aercoustics

Aercoustics Engineering Ltd.
1004 Middlegate Road, Suite 1100
Mississauga, ON L4Y 0G1

Tel: 416-249-3361
Fax 416-249-3613
aercoustics.com

04 June 2019

St Marys Cement Inc. (Canada)
CBM Aggregates - Codrington
55 Industrial Street
Toronto, Ontario, Canada
M4G 3W9

Attn: Mr. Colin Evans, Environment and Lands Manager, CBM

CC: Doug Covert, CBM

Re: CBM Aggregates Codrington Pit Acoustical Audit 2019
MNR License # 624984
Part of Lots 32-34, Concession 6, Geographic Township of Brighton, County of Northumberland

1 Introduction

Aercoustics Engineering Limited (Aercoustics) was retained to conduct an acoustic audit of the Codrington Pit to fulfil the monitoring condition set by the Ministry of Natural Resources & Forestry (MNRF) and by the "Environmental Noise Monitoring Program & Complaint Procedure – Codrington Pit", dated February 24, 2013. The Noise Study for the pit is titled "An assessment of the Potential Noise Associated with Aggregate Extraction & Processing at the Proposed Codrington Pit" (May 14, 2009), prepared by Aercoustics. There is also an accompanying Addendum Letter dated April 5, 2012.The Codrington Pit is located about 1 km east of the intersection of Highway 30 and Old Wooler Road, about 1.5 km southeast of Codrington, Ontario. The pit is bounded by an Ontario Hydro line to the north.

The audit has been conducted in accordance with the guidelines and procedures of the Ontario Ministry of the Environment, Conservation and Parks (MECP).

2 Site Visit Conditions

During the site visit on May 10, 2019, the main northern processing plant was in operation. No activity was observed at the southern working face. The main wash plant located near the entrance of the site had 2 shipment loaders operating nearby. An extraction loader was observed loading material into the crushing plant.

It is a condition of the license that the sound levels from the pit comply with the MECP guidelines for noise from stationary sources. The current MECP criteria for noise from a stationary source are set forth in publication NPC 300, ”Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning”.

The allowable noise levels from the extraction, processing and shipping operations in the pit as established by the MOECC and the Noise Study are outlined in Table 1. The equivalent sound level (L_{EQ}) is an average sound level based on acoustical energy. It is a steady sound level that for the specified time period contains the same acoustical energy as the varying sound level which prevails.

Table 1 - Applicable MOE Sound Level Limits (Daytime)

Receptor	Sound Level Limit One Hour L_{EQ} (dBA)
R1 to R13	45
R14	50
R15	52

The allowable sound level limits for the pit operations at the residences at R1 to R13 correspond to the Class 3 daytime equivalent sound level exclusion limit of 45 dBA. Receptors R14 and R15, which are closer to Highway 30, are considered Class 2 receptors. As per the Addendum Letter, the extraction and processing operations in the pit are restricted to weekday daytime hours (07:00 to 19:00). The noise from a stationary source should not in any hour exceed the limits outlined in Table 1. It should be noted that noise from Highway 30 has been observed to be consistently audible at Receptors R1 and R2 due to the elevated topography at these locations. These receptors’ sound level limits may be increased to a Class 2 designation in future audits to reflect the road traffic noise.

The surrounding receptors and measurement locations are illustrated in Figure 1.

The average air temperature was 9 degrees Celsius with occasional light precipitation, and the prevailing winds were from the North-west at about 20 km/h.

3 Equipment

Measurements were taken with a Brüel & Kjær 2250 Sound Level Meter equipped with windscreen. The equipment was calibrated before and after the measurements.

4 Measurements

During the site visit, sound level measurements were conducted where appropriate at locations representative of the residences surrounding the pit. Sound level measurements were conducted at the R2 receptor to the south-west of the site and the R13 receptor to the north of the site, in addition to R9 and R10 to the east.

It should be noted that during the measurements, the sound level meter was paused as required to minimize the contribution from airplane flyovers and truck passes. Table 2 tabulates the noise measurements and observations at the receptors.

Table 2 - Measured Sound Levels at Receptors

Receptor	Measured Sound Level (dBA) L_{EQ}	Noise Sources
R1, R2	44	Pit activities faintly audible; ambient noise dominant; high wind contribution.
R9, R10	44	Pit activities inaudible; ambient noise dominant; high wind contribution; distant traffic noise.
R13	44	Pit activities inaudible; ambient noise dominant; high wind contribution; distant traffic noise; chainsaw noise faintly audible

Measurements of the processing plants were conducted to confirm the assumed reference sound levels used in the noise study. The sound pressure level of both plants was assumed to be 87 dBA at 30 m, while the actual overall plants sound level was measured at the time of the audit to be 80 dBA at 30 m. See the attached Figure 1 for an illustration of the measurement locations and the receptor locations.

4.1 Measurements of Chainsaw Activity

During the site visit, it was requested that measurements of chainsaw activity in the north-west area of the site be carried out. See attached Figure 1 for the location of the activity and measurements. It should be noted that this activity is considered construction and site preparation and is not considered as part of this acoustical audit and is regulated under NPC 115. Under the conditions of NPC 115, this receptor is still considered to have a Class 3 daytime equivalent sound level exclusion limit of 45 dBA for these site operations.

