



# **Air Quality Management Plan**

## **Blakebrook Quarry**

**MP07\_0020**

**September 2023**

# Air Quality Management Plan

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## DOCUMENT HISTORY

Revision	Date	Prepared By (Name)	Reviewed By (Name)	Change Remarks
1.0	May 2010	LCC & ERM Australia	Manager Commercial Services & ERM Australia	Final draft
Rev A	June 2010	LCC & ERM Australia	Manager Commercial Services & ERM Australia	
Rev B	April 2011	LCC & ERM Australia	Manager Commercial Services & ERM Australia	
2.0	Dec 2017	LCC & ERM Australia	Manager Business Development & ERM Australia	Update as per CoA
3.0	March 2018	LCC & ERM Australia	Manager Business Development & ERM Australia	Update as per CoA
4.0	Sept 2022	Commercial Services Compliance (LCC)	Compliance Manager, Manager Commercial Services DPE Secretary	Update as per CoA
4.1	March 2023	LCC	Compliance Manager Manager Commercial Services DPE Secretary	Address comments in Post Approval Review
4.2	September 2023	LCC	Compliance Manager Head of Roads and Quarry DPE Secretary	Address comments in Post Approval Review

# Air Quality Management Plan

## DEFINITIONS

Term	Definition
<b>Audit</b>	Systematic, independent and documented process for obtaining evidence and objectively evaluating it to determine the extent to which environmental management system meets the criteria set.
<b>Auditor</b>	Person with appropriate training and competence to perform an audit
<b>Contractor</b>	Contractor engaged by LCC in order to achieve improvements in overall environmental performance
<b>Environment</b>	Surroundings in which Contractor operates including air, water, land, natural resources, flora, fauna, humans, heritage and their interrelation.
<b>Environmental Aspect</b>	Element of organisational activities or products that can interact with the environment.
<b>Environmental Impact</b>	Any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organisational aspect.
<b>Environmental Management</b>	The management system used to develop and implement the environmental system policy and manage environmental aspects.
<b>Environmental Objective</b>	Overall environmental goal, consistent with the environmental policy that an organization sets itself to achieve.
<b>Environmental Performance</b>	Measurable results of an organisation's management of environmental aspects.
<b>Integrated Management System</b>	A single system designed to manage multiple aspects of an organisations operations in line with multiple standards, such as those for quality, environmental and health and safety management.
<b>NEPM</b>	Legal instruments that specify national standards for a variety of environmental issues. They are binding on all Governments that are members of the NEPC
<b>Non-conformance</b>	Non fulfilment of a requirement.
<b>Performance Indicators</b>	Indicators that have been developed as leading or lagging to monitor and assess performance.
<b>Procedure</b>	Specified way to carry out an activity or process.
<b>Subcontractor</b>	Any company, body or person who is contracted to the Contractor for the purpose of supplying services or goods.

# Air Quality Management Plan

## ABBREVIATIONS

Abbreviation	Meaning
AQMP	Air Quality Management Plan
CoA	Conditions of Approval
DP	Deposited Plan
DPE	Department of Planning and Environment
EAR	Environmental Assessment Report
EMP	Environmental Management Plan
EMS	Environmental Management Strategy
EPA	NSW Environment Protection Authority
EPL	Environmental Protection Licence
ERM	Environmental Resources Management
IMS	Integrated Management System
ISO	International Organisation for Standardisation
LCC	Lismore City Council
LEP	Local Environmental Plan
LGA	Local Government Area
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measures
SEE	Statement of Environmental Effects (Mitchel Hanlon)

# Air Quality Management Plan

## 1 INTRODUCTION

This Air Quality Management Plan (AQMP) has been prepared by Lismore City Council (LCC) in order to manage quality of air emissions and output from Blakebrook Quarry (the Quarry).

Blakebrook Quarry (the Quarry) is operated by Northern Rivers Quarry (NRQ) which is a commercial entity owned by Lismore City Council. The Quarry is located at 550 Nimbin Road, Blakebrook, approximately seven (7) kilometres northwest of Lismore on Lot 53 DP 1254990 for Extraction Areas and Lot 54 DP 1254990 for Asphalt Plant an ancillary activity.

The site occupies an area of approximately 128 ha (incorporating 45ha rezoned to C2 Environmental Conservation (gazetted on 18 December 2020), providing long term security for the biodiversity offset area). Surrounding land is used for agricultural and rural purposes. The location of the Quarry is as shown in *Figure 1*. Nearby potentially sensitive receptors have also been identified as part of this management plan and are outlined in *Figure 2*

The Quarry is identified as a State Significant Development (SSD) and provides a range of quarry products to northern NSW on behalf of Council including:

- Aggregates
- Drainage rock
- Road base
- Basalt products
- Metal dust
- Fill material
- Bituminous products including hot mix and cold mix – blended according to mix design

### 1.1 PURPOSE

The purpose of this AQMP is to provide procedures and actions that may need to be implemented to monitor impacts of the Quarry expansion on air quality.

The AQMP will:

- Describe how LCC will manage, and control risks associated with air quality during the operation of the Quarry.
- Ensure the protection of nearby sensitive receptors when carrying out Quarry activities
- Ensure that the relevant stakeholders are involved in the formulation and implementation of this AQMP.
- Address the requirements of applicable legislation and any ongoing approvals as they are applicable to the Project.
- Meet the Project Conditions of Approval (CoA).
- Address the requirements of the EAR (ERM, 2009) and Statement of Environmental Effects (Mitchel Hanlon 2019) relating to Air Quality.

### 1.2 OBJECTIVES

The objectives of the AQMP are to:

- Identify environmental obligations and legislative requirements applicable to air quality monitoring and management at the Quarry.
- Describe the specific environmental management requirements and strategies for environmental elements, define objectives and set targets for environmental performance.
- Provide ongoing monitoring of dust levels in the vicinity of the Quarry, to prompt identification of any increased impacts.
- Demonstrate how any potential impacts on surrounding residential receivers will be managed and mitigated.
- Consult with the relevant parties during the preparation and implementation (as required) of this AQMP.
- Define key roles and responsibilities.

# Air Quality Management Plan

## 1.3 REVIEW SCHEDULE

In accordance with the CoA Schedule 5, condition 11, this AQMP will be formally reviewed by LCC each year as part of the annual review and reporting process. An official update will be submitted to the DPE at minimum every three (3) years. Noting minor revisions as part of the outcomes of the yearly review and administrative corrections will be undertaken without DPE consultation. A copy will be provided to all parties for record.

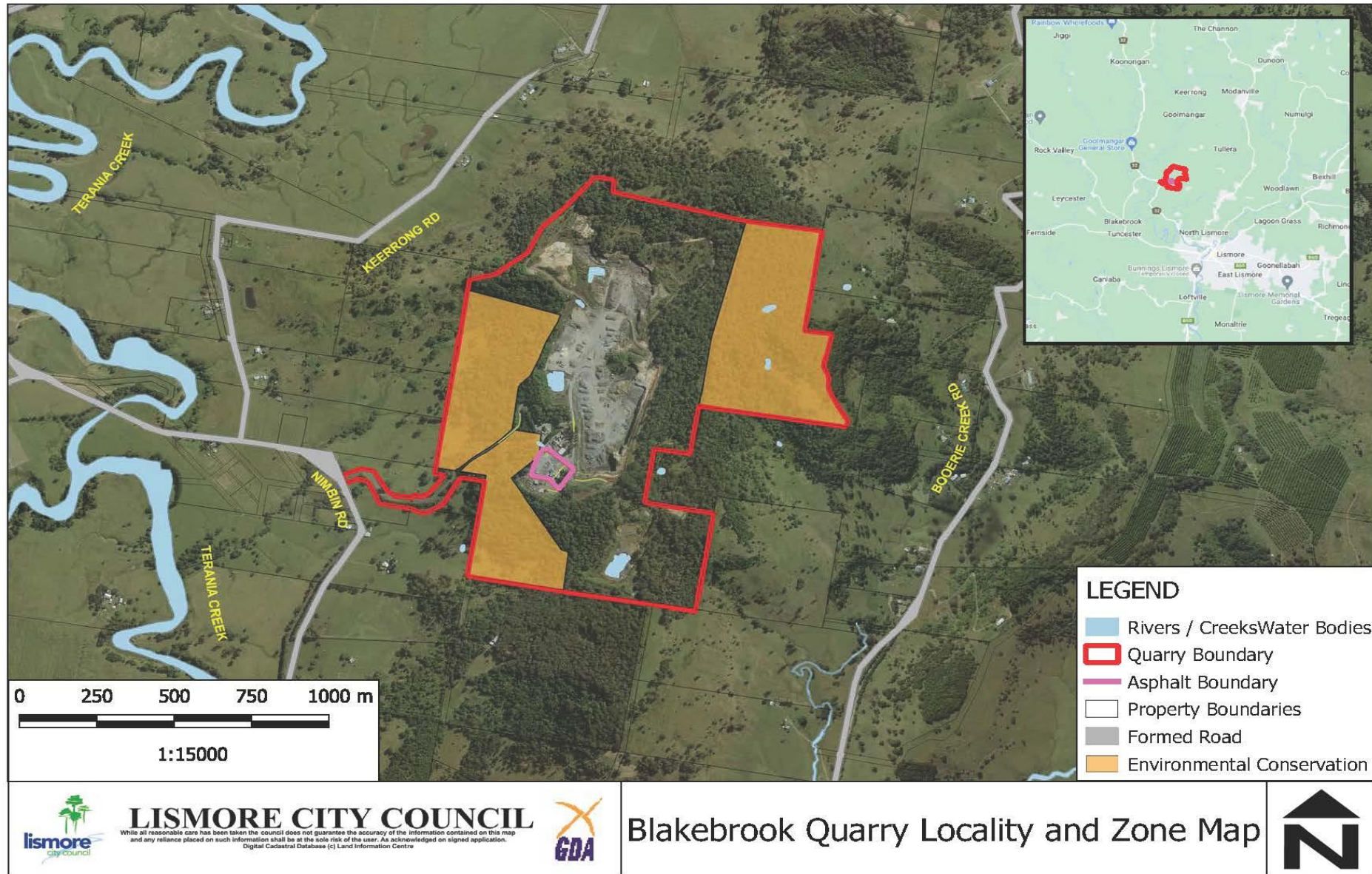
Accordingly, the next reviews are listed in *Table A*. Full requirements for document revisions are listed in Section 10.3.1.

*Table A: Review Schedule*

No.	Date	Type	Reviewer
R3	3 Aug 2018	Revision (Submission of amended AQMP)	LCC / DPE
R3.1	15 Dec 2018	Internal review	LCC
R3.1	15 Dec 2019	Internal review	LCC
R3.1	15 Dec 2020	Internal review	LCC
R4	30 Sept 2022	Revision (extension granted by DPE)	LCC / DPE
R4.2	30 Jan 2025	Internal review	LCC
R4.2	30 Jan 2026	Internal review	LCC
R5	30 Jan 2027	Revision	LCC / DPE



Figure 1: Project Locality and Land Zoning Map



# Air Quality Management Plan

## 2 QUARRY OPERATIONS

### 2.1 BACKGROUND

The Quarry has an identified resource of approximately 13.6 million tonnes which, based on an extraction rate of 600,000 tonnes per annum, would allow for quarrying for approximately 22 years. The maximum proposed extraction rate was not expected to be achieved in all years of quarrying. Project approval was therefore sought for an area sufficient for 30 years of quarrying with maximum extraction rate of 600,000 tonnes per annum, continuing in the existing main pit (herein also referred to as the 'North Pit') and a new smaller pit (herein also referred to as the 'South Pit') located to the south of the existing main pit.

In accordance with the State Conditions of Approval MP07\_0020 (CoA), the Quarry may carry out quarrying and asphalt plant operations on the site until 31 December 2039. Additionally, the Environmental Protection Licence EPL3384, authorises extractive or processed activities annually scaled between >100,000 tonnes – 500,000 tonnes. Quarry extraction depths must not exceed 55 m AHD in the North Pit or 105 m AHD in the South Pit (as prescribed in conditions listed in Appendix A).

In August 2017, LCC submitted a Modification Application to the DPE in order to mine up the first 10 metres of the cap rock in the South Pit at the Quarry. The South Pit was previously unable to be mined until late 2018, at the completion of the detailed groundwater assessment. On 18 September 2017, approval was granted to LCC to undertake these works, in accordance with revised CoA.

On 11 January 2019, LCC submitted a Modification Application to amalgamate the approvals for the Asphalt Plant and the Quarry. This application was subsequently approved (Modification 3) by the Minister of Planning in July 2021.

### 2.2 OPERATIONAL OVERVIEW

Quarrying has initially commenced laterally in the existing North pit from 2009. Initial excavation works within the South Pit commenced in late 2014 under a temporary approval to service a specific state government project. These initial works within the South Pit have been completed. No further excavation works for the South Pit are scheduled in the immediate future unless specific rock is needed. Extraction areas within the North Pit are chosen based on the present rock type and quality for supply. Mobile crushing and screening plant equipment is currently utilised for Quarry operations.

Initially, it was expected that over the initial 10 years of the 30 year life of the Quarry that production will average approximately 450,000 tonnes per annum including extraction of high quality product from the southern pit. The production was expected to increase beyond 10 years to the maximum 600,000 tonnes per annum. Production tonnages to date have been substantially less than originally projected as result of changing market demands, cost of production and unprecedented weather events impacting operational performance.

Asphalt operations were amalgamated into the Mod 3 CoA as of 20 July 2021. and include asphalt operations to be undertaken for limited campaign works.

Asphalt operations are conducted during standard work hours to the fullest extent, however require the additional operating hours to cope with the current demands of the region.

The Asphalt Plant is permitted to transport up to 50,000 tonnes of Asphalt from the Quarry each calendar year. An Out of Hours Work Protocol (OHWP) was developed to undertake limited campaign Asphalt operations as required by the Mod 3 CoA, this was accepted by DPE in February 2022.

The mobile asphalt plant (operated by RPQ (Downer Group) as an ancillary activity) offers a quieter and more efficient operation, with a production capacity of 80 tonnes per hour. The Quarry and Asphalt plant are situated on separate lots within the same deposited plan (DP) and operate within the same site footprint. As such, the Quarry supply aggregate, tested to asphalt specification requirements to the asphalt plant, where it is stockpiled

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Entrance to the site is from Nimbin Road onto a sealed access road as far as the weighbridge office. Other internal access roads within the site are unsealed. Dust emissions on the unsealed access roads are managed through the use of sprinkler systems, site speed limits and minimising build-up of silt content through use of site equipment.

