

Environmental Noise Control Study – Stationary Noise Component Proposed Residential Development

3317 Navan Road
Ottawa, Ontario

Prepared for Renfoe Land Management

Report PG6556-3 dated June 6, 2023

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1.0 Introduction

Paterson Group (Paterson) was commissioned by Renfoe Land Management to conduct a Stationary Noise Review for the proposed residential development to be located at 3317 Navan Road, in the City of Ottawa. It should be noted that Paterson's report was solely prepared to review the stationary noise source, which is identified as the adjacent properties (Waste recycling and disposal operation at BFI Navan Facility).

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

This study has been conducted according to City of Ottawa document - Engineering Noise Control Guidelines (ENCG), dated January 2016, and the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Background

It is understood that the proposed development will consist of three (3) four storey residential buildings. Associated walkways, driveways, and landscaped areas are further anticipated. Outdoor living areas, consisting of rooftop terraces, balcony terraces, and at-grade amenity area were not identified on the proposed site plan.

3.0 Methodology and Noise Assessment Criteria

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities. In this situation, the stationary noise source consists of an existing solid waste disposal facility.

The impact of stationary noise sources is directly related to the location of the subject site within the urban environment. The proposed development can be classified as Class 2 by provincial guidelines and outlined in the ENGC, meaning “a suburban areas of the City outside of the busy core where the urban hum is evident but within the urban boundary”.

Table 1 - Guidelines for Stationary Noise - Class 2		
Time of Day	Outdoor Point of Reception	Pane of Window
7:00-19:00	50	50
19:00-23:00	45	50
23:00-7:00	-	45
Standards taken from Table 3.2a; Guidelines for Stationary Noise - Steady and Varying Sound		

If the sound level limits are exceeded the following Warning Clause may be referenced:

Table 2 – Warning Clauses for Sound Level Exceedances	
Warning Clause	Description
Warning Clause 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."
Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - NPC-300	

4.0 Analysis

The stationary noise source consisting of the BFI Navan Facility was identified within the 500 m radius from the proposed development.

It is understood that the northern edge of the BFI Navan Facility property is separated from the southern edge of the proposed residential development by approximately 220 m, and an additional 100 m wide area is occupied by a compacted earth berm between the northern toe of the landfill footprint and the BFI Navan Facility northern property boundary, such that the proposed residential development is separated from the limit of waste placement by approximately 320 m. It is also understood that the earth berm has a height that rises from about 10 m at its north end to 7 m at its west end relative to the ground surface elevation on the adjacent subject property. It is further understood that the BFI Navan Facility will have an estimated 10 years of operational period beyond 2012 based on the currently approved capacity. Based on an agreement made during the Environmental Assessment process, the solid waste disposal facility will close upon reaching the currently approved capacity. Therefore, this stationary noise source is considered temporary and all analysis and recommendations made with respect to this stationary noise source can be removed from all deeds of sale once the solid waste disposal facility is closed.

The noise sources were modelled as the worst-case indicator as specified by the Owner of the BFI Navan Facility. The equipment utilized in the analysis is representative of the equipment that is used for solid waste disposal. The equipment consists of two excavators, three loaders, a vibratory compactor, four trucks, and three truck routes into and out of the existing BFI Navan Facility. A break down of the frequency's and sound levels of this equipment is included in Appendix 1.

The existing solid waste disposal facility is the only stationary noise source located within the proximity of the proposed development. The analysis was completed with specialized noise software: Predictor-Lima Version 2021.1. Twenty-four (24) reception points were selected within the 500 m proximity radius for our analysis. The reception points were selected at 1.5 m, 4.5 m, 7.5 m, and 10.5 m elevations, so that both pane of glass at the first level, second level, third level, and fourth level of the proposed buildings could be interpolated. The results of these reception points are included in Appendix 1.

5.0 Discussion

Surface Transportation Noise

Results of the analysis can be found in Appendix 1. Reception points were analyzed at 1.5 m, 4.5 m, 7.5 m, and 10.5 m elevations.

Proposed Residential Development

An analysis was completed for the proposed residential development, taking into consideration the lot layouts and approximate dwelling alignments. An initial analysis was performed with no sound mitigation measures. This analysis at the proposed buildings resulted in a maximum value of 45 dBA, which is below the 50 dBA limit. The anticipated noise levels are considered acceptable. Therefore, additional noise mitigation measures will not be required.

As per the Environmental Noise Guidelines prepared by the City of Ottawa, the following chart outlines the procedures to follow for exceedances to the stationary noise levels.

