request, in writing, to the Director at least 30 days prior to commencing to make the Modification. The Director shall provide written confirmation of receipt of this request to the Company.
5. If a request is required to be made under Condition 3.2 in respect of a proposed Modification described in Condition 3.1, the Company shall not make the Modification mentioned in Condition 3.1 unless the request is approved in writing by the Director.
6. If the Director notifies the Company in writing that the Director does not approve the request, the Company shall,
    a. revise and resubmit the request; or
    b. notify the Director that it will not be making the Modification.
7. The re-submission mentioned in Condition 3.6 shall be deemed a new submission under Condition 3.2.
8. If the Director approves the request, the Company shall update the ESDM Report to reflect the Modification.
9. Condition 3 does not apply if Condition 2.1 has expired.

4. **PERFORMANCE LIMITS**

1. Subject to Condition 4.2, the Company shall not discharge or cause or permit the discharge of a Compound of Concern into the air if,
    a. the Compound of Concern is identified in the ACB list as belonging to the category "Benchmark 1" and the discharge results in the concentration at a Point of Impingement exceeding the Benchmark 1 concentration; or
    b. the Compound of Concern is not identified in the ACB list as belonging to the category “Benchmark 1” and the discharge results in the concentration at a Point of Impingement exceeding the higher of,
        i. if an Acceptable Point of Impingement Concentration exists, the most recent Acceptable Point of Impingement Concentration, and
        ii. the concentration set out for the contaminant in the ACB list, if the contaminant is identified in that document.

2. Condition 4.1 does not apply if the benchmark set out in the ACB list has a 10-minute averaging period and no ambient monitor indicates an exceedance at a Point of Impingement where human activities regularly occur at a time when those activities regularly occur.
3. The Company shall:
    a. implement by not later than one (1) year from the date of this Approval, the Noise Control Measures as outlined in Section 8 of the Acoustic Assessment Report;
    b. restrict all crushing operations as outlined in Section 6 of the Acoustic Assessment Report;
    c. ensure, subsequent to the implementation of the proposed Noise Control Measures that the noise emissions from the Facility comply with the limits set in Ministry Publication NPC-300; and
    d. ensure that the Noise Control Measures are properly maintained and continue to provide the acoustical performance outlined in the Acoustic Assessment Report.
4. The Company shall ensure that the vibration emissions from the Facility comply with the limits set out in Ministry Publication NPC-207.
5. The Company shall operate any Equipment with Specific Operational Limits approved by this Approval in accordance with the Original ESDM Report.
6. The Company shall at all times comply with the Conditions 4(6)(a) to 4(6)(g), unless a modification assessment(s) is completed and demonstrate compliance with the Conditions 4.1 and 4.2 of this Approval;

a. daily production limit;
    i. up to 3,200 tonnes of HMA per day produced by HMA plant;
    ii. up to 2,000 tonnes of recycled concrete (RC)/ recycled asphalt product (RAP) delivered/shipped by the Aggregate Depot;
    iii. up to 2,000 tonnes of crushed recycled concrete (RC)/ recycled asphalt product (RAP), processed by the Company or a third party at the Facility;
    iv. up to 240 tonnes per day of liquid asphalt receiving per day at the maximum temperature of 165 degrees Celsius (325°F);

b. The Company shall prepare and implement procedures to monitor and keep records of the loss on heating (ASTM Method D2872 - Rolling Thin Film Oven Test) of the received liquid asphalt cement to ensure the annual average loss on heating for the received liquid asphalt cement is not greater than 0.50%.

c. The Company shall prepare and implement procedures to determine and keep records of the temperatures of HMA as it leaves the mixing process to ensure the HMA temperature does not exceed 176 degrees Celsius (325°F).

d. The Company shall prepare and implement procedures to monitor and keep records of liquid asphalt cement storage tanks temperature, to ensure that liquid asphalt cement storage tanks do not operate above 165 degrees Celsius (325°F).

e. The Company shall prepare and implement procedures to monitor and keep records of the production limits listed in the Condition 4(6)(a); and

f. The third party portable crushing plant, including associated equipment and operations, should be located in accordance with the ESDM Report.

5. **DOCUMENTATION REQUIREMENTS**
    1. The Company shall maintain an up-to-date Log.
    2. No later than June 30 of each year, the Company shall update the Acoustic Assessment Report and shall update the ESDM Report in accordance with section 26 of O. Reg. 419/05 so that the information in the reports is accurate as of December 31 in the previous year.
    3. The Company shall make the Emission Summary Table (see section 27 of O. Reg. 419/05) and Acoustic Assessment Summary Table available for examination by any person, without charge, by posting it on the Internet or by making it available during regular business hours at the Facility.

4. The Company shall, within three (3) months after the expiry of Condition 2.1 of this Approval, update the ESDM Report and the Acoustic Assessment Report such that the information in the reports is accurate as of the date that Condition 2.1 of this Approval expired.
5. Conditions 5.1 and 5.2 do not apply if Condition 2.1 has expired.

6. **REPORTING REQUIREMENTS**
    1. Subject to Condition 6.2, the Company shall provide the Director no later than August 31 of each year, a Written Summary Form to be submitted through the Ministry's website that shall include the following:
        a. a declaration of whether the Facility was in compliance with section 9 of the EPA, O. Reg. 419/05 and the conditions of this Approval;
        b. a summary of each Modification satisfying Condition 2.1.a. and 2.1.b. that took place in the previous calendar year that resulted in a change in the previously calculated concentration at a Point of Impingement for any Compound of Concern or resulted in a change in the sound levels reported in the Acoustic Assessment Summary Table at any Point of Reception.
    2. Condition 6.1 does not apply if Condition 2.1 has expired.

7. **OPERATION AND MAINTENANCE**
    1. The Company shall prepare and implement, not later than three (3) months from the date of this Approval, operating procedures and maintenance programs for all Processes with Significant Environmental Aspects, which shall specify as a minimum:
        a. frequency of inspections and scheduled preventative maintenance;
        b. procedures to prevent upset conditions;
        c. procedures to minimize all fugitive emissions;
        d. procedures to prevent and/or minimize odorous emissions;
        e. procedures to prevent and/or minimize noise emissions; and
        f. procedures for record keeping activities relating to the operation and maintenance programs.
    2. The Company shall ensure that all Processes with Significant Environmental Aspects are operated and maintained in accordance with this Approval, the operating procedures and maintenance programs.

8. **TECHNICAL SPECIFICATIONS**
    1. No later than July 1, 2022, the Company shall ensure that one of more

scavenging systems are installed to capture registered contaminants from each AM drag conveyor, AM storage silo transfer conveyor and AM storage silo batcher at the Facility.

2. The Company shall ensure that a scavenging system installed at the Facility is operated at all times that an associated AM drag conveyor conveys asphalt mix or an associated AM storage silo is loaded with asphalt mix.
3. The Company shall ensure that the scavenging system conveys the contaminated air to one of the following:
    1. a wet scrubber that was installed at the Facility before January 1, 2020;
    2. an air pollution control device other than a wet scrubber; or,
    3. a dryer, the discharge from which is captured and conveyed to an air pollution control device.
4. The Company shall ensure that the air pollution control device or dryer that a scavenging system conveys captured air to in accordance with Condition 8.3 is in operation at all times that the scavenging system is operated.

9. **COMPLAINTS RECORDING AND REPORTING**
    1. If at any time, the Company receives an environmental complaint from the public regarding the operation of the Equipment approved by this Approval, the Company shall take the following steps:
        a. Record and number each complaint, either electronically or in a log book. The record shall include the following information: the time and date of the complaint and incident to which the complaint relates, the nature of the complaint, wind direction at the time and date of the incident to which the complaint relates and, if known, the address of the complainant.
        b. Notify the District Manager of the complaint within two (2) business days after the complaint is received, or in a manner acceptable to the District Manager.
        c. Initiate appropriate steps to determine all possible causes of the complaint, and take the necessary actions to appropriately deal with the cause of the subject matter of the complaint.
        d. Complete and retain on-site a report written within one (1) week of the complaint date. The report shall list the actions taken to appropriately deal with the cause of the complaint and set out steps to be taken to avoid the recurrence of similar incidents.

10. **RECORD KEEPING REQUIREMENTS**

1. Any information requested by any employee in or agent of the Ministry concerning the Facility and its operation under this Approval, including, but not limited to, any records required to be kept by this Approval, shall be provided to the employee in or agent of the Ministry, upon request**,** in a timely manner.
2. Unless otherwise specified in this Approval, the Company shall retain, for a minimum of five (5) years from the date of their creation all reports, records and information described in this Approval, including,
    a. a copy of the Original ESDM Report and each updated version;
    b. a copy of each version of the Acoustic Assessment Report;
    c. supporting information used in the emission rate calculations performed in the ESDM Reports and Acoustic Assessment Reports;
    d. the records in the Log;
    e. copies of each Written Summary Form provided to the Ministry under Condition 6.1 of this Approval;
    f. records of maintenance, repair and inspection of Equipment related to all Processes with Significant Environmental Aspects;
    g. daily production records; and
    h. all records related to environmental complaints made by the public as required by Condition 8 of this Approval.

11. **FUGITIVE DUST CONTROL**
    1. The Company shall develop in consultation with the District Manager, a Best Management Practices Plan for the control of fugitive dust emissions. This Best Management Practices Plan shall:
        a. at minimum, be prepared in accordance with Ministry Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources; and
        b. include a list of all Ministry comments received, if any, on the development of the Best Management Practices Plan, and a description of how each Ministry comment was addressed in the Best Management Practices Plan.
    2. The Company shall submit the Best Management Practices Plan to the District Manager not later than three (3) months after the date of this Approval or as otherwise indicated by the District Manager.
    3. Upon acceptance of the Best Management Practices Plan by the District Manager, the Company shall immediately implement the Best Management Practices Plan for the control of fugitive dust emissions to provide effective

dust suppression measures to any potential sources of fugitive dust emissions resulting from the operation of the Facility.

4. The Company shall update the Best Management Practices Plan as necessary or at the direction of the District Manager.

12. **REVOCATION OF PREVIOUS APPROVALS**
    1. This Approval replaces and revokes all Certificates of Approval (Air) issued under section 9 EPA and Environmental Compliance Approvals issued under Part II.1 EPA to the Facility in regards to the activities mentioned in subsection 9(1) of the EPA and dated prior to the date of this Approval.

13. **ACOUSTIC AUDIT**
    1. The Company shall carry out Acoustic Audit measurements on the actual noise emissions due to the operation of the Facility. The Company:
        a. shall carry out Acoustic Audit measurements in accordance with the procedures in Publication NPC-103;
        b. shall submit an Acoustic Audit Report on the results of the Acoustic Audit, prepared by an Independent Acoustical Consultant, in accordance with the requirements of Publication NPC-233, to the District Manager and the Director not later than nine (9) months after the full implementation of the Noise Control Measures.
    2. The Director:
        a. may not accept the results of the Acoustic Audit if the requirements of Publication NPC-233 were not followed;
        b. may require the Company to repeat the Acoustic Audit if the results of the Acoustic Audit are found unacceptable to the Director.

SCHEDULE A

Supporting Documentation

1. Environmental Compliance Approval Application, dated August 13, 2019, signed by John Hutter and submitted by the Company;
2. Emission Summary and Dispersion Modelling Report, prepared by BCX Environmental Consulting and dated August 14, 2019;
3. Acoustic Assessment Report, prepared by HGC Engineering, dated April 29, 2019 and signed by Corey D. Kinart, MBA, P.Eng.

The reasons for the imposition of these terms and conditions are as follows:

1. **GENERAL**
   Condition No. 1 is included to require the Approval holder to build, operate and maintain the Facility in accordance with the Supporting Documentation in Schedule A considered by the Director in issuing this Approval.
2. **LIMITED OPERATIONAL FLEXIBILITY, REQUIREMENT TO REQUEST AN ACCEPTABLE POINT OF IMPINGEMENT CONCENTRATION AND PERFORMANCE LIMITS**
   Conditions No. 2, 3 and 4 are included to limit and define the Modifications permitted by this Approval, and to set out the circumstances in which the Company shall request approval of an Acceptable Point of Impingement Concentration prior to making Modifications. The holder of the Approval is approved for operational flexibility for the Facility that is consistent with the description of the operations included with the application up to the Facility Production Limit. In return for the operational flexibility, the Approval places performance based limits that cannot be exceeded under the terms of this Approval. Approval holders will still have to obtain other relevant approvals required to operate the Facility, including requirements under other environmental legislation such as the Environmental Assessment Act.
3. **DOCUMENTATION REQUIREMENTS**
   Condition No. 5 is included to require the Company to maintain ongoing documentation that demonstrates compliance with the performance limits as specified in Condition 4 of this Approval and allows the Ministry to monitor on-going compliance with these performance limits. The Company is required to have an up to date ESDM Report and Acoustic Assessment Report that describe the Facility at all times and make the Emission Summary Table and Acoustic Assessment Summary Table from these reports available to the public on an ongoing basis in order to maintain public communication with regard to the emissions from the Facility.
4. **REPORTING REQUIREMENTS**
   Condition No. 6 is included to require the Company to provide a yearly Written Summary Form to the Ministry, to assist the Ministry with the review of the site's compliance with the EPA, the regulations and this Approval.
5. **OPERATION AND MAINTENANCE AND TECHNICAL SPECIFICATIONS**
   Conditions No. 7 and 8 are included to require the Company to properly operate and maintain the Processes with Significant Environmental Aspects to minimize the impact to the environment from these processes.
6. **COMPLAINTS RECORDING AND REPORTING PROCEDURE**
   Condition No. 9 is included to require the Company to respond to any environmental complaints regarding the operation of the Equipment, according to a procedure that includes methods for preventing recurrence of similar incidents

and a requirement to prepare and retain a written report.

7. **RECORD KEEPING REQUIREMENTS**
   Condition No. 10 is included to require the Company to retain all documentation related to this Approval and provide access to employees in or agents of the Ministry, upon request, so that the Ministry can determine if a more detailed review of compliance with the performance limits as specified in Condition 4 of this Approval is necessary.
8. **FUGITIVE DUST CONTROL**
   Condition No. 11 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the Regulations and this Approval.
9. **REVOCATION OF PREVIOUS APPROVALS**
   Condition No. 12 is included to identify that this Approval replaces all Section 9 Certificate(s) of Approval and Part II.1 Approvals in regards to the activities mentioned in subsection 9(1) of the EPA and dated prior to the date of this Approval.
10. **ACOUSTIC AUDIT**
    Condition No. 13 is included to require the Company to gather accurate information and submit an Acoustic Audit Report in accordance with procedures set in the Ministry's noise guidelines, so that the environmental impact and subsequent compliance with this Approval can be verified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 3669-5TPS2E issued on December 4, 2003

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5	AND	The Minister of the Environment, Conservation and Parks 777 Bay Street, 5th Floor Toronto, Ontario M7A 2J3	AND	The Director appointed for the purposes of Part II.1 of the Environmental Protection Act Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or** www.ert.gov.on.ca

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at https://ero.ontario.ca/, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 1st day of June, 2021

Neryed Ragbar, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

AB/
c: District Manager, MECP Halton-Peel
Megan Ostronic, BCX Environmental Consulting

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

BAM Trucking ECA

Content Copy Of Original

Ontario

Ministry of the Environment
Ministère de l'Environnement

ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 4307-8XUJ9Q
Issue Date: September 27, 2012

Bulkwood Products Inc.
1140 Waterdown Rd
Burlington, Ontario
L7T 4A8

Site Location: 1140 Waterdown Road
1140 Waterdown Rd
Burlington City, Regional Municipality of Halton
L7T 4A8

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act , R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- one (1) horizontal wood grinder, having a maximum wood processing rate of 22,000 kilograms per hour, equipped with a diesel fired engine rated at 470 kilowatts and operating at reduced load of 75%, discharging products of combustion to the atmosphere at a volumetric flow rate of 1.74 cubic metres per second, through a stack having an exit diameter of 0.13 metre;

all in accordance with the Application for Approval (Air & Noise) submitted by Bulkwood Products Inc., dated February 17, 2011 and signed by Monika Promny, Owner; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Airzone One Ltd., dated April 15, 2011 and signed by Jessica Mousseau.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
2. "Best Management Practices Plan" means a document or a set of documents which describe measures to minimize dust emissions from the Facility and/or Equipment.

3. "Company" means Bulkwood Products Inc., that is responsible for the construction or operation of the Facility and includes any successors and assigns;

4. "Director" means any Ministry employee appointed by the Minister pursuant to Section 5 of the EPA.

5. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;

6. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;

7. "Equipment" means the equipment and processes described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;

8. "Facility" means the entire operation located on the property where the Equipment is located;

9. "Manual" means a document or a set of documents that provide written instructions to staff of the Company;

10. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf; and

11. "Publication NPC-205" means Ministry Publication NPC-205 "Sound level Limits for Stationary Sources in Class 1 & 2 Areas (Urban)", October 1995, as amended.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

OPERATION AND MAINTENANCE

1. The Company shall ensure that the noise emissions from the Equipment comply with the limits set in Publication NPC-205.

2. The Company shall restrict the operation of the Equipment to the daytime hours from 7:00 am to 7:00 pm.

3. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Approval, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment; and

(d) all appropriate measures to minimize noise emissions from all potential sources; and

(2) implement the recommendations of the Manual.

FUGITIVE DUST CONTROL

4. The Company shall develop in consultation with the District Manager and acceptable to the Director, a Best Management Practices Plan for the control of fugitive dust emissions. This Best Management Practices Plan shall include, but not be limited to:

(1) identification of the main sources of fugitive dust emissions such as:

(a) on-site traffic;

(b) paved roads/areas;

(c) unpaved roads/areas;

(d) material stock piles;

(e) loading/unloading areas and loading/unloading techniques;

(f) material spills;

(g) material conveyance systems;

(h) exposed openings in process and storage buildings; and

(i) general work areas;

(2) potential causes for high dust emissions and opacity resulting from these sources;
(3) preventative and control measures in place or under development to minimize the likelihood of high dust emissions and opacity from the sources of fugitive dust emissions identified above. Details of the preventative and control measures shall include:

(a) a description of the control equipment to be installed;

(b) a description of the preventative procedures to be implemented; and/or

(c) the frequency of occurrence of periodic preventative activities, including material application rates, as applicable;

(4) an implementation schedule for the Best Management Practices Plan, including training of Facility personnel;
(5) inspection and maintenance procedures and monitoring initiatives to ensure effective implementation of the preventative and control measures; and

(6) a list of all Ministry comments received, if any, on the development of the Best Management Practices Plan, and a description of how each Ministry comment was addressed in the Best Management Practices Plan.

5. The Company shall submit the Best Management Practices Plan to the Director and the District Manager not later than six months after the date of this Approval.

(1) The Director may not accept the Best Management Practices Plan if the minimum requirements described in Condition No. 2 were not included in the Best Management Practices Plan.

(2) If the Best Management Practices Plan is not accepted by the Director, the Company shall submit a Best Management Practices Plan acceptable to the Director not later than nine months after the date of this Approval.

6. Upon acceptance of the Best Management Practices Plan by the Director, the Company shall immediately implement the Best Management Practices Plan for the control of fugitive dust emissions to provide effective dust suppression measures to any potential sources of fugitive dust emissions resulting from the operation of the Facility.

DOCUMENTATION REQUIREMENTS

7. The Company shall record, in a log book, each time a specific preventative and control measure described in the Best Management Practices Plan is implemented. The Company shall record, as a minimum:

(1) the date when each emission control measure is installed, including a description of the control measure;

(2) the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and

(3) the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

RECORD RETENTION

8. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:

(1) all records on the maintenance, repair and inspection of the Equipment;

(2) all records on the daily operation of the Equipment, including:

(a) daily production rate; and

(b) daily start-up and shut-down times of the Equipment;

(3) all records of any upset conditions associated with the operation of the Equipment;

(4) the log book which contains all records on the preventative and control measures implemented for each source of fugitive dust emission identified in the Best Management Practices Plan;

(5) all records on the environmental complaints, including:

(a) a description, time, date and location of each incident;

(b) operating conditions (e.g. upset conditions, etc.) at the time of the incident;

(c) wind direction and other weather conditions at the time of the incident;

(d) the name(s) of Company personnel responsible for handling the incident;

(e) the cause of the incident;

(f) the Company response to the incident; and

(g) a description of the measures taken to address the cause of the incident and to prevent a similar occurrence in the future, and the outcome of the measures taken.

NOTIFICATION OF COMPLAINTS

9. The Company shall notify the District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

(1) a description of the nature of the complaint;

(2) the time and date of the incident to which the complaint relates;

(3) the wind direction and other weather conditions at the time of the incident; and

(4) the name(s) of Company personnel responsible for handling the incident.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition No. 1 is included to provide minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Equipment.
2. Condition No. 2 is included to ensure that the proposed operation is not extended beyond the stated hours. Operation outside these hours, when ambient sound levels are significantly lower, may result in non-compliance with the established sound level limits. This condition is also included to emphasize that the Equipment must be operated according to a procedure that will result in compliance with the EPA, the Regulations and this Approval.

3. Condition Nos. 3 to 6 are included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the Regulations and this Approval.

4. Condition Nos. 7 and 8 are included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the Regulations and this Approval can be verified.

5. Condition No. 9 is included to require the Company to notify staff of the Ministry so as to assist the Ministry with the review of the site's compliance.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993 , S.O. 1993, c. 28 (Environmental Bill of Rights), the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5	AND	The Environmental Commissioner 1075 Bay Street, Suite 605 Toronto, Ontario M5S 2B1	AND	The Director appointed for the purposes of Part II.1 of the Environmental Protection Act Ministry of the Environment 2 St. Clair Avenue West, Floor 12A Toronto, Ontario M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ebr.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 27th day of September, 2012

Ian Parrott, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

AA/
c: District Manager, MOE Halton-Peel District Office
Jessica Mousseau, Airzone One Ltd.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

St. Marys ECA

Content Copy Of Original

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER 9841-BNUR2A
Issue Date: April 29, 2020

St. Marys Cement Inc. (Canada) operating as CBM Ready Mix
55 Industrial Street
Toronto, Ontario
M4G 3W9

Site Location: 1093 Howard Road
Burlington City, Regional Municipality of Halton

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act , R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

one (1) ready-mix concrete batching plant (Main RMC Plant), having a maximum production rate of 1000 cubic metres per day, including the following equipment:

- one (1) baghouse dust collector, to control emissions from storage Silo #1 having a storage capacity of 65 tonnes and a cement pig having a storage capacity of 140 tonnes, complete with polyester filter material having a filtering area of 16.7 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 0.43 cubic metre per second through a stack having an exit diameter of 0.2 metre, extending 17.5 metres above grade;
- one (1) baghouse dust collector, to control emissions from storage Silo #2 having a storage capacity of 45 tonnes, complete with polyester filter material having a filtering area of 28.8 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 0.43 cubic metre per second through a stack having an exit diameter of 0.2 metre, extending 14 metres above grade;
- one (1) baghouse dust collector, to control emissions from storage Silo #3a having a storage capacity of 69 tonnes, complete with polyester filter material having a filtering area of 16.2 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 0.43 cubic metre per second through a stack having an exit diameter of 0.2 metre, extending 25.5 metres above grade;
- one (1) baghouse dust collector, to control emissions from storage Silo #3b having a storage capacity of 73 tonnes, complete with polyester filter material having a filtering area of 16.2 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 0.43 cubic metre per

second through a stack having an exit diameter of 0.2 metre, extending 25.5 metres above grade;

- one (1) baghouse dust collector, to control emissions from the cement scale, complete with polyester filter material having a filtering area of 11.1 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 0.43 cubic metre per second through a stack having an exit diameter of 0.2 metre, extending 13 metres above grade;
- one (1) loading point dust collection system, to control emissions from the loading point, complete with polyester filter material having a filtering area of 56 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 2.36 cubic metre per second through a stack having an exit diameter of 0.4 metre, extending 10 metres above grade;
- one (1) natural gas fired hot water boiler, having a maximum thermal input of 8,850,000 kilojoules per hour, discharging to the air through a stack having an exit diameter of 0.45 metre, extending 9 metres above the roof and 13 metres above grade; and
- fugitive emissions resulting from the delivery, storage and transfer of materials associated with the ready-mix concrete batching operations;

one (1) portable ready-mix concrete batching plant (Portable RMC Plant) operated on a permanent basis, having a maximum production rate of 375 cubic metres per day, including the following equipment:

- one (1) baghouse dust collector to control emissions from storage Silo #1 having a storage capacity of 44 tonnes); storage Silo #2 having a storage capacity 40 tonnes; cement weight scale and loading point, complete with polyester filter material having a filtering area of 100.6 square metres and a pulse-jet type cleaning system, discharging to the air with a maximum volumetric flow rate of 3.1 cubic metre per second through a stack having an exit dimension of 0.5 metre x 0.4 metre extending 3.7 metres above grade; and
- fugitive emissions resulting from the delivery, storage and transfer of materials associated with the ready-mix concrete batching operations;

all in accordance with the Environmental Compliance Approval application submitted by St. Marys Cement Inc. (Canada), dated April 30, 2019 and signed by Colin Evans, Director, Lands and Environment; the supporting Emission Summary and Dispersion Modelling report prepared by BCX Environmental Consulting, dated April 30, 2019 and signed by Jaime Anderson and Colin Evans; additional air emissions related information provided by BCX Environmental Consulting on April 22, 2020; and the *Acoustic Assessment Report* prepared by HGC Engineering, dated June 28, 2019 and signed by Swetha Kulandaivelan.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "*Acoustic Assessment Report"* means the report, prepared in accordance with *Publication NPC-233* submitted in support of the application, that documents all sources of noise emissions and *Noise Control Measures* present at the *Facility*. *"Acoustic Assessment Report"* also means the Acoustic Assessment Report prepared by HGC Engineering, dated June 28, 2019 and signed by Swetha Kulandaivelan;
2. "*Approval"* means this Environmental Compliance Approval, including the application and supporting documentation listed above;
3. "*Best Management Practices Plan"* means the measures to minimize dust emissions from the *Facility* roads, storage piles and material handling sources and includes the document titled "Best Management Practices Plan for the Control of Fugitive Dust Emissions, CBM Burlington Plant, 1093 Howard Road, Burlington, January 2017", as amended;
4. "*Company"* means St. Marys Cement Inc. (Canada) operating as CBM Ready Mix, that is responsible for the construction or operation of the *Facility* and includes any successors and assigns;
5. "*District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located;
6. "*EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended ;
7. "*Equipment"* means the ready-mix concrete batching equipment described in the *Company*'s application, this *Approval* and in the supporting documentation submitted with the application, to the extent approved by this *Approval;*
8. "*Facility"* means the entire operation located on the property where the *Equipment* is located;
9. "*Manual"* means a document or a set of documents that provide written instructions to staff of the *Company;*
10. "*Ministry"* means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf;
11. "*Noise Control Measures"* means measures to reduce the noise emission from the *Facility* including, but not limited to silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers. It also means the noise control measures outlined in the *Acoustic Assessment Report;*
12. "*Publication NPC-233"* means the *Ministry* Publication NPC-233, "Information to

be Submitted for Approval of Stationary Sources of Sound", October, 1995 as amended;

13. "*Publication NPC-300"* means the *Ministry* Publication NPC-300, “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300”, August 2013, as amended.
14. "*Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources"* means the *Ministry* publication "Technical Bulletin: management approaches for industrial fugitive dust sources", March 8, 2017, as amended; and
15. "*Truck(s)"* means ready-mix truck(s), aggregate truck(s), sand trucks or cement powder tanker truck(s);

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. **OPERATION AND MAINTENANCE**
    1. The *Company* shall ensure that the *Equipment* is properly operated and maintained at all times. The *Company* shall:
        a. prepare, not later than three (3) months after the date of this *Approval,* and update, as necessary, a *Manual* outlining the operating procedures and a maintenance program for the *Equipment,* including:
            i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the *Equipment* suppliers;
            ii. emergency procedures, including spill clean-up procedures;
            iii. procedures for any record keeping activities relating to operation and maintenance of the *Equipment;*
            iv. all appropriate measures to minimize noise emissions from all potential sources; and
            v. the frequency of inspection and replacement of the filter material in the *Equipment;*
        b. implement the recommendations of the *Manual.*
    2. The *Company* shall ensure that the RMC Plant building/Aggregate Storage building at the Main RMC Plant is fully enclosed and is not vented through a general ventilation system. All building doors shall be kept closed at all

times, except when being used for entrance and exit of personnel and/or movement of equipment.