Trucks are used to haul asphalt aggregate out of the pit, while most material is hauled directly off-site.

# Air Quality Management Plan

## 3 STATUTORY REQUIREMENTS

### 3.1 LEGISLATION & POLICIES

The applicable legal and other requirements related to air quality and environmental management for the Quarry are outlined in *Table B*.

*Table B: Legislation and Policies of Relevance*

Legislation and Policies	
Commonwealth Legislation	<ul style="list-style-type: none"><li>• Environment Protection and Biodiversity Conservation Act 1999</li></ul>
New South Wales Legislation	<ul style="list-style-type: none"><li>• Environment Planning and Assessment Act 1979</li><li>• Protection of the Environment Operations Act 1997</li><li>• Protection of the Environment Operations (Clean Air) Regulation 2021</li><li>• Protection of the Environment Operations (General) Regulation 2022</li><li>• Work Health and Safety (Mines and Petroleum Sites) Regulation 2022</li></ul>
Regional Planning Documents	<ul style="list-style-type: none"><li>• North Coast Regional Plan 2036</li></ul>
Local Government Documents	<ul style="list-style-type: none"><li>• Lismore Local Environmental Plan 2012</li></ul>

### 3.2 APPROVAL CONDITIONS

#### Minister's Conditions of Approval

Pursuant to the *Environmental Planning and Assessment Act 1979* (EP&A Act), the Quarry expansion was declared to be a project under Part 3A of the Act and Project Approval has been granted by the Minister for Planning. Project Approval MP07\_0020 is identified under a State significant development (SSD) under *Division 4.7 of the EP&A Act*.

Project Approval Conditions outline the requirements for air quality associated with the Quarry, along with licence conditions pertaining to EPA licence 3384, as provided in Appendix A and Appendix B.

#### Out of Hours Work Protocol – Asphalt Operations

Management and staff responsible for asphalt plant operations, will notify in writing to LCC, EPA and local residents of the timing and expected duration of any out of hours construction works, prior to each instance. LCC will notify the EPA on behalf of the Asphalt plant operators.

Activities permitted under the OHWP are asphalt operations consisting of bituminous products (hot or cold mix) during the hours of 6pm to 7am Monday to Sunday. Out of hours operations are anticipated to occur approximately 5 nights per month.

Works will be forward planned with notification of out of hours work provided to the EPA via [info@epa.nsw.gov.au](mailto:info@epa.nsw.gov.au) at least 7 working days prior to activities being undertaken. A Register for all work undertaken will be kept, containing:

- Identify the location, duration and description of works
- Provide a contact number of the Asphalt site manager during the out of hours campaign.

The OHWP has provided management strategies for reducing dust emissions and engine idling on site and following manufacturer's specifications for vehicle maintenance.

#### Other Conditions

EPL 3384 for the Quarry has in place existing conditions as follows, with mitigation strategies in Table H:

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises

O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

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O5.1 The operation of the premises must not cause or permit the emission of offensive odour beyond the boundary of the premises.

### 3.3 GUIDELINES & STANDARDS

Relevant project management standards, policies and guidelines, applicable to this management plan are provided in *Table C*.

*Table C: Environmental Standards, Policies and Guidelines*

Guidelines and Standards	
AS/NZS 3580.10.1:2016	Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method
AS/NZS 3580.9.6:2003	Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method
AS 3580.1.1:2016	Methods for sampling and analysis of ambient air – Guide to Siting Air Monitoring Equipment
AS 3580.14:2014	Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications
National Environment Protection Council	National Environment Protection (Ambient Air Quality) Measure (NEPM)
NSW EPA DEC (2005)	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales The EPA refers to the <u>repealed version</u> when assessing air quality impact assessments submitted as part of any planning application before 20 January 2017.
NSW EPA	EPA Ambient Air Monitoring Guidance note 2022
NPI Guide 2015	National Pollutant Inventory Guide 2015

### 3.4 RELATED MANAGEMENT PLANS

This AQMP forms part of an overarching Environmental Management Strategy (EMS) for the Quarry. Where relevant, reference is made to the other management plans, as listed in *Table D*.

*Table D: Blakebrook Quarry Management Plans*

Reference No.	Management Plan
EMS	Environmental Management Strategy
EMS-MP1	Noise and Blast Management Plan
EMS-MP3	Soil and Water Management Plan
EMS-MP4	Biodiversity and Rehabilitation Management Plan
EMS-MP5	Aboriginal Heritage Management Plan
EMS-MP6	Operational Traffic Management Plan

# Air Quality Management Plan

## 4 EXISTING ENVIRONMENT

### 4.1 BASELINE ASSESSMENT

A Statement of Environmental Effects was undertaken by Mitchel Hanlon Consulting Pty Ltd on behalf of LCC in 2019, following an Air Quality Assessment undertaken in 2009 by ERM, to identify potential environmental issues in the process of streamlining operating conditions for the Quarry and Asphalt plant, Modification 3 application. Assured Environmental Pty Ltd were appointed to conduct an Air Quality Assessment (AQA, appendix G), in accordance with NSW EPA 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW' (Approved Methods) (EPA, 2016).

The AQA report assessed criteria for air quality and odour, concluding that the operations are in compliance with NSW air quality impact criteria for PM<sub>10</sub> and TSP short and long-term averages, odour and dust deposition.

The main air quality issues as a result of the Quarry expansion were considered to be:

- Total Suspended Particulates (TSP).
- Particulate Matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>).

Historically, there is no baseline dust deposition monitoring program previously undertaken in the vicinity of the site. No public information regarding background dust deposition levels is available for the Lismore region. The site is located in a well vegetated agricultural area, as such it is anticipated that background dust deposition levels will be low, hence a cumulative assessment of dust deposition was not undertaken.

Since 2012, dust deposition monitoring has been undertaken at three (3) locations, named as D1 (on site), D2 and D3 (off site), as shown in Figure 2.

To determine the potential for adverse impacts associated with the asphalt plant upgrade, the following tasks were undertaken:

- Review activities undertaken at the quarry (including the proposed asphalt production)
- Estimate emissions from the quarry and asphalt production process based on the proposed operations.
- Undertake predictive dispersion modelling to assess the potential for adverse impacts as a result of the proposed change in operations.
- Comparison of the predicted receptor concentrations with the acceptable objectives provided in the Approved Methods.

Air dispersion modelling was undertaken using the CALMET/CALPUFF modelling system for the proposed upgrade of Quarry and Asphalt operations to assess the potential impacts of particulate and gaseous emissions upon nearby receptors.

The modelling for Total Suspended Particles (TSP) confirms that emissions from the site are predicted to result in maximum concentrations of TSP at sensitive receivers of less than 35% of the relative criterion specified in the Approved Methods.

The modelling for Particulate Matter (PM<sub>10</sub>) confirms that emissions from the site are predicted to result in maximum off-site concentrations of 49% of the relative criterion specified in the Approved Methods. Compliance of PM<sub>10</sub> criterion is predicted to be achieved for all sensitive receivers. The maximum concentration is within the site boundary. It is noted that as there are no sensitive receivers near the site boundary (therefore no risk of exposure). In the absence of any existing or future sensitive uses in this area, PM<sub>10</sub> is considered immaterial.

The modelling for Odour concentrations confirms that emissions from the cumulative operations are predicted to result in maximum concentrations of odour concentrations at sensitive receivers of <1% of the relative criteria specified in the Approved Methods.

The results of the air modelling indicated compliance with all air quality objectives is predicted to be achieved for all relevant averaging periods at the nearest sensitive receivers to the Quarry and Asphalt upgrade. Based on the results of the predictive dispersion modelling, it is unlikely to result in an increased risk of additional or adverse air quality (dust and odour) impacts on existing residential uses in the area.

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## 5 ENVIRONMENTAL IMPACTS & RISK ANALYSIS

### 5.1 ENVIRONMENTAL IMPACTS

The Quarry activities that are most likely to have the potential to result in air quality impacts on residential receivers will be quarrying activities including operating machinery, blasting, and transport of materials on and off site for the expansion of the Quarry.

### 5.2 RISK ANALYSIS

Given that the activities undertaken at the Quarry have the potential to impact on the surrounding environment, the commensurate level of risk associated with these impacts is required to be identified so as to better ensure that it can be mitigated and managed to an acceptable level via means of this management plan.

The Quarry site is surrounded by relatively densely vegetated area on all sides. This vegetative buffer is also expected to provide some minor additional reduction of particulate concentrations with the vegetation acting as a filtration media for dust emissions.

Accordingly, *Table E* summaries the likely risk level associated with each of the prospective environmental impacts, assuming that no mitigation measures or controls are put in place to manage the impacts. The risk assessment process is in accordance with that described in the EMS for the Quarry.

By implementing the measures outlined in this AQMP, these impacts and associated risks can be managed to an acceptable level, such that the risk would be considered manageable.

*Table E: Environmental Impact Risk Analysis*

ID	Aspect	Impact	Risk
AQ1	Drilling and blasting	Dust generation and/or dispersion beyond the Quarry boundaries affecting nearby sensitive receptors. Issues for onsite workers associated with inhalation of fines.	Medium
AQ2	Excavator working on crushed rock		Medium
AQ3	Loading crushed rock in haul and road trucks		Medium
AQ4	Processing		High
AQ5	Material additive silo rupture (at pugmill)		Low
AQ6	Wheel generated dust		Medium
AQ7	Wind generated dust		Medium
AQ8	Use of heavy vehicles and plant, including idling of engines	Greenhouse Gas emissions	Low
AQ9	Asphalt plant burner & drum operations	Odour and/or emissions	Low

- Note: Risk Ratings
- High (serious impacts and potential repercussions)
  - Medium (significant impacts and potential repercussions)
  - Low (minor impacts and potential repercussions)

Additionally, the Quarry has invested significantly towards adaptive management practices, through the development and identification of risk management on site regarding air quality and dust management through accreditation of ISO 45001, ISO 14001, ISO 9001 and compliance with *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022* and associated Principal Hazard Management Plan and site risk registers.

As part of the Quarry IMS compliance schedule, Quality, Safety and Environmental Risk Registers have been developed for task specific activities on site. The risk registers are reviewed six (6) monthly by Quarry operations and Compliance staff, to ensure a proactive approach towards identification and controlling of risks.

The Quarry maintains a Pollution Incident Response Management Plan (PIRMP), in accordance with Part 5.7A of the *Protection of the Environment Operations Act 1997 (POEO Act)*. The PIRMP outlines responses to potential pollution incident situations, including but not limited to dust and air borne contaminants that could arise from diesel emissions, dust or slag lime silo rupture. In the event of a pollution incident, reference should be made to the PIRMP for procedures and risk management strategies to be employed.

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A Job Safety Analysis (JSA) for Pugmill Operations is reviewed regularly to ensure risk assessment and controls are effective, to reduce potential emissions stemming from blending material activities.

Table F outlines the Trigger Action Response Plan relating to activities with the potential to impact air quality.

Actions relating to any identified exceedances of CoA criteria will be managed as per Section 10.2.



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Table F: Trigger Action Response Plan

Issue		Continue	Caution	Take Action
<b>Cumulative dust on site</b> relating to: <ul style="list-style-type: none"> <li>• Drill and blast</li> <li>• Excavator activities</li> <li>• Load and haul of trucks</li> <li>• Material processing</li> <li>• Wheel generated dust</li> <li>• Wind generated dust</li> </ul>	Trigger	<ul style="list-style-type: none"> <li>• Wind speed &lt; 15 km/h</li> <li>• Wheel generated dust &lt; plant wheel height</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate wind speed between 15-30 km/h</li> <li>• Wheel generated dust equal to plant wheel height</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive wind speed &gt; 31 km/h</li> <li>• On site activities generating dust &gt; plant wheel height</li> </ul>
	Response	<ul style="list-style-type: none"> <li>• Operations as usual</li> </ul>	<ul style="list-style-type: none"> <li>• Review controls on Daily/Weekly Checklist</li> <li>• Control dust from plant &amp; stripping operations - may include water spraying, sprinkler systems, covered conveyors, dust sealing of screens.</li> <li>• Speed limits to be enforced</li> <li>• Wet haul roads with water truck</li> </ul>	<ul style="list-style-type: none"> <li>• Stop work, inspect dust suppression and reinstate to ensure correct operation</li> <li>• Only recommence if weather conditions permit and dust suppression is effective</li> <li>• Wet haul roads with water truck</li> <li>• Review operational activities</li> <li>• Monitor weather conditions</li> </ul>
<b>Material additive silo rupture (at pugmill)</b>	Trigger	<ul style="list-style-type: none"> <li>• No visible signs of additive dust emission</li> </ul>	<ul style="list-style-type: none"> <li>• Visible additive dust at the vent</li> </ul>	<ul style="list-style-type: none"> <li>• Silo rupture causing additive dust emissions</li> </ul>
	Response	<ul style="list-style-type: none"> <li>• Operations as usual</li> </ul>	<ul style="list-style-type: none"> <li>• Consult with Quarry Manager</li> <li>• Review JSA Pugmill Operations</li> </ul>	<ul style="list-style-type: none"> <li>• Shut down pugmill</li> <li>• Consult with Quarry Manager</li> <li>• Refer to Pollution Incident Response Management Plan (PIRMP)</li> <li>• Report to DPE as per Section 10.2 – Reporting</li> <li>• Record in IMS Non Conformance Register</li> <li>• Only recommence operations once all failures have been rectified</li> </ul>
<b>Deposited Dust (Insoluble Solids)</b>	Trigger	<ul style="list-style-type: none"> <li>• Results &lt; 4 g/m2/ month annual average</li> </ul>	<ul style="list-style-type: none"> <li>• Results &gt; 4 g/m2 / month annual average</li> </ul>	<ul style="list-style-type: none"> <li>• Results &gt; 4 g/m2/ month annual average (sustained over 3 months)</li> </ul>
	Response	<ul style="list-style-type: none"> <li>• Operations as usual</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct investigation to review insoluble vs ash results, trending data, weather station data, any complaints</li> <li>• Consult with Quarry Manager</li> <li>• Report to DPE as per Section 10.2 – Reporting</li> <li>• Record in IMS Non Conformance Register</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct investigation to review insoluble vs ash results, trending data, weather station data, any complaints</li> <li>• Consult with Quarry Manager</li> <li>• Report to DPE as per Section 10.2 – Reporting</li> <li>• Record in IMS Non Conformance Register</li> </ul>

# Air Quality Management Plan

## 6 PERFORMANCE CRITERIA & INDICATORS

The intention of this AQMP is to ensure that the Quarry and Asphalt works do not have an adverse impact on the identified sensitive receptors as a result of general operational activities.

