Newman Quarrying Pty Ltd

Quarry Expansion at Lot 2 DP 1055044, Tullymorgan-Jackybulbin Road, Mororo

Noise Management Plan

May 2017

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1. Introduction

This Noise Management Plan (NMP) forms part of the Environmental Management Strategy (EMS) for Sly's Quarry located at Lot 2 DP 1055044, Tullymorgan – Jackbulbin Road, Mororo. This NMP has been prepared to meet the requirements of the Ministers Conditions of Approval (CoA) outlined in Development Consent SSD 6624, the mitigation measures outlined in the Environmental Impact Statement (EIS) for Sly's Quarry and all relevant legislation.

Noise will be generated from normal site activities, particularly the operation of plant and equipment. Haul trucks will generate noise outside of the quarry site boundaries through the transport of material to customers. Potential impacts include disturbance to local residents from site operations and works outside of prescribed working hours increasing the impact.

1.1 Objectives

The key objective of the NMP is to ensure appropriate controls and procedures are implemented in order to minimise the impacts to the local community and the built environment from noise.

To achieve this objective, Newman Quarrying will undertake the following:

- Identify sensitive receivers and ensure appropriate environmental controls and procedures are implemented during operational activities.
- Minimise potential adverse noise impacts to the environment and community.
- Manage impacts if they occur through a systematic analysis of mitigation strategies.
- Ensure appropriate measures are implemented to address the relevant CoA outlined in Table 2-1.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 2.1 of this NMP.

1.2 Targets

The following targets have been established for the management of noise during the operational lifetime of Sly's Quarry:

- Ensure full compliance with the relevant legislative requirements and CoA.
- No exceedance of the operational noise limits.
- No justified complaints from adjacent residents in relation to noise generation.
- No out of hours work.

1.3 Consultation

Extensive consultation was undertaken with the local community during preparation of the EIS. Any concerns identified by relevant stakeholders were addressed in the EIS and mitigation measures developed which have been incorporated into this NMP.

As per CoA 5(a), Schedule 3, the Environment Protection Authority (EPA) were consulted in relation to the NMP. Evidence of the consultation is provided in Appendix A.

2. Environmental requirements

2.1 Legislation

Legislation relevant to noise management includes:

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Noise Control) Regulation 2008

Further discussion of the above legislation is covered in Section 2 of the EMS, as well as the EIS.

2.2 Guidelines

The following guidelines have been consulted during development of this NMP:

- Environment Protection Authority (EPA), 2000, *Industrial Noise Policy*.

2.3 Conditions of approval

The consent conditions relevant to this NMP are listed in Table 2-1. A cross reference is also included to indicate where the condition is addressed in this NMP or other environmental management documents.

Table 2-1 Consent conditions relevant to the NMP

Condition No.	Requirement	Reference
Schedule 3, Condition 5	The Applicant must prepare a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:	Entire report
	(a) be prepared in consultation with the EPA;	Section 1.3
	(b) be submitted to the Secretary within 6 months of the date of this consent, unless otherwise agreed by the Secretary;	Section 1
	(c) describe the measures that would be implemented to ensure: • compliance with the noise criteria in this consent; • best practice management is being employed; and • the noise impacts of the development are minimised during meteorological conditions under which the noise criteria in this consent do not apply (see Appendix 4);	Section 4
	(d) describe the proposed noise management system; and	Section 4
	(e) include a monitoring program to be implemented to measure noise from the development against the noise criteria in Table 2 [of the consent] and the road noise criteria in the EIS, and which evaluates and reports on the effectiveness of the noise management system on site.	Section 4 Section 5
Schedule 5, Condition 3	The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	Section 3
	(b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; and	Section 2.1 Section 5

Condition No.	Requirement	Reference
	• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 5
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 4
	(d) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of any management measures (see (c) above);	Section 5.1
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 5.2
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6
	(g) a protocol for managing and reporting any: • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and	Section 5.3
	(h) a protocol for periodic review of the plan.	Section 6

3. Existing environment and impacts

3.1 Existing environment

The Noise Impact Assessment (NIA) in the EIS identified eleven potentially sensitive receivers in the vicinity of the quarry using aerial imagery. The nearest identified sensitive receiver was located approximately 1.5 km from the quarry boundary. Sensitive receivers identified in the vicinity of the site are detailed in Table 3-1. Figure 3-1 shows a site aerial image and the location of identified noise sensitive receivers. These receivers were identified to represent those with the greatest potential for adverse noise impact.

