aercoustics

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

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

September 21, 2020 Aercoustics Project #: 05259.00

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

Subject: CBM Aggregates Codrington Pit Additional Acoustical Audit 2020
MNR Licence # 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 additional 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 September 3, 2020, the main northern processing plant was in operation. The audit measurements captured the operation of the processing plant including that of a CAT 980K loader, which was dumping extracted material for processing.

The main wash plant located near the entrance of the site was operating. A CAT 980G extraction loader was observed loading material into the crushing plant.

It is a condition of the licence 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 MECP and the Noise Study are outlined in Table 1. The equivalent sound level (LEQ) 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 MECP 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 20 degrees Celsius and the prevailing winds were from the west at about 15 to 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 R1 receptor to the south-west of the site and the R13 receptor to the north of the site, in addition to R9 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

Receptor	Measured Sound Level (dBA) L_{EQ}	Noise Sources
R1*	35	Pit activities inaudible; insect and traffic noise dominant; wind contribution.
R9*	42	Pit activities inaudible; insect and traffic noise dominant; foliage noise contributes; minimal wind contribution.
R13*	38	Pit activities inaudible; insect and traffic noise dominant; intermittent motor bike activity nearby; minimal wind contribution.

* insect noise dominated measurement; filtered high frequency at and above 4 kHz

As indicated in Table 2 above, noise from cicadas and other insects were constant during the sound level measurements at all receptor locations. This insect noise generated high frequency noise at and above 4 kHz. As such, frequencies at and above 4 kHz were filtered to remove the contribution of insect noise.

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 at or below 81 dBA at 30 m. See the attached Figure 1 for an illustration of the measurement locations and the receptor locations.

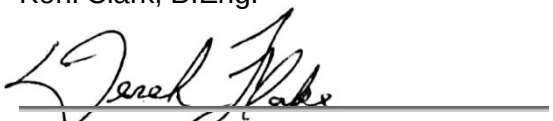
5 Observations and Conclusions

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 MECP guidelines for stationary sources.

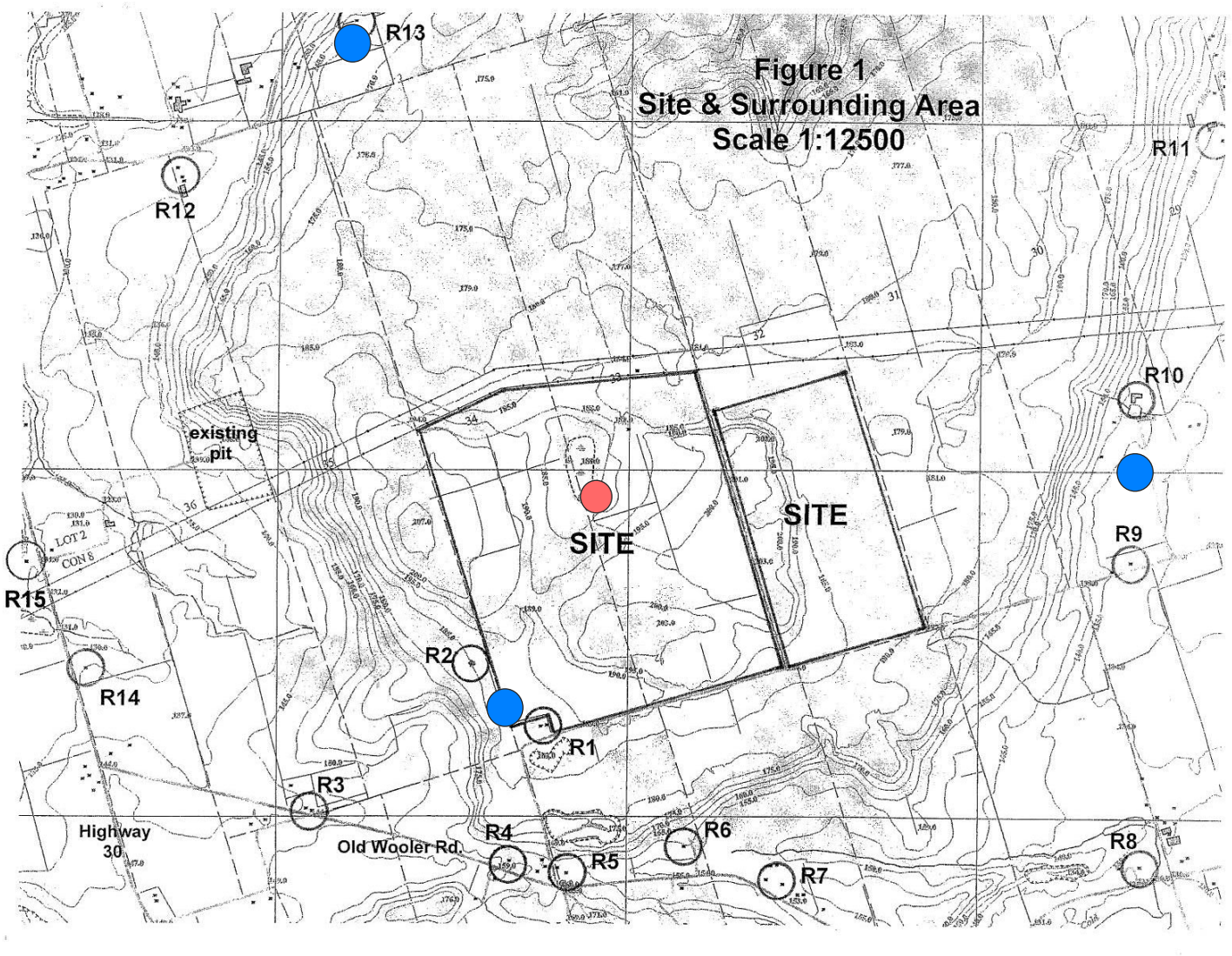
Sincerely,

AERCOUSTICS ENGINEERING LIMITED

Kohl Clark, B.Eng.



Derek Flake, M.Sc., P.Eng



Measurement Locations

Processing Plant Location

aercoustics

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

Scale: N.T.S.
Drawn: DF
Eng: DF
Date: 2020.09.11

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

Project Name:
Codrington Pit 2020 Acoustical Audit

AEL File: 05259

Drawing Title:
Key Plan Showing Site Location and Receptors

Figure 1