In order to achieve this intent, the following Performance Criteria and Indicators have been developed to guide air quality management for the Quarry and Asphalt operations based on the following (refer to *Table G*).

*Table G: Performance Criteria and Indicators*

Performance Criteria	Performance Indicator	Reference
C1: Comply with all applicable legislation, regulations, standards, codes and licences that relate to the project	I1.1: Compliance with the air quality impact assessment criteria defined by the CoA Deposited Dust (Insoluble Solids) Annual average 4 g/ m <sup>2</sup> / month (as per Table L)	Section 3.2 Section 8.0 Section 8.5.3
	I1.2: Compliance with operational requirements as stipulated in the CoA and the management and mitigation controls stated in this AQMP	Section 7.1 Section 7.2 Section 8
C2: No significant impacts on sensitive receptors due to fugitive dust or gaseous emissions	I2.1: Management of unsealed haul roads to be watered at a rate of 2 L/m <sup>2</sup> /minute (as required) to ensure fugitive dust emissions are controlled	Section 7.2
	I2.2: Water sprays to be used when material processing and screening to minimise dust emissions	Section 7.2
	I2.3: Negligible fugitive dust emissions are generated from material transport off-site, by adhering to site speed limit and trucks using tarpaulin covers on loads (except 1 tonne boulders)	Section 7.2
	I2.4: Stockpiles (< 12 mths) to be kept damp to minimise dust emissions	Section 7.2
	I2.5: Offensive odour must not extend beyond the boundary of the premises	Section 7.2
	I2.6: Asphalt plant emissions are minimised through plant and system controls	Section 7.2
	I2.7: Suspended slag lime dust as a result of over-pressure in the silo is not visible upon inspection	Section 7.2

# Air Quality Management Plan

## 7 MANAGEMENT & MITIGATION CONTROLS

### 7.1 'BEST PRACTICE' MANAGEMENT APPROACH

In managing the Quarry, LCC is seeking to ensure that a “Best Practice” management approach is used across all areas of potential impact management. This approach involves incorporating a suite of site-specific mitigation measures and management controls (like those provided in the sections below) in accordance with the most relevant guidelines and standards to minimise, mitigate and manage air quality impacts associated with Quarry and Asphalt operations, as referenced in Table C.

Procurement of plant and equipment is managed by LCC Fleet Services, with Tier 4 engines being preferred where possible during the tender selection process, as a commitment to decreasing emissions from heavy off-road plant and equipment. The Tier 4 standards require that emissions of PM and NOx be further reduced by about 90%. These emission reductions have been achieved through the use of advanced exhaust gas aftertreatment technologies, with most Tier 4 engine families using urea-SCR catalysts for NOx control.

Maintenance of LCC plant and equipment is scheduled by LCC Fleet Services according to manufacturer’s recommendations to optimise performance and longevity of the asset, using internal software systems to track servicing requirements.

Blending of materials using the Pugmill at times requires incorporating additives (eg slag lime blend) as per product specifications. The slag lime blend is delivered to site by a tanker and deposited into the silo via an air compressor system. Quarry staff follow the *Job Safety Analysis (JSA) Pugmill Operations* procedure and conduct prestart checks prior to operating the pugmill. The finished blended product is then immediately loaded onto trucks for dispatch from site.

Asphalt plant maintenance and monitoring of air quality is described in Section 8.2.1. Air quality management will follow the strategies as set out in the RPQ (Downer) Air Quality Management Standard.

### 7.2 PROPOSED MANAGEMENT CONTROLS

The list of work practices that will be used to control environmental impacts during the Quarry and Asphalt operations are provided in *Table H*.

*Table H: Environmental Impacts and Management Controls*

Environmental Impact	Management Controls
Trafficking of unsealed haul roads generates fugitive dust emissions (via wind generation and wheel movement) from the quarry site.	<ul style="list-style-type: none"> <li>• Traffic on site to adhere to 40 km/hr speed limit</li> <li>• All unsealed roads on the site will be watered at a rate of 2 L/m<sup>2</sup>/minute, as required</li> <li>• All unsealed roads will be kept clean from build-up of silt content</li> </ul>
Drill and blast activities (including excavator working at crushed rock) becoming a potential source of dust emissions	<ul style="list-style-type: none"> <li>• Water sprays will be used on all mobile crushing and screening equipment to minimise airborne particulate matter</li> </ul>
Loading processed material into trucks resulting in dust emissions from rock fines	<ul style="list-style-type: none"> <li>• Operator competencies to be undertaken as per VoC Procedure</li> <li>• Stockpiles to be kept damp to reduce dust emissions</li> </ul>
Material processing and screening generating potential source of fugitive dust emissions	<ul style="list-style-type: none"> <li>• Water sprays will be used on all mobile crushing and screening equipment to minimise airborne particulate matter.</li> <li>• Maintain the dry baghouse system to reuse particulates for Asphalt operations</li> </ul>
Fugitive or point source dust emissions from additive material (i.e., slag lime)	<ul style="list-style-type: none"> <li>• Blending of materials using the Pugmill and incorporating additives (eg: slag lime) will follow procedures as set out in the <i>Job Safety Analysis Pugmill Operations</i>*</li> <li>• Additive material will be adequately stored to prevent uncontrolled suspension and release.</li> <li>• Slag lime is stored in an isolated vertical silo. The material is automatically fed into the pugmill during blending activities.</li> </ul>

# Air Quality Management Plan

Environmental Impact	Management Controls
Material stockpiles and material additive storage becoming a potential source of fugitive dust emissions.	<ul style="list-style-type: none"> <li>• The water cart will be used for material stockpiling activities to minimise potential dust emissions</li> <li>• Short term stockpiles (&lt; 12 mths) will be kept damp via the water cart.</li> <li>• Long term stockpiles (&gt;12 mths) are to be seeded to minimise the potential for fugitive dust.</li> </ul>
Transport of materials off-site resulting in dust emissions from rock fines.	<ul style="list-style-type: none"> <li>• All road trucks must have tarpaulin covers in place prior to leaving the Quarry weighbridge as per Driver Induction procedure*.</li> </ul>
Greenhouse gasses being released from fuel combustion.	<ul style="list-style-type: none"> <li>• Ensure engines used on-site are fuel efficient rated.</li> <li>• Maintain engines as per manufacturer's recommendations, including use of recommended fuels.</li> <li>• Ensure engine idling of all machinery on site is minimised as per Driver Induction procedure*.</li> <li>• Asphalt plant exhaust stack testing</li> <li>• Asphalt plant burner temperature regulated to reduce emissions</li> </ul>
Odour and/or emissions created from plant or machinery operations	<ul style="list-style-type: none"> <li>• Maintain the dry baghouse system to reuse particulates for Asphalt operations</li> <li>• Asphalt plant exhaust stack testing</li> <li>• Asphalt plant burner temperature regulated to reduce emissions</li> </ul>
Cumulative dust impact	<ul style="list-style-type: none"> <li>• Dust deposition gauges erected at sensitive receivers for monthly monitoring against criteria</li> <li>• Visual inspection of the site will be observed and noted on Daily Toolbox form and Site Daily and Weekly Checklist</li> <li>• Weather conditions will be noted on Site Daily and Weekly Checklist for monitoring of wind speed</li> </ul>

\* Procedures are maintained within LCC's electronic records management system (TRIM).

# Air Quality Management Plan

## 8 MONITORING PROGRAM

This section details the proposed air quality sampling program, including recommended monitoring sites, equipment and frequency of monitoring.

During operation of the Quarry, dust deposition will be monitored in the vicinity of the Quarry, in accordance with the monitoring program as stated in the *Dust Monitoring Procedure* (refer Appendix E).

Meteorological measurements shall be guided by the requirements of *AS 3580.14 - Meteorological monitoring for ambient air quality monitoring applications (latest version)*, and the relevant NSW State Government body.

All air quality measurements shall be accompanied by qualitative description (including cloud cover, approximate wind direction and speed) and local weather conditions when samples are collected. Meteorological data is obtained from the on-site weather station by staff delegated by the Quarry Manager.

A summary of air monitoring to be conducted is provided in *Table 1*. Siting and operation of air quality monitoring equipment will be in accordance with Australian Standard methodology and below in *Figure 2*.

*Table 1: Summary of Monitoring Program*

ID	Location	Parameter	Averaging Period	Sampling Period	Sample Collection	Equipment
D1	On-site: northwest of Quarry pit, near site boundary	Deposited Dust	1 Month	Continuous	Every 30 days ( $\pm 2$ days)	Dust Deposition Gauge
D2	Off-site: southwest of proposed Quarry pit and processing near site access and residences.	Deposited Dust	1 Month	Continuous	Every 30 days ( $\pm 2$ days)	Dust Deposition Gauge
D3	Off-site: southeast of proposed Quarry pit and processing near site access and residences.	Deposited Dust	1 Month	Continuous	Every 30 days ( $\pm 2$ days)	Dust Deposition Gauge
HV1	(If required) Off-site: same location as D2	PM <sub>10</sub>	n/a	1 Day (as required)	1 Day	High Volume Air Sampler
W1	On-site or alternatively Lismore BoM station	Meteorological Parameters	n/a	Continuous	n/a – automatic download to PC	Weather Station

Note: Continuous monitoring excludes periods for instrument calibrations/maintenance

PM<sub>10</sub> monitoring may be conducted if dust deposition monitoring at each location demonstrates consistent exceedance of the criteria on an annual average (following discussion with the Secretary)

# Air Quality Management Plan

## 8.1 MONITORING LOCATIONS

The locations of air quality monitoring devices are identified in *Table 1* and depicted in *Figure 2*. These sites were selected with consideration of:

- Predominant wind directions, as identified by analysis of wind rose presented in the Air Quality Assessment (ERM 2008) and Statement of Environmental Effect (2019)
- Sensitive receivers noted in the SEE (2019) and as identified by analysis of air dispersion modelling results in the Air Quality Assessment (ERM 2008)
- Geographic and logistical considerations e.g. accessibility, security, power supply and setbacks from roads and items which could restrict airflow e.g. trees and buildings, as determined from analysis of aerial photography, site visits and a topographic map.
- AS 3580.1.1 – *Methods for sampling and analysis of ambient air – Guide to Siting Air Monitoring Equipment*.

To gain an understanding of the off-site dust deposition levels, three (3) dust deposition gauges (D1 – D3) are located as follows,

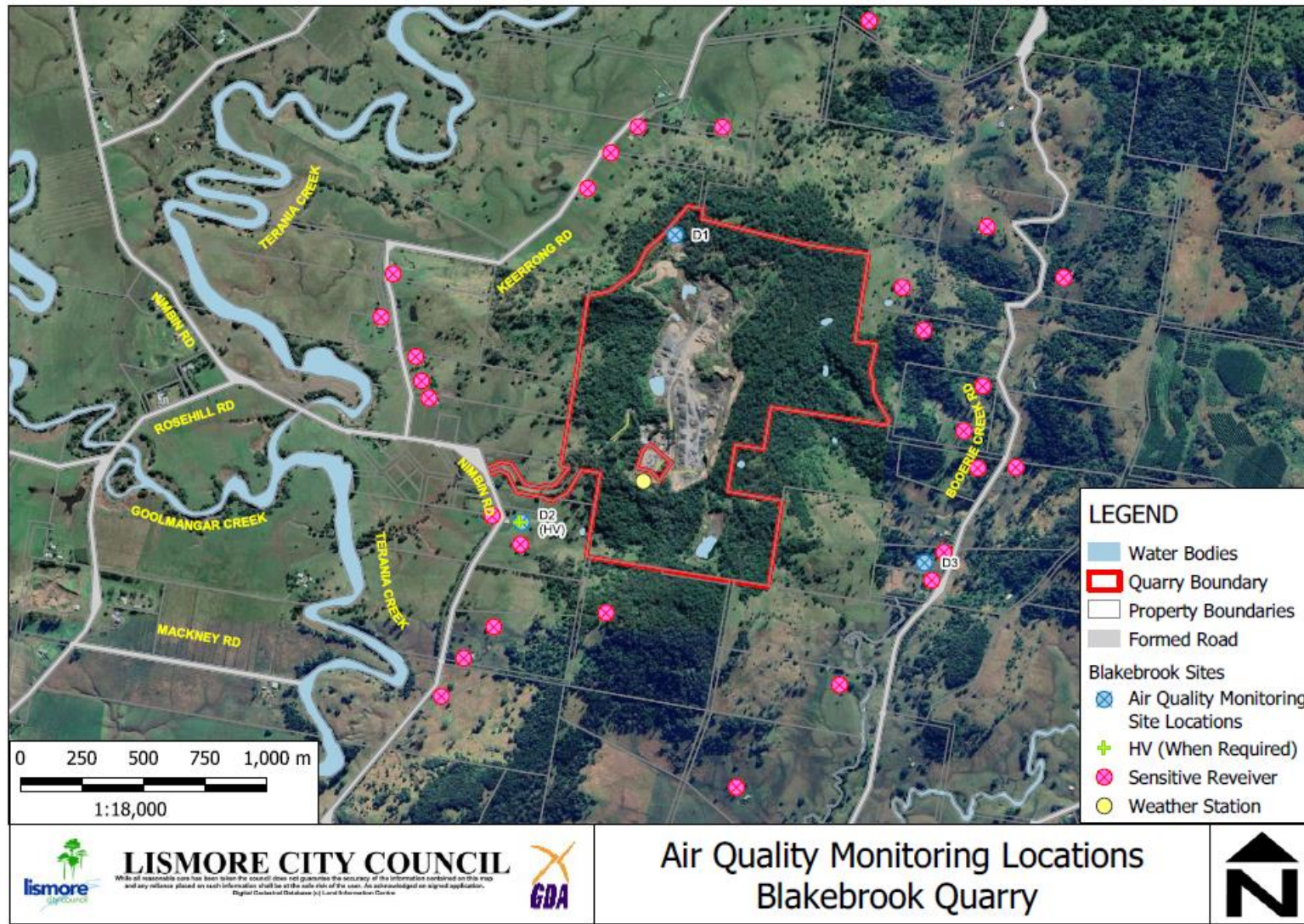
- one (1) located near to the north western boundary of the site in a cleared area, adjacent to private property, with a minimum 50 m setback from the Quarry pit.
- two (2) off-site at the residences identified in AQA (SEE 2019) (refer *Figure 2*).