2. **RECORD RETENTION**
    1. The *Company* shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this *Approval,* and make these records available for review by staff of the *Ministry* upon request. The *Company* shall retain:
        a. all records on the maintenance, repair and inspection of the *Equipment;*
        b. all records related to the preventative and control measures implemented as required by the section titled "Fugitive Dust Control" of this *Approval;*
        c. all records related to environmental complaints made by the public as required by Condition 3 of this *Approval.*
        d. all records of any environmental complaints, including:
            i. a description, time and date of each incident to which the complaint relates;
            ii. wind direction at the time of the incident to which the complaint relates;
            iii. the name(s) of *Company* personnel responsible for handling the incident;
            iv. the cause of the incident; and
            v. a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

3. **NOTIFICATION OF COMPLAINTS**
    1. The *Company* shall notify the *District Manager,* in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:
        a. a description of the nature of the complaint;
        b. the time and date of the incident to which the complaint relates;
        c. the wind direction and other weather conditions at the time of the incident; and
        d. the name(s) of *Company* personnel responsible for handling the incident.

4. **FUGITIVE DUST CONTROL**
    1. The *Company* shall:
        a. update the *Best Management Practices Plan* within six (6) months from the issuance of the this *Approval,* to include measures to minimize fugitive dust emissions from the Portable RMC Plant. The update shall be carried out consistent with the *Ministry* document *"Technical Bulletin: Management Approaches for Industrial Fugitive Dust Sources"*
        b. review and evaluate on an annual basis, the *Best Management Practices Plan.*
        c. record the results of each annual review and update as required the *Best Management Practices Plan* within two (2) months of the completion of the annual review;
        d. maintain the updated *Best Management Practices Plan* at the *Facility;*
        e. implement, at all times, the most recent version of the *Best Management Practices Plan.*
    2. The *Company* shall record, either electronically or in a log book, each time a specific preventative and control measure described in the *Best Management Practices Plan* is implemented. The *Company* shall record, as a minimum:
        a. the date when each emission control measure is implemented, including a description of the control measure;
        b. the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and
        c. the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

5. **NOISE**
    1. The *Company* shall:
        a. implement not later than six (6) months from the date of this *Approval,* the *Noise Control Measures* as outlined in the *Acoustic Assessment Report;*
        b. following the implementation of the *Noise Control Measures,* comply with the limits set out in *Publication NPC-300;*
        c. properly maintain the *Noise Control Measures* ensuring that they continue to meet the acoustical performance outlined in the *Acoustic*

Assessment Report;

d. limit *Trucks* arrivals and departures during the daytime hours of 7 a.m. to 7 p.m. for the Main RMC Plant, in accordance with the following:
    i. a maximum of fourteen (14) ready-mix trucks per sixty (60) minute period;
    ii. a maximum of eight (8) aggregate or sand trucks per sixty (60) minute period;
    iii. a maximum of two (2) cementitious material tanker trucks per sixty (60) minute period;

e. limit *Trucks* arrivals and departures during the evening-time hours of 7 p.m. to 11 p.m. for the Main RMC Plant, in accordance with the following:
    i. a maximum of fourteen (14) ready-mix trucks per sixty (60) minute period;
    ii. a maximum of eight (8) aggregate or sand trucks per sixty (60) minute period;
    iii. a maximum of two (2) cementitious material tanker trucks per sixty (60) minute period;

f. limit *Trucks* arrivals and departures during the night-time hours of 11 p.m. to 7 a.m. for the Main RMC Plant, in accordance with the following:
    i. a maximum of four (4) ready-mix trucks per sixty (60) minute period;
    ii. a maximum of eight (8) aggregate or sand trucks per sixty (60) minute period;
    iii. a maximum of one (1) cementitious material tanker trucks per sixty (60) minute period.

g. limit *Trucks* arrivals and departures during the daytime hours of 7 a.m. to 7 p.m. for the Portable RMC Plant, in accordance with the following:
    i. a maximum of eleven (11) ready-mix trucks per sixty (60) minute period;
    ii. a maximum of five (5) aggregate or sand trucks per sixty (60) minute period;
    iii. a maximum of one (1) cementitious material tanker truck per sixty (60) minute period;

h. limit *Trucks* arrivals and departures during the evening-time hours of 7

p.m. to 11 p.m. for the Portable RMC Plant, in accordance with the following:

i. a maximum of eleven (11) ready-mix trucks per sixty (60) minute period;

ii. a maximum of five (5) aggregate or sand trucks per sixty (60) minute period;

iii. a maximum of one (1) cementitious material tanker truck per sixty (60) minute period; and

i. limit *Trucks* arrivals and departures during the night-time hours of 7 p.m. to 7 a.m. for the Portable RMC Plant, in accordance with the following:

i. a maximum of six (6) ready-mix trucks per sixty (60) minute period; and

ii. a maximum of five (5) aggregate or sand trucks per sixty (60) minute period;

2. The *Company* shall::

a. restrict the operation of the cement powder tanker trucks serving the Portable RMC Plant to the hours from 7 a.m. to 11 p.m.; and

b. ensure that the Main RMC Plant and the Portable RMC Plant do not operate simultaneously during the night-time hours from 11 p.m. to 7 a.m.

The reasons for the imposition of these terms and conditions are as follows:

1. Conditions No. 1 and 4.1 are included to emphasize that the *Equipment* must be maintained and operated according to a procedure that will result in compliance with the *EPA,* the Regulations and this *Approval.*
2. Conditions No. 2 and 4.2 are included to require the *Company* to keep records and to provide information to staff of the *Ministry* so that compliance with the *EPA,* the Regulations and this *Approval* can be verified.
3. Condition No. 3 is included to require the *Company* to notify staff of the *Ministry* so as to assist the *Ministry* with the review of the site's compliance.
4. Condition No. 5.1 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the *Facility.*

5. Condition No. 5.2 is included to ensure that operation of the *Equipment* is not extended beyond the stated hours to prevent an adverse effect resulting from the operation of the *Equipment.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 5639-ABLLKT issued on October 24, 2016.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Minister of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7A 2J3

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or** www.ert.gov.on.ca

This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at https://ero.ontario.ca/, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of April, 2020

Rudolf Wan, P.Eng.
Director
appointed for the purposes of Part II.1 of the *Environmental Protection Act*

SA/
c: District Manager, MECP Halton-Peel District Office
Jaime Anderson, BCX Environmental Consulting

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Air Quality Impact Assessment

Detailed Environmental Air Quality Assessment
Proposed Residential Development
198 – 200, 206 Plains Road East, Burlington

Landwise

RJ Burnside & Associates Limited
6990 Creditview Road, Unit 2
Mississauga ON L5N 8R9 CANADA

October 2025
300059257.0000

Detailed Environmental Air Quality Assessment
Proposed Residential Development - 198 – 200, 206 Plains Road East, Burlington
October 2025

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Landwise

Record of Revisions

Revision	Date	Description
0	March 27, 2025	Initial Submission for Client Review
1	October 30, 2025	Changes made based on client's comments

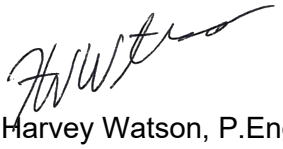
RJ Burnside & Associates Limited

Report Prepared By:



Gavin McCurdy, M.Sc.
Junior Air and Noise Scientist
GM/HW:rk

Report Reviewed By:



Harvey Watson, P.Eng.
Manager, Air & Noise

Executive Summary

RJ Burnside & Associates Limited (Burnside) was retained by Landwise to prepare a Detailed Environmental Air Quality Assessment for the 198 – 200, 206 Plains Road East Residential Development. The property is located at 198 – 200, 206 Plains Road East, Burlington, Ontario.

The only significant air contaminant source is diesel locomotive engines operating at the CN Rail Aldershot yard north of the Site. Maximum off-property Nitrogen Oxide (NO_x) concentrations were estimated for two operating scenarios that were likely to result in worst-case scenario ground-level impacts. The resulting concentrations were compared to the applicable Ministry of the Environment, Conservation and Parks (MECP) limits in order to determine whether there would be any significant air quality impact at the Site.

The assessment revealed that the emitted NO_x results in ground-level concentrations which are compliant with the applicable criteria, so no adverse effects are expected to occur at the Site. For the case in which a train is idling for 24 hours at the closest point, the worst-case 1-hour Point of Impingement (POI) concentration is predicted to be less than 73.13 µg/m^3. The worst-case 24-hour POI concentration is predicted to be less than 30.03 µg/m^3. These POI impacts are 18% and 15% of their criteria, respectively. Elevated receptors at the proposed development would receive less impact.

The second scenario shows a considers the case when a train is passing within 1 km of the proposed development. There is 1.5 km of track within 1 km of the proposed development. If the engine is running at 10% of engine capacity and we assume that the entire emission for that 1.5 km of track is emitted at the closest point to the development (560 m), the predicted POI concentrations are 243.75 µg/m^3 for the 1-hour averaging period and 100.11 µg/m^3 for the 24-hor averaging period, which are 61% and 50% of their criteria, respectively. As the train engine output increases, the speed increases so the total emission while within 1 km of the proposed development decreases.

Table of Contents

1.0 Introduction 1
1.1 Objective 1
1.2 Study Area 1
1.3 Site Visit 1
2.0 Applicable Air Quality Criteria 1
3.0 Air Quality Impact Assessment 2
3.1 Methodology 2
3.2 Scenario 1 2
3.3 Scenario 2 3
4.0 Summary of Conservative Assumptions 4
5.0 Conclusion 4
6.0 References 5

Figures

Figure 1: Site Location Map
Figure 2: Site Plan
Figure 3: Zoning Map
Figure AQ-1: CN Rail Aldershot Yard Proximity

Appendices

Appendix A MOECC Guidance for Screening-Out with Dispersion Factors

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by Landwise to prepare a Detailed Environmental Air Quality Assessment for the new 198 – 200, 206 Plains Road East Residential Development. The property is located at 198 – 200, 206 Plains Road East, Burlington, Ontario.

The purpose of this assessment is to examine potential air quality impacts relating to the proposed residences along Plains Road East, Burlington.

1.1 Objective

This report has been prepared in support of the new 198 – 200, 206 Plains Road East Residential Development. This report will be included in a submission for the Zoning Bylaw Amendment. The potential air quality impacts of the CN Rail Aldershot yard located approximately 600 m north of the property were assessed using emission factors from the MECP'S Guideline A-10 (Guideline A-10) and the US EPA AP-42 estimated emission factors for Locomotive diesel engines. The potential air quality impacts were evaluated by comparing predicted maximum contaminant ground-level concentrations at the representative points of reception with the MECP criteria.

1.2 Study Area

The proposed 198 – 200, 206 Plains Road East Residential Development is located southeast of Plains Road East and White Oak Drive in Burlington, Ontario. The site location map is provided in Figure 1.

The Site Plan is shown in Figure 2. The proposed development is in an area currently zoned by Burlington as Medium Density Residential – RM2 and Medium Density - RM1. The zoning map is shown in Figure 3.

1.3 Site Visit

Burnside did not conduct a site visit as it was determined that all critical information about the site could be determined from publicly available aerial photographs and Streetview.

2.0 Applicable Air Quality Criteria

The proposed 198 – 200, 206 Plains Road East Residential Development is located approximately 600 m South of the CN Rail Aldershot yard. The air quality impact from locomotive diesel engine emissions was assessed against the MECP ACB criteria for

Nitrogen Oxides (NO_x). Modelled impacts were compared to both the 1-hour and 24-hour limits for Nitrogen Oxides.

3.0 Air Quality Impact Assessment

3.1 Methodology

Contaminants associated with trains at the CN Rail Aldershot yard were assumed to be emitted solely from locomotive diesel engines. The only contaminant assessed was NO_x as it is the most likely contaminant to exceed its limit from a diesel engine. The maximum off-property Point of Impingement (POI) concentration of NO_x from the locomotive diesel engines was predicted using emission factors obtained from the Guideline A-10 and the US EPA AP-42 *"Emission Factors for Locomotives"* EPA-420-F-09-025.

The emission rate for NO_x was calculated using an emission factor of 13 g/hp-hr. for an uncontrolled Line-Haul (Freight) locomotive diesel engine obtained from the US EPA AP-42 *"Emission Factors for Locomotives"* EPA-420-F-09-025, Table 1. It is likely the trains passing through the CN Rail Aldershot yard are equipped with Tier 2 – 4 engines with lower Nitrogen Oxide emissions. However, the uncontrolled emission factor was used to make the calculation as conservative as possible.

The diesel engines which power freight trains can have power outputs between 2000-4500 hp[1]. The emission rate calculation of NO_x from a locomotive assumed the train is equipped with a 4500 hp diesel engine, as it results in the maximum emission rate possible and thus the most conservative predicted off-property concentration, if it were emitted at this rate constantly. However, if a train passing through the CN Rail Aldershot yard was operating at full engine capacity, it would likely not be within 1 km of the Site for more than one minute[2], meaning there would be little air quality impact. Two other scenarios were considered as worst-case scenarios for Nitrogen Oxide impacts. In both scenarios, it is assumed that the total emitted NO_x over the 1.5 km of rail is emitted from the closest point on the rail to the Site, approximately 560 m (see Figure AQ-1).

3.2 Scenario 1

The first scenario considers a train is idling, at the point on the rail closest to the Site. Based on work with Metrolinx, it was assumed that a locomotive engine operates at 1%

[1] Locomotive engine power output range found at Engine Technology Forum
[2] In Figure AQ-X, there is 1.5 kilometres of railway within a 1-kilometre radius of the Site. It is unlikely that any NO_x emissions outside a 1-kilometre radius will have any impact on the sensitive receptors. A train operating at full engine capacity moves at 75 mph, covering 1.5 kilometres in approximately 1 minute.

of its maximum power output when idling. This percentage results in an engine power output of 45 hp.

Using the emission factor stated in Section 4.1 of 13 g/hp-hr, the resulting NO_x emission rate is 0.163 g/s. The conservative Urban Dispersion Factor for a sensitive receptor 300 m from a source of 450 µg/m^3 per g/s emission, found in Table B-1 of Guideline A-10, the predicted 1-hour maximum off-property NO_x concentration is 73.13 µg/m^3 (0.163 g/s x 450 µg/m^3 per g/s), which is 18% of the 400 µg/m^3 criteria. The 1-hour concentration can be converted to a 24-hour concentration, using the method described in Section 17, Equation 1 of Guideline A-11. The corresponding 24-hour concentration is 30.03 µg/m^3, which is 15% of the 200 µg/m^3 criteria.

This estimate is considered to be conservative as it assumes the train will be in idle for 24 hours consecutively and the sensitive receptor to be 300 m from the source rather than the actual distance of 560 m. The Urban Dispersion Factors are also considered to be very conservative by the MECP.

3.3 Scenario 2

The second scenario considered is when the train is moving at approximately 5 km/h. At this speed, it will take approximately 20 minutes to travel the 1.5 km distance that is within a 1 km radius of the Site. Based on previously completed work with Metrolinx, it was assumed that the train engine is operating at Notch 2 to achieve this slow speed. In this situation, the locomotive engine is operating at approximately 10% of its maximum power output. This results in an engine power output of 450 hp.

Using the emission factor stated in Section 4.1 of 13 g/hp-hr, the resulting NO_x emission rate is 1.63 g/s. Finally, using the Urban Dispersion Factor for a receptor 300 m away from the source of 450 µg/m^3 per g/s emission, found in Table B-1 of Guideline A-10, and assuming NO_x is being emitted for 20 minutes of a given hour, the predicted 1-hour maximum off-property NO_x concentration is 243.75 µg/m^3 (1.63 g/s x 450 µg/m^3 per g/s x 1/3 hours), which is 61% of the 400 µg/m^3 criteria. The 1-hour concentration can be converted to a 24-hour concentration, using the method described in Section 17, Equation 1 of Guideline A-11. The corresponding 24-hour concentration is 100.11 µg/m^3, which is 50% of the 200 µg/m^3 criteria.

This estimate is conservative as it assumes a train will be travelling through the 1.5 km distance within the Site's 1 km radius for 20 minutes of every hour, for 24 hours consecutively, and the sensitive receptor to be 300 m from the source rather than the actual distance of 560 m.

At full power, the train will travel at 75 miles per hour and cover the same section of track in 1 minute. The predicted 1-hour maximum off-property NO_x concentration is (1.63 g/s x 450 µg/m^3 per g/s x 1/60 hours=) 121.88 µg/m^3.

4.0 Summary of Conservative Assumptions

The following assumptions are conservative, so the impact is considered conservative:

- The largest power rating of the engines is used in the range (2,500-4,500 hp).
- The uncontrolled engine type was used (13 g/s/hp). The other types have less emissions (6.76 g/s/hp for Tier 1, 1 g/s/hp for Tier 4).
- The conservative Urban Dispersion Factor from Guideline A-10 was used instead of modelling with AERMOD.
- The Urban Dispersion Factor used is for impact at 300 m instead of approximately 600 m which is the distance to the proposed development.
- The entire emission is assumed to occur at the closest point instead of along the rail where it is emitted.
- The 24-h impact is based on 24 trains per day (1/hour).

5.0 Conclusion

The results of 198 – 200, 206 Plains Road East Residential Development Detailed Environmental Air Quality Assessment demonstrate that the emitted NO_x from diesel locomotive engines at the CN Rail Aldershot yard in both predicted worst-case scenarios is compliant with the applicable Ministry of the Environment, Conservation and Parks (MECP) criteria, and no adverse effects are expected to occur at the Site. The case in which a train is idling for 24 hours consecutively, results in 1 and 24-hour ground-level concentrations of 73.13 µg/m^3 and 30.03 µg/m^3, which are 18% and 15% of their criteria, respectively. The maximum ground-level NO_x concentrations occur when a train is passing through the 1.5 km distance near the Site at 10% of engine capacity, representing the worst-case scenario. This results in 1 and 24-hour concentrations of 243.75 µg/m^3 and 100.11 µg/m^3, which are 61% and 50% of their criteria, respectively.

6.0 References

Air Dispersion Modelling Guideline for Ontario (Guideline A-11). Ontario Regulation 419/05 Air Pollution – Local Air Quality. Version 3. Ontario Ministry of the Environment and Climate Change, July 2016.

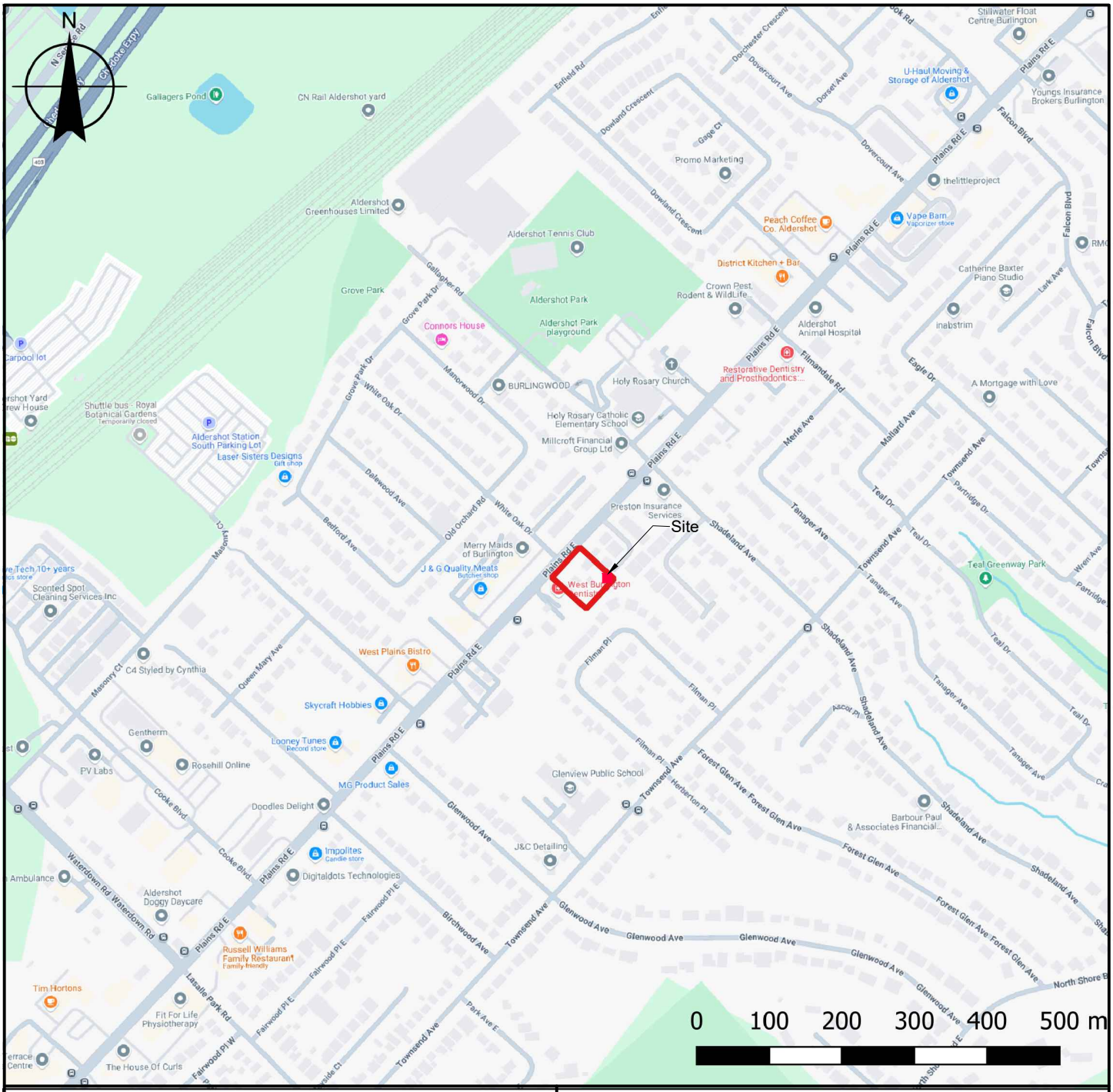
Procedure for Preparing an Emission Summary and Dispersion Modelling Report (Guideline A-10). Ontario Regulation 419/05 Air Pollution – Local Air Quality. Version 4.1. Ontario Ministry of the Environment and Climate Change, March 2018.

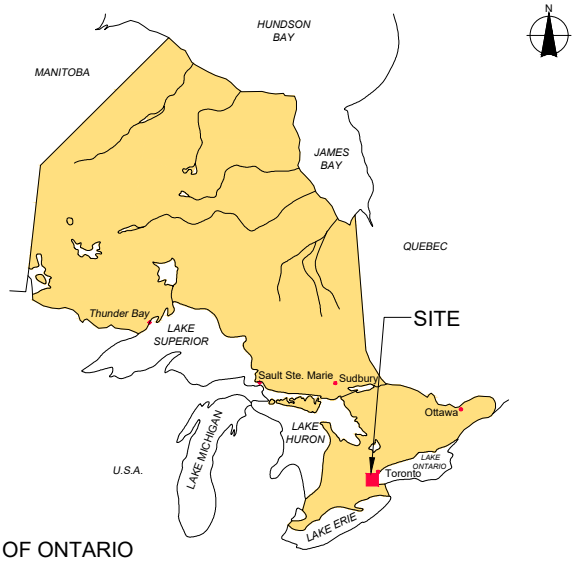
Emission Factors for Locomotives. Office of Transportation and Air Quality. EPA-420-F-09-025. United Staes Environmental Protection Agency, April 2009.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Figures





KEY MAP OF ONTARIO

BURNSIDE

Client

LANDWISE

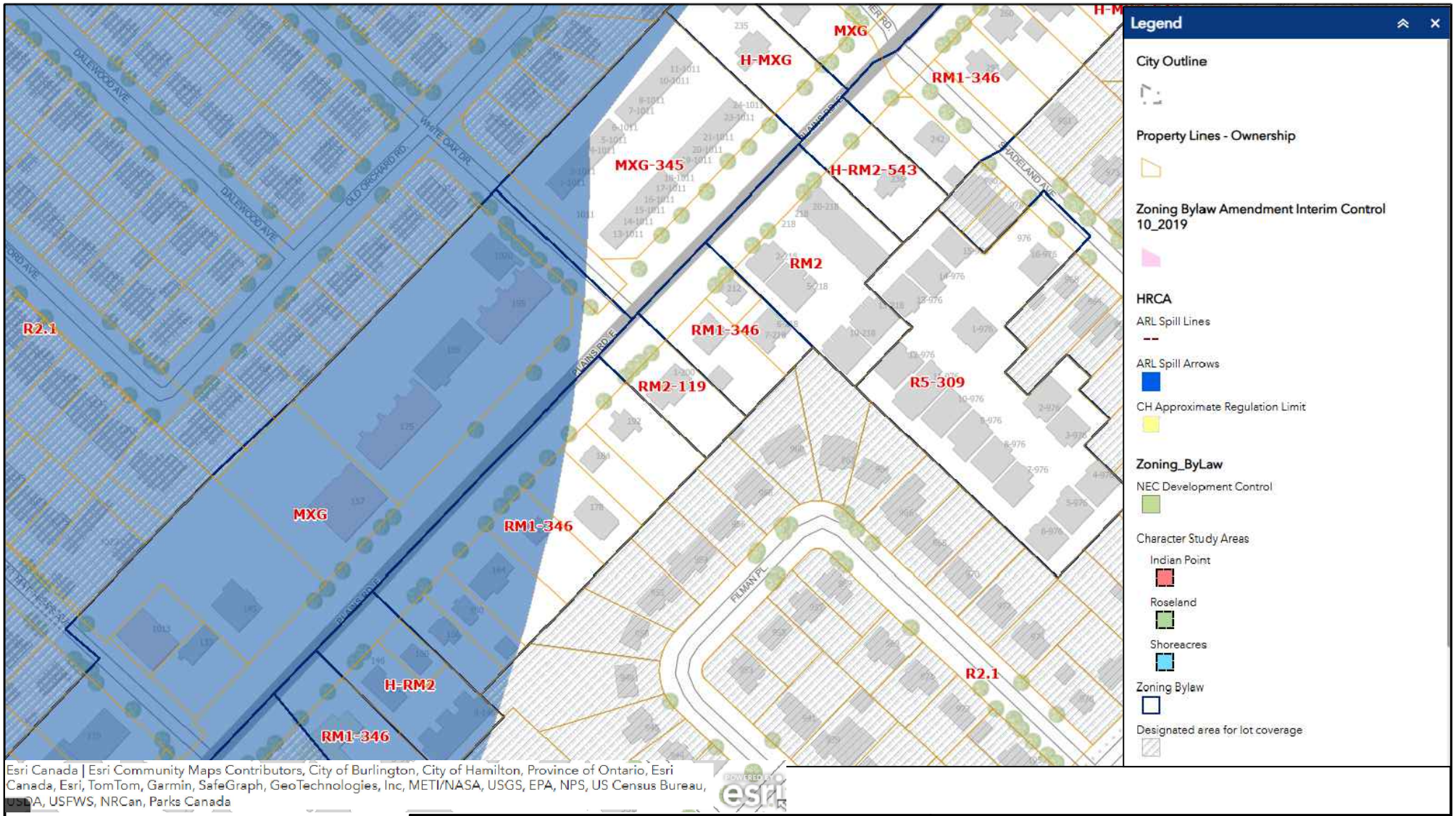
Figure Title

Site Location Map

Land Use Compatibility Study

Drawn	Checked	Date	Figure No.
DJ	HW	January 2025	1
Scale		Project No.	
1:3000		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:32 AM