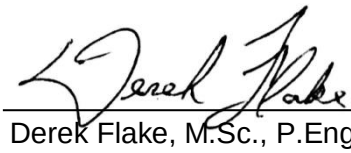
A measurement of 73 $dBA_{(Leq)}$ was taken at 30 m from the chainsaw operator cutting up logs on top of a raised log pile. Measurements were also taken at the affected receptor R13 during chainsaw operations, and a sound level of 44 $dBA_{(Leq)}$ was measured.

5 Observations and Conclusions

The measured sound levels include the contribution from the background noise sources with distant road and air traffic minimized. The Codrington Pit operations were generally inaudible. The measurement results indicated that the sound level from the Codrington Pit operations at all applicable receptors was below the allowable limits. It can be concluded from the acoustical audit that, based on the measurements, the Codrington Pit is operating in compliance with the MOECC guidelines for stationary sources.

Sincerely,

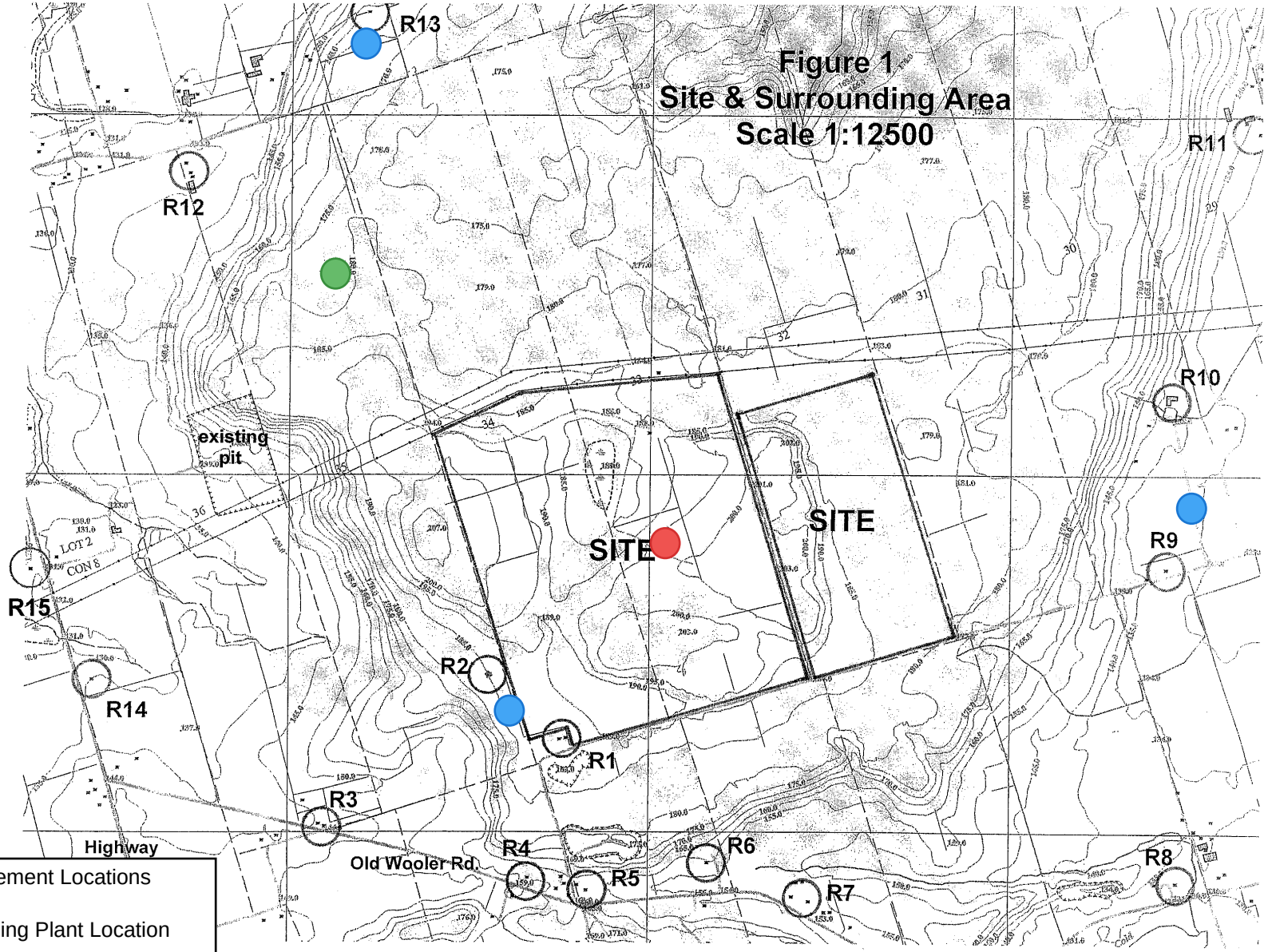
Sean Syman, B.Eng. (Hons)



Derek Flake, M.Sc., P.Eng.

AERCOUSTICS ENGINEERING LIMITED

Figure 1
Site & Surrounding Area
Scale 1:12500



aercoustics

1004 Middlegate Road, Suite 1100, Mississauga, ON
P: 416.249.3361 F: 416.249.3613

Scale: NTS
Drawn: SLS
Eng: DF
Date: 2019.06.04

The scope of the work outlined in this document is limited to the acoustic, noise and/or vibration control aspects of the design. Contractor to verify all dimensions.

Project Name:
Codrington Pit 2019 Acoustical Audit

AEL No: 05259

Drawing Title:
Key Plan Showing Site Location and Receptors

Dwg No. 1