



**BLAKEBROOK QUARRY
NOISE ASSESSMENT**

Reference: 11558

R_0

DATE OF RELEASE: 26/11/2019

Mitchel Hanlon Consulting
121 Bridge Street
Tamworth 2340

Attn: Tim McLean [tmclean@mitchelhanlon.com.au]

Dear Tim,

Assured Environmental Pty Ltd (AE) was appointed by Mitchel Hanlon Consulting to undertake a noise impact assessment for the upgrade of the asphalt plant to a Benninghoven permanent mobile asphalt plant with annual production of up to 50,000 tonnes per annum. As part of this upgrade, the facility was also seeking to increase the permitted truck movements from the site to enable the operators to effectively manage daily product demand in the region.

A request for Information has been received via email on 19 November 2019 relating to the noise impact assessment:

Noise Impacts

2. The Department notes the noise impacts assessment (NIA) stipulates that the proposal has been assessed against the Noise Policy for Industry (NPI). However, the Department notes the NIA has not established Project Noise Trigger Levels (PNTLs) consistent with the NPI, nor has it included an assessment of low frequency noise or the application of noise criteria under all weather conditions. Please provide a revised NIA which appropriately addresses the requirements of the NPI, prepared in consultation with the EPA.

This letter provides clarification in relation to the above concerns.

Assured Environmental

1 BACKGROUND

Blakebrook Quarry is an existing facility which includes both quarrying and asphalt production operations and has operated at the site for a considerable period of time. The quarry is licenced for the extraction, processing and storage of 100,000 – 500,000 tonnes annually with a maximum of 100 laden trucks per day permitted under Condition 22 of the EPL.

To provide for the ongoing operation of the facility, Lismore Council are seeking to amend the EPL to permit a total of 150 laden trucks per day averaged over a 1-week period (600 laden trucks per week) with a total production rate of 50,000 tonnes per annum of asphalt.

2 INFORMATION REQUEST

2.1 Assessment Criteria

2.1.1 Overview

The request for information requests the application of the NPI to the assessment of the quarry as part of the application process.

In considering this, reference is made to Section 6.1 of the NPI which specifically relates to the application of the policy to existing sites. The following sections present the application of the NPI to the assessment process and compare the outcomes with those presented in the original noise impact assessment report.

2.1.2 Initial Evaluation - Existing EPL

The existing EPL (3384) provides the following noise limits:

L4.1 Noise from the licenced premise must not exceed an L_{Aeq} (15 minute) noise emission criterion of 36 dB(A) at Location 2 and 35 dB(A) at all other locations as stated in Section 4 of Schedule 3 within the Department of Planning - Section 75J of the Environmental Planning & Assessment Act 1979 - Blakebrook Quarry Project - Project No. 07_0020, except as expressly provided by this licence.

L4.2 The noise limits set out in the preceding conditions apply under all meteorological conditions except for the following:

Wind speeds greater than 3 meters/second at 10 meters above ground level; or

Temperature inversion conditions greater than 3°C/100 meters.

L6 Hours of operation

L6.1 Activities covered by this licence must be in accordance with the operating hours set out in the table below.

Activity	Permissible Hours
Quarrying activities including loading and dispatch of trucks	07:00 to 18:00 Monday to Friday; 07:00 to 15:00 on Saturday and at no time on Sundays and Public Holidays
Blasting	10:00 to 15:00 Monday to Friday and at no time on Saturday, Sunday and Public Holidays
Asphalt plant	06:00 to 17:30 Monday to Saturday and at no time on Sundays and Public Holidays
Maintenance	May be conducted at any time provided that these activities are not audible at any privately-owned residence

The noise impact assessment applied the noise limits listed in the EPL to all sensitive receptors.

It is noted that compliance monitoring at the facility undertaken by Ambience Audio Services^a identified that compliance with the existing EPL noise limits is being achieved at all nearby sensitive receptors. Similar noise monitoring results provided by Lismore Council for the period 2013 – 2016 suggest that for the majority of the time, noise from the quarry is inaudible at most receptors.

A detailed summary of this noise monitoring is provided in Section 3.1 of the original Noise Impact Assessment report.

2.1.3 Establish Project Trigger Levels

Section 3.2.3 of the Noise Impact Assessment provides the results of baseline noise monitoring undertaken at a location representative of sensitive receptors in the area. The results of the monitoring confirm that existing baseline noise levels in the area are relatively low with the exception of day periods where an RBL of 45 dB(A) was observed (see Table 1 below).

Table 1: Baseline Noise Monitoring Data for All Days (dB(A))

Period	L _{max}	L ₁	L ₁₀	L ₉₀	L _{eq}	RBL
Day	90	61	55	47	55	45
Evening	83	53	49	41	49	37
Night	89	51	46	39	49	34

Given the baseline noise monitoring results, Table 2 presents the derived intrusiveness noise level with intrusive noise being noise that exceeds background noise levels (as defined by the Rating Background Level or RBL) by more than 5 dB.

^a Ambience Audio Services (2017) Results of Noise Monitoring – Blakebrook Quarry, 186A Keerrong Road, Blakebrook, NSW 2480.