BURNSIDE

Figure Title

Zoning and Land Use Plan

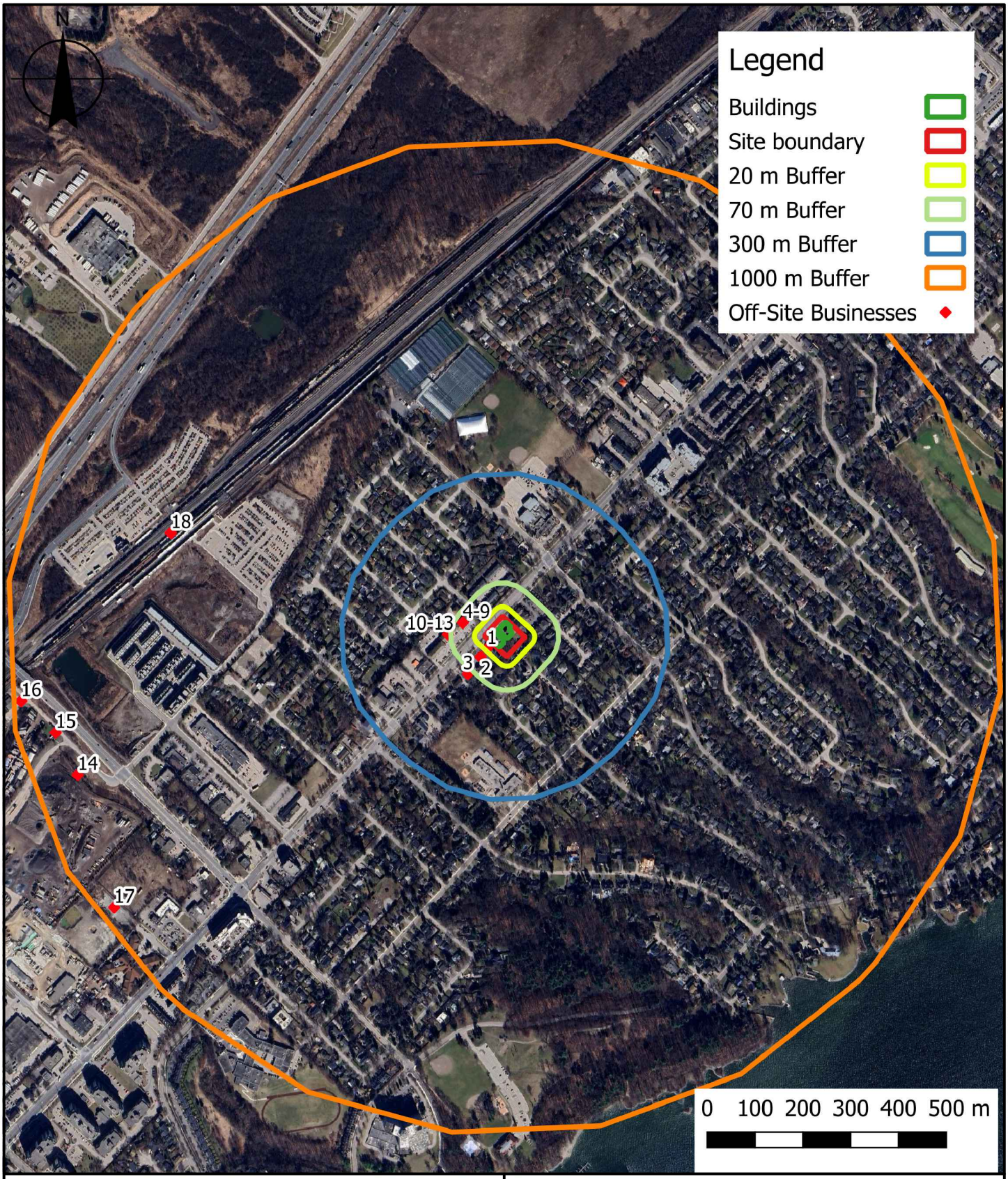
Land Use Compatibility Study

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	January 2025	**2**
Scale		Project No.	
NA		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:33 AM



BURNSIDE

Figure Title

Businesses Assessed

Land Use Compatibility Study

Client	Drawn	Checked	Date	Figure No.
LANDWISE	DJ	HW	January 2025	**3**
	Scale		Project No.	
	1:11,000		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: February 13, 2025 - 10:33 AM



BURNSIDE

Figure Title

CN Rail Aldershot Yard Proximity

Environmental Air Quality Assessment

Client

LANDWISE

Drawn	Checked	Date	Figure No.
GM	HW	March 2025	**AQ-1**
Scale		Project No.	
1:11000		300059257.0000	

File: C:\Users\gmccurdy\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 26, 2025 - 11:38 AM

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

MOECC Guidance for Screening-Out with Dispersion Factors

APPENDIX A

Table A-1: Guidance for Screening-Out with Dispersion Factors (Table values based on 1 hour average)

Distance from Source (m)	Urban Dispersion Factor (µg/m^{3}per g/s emission)	Rural Dispersion Factor (µg/m^{3}per g/s emission)
Up to 20	8700	10000
40	6300	8100
60	4600	5900
80	3400	5100
100	2600	4500
150	1400	3500
200	900	2800
250	600	2300
300	450	1900
350	350	1700
400	300	1500
450	250	1300
500	200	1150
600	150	950
700	120	800
800	90	650
900	80	575
1000	70	500

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Noise Impact Assessment

Environmental Noise Feasibility Assessment
Proposed Residential Development
198 – 200, 206 Plains Road East, Burlington

Landwise

RJ Burnside & Associates Limited
6990 Creditview Road, Unit 2
Mississauga ON L5N 8R9 CANADA

October 2025
300059257.0000

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Landwise

Record of Revisions

Revision	Date	Description
0	March 28, 2025	Initial Submission for Client Review
1	October 30, 2025	Changes made based on client's comments

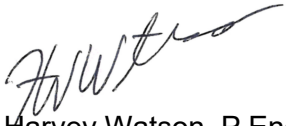
RJ Burnside & Associates Limited

Report Prepared By:



Dawson Jay, BASc.
Engineering Assistant
DJ/HW:rk

Report Reviewed By:



Harvey Watson, P.Eng.
Manager, Air & Noise

Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by Landwise to prepare a Environmental Noise Feasibility Assessment for the 198 – 200, 206 Plains Road East Residential Development. The property is located at 198 – 200, 206 Plains Road East, Burlington, Ontario.

The only significant road traffic noise source is Plains Road East. Sound levels from Plains Road East were modelled based on the future traffic volumes. The resulting future sound levels were compared to the applicable Ministry of the Environment, Conservation and Parks (MECP) limits in order to determine whether any noise control measures are required.

There are no rail traffic noise sources of concern within 300 m of the development. However, the CN rail yard to the north is considered as a stationary source.

The subject development is not located within the NEF/NEP noise contours of any airports. Therefore, aircraft noise is not considered a significant noise source for this development.

The assessment revealed that transportation noise mitigation measures are required for this development. Required measures include:

- Installation of central air conditioning – All units
- Warning clause Type D for potential purchaser – All units
- An acoustic barrier of at least 1.2 m height along the extents of all rooftop terraces or a warning clause Type A

Sound levels at the newly developed lots will meet the MECP noise guideline requirements after all suggested noise mitigation measures listed above are implemented.

The nearby stationary noise sources of concern to the development include the CN Rail Aldershot yard which contains rail shunting and train idling. Sound levels from these sources were modelled based on manufacturer reported sound data and MECP accepted sound level assumptions. The resulting future sound levels were compared to the applicable MECP limits for a Class 1 Area in order to determine whether any noise control measures are required. The ambient noise conditions predicted for the proposed development were also considered.

The assessment revealed that the stationary sound levels at all points of reception on the proposed development are below MECP limits; therefore, no external stationary noise mitigation measures are required.

The proposed development will contain stationary noise sources with potential to impact noise sensitive land uses in the vicinity, including the proposed development itself. The proposed stationary noise sources will include HVAC noise, transformer noise, and garage exhaust fans. Sound levels from these sources were modelled based on manufacturer sound emission data of proxy sources estimated conservatively by Burnside. The resulting future sound levels were compared to the applicable MECP limits for a Class 1 Area in order to determine whether any noise control measures are required. The ambient noise conditions predicted for the proposed development were also considered.

The assessment revealed that the stationary sound levels from the proposed sources within the development, at 7 points of reception on the proposed development are above the MECP limits; therefore, internal stationary noise mitigation measures will be required. As the detail on the sources and their locations are not available, final mitigation measures cannot be proposed at this time. Based on Burnside's experience with other similar projects, mitigation to Class 1 compliant levels will be possible. The final mitigation measures will be provided in a future Detailed Environmental Noise Report.

Table of Contents

1. Introduction 1
1.1 Objective 1
1.2 Study Area 1
1.3 Site Visit 1
2.0 Applicable Noise Criteria 2
2.1 MECP Noise Policies 2
2.1.1 Transportation Noise 2
2.1.2 Stationary Noise 3
2.2 Regional and Municipal Policies 4
3.0 Transportation Noise Sources and Receptors 5
3.1 Road Noise Sources 5
3.2 Rail Noise Sources 5
3.3 Aircraft Noise Sources 5
3.4 Transportation Noise Receptors 5
4.0 Transportation Noise Impact Assessment 7
4.1 Methodology 7
4.2 Predicted Sound Levels – Plane of Window (POW) 7
4.3 Predicted Sound Levels – Outdoor Living Area (OLA) 8
4.4 Predicted Sound Levels – Indoor Living Areas 8
5.0 Stationary Noise Sources and Receptors 10
5.1 Internal Stationary Noise 10
5.1.1 Internal Stationary Noise Sources 10
5.1.2 Internal Stationary Noise Points of Reception 11
5.2 External Stationary Noise 11
5.2.1 External Stationary Noise Sources 11
5.2.2 External Stationary Noise Points of Reception 12
6.0 Stationary Noise Impact Assessment 13
6.1 Methodology 13
6.2 Predicted Ambient Sound Levels & Applicable Criteria 13
6.3 Predicted Internal Stationary Sound Levels 14
6.4 Predicted Mitigated Internal Stationary Sound Levels 14
6.5 Predicted External Stationary Sound Levels 15
7.0 Noise Mitigation Measures 16
7.1 Ventilation Requirements 16
7.2 Acoustic Barrier Requirements 16
7.3 STC Requirements 16
7.4 Internal Stationary Noise Mitigation Requirements 16
7.5 External Stationary Noise Mitigation Requirements 16
8.0 Implementation Procedures 17
9.0 Conclusion 18

10.0 References 19

Tables

Table 1: Traffic Data
Table 2: 10-year Predicted Road Traffic Volumes
Table 3: Predicted Daytime and Nighttime Sound Levels for the Forecasted 10-Year Traffic Volumes
Table 4: Predicted Daytime OLA Sound Levels Including Noise Mitigation Measures
Table 5: Acoustic Barrier Height Alternatives
Table 6: Predicted Ambient Sound Levels
Table 7: Applicable Stationary Sound Level Criteria
Table 8: Predicted Internal Stationary Sound Levels (Unmitigated)
Table 9: Predicted Internal Stationary Sound Levels (Mitigated)
Table 10: Predicted External Stationary Sound Levels (Unmitigated)
Table 11: Minimum Noise Mitigation Measures

Figures

Figure 1: Site Location Map
Figure 2: Site Plan
Figure 3: Zoning Map
Figure 4: Stationary Noise – Points of Reception
Figure 5: Internal Stationary Noise Sources
Figure 6: Unmitigated Daytime Internal Stationary Noise
Figure 7: Unmitigated Evening Internal Stationary Noise
Figure 8: Unmitigated Nighttime Internal Stationary Noise
Figure 9: Mitigated Daytime Internal Stationary Noise
Figure 10: Mitigated Evening Internal Stationary Noise
Figure 11: Mitigated Nighttime Internal Stationary Noise
Figure 12: External Stationary Noise Sources
Figure 13: Unmitigated Daytime External Stationary Noise
Figure 14: Unmitigated Evening External Stationary Noise
Figure 15: Unmitigated Nighttime External Stationary Noise

Appendices

Appendix NV-A Traffic Data
Appendix NV-B MECP Sound Level Limits
Appendix NV-C Sample Transportation Noise Modeling Printouts
Appendix NV-D Sample Internal Stationary Noise Modeling Printouts
Appendix NV-E Sample External Stationary Noise Modeling Printouts
Appendix NV-F Noise Data References

Disclaimer

Other than by the addressee or the agency to whom it is submitted, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third-party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

Aerial Photography taken from Google Earth Professional, 2025.

In acoustics it is impossible to achieve no adverse effects for one hundred percent of the population. Certain persons are hyper sensitive to noise and will find compliant noise situations to cause adverse effects.

1. Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by Landwise to prepare a Environmental Noise Feasibility Assessment for the new 198 – 200, 206 Plains Road East Residential Development. The property is located at 198 – 200, 206 Plains Road East, Burlington, Ontario.

The purpose of this assessment is to examine potential noise impacts relating to the proposed residences along Plains Road East, Burlington.

1.1 Objective

This report has been prepared in support of the new 198 – 200, 206 Plains Road East Residential Development. This report will be included in a submission for the Zoning Bylaw Amendment. The potential noise impacts and ambient noise calculations were assessed using the Ministry of the Environment, Conservation and Parks (MECP) traffic noise prediction model ORNAMENT, implemented through the STAMSON (version 5.04) computer program. Sound levels were predicted based on 10-year future traffic forecast for Plains Road East (see Table 2). The potential noise impact from Burlington Executive Airpark Airport was also considered. The potential noise impacts were evaluated by comparing predicted sound levels at the representative points of reception with the MECP sound level limits.

1.2 Study Area

The proposed 198 – 200, 206 Plains Road East Residential Development is located southeast of Plains Road East and White Oak Drive in Burlington, Ontario. The site location map is provided in Figure 1.

The Site Plan is shown in Figure 2. The proposed development is in an area currently zoned by Burlington as Medium Density Residential – RM2 and Medium Density – RM1. The zoning map is shown in Figure 3.

1.3 Site Visit

Burnside did not conduct a site visit as it was determined that all critical information about the site could be determined from publicly available aerial photographs and Streetview.

Burnside’s review of the study area did not discover any unregulated noise sources of potential concern such as a dog park or daycare playground.

2.0 Applicable Noise Criteria

The proposed 198 – 200, 206 Plains Road East Residential Development is located in a Class 1 Urban Area.

2.1 MECP Noise Policies

Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning (NPC-300) is the MECP Publication which provides advice, sound level limits and guidance that may be used when land use planning decisions are made under the Planning Act, and the Niagara Escarpment Planning and Development Act. This guidance is for land use planning authorities, developers, and consultants. It is intended to minimize the potential conflict between proposed noise sensitive land uses and sources of noise emissions.

2.1.1 Transportation Noise

2.1.1.1 Outdoor Living Areas

NPC-300 indicates that the sound level should be assessed in an outdoor living area (OLA). Where the noise exceeds the applicable sound level limits, mitigation measures may be required. Noise control measures are not required if the sound level estimated in the OLA is 55 dBA or less during the daytime hours.

NPC-300 indicates that if the 16-hour equivalent sound level in the OLA is between 55 dBA and 60 dBA, noise control measures may be applied to reduce the sound level to 55 dBA; otherwise, a warning clause Type A should be issued. If the sound level in the OLA is greater than 60 dBA, noise control measures should be implemented to reduce the level to 55 dBA. Only in cases where the required noise control measures are not feasible for technical, economic, or administrative reasons would an excess above the limit (55 dBA) be acceptable with a warning clause Type B.

2.1.1.2 Plane of a Window

If the sound level in the plane of a bedroom or living/dining room window is between 55 dBA and 65 dBA during daytime or between 50 dBA and 60 dBA during nighttime, the dwelling should be designed with a provision for the installation of central air conditioning in the future. Warning clause Type C is also recommended. If the sound level in the plane of a bedroom or living/dining room window is greater than 65 dBA during daytime or 60 dBA during nighttime, installation of central air conditioning should be implemented with a warning clause Type D.

The location and installation of any required outdoor air conditioning devices must comply with the MECP's publication: Residential Air Conditioning Devices (NPC-216).

NPC-216 requires that the sound levels of the condensing units not exceed the maximum sound level of 55 dBA[1] at the neighbour's closest point of reception. Applicable points of reception are defined as the closest window or ground based outdoor living areas. Air conditioning units with a maximum Air-conditioning Refrigeration Institute (ARI) standard sound rating of greater than 7.6 Bels are also prohibited.

2.1.1.3 Indoor Living Areas

For road noise, the indoor sound level limit is 45 dBA for living/dining areas at any time and during daytime in the sleeping quarters. The sound level in the sleeping quarters should not exceed 40 dBA during nighttime.

2.1.1.4 Aircraft Noise

For aircraft noise, if the outdoor Noise Exposure Forecast / Noise Exposure Projection (NEF/NEP) value is less than 25, further assessment is not required. If the receptor is located between the NEF/NEP contours of 25 and 30, the dwelling should be designed with a provision for central air conditioning, along with warning clause Type C. In addition, the building components should be designed to achieve the indoor sound level limit of 0 NEF/NEP for sleeping quarters and 5 NEF/NEP for all other indoor living areas.

If the NEF/NEP value is greater than 30, municipal approval is required for a residential development proposal to proceed. If the municipality grants approval, then central air conditioning must be implemented, along with warning clauses Type B and Type D. In addition, the building components should be designed to achieve the indoor sound level limit of 0 NEF/NEP for sleeping quarters and 5 NEF/NEP for all other indoor living areas[2].

2.1.2 Stationary Noise

The applicable stationary noise criteria are dependent on the Class Area as well as the ambient sound levels present at each point of reception. The applicable criteria are the greater of the exclusion limits, provided in the MECP tables in Appendix NV-B, or the lowest hourly ambient sound level predicted for a given point of reception.

---

[1] 55 dBA is permissible for new land use developments when air conditioning is a mandatory requirement.

[2] The indoor NEF/NEP values are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements (MECP, NPC-300, Section C-6). Since NEF = $L_{eq\ (24)}$ – 32 dBA, NEF 0 corresponds to $L_{eq\ (24)}$ of 32 dBA and NEF 5 corresponds $L_{eq\ (24)}$ of 37 dBA.

The proposed 198 – 200, 206 Plains Road East Residential Development is located in a Class 1 Urban Area.

The MECP criteria for the outdoor receptors from impulsive sounds considered in this report are 65 dBA from 07:00 – 23:00 for 4 impulses an hour.

The MECP criteria for the plane of window receptors from impulsive sounds considered in this report are 65 dBA from 07:00 – 23:00 for 4 impulses an hour and 60 dBA from 23:00 – 07:00.

MECP tables showing all criteria for all Classes of Urban Area and all time periods are shown in Appendix NV-B.

2.2 Regional and Municipal Policies

In addition to the preceding MECP noise criteria from NPC-300, the proposed development is also subject any regional and municipal requirements. However, neither Region nor the City have published noise standards or bylaws for new developments.

3.0 Transportation Noise Sources and Receptors

3.1 Road Noise Sources

The road traffic noise source assessed for the potential impact on the new 198 – 200, 206 Plains Road East Residential Development is Plains Road East.

Traffic volume data was downloaded as an Average Annual Daily Traffic (AADT) from the City of Burlington. The traffic volumes are presented in Table 1 and Table 2. Table 1 shows a summary of the current traffic volumes while Table 2 shows a breakdown of the 10-year predicted road traffic volumes. The road traffic data retrieved from the City of Burlington website for this report is included in Appendix NV-A.

It is assumed that medium trucks make 3% of the total traffic on both roads and no heavy trucks are expected on either road. The assumes growth rate is 2.5% which is typically conservative in Ontario.

The day / night traffic volume was split 90%/10% as per the STAMSON Technical Document recommendation for regional roads

The current posted speed limit is 60 km/h on Plains Road East. It was assumed to remain the same within the next 10 years. Given trends in traffic speeds in urban areas, the speed limit is most likely to decrease so choosing 60 km/h is a conservative approach.

3.2 Rail Noise Sources

There are no railway traffic noise sources of concern to the development as there are no railways located within 300 m of the proposed development.

3.3 Aircraft Noise Sources

The closest airport is the Burlington Executive Airpark Airport, at 5296 Bell School Line, Burlington, ON L7M 0P3 which is approximately 14 km north of the Site. The subject development is not located within the NEF/NEP noise contours of any airports. Therefore, aircraft noise is not considered a significant noise source for this development.

3.4 Transportation Noise Receptors

The proposed 198 – 200, 206 Plains Road East Residential Development was assigned a single representative Plane of Window (POW) point of reception. The predictable worst-case location of the front/northwest façade was selected. Sound levels at all other plane of window receptors will be at or below the sound levels at this representative

receptor. The point of reception, POR02 shown in Figure 4, was assumed to be at the second floor.

The proposed 198 – 200, 206 Plains Road East Residential Development also contains two Outdoor Living Area (OLA) points of reception. There are two elevated terraces.

Landwise has advised Burnside that there will be no private terraces or balconies greater than 4.0 m in depth. Therefore, none of the proposed private balconies of the 7-storey building require a noise assessment under NPC-300.

4.0 Transportation Noise Impact Assessment

4.1 Methodology

Sound levels associated with road traffic predicted with MECP traffic noise prediction methodology ORNAMENT, implemented through the STAMSON (version 5.04) computer program. The model calculates expected sound levels based on road traffic, distance to receptor, receptor height, and topographical features. In order to predict sound levels from road traffic, STAMSON requires:

- Source to receiver distance – between 15 m and 500 m
- Minimum traffic volume – 40 vehicles per hour
- Minimum vehicle speed – 50 km/h

The assumptions below were used in the noise model:

- The road gradient was assumed to be 0%.
- Road pavement was assumed as a standard asphalt surface.
- Flat/gentle slope topography was selected.
- Intermediate surface was assumed to be reflective.

Outdoor Living Area points of reception were taken 3 m away from the building and 1.5 m above grade. Plane of Windows points of reception were taken at the building façade and 4.5 m above the grade, representing the second floor.

4.2 Predicted Sound Levels – Plane of Window (POW)

Following the methodology presented above, Burnside has predicted sound levels at a single representative receptor which provides sufficient information to determine the requirements for the entire development site. The predictable worst-case location of the front/northwest facing façade was taken at the second floor of the building. These results are summarized in Table 3. A sample modeling printout is included in Appendix NV-C (Description: POW calc at 2nd floor). The worst case predicted level was 68 dBA during the daytime, and 61 dBA during the nighttime.

Based on the calculations, all Units require air conditioning and a warning clause Type D, as the predicted sound levels are above 65 dBA during the daytime and/or 60 dBA during the nighttime.

The location and installation of the outdoor air conditioning devices should comply with the sound level limits of the MECP's Publication NPC-216. In order to ensure compliance with NPC-216, a qualified Acoustical Consultant should be retained to determine an appropriate air conditioner location and maximum allowable Bel ratings for each of the Units listed above.

4.3 Predicted Sound Levels – Outdoor Living Area (OLA)

Following the methodology presented in Section 4.1, Burnside has predicted OLA sound levels at a single representative receptor that provides sufficient information to determine the requirements for the whole development site. The point, OPOR02 shown in Figure 4, was taken at a height of 1.5 m, and 3 m back from edge rooftop. These results are summarized in Table 3 and Table 4. A sample modeling printout is included in Appendix NV-C (Description: OLA - 6th floor roof). The worst case predicted level was 66 dBA during the daytime.

The sound barrier analysis is based on the flat topography since the future topography is unknown. The future Detailed Environmental Noise Assessment will be based on the proposed grading plan of the development. Therefore, the barrier analysis in this feasibility study should not be interpreted as the final build requirements for the development.

Acoustical barriers must be constructed in a structurally sound manner, designed to withstand wind and snow loading. The barrier must have a minimum surface density of 20 kg/m^2. The barrier must be constructed without cracks or surface gaps. Any gaps that are under the barriers that are necessary for drainage purposes should be localized and minimized, so that the acoustical performance of the barrier is maintained.

Based on the calculations, all rooftop terraces are required to have an acoustic barrier, as the predicted sound levels are above 60 dBA during the daytime.

Including acoustic barriers in the analysis of the rooftop terraces reduced the predicted sound levels to the MECP objective of 55 dBA for all Units.

The proposed acoustic barriers are as high as 1.2 m.

Table 5 demonstrates the alternative barrier heights between the objective 55 dBA and allowable maximum of 60 dBA.

4.4 Predicted Sound Levels – Indoor Living Areas

If the daytime sound levels at the plane of window exceed 65 dBA or the nighttime sound levels at the plane of window exceed 60 dBA, a preliminary building component assessment is required to ensure a building can be designed so that indoor sound levels comply with the applicable indoor noise criteria of 45 dBA for living areas during the day and 40 dBA during the nighttime for bedrooms from road traffic.

The predicted maximum Plane of Window sound levels of 68 dBA daytime and 61 dBA nighttime were used alongside conservative design assumptions[3] to determine the required minimum Sound Transmission Class (STC) of the window and wall components. Using these inputs, it was determined that the minimum required window STC is 28 for living areas and 28 for bedrooms. These STC levels are attainable with window designs that are commonly available; therefore, constructing a compliant design should not be an issue. The minimum required exterior door STC is 26 for living areas and 26 for a bedroom balcony. The minimum required wall STC is 32 for living areas and 32 for bedrooms, which will not be a problem with standard construction methods. A sample STC calculation is provided in Appendix NV-C. These minimum STC requirements apply to Units which have a requirement for air conditioning, as listed in Section 4.2 which indicates all units.

[3] Calculator based on “Controlling Sound Transmission into Buildings, NRCC 1985”

5.0 Stationary Noise Sources and Receptors

5.1 Internal Stationary Noise

Internal stationary noise is defined as the on-site stationary noise of the proposed development. The potential impact of internal stationary noise is assessed at neighbouring noise sensitive land uses and at noise sensitive locations within the proposed development itself, if appropriate.

5.1.1 Internal Stationary Noise Sources

The proposed development contains the following sources of stationary noise:

- EX03: Air Cooled Chiller.
  - 100% duty cycle during the day, 75% during evening, and 50% at night.
  - The mechanical details are not yet known at this time. When mechanical details are unknown it is conservative to assume 1 ton of cooling per 400 ft^2 of floor area. The proposed development has 56,685 ft^2 of total floor area (excluding roof and underground parking area). Therefore, 142 tons of cooling are required. Burnside has therefore assumed a 144-ton air cooled chiller will be used. Based on manufacturer sound data, a 144-ton air cooled chiller has a sound power emission level of 99.99 dBA (See Appendix NV-F).
- EX04: Garage Exhaust Fan
  - The proposed parking garage is 3,986 m^2 with space for 75 vehicles. OBC-12 requires a ventilation rate of 3.9 L/s/m^2 (8.264 CFM/m^2) for the ventilation of an enclosed garage. Therefore, a total of 32,197 CFM is required to ventilate the proposed garage. There are currently no proposed garage exhaust shafts shown on the Site Plan. Therefore, the worst-case location is adjacent to residential receptors and using a single shaft, which means 32,197 CFM is required at that exhaust shaft with constant operation during day, evening, and night.
  - Burnside has therefore assumed a sound power emission level of 93.6 dBA for the exhaust shaft. This emission level is based on the manufacture's reported sound emission level of an approximately 6,500 CFM garage exhaust fan with a 5/8 in. of water gauge static pressure. It is assumed that 5 of these exhaust fans together are sufficient for the parking garage ventilation needs. A single 6,500 CFM exhaust fan has a sound power level of 84.6 dBA so 5 fans have a combined sound power of 91.6 dBA.
- EX05 - Transformer
  - 100% duty cycle during the day, evening, and night.
  - Based on the size of the proposed development, Burnside has assumed a 1500 kVA transformer will be required for the building. The transformer can be conservatively modeled using the sound data of a 1600 kVA transformer, which has a sound power emission level of 71.0 dBA (See Appendix NV-F).