Table 3 - Noise Control Measures for New Residential Development in Proximity to The Stationary Noise Sources at the BFI Navan Facility	
Primary Mitigation Measure in order of Preference	Proposed Mitigation Measure
Insertion of noise insensitive land uses between the source and sensitive receptor	A 320-metre noise insensitive land is inserted between the proposed residential development and the BFI Navan Facility property
Orientation of buildings to provide quiet zones in rear yards, interior spaces and amenity areas	Orientation of building is not required to change for noise mitigation
construction techniques, enhanced construction quality	Standard construction techniques are considered acceptable for the proposed building
earth berms	An earth berm has been constructed surrounding the northern edge and the western edge of BFI Navan Facility property
acoustic barriers	Acoustic barriers are not required for noise mitigation

6.0 Conclusion

The anticipated noise level at proposed residential development is considered acceptable while the BFI Navan Facility property is in operation. Therefore, additional noise mitigation measures will not be required.

7.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Renfroe Land Management or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



Yolanda Tang, M.A.Sc.



Stephanie A. Boisvenue, P.Eng.

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- Renfroe Land Management (email copy)
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APPENDIX 1

Figure 1 - Model of Proposed Residential Development

Figure 2 - Initial Analysis (Table of Result)

Figure 3 - Initial Analysis (Contour Result)

Item Properties

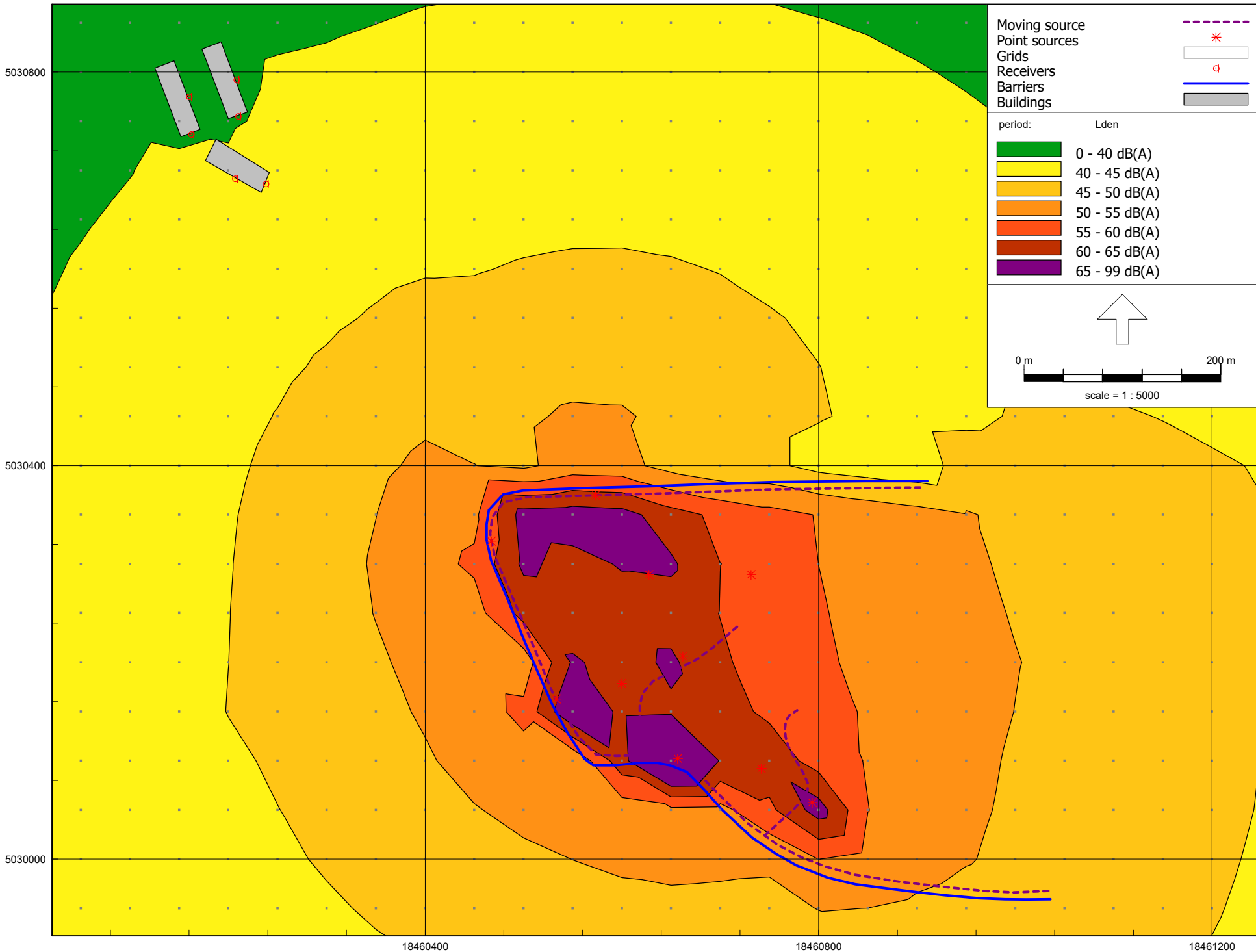
Proposed Residential Development
Initial Analysis

