

## AIR QUALITY MANAGEMENT PLAN

Wallerawang Quarry

**FINAL**

February 2024



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Wallerawang Quarry

### FINAL

Prepared by  
Umwelt (Australia) Pty Limited  
on behalf of  
Walker Quarries Pty Ltd

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Report No. 4433/R04  
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QMS Certification Services

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	Name	Date	Name	Date
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# 1.0 Scope

This Air Quality Management Plan (AQMP) for Wallerawang Quarry (the Quarry) has been reviewed and updated by Umwelt (Australia) Pty Ltd (Umwelt) on behalf of Walker Quarries Pty Ltd (Walker Quarries) in accordance with Schedule 3, Condition 14 of Development Consent DA 344-11-2001. This version of the AQMP (V5.0) has been revised following completion of the 2023 Annual Review of DA 344-11-2001 (30 September 2023), and the update of Environment Protection Licence (EPL) 13172 on 15 November 2022. Notification was provided to the former Department of Planning & Environment (DPE) (now Department of Planning, Housing and Infrastructure (DPHI)) on 20 December 2023 of the proposed review and revision. The most recent approved AQMP will be made publicly available on the Walker Quarries website.

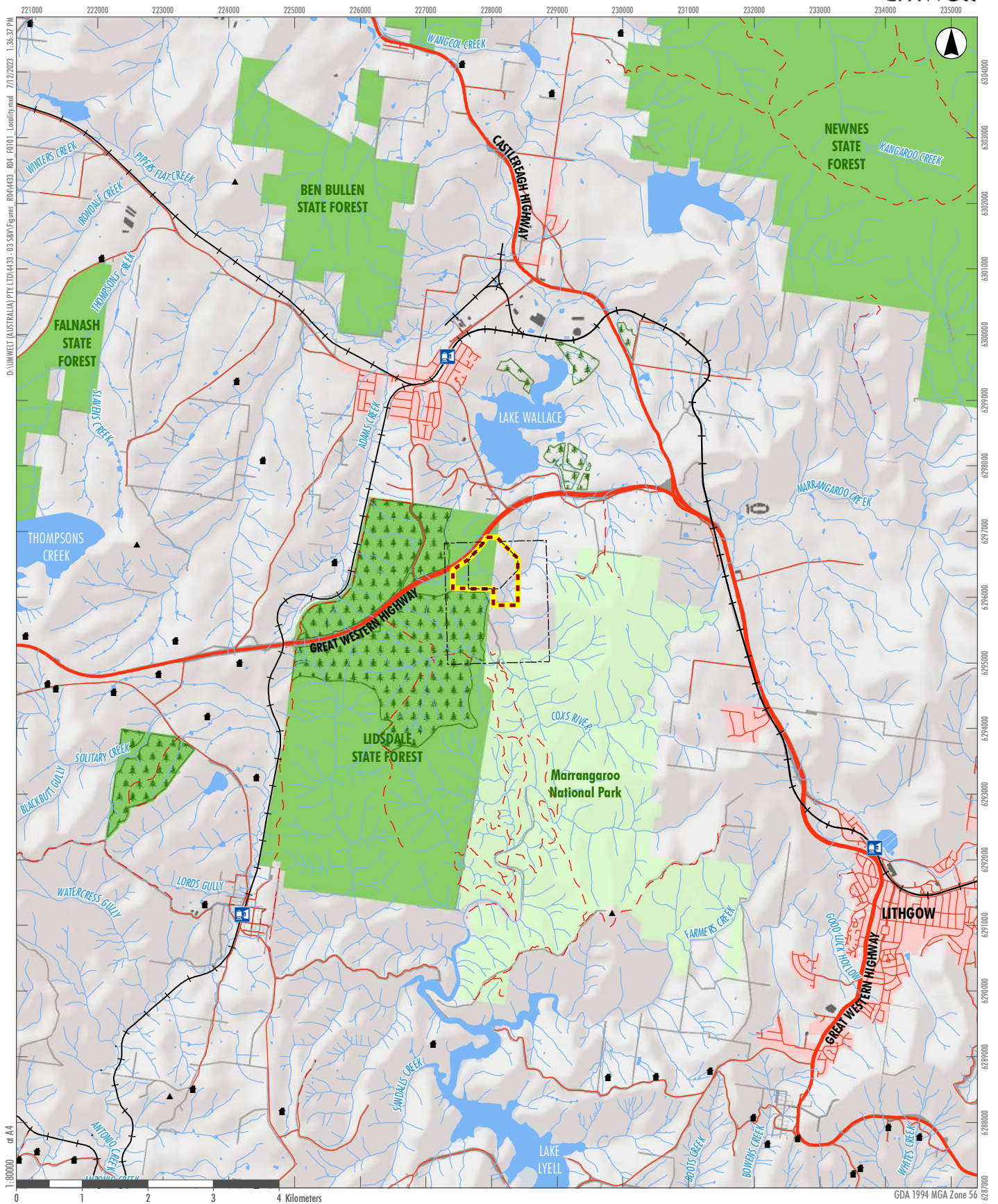
This AQMP outlines the measures to be implemented at the Quarry to maintain compliance with the regulatory requirements outlined in **Section 2.0**.

