



**JULY 2019**

**NOISE COMPLIANCE ASSESSMENT**

**VALLA QUARRY**

**VALLA ROAD**

**VALLA**

**Commissioned by:**

Bayval Pty Ltd

**Prepared by:**

MWA Environmental

**11 July 2019**

## DOCUMENT CONTROL SHEET

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## 1.0 INTRODUCTION

### 1.1 PURPOSE OF REPORT

MWA Environmental was commissioned by Bayval Pty Ltd to conduct a Noise Compliance Assessment for the Valla Quarry.

The compliance noise monitoring presented in this report was undertaken on 2 July 2019.

The compliance monitoring was undertaken in accordance with Condition M8 of Environment Protection Licence No. 13136, as follows:

**M8 Noise monitoring**

M8.1 The licensee must comply with the commitments made in Section 4 of the document titled "*Valla Quarry Proposed Alternative Noise Monitoring Regime*" dated July 2016 (Trim Ref: DOC16/338816). The first additional noise monitoring event shall be conducted prior to 30 September 2016.

### 1.2 SITE DESCRIPTION

Bayval Pty Ltd operates the Valla Quarry with processing and product stockpiling occurring on Lot 101 on DP1118337 and extraction in the approved extension area over Lot 100 on DP1118337.

Access to the quarry is via a roadway from Valla Road running through Lot 104 on DP1118337. The weighbridge is also located on Lot 104 on DP1118337.

An aerial photograph of the subject site and surrounding area, including nominated surrounding residences, is included as **Figure 1**.

### 1.3 SURROUNDING LAND USES

Surrounding land uses are shown on the aerial photograph included as **Figure 1**.

Surrounding land uses comprise rural allotments with scattered detached dwellings. The existing dwelling on Lot 104 on DP1118337 has not been considered as a noise-sensitive receptor in this assessment because it contains the quarry access road and weighbridge and is thus considered to be associated with the quarry.

Surrounding residences are setback a minimum of 500 metres from the quarry extraction, processing and stockpiling areas. The Valla Community Hall is located on Valla Road, approximately 530 metres to the north of the quarry.

## 2.0 RELEVANT COMPLIANCE NOISE LIMITS

Condition L3 of Environment Protection Licence No. 13136 (**“the EPL”**) sets the compliance noise limits for the quarry, as follows<sup>1</sup>:

### L3 Noise limits

- L3.1 Noise emitted from the premises must not exceed 35.5dB(A) LAeq (15 minute) at times when measured in the absence of wind with an easterly component and when the rock drill is not operating.
- L3.2 Noise emitted from the premises must not exceed 39dB(A) LAeq (15 minute), except as expressly provided by this licence.
- L3.3 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.
- L3.4 For the purposes of monitoring compliance with conditions L3.1 and L3.2, noise from the premises is to be measured at the most affected residential receiver who has not given written permission for an exceedance of conditions L3.1 and L3.2.

Note: Noise must be measured or computed from within 30 metres of the nearest residential dwelling over a period of 15 minutes using "FAST" response on the sound level meter. A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the document "New South Wales Industrial Noise Policy" (NSW EPA, January 2000).

As such, it is considered that the following noise limits apply when measured under common (significant) weather conditions in the absence of rain and with wind speed below 3 metres per second:

- (a) **39 dB(A) LAeq (15 minute)** under all wind directions; and
- (b) **35.5 dB(A) LAeq (15 minute)** under winds that do not include an easterly component and when the rock drill is not operating.

No rock drill was operating during the 2 July 2019 compliance monitoring period.

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<sup>1</sup> Environment Protection Licence No. 13136 dated 7 December 2018

## **3.0 JULY 2019 COMPLIANCE NOISE MONITORING**

### **3.1 QUARRY OPERATIONS**

On 2 July 2019 the quarry operations were as follows:

- Fixed crushing and screening plant
- Excavator loading raw feed to dump truck at pit, haul to plant via dump truck
- Front-end loader feed to crushing and screening plant from ROM pad
- Normal product sales – currently at relatively low rate as supply to major road upgrade projects from the past several years has ceased

No rock drill was operating on 2 July 2019. Given the low production rates from the quarry at present rock drill operation to facilitate a blast will be infrequent.

