



23 June 2020

Ref: 161267/8876

Williamtown Sand Syndicate Pty Ltd

Cabbage Tree Road Sand Quarry

Cabbage Tree Road

WILLIAMTOWN NSW 2318

RE: CONSTRUCTION NOISE MONITORING RESULTS – NEWCASTLE SANDS

This letter report presents the results of plant noise and operational noise compliance monitoring conducted for the Cabbage Tree Road Sand Quarry (CTSQ) at Cabbage Tree Road Williamtown during the period November 2019 – April 2020.

OPERATIONAL NOISE

Noise Limits

Operational noise limits for the quarry are contained in Condition 3, Schedule 3 of Development Consent SSD-6125 issued on 9 May 2018:

Noise Impact Assessment Criteria

The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2: Noise criteria dB(A)

Receiver	Day <i>L_{Aeq} (15 minute)</i>	Shoulder <i>L_{Aeq} (15 minute)</i>	Shoulder <i>L_{Amax} (1 minute)</i>
Any residence on privately owned land	43	39	45

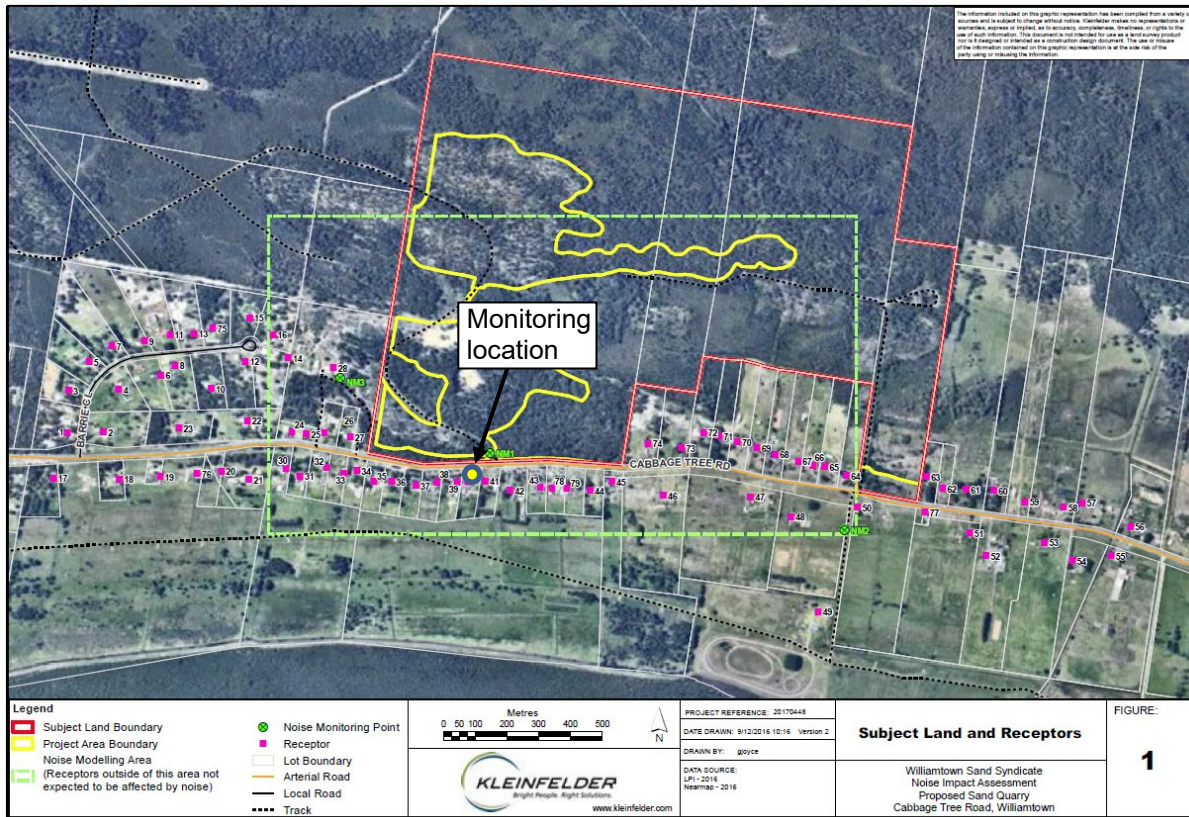
In this condition, 'the development' excludes road construction activities associated with the intersection of the quarry access road and Cabbage Tree Road and vegetation clearing operations within the Southern Resource Area (see condition 4 below).

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NPI. Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

The criteria in Table 2 do not apply if the Applicant has an agreement with relevant landowner/s to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Monitoring Locations

Noise monitoring was conducted in the front yard of the residence identified as R40 in **Figure 1**. This location is representative of the potentially worst impacted residences from constructions activities near the site entrance.



Noise Monitoring Procedure

Noise emission levels were measured with a Brüel & Kjær Type 2250 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator prior to and at the completion of measurements. A calibration certificate is attached to this report.