The Quarry is located approximately 8 kilometres (km) northwest of Lithgow (**Figure 1.1**) and is approved to produce 500 000 tonnes per annum (tpa) of Quarry products. DA 344-11-2001 approves disturbance up to a maximum of 28.6 ha for the purpose of quartzite and other hard rock extraction, processing, stockpiling, management and on-site disposal of non-saleable (overburden) materials, and ancillary infrastructure. The approved Quarry site layout is provided in **Figure 1.2**.

Dust generating activities principally relate to the following operational activities:

- Vegetation clearing and topsoil/subsoil stripping, noting that future vegetation clearing will be limited.
- Drill and blast extraction of raw materials.
- Load and haul of materials for processing through crushing and screening or emplacement of overburden.
- Vehicle movements on unsealed roads.





- Legend**
- Quarry Site Boundary
  - Project Quarry Site Mining Lease
  - EL 4473
  - State Forest
  - NPWS Estate

**FIGURE 1.1**  
**Locality Plan**





FIGURE 1.2

Approved Quarry Site Layout



## 2.0 Legal and Other Regulatory Requirements

### 2.1 Development Consent DA 344-11-2001

Table 2.1 provides the conditions applicable to air quality management and identifies the section of this AQMP where each is addressed.

**Table 2.1 Air Quality-Related Conditional Requirements of DA 344-11-2001**

Condition No.	Condition	Section																			
<b>Air Quality Criteria</b>																					
<b>Schedule 3, Condition 11</b>	<p>The Applicant must ensure that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 4 at any residence on privately-owned land.</p> <p><i>Table 4: Air quality criteria</i></p> <table> <tr> <th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr> <tr> <td rowspan="2">Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td><td>Annual</td><td><sup>a, c</sup> 25 µg/m<sup>3</sup></td></tr> <tr> <td>24 hour</td><td><sup>b</sup> 50 µg/m<sup>3</sup></td></tr> <tr> <td rowspan="2">Particulate matter &lt; 2.5 µm (PM<sub>2.5</sub>)</td><td>Annual</td><td><sup>a, c</sup> 8 µg/m<sup>3</sup></td></tr> <tr> <td>24 hour</td><td><sup>b</sup> 25 µg/m<sup>3</sup></td></tr> <tr> <td>Total suspended particulate (TSP) matter</td><td>Annual</td><td><sup>a, c</sup> 90 µg/m<sup>3</sup></td></tr> <tr> <td><sup>d</sup> Deposited dust</td><td>Annual</td><td><sup>b</sup> 2 g/m<sup>2</sup>/month    <sup>a</sup> 4 g/m<sup>2</sup>/month</td></tr> </table> <p><i>Notes:</i></p> <p><sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).</p> <p><sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the development on its own).</p> <p><sup>c</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.</p> <p><sup>d</sup> 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.</p>	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a, c</sup> 25 µg/m <sup>3</sup>	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>	Particulate matter < 2.5 µm (PM <sub>2.5</sub> )	Annual	<sup>a, c</sup> 8 µg/m <sup>3</sup>	24 hour	<sup>b</sup> 25 µg/m <sup>3</sup>	Total suspended particulate (TSP) matter	Annual	<sup>a, c</sup> 90 µg/m <sup>3</sup>	<sup>d</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month <sup>a</sup> 4 g/m <sup>2</sup> /month	<b>Section 5.0, Section 6.0</b>
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<b>Schedule 3, Condition 12</b>	The air quality criteria in Table 4 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.	<b>Section 5.0</b>																			
<b>Operating Conditions</b>																					
<b>Schedule 3, Condition 13</b>	The Applicant must:	<b>Section 6.0</b>																			
	a. implement best practice management to minimise the dust emissions of the development;																				
	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 consent;	<b>Section 6.3, Section 7.2</b>																			
	c. minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note c under Table 4);	<b>Section 6.3, Section 7.2</b>																			

