

September 23, 2005

City of Hamilton  
Development & Real Estate Division  
7<sup>th</sup> Floor  
71 Main Street West  
Hamilton, Ontario  
L8P 4Y5

Attention: Mr. Stan Holiday, Senior Planner  
Planning & Development Department

**Re: Environmental Noise Peer Review  
Lowndes Holdings Corp.  
Proposed Dolostone Quarry  
Our File No.: 105-033**

**VIA E-MAIL**

Gentlemen:

As requested, we have reviewed the noise study documents included in the August 2004 Planning Study submission. This review is part of our scope of work defined in the “*Terms of Reference: Noise and Vibration Peer Reviewer for the City of Hamilton*”.

**A. PRELIMINARY NOISE CONTROL STUDY – QUARRY SITE**

**1. INTRODUCTION**

A “*Preliminary Noise Control Study*”, dated August 24, 2004, was prepared by Aercoustics Engineering Limited, for the proposed quarry.

- Residential receptors have been identified in all directions around the site of the proposed quarry.
- Ministry of Environment (MOE) noise guideline criteria are presented.
- The expected equipment and operation are summarized.
- The operation is to be divided into four (4) phases in plan and in two (2) lifts vertically.

**2. ASSESSMENT**

- The ambient sound environment has been determined to be quiet, dominated by the natural sounds with infrequent human activity. Thus, the most stringent of the MOE noise guidelines in document NPC-232, “*Sound Level Limits for Stationary Sources in Class 3 Areas (Rural)*” are indicated to apply. We agree.

- The noise study fails to identify City of Hamilton Noise By-law No. 03-020 as applicable. In addition to its other provisions, this by-law incorporates all of the relevant MOE noise guideline documents. Thus, the sound level limit criteria and other guideline requirements have the force of law.
- A range of preliminary noise control recommendations are indicated in general terms, including control of hours, limits on the number and types of equipment and use of sound barriers. However, no details are provided in some cases.
- Analysis of the haul route is not included and is discussed in a separate document (see later).
- The reference sound power levels used for some of the quarry equipment is somewhat on the low side of the typical range. For example, a reference sound power level of 117 dBA was used for the rock drill. This corresponds to a sound pressure level of about 86 dBA at 15 m. Subject to type and manufacturer, we have observed sound levels in the range of 5 to 17 dBA higher.
- No details of noise control measures are provided in some cases (e.g., limitations on type and quantity of equipment) and little detail in others (sound barriers).
- A series of plots showing the results of sound level analyses at the receptors is provided. However, there is no explanation or identification of symbols, sound sources, activities modelled, etc., to permit a detailed review.
- Two sample calculations are included, related to presumably a cross-section of a portion of an on-property haul route. However, no explanation of the analysis or indication of exact location is provided.

### **3. CONCLUSIONS**

The main conclusion from the preliminary noise study appears to be that significant noise mitigation will be required for compliance with the applicable noise limits at off-site receptors. However, considerably more detail about the operational plan; the associated sound emissions, broken down by source; the specifically needed mitigation measures and the methods of analysis are required for a proper assessment and review. Such details should include cross-sections of proposed sound barriers, as well as cross-sections showing the placement of sources; locations of receptors; mitigation features; heights and topographic relationships and how the calculations were done.

Specifics about operations, including elevations (lifts) at different times in the life of each phase/lift, with equipment locations and travel routes should be shown, again with full topographical relationships.

In addition to such noise mitigation measures as sound barriers/berms, there may need to be specifically detailed restrictions on the types of certain noisy equipment, such as rock drills.

Of course, the potential noise impacts can be expected to be significantly affected by the site entrance and on-site access road location, which has not yet been determined. Thus, significant further noise analysis related to the site entrance must also be done.

In assessing noise impact and needed mitigation, the proponent's submission must identify and address not only the MOE guidelines, but all relevant sections of the City of Hamilton noise by-law.

## **B. OFF-SITE TRUCKING HAUL ROUTE NOISE**

### **1. INTRODUCTION**

A noise study of three alternative off-site haul routes was documented in a letter report, dated August 18, 2004, by Aercoustics Engineering Limited.

The study is based on a maximum hour truck volume of 140 pass-bys, related to the quarry, and the existing AM peak hour traffic. The MOE traffic noise prediction model (ORNAMENT/STAMSON) was used for the calculations.

### **2. ASSESSMENT**

In considering the potential impact of alternative haul routes, the changes to the sound environments, as well as the absolute values of sound exposure, should be considered. The MOE guidelines typically require the analyses to be done on a "predictable worst case" basis. The worst case can occur when the ambient is at its lowest. For purposes of Table 2, difference between current traffic noise and maximum quarry truck traffic would be expected to occur at other than the time of current peak traffic.

At least one half of the maximum quarry traffic could occur on the haul route in the hour previous to opening the site for shipping, at the start of the working day, during which empty trucks would be expected to arrive and queue up. The period 0500 to 0700 hours is part of nighttime, during which noise criteria for on-site operations are more stringent than during daytime. Sensitivity along the haul route would also be greater during night hours than during day hours. Thus, haul route noise impact may be greatest between 0500 and 0700 hours, if shipping starts at 0600 hours, and not necessarily during the peak time of ambient traffic.

### **3. CONCLUSIONS**

The absolute sound exposure values for two of the three alternative are quite high (67 and 69 dBA at the closest receptors). For example, the upper limit criteria for traffic noise applied to new residential development is 55-60 dBA ( $L_{eq,16}$ ). Thus, these sound exposures are about two to three times louder than the residential criterion. This is significant. In all of the alternatives, the change from the existing ambient, even in the peak hour of existing traffic, will also be significant. There are no specific MOE or other guidelines or noise criteria for the introduction of new traffic to a public roadway. Nevertheless, the additional truck traffic related to the quarry will create significant

noise impact, not just at the closest receptors, but at most of the receptors along each haul route because of the change compared to the existing environment.

If you have any questions, please do not hesitate to call.

Yours truly,

**VALCOUSTICS CANADA LTD.**

**Per:**   
**A. D. Lightstone, Ph.D., P.Eng.**

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