5.1.2 Internal Stationary Noise Points of Reception

The proposed 198 – 200, 206 Plains Road East Residential Development is in proximity to the following noise sensitive land uses:

- POR01 – southwest facade
- POR02 – northwest facade
- POR03 – southeast façade
- Sixth floor rooftop terrace – OPOR02, OPOR03
- 218 Plains Road East
  - 4 m northeast of development
  - POR04, OPOR04
- 960 Filman Place
  - 13 m southeast of development
  - POR05, OPOR05
- 958 Filman Place
  - 13 southeast of development
  - POR06, OPOR06.
- 1011 White Oak Drive
  - 35 m northwest of development
  - POR07, OPOR07

5.2 External Stationary Noise

External stationary noise is defined as the off-site stationary noise with potential to impact the proposed development. The potential impact of external stationary noise is assessed at all worst-case predictable noise sensitive locations within the proposed development itself.

5.2.1 External Stationary Noise Sources

The proposed 198 – 200, 206 Plains Road East Residential Development is in proximity to the following businesses/operations with potential noise impact on the proposed development:

- CN Rail Aldershot yard
  - Located 560 m northwest of the development.
  - Noise Sources:
    - EX001: Rail Shunting
      - Burnside has assumed a sound power of 127 dB, the MECP standard value for rail shunting impulse.
      - During the worst case hour, the site emits 4 impulses.

- EX002: Train idling
    - Burnside has assumed a sound power of 105.0 dB. A reference is provided in Appendix NV-F.
    - During the worst case hour, the train idles 100% of the time.

5.2.2 External Stationary Noise Points of Reception

The impact of the CN Rail Aldershot yard described above have been assessed for its impact on the proposed 198 – 200, 206 Plains Road East Residential Development. The following worst-case predictable points of reception were selected for the analysis:

- POR01: Southwest facing façade
- POR02: Northwest facing façade
- POR03: Southeast facing façade
- OPOR02: 6th floor rooftop terrace northeast side of building

6.0 Stationary Noise Impact Assessment

6.1 Methodology

Sound levels associated with stationary noise are predicted with Softnoise GmbH iNoise software, version 2024.2.1 (64 bit) (Predictor) noise modeling software. iNoise follows the ISO 9613/2 method of sound level calculation as implemented in the ISO 17534-3 Quality Assurance standard.

The following settings are used:

- Calculation height: 4.5 m.
- Default Ground attenuation Factor: 0 (reflective).
- No Barrier effect for direct sight – Active.
- Dmax According to ISO 9613 – Active.
- Avoid overestimating barrier effect – Active.
- Terrain model: Use full DTM.
- Temperature: 10 °C (283.15 K).
- Pressure: 101.33 kPa.
- Air humidity: 70%.[4]

6.2 Predicted Ambient Sound Levels & Applicable Criteria

Ambient sound levels were predicted with MECP traffic noise prediction methodology ORNAMENT, implemented through the STAMSON (version 5.04) computer program. The model calculates expected sound levels based on the lowest hour road traffic, distance to receptor, receptor height, and topographical features.

The hourly traffic data provided to Burnside for this report is included in Appendix NV-A.

Sample ambient sound level modeling printout is included in Appendix NV-C. These calculations use typical traffic distributions for the type of road and the 24-hour impact predicted by STAMSON using the AADT for that road.

The ambient sound levels were determined for each point of reception and are shown in Table 6. In cases where the ambient noise exceeds the Class 1 exclusion limits the ambient noise level replaces the exclusion limit as the noise criteria.

The proposed 198 – 200, 206 Plains Road East is located in a Class 1 Area. Therefore, the applicable sound level criteria for stationary noise are presented in Table 7.

[4] ISO 9613 Requirement

6.3 Predicted Internal Stationary Sound Levels

The predicted internal stationary sound levels of the proposed development onto the neighboring noise sensitive land uses and noise sensitive locations within the development itself are presented in Table 8.

The unmitigated internal stationary sound level contours are provided in Figure 6, Figure 7, and Figure 8 for the day, evening, and nighttime respectively. The contours are evaluated at a height of 4.5 m. Note that the internal noise sources are located at differing heights; the use of contours at any one specific height can be misleading if taken alone.

Therefore, as the unmitigated internal stationary sound levels are not compliant with the applicable sound level criteria for all PORs, mitigation is required.

6.4 Predicted Mitigated Internal Stationary Sound Levels

Upon reviewing the assumptions and predicted limits, and with knowledge of other similar developments and available mitigation measures, Burnside can conclude that mitigating any future potential internal stationary sound level exceedances will be feasible. Sound level reductions include:

- EX03: 4 dB
- EX04: 18 dB

With these mitigation measures included, the internal stationary sound levels were reassessed. The results of this mitigated assessment are shown in Table 9, which indicates that compliance is now met.

The mitigated internal stationary sound level contours are provided in Figure 9, Figure 10, and Figure 11 for the day, evening, and nighttime respectively. The contours are evaluated at a height of 4.5 m. Note that the internal noise sources are located at differing heights; the use of contours at any one specific height can be misleading if taken alone.

At this time the available options for such mitigation can be summarized. At the detailed stage, the noise report will be updated to include the proposed mechanical equipment details and their final locations. If required, the detailed report will also provide specific mitigation measures needed to meet the applicable sound level limits.

Potential internal stationary noise mitigation measures include:

- Relocation of proposed sources to locations which have a greater distance setback from receptors.

- Locating the rooftop mechanical systems in a fully enclosed mechanical penthouse. Further using acoustic louvers or similar mitigation measures.
- Selection of lower noise emission mechanical equipment than those specified in this feasibility report.
- Specification of acoustic absorptive material and/or baffles in the garage exhaust shaft.

Compliance can be achieved through the adoption of these mitigation measures when more detail regarding the noise sources and their locations is available.

6.5 Predicted External Stationary Sound Levels

The predicted external stationary sound levels of the neighbouring stationary sources onto the proposed development are presented in Table 10.

The unmitigated external stationary sound level contours are provided in Figure 13, Figure 14, and Figure 15 for the day, evening, and nighttime respectively. The contours are evaluated at a height of 4.5 m. Note that the internal noise sources are located at differing heights; the use of contours at any one specific height can be misleading if taken alone.

Therefore, as the unmitigated external stationary sound levels are compliant with the applicable sound level criteria for all PORs mitigation is not required.

7.0 Noise Mitigation Measures

Based on the predicted sound levels it was determined that noise mitigation measures are required for some Units within this Residential Development. The required measures are summarized in Table 11.

7.1 Ventilation Requirements

All Units are required to have air conditioning and warning clause Type D.

7.2 Acoustic Barrier Requirements

All rooftop terraces of the development require an acoustic barrier and warning clause Type A.

7.3 STC Requirements

All Units in the proposed development will achieve the minimum MECP indoor sound levels by incorporating standard requirements for the exterior walls and doors as per the Ontario Building Code. The windows required to meet the minimum MECP indoor sound level are of a commonly available STC rating. Minimum ratings for windows are discussed in Section 4.4, which are applicable to all dwellings requiring AC (which are listed in Section 7.1).

7.4 Internal Stationary Noise Mitigation Requirements

The assessment of the proposed 198 – 200, 206 Plains Road East's internal stationary sources determined that the following sound level reductions were required to meet the applicable MECP noise standards:

- EX03: 4 dB
- EX04: 18 dB

7.5 External Stationary Noise Mitigation Requirements

The assessment of the nearby stationary noise sources to the proposed 198 – 200, 206 Plains Road East determined that the cumulative impact of all stationary sources complied with the applicable MECP noise standards without mitigation.

8.0 Implementation Procedures

The following implementation procedures are recommended to ensure that each requirement of this study is implemented at the correct stage of the development process:

- Prior to Site Plan Approval an Acoustical Consultant should be retained to conduct a Detailed Environmental Noise Assessment. A Detailed Environmental Noise Assessment requires proposed building locations, mechanical equipment, garage exhaust locations, and a proposed grading plan to be finalized. The recommendations of this Environmental Noise Feasibility Assessment are preliminary estimates to ensure the viability of the proposed development. A Detailed Environmental Noise Assessment will finalize most of the acoustic requirements for the development.
- Prior to Issuance of Building Permit an Acoustical Consultant should be retained to assess or determine the locations and Bel ratings of air conditioning units for compliance with NPC-216. Improperly installed air conditioning units can result in the developer being required to install acoustic jackets, relocate or fully replace any noncomplying units in order to receive a Certificate of Completion for the development's acoustic requirements (if required by the Municipality). NPC-216 applies to all air conditioners, even when voluntarily installed by the developer.
- Prior to Issuance of Building Permit an Acoustical Consultant should be retained to review the shop drawings of the required acoustic barriers. Improperly constructed acoustic barriers can result in the developer being required to repair or replace the barrier in order to receive a Certificate of Completion for the development's acoustic requirements.
- In Section 4.4 the minimum required window STC was estimated to be STC 28 daytime (living areas) and STC 28 nighttime (bedrooms) for the most exposed façade of the development. Without further analysis, these minimum requirements apply to all windows of dwellings which are required to have air conditioning in the subject development. Further refinement of the window STC requirements is possible when the proposed room and window configurations are finalized. The proponent may retain a qualified acoustic consultant to perform a detailed window STC assessment of the design. The conclusions of a detailed window STC assessment would supersede the preliminary estimates presented in this report. However, this additional assessment is not required, as the proponent may rely upon the conservative estimates presented in this report. A detailed window STC assessment is typically only requested in instances where the minimum STC estimate creates a large cost burden if applied to the whole development.
- Prior to occupancy, the development should be certified by a qualified Acoustics Engineer for compliance with the requirements of the Detailed Environmental Noise Assessment.

9.0 Conclusion

The results of 198 – 200, 206 Plains Road East Residential Development Environmental Noise Feasibility Assessment demonstrate that if all noise mitigation measures prescribed in Table 11 are implemented, sound levels at all developed lots will meet the Ministry of the Environment, Conservation and Parks noise guideline requirements. The Implementation Procedures as outlined in Section 8.0 should be followed carefully to ensure that no requirements of the noise study are overlooked during the development and construction process.

10.0 References

Computer Program STAMSON Version 5.04. Ministry of the Environment, Conservation and Parks.

Controlling Sound Transmission into Buildings by J.D. Quirt. National Research Council Canada, September 1985.

Environmental Noise Guideline. Stationary and Transportation Sources – Approval and Planning. Publication NPC-300. Ministry of the Environment, Conservation and Parks, August 2013 (released October 21, 2013).

Residential Air Conditioning Devices. Publication NPC-216. Ministry of the Environment Conservation and Parks, 1993.

Ontario Building Code. Ministry of Municipal Affairs and Housing, 2012.

ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation. Technical Document. Ministry of the Environment, Conservation and Parks, October 1989.

Profession Engineers Providing Acoustical Engineering Services in the Land Use Planning Process. Professional Engineers Ontario. 2024

Environmental Guide for Noise, October 2006. Ministry of Transportation Ontario.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Tables

Table 1: Traffic Data

Road	Plains Road East[4]
Location	East of Waterdown Road
Current Peak Hourly	-
"Current" Daily Traffic	29,512
"Current" Year	2022
Assumed Growth Rate	2.50%
"Future" Year	2035
10-Year Daily Traffic[1]	40,682
No. of Lanes	4
Posted Speed	60 km/h
% Heavy Trucks	0.0%
% Medium Trucks	3.0%
Day/Night Split	90%/10%

[1] Traffic growth Formula:

$$Future\ traffic = Present\ Traffic * (1 + growth\ \%)^{Years}$$

Table 2: 10-year Predicted Road Traffic Volumes

Road	AADT Traffic			
	Total	**# of Light Vehicles**	**# of Medium Trucks**	**# of Heavy Trucks**
Plains Road East	40,682	39,462	1,220	0

Table 3: Predicted Daytime and Nighttime Sound Levels for the Forecasted 10-Year Traffic Volumes

Receptor ID	Area	Distance (m)	Predicted Sound Levels (dBA)	
			Daytime	**Nighttime**
POR02	OLA	25	66	-
	PofW	22	68	61

Notes:

- Outdoor Living Area (OLA) points of assessment were taken:
  - 3 m from the building façade;
  - 1.5 m above grade; and
  - aligned with the midpoint of the subject façade.
- Plane of Window (PofW) points of assessment were taken:
  - at the building façade; and
  - 4.5 m above grade.

Table 4: Predicted Daytime OLA Sound Levels Including Noise Mitigation Measures

Receptor ID	Lot #	Barrier Height (m)[5]	Unmitigated Sound Level (dBA)	Mitigated Sound Level (dBA)
OPOR02	Rooftop Terrace	1.2	66	50

Table 5: Acoustic Barrier Height Alternatives

Receptor	Unit #	Unmitigated Sound Level (dBA)	Required Barrier Height (m) to Achieve[6]:						Burnside Recommended Barrier Height
			60 dBA	59 dBA	58 dBA	57 dBA	56 dBA	55 dBA	
OPOR02	Roof Terraces	66	-	-	-	-	-	1.2	1.2

Table 6: Predicted Ambient Sound Levels

POR #	Time of Day	Ambient Sound Level
POR1	Daytime	60 dBA
	Evening	58 dBA
	Nighttime	50 dBA
POR2	Daytime	63 dBA
	Evening	61 dBA
	Nighttime	53 dBA
POR3	Daytime	-
	Evening	-
	Nighttime	-
POR4	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	37 dBA
POR5	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	37 dBA
POR6	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	37 dBA
POR7	Daytime	63 dBA

[5] Barrier heights must be limited to 2.4 m
[6] Barrier heights reviewed in 0.2 m increments starting at 1.2 m for parapets and 2.0 m for ground level acoustic barriers.

POR #	Time of Day	Ambient Sound Level
	Evening	61 dBA
	Nighttime	52 dBA
OPOR2	Daytime	64 dBA
	Evening	62 dBA
	Nighttime	-
OPOR3	Daytime	59 dBA
	Evening	57 dBA
	Nighttime	-
OPOR4	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	-
OPOR5	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	-
OPOR6	Daytime	47 dBA
	Evening	45 dBA
	Nighttime	-
OPOR7	Daytime	62 dBA
	Evening	64 dBA
	Nighttime	-

Table 7: Applicable Stationary Sound Level Criteria

POR #	Time of Day	Ambient Sound Level	NPC-300 Exclusion Limit	Applicable Sound Level Criteria
POR1	Daytime	60 dBA	50 dBA	60 dBA
	Evening	58 dBA	50 dBA	58 dBA
	Nighttime	50 dBA	45 dBA	50 dBA
POR2	Daytime	63 dBA	50 dBA	63 dBA
	Evening	61 dBA	50 dBA	61 dBA
	Nighttime	53 dBA	45 dBA	53 dBA
POR3	Daytime	-	50 dBA	50 dBA
	Evening	-	50 dBA	50 dBA
	Nighttime	-	45 dBA	45 dBA
POR4	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	37 dBA	45 dBA	45 dBA
POR5	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	37 dBA	45 dBA	45 dBA

POR #	Time of Day	Ambient Sound Level	NPC-300 Exclusion Limit	Applicable Sound Level Criteria
POR6	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	37 dBA	45 dBA	45 dBA
POR7	Daytime	63 dBA	50 dBA	63 dBA
	Evening	61 dBA	50 dBA	61 dBA
	Nighttime	52 dBA	45 dBA	52 dBA
OPOR2	Daytime	64 dBA	50 dBA	64 dBA
	Evening	62 dBA	50 dBA	62 dBA
	Nighttime	-	-	-
OPOR3	Daytime	59 dBA	50 dBA	59 dBA
	Evening	57 dBA	50 dBA	57 dBA
	Nighttime	-	-	-
OPOR4	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	-	-	-
OPOR5	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	-	-	-
OPOR6	Daytime	47 dBA	50 dBA	50 dBA
	Evening	45 dBA	50 dBA	50 dBA
	Nighttime	-	-	-
OPOR7	Daytime	62 dBA	50 dBA	64 dBA
	Evening	64 dBA	50 dBA	62 dBA
	Nighttime	-	-	-

Table 8: Predicted Internal Stationary Sound Levels (Unmitigated)

POR #	Time of Day	Impact	Criteria	Compliance?
POR1	Daytime	40 dBA	60 dBA	Yes
	Evening	39 dBA	58 dBA	Yes
	Nighttime	38 dBA	50 dBA	Yes
POR2	Daytime	46 dBA	63 dBA	Yes
	Evening	45 dBA	61 dBA	Yes
	Nighttime	43 dBA	53 dBA	Yes
POR3	Daytime	61 dBA	50 dBA	No
	Evening	60 dBA	50 dBA	No
	Nighttime	60 dBA	45 dBA	No
POR4	Daytime	62 dBA	50 dBA	No
	Evening	62 dBA	50 dBA	No

POR #	Time of Day	Impact	Criteria	Compliance?
	Nighttime	62 dBA	45 dBA	No
POR5	Daytime	59 dBA	50 dBA	No
	Evening	59 dBA	50 dBA	No
	Nighttime	59 dBA	45 dBA	No
POR6	Daytime	56 dBA	50 dBA	No
	Evening	56 dBA	50 dBA	No
	Nighttime	56 dBA	45 dBA	No
POR7	Daytime	41 dBA	63 dBA	Yes
	Evening	40 dBA	61 dBA	Yes
	Nighttime	38 dBA	52 dBA	Yes
OPOR2	Daytime	51 dBA	64 dBA	Yes
	Evening	50 dBA	62 dBA	Yes
	Nighttime	-	-	-
OPOR3	Daytime	51 dBA	59 dBA	Yes
	Evening	50 dBA	57 dBA	Yes
	Nighttime	-	-	-
OPOR4	Daytime	64 dBA	50 dBA	No
	Evening	64 dBA	50 dBA	No
	Nighttime	-	-	-
OPOR5	Daytime	61 dBA	50 dBA	No
	Evening	61 dBA	50 dBA	No
	Nighttime	-	-	-
OPOR6	Daytime	53 dBA	50 dBA	No
	Evening	53 dBA	50 dBA	No
	Nighttime	-	-	-
OPOR7	Daytime	39 dBA	64 dBA	Yes
	Evening	38 dBA	62 dBA	Yes
	Nighttime	-	-	-

Table 9: Predicted Internal Stationary Sound Levels (Mitigated)

POR #	Time of Day	Impact	Criteria	Compliance?
POR1	Daytime	36 dBA	60 dBA	Yes
	Evening	35 dBA	58 dBA	Yes
	Nighttime	34 dBA	50 dBA	Yes
POR2	Daytime	42 dBA	63 dBA	Yes
	Evening	41 dBA	61 dBA	Yes
	Nighttime	39 dBA	53 dBA	Yes

POR #	Time of Day	Impact	Criteria	Compliance?
POR3	Daytime	47 dBA	50 dBA	Yes
	Evening	46 dBA	50 dBA	Yes
	Nighttime	45 dBA	45 dBA	Yes
POR4	Daytime	45 dBA	50 dBA	Yes
	Evening	45 dBA	50 dBA	Yes
	Nighttime	45 dBA	45 dBA	Yes
POR5	Daytime	43 dBA	50 dBA	Yes
	Evening	43 dBA	50 dBA	Yes
	Nighttime	42 dBA	45 dBA	Yes
POR6	Daytime	42 dBA	50 dBA	Yes
	Evening	41 dBA	50 dBA	Yes
	Nighttime	41 dBA	45 dBA	Yes
POR7	Daytime	37 dBA	63 dBA	Yes
	Evening	35 dBA	61 dBA	Yes
	Nighttime	34 dBA	52 dBA	Yes
OPOR2	Daytime	47 dBA	64 dBA	Yes
	Evening	46 dBA	62 dBA	Yes
	Nighttime	-	-	-
OPOR3	Daytime	47 dBA	59 dBA	Yes
	Evening	46 dBA	57 dBA	Yes
	Nighttime	-	-	-
OPOR4	Daytime	46 dBA	50 dBA	Yes
	Evening	46 dBA	50 dBA	Yes
	Nighttime	-	-	-
OPOR5	Daytime	44 dBA	50 dBA	Yes
	Evening	44 dBA	50 dBA	Yes
	Nighttime	-	-	-
OPOR6	Daytime	43 dBA	50 dBA	Yes
	Evening	43 dBA	50 dBA	Yes
	Nighttime	-	-	-
OPOR7	Daytime	34 dBA	64 dBA	Yes
	Evening	33 dBA	62 dBA	Yes
	Nighttime	-	-	-

Table 10: Predicted External Stationary Sound Levels (Unmitigated)

POR #	Time of Day	Impact	Criteria	Compliance?
POR1	Daytime	57 dBA	65 dBA	Yes
	Evening	57 dBA	65 dBA	Yes
	Nighttime	57 dBA	60 dBA	Yes
POR2	Daytime	58 dBA	65 dBA	Yes

POR #	Time of Day	Impact	Criteria	Compliance?
	Evening	58 dBA	65 dBA	Yes
	Nighttime	58 dBA	60 dBA	Yes
POR3	Daytime	36 dBA	65 dBA	Yes
	Evening	36 dBA	65 dBA	Yes
	Nighttime	36 dBA	60 dBA	Yes
OPOR2	Daytime	60 dBA	65 dBA	Yes
	Evening	60 dBA	65 dBA	Yes
	Nighttime	60 dBA	60 dBA	Yes

Table 11: Minimum Noise Mitigation Measures

Transportation Noise Mitigation Measures							
Receptor ID	**Lot #**	**Air Conditioning[1]**	**Exterior Wall STC Rating[2]**	**Window STC Rating[2]**	**Door STC Rating[2]**	**Acoustic Barrier Height (m)[3]**	**Warning Clause[4]**
POR2	All Units	Required	32[5]	28[6]	26	-	D
OPOR2	Rooftop Terraces	-	-	-	-	1.2	B
Internal Stationary Noise Mitigation Measures							
Internal Noise Source	**Sound Level Reduction**	**Potential Noise Mitigation Measures**					
EX03: Air Cooled Chiller	4 dB	• Locating the rooftop mechanical systems in a fully enclosed mechanical penthouse. Further using acoustic louvers or similar mitigation measures. • Selection of lower noise emission mechanical equipment than specified in this feasibility report.					
EX04: Garage Exhaust Fan	18 dB	• Relocation of proposed source to location which has a greater distance setback from receptors. • Specification of acoustic absorptive material and/or baffles in the garage exhaust shaft. • Selection of lower noise emission mechanical equipment than specified in this feasibility report.					

Notes:

[1] "Provision for adding" means that building must be built so that the occupant can install conditioning in the future, at their discretion. "Required" means that the building must be built with central air conditioning installed.

[2] STC – Sound Transmission Class rating. STC values are based upon the assumption that all wall and window areas are 80% and 30%, respectively, of the corresponding room floor area.

[3] height of an acoustic barrier with no gaps underneath or in the wall.

[4] Notification to potential purchaser of a potential annoyance due to an existing source of environmental noise. Warning clauses should be included in agreements of Offers of Purchase and Sale.

[5] Achievable using standard construction methods.

[6] Minimum window STC unless detailed window STC analysis is undertaken by a qualified acoustic consultant.

Warning Clauses - Transportation Sources

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."

Type B

"Purchasers/tenants are advised that despite the inclusion of noise mitigation 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."

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."

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."

Warning Clauses - Stationary Sources

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."