Condition No.	Condition	Section
	d. monitor and report on compliance with the relevant air quality conditions in this consent;	<b>Section 7.3, Section 9.0</b>
	e. minimise the area of surface disturbance and undertake progressive rehabilitation of the site, and	<b>Section 6.2</b>
	f. to the satisfaction of the Secretary.	Noted
<b>Air Quality Management Plan</b>		
<b>Schedule 3, Condition 14</b>	The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:	This document
	a. be submitted to the Secretary for approval within three months of the determination of Modification 1, unless otherwise agree by the Secretary;	No longer applicable
	b. describe the measures to be implemented to ensure: <ul style="list-style-type: none"> <li>compliance with the air quality criteria and operating conditions of this consent;</li> <li>best practice management is being employed; and</li> <li>the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;</li> </ul>	<b>Section 6.0 Section 6.4 Section 6.3</b>
	c. describe the proposed air quality management system;	<b>Section 6.0</b>
	d. include an air quality monitoring program that: <ul style="list-style-type: none"> <li>is capable of evaluating the performance of the development;</li> <li>includes a protocol for determining any exceedances of the relevant conditions of consent;</li> <li>effectively supports the air quality management system; and</li> <li>evaluates and reports on the adequacy of the air quality management system.</li> </ul>	<b>Section 7.0 Section 8.0 Section 7.0 Section 9.0</b>
	The Applicant must implement the approved Air Quality Management Plan as approved from time to time by the Secretary.	Noted
<b>Meteorological Monitoring</b>		
<b>Schedule 3, Condition 15</b>	For the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that: <ul style="list-style-type: none"> <li>complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007); and</li> <li>is capable of measuring meteorological conditions in accordance with the NSW Noise Policy for Industry (EPA, 2017).</li> </ul> unless a suitable alternative is approved by the Secretary following consultation with the EPA.	<b>Section 7.2</b>
<b>Management Plan Requirements</b>		
<b>Schedule 5, Condition 3</b>	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: <ul style="list-style-type: none"> <li>a summary of relevant background or baseline data;</li> </ul>	<b>Section 4.0</b>

Condition No.	Condition	Section
	b. details 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 development or any management measures;</li> </ul>	Section 2.0 Section 5.0 Section 3.0, Section 5.0
	c. any relevant commitments or recommendations identified in the document/s listed in condition 2(c) of Schedule 2;	Section 2.3
	d. a description of the measures that to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6.0
	e. a program to monitor and report on the: <ul style="list-style-type: none"> <li>impacts and environmental performance of the development; and</li> <li>effectiveness of any management measures set out pursuant to condition 2(c) of Schedule 2;</li> </ul>	Section 7.0, Section 9.0
	f. 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 6.3
	g. a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 7.0, Section 9.0, Section 10.0
	h. a protocol for managing and reporting any: <ol style="list-style-type: none"> <li>incident, non-compliance or exceedance of the impact assessment criteria or performance criteria;</li> <li>complaint; or</li> <li>failure to comply with statutory requirements;</li> </ol>	Section 9.0
	i. public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 9.0
	j. a protocol for periodic review of the plan.	Section 10.3
<b>Schedule 5, Condition 3A</b>	The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.	Section 2.2, Section 3.0
<b>Schedule 5, Condition 44</b>	The Applicant must continue to apply existing approved management plans, strategies or monitoring programs that have most recently been approved under this consent, until the approval of a similar plan, strategy or program under this consent.	Section 10.3
<b>Schedule 5, Condition 5</b>	Within 3 months of the submission of an: <ol style="list-style-type: none"> <li>incident report under condition 9 below;</li> <li>Annual Review under condition 11 below;</li> <li>audit report under condition 14 below; and</li> </ol>	Section 10.3



Condition No.	Condition	Section
	d. any modifications to this consent, the Applicant must review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. The applicant 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.	
<b>Schedule 5, Condition 17(a)</b>	Within 6 months of the date of this consent until the completion of all rehabilitation required under this consent, the Applicant must:	<b>Section 1.0</b>
	a. make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website:	
	iii All approved strategies, plans and programs required under the conditions of this consent;	
	vii A comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs.	<b>Section 7.3, Section 9.2</b>
	x A complaints register, updated monthly.	<b>Section 8.3</b>

## 2.2 Environment Protection Licence 13172

EPL 13172 contains a number of conditional requirements relating to air quality. **Table 2.2** identifies each of these conditional requirements and identifies the section of this AQMP where each is addressed.