Table 3-1 Identified noise sensitive receivers

Receiver	Receiver type	Approximate distance to nearest boundary (m)
R1	Residential	1600
R2	Residential	1700
R3	Residential	1500
R4	Residential	2600
R5	Residential	2700
R6	Residential	2800
R7	Residential	3200
R8	Residential	3600
R9	Residential	3300
R10	Residential	3500
R11	Residential	3000

Background noise monitoring was undertaken for the NIA by GHD at two locations between 13 November 2014 and 21 November 2014. The logger locations are show in Figure 3-1 and a summary of the attended noise monitoring results are provided in Table 3-2.

NEWMAN QUARRYING
SLYS QUARRY

LOCATIONS OF SENSITIVE NOISE RECEIVERS AND NOISE LOGGERS

Job Number 22-17528
Revision A
Date NOV 2016

Figure 3-1

230 Harbour Drive Coffs Harbour NSW 2450 Australia **T** 61 2 6650 5600 **F** 61 2 6650 5601 **E** cfsmail@ghd.com **W** www.ghd.com

Plot Date: 1 November 2016 - 5:05 PM Plotted by: Steve Young Cad File No: N:\AU\Coffs Harbour\Projects\22\17528\CADD\Drawings\22-17528-FIG_3-1-NOISE_LOGGERS_LOCATIONS.dwg

Table 3-2 Summary of attended noise monitoring results dB(A)

Monitoring Location	Date	Measurement time		Measured noise levels dB(A)			Observations (instantaneous dB(A))
		Start	Stop	L_{Aeq}	L_{A90}	L_{A10}	
Logger 1	13/11/2014	12:22	12:37	50	42	51	• Quarry inaudible. • No audible industry noise • Pacific Hwy dominant noise source. • Birds and insects noted. • Three instances of quarry traffic passby noted, LAmax approximately 66 – 69 dB(A). Slight breeze SE-ESE, 23 degrees, cloudy
Logger 2	21/11/2014	10:15	10:30	40	36	43	• Quarry inaudible. • No audible industry noise. • Mostly natural noise sources, wind in foliage, birds and insects. • Three instances of aircraft flyover noted. • Still to 2 m/s NE wind speed, 29 – 33 degrees, 3/8 c loud coverage.

3.2 Impacts

Noise Criteria

Noise criteria for the project were provided in the development consent (CoA 3, Schedule 3) and EPL (Condition L4.1) and are outlined in Table 3-3. Noise generated by the project must not exceed the criteria at any residence on privately-owned land.

Table 3-3 Noise criteria dB(A)

Receiver	Day $L_{Aeq\ (15\ minute)}$	Evening $L_{Aeq\ (15\ minute)}$	Night $L_{Aeq\ (15\ minute)}$
All privately owned residences	35	35	35

Operational Impacts

The NIA modelled and assessed predicted noise impacts to sensitive receivers based on two operational scenarios:

- **Scenario 1**: Proposed operations with current quarry shape (considered to represent a worst-case scenario as equipment would be most exposed to sensitive receivers).
- **Scenario 2**: Proposed operations with final quarry shape

For both Scenario 1 and Scenario 2, the noise impact of the quarry on surrounding receivers has been assessed at:

- Average daily production, which is expected to generate about 50 truck and dog loads (100 movements) per day.
- Peak daily production, which would require about 125 truck and dog loads (250 truck movements) per day.

The predicted noise levels for daytime site operations are shown in Table 3-4 and Figure 3-2.

Table 3-4 Predicted operational noise levels

Sensitive Receiver	Noise criterion Leq dB(A)	Predicted noise level Leq dB(A)							
		Scenario 1 – Existing quarry configuration				Scenario 2 – Final quarry configuration			
		Average daily production without rock breaking	Average daily production with rock breaking	Peak daily production without rock breaking	Peak daily production with rock breaking	Average daily production without rock breaking	Average daily production with rock breaking	Peak daily production without rock breaking	Peak daily production with rock breaking
R1	45	26	26	28	28	26	26	28	29
R2	45	25	26	27	28	26	26	28	28
R3	35	32	33	34	35	30	31	32	33
R4	35	23	25	25	26	21	22	23	24
R5	35	23	24	25	25	20	21	22	23
R6	35	22	23	24	25	20	21	22	23
R7	35	21	22	22	23	18	19	21	21
R8	35	19	20	21	22	17	18	19	20
R9	35	20	21	22	23	18	18	20	21
R10	35	20	21	21	22	17	18	19	20
R11	35	21	22	23	24	19	20	21	22