No rock pick was operating on 2 July 2019. Given the low production rates from the quarry at present a rock pick does not operate on a daily basis.

The crushing and screening plant is not operated every day or for an entire day given the low production rates from the quarry at present. The crushing and screening plant was operated for the purpose of the noise compliance assessment on 2 July 2019 with the exception of a lunch break period 12:30pm to 1:15pm and a subsequent breakdown period 1:15pm to 2:40pm.

It was noted during the site inspection that there was an excessively noisy roller on a conveyor within the crushing plant. This roller noise was audible to the west during some morning noise measurements. Bayval Pty Ltd are to undertake maintenance to rectify the elevated noise generated by the conveyor roller.

Further, some of the skirting around the crushing and screening plant enclosure conveyor penetrations was noted to have been removed for recent repair works to the structural footings. Bayval Pty Ltd are to reinstall the skirting materials to ensure that noise containment within the enclosures is optimised.

### **3.2 NOISE MONITORING LOCATIONS**

The *Valla Quarry - Proposed Alternative Noise Monitoring Regime* (Groundwork Plus, July 2016) required that noise monitoring be conducted at 685, 691 and 707 Valla Road, known as R8, R9 and R10, if permission is granted from the occupiers of these premises. MWA Environmental obtained permission from the landowners to conduct monitoring at 691 Valla Road at approximately 11:30am on 2 July 2019 as the residents were not contactable prior to that time. The resident at 707 Valla Road has previously indicated that access for noise monitoring is not preferred. Compliance assessment for 685 Valla Road was based upon monitoring at the adjoining property at 691 Valla Road.

Attended compliance noise monitoring was conducted on 2 July 2019 between 8:00am and 3:30pm at one residence<sup>2</sup> and four publically accessible monitoring locations representative of the residences to the north and west of the quarry (refer to **Figure 1**). The publically accessible monitoring locations W1, W2, W3 and N1 (refer **Figure 1**) are consistent with previous compliance noise monitoring locations.

### **3.3 METEOROLOGICAL CONDITIONS**

Meteorological conditions were fine on 2 July 2019 with no rainfall.

Bayval Pty Ltd is currently negotiating with the previous quarry operator to facilitate maintenance and relocation of the meteorological monitoring station that has been sited at 662 Valla Road.

MWA Environmental noted that the anemometer (wind speed sensor) appears to be not operational at present. MWA Environmental is assisting Bayval Pty Ltd to identify potential alternative locations for the meteorological station to be relocated given that Bayval Pty Ltd does not control the 662 Valla Road property.

Wind conditions during the 2 July 2019 monitoring period were assessed by MWA Environmental using a compass and handheld anemometer.

Winds conditions monitoring at the Valla Quarry during the 2 July 2019 noise monitoring period were generally as follows:

Morning (7am to 11am):	Calm to very light westerly winds
Lunch to Mid Afternoon (11am to 3:30pm):	1 to 2m/s winds from easterly directions

Wind speeds were below 3 metres per second throughout the monitoring period.

Overall meteorological conditions were suitable for noise compliance assessment.

### **3.4 EXTRANEOUS INFLUENCES**

Extraneous noise influences were excluded from the compliance noise measurements to the extent feasible (i.e. traffic, birds etc.) through on-site filtering and further post-processing using the audio recordings and analysis software.