Warning Clauses – Class 4 Area Notification

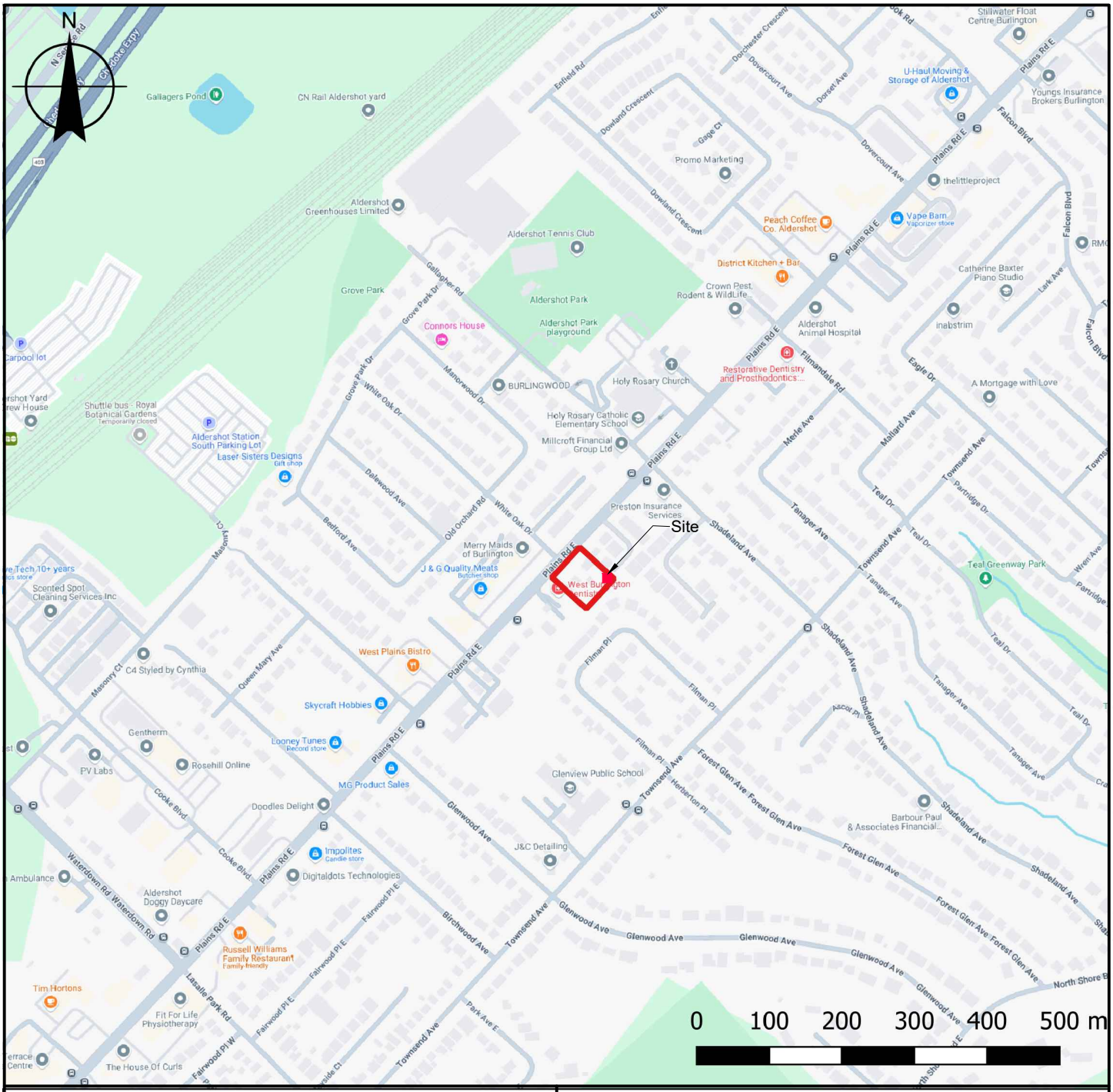
Type F

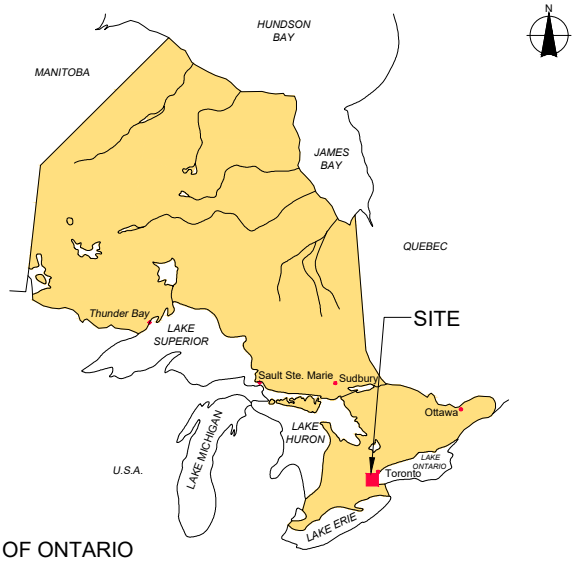
> *"Purchasers/tenants are advised that sound levels due to the adjacent industry (facility) (utility) are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."*

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Figures





KEY MAP OF ONTARIO

BURNSIDE

Client

LANDWISE

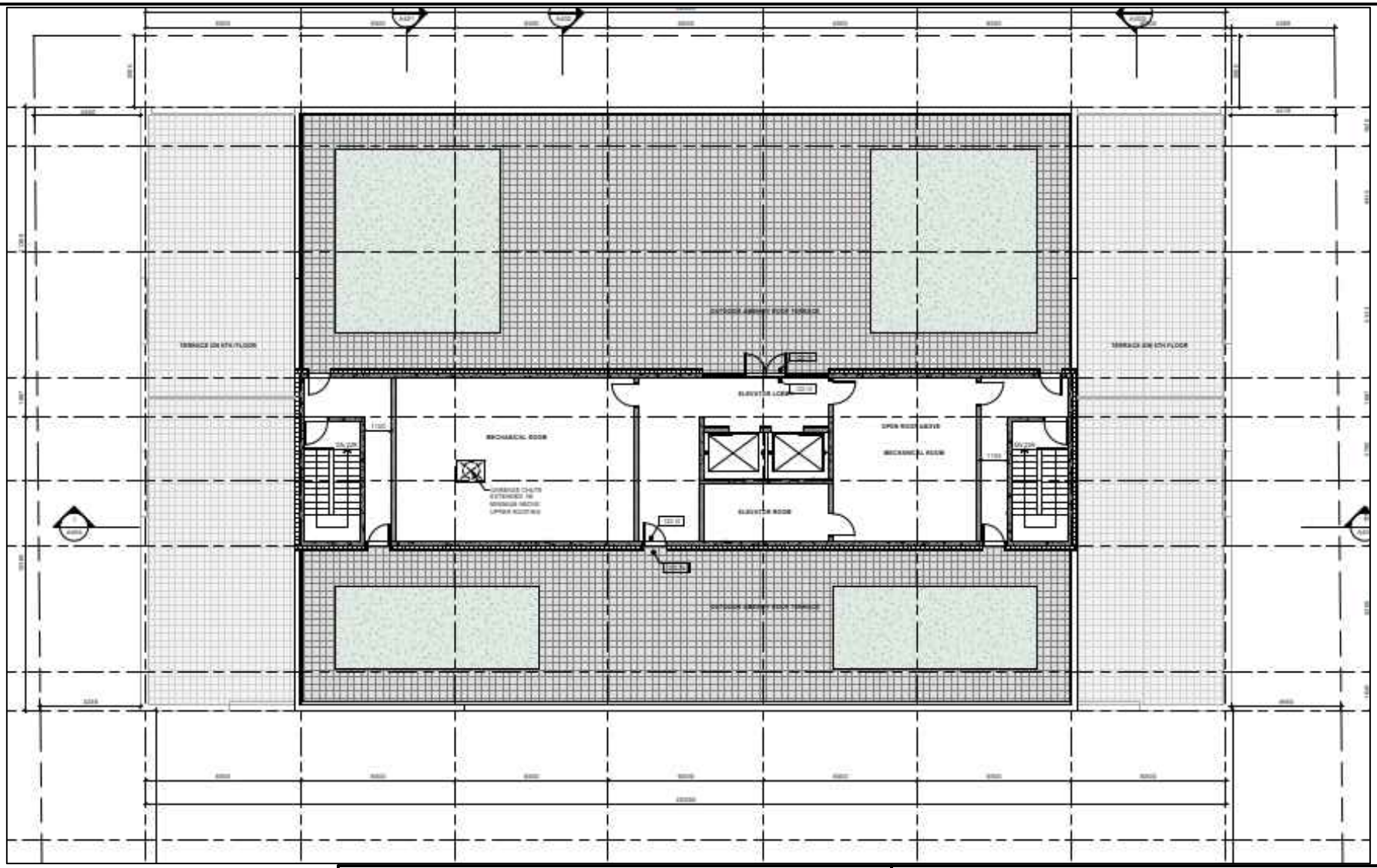
Figure Title

Site Location Map

Environmental Noise Feasibility Assessment

Drawn	Checked	Date	Figure No.
DJ	HW	March 2025	1
Scale		Project No.	
1:3000		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:25 PM



BURNSIDE

Figure Title

Site Plan

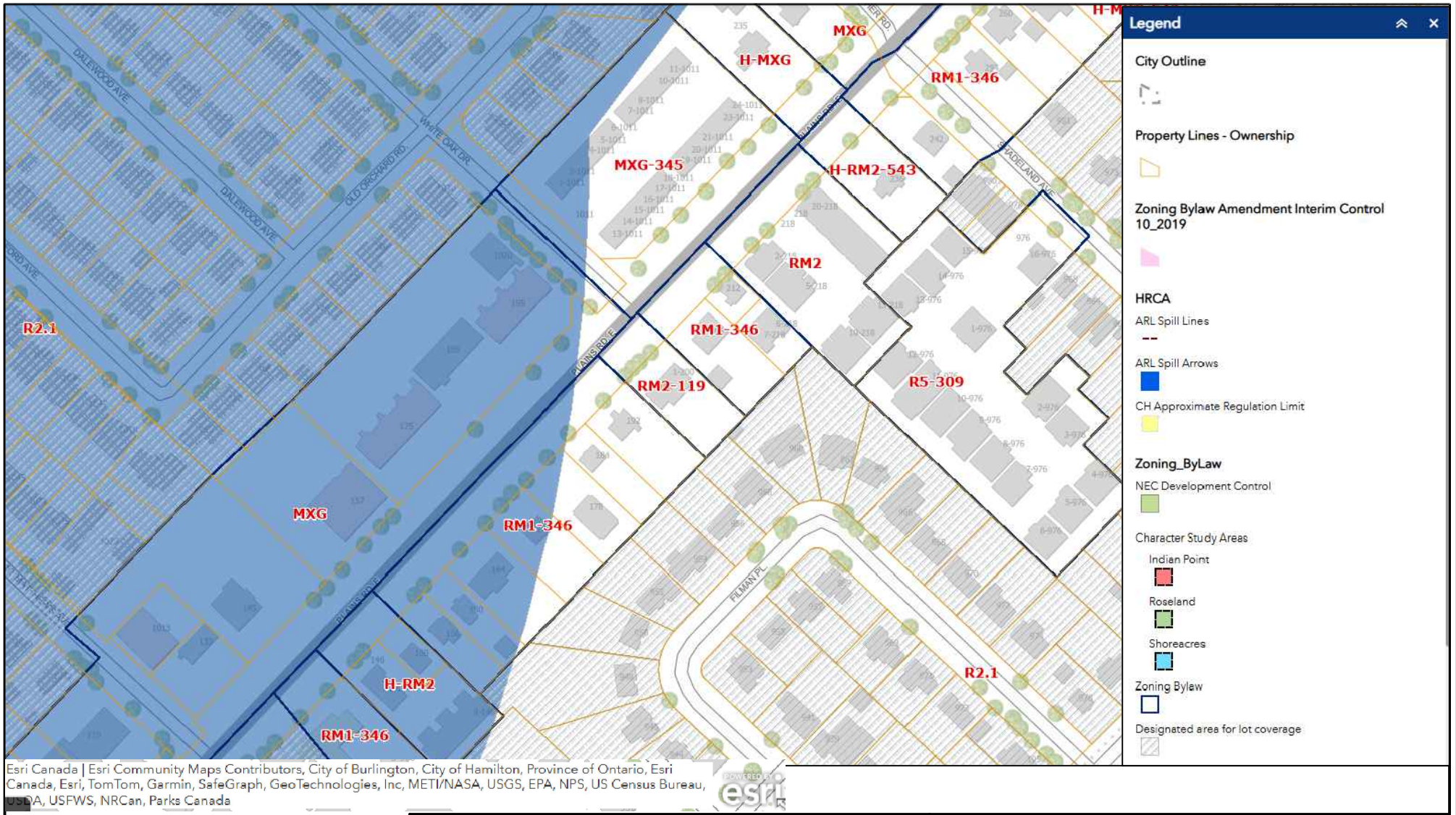
Environmental Noise Feasibility Assessment

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	March 2025	**2**
Scale		Project No.	
N/A		300059257.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:34 PM



BURNSIDE

Figure Title

Zoning and Land Use Plan

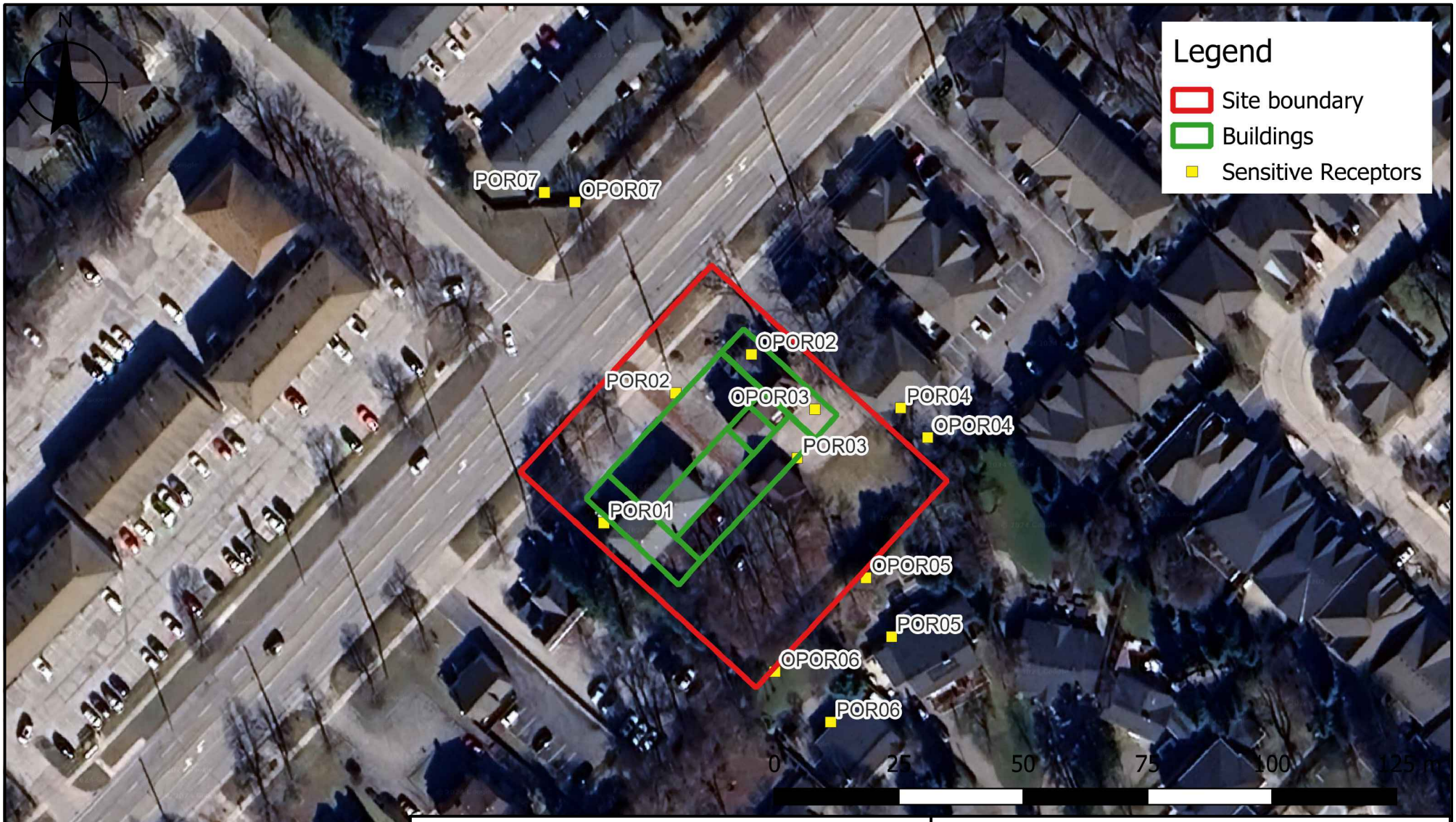
Environmental Noise Feasibility Assessment

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	March 2025	**3**
Scale		Project No.	
NA		300059468.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:25 PM



BURNSIDE

Figure Title

Stationary Noise – Points of Reception

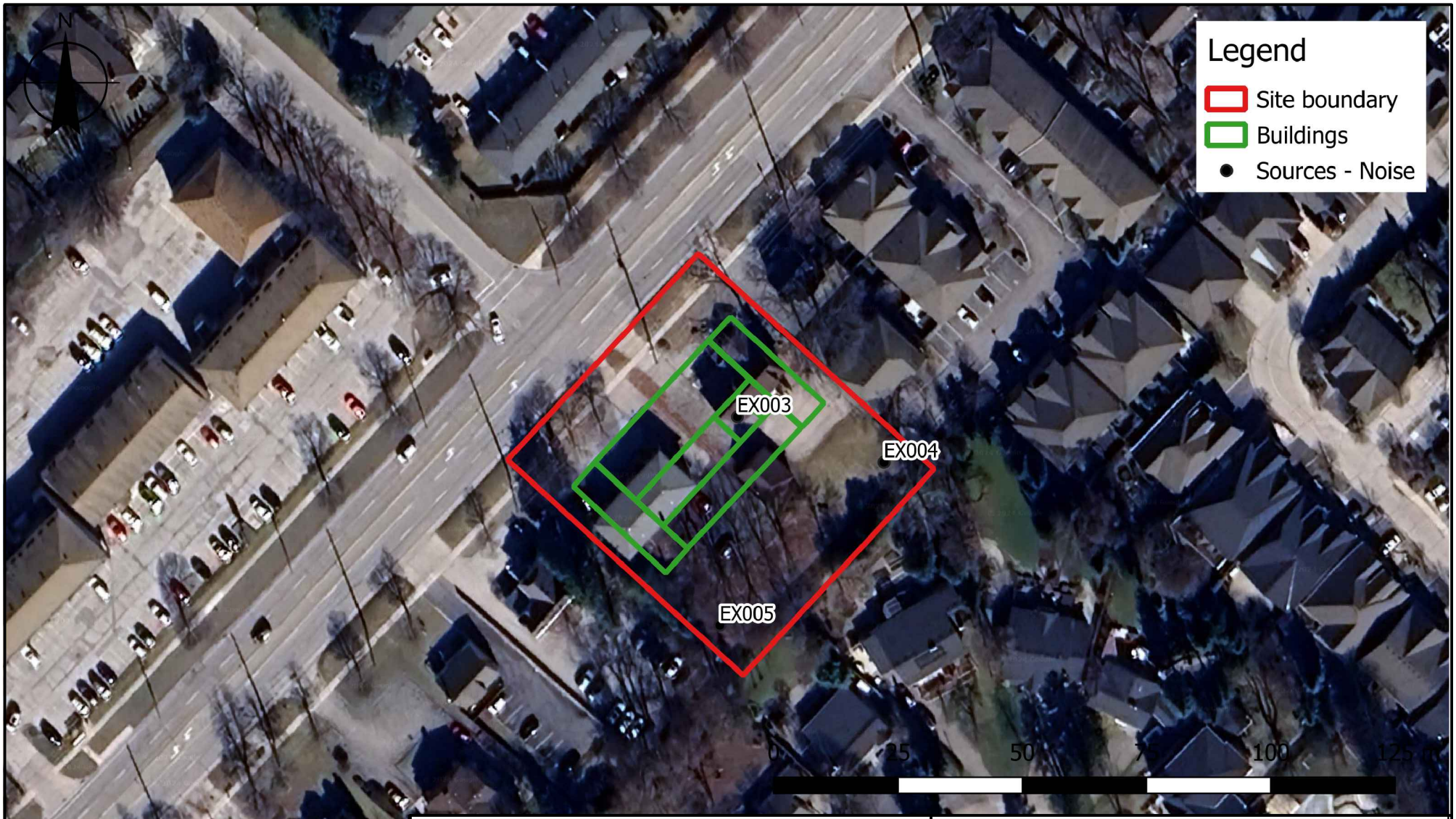
Environmental Noise Feasibility Assessment

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	March 2025	**4**
Scale		Project No.	
1:1100		300059257.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:25 PM



BURNSIDE

Figure Title

Internal Stationary Noise Sources

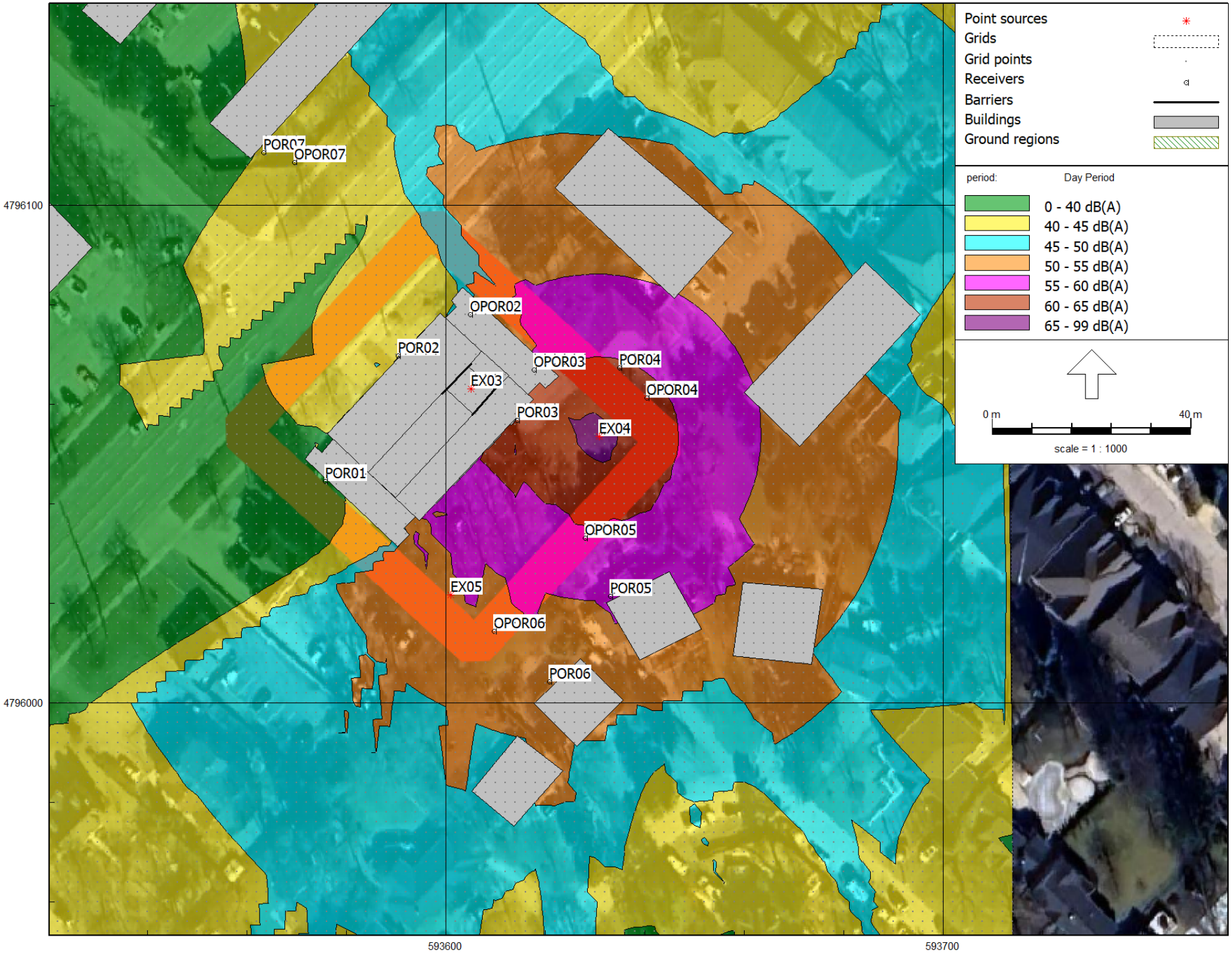
Environmental Noise Feasibility Assessment

Client	Drawn	Checked	Date	Figure No.
LANDWISE	DJ	HW	March 2025	**5**
	Scale		Project No.	
	1:1100		300059257.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:25 PM

Figure 6: Unmitigated Daytime Internal Stationary Noise

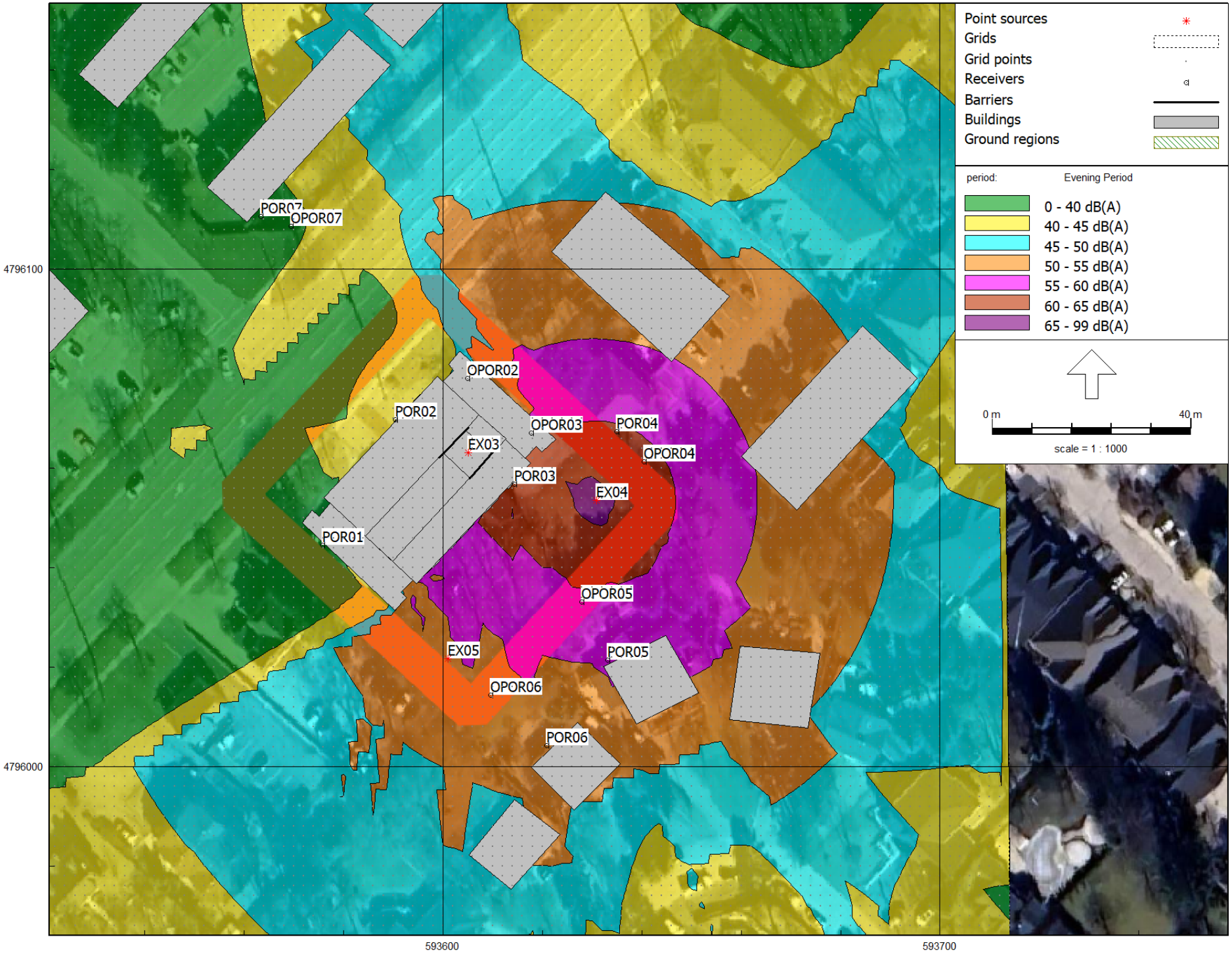
24 Mar 2025, 14:28



ISO 9613-2:1996, [Normal Operations - Internal Unmitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

Figure 7: Unmitigated Evening Internal Stationary Noise
24 Mar 2025, 14:29

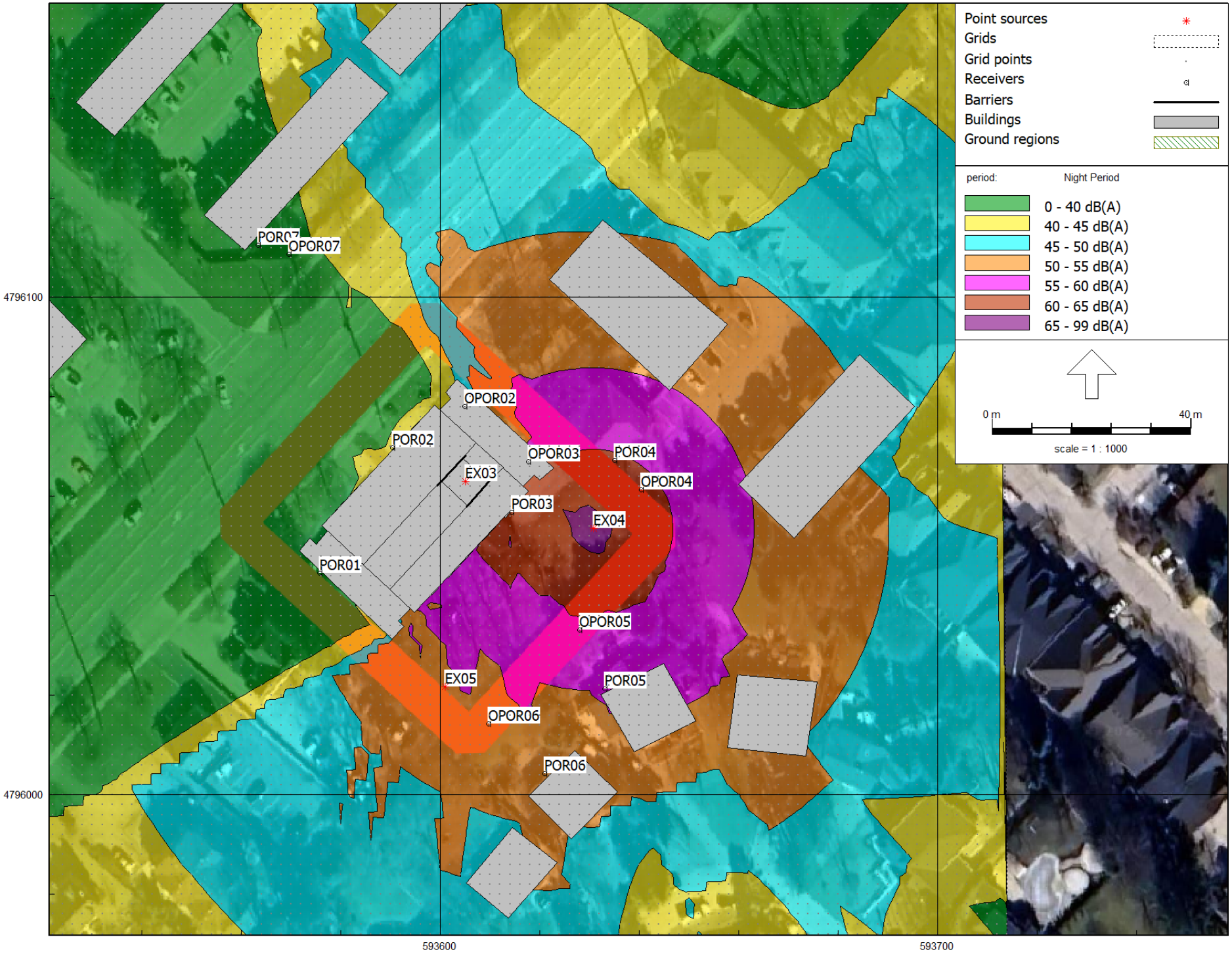


ISO 9613-2:1996, [Normal Operations - Internal Unmitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