Table 2: Derived Intrusiveness Noise Criteria

Receptor	Intrusiveness $L_{Aeq,15\text{-minute}}$ Criteria		
	Day	Evening	Night
Noise Monitoring Location	$45 + 5 = 50$	$37 + 5 = 42$	$34 + 5 = 39$

The project amenity noise level seeks to protect against cumulative noise impacts from industry and maintain amenity for particular land uses. Review of the surrounding area has identified that there are no other existing industrial uses at present and further industrial development is considered unlikely. Given this, in accordance with the NPI, the project specific amenity noise level is considered to be equivalent to the recommended amenity noise level as presented in Table 3.

Table 3: NPI Amenity Noise Levels

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended L_{Aeq} Noise Level, (dB(A))	
			Total Industrial Noise	Project Specific
Residence	Rural	Day	50	50
		Evening	45	45
		Night	40	40

The project trigger level (i.e. the noise limit considered by the assessment) is the lower value of the project intrusiveness noise level and the project amenity level, after the conversion to $L_{Aeq,15\text{ min}}$ dB(A) equivalent level. Table 4 presents the standardised intrusiveness noise level and the project amenity level as derived by adding 3 dB to each period of the day.

Table 4: Determining Project Trigger Level

Type of Receiver	Time of Day	Standardised $L_{Aeq,15\text{ min}}$ Noise Level (dB)		
		Intrusiveness Criteria	Project Specific ANL	Project Trigger Level
Residential	Day	50	$50 + 3 = 53$	50
	Evening	42	$45 + 3 = 48$	42
	Night	39	$40 + 3 = 43$	39

The resultant project trigger levels are 50 dB(A) for day, 42 dB(A) for evening and 39 dB(A) for night-time period. These derived noise levels are higher than the those stipulated in the existing EPL. Further, the results of the noise modelling indicate compliance is predicted to be achieved with both the project trigger levels and the significantly lower noise limits provided in the existing EPL.

As such, in accordance with the NPI, no further assessment is required.

2.2 Low Frequency Noise

Based on AE's experience, low frequency noise is not a concern from quarry or asphalt uses. Further, low frequency noise has not been identified by the annual noise monitoring undertaken to assess compliance against the EPL (as described in Section 3.1 of the Noise Impact Assessment. Given this, no adjustments have been made to the noise source levels.

2.3 Weather Conditions

The existing EPL does not allow for night-time operations of the existing quarry. Further, amendments to the EPL to permit night-time operations are not being sought.

The NPI presents guidelines for the consideration of meteorological effects on noise propagation, specifically, temperature inversions and/or gradient winds. NPI provides two options for assessing meteorological effects as detailed in Table 5. The following section provides the results of the predictive noise modelling incorporating the worst-case (noise enhancing conditions) meteorological conditions as described in Table 4.

Table 5: Standard and Noise Enhancing Meteorological Conditions

Meteorological Conditions	Meteorological Parameters
Standard conditions	Day/evening/night: stability categories A-D with wind speed up to 0.5 m/s at 10 m AGL.
Noise enhancing conditions	Day/evening: stability categories A-D with light winds (up to 3 m/s at 10 m AGL). Night-time: stability categories A-D with light winds (up to 3 m/s at 10 m AGL) and/or category F with winds up to 2 m/s at 10 m AGL

2.4 Predicted Noise Levels

Table 6 presents the daytime noise levels for the existing quarry operations which are restricted to daytime activities only. It can be seen that the existing activities comply with the EPL limits.

Table 6: Existing Quarry Operations Predicted Daytime Receptor Noise Levels

Receptor	Predicted Noise Level dB(A) $L_{Aeq}(15 \text{ minute})$	EPL Noise Limit	Complies?
R1	29	35	Y
R2	36	36	Y
R3	< 10	35	Y
R4	22	35	Y
R5	34	35	Y
R6	18	35	Y
R7	35	35	Y

Table 7 presents the expanded operations for the quarry and asphalt plant during the daytime and asphalt plant only during the night-time periods. It can be seen that the noise levels comply with the project trigger levels for day and night-time periods.

Table 7: Expanded Operations Predicted Receptor Noise Levels for Quarry and Asphalt

Receptor	Predicted Noise Level dB(A) <i>L_{Aeq} (15 minute)</i>		Noise Limits (D / E / N)	Complies?
	Day (Quarry & Asphalt)	Night (Asphalt only)		
R1	32	26	50 / 42 / 39	Y
R2	36	20	50 / 42 / 39	Y
R3	< 10	<10	50 / 42 / 39	Y
R4	24	10	50 / 42 / 39	Y
R5	34	18	50 / 42 / 39	Y
R6	22	5	50 / 42 / 39	Y
R7	36	30	50 / 42 / 39	Y

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4 DOCUMENT CONTROL

Table 8: Document Approval

	Name	Position Title	Signature	Date
Author	Craig Beyers	Manager Consulting Services		26/11/2019

Table 9: Revision Register

Revision	Date	Name	Issued to	Comment
R_O	26/11/2019	Craig Beyers	T. McLean	Initial release