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<sup>2</sup> 691 Valla Road

Extraneous noise data was filtered out by desktop analysis of audio recording files. For many of the noise measurements on 2 July 2019 there was significant near-field and distant bird noise which was not able to be completely excluded from the dataset for the assessment of quarry noise component levels in isolation. The overall measured noise levels based upon the dataset filtered to the extent possible for bird noise are considered to be slightly affected by extraneous noise. For the purposes of compliance assessment for a number of measurements, quarry component (in isolation) noise levels have been set as 'less than' the conservative 'upper limit' component level. Determination of exact quarry component levels for these measurements was not feasible as quarry noise levels were not prominent above other ambient noise influences.

From 1:30pm onwards a bulldozer was operating on a western facing hillside on the farm property adjacent the quarry. The bulldozer noise was consistent and overrode any quarry noise at locations to the west. No further valid noise measurements could be undertaken at the locations to the west of the quarry after 1:30pm. Once the plant breakdown was fixed by 2:40pm it was possible to obtain an additional valid noise measurement at location N1 to the north, which was not affected by the bulldozer operating on the farm property.

During several measurements a continuous steady state background 'whining' noise was audible from the north. This has been observed previously and is understood to be associated with an industrial activity further to the north.

Power tool operation at 685 Valla Road was observed at several monitoring locations but valid measurements were still obtained during unaffected periods.

### **3.5 MONITORING EQUIPMENT**

Attended noise monitoring was undertaken using a Bruel & Kjaer Type 2250 frequency analysing sound level meter. The sound level meter was calibrated to a reference signal of 94 dB at 1kHz prior to the monitoring and displayed no variance post-monitoring.

### **3.6 COMPLIANCE ASSESSMENT**

In order to assess the noise levels at residences R1 to R12 based upon the measured noise levels at the four publically accessible monitoring locations W1, W2, W3 & N1 and 691 Valla Road, adjustments were made based upon the relative noise exposure of each residence compared to the most representative monitoring location as per the detailed noise modelling results presented in the MWA Environmental report *Addendum to Further Noise Modelling of Northern Barrier – Valla Quarry – Valla Road, Valla* (ref. L04112/BH/09-118, dated 21 February 2012). This adjustment process allows for an assessment of compliance status at each residence based upon the most representative monitoring locations and has been previously applied for the purposes of compliance monitoring at the Valla Quarry.



Based upon the monitoring conducted, and consistent with previous assessments of the Valla Quarry undertaken by MWA Environmental, no tonality, impulse or low frequency noise modifying factors were warranted.

The crushing and screening plant was the dominant quarry noise influence during the 2 July 2019 compliance noise monitoring period.

**Table 1: Compliance Noise Assessment -  $L_{Aeq,15min}$  - dB(A)**  
**2 July 2019**

RESIDENCE	BASIS MONITORING LOCATION	ADJUSTMENT MONITORING LOCATION TO RESIDENCE LOCATION - dB(A)*	TIME	WIND CONDITIONS	RELEVANT NOISE CRITERIA $L_{Aeq}$ - dB(A)	MONITORING LOCATION ASSESSED QUARRY COMPONENT LEVEL $L_{Aeq}$ - dB(A)	ASSESSED RESIDENCE LOCATION COMPONENT $L_{Aeq}$ - dB(A)	COMPLIANCE STATUS
R1	N1	-2	935	1m/s W	35.5	<37	<35	COMPLIANT
			1450	1 to 2m/s ESE	39	<35	<33	COMPLIANT
R2	N1	-1	935	1m/s W	35.5	<37	<36	POTENTIALLY NON-COMPLIANT BY LESS THAN 0.5 dB(A)
			1450	1 to 2m/s ESE	39	<35	<34	COMPLIANT
R3	W3	0	915	<1m/s W	35.5	<37	<37	POTENTIALLY NON-COMPLIANT BY LESS THAN 1.5 dB(A)
			1220	2m/s ENE	39	<37	<37	COMPLIANT
R4	W3	0	915	<1m/s W	35.5	<37	<37	POTENTIALLY NON-COMPLIANT BY LESS THAN 1.5 dB(A)
			1220	2m/s ENE	39	<37	<37	COMPLIANT
R5	W1	-1	850	<1m/s W	35.5	<38.5	<37.5	POTENTIALLY NON-COMPLIANT BY LESS THAN 2 dB(A)
			1125	1 to 2m/s ENE	39	36.5	35.5	COMPLIANT

Table 1 continued ....