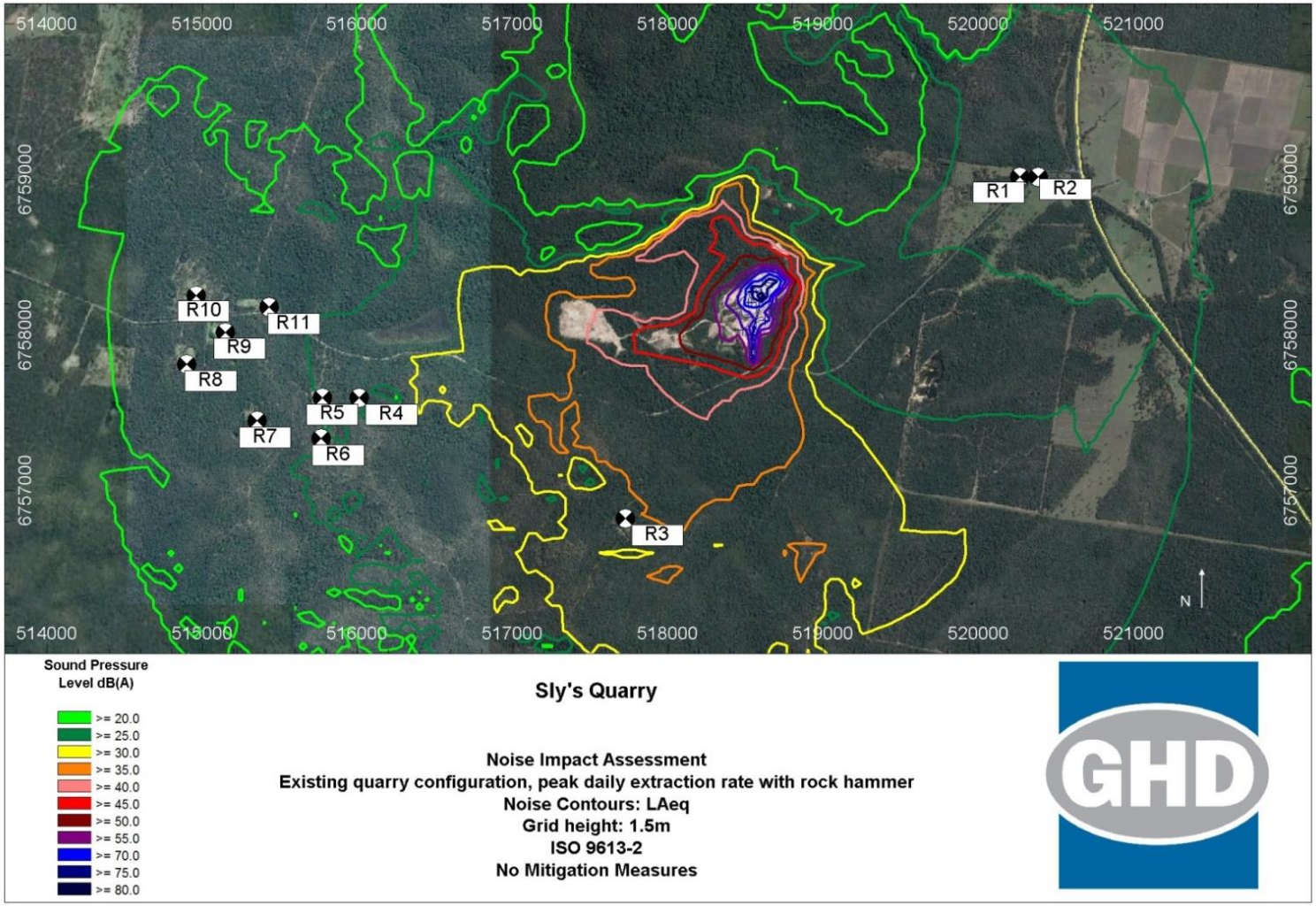

Figure 3-2 Predicted operational noise levels – Scenario 1 (existing quarry configuration) – Peak daily production with rock hammer

The results indicate that noise levels generated from quarry operations are predicted to comply with the noise criteria at all sensitive receivers. It is noted that off-site noise levels at R3 are equal to the criteria, and the use of loud tools such as the rock hammer during peak daily production may cause an exceedance.