The sampling inlet position will give consideration to AS/NZS 3580.1.1 (latest version), including:

- Height above ground level: 2 m  $\pm$  0.2 m
- Distance from source:  $\geq$  5 m
- Clear sky angle above sampling inlet: 120°
- Unrestricted airflow around sampling inlet: 360°
- Distance from dripline of trees: 10m
- No extraneous sources nearby

# Air Quality Management Plan

Figure 2: Air Quality Monitoring Locations



# Air Quality Management Plan

## 8.2 MAINTENANCE

Inspection, cleaning and maintenance of the air monitoring equipment will be undertaken routinely in accordance with AS/NZS 3580 (latest version) and any manufacturer's specifications as applicable.

Dust deposition gauges are to be checked monthly with any ongoing maintenance of gauge equipment and parts to be undertaken at this time.

Details of any equipment damage, failure and maintenance will be recorded as specified in Section 9.4.

### 8.2.1 Asphalt plant Maintenance

All Asphaltic materials are produced to a certain specification with temperature variations between minimum 150• deg – maximum 185• deg Celsius. Failure to meet product specification deems the product non-conforming. The Production Supervisor on site is responsible for all activities at the Asphalt plant.

Assured Environmental was engaged by RPQ (Downer Group) to carry out source emissions monitoring from the mobile asphalt plant at the Quarry in April 2021. All sampling and analysis were carried out in accordance with relevant AS 4323 and US EPA Methods and undertaken in a NATA accredited laboratory. Asphalt stack testing analytes tested:

- Flow Rate
- Particulate Matter
- Sulphur Dioxide
- Oxides of Nitrogen
- Carbon Monoxide
- VOC's
- Odour

Asphalt plant burner temperature is monitored by a number of thermocouples during the manufacturing process. Monitoring material inputs, material outputs, baghouse temperature and stack temperatures, all of which have set parameters and are monitored as part of the plant operating computer. The Asphalt plant operator has both automated and manual controls for burner adjustment. Additional testing is undertaken by RPQ at their discretion in response to incidents, complaints, and to proactively ensure the plant is operating effectively.

## 8.3 VISUAL AIR POLLUTION

A 'Site Daily and Weekly Checklist' will be used to visually inspect for cumulative dust impact generated on site including local weather condition sources. Any observations will be noted on the Daily Toolbox form and Site Daily and Weekly checklist, with records maintained in accordance with Section 9.4.

As per management strategies in Table H, all haul roads and short term stockpiles (ie: less than 12 months old) will be watered to minimise dust generation.

## 8.4 METEOROLOGICAL CONDITIONS

Meteorological conditions data will be collected to support dust monitoring and to identify weather conditions which may trigger modification to operations. For instance, conditions that may be conducive to excessive dust generation and/or movement of dust onto neighbouring properties e.g. strong north-easterly winds.

A weather station was installed in 2018 on site, and since updated in July 2022 to a suitable meteorological station that complies with the requirements in the *EPA Ambient Air Monitoring Guidance Note 2022*. In the event that this meteorological station is un-operational the Lismore BoM station located at the Lismore Airport (approximately 11km away) will be utilised.

Table J: Meteorological Measurements Parameters

Measured Parameter	Unit	Sample Interval
Wind Speed at 10m	m/s	15 minutes



# Air Quality Management Plan

Measured Parameter	Unit	Sample Interval
Wind Direction at 10m	Degrees	15 minutes
Sigma Theta at 10m	Degrees	15 minutes
Rainfall	mm	15 minutes
Air Temperature at 2m and 10m	C°	15 minutes

Meteorological data is reviewed daily and recorded on the Site Daily and Weekly checklist and Daily Toolbox form by site staff, including prior to any blasting, to identify triggers for implementing changes to operations e.g. high wind speeds. Meteorological data can also be reviewed in conjunction with dust monitoring results, to identify potential influences on monitoring results obtained.

## 8.5 DUST DEPOSITION

Airborne dust has the potential to cause nuisance impacts by deposition on surfaces. Dust deposition gauges measure the rate at which dust settles onto a surface. To provide an indication of total off-site dust deposited each month, three (3) dust deposition gauges will operate at the site boundary and at nearby residences.

Historically there is no dust deposition monitoring program in the vicinity of the site, and therefore no public information regarding background dust deposition levels is available for the Lismore region. The site is located in a well vegetated agricultural area, as such it is anticipated that background dust deposition levels would be low.

Air dispersion modelling provided in the SEE (2019) determined the maximum predicted source contribution dust deposition concentrations at each of the identified sensitive receivers and across the modelling area. The results of the modelling confirm that emissions from the site are predicted to result in maximum dust deposition at sensitive receivers of <10% of the relative criterion specified in the CoA and the *EPA Approved Method for the Modelling and Assessment of Air Pollutants in NSW* (section 7.1) thereby not adversely impacting on surrounding land uses.

Since 2012, dust deposition monitoring has been undertaken at locations D1 (on site), D2 and D3 (off site), as shown in Figure 2. Over the duration of the monitoring period, monthly results have varied. Higher dust deposition levels have typically been recorded at D2 and D3 compared with D1, noting that D2 is situated next to Nimbin Road (with traffic volumes of 2375 vehicles on an average weekday) and D3 is situated on a gravel road with local traffic access to residential homes and influences from south-easterly winds.

Organic matter from off site results is conducive to the environment, at times resulting in exceedances for insoluble solids analysis. A deposited dust sample is non-discriminate and the surrounding land use in the vicinity of the monitors is predominately farmland. As a result, there is potential for organic material not associated with quarry activities such as, vegetation, bird droppings and dead insects to contribute to the insoluble solids fraction of the sample. Results will include the 'ash' content as an underlying indicator of Quarry dust contribution. A summary of background data is presented in Table K.

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Table K: Annual summary dust deposition

Year	D1 (g/m <sup>2</sup> /mth)		D2 (g/m <sup>2</sup> /mth)		D3 (g/m <sup>2</sup> /mth)	
	Annual Average TSS	Annual Average Ash Content	Annual Average TSS	Annual Average Ash Content	Annual Average TSS	Annual Average Ash Content
2012	0.79	-	0.72	-	0.98	-
2013	1.25	-	1.13	-	1.05	-
2014	0.90	-	2.17	-	0.97	-
2015	0.76	-	2.53	-	1.35	-
2016	0.69	0.38	2.16	0.87	2.28	0.75
2017	0.90	0.50	2.09	0.93	3.00	0.94
2018	1.38	0.69	2.35	0.72	2.44	0.75
2019	2.63	1.71	2.52	1.0	1.73	0.71
2020	1.42	0.67	2.43	1.15	2.03	0.85
2021	0.69	0.14	2.24	0.61	3.01	1.13
2022	0.58	0.21	1.32	0.48	1.45	0.55

## 8.5.1 Monitoring Equipment

A dust deposition gauge consists of a 150 ± 10 mm diameter glass funnel supported by a rubber or plastic stopper in the neck of a glass jar which has a minimum volume of four (4) litres. The stopper has a groove or outlet pipe which allows water to overflow in the advent of excessive rainfall conditions.

The gauge is set up on a stand, in such a way that the top of the funnel is horizontal and positioned approximately 2 ± 0.2 m above ground level.

Over the sampling period (usually 30 ± 2 days) dust particles that settle out from the ambient air collect in the jar, together with any rainwater.

The three (3) dust deposition jars for the Quarry (D1 – D3) are operated and maintained in accordance with AS/NZS 3580.10.1 (latest version)– *Methods for sampling and analysis of ambient air: Determination of particulate matter – Deposited matter – Gravimetric method*.

## 8.5.2 Sample Analysis and Timing

Each deposition gauge is to be replaced on completion of the sampling period (usually 30 ± 2 days), the jar is removed, sealed, labelled and sent to a laboratory as soon as possible, and within 30 days of collection, for analysis in accordance with AS/NZS 3580.10.1 (latest version). It must be kept in a cool, dark environment prior to analysis.

The mass deposition rate of deposited matter is determined at the laboratory, taking into account the mass of insoluble plus soluble solids collected, the funnel cross-sectional area and the exposure period. The results are reported in g/ m<sup>2</sup>/ month or mg/ m<sup>2</sup>/ day.

## 8.5.3 Monitoring Results Analysis

Dust deposition monitoring results will be assessed by comparison against the impact assessment criteria set out by the CoA (refer to *Table L*), The Project approval does not permit exceedances of these criteria at any residences on privately owned land.

# Air Quality Management Plan

Table L: Impact Assessment Criteria – Deposited Dust

Pollutant	Averaging Period	Criterion	
Deposited Dust (Insoluble Solids)	Annual	2 g/ m <sup>2</sup> / month	4 g/ m <sup>2</sup> / month

Source: PA 07\_0020 Table 4

Notes to Table 4:

a Cumulative impact (ie increase in concentrations due to the project plus background concentrations due to all other sources).

b Incremental impact (ie increase in concentrations due to the project alone, with zero allowable exceedances of the criteria over the life of the project).

c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 11, 12 and 13 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

To determine compliance with the impact assessment criteria in Table L, reporting will be based on the insoluble solids component of the dust sample, noting the 'ash' content as the indicator of potential Quarry impact. Due to the nature and composition of the hard rock resource, and the many pollutants that can make up 'insoluble solids', ash will be used as an indicator of site dust contribution. This will ensure that organic pollutants such as bird droppings, pollen, wind-blown vegetation and the like will not be confused with the inorganic dust contribution, of which, a proportion would be from the Quarry operations.

Monitoring results will be assessed against the criteria and compared on a 12 month rolling average for each monitoring location, to track against the annual limit to identify changes or trends to dust deposition over time. If monthly results show an exceedance of 4 g/ m<sup>2</sup> insoluble solids, a review will be undertaken as per Section 10.2.

In the event that the sustained annual average dust deposition >4 g/ m<sup>2</sup>/ month is identified (over 3 months), the Quarry will liaise with the Secretary on the findings of the LCC review and any potential requirement to undertake further testing for particulate matter concentrations (PM<sub>10</sub> and TSP).

## 8.6 PARTICULATE MATTER CONCENTRATIONS

The smaller diameter component of airborne dust has the potential to cause human health impacts through inhalation. This component of dust is termed PM<sub>10</sub> which is particulate matter with an aerodynamic diameter less than 10 µm. There is no PM<sub>10</sub> monitoring program currently undertaken in the vicinity of the site, and therefore no public information regarding background dust deposition levels is available for the Lismore region. The site is located in a well vegetated agricultural area, as such it is anticipated that background PM<sub>10</sub> levels would be low.

Due to the nature of the operation at the Quarry, the primary emissions from the site are of a size greater than PM<sub>10</sub>. This indicates that the risk of a PM<sub>10</sub> elevated concentration due to the site operations is very low.

High volume air samplers pull a known rate of air through a size inlet that removes dust particles larger than PM<sub>10</sub> and collects the PM<sub>10</sub> on the filter. The mass collected on the filter divided by the volume of air sample provides the 24-hour average PM<sub>10</sub> concentration, one high volume air sampler will be operated for one day at a residential receptor.

Results from the AQA modelling concluded the maximum concentration is within the site boundary. It is noted that there are no sensitive receivers near the site boundary (therefore no risk of exposure). In the absence of any existing or future sensitive uses in this area, PM<sub>10</sub> is considered immaterial.

### 8.6.1 Monitoring Equipment

A high volume (HV) sampler consists of a filter holder, a motorised fan, a shelter, an air flow measuring device and an elapsed time meter that measures the sampling duration. A size selective inlet can be used to sample certain sizes of the dust concentrations. For this monitoring is a PM<sub>10</sub> inlet. The filter is pre-weighed prior to installation in the sampler.

# Air Quality Management Plan

Over the sampling period (usually 24 hours), PM<sub>10</sub> will be captured on the filter. The filter will be removed and sent to the laboratory for analysis.

The one high volume air sampler will be operated and maintained in accordance with AS/NZS 3580.9.6 (latest version) – *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM<sub>10</sub> high volume sampler with size selective inlet – Gravimetric method.*

## 8.6.2 Sample Analysis and Timing

Monitoring was undertaken in 2018 and results submitted to DPE. These results demonstrated that PM<sub>10</sub> levels were well below NSW guideline limits and ongoing monitoring was not required unless requested by DPE (refer Appendix C).

In the event that the sustained annual average dust deposition >4 g/ m<sup>2</sup>/ month is identified (over 3 months), the Quarry will liaise with the Secretary on the findings of the LCC review and any potential requirement to undertake further testing for particulate matter concentrations (PM<sub>10</sub> and TSP).

Particulate matter concentrations would be monitored by one (1) high volume sampler set up at the location as marked in Figure 2.

In the event PM<sub>10</sub> sampling is required, on the completion of the sampling period (24 hours), the filter is removed, sealed, labelled and sent to a NATA accredited laboratory. The filter is then analysed in accordance with AS/NZS 3580.9.6. It must be kept in a conditioned (ie: temperature and relative humidity) environment prior to analysis.

The mass collected on the filter is determined at the laboratory, taking into account the mass of filter pre and post sampling. The PM<sub>10</sub> concentration is then determined by dividing the mass value by the volume of air sampled. The volume of air is to be standardised to 0°C and 1 atm.

## 8.6.3 Monitoring Results Analysis

Compliance with the one-day sampling with the high volume air sampler (HV) is sufficient to prove the low risk of the operations to ambient PM<sub>10</sub> concentration. Compliance will be assessed against the criteria in *Table M*.

Continued compliance with deposited dust criteria will be considered sufficient to demonstrate management of PM<sub>10</sub> and TSP.

It is noted that measured concentrations in the atmosphere are expressed in terms of average concentrations over a given period of time. This is to account for fluctuations in pollutant concentrations in the atmosphere over time e.g. in response to weather.

*Table M: Impact Assessment Criteria - PM10 and TSP Concentrations*

Pollutant	Averaging Period	Criteria
PM <sub>10</sub>	Annual Average	25 µg/ m <sup>3</sup>
	24-hour Average	50 µg/ m <sup>3</sup>
TSP	Annual Average	90 µg/ m <sup>3</sup>

Source: PA 07\_0020 Table 4

The CoA does not permit exceedances of these criteria at any residence on privately owned land.