RESIDENCE	BASIS MONITORING LOCATION	ADJUSTMENT MONITORING LOCATION TO RESIDENCE LOCATION - dB(A)*	TIME	WIND CONDITIONS	RELEVANT NOISE CRITERIA $L_{Aeq}$ - dB(A)	MONITORING LOCATION ASSESSED QUARRY COMPONENT LEVEL $L_{Aeq}$ - dB(A)	ASSESSED RESIDENCE LOCATION COMPONENT $L_{Aeq}$ - dB(A)	COMPLIANCE STATUS
R6	W1	-4	850	<1m/s W	35.5	<38.5	<34.5	COMPLIANT
			1125	1 to 2m/s ENE	39	36.5	32.5	COMPLIANT
R7	W1	-4	850	<1m/s W	35.5	<37	<33	COMPLIANT
	691 Valla Rd	0	1145	1 to 2m/s ENE	39	<37	<37	COMPLIANT
R8	W2	0	805	Calm	35.5	<36.5	<36.5	POTENTIALLY NON-COMPLIANT BY LESS THAN 1 dB(A)
	691 Valla Rd	-1	1145	1 to 2m/s ENE	39	<37	<36	COMPLIANT
R9	691 Valla Rd	0	1145	1 to 2m/s ENE	39	<37	<37	COMPLIANT
R10	W2	0	805	Calm	35.5	<36.5	<36.5	POTENTIALLY NON-COMPLIANT BY LESS THAN 1 dB(A)
			1205	1 to 2m/s NE	39	<37	<37	COMPLIANT
R11	W2	0	805	Calm	35.5	<36.5	<36.5	POTENTIALLY NON-COMPLIANT BY LESS THAN 1 dB(A)
			1205	1 to 2m/s NE	39	<37	<37	COMPLIANT
R12	W2	0	805	Calm	35.5	<36.5	<36.5	POTENTIALLY NON-COMPLIANT BY LESS THAN 1 dB(A)
			1205	1 to 2m/s NE	39	<37	<37	COMPLIANT

\* Relative exposure based upon noise February 2012 noise modelling predictions presented in Further Noise Modelling of Northern Barrier – Valla Quarry – Valla Road, Valla (MWA Environmental L04112/BH/09-118, 21 February 2012)

Key outcomes from the 2 July 2019 compliance monitoring program are as follows:

1. Overall wind conditions were suitable for noise compliance monitoring.
2. Extraneous noise (e.g. birds and traffic) was able to be largely filtered from the data by field-exclusion and post-processing using audio recording data. For the purposes of compliance assessment for a number of measurements, quarry component (in isolation) noise levels have been set as 'less than' the conservative 'upper limit' component level. Determination of exact quarry component levels for these measurements was not feasible as quarry noise levels were not prominent above other ambient noise influences.
3. Compliance with the EPL noise limits was assessed at all residential locations when there was a wind with an easterly component.
4. For some measurements under calm to very light westerly wind conditions the conservative 'upper limit' component levels determined for quarry noise were above the relevant noise limit by less than 2dB(A), including some extraneous noise. Determination of exact quarry component levels for these measurements was not feasible as quarry noise levels were not prominent above other ambient noise influences.
5. It has previously been determined that feasible and reasonable on-site noise mitigation measures have been implemented to minimise noise emissions from the Valla Quarry.
6. Maintenance works should be undertaken to rectify the excessive noise observed on 2 July 2019 from a conveyor roller.
7. When the structural footing repair works have been completed to the crushing and screening plant, the skirting panels to the plant enclosure conveyor penetrations should be reinstalled to ensure that noise containment within the enclosures is optimised.