Figure 8: Unmitigated Nighttime Internal Stationary Noise

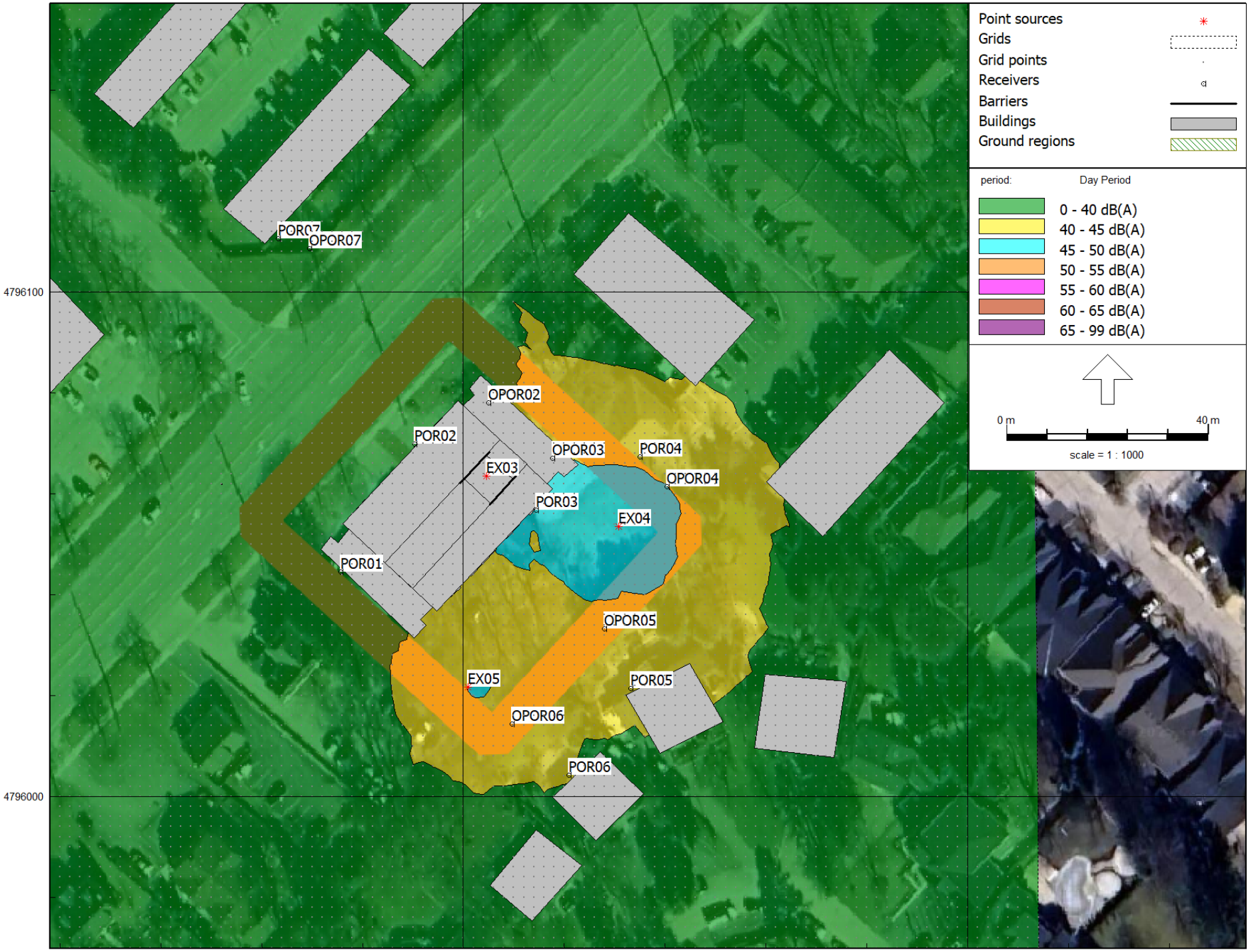
24 Mar 2025, 14:30



ISO 9613-2:1996, [Normal Operations - Internal Unmitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

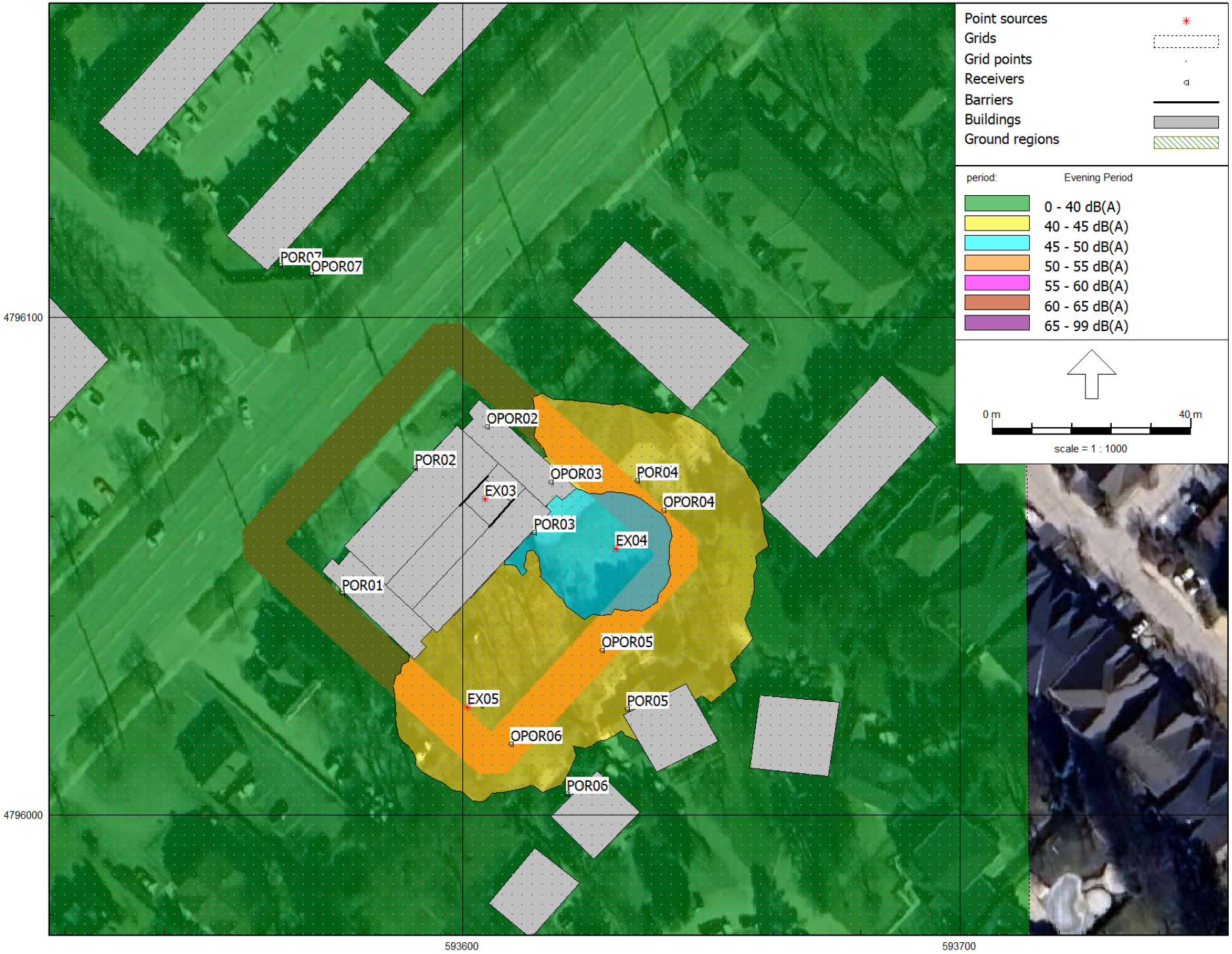
Figure 9: Mitigated Daytime Internal Stationary Noise
24 Mar 2025, 14:31



ISO 9613-2:1996, [Normal Operations - Internal Mitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

Figure 10: Mitigated Evening Internal Stationary Noise
24 Mar 2025, 14:32

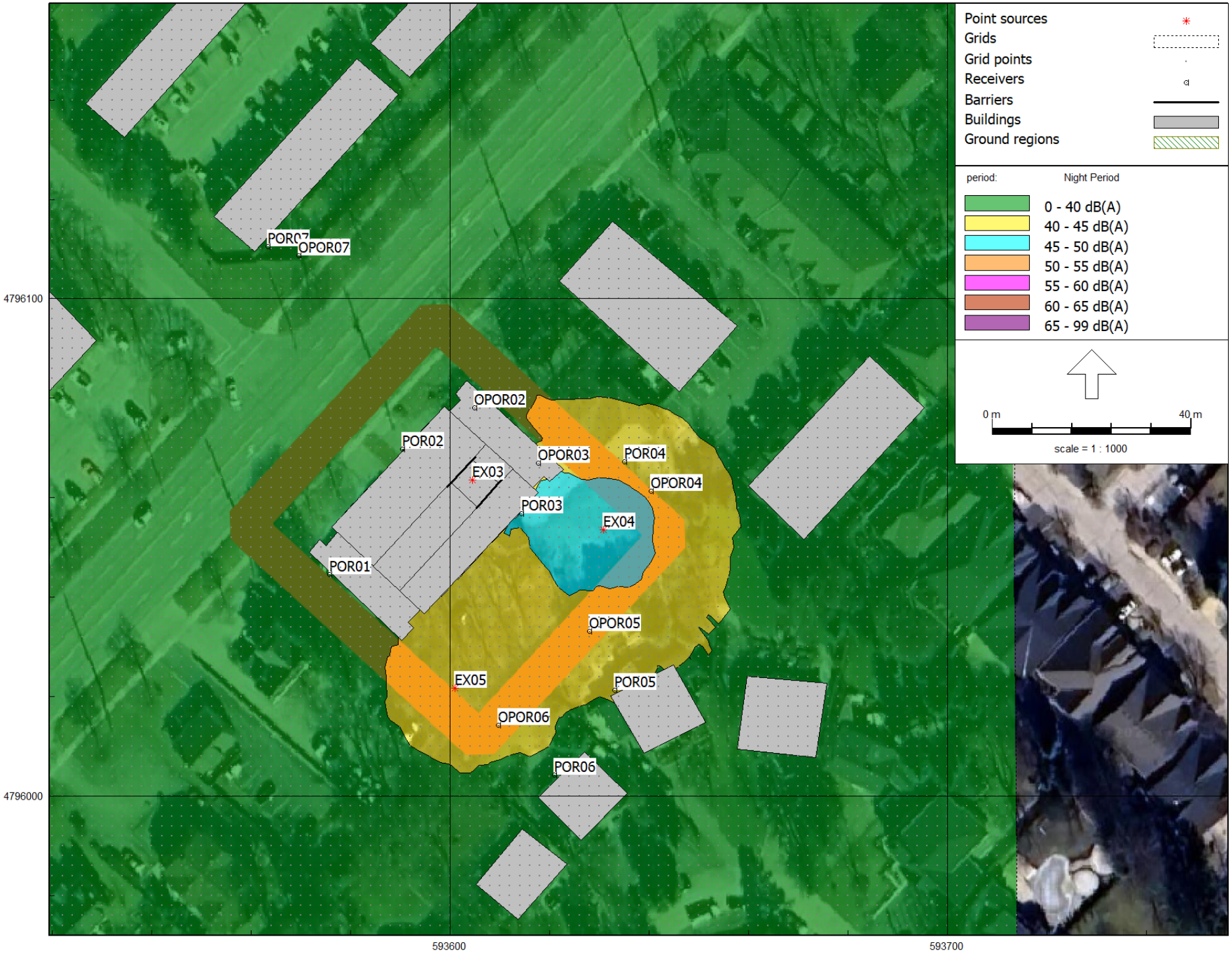


ISO 9613-2:1996, [Normal Operations - Internal Mitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

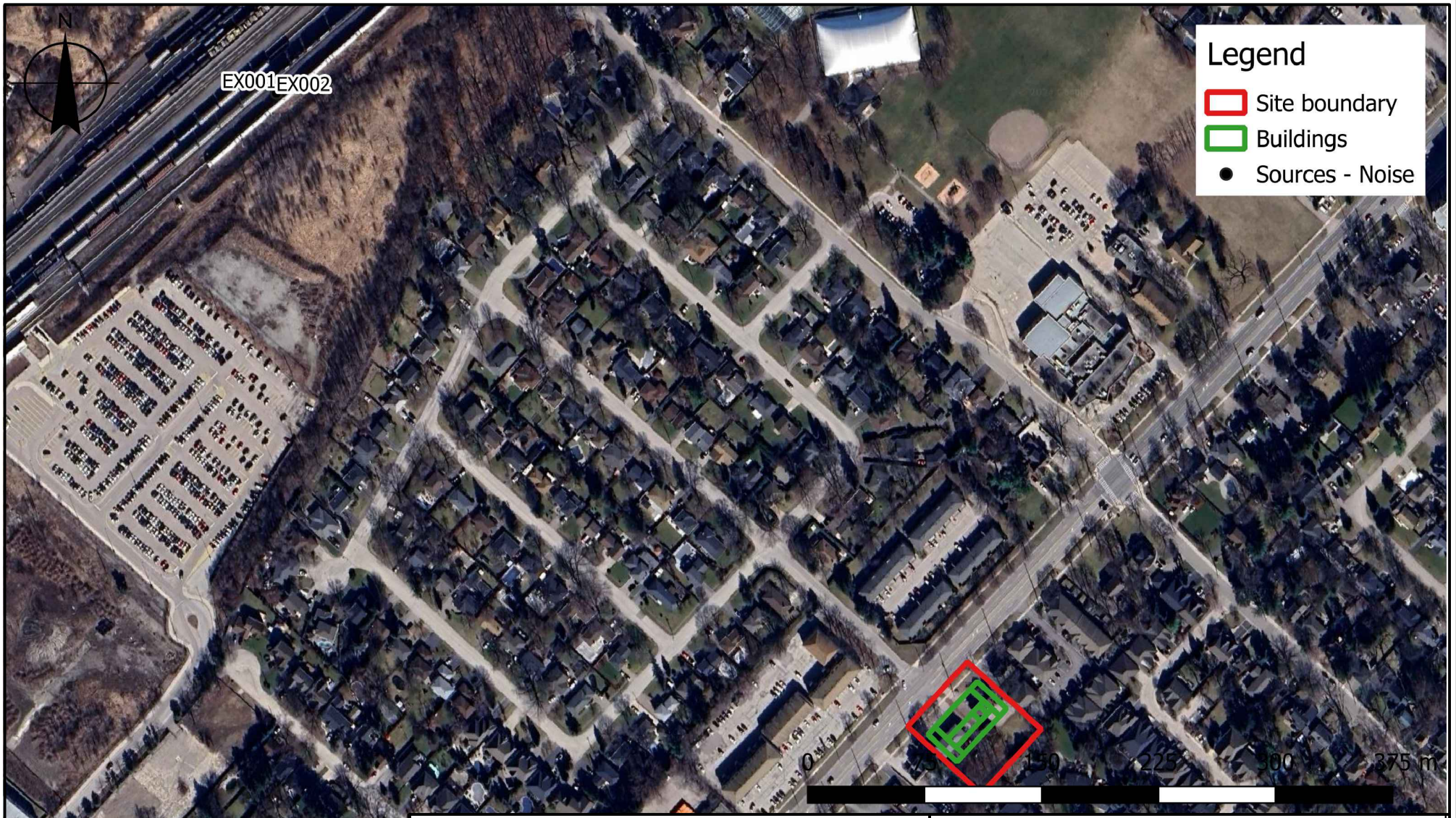
Figure 11: Mitigated Nighttime Internal Stationary Noise

24 Mar 2025, 14:33



ISO 9613-2:1996, [Normal Operations - Internal Mitigated Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada



BURNSIDE

Figure Title

External Stationary Noise Sources

Environmental Noise Feasibility Assessment

Client

LANDWISE

Drawn	Checked	Date	Figure No.
DJ	HW	March 2025	**12**
Scale		Project No.	
1:3500		300059257.0000	

File: C:\Users\djay\RJB\059257 198-200, 206 Plains Road Burlington LUC - Documents\02_Tech Proj Doc\Dwg Fig Map\RJB_Fig Titleblock_8.5x11 (216x279).dwg Date Plotted: March 20, 2025 - 4:24 PM

Figure 13: Unmitigated Daytime External Stationary Noise

24 Mar 2025, 14:35

ISO 9613-2:1996, [Normal Operations - Impluse noise 1/1 Octave Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

Figure 14: Unmitigated Evening External Stationary Noise

24 Mar 2025, 14:36

ISO 9613-2:1996, [Normal Operations - Impluse noise 1/1 Octave Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

Figure 15: Unmitigated Nighttime External Stationary Noise

24 Mar 2025, 14:37

ISO 9613-2:1996, [Normal Operations - Impluse noise 1/1 Octave Model] , iNoise V2024.2 rev 1 Enterprise Licensed to RJ Burnside & Associates Limited - Canada

RJ Burnside & Associates Limited - Canada

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-A

Traffic Data

AADT 2022

Private Member
City of Burlington

Summary

City of Burlington Annual Average Daily Traffic (AADT) - Year 2022

View Full Details

Download

Details

Dataset
Feature Layer

April 12, 2024
Info Updated

April 12, 2024
Data Updated

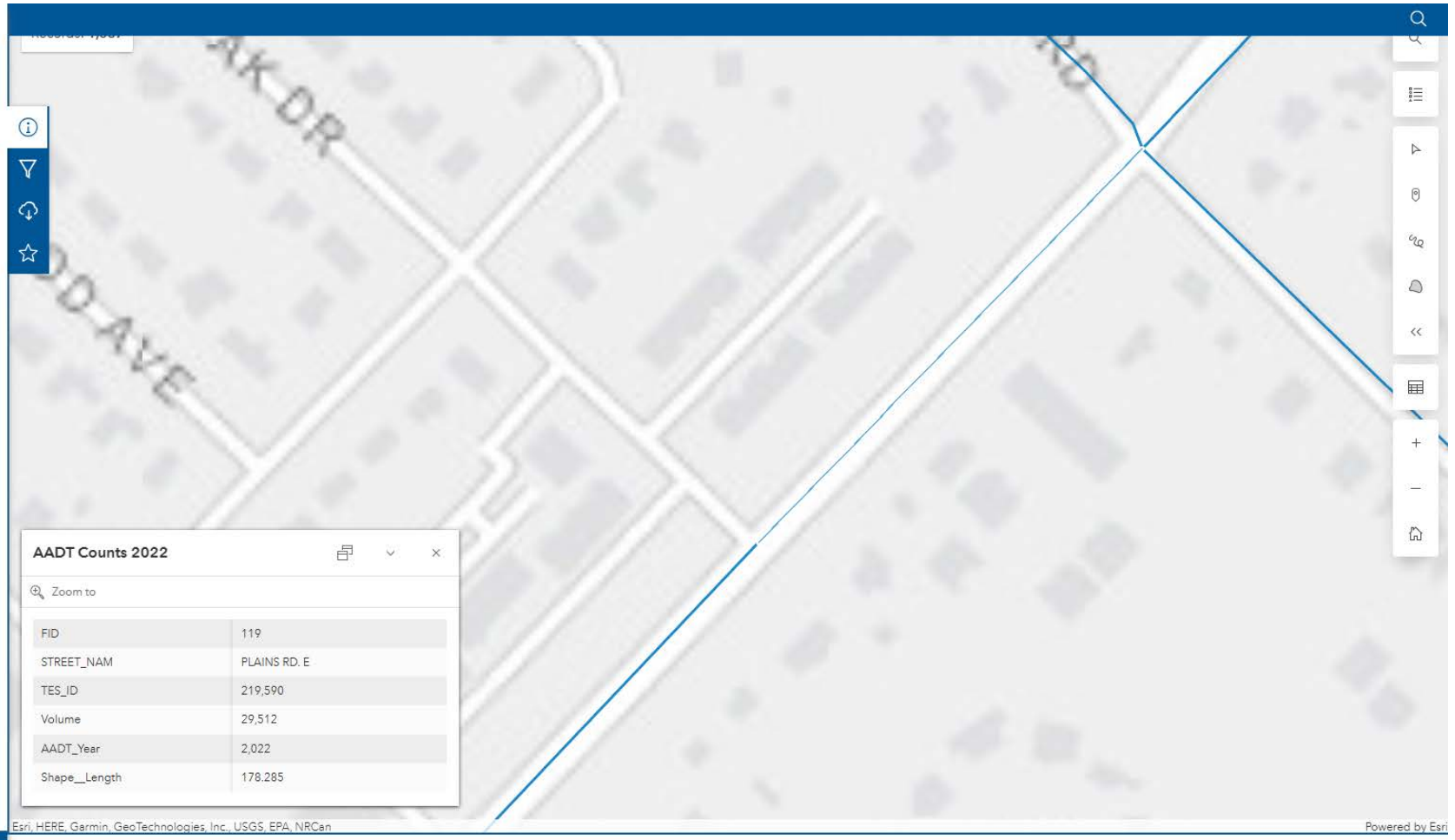
April 12, 2024
Published Date

Records: 1,687
View data table

Public
Anyone can see this content

Custom License
View license details

I want to use this



FID	STREET_NA	TES_ID	Volume	AADT_Year	Shape__Length
1	PINEDALE /	219400	6497	2022	61.50203
2	DRYDEN A\	231020	4758	2022	71.69883
112	PINEMEAD	228380	3230	2022	352.6162
113	PLAINS RD	219730	8549	2022	284.4307
114	JANINA BL\	212010	230	2022	145.1204
115	HEADON F	232240	3473	2022	137.3929
116	MOUNT FO	216670	3538	2022	150.2139
117	SOUTH SEI	233060	1689	2022	382.3199
118	HEADON F	230830	5566	2022	114.6695
119	PLAINS RD	219590	29512	2022	178.2845
120	DEERHURS	229210	1294	2022	282.5036
121	GUELPH LI	209710	10760	2022	144.2173
122	HAZELTON	227660	114	2022	293.9549
123	TURNBERR	233300	713	2022	90.36601
124	BRANT ST.	202330	29193	2022	152.4289

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-B

MECP Sound Level Limits

APPENDIX NV-B

Table B-1: Sound Level Limit for Outdoor Living Areas – Road and Rail

Time Period	L_{eq}(16)(dBA)
16-hour, 07:00 – 23:00	55

Table B-2: Indoor Sound Level Limits – Road and Rail

Type of Space	Time Period	L_{eq} (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
Sleeping quarters	23:00 – 07:00	40	35

Table B-3: Road Noise Control Measures – Outdoor Living Areas

Sound Levels	Measures
≤ 55 dBA	Noise control measures may not be required.
> 55 dBA and ≤ 60 dBA	Noise control measures may be applied, otherwise warning clause Type A.
> 60 dBA	Noise control measures should be implemented to reduce the levels to 55 dBA, otherwise warning clause Type B.

Table B-4: Plane of a Window – Ventilation Requirements

Daytime Period, 07:00 – 23:00 Hours

Sound Levels	Measures
≤ 55 dBA	Noise control measures may not be required.
> 55 dBA and ≤ 65 dBA	The dwelling should be designed with a provision of for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.
> 65 dBA	Installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2.

Table B-5: Plane of a Window – Ventilation Requirements

Nighttime Period, 23:00 – 07.00 Hours

Sound Levels	Measures
≤ 50 dBA	Noise control measures may not be required.
> 50 dBA and ≤ 60 dBA	The dwelling should be designed with a provision of for the installation of central air conditioning in the future, at the occupant's discretion. Warning clause Type C is also recommended.
> 60 dBA	Installation of central air conditioning should be implemented with a warning clause Type D. In addition, building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2.

Table B-6: Indoor Living Areas – Building Components

Sound Levels	Measures
> 60 dBA nighttime > 65 dBA daytime	Building components including windows, walls and doors, where applicable, should be designed so that the indoor sound levels comply with the sound level limits in Table B-2. The acoustical performance of the building components (windows, doors and walls) should be specified.