# Air Quality Management Plan

## 9 ENVIRONMENTAL & OPERATIONAL PERFORMANCE

### 9.1 ROLES & RESPONSIBILITIES

The Quarry Manager will be responsible for the implementation of this AQMP under the direction of the Head of Roads and Quarry.

All Quarry staff and contractors are accountable through conditions of employment or contracts with each individual responsible for ensuring that their work complies with the procedures outlined in this AQMP. Further details of the responsibilities of staff are provided in *Table N*. A diagram outlining the organisational structure for implementing this AQMP is provided at *Figure 3*.

*Table N: Roles and Responsibilities*

Head of Roads and Quarry		
Action No.	Action	Timing
AQM.MCS.01	Ensure that the CoA, Project Commitments and any other approval conditions are adhered to when working in designated Quarry expansion areas.	At all times
AQM.MCS.02	Provide the DPE and other relevant stakeholders with the opportunity to contribute to the development of the AQMP.	Prior to commencement of construction
AQM.MCS.03	Ensuring all staff and contractors are provided with induction regarding the significance of air quality as part of general environmental management site induction and ensuring that they know of agreed management and mitigation measures.	Prior to commencement of construction
AQM.MCS.04	Respond to any complaints from the public in regard to pollution.	When and if required
AQM.MCS.05	Co-ordination of any necessary site investigations in relation to pollution incidents.	When and if required
AQM.MCS.06	Ensuring all monitoring and reporting commitments are made as part of the AQMP are executed.	As detailed in the AQMP

*The Head of Roads and Quarry may delegate some of these actions to the Compliance Manager*

Blakebrook Quarry Manager		
Action No.	Management Procedure	Timing
AQM.OC.01	Ensure that CoA, Project Commitments and any other approval conditions are adhered to when working in designated Quarry expansion areas.	At all times
AQM.OC.02	Ensure all quarrying activities are undertaken in a manner that minimises dust emissions from the site, including wind-blown and traffic generated dust.	At all times
AQM.OC.03	Should substantial uncontrolled visible dust emissions occur at any time, the Quarry Manager shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, so that emissions of visible dust cease.	At all times
AQM.OC.04	Notifying the Head of Roads and Quarry before undertaking any clearing or construction works outside of the existing quarry footprint.	Prior to commencement of works
AQM.OC.05	Directions associated with the AQMP, site-based construction management plans, and approvals (if required), are adhered to, to the satisfaction of the Head of Roads and Quarry.	At all times

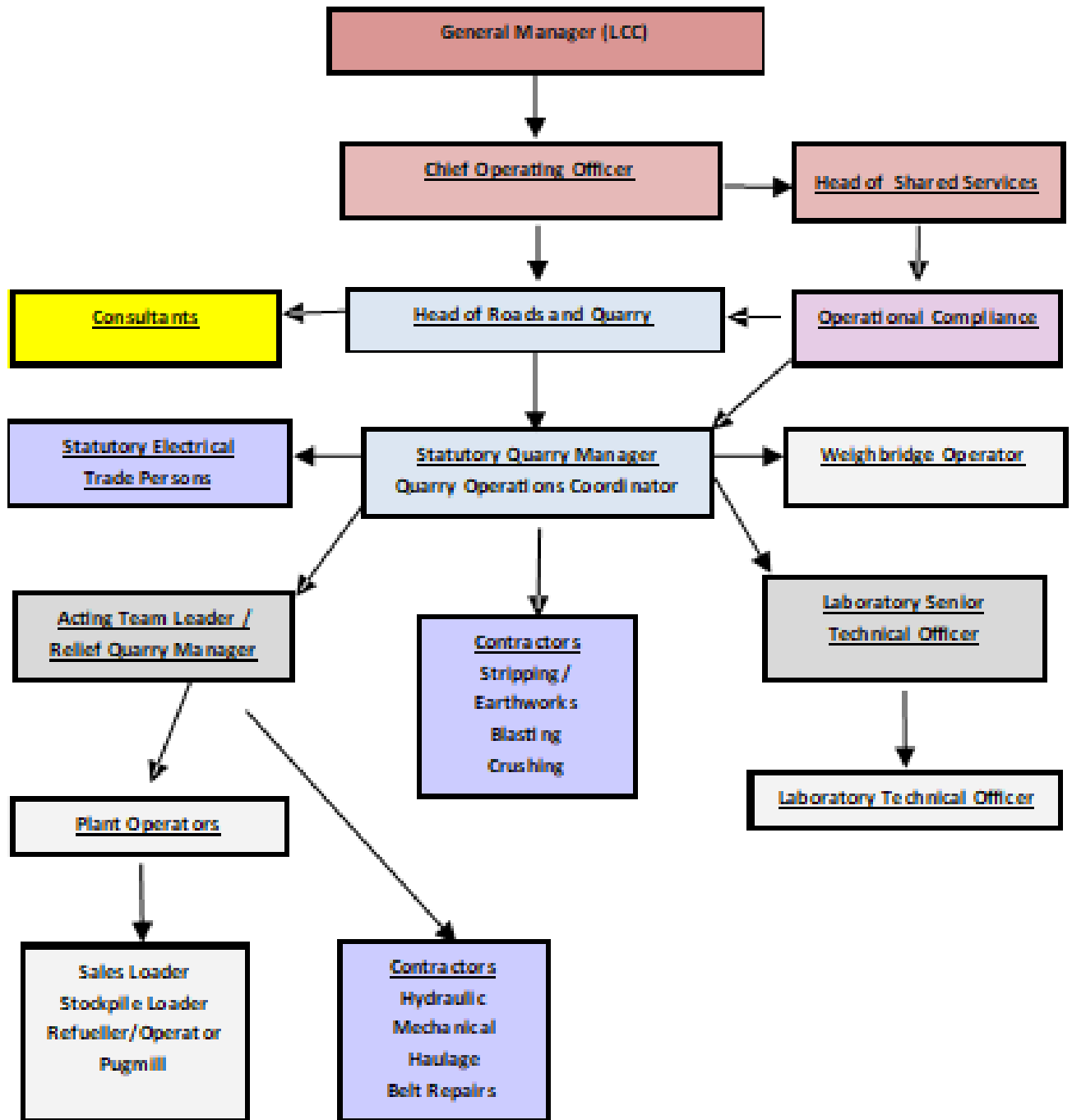
# Air Quality Management Plan

Asphalt Plant Manager / Production Supervisor		
Action No.	Management Procedure	Timing
AQM.AP.01	Ensure that CoA, Project Commitments and any other approval conditions in relation to asphalt production are adhered to	At all times
AQM.OC.02	Ensure regular maintenance of asphalt plant and equipment is undertaken	At all times
AQM.OC.03	Should substantial uncontrolled visible dust emissions occur at any time, dust mitigation measures shall be implemented, including cessation of relevant works as appropriate, so that emissions of visible dust cease.	At all times

Quarry Staff and Contractors		
Action No.	Management Procedure	Timing
AQM.CP.01	All staff/contractors must take reasonable steps to prevent and control air pollution from all quarrying activities.	At all times
AQM.CP.02	Ensure approval has been given by the Head of Roads and Quarry/Quarry Manager prior to undertaking any works within known areas of concern with regard to sensitive receivers (i.e. nearby residents).	Prior to commencement of works

# Air Quality Management Plan

Figure 3: Organisational Structure



# Air Quality Management Plan

## 9.2 STAKEHOLDER CONSULTATION

The CoA prescribes the regulatory authorities to be consulted in the preparation of the AQMP. These requirements are summarised in *Table O*.

*Table O: AQMP Consultation Requirements*

Regulatory Authority	Interest
Department of Planning and Environment (DPE)	DPE is the lead agency in ensuring compliance with the requirements of the CoA and will review and approve amendments to the AQMP.

Draft copies of the AQMP will be provided to the DPE for consultation and feedback considerations with a final version prepared taking into consideration comments received. The final draft copy of the AQMP is provided to the Heads of Roads and Quarry for consultation and feedback considerations prior to DPE submission.

## 9.3 TRAINING AND AWARENESS

LCC will provide training to its employees with respect to the operations for the site. The objective of the training will be to provide a base level understanding of their individual role in complying with the AQMP. Training will also be provided for specific tasks to ensure employees are competent to perform their required duties.

Verification of Competencies (VOC) is undertaken for all plant operators as per the LCC Corporate & IMS Training & Competency Procedure. Training records are maintained through the Quarry IMS Training Register and LCC corporate records.

All staff, contractors, and haulage truck operators will be made aware of their responsibilities in managing fugitive dust, greenhouse gas and odour emissions from the site and along haulage routes through the induction process.

In accordance with the EMS, LCC will also undertake the following in respect to training and awareness:

- Induct all employees, contractors, subcontractors and visitors (as relevant to their roles) prior to commencing works (and conduct annual refresher inductions).
- Ensure that the Drivers Induction is completed by all heavy vehicle drivers, prior to undertaking work at the quarry.
- Hold daily pre-start/toolbox talks.
- Hold WHS/staff meetings as required.
- Issue Project Environmental Alerts (if required).

## 9.4 RECORD KEEPING AND DOCUMENT CONTROL

Records are to be maintained for all air quality management measures and monitoring. All records shall be kept for a minimum of four (4) years, with record keeping and document control managed in accordance with the requirements set forth in the EMS.

To ensure that the correct procedures and plans are used on site, issue of the EMS, CoA and/or any other relevant document, and any associated amendments that may be required, will be controlled using a document register and stored in LCC's record management system (TRIM).

Records of the following are to be made available (via TRIM) at the site office:

- Inspections of air monitoring equipment, including findings, time and date of inspection, identification of the person/party who undertook the inspection and any follow-up actions required e.g. maintenance.
- Calibration, cleaning or maintenance of air monitoring equipment conducted, including time, date and identification of the person/party involved.
- Details of any equipment failure, including date, time and duration of failure and actions taken to address this.
- Date and details of any visual observations of significant dust volumes moving off-site and actions taken to address this.



# Air Quality Management Plan

- Monitoring results, including copies of all laboratory reports.
- Details of dust deposition jar and filter collection, including:
  - Site identification.
  - Dates and duration of sampling.
  - Filter/deposition jar identification number
  - Operator's identification.
  - Verification that the indicated instrument time is correct to within 15 minutes of actual time(relevant for high volume samplers only).

## 9.5 SITE INSPECTIONS

Weekly inspections of work areas will be conducted by the Quarry Manager to monitor work practices and identify non-conforming areas and activities or work practices which could lead to potential environmental harm.

It's noted that weekly inspections of work sites also provide an opportunity for the Quarry Manager to address issues raised by Staff, Contractors or Consultants and assist in the implementation of environmental controls to manage air quality impacts. Often this continued support leads to better ownership of environmental management and becomes a coaching exercise for field staff to improve their skills in this specialised and complex discipline.

A 'Site Daily and Weekly Checklist' will be completed by the Quarry Manager (or delegate) to record and report any improvements required. The purpose of the inspections is to:

- Provide a surveillance tool to ensure that safeguards are being implemented.
- Identify where problems might be occurring (or have the potential to occur).
- Identify where sound environmental practices are not being implemented.
- Facilitate the identification and early resolution of problems.

Any non-conformance with the Site Daily and Weekly checklist will be recorded in the Quarry Non-conformance and Improvement Register.

## 9.6 EXTERNAL COMMUNICATION AND NOTIFICATION

General information regarding the environmental performance of the quarry and contact details regarding complaints will be updated monthly and available at all times through LCC website <https://www.lismore.nsw.gov.au/Council/Northern-Rivers-Quarry> .

Community meetings will be held at least once per annum, where information regarding activities being undertaken at the site as well as environmental performance information will be detailed.

Authorities will be kept informed regarding the operation and environmental performance of the Quarry through the Annual Reporting requirements of the CoA and EPL.

## 9.7 COMPLAINT INVESTIGATION AND RESPONSE

Complaints regarding the Quarry or Asphalt operations (including limited campaign asphalt operations relating to the OHWP) will be managed via LCC existing complaints management system. Quarry and Asphalt complaints must be received via telephone to LCC Contact Centre 02 6625 0500.

Details that are to be logged by Council staff include:

- Complainant's name.
- Telephone number / email address / postal address.
- Date of contact.
- Nature of complaint.

The details of the complaint will be passed onto the Quarry Compliance division. Management will be committed to rectifying any activity that has caused a complaint as soon as possible, with a response being

# Air Quality Management Plan

provided, to the complainant within five (5) business days of receipt of the complaint. The Quarry will undertake actions to identify and initiate appropriate action in response to the complaint to resolve (where practicable).

Records of all complaints received are to be kept within LCC Complaints Management System, the Quarry Complaints Register and added to the Quarry's Non conformance and Improvements Register.

All Quarry staff are responsible for reporting any complaints to the Quarry Manager. Complaints must be made through the correct channel to the LCC Customer Contact Centre in order to ensure correct record keeping and response.

## **9.8 DISPUTE RESOLUTION PROCESS**

In the case that a dispute between the complainant and LCC arises with respect to the management and/or outcomes of the Complaint Investigation and Response (*Section 9.7*), the complainant may refer the matter to the DPE for an independent review.

If a matter is referred to the DPE, and the DPE are satisfied that the dispute is genuine, the DPE can request LCC to follow procedures set out in Schedule 4, condition 2 (refer Appendix A).

# Air Quality Management Plan

## 10 REVIEW AND REPORTING

Annual review and reporting are required to assess the outcomes of the AQMP, review its effectiveness, and consider works undertaken against annual budgets and targets.

Any issues noted regarding the success of management works will also be relayed to the site manager on an ongoing basis so that relevant improvements can be made.

### 10.1 CONTINGENCY PLANNING

Should at any time the management results of the AQMP be determined to be negatively impacting surrounding sensitive receptors for the Quarry and Asphalt expansion, then the AQMP management controls and monitoring program may need to be intensified to allow better identification and understanding of the impacts and facilitate design of appropriate mitigation measures.

Before any significant changes are made to the AQMP, LCC will consult with DPE to obtain their feedback. Once feedback from DPE has been incorporated into the AQMP, it will be uploaded to the Major Projects Portal for approval by the Secretary.