Section 11.1.3 of the NSW *Industrial Noise Policy* (2000) states that:

*"A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition."*

A similar position is stated in Section 4.2 of the NSW *Noise Policy for Industry* (2017)

*"As a general guide, where all source and pathway feasible and reasonable noise mitigation measures have been applied, the significance of residual noise levels (that is, noise levels above the project noise trigger level) will be considered, as outlined in Table 4.1."*

Table 4.1 of the *Noise Policy for Industry* defines the significance of an exceedance of the project noise trigger level by no more than 2dBA to be "negligible". In such a circumstance, Table 4.2 of the *Noise Policy for Industry* states that further receiver-based treatments or controls are not warranted.

On the basis of the above policy provisions, the potential noise limit exceedances of less than 2dB(A) during some measurement periods are not expected to be deemed non-compliant with the EPL condition.

The proposed works to rectify the excessive noise generated by a conveyor roller and reinstallation of skirting panels around the crushing and screening plant enclosure conveyor penetrations will ensure that the crushing and screening plant noise emissions are reduced from that measured on 2 July 2019.

## 4.0 CONCLUSION

MWA Environmental was commissioned by Bayval Pty Ltd to conduct a Noise Compliance Assessment for the Valla Quarry. The compliance monitoring was undertaken in accordance with Condition M8 of Environment Protection Licence No. 13136.

Attended compliance noise monitoring was conducted on 14 June 2018 between 8:00am and 3:30pm at one residence<sup>3</sup> and four publically accessible monitoring locations representative of the residences to the north and west of the quarry. Overall meteorological conditions were suitable for noise compliance assessment.

Extraneous noise influences were excluded from the compliance noise measurements to the extent feasible (i.e. traffic, birds etc.) through on-site filtering and further post-processing using the audio recordings and analysis software. Determination of exact quarry component levels for some measurements was not feasible as quarry noise levels were not prominent above other ambient noise influences. For the purposes of compliance assessment for a number of measurements, quarry component (in isolation) noise levels have been set as 'less than' the conservative 'upper limit' component level.

Compliance with the EPL noise limits was assessed at all residential locations when there was a wind with an easterly component.

For some measurements under calm to very light westerly wind conditions the conservative 'upper limit' component levels determined for quarry noise were above the relevant noise limit by less than 2dB(A), including some extraneous noise. On the basis of the NSW EPA policy provisions, the potential noise limit exceedances of less than 2dB(A) during some measurement periods are not expected to be deemed non-compliant with the EPL condition.

The proposed works to rectify the excessive noise generated by a conveyor roller and reinstallation of skirting panels around the crushing and screening plant enclosure conveyor penetrations will ensure that the crushing and screening plant noise emissions are reduced from that measured on 2 July 2019.

**MWA Environmental**  
**11 July 2019**

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<sup>3</sup> 691 Valla Road

## **FIGURES**





#### LEGEND

**N1** • NOISE MONITORING LOCATIONS

**1** ○ SURROUNDING RESIDENCES

#### DRAWING REFERENCES

CADASTRAL - NAMBUCCA SHIRE COUNCIL GIS  
AERIAL - GOOGLE EARTH PRO, JUNE 2004 AERIAL.  
AERIAL IS NOT ORTHORECTIFIED, CADASTRAL  
OVERLAY IS BEST FIT.



0 100 200 300m

CLIENT  
**BAYVAL PTY LTD**

PROJECT  
**VALLA  
NOISE COMPLIANCE  
ASSESSMENT**  
*Valla Quarry  
491 Valla Road, Valla. NSW.*

TITLE  
**NOISE MONITORING  
LOCATIONS AND  
SURROUNDING  
RESIDENCES**

JOB	VALLA	<b>FIGURE 1</b>
JOB NO.	19-078	
DATE	11/07/19	DRAWING NUMBER
SCALE	1:10,000 (A4)	
REV.		<b>19-078-1</b>



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