Report: Table of Results
Model: initial model
LAeq: total results for receivers
Group: (main group)
Group Reduction: No

Name Receiver	Description	X	Y	Height	Day	Evening	Night
REC 1_A	REC 1	18460238.07	5030686.63	1.50	45.2	--	--
REC 1_B	REC 1	18460238.07	5030686.63	4.50	44.7	--	--
REC 1_C	REC 1	18460238.07	5030686.63	7.50	44.3	--	--
REC 1_D	REC 1	18460238.07	5030686.63	10.50	44.1	--	--
REC 2_A	REC 2	18460206.66	5030691.86	1.50	44.7	--	--
REC 2_B	REC 2	18460206.66	5030691.86	4.50	44.2	--	--
REC 2_C	REC 2	18460206.66	5030691.86	7.50	43.7	--	--
REC 2_D	REC 2	18460206.66	5030691.86	10.50	43.5	--	--
REC 3_A	REC 3	18460208.23	5030792.34	1.50	43.3	--	--
REC 3_B	REC 3	18460208.23	5030792.34	4.50	42.9	--	--
REC 3_C	REC 3	18460208.23	5030792.34	7.50	42.4	--	--
REC 3_D	REC 3	18460208.23	5030792.34	10.50	42.1	--	--
REC 4_A	REC 4	18460209.80	5030755.19	1.50	43.8	--	--
REC 4_B	REC 4	18460209.80	5030755.19	4.50	43.6	--	--
REC 4_C	REC 4	18460209.80	5030755.19	7.50	43.3	--	--
REC 4_D	REC 4	18460209.80	5030755.19	10.50	43.2	--	--
REC 5_A	REC 5	18460160.09	5030775.07	1.50	38.3	--	--
REC 5_B	REC 5	18460160.09	5030775.07	4.50	39.6	--	--
REC 5_C	REC 5	18460160.09	5030775.07	7.50	41.3	--	--
REC 5_D	REC 5	18460160.09	5030775.07	10.50	42.7	--	--
REC 6_A	REC 6	18460162.18	5030736.87	1.50	35.6	--	--
REC 6_B	REC 6	18460162.18	5030736.87	4.50	36.4	--	--
REC 6_C	REC 6	18460162.18	5030736.87	7.50	38.9	--	--
REC 6_D	REC 6	18460162.18	5030736.87	10.50	42.1	--	--

All shown dB values are A-weighted

Figure 3 - Initial Analysis (Contour Results)



Item Properties

Initial Analysis

Model: initial model
 version of 3317 Navan Road - 3317 Navan Road
 Group: (main group)
 Listing of: Point sources, for method Industrial noise - LimA - ISO 9613.1/2

Desc.	No building	No ind.site	Lw 63	Lw 125	Lw 250	Lw 500	Lw 1k	Lw 2k	Lw 4k	Lw 8k
Truck	No	No	95.80	87.90	96.40	99.80	104.00	102.20	97.00	89.90
Truck	No	No	95.80	87.90	96.40	99.80	104.00	102.20	97.00	89.90
Truck	No	No	95.80	87.90	96.40	99.80	104.00	102.20	97.00	89.90
Loader	No	No	75.80	77.90	83.40	88.80	91.00	89.20	88.00	76.90
Loader	No	No	75.80	77.90	83.40	88.80	91.00	89.20	88.00	76.90
Loader	No	No	75.80	77.90	83.40	88.80	91.00	89.20	88.00	76.90
Truck	No	No	95.80	87.90	96.40	99.80	104.00	102.20	97.00	89.90
Excavator	No	No	74.80	84.90	88.40	94.80	95.00	93.20	87.00	77.90
Excavator	No	No	74.80	84.90	88.40	94.80	95.00	93.20	87.00	77.90
Compactor	No	No	82.80	87.90	91.40	97.80	100.00	101.20	97.00	89.90