Table B-7: MECP Table C-5 of NPC-300: Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50 dBA	50 dBA	45 dBA	55 dBA
19:00 – 23:00	50 dBA	45 dBA	40 dBA	55 dBA

Table B-8: MECP Table C-6 of NPC-300: Exclusion Limit Values of One-Hour Equivalent Sound Level (L_{eq}, dBA) Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50 dBA	50 dBA	45 dBA	60 dBA
19:00 – 23:00	50 dBA	50 dBA	40 dBA	60 dBA
23:00 – 07:00	45 dBA	45 dBA	40 dBA	55 dBA

Table B-9: MECP Table C-7 of NPC-300: Exclusion Limit Values of Impulsive Sound Level (LLM, dBAI) Outdoor Points of Reception

Time of Day	Actual number of impulses in Period of one hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
07:00 – 23:00	7 to 8	55	55	50	60
07:00 – 23:00	5 to 6	60	60	55	65
07:00 – 23:00	4	65	65	60	70
07:00 – 23:00	3	70	70	65	75
07:00 – 23:00	2	75	75	70	80
07:00 – 23:00	1	80	80	75	85

Table B-10: MECP Table C-8 of NPC-300: Exclusion Limit Values of Impulsive Sound Level (LLM, dBAI) Plane of Window – Noise Sensitive Spaces (Day/Night)

Actual number of impulses in Period of one hour	Class 1 Area (7:00-23:00) / (23:00-7:00)	Class 2 Area (7:00-23:00) / (23:00-7:00)	Class 3 Area (7:00-19:00) / (19:00-7:00)	Class 4 Area (7:00-23:00) / (23:00-7:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-C

Sample Transportation Noise Modeling Printouts

STAMSON 5.0 NORMAL REPORT Date: 20-03-2025 09:43:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: amb.te Time Period: 24 hours
Description: POR02 ambient calculation

Road data, segment # 1: Plains Rd E

Car traffic volume : 29494 veh/TimePeriod *
Medium truck volume : 912 veh/TimePeriod *
Heavy truck volume : 0 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Plains Rd E

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface) Receiver source distance : 22.00 m
Receiver height : 4.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Results segment # 1: Plains Rd E

Source height = 0.50 m

ROAD (0.00 + 65.08 + 0.00) = 65.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.75	0.00	-1.66	0.00	0.00	0.00	0.00	65.08

Segment Leq : 65.08 dBA

Total Leq All Segments: 65.08 dBA

TOTAL Leq FROM ALL SOURCES: 65.08

Road/Segment Name	Select Road Type	Time	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Min Day	Min Eve	Min Night	Total Count
Plains Rd E	City Street - 60 km/hr	Count	199	146	90	72	80	215	566	969	1472	1016	1023	832	1142	1191	1220	1450	1586	1525	1298	978	794	645	498	387	832	498	72	29494
		%	0.67%	0.50%	0.31%	0.24%	0.27%	0.73%	1.92%	3.29%	4.99%	3.44%	3.47%	2.82%	3.87%	4.04%	4.14%	4.92%	5.38%	5.17%	4.40%	3.32%	2.69%	2.19%	1.69%	1.31%	2.82%	1.69%	0.24%	

Road/Segment Name	24 Hour Leq (dBA)	Time	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Min Day	Min Eve	Min Night
Plains Rd E	65.05	1hr Leq	57	56	54	53	53	57	62	64	66	64	64	63	65	65	65	66	66	66	65	64	63	62	61	60	**63**	**61**	**53**

STAMSON 5.0 NORMAL REPORT Date: 24-03-2025 10:08:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: olab.te Time Period: Day/Night 16/8 hours Description: OLA - 6th floor roof with parapet

Road data, segment # 1: Plains Rd E (day/night)

Car traffic volume : 35516/3946 veh/TimePeriod *
Medium truck volume : 1098/122 veh/TimePeriod *
Heavy truck volume : 0/0 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): 29512
Percentage of Annual Growth : 2.50
Number of Years of Growth : 13.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Plains Rd E (day/night)

Angle1 Angle2 : -45.00 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 : 19.50 / 19.50 m
Topography : 2 (Flat/gentle slope; with barrier) Barrier angle1 : -45.00 deg Angle2 : 90.00 deg
Barrier height : 20.70 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: Plains Rd E (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of Height (m) ! Height (m) ! Height (m) ! Barrier Top (m) ----------+----------+----------+----------
0.50 ! 19.50 ! 17.22 ! 17.22

ROAD (0.00 + 49.49 + 0.00) = 49.49 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-45 90 0.00 69.31 0.00 -2.22 -1.25 0.00 0.00 -16.35 49.49

Segment Leq : 49.49 dBA

Total Leq All Segments: 49.49 dBA

Results segment # 1: Plains Rd E (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m) ---
+---+---+---
0.50 ! 19.50 ! 17.22 ! 17.22
ROAD (0.00 + 42.96 + 0.00) = 42.96 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-45 90 0.00 62.78 0.00 -2.22 -1.25 0.00 0.00 -16.35 42.96

Segment Leq : 42.96 dBA

Total Leq All Segments: 42.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 49.49
(NIGHT): 42.96

STAMSON 5.0 NORMAL REPORT Date: 20-03-2025 10:43:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: olaroof.te Time Period: Day/Night 16/8 hours Description: OLA - 6th floor roof

Road data, segment # 1: Plains Rd E (day/night)

Car traffic volume : 35516/3946 veh/TimePeriod *
Medium truck volume : 1098/122 veh/TimePeriod *
Heavy truck volume : 0/0 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): 29512
Percentage of Annual Growth : 2.50
Number of Years of Growth : 13.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Plains Rd E (day/night)

Angle1 Angle2 : -45.00 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 : 19.50 / 19.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Results segment # 1: Plains Rd E (day)

Source height = 0.50 m

ROAD (0.00 + 65.85 + 0.00) = 65.85 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-45 90 0.00 69.31 0.00 -2.22 -1.25 0.00 0.00 0.00 65.85

Segment Leq : 65.85 dBA
Total Leq All Segments: 65.85 dBA

Results segment # 1: Plains Rd E (night)

Source height = 0.50 m

ROAD (0.00 + 59.31 + 0.00) = 59.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.00	62.78	0.00	-2.22	-1.25	0.00	0.00	0.00	59.31

Segment Leq : 59.31 dBA

Total Leq All Segments: 59.31 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.85
 (NIGHT): 59.31

STAMSON 5.0 NORMAL REPORT Date: 20-03-2025 09:36:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: por2flr.te Time Period: Day/Night 16/8 hours Description: POW calc at 2nd floor

Road data, segment # 1: Plains Rd E (day/night)

Car traffic volume : 35516/3946 veh/TimePeriod *
Medium truck volume : 1098/122 veh/TimePeriod *
Heavy truck volume : 0/0 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): 29512
Percentage of Annual Growth : 2.50
Number of Years of Growth : 13.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 90.00
Data for Segment # 1: Plains Rd E (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 : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier) Reference angle : 0.00

Results segment # 1: Plains Rd E (day)

Source height = 0.50 m

ROAD (0.00 + 67.65 + 0.00) = 67.65 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
---
-90 90 0.00 69.31 0.00 -1.66 0.00 0.00 0.00 0.00 67.65

Segment Leq : 67.65 dBA
Total Leq All Segments: 67.65 dBA

Results segment # 1: Plains Rd E (night)

Source height = 0.50 m

ROAD (0.00 + 61.12 + 0.00) = 61.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.78	0.00	-1.66	0.00	0.00	0.00	0.00	61.12

Segment Leq : 61.12 dBA

Total Leq All Segments: 61.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.65
 (NIGHT): 61.12

Required Sound Transmission Class (STC) Calculation - Nighttime

Predicted Outdoor sound level (dBA)	68
Required indoor sound level (dBA)	45
Room Absorption	Intermediate
Noise spectrum type	D - Mixed Road traffic, D
Sound comes from	0 to 90
Room floor area (m2)	30
Total area of wall that is receiving sound (m2)	22
Area of that wall that is window (in wall above) (m2)	6
Area of 2nd wall that is a door (m2)	2
Wall component category	d. Sealed thick windov
Window component category	b. Double exterior doo
Door component category	a. Single exterior door
Reflection from the building (adjustment to predicted noise) (dB)	3

1	Outdoor sound level (dBA)		71	
	Indoor sound level (dBA)		45	
2	Sound comes from (deg angle)		0 to 90	
		Correction from Table 2 (dB)	0	
	Required noise reduction (dB)			**26**

Wall component:

3	% of Surface area impacted by noise source (%)		72.7	
		Correction from Table 3 (dB)		1
4	Wall Component area (m2)		16	
	Room floor area (m2)		30	
	Wall Component area (% floor area)		53.33	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-2
5	Noise spectrum type (see Figure 1)		D	
	Wall Component category (Table 5)		d	
		Correction from Table 5 (dB)		7
			Wall Required STC	**32**

Window component:

3	% of Surface area impacted by noise source (%)		27.3	
		Correction from Table 3 (dB)		6
4	Window Component area (m2)		6	
	Room floor area (m2)		30	
	Window Component area (% floor area)		20	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-6
5	Noise spectrum type (see Figure 1)		D	
	Window Component category (Table 5)		b	
		Correction from Table 5 (dB)		2
			Window Required STC	**28**

Door component:

3	% of Surface area impacted by noise source (%)		9.1	
		Correction from Table 3 (dB)		10
4	Door Component area (m2)		2	
	Room floor area (m2)		30	
	Door Component area (% floor area)		6.67	
	Room absorption category		Intermediate	
		Correction from Table 4 (dB)		-11
5	Noise spectrum type (see Figure 1)		D	
	Door Component category (Table 5)		a	
		Correction from Table 5 (dB)		1
			Door Required STC	**26**

Source:
Controlling Sound Transmission into Buildings, NRCC 1985
L:\Reference Docs\Noise\Controlling Sound Transmission into Building - NRCC - 1985.pdf

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-D

Sample Internal Stationary Noise Modeling Printouts

Appendix C: Predictor Inputs

Point Source Limit of 100

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X	Y	Height	Rel.H	Abs.H	Terrain L
1	--	379	0	######	EX04	Garage	Point	593630.8	4796054	0	0	0	0
2	--	380	0	######	EX03	HVAC	Point	593604.5	4796064	1.5	1.5	23.2	21.7
3	--	695	0	######	EX05	Transfo	Point	593601	4796022	1	1	1	0

Grid Limit of 20

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cn	Name	Desc.	Shape	X1	Y1	Height	Rel.H
1	--	688	0	######	####	####	Grid01		Polygon	593712.8	4796201	10.5	10.5

Receiver Limit of 88

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cn	Name	Desc.	Shape	X	Y	Terrain L	HDef.
1	--	315	0	######	####	4	POR0	198 - 206F	Point	593575.7	4796045	0	Relative
2	--	316	0	######	####	5	POR0	198-200-2	Point	593590.4	4796070	0	Relative
3	--	345	0	######	####	5	POR0	198-200-2	Point	593614.4	4796057	0	Relative
4	--	678	0	######	####	1	OPOR02		Point	593605	4796078	18.3	Relative to
5	--	679	0	######	####	2	POR04		Point	593635	4796067	0	Relative
6	--	680	0	######	####	2	POR05		Point	593633.2	4796021	0	Relative
7	--	681	0	######	####	1	OPOR03		Point	593617.7	4796067	18.3	Relative to
8	--	682	0	######	####	1	OPOR05		Point	593628	4796033	0	Relative
9	--	683	0	######	####	2	POR06		Point	593620.9	4796004	0	Relative
10	--	684	0	######	####	1	OPOR06		Point	593609.7	4796014	0	Relative
11	--	685	0	######	####	2	POR07		Point	593563.4	4796111	0	Relative
12	--	686	0	######	####	1	OPOR07		Point	593569.5	4796109	0	Relative
13	--	687	0	######	####	1	OPOR04		Point	593640.4	4796061	0	Relative

Barrier Limit of 20

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cn	Name	Desc.	Shape	X1	Y1	Xn	Yn
1	--	648	0	######	####	1	MPHw	Mechanica	Polyline	593605.4	4796058	593610.3	4796064
2	--	649	0	######	####	1	MPHw	Mechanica	Polyline	593599.4	4796062	593605.1	4796068

Building Limit of 100

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X1	Y1	Height	Rel.H	Abs.H	Terrain L
1	--	338	0	######	Plaza	White	Polygo	593439.1	4796017	6	6	6	0
2	--	344	0	######	6StryB	6 Story	Polygo	593603.5	4796083	18.3	18.3	18.3	0
3	--	382	0	######			Polygo	593526.7	4796139	6	6	6	0
4	--	383	0	######			Polygo	593552.5	4796117	6	6	6	0
5	--	384	0	######			Polygo	593584.1	4796151	6	6	6	0
6	--	385	0	######			Polygo	593559	4796175	6	6	6	0
7	--	387	0	######			Polygo	593234	4796167	6	6	6	0
8	--	388	0	######			Polygo	593249.5	4796153	6	6	6	0
9	--	389	0	######			Polygo	593266.1	4796136	6	6	6	0
10	--	390	0	######			Polygo	593339.1	4796063	6	6	6	0
11	--	399	0	######			Polygo	593297.5	4796110	6	6	6	0
12	--	400	0	######			Polygo	593311.3	4796097	6	6	6	0
13	--	401	0	######			Polygo	593328.1	4796084	6	6	6	0
14	--	402	0	######			Polygo	593281.4	4796124	6	6	6	0
15	--	427	0	######			Polygo	593287.1	4796240	6	6	6	0
16	--	428	0	######			Polygo	593302.6	4796226	6	6	6	0
17	--	429	0	######			Polygo	593319.2	4796210	6	6	6	0
18	--	430	0	######			Polygo	593397.4	4796139	6	6	6	0
19	--	431	0	######			Polygo	593350.6	4796184	6	6	6	0
20	--	432	0	######			Polygo	593364.4	4796171	6	6	6	0
21	--	433	0	######			Polygo	593381.2	4796157	6	6	6	0
22	--	434	0	######			Polygo	593334.6	4796197	6	6	6	0
23	--	435	0	######			Polygo	593266.9	4796253	6	6	6	0
24	--	436	0	######			Polygo	593184.8	4796196	6	6	6	0
25	--	509	0	######			Polygo	593544.4	4796302	6	6	6	0
26	--	510	0	######			Polygo	593488.1	4796235	6	6	6	0
27	--	511	0	######			Polygo	593384.3	4796325	6	6	6	0
28	--	512	0	######			Polygo	593397.5	4796313	6	6	6	0
29	--	513	0	######			Polygo	593414.1	4796298	6	6	6	0
30	--	514	0	######			Polygo	593428.5	4796285	6	6	6	0
31	--	515	0	######			Polygo	593443.9	4796272	6	6	6	0
32	--	516	0	######			Polygo	593460.3	4796261	6	6	6	0
33	--	517	0	######			Polygo	593472.2	4796244	6	6	6	0
34	--	518	0	######			Polygo	593341.3	4796310	6	6	6	0
35	--	519	0	######			Polygo	593460.9	4796205	6	6	6	0
36	--	520	0	######			Polygo	593357.1	4796295	6	6	6	0
37	--	521	0	######			Polygo	593370.3	4796283	6	6	6	0
38	--	522	0	######			Polygo	593387	4796268	6	6	6	0
39	--	523	0	######			Polygo	593401.3	4796254	6	6	6	0
40	--	524	0	######			Polygo	593416.8	4796241	6	6	6	0
41	--	525	0	######			Polygo	593433.1	4796231	6	6	6	0
42	--	526	0	######			Polygo	593445	4796214	6	6	6	0
43	--	527	0	######			Polygo	593305.9	4796279	6	6	6	0
44	--	528	0	######			Polygo	593322.1	4796269	6	6	6	0
45	--	529	0	######			Polygo	593336.5	4796254	6	6	6	0
46	--	530	0	######			Polygo	593407.8	4796186	6	6	6	0
47	--	531	0	######			Polygo	593362.9	4796228	6	6	6	0
48	--	532	0	######			Polygo	593378.4	4796216	6	6	6	0
49	--	533	0	######			Polygo	593391.3	4796203	6	6	6	0
50	--	534	0	######			Polygo	593349.8	4796242	6	6	6	0
51	--	535	0	######			Polygo	593313.8	4796339	6	6	6	0
52	--	536	0	######			Polygo	593422.3	4796174	6	6	6	0
53	--	538	0	######			Polygo	593265.1	4796198	6	6	6	0
54	--	539	0	######			Polygo	593280.6	4796184	6	6	6	0
55	--	540	0	######			Polygo	593297.2	4796167	6	6	6	0
56	--	541	0	######			Polygo	593370.2	4796093	6	6	6	0
57	--	542	0	######			Polygo	593328.6	4796141	6	6	6	0
58	--	543	0	######			Polygo	593342.4	4796128	6	6	6	0
59	--	544	0	######			Polygo	593359.2	4796115	6	6	6	0
60	--	545	0	######			Polygo	593312.5	4796155	6	6	6	0
61	--	546	0	######			Polygo	593251.4	4796207	6	6	6	0
62	--	547	0	######			Polygo	593370.6	4796340	6	6	6	0
63	--	548	0	######			Polygo	593464.3	4796358	6	6	6	0
64	--	549	0	######			Polygo	593290.5	4796288	6	6	6	0
65	--	550	0	######			Polygo	593325.9	4796320	6	6	6	0
66	--	551	0	######			Polygo	593222.3	4796174	6	6	6	0
67	--	552	0	######			Polygo	593240.8	4796294	6	6	6	0
68	--	553	0	######			Polygo	593196.6	4796213	6	6	6	0
69	--	554	0	######			Polygo	593205.2	4796226	6	6	6	0
70	--	555	0	######			Polygo	593214.9	4796244	6	6	6	0
71	--	556	0	######			Polygo	593221.5	4796263	6	6	6	0
72	--	557	0	######			Polygo	593231.9	4796277	6	6	6	0
73	--	558	0	######			Polygo	593261.6	4796349	6	6	6	0
74	--	559	0	######			Polygo	593249	4796308	6	6	6	0
75	--	560	0	######			Polygo	593272.7	4796364	6	6	6	0
76	--	561	0	######			Polygo	593301.2	4796395	6	6	6	0
77	--	562	0	######			Polygo	593261.7	4796322	6	6	6	0
78	--	563	0	######			Polygo	593318.2	4796423	6	6	6	0
79	--	564	0	######			Polygo	593345.6	4796449	6	6	6	0
80	--	565	0	######			Polygo	593336.8	4796359	6	6	6	0
81	--	566	0	######			Polygo	593450.6	4796339	6	6	6	0
82	--	567	0	######			Polygo	593357.6	4796352	6	6	6	0
83	--	568	0	######			Polygo	593502.3	4796339	6	6	6	0
84	--	569	0	######			Polygo	593516.7	4796326	6	6	6	0
85	--	570	0	######			Polygo	593533.3	4796313	6	6	6	0
86	--	571	0	######			Polygo	593517.9	4796268	6	6	6	0
87	--	572	0	######			Polygo	593475.8	4796305	6	6	6	0
88	--	573	0	######			Polygo	593490.2	4796292	6	6	6	0

Day — Limit 100 Sources, 88 PORs

Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	11.2	11.2	11.2	11.2	11.1	11.1	11	11	11.2	11.2	11.1	11.1	11
0	33.8	33.8	34.1	34.1	34.6	34.6	35.5	35.5	38.3	38.3	39.2	39.2	40
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	35	35	35.2	35.2	35.6	35.6	36.3	36.3	38.3	38.3	39.2	39.2	40

Evening — Limit 100 Sources

Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	11.2	11.2	11.2	11.2	11.1	11.1	11	11	11.2	11.2	11.1	11.1	11
0	32.5	32.5	32.9	32.9	33.3	33.3	34.3	34.3	37.1	37.1	38	38	38.7
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	34.1	34.1	34.3	34.3	34.6	34.6	35.2	35.2	37.1	37.1	38	38	38.7
	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--	--	--

Night — Limit 100 Sources

Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	11.2	11.2	11.2	11.2	11.1	11.1	11	11	11.2	11.2	11.1	11.1	11
0	30.8	30.8	31.1	31.1	31.6	31.6	32.5	32.5	35.3	35.3	36.2	36.2	37
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	32.9	32.9	33.1	33.1	33.3	33.3	33.9	33.9	35.3	35.3	36.2	36.2	37

Limit of 88

Description	Height	Day	Evening	Night	Lden	Li		
Description	X	Y	Height	Day	Evenin	Night	Li	
	6E+05	5E+06	1.5	47	45.7	44	47	
	6E+05	5E+06	1.5	46.7	45.5	43.8	46.7	
	6E+05	5E+06	1.5	46.3	46.2	46	46.3	
	6E+05	5E+06	1.5	43.8	43.7	43.5	43.8	
	6E+05	5E+06	1.5	43.3	43.2	43.1	43.3	
	6E+05	5E+06	1.5	34	32.8	31.1	34	
198 - 206Plains Rd	6E+05	5E+06	7.5	35	34.1	32.9	35	
198 - 206Plains Rd	6E+05	5E+06	10.5	35.2	34.3	33.1	35.2	
198 - 206Plains Rd	6E+05	5E+06	13.5	35.6	34.6	33.3	35.6	

Appendix C: Predictor Inputs

Point Source Limit of 100

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X	Y	Height	Rel.H	Abs.H	Terrain L
1	--	379	0	######	EX04	Garage	Point	593630.8	4796054	0	0	0	0
2	--	380	0	######	EX03	HVAC	Point	593605.1	4796063	1.5	1.5	23.2	21.7
3	--	695	0	######	EX05	Transfo	Point	593601	4796022	1	1	1	0

Grid Limit of 20

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cnt	Name	Desc.	Shape	X1	Y1	Height	Rel.H
1	--	688	0	######	#####	21694	Grid01		Polygon	593712.8	4796201	10.5	10.5

Receiver Limit of 88

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cnt	Name	Desc.	Shape	X	Y	Terrain L	HDef.
1	--	315	0	######	#####	4	POR01	198 - 206P	Point	593575.7	4796045	0	Relative
2	--	316	0	######	#####	5	POR02	198-200-2(	Point	593590.4	4796070	0	Relative
3	--	345	0	######	#####	5	POR03	198-200-2(	Point	593614.4	4796057	0	Relative
4	--	678	0	######	#####	1	OPOR02		Point	593605	4796078	18.3	Relative to
5	--	679	0	######	#####	2	POR04		Point	593635	4796067	0	Relative
6	--	680	0	######	#####	2	POR05		Point	593633.2	4796021	0	Relative
7	--	681	0	######	#####	1	OPOR03		Point	593617.7	4796067	18.3	Relative to
8	--	682	0	######	#####	1	OPOR05		Point	593628	4796033	0	Relative
9	--	683	0	######	#####	2	POR06		Point	593620.9	4796004	0	Relative
10	--	684	0	######	#####	1	OPOR06		Point	593609.7	4796014	0	Relative
11	--	685	0	######	#####	2	POR07		Point	593563.4	4796111	0	Relative
12	--	686	0	######	#####	1	OPOR07		Point	593569.5	4796109	0	Relative
13	--	687	0	######	#####	1	OPOR04		Point	593640.4	4796061	0	Relative

Barrier Limit of 20

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cnt	Name	Desc.	Shape	X1	Y1	Xn	Yn
1	--	648	0	######	#####	1	MPHwa	Mechanica	Polyline	593605.4	4796058	593610.3	4796064
2	--	649	0	######	#####	1	MPHwa	Mechanica	Polyline	593599.4	4796062	593605.1	4796068

Building Limit of 100

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X1	Y1	Height	Rel.H	Abs.H	Terrain L
1	--	338	0	######	Plaza	White (	Polygo	593439.1	4796017	6	6	6	0
2	--	344	0	######	6StryB	6 Story	Polygo	593603.5	4796083	18.3	18.3	18.3	0
3	--	382	0	######			Polygo	593526.7	4796139	6	6	6	0
4	--	383	0	######			Polygo	593552.5	4796117	6	6	6	0
5	--	384	0	######			Polygo	593584.1	4796151	6	6	6	0
6	--	385	0	######			Polygo	593559	4796175	6	6	6	0
7	--	387	0	######			Polygo	593234	4796167	6	6	6	0
8	--	388	0	######			Polygo	593249.5	4796153	6	6	6	0
9	--	389	0	######			Polygo	593266.1	4796136	6	6	6	0
10	--	390	0	######			Polygo	593339.1	4796063	6	6	6	0
11	--	399	0	######			Polygo	593297.5	4796110	6	6	6	0
12	--	400	0	######			Polygo	593311.3	4796097	6	6	6	0
13	--	401	0	######			Polygo	593328.1	4796084	6	6	6	0
14	--	402	0	######			Polygo	593281.4	4796124	6	6	6	0
15	--	427	0	######			Polygo	593287.1	4796240	6	6	6	0
16	--	428	0	######			Polygo	593302.6	4796226	6	6	6	0
17	--	429	0	######			Polygo	593319.2	4796210	6	6	6	0
18	--	430	0	######			Polygo	593397.4	4796139	6	6	6	0
19	--	431	0	######			Polygo	593350.6	4796184	6	6	6	0
20	--	432	0	######			Polygo	593364.4	4796171	6	6	6	0
21	--	433	0	######			Polygo	593381.2	4796157	6	6	6	0
22	--	434	0	######			Polygo	593334.6	4796197	6	6	6	0
23	--	435	0	######			Polygo	593266.9	4796253	6	6	6	0
24	--	436	0	######			Polygo	593184.8	4796196	6	6	6	0
25	--	509	0	######			Polygo	593544.4	4796302	6	6	6	0
26	--	510	0	######			Polygo	593488.1	4796235	6	6	6	0
27	--	511	0	######			Polygo	593384.3	4796325	6	6	6	0
28	--	512	0	######			Polygo	593397.5	4796313	6	6	6	0
29	--	513	0	######			Polygo	593414.1	4796298	6	6	6	0
30	--	514	0	######			Polygo	593428.5	4796285	6	6	6	0
31	--	515	0	######			Polygo	593443.9	4796272	6	6	6	0
32	--	516	0	######			Polygo	593460.3	4796261	6	6	6	0
33	--	517	0	######			Polygo	593472.2	4796244	6	6	6	0
34	--	518	0	######			Polygo	593341.3	4796310	6	6	6	0
35	--	519	0	######			Polygo	593460.9	4796205	6	6	6	0
36	--	520	0	######			Polygo	593357.1	4796295	6	6	6	0
37	--	521	0	######			Polygo	593370.3	4796283	6	6	6	0
38	--	522	0	######			Polygo	593387	4796268	6	6	6	0
39	--	523	0	######			Polygo	593401.3	4796254	6	6	6	0
40	--	524	0	######			Polygo	593416.8	4796241	6	6	6	0
41	--	525	0	######			Polygo	593433.1	4796231	6	6	6	0
42	--	526	0	######			Polygo	593445	4796214	6	6	6	0
43	--	527	0	######			Polygo	593305.9	4796279	6	6	6	0
44	--	528	0	######			Polygo	593322.1	4796269	6	6	6	0
45	--	529	0	######			Polygo	593336.5	4796254	6	6	6	0
46	--	530	0	######			Polygo	593407.8	4796186	6	6	6	0
47	--	531	0	######			Polygo	593362.9	4796228	6	6	6	0

48	--	532	0	######		Polygo	593378.4	4796216	6	6	6	0
49	--	533	0	######		Polygo	593391.3	4796203	6	6	6	0
50	--	534	0	######		Polygo	593349.8	4796242	6	6	6	0
51	--	535	0	######		Polygo	593313.8	4796339	6	6	6	0
52	--	536	0	######		Polygo	593422.3	4796174	6	6	6	0
53	--	538	0	######		Polygo	593265.1	4796198	6	6	6	0
54	--	539	0	######		Polygo	593280.6	4796184	6	6	6	0
55	--	540	0	######		Polygo	593297.2	4796167	6	6	6	0
56	--	541	0	######		Polygo	593370.2	4796093	6	6	6	0
57	--	542	0	######		Polygo	593328.6	4796141	6	6	6	0
58	--	543	0	######		Polygo	593342.4	4796128	6	6	6	0
59	--	544	0	######		Polygo	593359.2	4796115	6	6	6	0
60	--	545	0	######		Polygo	593312.5	4796155	6	6	6	0
61	--	546	0	######		Polygo	593251.4	4796207	6	6	6	0
62	--	547	0	######		Polygo	593370.6	4796340	6	6	6	0
63	--	548	0	######		Polygo	593464.3	4796358	6	6	6	0
64	--	549	0	######		Polygo	593290.5	4796288	6	6	6	0
65	--	550	0	######		Polygo	593325.9	4796320	6	6	6	0
66	--	551	0	######		Polygo	593222.3	4796174	6	6	6	0
67	--	552	0	######		Polygo	593240.8	4796294	6	6	6	0
68	--	553	0	######		Polygo	593196.6	4796213	6	6	6	0
69	--	554	0	######		Polygo	593205.2	4796226	6	6	6	0
70	--	555	0	######		Polygo	593214.9	4796244	6	6	6	0
71	--	556	0	######		Polygo	593221.5	4796263	6	6	6	0
72	--	557	0	######		Polygo	593231.9	4796277	6	6	6	0
73	--	558	0	######		Polygo	593261.6	4796349	6	6	6	0
74	--	559	0	######		Polygo	593249	4796308	6	6	6	0
75	--	560	0	######		Polygo	593272.7	4796364	6	6	6	0
76	--	561	0	######		Polygo	593301.2	4796395	6	6	6	0
77	--	562	0	######		Polygo	593261.7	4796322	6	6	6	0
78	--	563	0	######		Polygo	593318.2	4796423	6	6	6	0
79	--	564	0	######		Polygo	593345.6	4796449	6	6	6	0
80	--	565	0	######		Polygo	593336.8	4796359	6	6	6	0
81	--	566	0	######		Polygo	593450.6	4796339	6	6	6	0
82	--	567	0	######		Polygo	593357.6	4796352	6	6	6	0
83	--	568	0	######		Polygo	593502.3	4796339	6	6	6	0
84	--	569	0	######		Polygo	593516.7	4796326	6	6	6	0
85	--	570	0	######		Polygo	593533.3	4796313	6	6	6	0
86	--	571	0	######		Polygo	593517.9	4796268	6	6	6	0
87	--	572	0	######		Polygo	593475.8	4796305	6	6	6	0
88	--	573	0	######		Polygo	593490.2	4796292	6	6	6	0
89	--	574	0	######		Polygo	593506.8	4796279	6	6	6	0
90	--	575	0	######		Polygo	593397.4	4796428	6	6	6	0
91	--	576	0	######		Polygo	593374.9	4796399	6	6	6	0
92	--	577	0	######		Polygo	593461.2	4796376	6	6	6	0
93	--	578	0	######		Polygo	593419.1	4796413	6	6	6	0
94	--	579	0	######		Polygo	593433.4	4796400	6	6	6	0
95	--	580	0	######		Polygo	593450	4796387	6	6	6	0
96	--	581	0	######		Polygo	593434.7	4796342	6	6	6	0
97	--	582	0	######		Polygo	593392.6	4796379	6	6	6	0
98	--	583	0	######		Polygo	593407	4796366	6	6	6	0
99	--	584	0	######		Polygo	593423.6	4796353	6	6	6	0
100	--	644	0	######	6thFloor	Polygo	593617.7	4796061	21.7	21.7	21.7	0
101	--	646	0	######		Polygo	593612.7	4796066	26.7	26.7	26.7	0
102	--	647	0	######		Polygo	593605.4	4796058	26.7	26.7	26.7	0
103	--	689	0	######		Polygo	593632.3	4796020	6	6	6	0
104	--	690	0	######		Polygo	593617.7	4796000	6	6	6	0
105	--	691	0	######		Polygo	593621.9	4796104	6	6	6	0
106	--	692	0	######		Polygo	593671.2	4796052	6	6	6	0
107	--	693	0	######		Polygo	593659.8	4796024	6	6	6	0
108	--	694	0	######		Polygo	593614.4	4795993	6	6	6	0

