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April 13, 2022

Bav Malhi, Director of Sales
Lantern Capital
2425 Matheson Blvd East, 8 Floor
Mississauga, ON, L4W 5K4
bmalhi@lanterncapital.ca

Re: Noise Feasibility Study
1045 Donnybrook Drive, Dorchester, Ontario
RWDI Reference No. 2104925

Dear Mr. Malhi,

Lantern Capital retained RWDI to conduct a noise feasibility study in support of an application to sever the existing lot at 1045 Donnybrook Drive in Dorchester, Ontario (site) into eleven (11) separate industrial blocks, and a block dedicated to a storm water management pond. It is RWDI's understanding that the proposed uses of the blocks include, but are not limited to, truck terminals and service shops. The intent of the noise feasibility study is to identify where potentially incompatible land uses could arise and provide conceptual recommendations to prevent incompatible land uses.



Figure 1: Site location with noise sensitive receptors R01 to R04.

The Site Plan drawing dated January 2022 (see Appendix A) was reviewed and serves as the basis for this assessment. It is understood that the Site Plan presented for this report is considered final.



Assessment Criteria

Currently, there are no detailed layout plans for each of the blocks. RWDI relied on past experience with truck terminals and service shops to develop generic layouts, inclusive of on-site equipment, in order to assess compatibility with existing sensitive uses. Sound levels from representative sources at the proposed development were assessed cumulatively at the nearest noise sensitive receptors to simulate a worst-case scenario when all businesses will be operating at the same time. The Ontario Ministry of the Environment, Conservation and Parks (MECP) NPC-300 Environmental Noise Guideline was used to assess the proposed development and its effects. The allowable sound level limits at the noise sensitive receptors are established in the MECP Publication NPC-300. In this case, the default limits are not representative of the actual site conditions given the site's proximity to Highway 401. Site measurements and road traffic modelling were undertaken to define the character of the area, as discussed in the subsequent section.

Noise sensitive receptors include properties that accommodate a dwelling, sensitive commercial buildings, or sensitive institutional buildings. Vacant lots may be considered sensitive if zoned to allow a sensitive use and are accessible. There are several agricultural lots with an allowance for a dwelling north of the site. However, there appear to be existing residences at these lots, therefore, new residential dwellings are not expected to be constructed without an application to sever and rezone these lots. Therefore, there are no accessible vacant lots identified in proximity to the development. Residential dwellings and commercial buildings identified through aerial photography surround the proposed development to the west and north, as shown in Figure 1. No noise sensitive receptors were identified to the south of the proposed development.

In addition to the noise sensitive receptors, the MECP D-series guidelines provide direction for land use planning to maximize compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects such as noise, odour, and dust. Recommended minimum separation distances are provided based on the industry size and operation type.

Guideline D-6 separates industry into three broad categories, depending on the nature of their operations and the types of potential impacts:

- Class I facilities are small scale, self-contained plants or buildings, which produce and/or store products in a package and have low probability of fugitive emissions. They have daytime operations only, with infrequent movements of products and/or heavy trucks;
- Class II facilities perform medium scale processing, with some outdoor storage of wastes and materials, frequent movement of products and/or heavy trucks, and shift work; and
- Class III facilities conduct large scale manufacturing and are characterized by their large size, large production volumes, continuous operations and movements of products, and a high probability of fugitive emissions.



The recommended minimum separation distances and areas of potential influence (i.e., distance within which adverse effects could potentially occur) are summarized in Table 1.

Table 1: Guideline D-6 Recommended Setback Distances and Area of Influence

Industry Classification	Recommended Minimum Separation Distance (m)	Potential Area of Influence (m)
Class I: Light Industry	20	70
Class II: Medium Industry	70	300
Class III: Heavy Industry	300	1000

If the minimum recommended separation distance is not met for an infilling proposal, the land use “may be acceptable subject to either the municipality or the proponent providing a justifying impact assessment” (MECP, 1995).

Based on the expected uses of the blocks, as truck terminals and service shops, the blocks can be classified as Class I light industry.

Existing Conditions

A site visit was conducted on August 3, 2021, during daytime hours to observe the current conditions and collect baseline noise measurements to characterize the area. Several measurements were taken throughout the existing rural industrial development (Hudson Drive) and residential industrial zone (Starlight Lane and Stardust Drive) that are west of the proposed site and along Donnybrook Drive directly north of the proposed site. The measurements were up to 60 dBA, with the highest recorded closest to Highway 401 and the industrial activities along Hudson Drive. This confirms that the surrounding residential dwellings are already subject to higher sound levels than the NPC-300 default criteria.

To further investigate the background sound levels in the area, road traffic modelling of the adjacent roadways was also conducted using the Cadna/A software package, a commercially available implementation of the ISO 9613 noise propagation algorithms, and the RLS-90 road noise algorithm. The roads of interest included Highway 401, Dorchester Road, and Donnybrook Drive. Summer Average Daily Traffic (SADT) provided by the Ministry of Transportation, and the Average Traffic Count provided by Middlesex County were used to determine their respective sound levels. However, data for Donnybrook Drive could not be provided in time of this assessment, thus road traffic noise modelling was only conducted for Highway 401 and Dorchester Road. The modelled road traffic sound levels were up to 60 dBA, which was consistent with site visit measurements.