Predictions under Scenario 2 indicate that the changing the quarry shape will make little difference to the receiver levels.

This assessment is considered conservative as it has not considered the potential screening benefits of equipment operating behind stockpiles.

It should be noted that the noise modelling is based on worst case operating conditions with conservative assumptions regarding site operations and equipment sound power levels. This conservative approach is likely to result in predicted operational noise levels being slightly higher than actual noise levels.

Traffic Noise Impacts

The quarry has the potential to create additional traffic noise on Tullymorgan-Jackybulbin Road.

Table 3-5 summarises the predicted road traffic noise level for when the quarry is operating at peak daily production, and compares the predicted levels against the NSW *Road Noise Policy* (OEH 2011) (RNP) critiera.

Table 3-5 Predicted road traffic noise level during peak production

Roadway	Generated heavy vehicle movements per day (average daily production)	Generated heavy vehicle movements per day (peak daily production)	RNP criteria Day (7 am – 10 pm)	Predicted road noise level	
				Average daily production $LAeq_{(1\ hour)}$ dB(A)	Peak daily production $LAeq_{(1\ hour)}$ dB(A)
Jackybulbin Rd	100 (50 loads)	250 (125 loads)	$LAeq_{(1\ hour)}$ 55 (external)	49	52

1. Predicted results have received a 2.5 dB(A) façade correction

The results show that road traffic noise along Tullymorgan-Jackybulbin Road during peak daily production is expected to comply with the RNP criteria.

However, the increase in heavy vehicle traffic is expected to be noticeable to receivers R1 and R2, and have the potential to generate annoyance. In particular, bumps, pot holes or other irregularities in the roadway can cause short-term increased noise during vehicle passbys.

4. Environmental control measures

Environmental requirements and control measures are identified in the Conditions of Approval and the EIS. Specific measures and requirements to address noise impacts are outlined in Table 4-1.

Table 4-1 Environmental controls and mitigation measures

Ref	Environmental Management Measure	Timing	Responsibility
N1	The operating hours specified in the development consent and in Section 2.5 of the EMS must be complied with.	Operation	Quarry Manager
N2	Noise generated by the development must not exceed 35 dB(A) $L_{Aeq\ (15\ minute)}$ at any residence on privately-owned land.	Operation	Quarry Manager
N3	Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the *NSW Industrial Noise Policy*.	Operation	Quarry Manager
N4	Best practice management must be implemented to minimise the operational and road transportation noise of the development.	Operation	Quarry Manager
N5	The noise impacts of the development must be minimised during meteorological conditions when the noise criteria in the consent do not apply (see Appendix 4 of the consent).	Operation	Quarry Manager
N6	Noise monitoring must be carried out at least every 3 months or as otherwise agreed with the Secretary to determine whether the development is complying with the relevant conditions of the consent and the adopted noise criteria.	Operation	Quarry Manager
N7	Compliance noise monitoring should also be undertaken following receipt of a complaint relating to noise emissions from the site.	Operation	Quarry Manager
N8	Noise monitoring should also be conducted following any change in operating conditions that are likely to increase noise emissions from the site (such as a sudden increase in production rate or heavy vehicle movements) or move noise sources significantly closer to noise sensitive receivers.	Operation	Quarry Manager
N9	The noise monitoring data should be regularly assessed and on site operations should be	Construction	Quarry Manager

Ref	Environmental Management Measure	Timing	Responsibility
	modified or stopped to ensure compliance with the relevant conditions of the consent. For example, noise barriers consisting of earth mounds or shipping containers may be used to reduce noise impacts.	Operation	
N10	Where practical, machines would be operated at low speed or power and switched off when not being used rather than left idling for prolonged periods.	Operation	Quarry Manager
N11	Keep truck drivers informed of designated vehicle routes, parking locations and delivery hours.	Operation	Quarry Manager
N12	Avoid dropping materials from height and avoid metal to metal contact on material.	Operation	Quarry Manager
N13	All engine covers would be kept closed while equipment is operating.	Operation	Quarry Manager
N14	The quarry manager is to erect a sign at the entrance of the quarry with a phone number and permanent site contact so that noise complaints can be received and addressed in a timely manner.	Operation	Quarry Manager

5. Monitoring and reporting

5.1 Environmental inspections and monitoring

Routine weekly inspections by the Quarry Manager (or delegate) will occur throughout the operational lifetime of the quarry to identify any ad-hoc noise issues such as faulty equipment, noisy works.