Day	Limit 100 Sources, 88 PORs												
Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	29.2	29.2	29.2	29.2	29.1	29.1	29	29	29.2	29.2	29.1	29.1	29
0	37.7	37.7	38.1	38.1	38.5	38.5	39.4	39.4	42.2	42.2	42.9	42.9	43.8
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	38.8	38.8	39	39	39.4	39.4	40.1	40.1	42.4	42.4	43.1	43.1	44

Evening	Limit 100 Sources												
Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	29.2	29.2	29.2	29.2	29.1	29.1	29	29	29.2	29.2	29.1	29.1	29
0	36.5	36.5	36.8	36.8	37.3	37.3	38.2	38.2	41	41	41.6	41.6	42.6
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	37.8	37.8	38	38	38.4	38.4	39	39	41.3	41.3	41.9	41.9	42.8

Night	Limit 100 Sources												
Reduction	POR01	POR01	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result
0	29.2	29.2	29.2	29.2	29.1	29.1	29	29	29.2	29.2	29.1	29.1	29
0	34.7	34.7	35.1	35.1	35.5	35.5	36.4	36.4	39.2	39.2	39.9	39.9	40.8
0	28.8	28.8	28.6	28.6	28.5	28.5	28.3	28.3	5.7	5.7	5.6	5.6	5.5
	36.6	36.6	36.8	36.8	37.1	37.1	37.7	37.7	39.6	39.6	40.2	40.2	41.1

Limit of 88							
Description	X	Y	Height	Day	Evenin	Night	Li
	6E+05	5E+06	1.5	50.9	49.7	48.1	50.9
	6E+05	5E+06	1.5	51.3	50.3	49.2	51.3
	6E+05	5E+06	1.5	63.7	63.7	63.7	63.7
	6E+05	5E+06	1.5	60.6	60.6	60.6	60.6
	6E+05	5E+06	1.5	53.1	53	53	53.1
	6E+05	5E+06	1.5	39.1	38.1	36.8	39.1
198 - 206Plains Rd	6E+05	5E+06	7.5	38.8	37.8	36.6	38.8
198 - 206Plains Rd	6E+05	5E+06	10.5	39	38	36.8	39
198 - 206Plains Rd	6E+05	5E+06	13.5	39.4	38.4	37.1	39.4
198 - 206Plains Rd	6E+05	5E+06	16.5	40.1	39	37.7	40.1

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-E

Sample External Stationary Noise Modeling Printouts

Appendix C: Predictor Inputs

Point Source Limit of 100

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X	Y	Height	Rel.H	Abs.H	Terrain L
1	--	314	0	2/28/2025 8:53	EX001	Train S	Point	593154.8	4796459	1	1	1	0

Grid Limit of 20

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cn	Name	Desc.	Shape	X1	Y1	Height	Rel.H
1	--	321	0	2/27/2025 9:53	-92843	575	Grid		Polygon	592482.4	4796207	10.5	10.5

Receiver Limit of 88

	Group	Item ID	Grp ID	Date	1st Kid	Kid Cn	Name	Desc.	Shape	X	Y	Terrain L	HDef.
1	--	315	0	3/18/2025 14:53	-92831	4	POR01	198 - 206P	Point	593575.7	4796045	0	Relative
2	--	316	0	3/18/2025 14:53	-92837	5	POR02	198-200-2(	Point	593590.4	4796070	0	Relative
3	--	345	0	3/18/2025 14:53	-94103	5	POR03	198-200-2(	Point	593614.4	4796057	0	Relative
4	--	678	0	3/19/2025 13:20	-94113	1	OPOR02		Point	593605	4796078	19.5	Relative to

Ground Regio Limit of 20

	Group	Item ID	Grp ID	Date	Name	Desc.	Shape	X1	Y1	Nr Points	Perim.	Area	Min.length
1	--	322	0	2/27/2025 7:54	Grnd reg	Vacant	Polygo	593055.9	4796348	16	1220.33	37545.73	4.82
2	--	324	0	2/27/2025 8:03	Prkglot	Train P	Polygo	592944.4	4796254	14	728.89	27676.6	2.65
3	--	325	0	2/27/2025 8:08	VacantLo	NorthW	Polygo	592947.7	4796254	12	1755.88	78756.42	15.15
4	--	332	0	2/27/2025 9:31	PrkSchol	Park-S	Polygo	593500.5	4796515	20	1227.05	50771.7	8.85
5	--	335	0	2/27/2025 9:30	SchoolPk	School	Polygo	593667.8	4796356	14	744.37	206.82	12.04

Day	Limit 100 Sources, 88 PORs													
Reduction	POR01	POR01_A	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C	
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	
0	56.9	56.9	56.8	56.8	56.6	56.6	56.2	56.2	57.8	57.8	57.6	57.6	57.4	

Evening	Limit 100 Sources													
Reduction	POR01	POR01_A	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C	
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	
0	56.9	56.9	56.8	56.8	56.6	56.6	56.2	56.2	57.8	57.8	57.6	57.6	57.4	

Night	Limit 100 Sources													
Reduction	POR01	POR01_A	POR01_	POR01	POR01	POR01	POR01_D	POR01_D	POR02_A	POR02_A	POR02_B	POR02_B	POR02_C	
[dB]	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	corr.	result	
0	56.9	56.9	56.8	56.8	56.6	56.6	56.2	56.2	57.8	57.8	57.6	57.6	57.4	

Limit of 88							
Description	X	Y	Height	Day	Evenin	Night	Li
	6E+05	4796078.05	1.5	60.3	60.3	60.3	60.3
198 - 206Plains Rd	6E+05	4796044.51	7.5	56.9	56.9	56.9	56.9
198 - 206Plains Rd	6E+05	4796044.51	10.5	56.8	56.8	56.8	56.8
198 - 206Plains Rd	6E+05	4796044.51	13.5	56.6	56.6	56.6	56.6
198 - 206Plains Rd	6E+05	4796044.51	16.5	56.2	56.2	56.2	56.2
198-200-206 Plains Rd	6E+05	4796069.8	7.5	57.8	57.8	57.8	57.8
198-200-206 Plains Rd	6E+05	4796069.8	10.5	57.6	57.6	57.6	57.6
198-200-206 Plains Rd	6E+05	4796069.8	13.5	57.4	57.4	57.4	57.4
198-200-206 Plains Rd	6E+05	4796069.8	16.5	57	57	57	57
198-200-206 Plains Rd	6E+05	4796069.8	19.5	57.4	57.4	57.4	57.4

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix NV-F

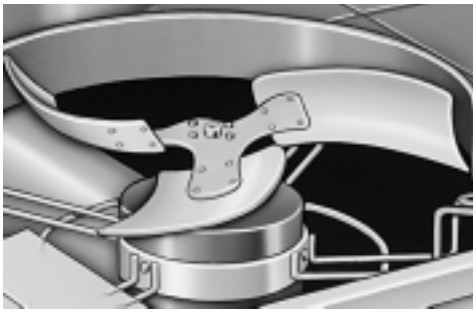
Noise Data References

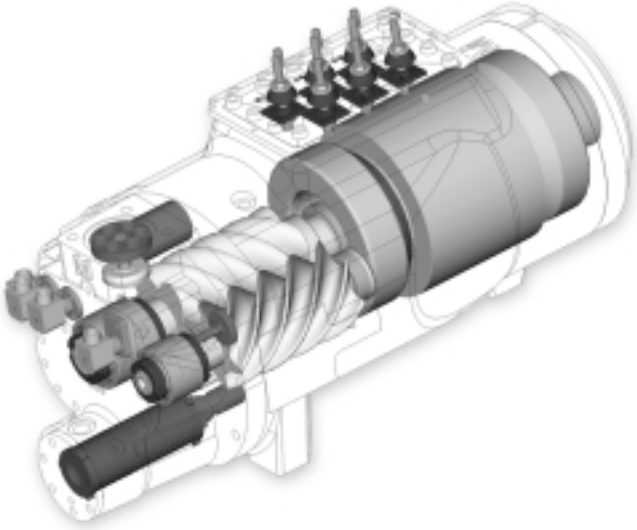
TRANE®

Engineering Bulletin

Sound Data and Application Guide For the New and Quieter Air-Cooled Series R™ Chiller

Model RTAC
140-500 Tons (60 Hz)
140-400 Tons (50 Hz)





RLC-PRB009-EN

Appendix A

Appendix A

Sound Power Octave Band Data

Sound power octave band data can be used for purposes of describing the basic acoustical properties of the air-cooled Series R™ chiller. However, there are two cautionary notes. First, if the engineer is using the data as a criteria in a bid evaluation, make sure that the data from all competitors is on an equal basis. Insist that all competitors present data terms of **SOUND POWER (*not* sound pressure),** in a consistent format, according to **ARI Standard 370**.

>>>Sound **power** data CANNOT be compared directly to sound **pressure** data. <<<

Second, the sound power data does not provide sufficient information to correctly position the chiller or attenuate its sound to take full advantage of the characteristics of the air-cooled Series R chiller. Unlike most reciprocating chillers that exhibit a low frequency, pounding sound, the air-cooled Series R chiller sound is directional in nature and has a higher frequency characteristic that is more easily attenuated. The specific application information given in the preceding parts of this bulletin can be used to create a significant competitive advantage over competitive air-cooled reciprocating chillers.

NOTE: Sound Power Rating data given in Tables A-1 through A-2 may vary ± 2 dB in any specific octave band due to normal variations in chiller construction.

Table A-1 (60 Hz) – Octave Band Sound Power Levels, dB ref, 1 pw

	Octave Band & Center Frequency, Hz								Overall
Model RTAC	63	125	250	500	1000	2000	4000	8000	A' Wtd
140 STD	101	102	98	97	96	91	86	83	100
155 STD	102	102	98	98	97	93	86	83	101
170 STD	102	103	99	99	98	94	87	84	102
185 STD	102	103	99	100	98	93	87	84	102
200 STD	103	104	100	101	98	93	88	85	103
225 STD	103	104	100	101	98	93	88	85	103
250 STD	104	104	101	101	98	94	88	85	103
275 STD	104	105	101	101	100	95	89	86	104
300 STD	105	105	101	102	100	95	90	87	104
350 STD	105	106	102	103	100	95	90	87	105
400 STD	106	107	103	104	101	96	91	88	106
450 STD	106	107	103	104	101	96	91	88	106
500 STD	107	107	104	104	101	97	91	88	106
140 HIGH	102	103	99	98	97	92	87	84	101
155 HIGH	102	103	99	99	97	93	87	84	102
170 HIGH	103	104	99	100	98	94	87	85	102
185 HIGH	103	104	100	100	98	94	88	85	103
200 HIGH	104	104	100	101	98	93	88	86	103
225 HIGH	104	104	100	101	98	94	88	85	103
250 HIGH	104	105	101	102	99	94	88	86	103
275 HIGH	105	105	101	102	100	96	89	86	104
300 HIGH	105	106	102	103	100	95	90	87	105
350 HIGH	106	107	102	103	101	97	90	88	105
400 HIGH	107	107	103	104	102	96	91	89	106

Sound Power is a calculated quantity and cannot be measured directly like SOUND PRESSURE. Sound power is the amount of acoustical power produced at the source, and thus is an absolute quantity and not dependent on the surrounding environment or distance, as is sound pressure. 32 measurements are taken over a prescribed area around the unit. Data is then mathematically reduced to give the sound power level, dB.

Sound Power is reported in dB but converted to dBA before use in noise model.

CANARM®

LFI AXIAL FANS

BELT & DIRECT DRIVE AXIAL FANS

ROOF EXHAUSTERS

MANCOOLERS

SUPPLY FANS

JET FANS

DAMPERS

DUCT FANS

CONTROLS

FANTRAXX

CIRCULATING FANS



CANARM.... PROVIDING CUSTOMERS WITH VALUE, KNOWLEDGE AND QUALITY PRODUCTS



XB - BELT DRIVE WALL FANS

Designed for commercial and light duty industrial applications - Factories, Warehouses, Gymnasiums, Underground parking garages, etc.

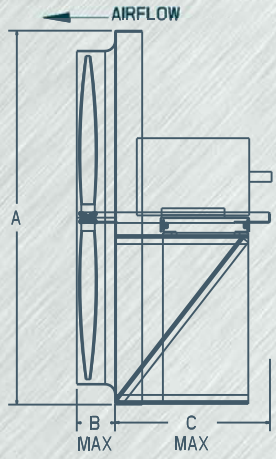
These fans are typically used for low pressure applications with little or no duct work. The XB series is designed and constructed for efficient and economical operation at low speeds and low noise levels. These fans are used for exhaust applications.
For supply applications, please see next page.

FEATURES

- Heavy gauge steel fan panel with deep spun and flared venturi for maximum efficiency.
- Heavy gauge welded steel motor and bearing supports.
- Heavy duty cast iron pillow block bearings.
- TEFC motors are standard.



DIMENSIONS



MODEL	BLADE DIAMETER	A X A SQUARE	B	C (BELT DRIVE MOTOR FRAME)	
				56 - 184	213 - 286
XB24	24"	29.625"	4.0"	18"	--
XB30	30"	35.625"	4.5"	18"	--
XB36	36"	41.625"	5.0"	18"	28"
XB42	42"	47.625"	5.0"	18"	28"
XB48	48"	53.625"	5.0"	18"	28"
XB54	54"	59.657"	5.5"	18"	28"
XB60	60"	67.657"	6.0"	18"	28"

BLADE DIAMETER	MODEL # SINGLE PHASE	MODEL # THREE PHASE	WEIGHT (LBS.)	RPM	H.P.	dBA @ 5 ft.	CFM @ STATIC PRESSURE 0"	1/8"	1/4"	3/8"	1/2"	5/8"
24"	XB24T10033	XB24T30033*	115	670	1/3	61	4643	4038	2488	-	-	-
	XB24T10050	XB24T30050*	115	805	1/2	65	5578	5112	4405	2934	-	-
	XB24T10075	XB24T30075*	115	925	3/4	70	6410	6030	5526	4731	3354	-
	XB24T10100	XB24T30100*	133	1040	1.0	73	7207	6883	6457	5930	5143	3793
30"	XB30T10033	XB30T30033*	128	470	1/3	59	6658	4717	1948	-	-	-
	XB30T10050	XB30T30050*	129	565	1/2	63	8004	6689	4298	2119	-	-
	XB30T10075	XB30T30075*	129	640	3/4	66	9067	8014	6073	4220	2203	-
	XB30T10100	XB30T30100*	148	715	1.0	69	10129	9223	7790	5688	4248	2452
	XB30T10150	XB30T30150*	129	830	1.5	73	11758	11032	10045	8530	6647	5543
36"	XB36T10050	XB36T30050*	161	410	1/2	59	9854	7547	3560	-	-	-
	XB36T10075	XB36T30075*	160	460	3/4	63	11056	9197	5120	2876	-	-
	XB36T10100	XB36T30100*	180	515	1.0	67	12378	10847	7976	4784	2740	-
	XB36T10150	XB36T30150*	160	605	1.5	71	14541	13394	11542	8258	5859	4122
	XB36T10200	XB36T30200*	203	675	2.0	73	16223	15195	13750	11831	8029	6506
42"	XB42T10075	XB42T30075*	211	330	3/4	58	11755	8579	3357	-	-	-
	XB42T10100	XB42T30100*	230	390	1.0	63	13892	11596	5764	3462	-	-
	XB42T10150	XB42T30150*	207	465	1.5	68	16564	14700	12037	6386	4670	-
	XB42T10200	XB42T30200*	248	510	2.0	71	18167	16479	14514	9114	6418	4770
	XB42T10300	XB42T30300*	264	590	3.0	75	21016	19579	18030	15887	10630	7882
48"	XB48T10100	XB48T30100*	257	330	1.0	63	18658	14895	7243	3301	-	-
	XB48T10150	XB48T30150*	236	380	1.5	67	21485	18589	12083	7263	3754	-
	XB48T10200	XB48T30200*	281	425	2.0	70	24030	21457	17737	10447	7459	4205
	XB48T10300	XB48T30300*	290	485	3.0	74	27422	25190	22472	18073	11634	9008
	XB48T10500	XB48T30500*	312	585	5.0	80	33076	31236	29331	26834	23759	17330
54"	XB54T10150	XB54T30150*	316	310	1.5	65	24281	20657	10405	5754	2747	-
	XB54T10200	XB54T30200*	359	345	2.0	68	26593	23275	15740	8821	5199	2455
	XB54T10300	XB54T30300*	370	400	3.0	72	30832	28008	24336	14731	10317	6921
	XB54T10500	XB54T30500*	380	475	5.0	76	36613	34384	31798	28018	19368	13736
	XB54T10750	XB54T30750*	492	545	7.5	81	42009	40171	37818	35727	31930	24931
60"	XB60T10150	XB60T30150*	363	275	1.5	64	28093	23231	12618	6346	3157	-
	XB60T10200	XB60T30200*	405	300	2.0	66	30647	26162	17561	9965	5469	2822
	XB60T10300	XB60T30300*	416	345	3.0	70	35244	31470	27438	16612	11289	7142
	XB60T10500	XB60T30500*	430	420	5.0	76	42906	40193	36504	33232	23610	17734
	XB60T10750	XB60T30750*	539	485	7.5	81	49546	47400	44167	41266	38377	30896

For three phase motors, substitute "*" with "M" for 208-230/460 volt or "P" for 575 volt
Fan blades tested in accordance with AMCA standard 210, figure 12
dBA ratings shown are measured at 0" static pressure and should be used as a guideline only

OPTIONS

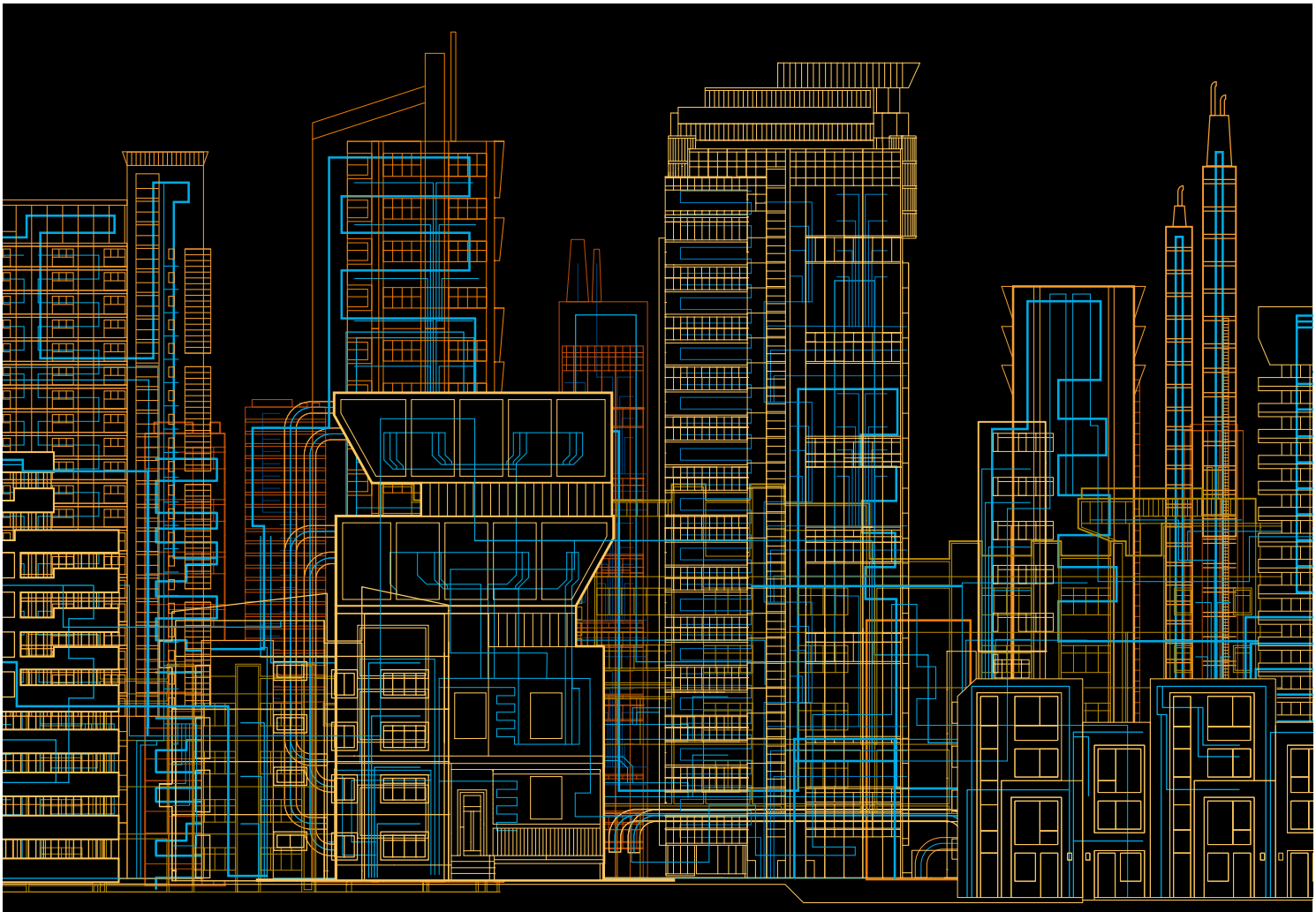
For fan complete with cabinet/guard and shutter, substitute "T" with CBS
For fan complete with front sleeve and shutter, substitute "T" with SLS
For fan with rear sleeve and back guard, substitute "T" with SLB

For a complete listing of all available options, see page 9.


CBS


SLS


SLB



Medium voltage products

Technical guide
The MV/LV transformer substations (passive users)

Power and productivity
for a better world™

No-load losses (P_o)

Power rating voltage	D_o		C_o		B_o		A_o		Short-circuit impedance
kVA	P_o	L_{wA}	P_o	L_{wA}	P_o	L_{wA}	P_o	L_{wA}	%
	W	dB(A)	W	dB(A)	W	dB(A)	W	dB(A)	
50	145	50	125	47	110	42	90	39	
100	260	54	210	49	180	44	145	41	
160	375	57	300	52	260	47	210	44	
250	530	60	425	55	360	50	300	47	
315	630	61	520	57	440	52	360	49	4
400	750	63	610	58	520	53	430	50	
500	880	64	720	59	610	54	510	51	
630	1 030	65	860	60	730	55	600	52	
630	940	65	800	60	680	55	560	52	
800	1150	66	930	61	800	56	650	53	
1000	1400	68	1100	63	940	58	770	55	
1250	1750	69	1350	64	1150	59	950	56	6
1600	2200	71	1700	66	1450	61	1200	58	
2000	2700	73	2100	68	1800	63	1450	60	
2500	3200	76	2500	71	2150	66	1750	63	

In the Standard CEI EN 50541-1 instead, we find a similar table for dry-type transformers with rates voltages of 17.5 and 24 kV and short-circuit impedance of 6%:

Um	Sr	P_k A_k	P_k B_k	P_o A_o	L_{WA}	P_o B_o	L_{WA}	P_o C_o	L_{WA}
kV	kVA	W	W	W	dB (A)	W	dB (A)	W	dB (A)
17.5 and 24	100	1800	2050	280	51	340	51	460	59
	160	2600	2900	400	54	480	54	650	62
	250	3400	3800	520	57	650	57	880	65
	400	4500	5500	750	60	940	60	1200	68
	630	7100	7600	1100	62	1250	62	1650	70
	800	8000	9400	1300	64	1500	64	2000	72
	1000	9000	11000	1550	65	1800	65	2300	73
	1250	11000	13000	1800	67	2100	67	2800	75
	1600	13000	16000	2200	68	2400	68	3100	76
	2000	16000	18000	2600	70	3000	70	4000	78
	2500	19000	23000	3100	71	3600	71	5000	81
	3150	22000	28000	3800	74	4300	74	6000	83

Environmental Guide for Noise and Vibration Impact Assessment



7.2.4 Layovers, Stationary Sources and Ancillary Facilities

The assessment of layovers will include all noise sources associated with the layover operation. Such sources could include idling trains, train heating and ventilation equipment, electrical equipment, or hot air track blowers. These sources will be modelled using the ISO-9613 environmental noise propagation algorithm, following guidance from MECP publication NPC-300.

Sound levels and source data should be obtained through measurement of similar sources at existing GO facilities and data provided by Metrolinx. If data cannot be obtained, the default modelling parameters are provided in Table 10. Table 8 should be utilized where applicable.

The assessment of stationary sources and ancillary facilities will follow the guidance provided in NPC-300. Metrolinx should provide volumes of cars and/or buses moving in parking lots. Any assumptions that are made in the absence of data provided should be listed in a separate table for Metrolinx review and acceptance prior to commencement of analysis.

Table 10: Default Modelling Parameters for Layovers, Stationary Sources and Ancillary Facilities

Modelling Parameter	Idling Trains (including heating and ventilation)	Other Stationary Noise Sources
Sound Power Level	105 dBA based on FTA Reference SEL at 50 ft (15 m)	The following are the preferred data sources: 1) Noise measurements of similar equipment at other Metrolinx facilities 2) Manufacturer's sound data 3) Performance specification (maximum allowable sound level)
Number of Idling Trains	Estimate using consist lengths and physical dimensions of layout facility	Not applicable
Source Height	FTA reference height of 2.5 m (8 ft) for trains with diesel-electric locomotives and 0.6 m (2 ft) for those without (see Table 4-26, FTA, 2018).	Based on equipment drawings or similar sources

7.3 Vibration Sources

For heavy rail, the need for mitigation is assessed based on the change in vibration levels caused by the project. Hence, vibration impacts need only be evaluated at locations where the project is likely to cause an increase in vibration, such as the location of a new switch or other new special track work, locations where new tracks will be placed in closer proximity to receptors than existing tracks, etc. Vibration impacts would also need to be evaluated if the project entails a change in equipment that is likely to lead to more vibration, such as larger, heavier locomotives. For light rail, the entire study area should be assessed for vibration impacts. Recommended inputs for the heavy and light rail FTA vibration screening model are detailed below in Table 11.

R.J. Burnside & Associates Limited