### 10.2 INCIDENT AND NON-COMPLIANCE REPORTING

All incidents and non-compliance will be reported in accordance with the requirements of the CoA that relate to incident and non-compliance reporting (Schedule 5, conditions 8 and 9 – refer Appendix A) and EPL (condition R2).

- **Incident:** *An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.*

Where an *incident* has occurred, relevant Agencies are to be notified immediately of the incident becoming known to the licensee. The notification must be in writing via the DPE Major Projects Portal and via telephone to the EPA Hotline 131 555. A written report is to be provided to both Agencies within 7 days, stating the relevant license condition that has been exceeded, the reason for the incident and mitigating actions to address the incident.

- **Non-compliance** – *An occurrence, set of circumstances or development that is a breach of this consent.*

Where a *non-compliance* against the limits/performance criteria in the CoA or EPL has occurred, the relevant agencies will be notified in writing within 7 days of the non-compliance becoming known to the licensee. EPA is to be notified via telephone to the Hotline 131 555 to generate a reference number. The licensee will provide details on the non-compliance and mitigating actions to address the non-compliance, which will be submitted to DPE via the Major Projects Portal and to the EPA via [info@epa.nsw.gov.au](mailto:info@epa.nsw.gov.au).

LCC will undertake an investigation into the cause of the incident or non-compliance according to the IMS *Incident Reporting Investigation and Notification Procedure*, with strategies to prevent reoccurrence being implemented. All procedures and documents are maintained within LCC's electronic records management system (TRIM).

In addition, in the event of an exceedance that has affected nearby landowners, the Quarry will follow conditions as set out in the CoA, Schedule 4, condition 1 – Notification of Landowners where applicable. As soon as practicable and no longer than 7 days LCC will notify the affected landowners in writing of the exceedance, and provide regular monitoring results, at least every 3 months, to each affected landowner until the project is again complying with the relevant criteria.

Where applicable LCC will send out a copy of the NSW Health '*Mine Dust and You*' factsheet <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=DA80/952-PA-12%2120200629T223159.711%20GMT> to affected landowners (including tenants of land which is not privately owned).

# Air Quality Management Plan

In the event of an pollution incident, reference shall be made to the Pollution Incident Response Management Plan (PIRMP) for mitigation measures regarding Airborne Contaminants and Dust . The following steps should be followed:

- Survey the scene for additional dangers before entering the area.
- Move persons away from danger.
- Contact the Quarry Operations Coordinator.
- Quarry Operations Coordinator to contact relevant Emergency Services if required (i.e. Ambulance, Fire, Police) and relevant Council divisions - Compliance Unit and WHS unit (if required).
- Contain the incident (fire, spill, contaminant) if safe and practical to do so.
- Announce evacuation and contact neighbours if the situation is dangerous, based on the severity (radio/ verbal message in light vehicle around site).
- Administer First Aid if required and safe to do so.
- Preserve the Scene if required until Emergency Services arrive.
- In consultation with relevant Council divisions ensure required incident reporting to the EPA and any other relevant authorities is completed within 24 hours of the incident.

LCC will meet the requirements of the DPE to address the cause or impact of any incident or non-compliance - within the required period as defined by the DPE. LCC will maintain a record of incidents and non-compliance in the Quarry Non-conformance and Improvement Register.

## 10.3 REVIEWS

### 10.3.1 Internal Auditing

An internal review of this AQMP will be undertaken by LCC on an annual basis or within 3 months of the below triggers. The purpose of the review is to determine the appropriateness of the AQMP in achieving environmental objectives and performance goals throughout the Quarry and Asphalt expansion and ensure that the system is meeting the requirements of relevant legislation, standards, policies, licences, permits, approvals and objectives. A report will be provided to the Compliance Manager with any recommendations for improvement. The Compliance Manager will review and approve changes to the system (as required).

An internal review would be triggered by the below

- an incident report
- annual environmental monitoring review
- independent environmental audit
- any modification to the CoA

LCC will notify DPE when a review has been undertaken. Following the outcome of a review, if a document revision is substantiated, it will be submitted via the Major Projects Portal for approval of the Secretary within six (6) weeks.

To ensure any additional measures to improve the environmental performance of the project is kept up to date, LCC may submit (at any time) revised strategies, plans or programs for approval of the Secretary, as noted in Schedule 5, condition 5 (refer Appendix A).

## 10.4 EXTERNAL REPORTING

All external reporting required by the CoA or other obligation for the Quarry will be approved by Quarry Management. This includes management and monitoring documentation associated with this AQMP.

Air quality monitoring reports are reviewed and made available on the LCC website monthly via <https://www.lismore.nsw.gov.au/Council/Northern-Rivers-Quarry> Air quality monitoring reports and adherence to this management plan are internally audited and reviewed as part of the Annual Environmental Monitoring Report and overall compliance audited every 3 years as part of the Independent Environmental Audit (IEA).

# Air Quality Management Plan

## 10.4.1 Monthly Reporting

Monthly results are issued by the laboratory within 2 weeks of sample submission. Quarry Laboratory staff and Compliance staff review the results to determine compliance with CoA. Test reports will be uploaded to LCC website monthly.

The report must contain:

- Name and address of reporting organisation.
- Date of issue of the laboratory report.
- Test method used and details of any deviation from that method.
- Period of monitoring (start and end dates the instruments were online).
- Identification of monitoring points
- Air pollutants measured, the monitoring instruments used, and a description of the air sampling system.

## 10.4.2 Annual Environmental Monitoring Review

In accordance with the Minister's CoA, an annual environmental monitoring review (AEMR) is to be prepared to the satisfaction of the DPE in accordance with CoA Schedule 5, condition 11 (refer Appendix A).

The annual review will provide a comprehensive review of all monitoring results over the previous calendar year, including evaluation on the effectiveness of the air quality management system and compliance with the performance measures, criteria and operating conditions in the CoA.

The Head of Roads and Quarry will review and approve the outcome and recommendations in the report, which will be submitted via the Major Project Portal by the end of March annually. The AEMR will be submitted to LCC for awareness (via the Head of Roads and Quarry) and must be made available to the Community Consultative Committee or any interested person.

LCC will make available on the website via <https://www.lismore.nsw.gov.au/Council/Northern-Rivers-Quarry> any records that are relevant to enable assessment of the environmental performance of the site, relating to the CoA and EPL.

## 10.4.3 Independent Environmental Audit

Within three (3) years of quarrying operations, and every three (3) years thereafter, an independent environmental audit (IEA) of the Project will be undertaken by a suitably qualified, experienced and independent team of experts who has been endorsed by the Secretary, to assess what, if any, air quality impacts have occurred as a result of the expanded operations at the Quarry. Consultation with Agencies and the CCC is included in the assessment of the report. The Head of Roads and Quarry will review the outcome and recommendations in the report. Recommendations will be reviewed against the approved CoA and this management plan, with a response to audit recommendations and an implementation timetable (if required), will be submitted to the Secretary via Major Project Portal within 12 weeks of commencing the audit. The report will be submitted to LCC for awareness (via the Head of Roads and Quarry).

Upon acceptance of the report by the Secretary, LCC will make it available on the website via <https://www.lismore.nsw.gov.au/Council/Northern-Rivers-Quarry>.

# Air Quality Management Plan

## 11 REFERENCES

Department Of Infrastructure, Planning and Natural Resources, 2004, Guidelines for The Preparation of Environmental Management Plans

Environmental Resources Management Australia (ERM 2009), Blakebrook Quarry Expansion Environmental Assessment Report

Environmental Resources Management Australia (ERM 2009), Blakebrook Quarry Expansion – Air Quality Assessment January 2009

Lismore City Council Statement of Environmental Effects (SEE), Mitchel Hanlon 2019, Blakebrook Quarry Asphalt Plant: Air Quality Assessment

NSW EPA (2016) Approved Methods for The Modelling and Assessment of Air Pollutants in New South Wales

National Environmental Protection Council (Ambient Air Quality) Measure

# Air Quality Management Plan

## APPENDIX A - DOCUMENT COMPLIANCE

CoA Condition		Compliance reference															
<b>Schedule 2, condition 1 Obligation to minimise harm to the environment</b>	In addition to meeting the specific performance measures and criteria established under this approval, the Proponent must implement all reasonable and feasible measures to prevent or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the project.	Section 6 Table G Section 7.1															
<b>Schedule 2, condition 2 Terms of Approval</b>	The Proponent must carry out the project: (a) generally in accordance with the EA, EA (Mod 1) and MR (Mod 3); and	Section 2.1 Section 2.2 Section 3.2 Section 4.1 Section 7.2															
	(b) in accordance with the conditions of this approval, Project Layout Plan and the Statement of Commitments. <i>Notes:</i> • <i>The Project Layout Plan is shown in Appendix 1;</i> • <i>The Statement of Commitments is reproduced in Appendix 2.</i>	Section 2.1 Section 8.5 Section 8.6 Appendix B															
<b>Schedule 2, condition 15 Compliance</b>	The Proponent must ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	Table N Figure 3 Section 9.1 Section 9.3															
<b>Schedule 3, condition 10 Air Quality Impact Assessment Criteria</b>	The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria in Table 4 at any residence on privately-owned land. <small>Table 4: Air quality criteria</small>	Section 3.2 Section 7 Section 8 Section 8.5.3 Table I Appendix E															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Pollutant</th> <th style="text-align: left;">Averaging Period</th> <th style="text-align: left;">Criterion</th> </tr> </thead> <tbody> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>Annual</td> <td><sup>a,d</sup> 25 µg/m<sup>3</sup></td> </tr> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>24 hour</td> <td><sup>b</sup> 50 µg/m<sup>3</sup></td> </tr> <tr> <td>Total suspended particulates (TSP)</td> <td>Annual</td> <td><sup>a,d</sup> 90 µg/m<sup>3</sup></td> </tr> <tr> <td><sup>c</sup> Deposited dust</td> <td>Annual</td> <td><sup>b</sup> 2 g/m<sup>2</sup>/month     <sup>a,d</sup> 4 g/m<sup>2</sup>/month</td> </tr> </tbody> </table>		Pollutant	Averaging Period	Criterion	Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a,d</sup> 25 µg/m <sup>3</sup>	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>	Total suspended particulates (TSP)	Annual	<sup>a,d</sup> 90 µg/m <sup>3</sup>	<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month <sup>a,d</sup> 4 g/m <sup>2</sup> /month
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<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month <sup>a,d</sup> 4 g/m <sup>2</sup> /month															
<i>Notes to Table 4:</i> <i>a Cumulative impact (ie increase in concentrations due to the project plus background concentrations due to all other sources).</i>	Section 9.5 Section 10.4.1 Table L																
<i>b Incremental impact (ie increase in concentrations due to the project alone, with zero allowable exceedances of the criteria over the life of the project).</i>	Section 9.5 Section 10.4.1 Table L																

# Air Quality Management Plan

	<i>c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.</i>	Section 8.5
	<i>d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.</i>	Section 9.5 Section 10.4.1 Table L - updated
	<i>e “Reasonable and feasible avoidance measures” includes, but is not limited to, the operational requirements in conditions 11, 12 and 13 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.</i>	Section 9.5 Section 10.2 Section 10.4.1 Table L - updated
<b>Schedule 3, condition 11 Operating Conditions</b>	The Proponent must: (a) Implement best practice management to minimise the dust emissions of the project.	Section 7.1 Section 7.2 Appendix B – SoC Section 8.1
	(b) Regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this approval.	Section 7.2 Section 8.3 Section 8.4
	(c) Minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events (see note d under Table 4).	Table F Section 8.4
	(d) Monitor and report on compliance with the relevant air quality conditions in this approval.	Section 8.4 Section 10 Section 10.2 Section 10.3 Section 10.4
	(e) Minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.	Rehabilitation has not started at the site.
<b>Schedule 3, condition 12 Air Quality Management Plan</b>	The Proponent must prepare an Air Quality Management Plan for the project to the satisfaction of the Secretary. This plan must: (a) Be submitted to the Secretary for approval within 3 months of the determination of Modification 1, unless otherwise agreed by the Secretary.	Appendix C
	(b) Describe the measures to be implemented to ensure: - Compliance with the air quality criteria and operating conditions of this approval. - Best practice management is being employed. - The air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events.	Section 5.2 Section 7.1 Section 7.2 Section 8.2 Table L Section 9.5



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	(c) Describe the proposed air quality management system.	Figure 2 Section 8 Section 7.2 Table L Section 9.5
	(d) Include an air quality monitoring program that: - Is capable of evaluating the performance of the project. - Includes a protocol for determining any exceedances of the relevant conditions of approval. - Effectively supports the air quality management system.	Section 8 Section 8.5 & 8.5.3 Section 8.6 & 8.6.3 Section 10.2 Appendix D – HVAS sampling
	The Proponent must implement the approved Air Quality Management Plan as approved from time to time by the Secretary.	Section 7.2 Section 9.1 – 1 <sup>st</sup> paragraph Section 9.3 – 1 <sup>st</sup> paragraph
<b>Schedule 3, condition 13 Meteorological Monitoring</b>	For the life of the project, the Proponent must ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the <i>Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales guideline</i> .	Figure 2 Section 8.4
<b>Schedule 3, condition 14 Greenhouse Gas Emissions</b>	The Proponent must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.	Section 6 Section 7.1 Section 7.2 Section 8.2.1 Section 9.1 – 1 <sup>st</sup> paragraph
<b>Schedule 4, condition 1 Notification of Landowners</b>	As soon as practicable, and no longer than 7 days, after obtaining monitoring results showing: (a) an exceedance of any criteria in Schedule 3, the Proponent must notify the affected landowners in writing of the exceedance, and provide regular monitoring results, at least every 3 months, to each affected landowner until the project is again complying with the relevant criteria; and	Section 10.2
	(b) an exceedance of any air quality criteria in Schedule 3, the Proponent must send a copy of the NSW Health fact sheet entitled “Mine Dust and You” (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).	Section 10.2
<b>Schedule 4, condition 2 Independent Review</b>	If an owner of privately-owned land considers the project to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the project on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary’s decision, the Proponent must: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:	Section 9.8