Noise compliance monitoring will occur at R3 (refer to Figure 3-1) within two months of the commencement of the increased extraction rate and quarterly for the first two years. Road traffic noise monitoring will also occur quarterly for the first two years at a site that is representative of R1 and R2 but is not influenced by noise from the highway. If this monitoring indicates compliance with the criteria in Table 3-3 and Table 3-5 and DPE approve, the noise monitoring will cease unless there is:

- A justifiable noise complaint
- A change in operating conditions that are likely to increase noise emissions from the site

The assessment must be conducted by a suitably qualified and experienced acoustic consultant in accordance with the INP.

5.2 Contingency plan

If the above monitoring detects an impact or there is a justified community, noise related, complaint, a contingency plan or trigger and response plan is to be implemented, as shown below.

Aspect	Trigger	Response
Routine noise monitoring	Excessively noisy equipment identified	Quarry Manager to commission testing of equipment for faults to confirm excessive noise generation. Quarry Manager to take plant or equipment out of service and commence maintenance (if practicable). Quarry Manager to replace faulty plant or equipment with plant or equipment that is in good working order and recommence activities.
Compliance monitoring/Community complaint	Non-compliance with noise criteria	Identifying the noise source that has caused the exceedance. Reassess the mitigation measures employed at the site to reduce the impact of the noise source Following the adoption of noise mitigation, conduct further noise monitoring to ensure the success of the mitigation measure

5.3 Reporting

The general reporting requirements are described in Section 8.5 of the EMS. In relation to the noise monitoring, the routine noise monitoring will be recorded on the *Environmental Inspection Checklist*.

A report will be prepared by the acoustic consultant following the compliance monitoring. This is to include, as a minimum:

- The date(s) of the monitoring
- The time(s) of the monitoring
- The location of the monitoring
- The activities occurring during the monitoring
- A comparison of the results with the adopted noise criteria

If an exceedance of the criteria is recorded, the affected resident and DPE are to be notified in writing and provided with regular monitoring results until the quarry is again complying with the relevant criteria.

A summary of these results will be presented in the Annual Report (refer to Section 8.5 of the EMS). All records will be:

- Maintained in a legible form
- Kept for at least 4 years
- Produced to any authorised officer of the EPA and/or DPE upon request

6. Review and improvement

Continuous improvement of this NMP will be achieved in accordance with Section 9 of the EMS, through the ongoing evaluation of environmental management performance against environmental policies, objectives and targets.

The continuous improvement process is designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement; and make comparisons with objectives and targets

Appendices

Appendix A – Agency consultation

Ben Luffman

From: Scott Ensbey <Scott.Ensbey@epa.nsw.gov.au>
Sent: Monday, 14 November 2016 5:28 PM
To: Ben Luffman
Subject: RE: EPL 11649

CompleteRepository: 2217528
Description: Sly's Quarry EIS
JobNo: 17528
OperatingCentre: 22
RepoEmail: 2217528@ghd.com
RepoType: Job

Hi Ben,

Sorry, I thought I'd spoken to you about the plan review issue.

I understand that it's a condition of consent that Newman's consult with the EPA on the development of the plans. The EPA does not typically review/endorse Environmental Management Plans, Noise Management Plans, etc. It is up to the licensee (usually via their consultant) to ensure that the plans comply with the relevant guidelines. In this case, the SWMP needs to be based on the Blue Book, Volumes 2 and 2E, the Noise Management Plan should be guided by the principles of the Industrial Noise Policy.

I'm happy to discuss this position if needed, otherwise I'll leave it with you.

Regards

Scott Ensbey
Operations Officer – North Coast
NSW Environment Protection Authority
(02) 6640 2522 MOB: 0447142916
scott.ensbey@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW
Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

From: Ben Luffman [mailto:Ben.Luffman@ghd.com]
Sent: Friday, 11 November 2016 4:45 PM
To: Scott Ensbey <Scott.Ensbey@epa.nsw.gov.au>
Subject: RE: EPL 11649

Hi Scott,

How are you going with the review of the plans? Another discrepancy between the EPL and consent is the consent allows for receiving 10,000 tonnes of topsoil and 5,000 m3 of mulch during any calendar year but the EPL does not.

GHD

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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	B Luffman	E Smith		S Lawer		03/05/2017

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