Operating conditions

Operation conditions and site activities during the noise surveys have been provided by the operator as follows:

23/11/2019

- Water cart in use.

18/12/2019

- Placing Signs and Posts on Cabbage Tree Road.
- Placing concrete barriers on Cabbage Tree Road.

22/01/2020

- Box out subgrade CH 630-530.
- Completing water main testing.

12/02/2020

- Place DGB 20 on intersection.
- Box out retaining wall footing.

03/03/2020

- Tandem Rolling on Cabbage Tree Road

28/04/2020

- Asphalt Sawing on Cabbage Tree Road
- Pneumatic Rolling on Cabbage Tree Road

Measured Noise Levels

Table 1 shows summarises the measured noise levels and contributing noise sources.

Table 1. CTSQ Construction Noise Monitoring Results						
Location	Date	Time	dB(A), Leq	CTSQ Contribution dB(A), Leq	Criterion dB(A) Leq	Identified Noise Sources
R40	23/11/19	1:04 PM	59	35	43	Traffic (59), CTSQ (35)
R40	18/12/19	12:30 PM	61	25	43	Traffic (61), wind (41), CTSQ (25)
R40	22/01/20	1:31 PM	62	30	43	Traffic (62), wind (41), CTSQ (30)
R40	12/02/20	10:34 AM	68	<30	43	Traffic (68), CTSQ (<30)
R40	03/03/20	1:52 PM	65	35	43	Traffic (65), CTSQ (35)
R40	28/04/20	7:02 AM	74	69	43	Traffic (72), CTSQ (69)

Measured Vibration Levels

Vibration levels were measured using a Profound Vibra+ Tri-Axial Groundbourne Vibration Meter, placed on the hardstand frontage of the property at monitoring location R40. The allowable limit for peak particle velocity (PPV) is 5mm/s. The trigger level of the meter was set to 0.5mm/s and there was no exceedance at any point throughout these monitoring periods, with a maximum reading registered at 1.1mm/s due to operation of the vibrating roller along the northern edge of Cabbage Tree Road.

Noise emission attributed to CTSQ was due to reverse alarms on mobile plant with some contribution from engine revs. Noise levels on 28 April were dominated by asphalt sawing. This short-term activity occurred for less than 4 hours. The measured level of 69 dB(A) exceeded the construction noise management level of 43 dB(A) but did not exceed the "highly affected" level of 75 dB(A) as defined in the NSW Interim Construction Noise Guideline. For such a short term activity on the edge of a busy road, it was not considered reasonable to implement noise controls, even if feasible options could have been determined and implemented before the activity was completed.

I trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED



Neil Pennington

Acoustical Consultant

B.Sc.(Physics), B.Math.(Hons) MAIP, MAAS, MASA

Brüel & Kjær 

Australian Calibration Laboratory
Suite 2, 6-10 Talavera Road, North Ryde NSW 2113, Australia
Accredited for compliance with ISO/IEC 17025 - Calibration. Laboratory No. 1301



CERTIFICATE OF CALIBRATION

Certificate No: CAU1800652

Page 1 of 10

CALIBRATION OF:

Sound Level Meter:	Brüel & Kjær	2250	No: 2747794
Microphone:	Brüel & Kjær	4189	No: 2733511
Preamplifier:	Brüel & Kjær	ZC-0032	No: 15339
Supplied Calibrator:	N/A	N/A	No: N/A
Software version:	BZ7224 Version 4.6	Pattern Approval:	PTB
Instruction manual:	BE1712-22	Identification:	N/A

CUSTOMER:

Spectrum Acoustics Pty Ltd
30 Veronica Street
Cardiff NSW 2285

CALIBRATION CONDITIONS:

Preconditioning: 4 hours at 23 °C
Environment conditions: *see actual values in Environmental conditions sections*

SPECIFICATIONS:

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC61672-1:2013 class 1. Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

PROCEDURE:

The measurements have been performed with the assistance of Brüel & Kjær Sound Level Meter Calibration System B&K 3630 with application software type 7763 (version 7.2 - DB: 7.20) and test procedure 2250-4189.

RESULTS:

	Initial calibration		Calibration prior to repair/adjustment
X	Calibration without repair/adjustment		Calibration after repair/adjustment

The reported expanded uncertainty is based on the standard uncertainty multiplied by a coverage factor $k = 2$ providing a level of confidence of approximately 95 %. The uncertainty evaluation has been carried out in accordance with EA-4/02 from elements originating from the standards, calibration method, effect of environmental conditions and any short time contribution from the device under calibration.

Date of Calibration: 25/06/2018

Certificate issued: 26/06/2018



Sajeeb Tharayil
Calibration Technician



Jan Rasmussen
Approved signatory

Reproduction of the complete certificate is allowed. Part of the certificate may only be reproduced after written permission.