# Air Quality Management Plan

	<ul style="list-style-type: none"> <li>• consult with the landowner to determine his/her concerns; • conduct monitoring to determine whether the project is complying with the relevant criteria in Schedule 3; and</li> <li>• if the project is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria; and</li> </ul>	
	(b) give the Secretary and landowner a copy of the independent review; and	Section 9.8
	(c) comply with any written requests made by the Secretary to implement any findings of the review.	Section 9.8
<b>Schedule 5, condition 2 Evidence of Consultation</b>	Where consultation with any State or local agency is required by the conditions of this approval, the Proponent must:	Appendix C
	(a) consult with the relevant agency prior to submitting the required document to the Secretary for approval;	Appendix C
	(b) submit evidence of this consultation as part of the relevant document;	Table O Section 9.2
	(c) describe how matters raised by the agency have been addressed and any matters not resolved; and	Appendix C – no further comments to provide
<b>Schedule 5, condition 3 Management Plan Requirements</b>	The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	Section 4.1
	(a) detailed baseline data	
	(b) a description of: <ul style="list-style-type: none"> <li>• the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>• any relevant limits or performance measures/criteria; and</li> <li>• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;</li> </ul>	Section 6 Section 7.2 Section 8 Table L
	(c) a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 7.2 Section 8 Section 8.5.3 Section 8.6.3
<i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i>	(d) a program to monitor and report on the: <ul style="list-style-type: none"> <li>• impacts and environmental performance of the project; and</li> <li>• effectiveness of any management measures (see (c) above);</li> </ul>	Section 5.2 Section 7.2 Section 8 Section 10.4 Section 10.4.2 Section 10.4.3

## Air Quality Management Plan

	(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 10.1
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time	Section 10.3
	(g) a protocol for managing and reporting any:	Section 9.7 Section 10.2 Section 10.4.1
	• incidents	
	• complaints;	Section 9.7
	• non-compliances with statutory requirements; and	Section 10.2
	• exceedances of the impact assessment criteria and/or performance criteria; and	Section 10.2
	(h) a protocol for periodic review of the plan.	Section 1.3 Section 10.3.1
<p><b>Schedule 5, condition 4a Revision of Strategies, Plans &amp; Programs</b></p> <p><i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.</i></p>	Within 3 months of the submission of an:	Section 1.3 Table A Section 10.3.1
	(a) incident report under condition 9 below	
	(b) Annual Review under condition 11 below;	Section 1.3 Table A Section 10.3.1
	(c) audit report under condition 12 below; and	Section 1.3 Table A Section 10.3.1
	(d) any modifications to this approval	
	<i>the Proponent must review the strategies, plans and programs required under this approval, to the satisfaction of the Secretary. The proponent must notify the Department in writing of any such review being undertaken. Where this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary.</i>	Section 1.3 Table A Section 10.3.1
<p><b>Schedule 5, condition 5 Updating and Staging of Strategies, Plans or Programs</b></p>	To ensure that strategies, plans or programs required under this approval are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the project, the Proponent may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Proponent may also submit any strategy, plan or program required by this approval on a staged basis. The Secretary may approve a revised strategy, plan or program required under this approval, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the	Appendix A Section 8.1 Section 10.3.1

## Air Quality Management Plan

	<p>Proponent may prepare the revised or staged strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this approval.</p> <p>While any strategy, plan or program may be submitted on a staged basis, the proponent will need to ensure that the operations associated with the project are covered by suitable strategies, plans or programs at all times.</p> <p>If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the project to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.</p>	
<b>Schedule 5, condition 6 Adaptive Management</b>	<p>The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&amp;A Act or EP&amp;A Regulation.</p> <p>Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <p>(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</p>	<p>Section 5.2 Table F Section 7.2</p>
	<p>(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and</p>	<p>Section 9.8</p>
	<p>(c) implement reasonable remediation measures as directed by the Planning Secretary.</p>	<p>Section 9.8</p>
<b>Schedule 5, condition 8 Incident Notification</b>	<p>The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.</p>	<p>Section 10.2</p>
<b>Schedule 5 Condition 9 Non-Compliance Notification</b>	<p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p>	<p>Section 10.2</p>
<b>Schedule 5, condition 10 Regular Reporting</b>	<p>The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.</p>	<p>Section 8.5.3 Section 10.4 Section 10.4.1</p>

## Air Quality Management Plan

<p><b>Schedule 5, condition 11 Annual Review</b></p> <p><i>The Proponent must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 7 of Schedule 5) and any interested person upon request.</i></p>	<p>By the end of March each year, or other timing as may be agreed by the Secretary, the Proponent must submit a review to the Department reviewing the environmental performance of the project to the satisfaction of the Secretary. This review must:</p> <p>(a) describe the project (including any progressive rehabilitation) that was carried out in the previous calendar year, and the project that is proposed to be carried out over the current calendar year;</p>	Section 10.4.2
	<p>(b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against the:</p> <ul style="list-style-type: none"> <li>• relevant statutory requirements, limits or performance measures/criteria;</li> <li>• requirements of any plan or program required under this approval;</li> <li>• monitoring results of previous years; and</li> <li>• relevant predictions in the documents listed in condition 2(a) of Schedule 2;</li> </ul>	Section 10.4.2
	<p>(c) evaluate and report on:</p> <ul style="list-style-type: none"> <li>• the effectiveness of the air quality and noise management systems; and</li> <li>• compliance with the performance measures, criteria and operating conditions in this approval.</li> </ul>	Section 10.4.2
	<p>(d) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;</p>	Section 10.4.2
	<p>(e) identify any trends in the monitoring data over the life of the project;</p>	Section 10.4.2
	<p>(f) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies;</p>	Section 10.4.2
	<p>(g) describe what measures will be implemented over the current calendar year to improve the environmental performance of the project.</p>	Section 10.4.2
<p><b>Schedule 5 Condition 12 Independent Environmental Audit</b></p>	<p>Within three years of the date of grant of this project approval, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent must commission, commence and pay the full cost of an Independent Environmental Audit of the project. This audit must:</p> <p>(a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;</p>	Section 10.4.3
	<p>(b) include consultation with the relevant agencies and the CCC;</p>	Section 10.4.3
	<p>(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or necessary water licences for the project (including any assessment, strategy, plan or program required under these approvals);</p>	Section 10.4.3
	<p>(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals;</p>	Section 10.4.3
	<p>(e) recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, strategy, plan or program required under the abovementioned approvals; and</p>	Section 10.4.3

## Air Quality Management Plan

	(f) be conducted and reported to the satisfaction of the Secretary.	Section 10.4.3
<b>Schedule 5, condition 13</b>	Within 12 weeks of commencing this audit, or as otherwise agreed by the Secretary, the Proponent must submit a copy of the audit report to the Secretary and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. The Proponent must implement these recommendations, to the satisfaction of the Secretary.	Section 10.4.3
<b>Schedule 5, condition 14 Access to Information</b>	Within 3 months of the determination of Modification 1, until the completion of all works, including rehabilitation and remediation the Proponent must:	
	(a) make the following information publicly available on its website: <ul style="list-style-type: none"> <li>• the documents listed in condition 2(a) of Schedule 2;</li> <li>• current statutory approvals for the project;</li> <li>• all approved strategies, plans and programs required under the conditions of this approval;</li> <li>• a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs;</li> <li>• a complaints register, updated monthly;</li> <li>• the annual reviews of the project;</li> <li>• any independent environmental audit as described in condition 12 above, and the Proponent's response to the recommendations in any audit; and</li> <li>• any other matter required by the Secretary; and</li> </ul>	Section 9.6 Section 9.7
	(b) keep this information up-to-date, to the satisfaction of the Secretary.	Section 9.6 Section 9.7
<b>EPL 3384 – O3.1 Dust</b>	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.	Section 3.2 Section 7.2
<b>EPL 3384 - O3.2 Dust</b>	Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.	Section 3.2 Section 7.2
<b>EPL 3384 – O5.1 Odour</b>	The operation of the premises must not cause or permit the emission of offensive odour beyond the boundary of the premises.	Section 3.2 Section 7.2

# Air Quality Management Plan

## APPENDIX B - Statement of Commitments

7	Air Quality	Responsibility	Timing	Comment
7.1	All unsealed haul routes on the site will be watered at a rate of 2 L/m <sup>2</sup> /minute as required.	Lismore City Council	Ongoing	Section 7.2
7.2	Water sprays will be used on all mobile crushing, stockpiles and screening equipment to minimise airborne particulate matter.	Lismore City Council	Ongoing	Section 7.2
7.3	All road trucks must have tarpaulin covers in place prior to leaving the weighbridge.	Lismore City Council	Ongoing	Section 7.2
7.4	A dust deposition gauge network will be developed to ensure compliance with cumulative dust deposition criteria.	Lismore City Council	At or before production rates at the quarry reach 337,500 tonnes/annum	Section 7.2
7.5	Stockpiles are to be seeded to minimize the potential for fugitive dust.	Lismore City Council	Ongoing	Section 7.2

# Air Quality Management Plan

## APPENDIX C – DPE correspondence



Planning Services  
Resource Assessments  
Contact: Jack Murphy  
Phone: 8217 2016  
Email: [jack.murphy@planning.nsw.gov.au](mailto:jack.murphy@planning.nsw.gov.au)

Mr Louis Penny  
Senior Town & Environmental Planner  
ERM  
PO Box 1400  
Spring Hill QLD 4000

Email: [Louis.Penny@erm.com](mailto:Louis.Penny@erm.com)

Dear Mr Penny,

### Blakebrook Quarry Modification 1 (07\_0020) Environmental Management Plans

I refer to your emails dated 3 and 24 August 2018, submitting a revised environmental management strategy and revised environmental management plans for the Blakebrook Quarry. The Department has reviewed the following documents and considers they have fulfilled the requirements of their respective conditions:

- Aboriginal Heritage Management Plan dated August 2018 (condition 24, Schedule 3);
- Air Quality Management Plan dated August 2018 (condition 12, Schedule 3);
- Environmental Management Strategy dated August 2018 (condition 1, Schedule 5);
- Traffic Management Plan Dated August 2018 (condition 23, Schedule 3);
- Noise Management Plan dated August 2018 (condition 5, Schedule 3); and
- Blast Management Plan dated August 2018 (condition 9, Schedule 3).

Consequently, the Secretary has approved the above documents. Please ensure finalised copies of these documents are made available on the company's website.

Should you have any enquiries in relation to this matter, please contact Jack Murphy.

Yours sincerely,

A handwritten signature in blue ink that reads 'Howard Reed'.

Howard Reed 28.8.18  
Director  
Resource Assessments  
as nominee of the Secretary



# Air Quality Management Plan



Department of Planning and Environment

Ms Eleisha Went  
Compliance Manager, Commercial Services  
Lismore City Council

Ref: ED22/6741

60 BRUNSWICK STREET  
LISMORE NSW 2480

Via email: [Eleisha.went@lismore.nsw.gov.au](mailto:Eleisha.went@lismore.nsw.gov.au)

Dear Ms Went

## Blakebrook Quarry - Flood Emergency Request (MP07\_0020) Extension of Time Request

Thank you for your correspondence to the Department of Planning and Environment (the "Department") dated 3 & 12 March 2022 seeking an extension of time for the submission of reports required under the conditions of consent and additionally, seeking increased limits on hours of operation, production, and vehicle movements for the Blakebrook Quarry (MP07\_0020) to enable Council to repair necessary infrastructure.

The Department acknowledges that the Lismore region and its residents have been significantly impacted by the recent unprecedented flooding and associated impacts to infrastructure. The Department wishes to assist in any way possible to support Council and the community that have been impacted by this tragic event.

### Reports and Environmental Management Plans

The Department has considered your request for the extension of time for the submission of the following reports and management plans;

- Annual Environmental Management Review (AEMR); and
- Modification 3 Management Plan revisions (including Site Water Balance)

Accordingly, the Planning Secretary has approved your request for an extension of time until 30 June 2022 for the submission of the Annual Environmental Management Review, and until 30 September 2022 for the submission of revised Management Plans required under Modification 3 (including the Site Water Balance).

### Increased production limits, hours of operation and vehicle movements

In relation to your request seeking increased hours of operation, production limits, and vehicle movements, the Department provides assurance that it will not take enforcement action for

# Air Quality Management Plan



Department of Planning and Environment

these exceedances for an initial period of 3 months and will review the Council's circumstances at that time in determining whether this period should be extended.

The Department notes that the Council has committed to the following measures:

- Continue to monitor and record tonnages of quarry products and asphalt leaving the site;
- Continue to monitor and record the number of laden truck movements exiting the site;
- Limit hours of operation wherever possible;
- Record and respond to any complaints; and
- Continue to meet the requirements of management plans and programs.

Additionally, the Department considers that blasting activities at the site should be undertaken within the approved hours unless considered critical for production or for safety reasons (such as a misfire). The Department further requests that the Council conducts engagement with sensitive receivers prior to increasing production, truck movements or conducting operations outside of the approved hours.

Finally, the Department requests that a short monthly summary report be provided during the period of works, outlining the works conducted outside of the limits of consent, whether complaints have been received and the Council's response to such complaints.

Should you wish to discuss the matter further, please contact Mr Phillip Rose, Compliance Officer at the Department on 6670 8657 or [phillip.rose@planning.nsw.gov.au](mailto:phillip.rose@planning.nsw.gov.au)

Yours sincerely

A handwritten signature in black ink, appearing to read "Ben Harrison".

Ben Harrison  
Director Compliance  
As nominee of the Planning Secretary

16.8.2022

# Air Quality Management Plan

## APPENDIX D – HVAS sampling results from 2018

	Level 4 201 Leichhardt Street Spring Hill, Qld 4000	Telephone: +61 7 3839 8393 Fax: +61 7 3839 8381  www.erm.com
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21 December 2018

Environmental Assessment Officer  
 Department of Planning and Environment  
 GPO Box 39  
 Sydney, NSW 2001



Reference: 0436796

Attention: Jack Murphy

Dear Jack,

**RE: Air Quality Monitoring Results for the Blakebrook Quarry**

Lismore City Council ("Council") operates the Blakebrook Quarry. As part of the quarry's operational management, an Air Quality Management Plan (AQMP) was developed and submitted for approval to the Department of Planning and Environment (DPE).

The DPE requested that High Volume Air Sampling (HVAS) be performed to understand the current conditions of inhalable particulate (PM<sub>10</sub>) concentrations. Specifically, the DPE requested:

- One 24-hour sample from 7am to 7am.
- Sampling to occur when the quarry is operating at full capacity.
- Monitoring locations to be at nearby privately owned land.

Council engaged Ecotech Pty Ltd to undertake the HVAS monitoring. Ecotech Pty Ltd is National Association of Testing Authorities Australia (NATA) accredited for HVAS sampling (accreditation No. 14184).