Impact Assessment

To determine the impact of the proposed development, a worst-case scenario was compared to the existing conditions to understand how the new land uses would change the sound levels at the neighbouring residential areas. Each of the eleven blocks provided in the Site Plan (Appendix A) were introduced to the model with the same noise sources and sound levels.

Modelling of the proposed development was carried out using the Cadna/A software package. It was assumed that each proposed block would contain one building that would encapsulate both the truck terminal and service shop operations. Each structure was placed near the centre of its respective block and included one (1) HVAC unit and one (1) service bay. The sound power level data for noise generating equipment associated with truck terminals and service shops were obtained from measurements of similar equipment on file at RWDI. These included the following sources and their respective sound power levels:

- HVAC Unit – 82 dBA;
- Pneumatic wrench – 90 dBA;
- Pneumatic hammer – 102 dBA; and
- Air compressor – 80 dBA.

To determine the worst-case sound levels, service bay doors were assumed to be open to allow ventilation, as it is normally the case during warmer weather.

Modelling also assessed five transport trucks arriving and departing the development during a worst-case hour in the daytime (07:00-19:00), and three trucks during the evening (19:00-23:00) and night (23:00-07:00). On-site passenger vehicle activity is generally considered to have negligible noise impacts and was not included in the assessment.

The predicted daytime hourly sound levels from the simultaneous operation of all blocks ranged from 46 dBA to 53 dBA along the residences to the west (R02 to R04; Stardust Drive and Starlight Lane). The predicted sound levels to the north (R01; Donnybrook Drive) were approximately 58 dBA. The predicted sound levels at all of the nearest sensitive receptors are at least 2 dB below the measured and modelled background sound levels in the area, which is below the threshold of perception. As it is assumed that there will be fewer evening and nighttime activities on site, the evening and nighttime sound levels are predicted to be significantly lower. From a due diligence perspective, sound levels at the residences were calculated assuming the worst-case operating conditions were occurring at each of the proposed industrial sites simultaneously. The contribution of each individual industrial site is predicted to be significantly lower and below the NPC-300 default limits. The predicted sound levels due to each individual proposed industry are below the measured and modelled existing conditions and are likely to not be of concern on their own.



However, it should be noted that the introduction of stationary and transient noise sources (i.e. truck pass-bys) may be new to the residential dwellings that are adjacent to the proposed development and could result in brief periods of elevated sound that residents may not be used to. To minimize the effects of any new sources of noise in the area, a number of recommendations have been made below.

Restrictions & Recommendations

Based on the modelling completed with the understanding that truck terminals and service shops as the preferred land use for this feasibility study, some restrictions will apply to the type of operations and equipment present on some of the blocks. At this time, this site is assumed to be classified as Class I as per the D-6 Guideline. Please note that further analysis will be required if the land use is increased beyond what is assumed in this analysis.

The restrictions listed below are elements of the model used to determine worst-case sound levels.

1. Noise from lot activities should be limited to the interior portions of each block and in front of on-site buildings (where present) to provide adequate screening for surrounding residential dwellings.
2. Any maintenance activities are restricted to operate during the daytime period only (07:00 – 19:00). This excludes any truck activity described in the Impact Assessment section.
3. Noise generating equipment for proposed block uses are required to meet the maximum allowable sound power levels listed in the Impact Assessment section listed above.

The recommendations listed below are in addition to the restrictions listed above and will serve as design parameters and should be implemented as detailed design progresses.

1. Locate and orientate the buildings as close to the proposed road development to keep as much spacing as possible with the surrounding residential dwellings.
2. To offset the worst-case scenario in this analysis, include a design requirement for bay doors to be kept closed to minimize noise emitted during service. This would be beneficial in the proposed blocks closest to the residential dwellings along Donnybrook Drive (blocks 1,2 and 11).
3. The location of the stormwater pond in the Draft Plan of Subdivision is ideal as it is in an area where there is a heightened sensitivity to act as a buffer to offset the truck terminal/service shop away from the closest residential dwelling. This location should be maintained in any changes going forward.

Based on the results of this assessment, the proposed development is feasible provided that the restrictions and recommendations outlined are implemented. Detailed assessments for each individual



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block should be conducted to ensure that individual impacts do not exceed MECP sound level limits or the site-specific sound levels.

Conclusions

RWDI completed a noise feasibility assessment for the severing of 1045 Donnybrook Drive into eleven (11) separate blocks. The analysis assumed that all blocks would serve as truck terminals and service shops which allowed for a general schematic to determine potential impacts to the surrounding area. With the suggested criteria implemented, the proposed development is considered feasible.

Yours truly,

RWDI

A handwritten signature in blue ink, appearing to read 'J. Confalone'.

Jessica Confalone, B.E.Sc., MMI
Project Manager

The graphic for Appendix A features a large, light gray circular shape on the right side of the page. To its left, a blue triangular shape is partially visible, with a white curved line separating it from the gray circle. The text 'APPENDIX A' is centered in blue capital letters within the gray area.

APPENDIX A