The monitoring occurred at 506 Nimbin Road, Booerie Creek NSW 2480 from 11 to 13 November 2018. The Tuesday and Wednesday were chosen as these are the days during the week where the quarry has the highest operational activity.

The monitoring occurred over three days as the first 24 hour period prematurely ended due to a power failure. A second 24-hour sample was started the next day after the power situation was resolved. The monitoring data formal report and field sheets are provided are attached to this letter.

The results from the two sampling days are provided in the Table 1.

**Table 1: Sampling Results**

Start Date	Sampling Time	PM <sub>10</sub> Average Concentration	PM <sub>10</sub> 24 hour average Standard	Notes
11/11/2018	7am to 12am	17.4 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	Less than 24 hours sampled, provides a conservative comparison to the standard.
11/12/2018	11am to 11am	14.4 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	Delay in start time due to sorting out the power problem.

Page 1 of 2

Registered office ERM Australia Pty Ltd Level 15, 300 Kent Street Sydney NSW 2000	ABN: 12 002 773 248  Offices worldwide	A member of the ERM Group
--	--	------------------------------

# Air Quality Management Plan

ERM

21 December 2018  
Reference: 0436796  
Page 2 of 2

The HVAS results indicate that the air quality is well below the ambient standards. No additional monitoring should be required.

Please contact me if you have any questions regarding the contents of this letter.

Sincerely,



Bethany Warren, PhD  
Partner  
CAQP

Page 2 of 2

Registered office  
ERM Australia Pty Ltd  
Level 15, 300 Kent Street  
Sydney NSW 2000

ABN: 12 002 773 248  
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A member of the  
ERM Group

# Air Quality Management Plan



45 Horus Bend  
Bibra Lake WA 6163

Accredited for compliance with ISO/IEC 17025-Testing  
Accreditation No. 19650

## REPORT OF ANALYSIS D-258

Environmental Resources Management  
506 Nimbin Road, Booerie Creek  
NSW 2480

**Attention:** Environmental Resources Management

Report of analysis of two high volume PM10 PTFE filters received on 22 November 2018.

### Sample description:

Client Reference	Filter Ref number	Condition of filter on receipt
Lismore Council Quarry	E-779	Good
Monitoring	E-780	Good

# Air Quality Management Plan

## Results of analysis:

Filter Reference Number	Start Date	<sup>1</sup> Air Volume m <sup>3</sup>	Initial Weight of Filter mg	Final Weight of Filter mg	Dust mg/filter	Dust in Air µg/m <sup>3</sup>
<sup>1</sup> E-779	13/11/2018	1070	2397.2	2415.8	18.6	17.4
E-780	14/11/2018	1505	2394.3	2415.9	21.6	14.4

## Test Parameters:

Analyte	Units	Limit of Reporting	Method	Uncertainty
Dust concentration	µg/m <sup>3</sup>	5 µg/m <sup>3</sup>	AS3580.9.6:2015	11% of reading or ±0.70 µg/m <sup>3</sup> , whichever is the greater. K factor of 1.96

---

These results apply only to the samples as received.

High volume sampler calibrated by Ecotech calibration laboratory, accreditation No. 14184

Calibration certificate attached.

<sup>1</sup>A run time of 17 hours recorded.

This report shall not be reproduced except in full.



Diane How

Laboratory Manager

Ecotech WA Laboratory

Date of issue: 27/11/2018

End report.

# Air Quality Management Plan



Ecotech Document Control      This form is based upon the  
 Doc. ID: EMS 0578                      requirements of AS/NZS 3580.9.6:2015  
 Date: 23/05/2018                      and AS/NZS 3580.9.14:2013

## High Volume Air Sampler 3000 Volumetric Calibration Report

Note:

Filter paper id: E-779	
Calibration Performed By	M. Wyganowska
Date	12-Nov-18
Time Begin/End	13:30    14:00
Location	Site

Customer	Lismore Council
Instrument	HiVol3000
ID No.	06-1081
System/Job No.	MCQLD

### Calibration Equipment

Orifice Plate	TE-040
Volumetric Orifice Const.	3.21

	TE Number	Cal Due	PASS / FAIL
Manometer	TE-0574	29/2/19	PASS
Digital Barometer	TE-0645	23/04/2019	PASS
Digital Thermometer	TE-0645	23/04/2019	PASS

### Instrument Parameters - Hidden Menu (Pre-calibration)

Flow Coeff 0		35.1650	Press Coeff 0	50 to 100	93.2
Flow Coeff 1		86.7040	Press Coeff 1	168.7	168.7
Flow Coeff 2		-35.6500	WS Coeff 0		0.0
Temp Coeff 0	0.3810	0.3810	WS Coeff 1		0.8
Temp Coeff 1	-2 to +2	0.0177	WD Coeff 0		0.0
Temp Coeff 2	-2 to +2	0.0007	WD Coeff 1		79.1

### Instrument Parameters - Setup Menu (Pre-calibration)

Set Flow	67.8	Ref BP (mmHg)	760.0
Ref Temp (°C)	0.0	S/W Version	2.18

### Pre-calibration Check

	Reference Sensor	Instrument	Difference	Units	Pass / Fail
Ambient Temp	27.9	30.5	-2.6	°C	Calibrate
Ambient Press	760	752.4	7.6	mmHg	Calibrate

Note: Temperature shall be  $\pm 1$  degC of reference

Note: Pressure shall be  $\pm 7.5$  mmHg of reference

If the temperature or pressure sensors require re-calibration, perform the flow check and then adjust the coefficients

#### Flow Calibration Check:

	mmH2O	kPa
Expected (Calculated) $\Delta H$	150.2	1.47

Hour Run Meter Initial	0
Start Time	13:45

	Display Reading (m3/hr)	Manometer Reading (kPa)	Calculated Flow (m3/hr)	Error (%)	PASS / FAIL
Actual Sample Flow Rate (blank filter fitted)	67.8	1.4	66.1	-2.5%	PASS

Note: Pre-calibration check shall be within 10% of expected value

# Air Quality Management Plan

## Temperature and Pressure Calibration

Calibration Required REQUIRED

New Calculated Coefficients	Coefficient 0	Coefficient 1	Coefficient 2
Temperature	Do Not Adjust	0.0193	0.0008
Pressure	100.743	Do Not Adjust	N/A

### Apply new coefficients and re-test.

	Reference Sensor	Instrument	Difference	Units	Pass / Fail
Ambient Temp	27.8	27.9	-0.1	°C	PASS
Ambient Press	760 mmHg	759.9	0.1	mmHg	PASS

## Flow Calibration

	Initial ΔH (kPa)	Expected ΔH (kPa)	Final ΔH (kPa)	Sensor Voltage (V)
Calibration Point 1 (60 m3/hr)	1.2	1.2	1.2	0.3320
Calibration Point 2 (70 m3/hr)	1.61	1.6	1.6	0.5105
Calibration Point 3 (80 m3/hr)	2.09	2.1	2.1	0.7616

## Post-calibration Check

	Display Reading (m3/hr)	Manometer Reading (kPa)	Calculated Flow (m3/hr)	Error (%)	PASS / FAIL
Actual Sample Flow Rate (blank filter fitted )	67.8	1.5	68.4	0.9%	PASS

Note: Post-calibration check shall be within 1% of expected value

Hour Run Meter Final	
Finish Time	

## Instrument Parameters - Hidden Menu (Post-calibration)

Flow Coeff 0		34.3000	Press Coeff 0	50 to 100	100.7
Flow Coeff 1		90.8480	Press Coeff 1	168.7	168.7
Flow Coeff 2		-40.5000	WS Coeff 0		0.0
Temp Coeff 0	0.3810	0.3810	WS Coeff 1		0.8
Temp Coeff 1	-2 to +2	0.0193	WD Coeff 0		0.0
Temp Coeff 2	-2 to +2	0.0008	WD Coeff 1		79.1



# Air Quality Management Plan

D-258 RECEIVED 11:41 22/11/18

## Hi Volume Air Sampler Filter Papers Sampling Record Form

Customer Name: ERM (ENVIRONMENTAL RESOURCES MANAGEMENT)  
 Project Name: LISMORE COUNCIL QUARRY MONITORING  
 Location (site name): 506 NIMBIN ROAD, BOOBERIE CRK NSW 2480  
 Sampling Head Type (TSP / PM<sub>10</sub> / PM<sub>2.5</sub>): PM10



Ecotech Document Control  
 EMS 0311  
 Date 23/03/2015

### Sampling Record

*Notes: If filters are damaged or if filters are removed from cassette on site – please also fill in table on reverse*

*Sampled filters must be collected within 3 days of the sample period. The period between sampling and final weighing must not exceed 20 days (or 30 days at <4°C).*

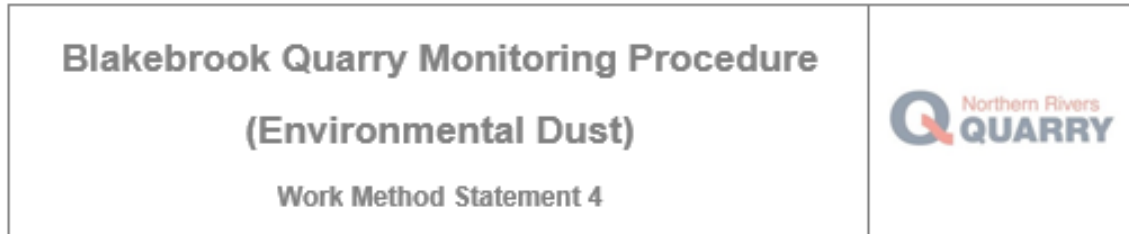
\* RAN TO MIDNIGHT  
 \* RAN TO 11:00 (24 HR SAMPLE)

Filter ID	Installed /Removed (dates)	Installed /Removed (times)	Installed /Removed by	Weather Conditions	Filter Run Start/End Date [dd/mm/yy]	Initial / Final Run Time*	Initial / Final Flow [m <sup>3</sup> /hr]	Total Volume [m <sup>3</sup> ] (HV-3000 only)	Corrected Volume [m <sup>3</sup> ] (HV-3000 only)	Filter Colour
E-799	12/11/18	14:30	MW	FINE	13/11/18	07:00	67.8	1151.2	1070.5	✓
E-799	14/11/18	07:30	MW	FINE	14/11/18	* RUN TIME: 1019 min	11			
E-780	14/11/18	10:50	MW	FINE	14/11/18	11:00	67.8	1162.3	1505.1	✓
	15/11/18	11:00	MW	FINE	15/11/18	* RUN TIME: 1430 min	11			

\*For Hi-Vol3000 Initial Flow and Final Flow are the set Flow \*For Hi-Vol3000 Initial and Final run time are the Initial and Final Set Times

# Air Quality Management Plan

## APPENDIX E – Dust Monitoring Procedure



### PURPOSE

This procedure describes how and when to undertake environmental dust monitoring for Blakebrook Quarry. Sampling is required as per the Project Approval MP 07\_0020 and the Air Quality Management Plan (latest version). The procedure includes sample collection and lab analysis.

### RESPONSIBILITIES

- The Quarry Operations Coordinator (or delegate) is responsible for ensuring dust sampling is undertaken per requirements.
- The Quarry Senior Laboratory Technician (or delegate) is responsible for maintenance of equipment, collection of dust samples and transport to a NATA accredited laboratory for analysis.
- The Compliance Team is responsible for record keeping, reporting of dust exceedances and auditing requirements.
- A NATA accredited laboratory is responsible for analysing samples and providing results to Australian Standards.

### PROCEDURES

#### Site Access

##### Site Access D1 – Located within Quarry boundary

Sampling is undertaken by Quarry Laboratory staff who have the appropriate inductions. Inductions are to be renewed annually. Site communications are via UHF radio Channel 15 (noting Asphalt Plant utilises Channel 12).

##### Site Access D2 & D3 – Located on private land outside Quarry boundary

Sampling is undertaken by Quarry Laboratory staff. Access to private property is arranged directly with the landowner. Please respect private property and leave things as you find them.

#### Sampling Locations

Sampling Locations are shown in the table below and **Appendix A**. There are three (3) dust monitoring sites (D1 is located within the Quarry boundary, D2 & D3 are located on private property).

Site	Address	Easting	Northing
D1	550 Nimbin Road Blakebrook (Council owned land)	524524	6818874
D2	506 Nimbin Road Blakebrook (private land)	523981	6817740
D3	210B Boerrie Creek Road Boerrie Creek (private land)	525199	6817040

# Air Quality Management Plan

## Blakebrook Quarry Monitoring Procedure

### (Environmental Dust)

Work Method Statement 4



#### Sampling Parameters

As per the Project Approval and Air Quality Management Plan, reporting of results is against the 'insoluble solids' component of the sample, however noting that 'ash' content is used as an indicator for deposited dust relating to the Quarry.

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level
Deposited Dust (Insoluble Solids)	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

Source: PA 07\_0020 Table 4

#### Equipment

A Dust Deposition Gauge is used to collect deposited dust over the sampling period. The gauge has been mounted according to AS/NZS 3580.10.1:2016 as described in the Air Quality management Plan.

#### Monitoring Frequency

Samples are usually collected every 30 days (+/- 2 days). The Quarry Laboratory staff keep a calendar of when samples need to be collected.

#### Collection of Lab Sample

The Dust Deposition Gauge is left in situ for the entire sampling period (usually 30 days +/- 2 days). The sample jar is collected and sealed and allocated a Laboratory sample reference.

Sample information is recorded on the Dust Sample Record Form along with any maintenance required or undertaken.

A Sample Submission Form is completed, and the samples taken to a NATA accredited laboratory for analysis.

#### Results & Interpretation

Results (excel and pdf files) are issued by the NATA accredited laboratory within 2 weeks of sample submission. Quarry Laboratory staff and Compliance Team review the results to determine if there are any exceedances. Any exceedances are reported via email to DPE immediately with a written report provided within 7 days. Records are saved in TRIM (EF20/44).

#### Equipment Maintenance

Equipment maintenance is undertaken by Quarry Laboratory staff and recorded on the Dust Sample Record Form.

#### FORMS AND DOCUMENTS

- Air Quality Management Plan
- Project Approval MP 07\_0020
- Dust Sample Record Form

# Air Quality Management Plan

## Blakebrook Quarry Monitoring Procedure (Environmental Dust) Work Method Statement 4



### Appendix A - Sampling Locations