**Table 2.2 Air Quality-Related Conditional Requirements of EPL 13172**

Condition No.	Condition	Section
<b>Operating Conditions</b>		
<b>O3.1</b>	Activities occurring in or on the premises must be carried out in a manner that will minimize the emission of dust from the premises, of wind-blown or traffic generated dust.	<b>Section 6.0</b>
<b>O3.2</b>	Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.	<b>Section 6.2</b>
<b>Monitoring and Recording Conditions</b>		
<b>M1.1</b>	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	<b>Section 9.0</b>
<b>M1.2</b>	All records required to be kept by this licence must be: <ul style="list-style-type: none"> <li>a. in a legible form, or in a form that can readily be reduced to a legible form;</li> <li>b. kept for at least 4 years after the monitoring or event to which they relate took place; and</li> <li>c. produced in a legible form to any authorised officer of the EPA who asks to see them.</li> </ul>	<b>Section 9.0</b>

Condition No.	Condition	Section																														
M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence:  a. the date(s) on which the sample was taken;  d. the time(s) at which the sample was collected;  e. the point at which the sample was taken; and  f. the name of the person who collected the sample.	Section 7.3																														
M2.1	For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	Section 7.3.2																														
M2.2	Air Monitoring Requirements: <div>POINT 4</div> <table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>PM10</td><td>micrograms per cubic metre</td><td>Continuous</td><td>Continuously</td></tr><tr><td>PM2.5</td><td>micrograms per cubic metre</td><td>Continuous</td><td>Continuously</td></tr></table>	Pollutant	Units of measure	Frequency	Sampling Method	PM10	micrograms per cubic metre	Continuous	Continuously	PM2.5	micrograms per cubic metre	Continuous	Continuously	Section 7.3.2																		
Pollutant	Units of measure	Frequency	Sampling Method																													
PM10	micrograms per cubic metre	Continuous	Continuously																													
PM2.5	micrograms per cubic metre	Continuous	Continuously																													
M2.3	Continuous monitoring must be undertaken in accordance with the Air Quality Management Plan.	Section 7.0																														
M3.2	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:  a. any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or  b. if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or  c. if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.	Section 7.0																														
M4.1	For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns. <div>Point 5</div> <table><tr><th>Parameter</th><th>Units of Measure</th><th>Frequency</th><th>Averaging Period</th><th>Sampling Method</th></tr><tr><td>Siting</td><td></td><td></td><td></td><td>AS/NZS 3580.1.1 and AS/NZS 3580.14</td></tr><tr><td>Sigma Theta</td><td>Degrees</td><td>Continuous</td><td>15 minutes</td><td>AS/NZS 3580.14</td></tr><tr><td>Temperature at 2 m</td><td>Kelvin</td><td>Continuous</td><td>15 minutes</td><td>AS/NZS 3580.14</td></tr><tr><td>Wind Direction</td><td>Degrees</td><td>Continuous</td><td>15 minutes</td><td>AS/NZS 3580.14</td></tr><tr><td>Rainfall</td><td>Millimetres</td><td>Continuous</td><td>1 hour</td><td>AS/NZS 3580.14</td></tr></table>	Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method	Siting				AS/NZS 3580.1.1 and AS/NZS 3580.14	Sigma Theta	Degrees	Continuous	15 minutes	AS/NZS 3580.14	Temperature at 2 m	Kelvin	Continuous	15 minutes	AS/NZS 3580.14	Wind Direction	Degrees	Continuous	15 minutes	AS/NZS 3580.14	Rainfall	Millimetres	Continuous	1 hour	AS/NZS 3580.14	Section 7.2
Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method																												
Siting				AS/NZS 3580.1.1 and AS/NZS 3580.14																												
Sigma Theta	Degrees	Continuous	15 minutes	AS/NZS 3580.14																												
Temperature at 2 m	Kelvin	Continuous	15 minutes	AS/NZS 3580.14																												
Wind Direction	Degrees	Continuous	15 minutes	AS/NZS 3580.14																												
Rainfall	Millimetres	Continuous	1 hour	AS/NZS 3580.14																												

Condition No.	Condition					Section
	Relative humidity	Percent (%)	Continuous	1 hour	AS/NZS 3580.14	
	Wind speed	Metres per second	Continuous	15 minutes	AS/NZS 3580.14	
M5.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.					Section 8.3
M5.2	The record must include details of the following: a. the date and time of the complaint; b. the method by which the complaint was made; c. any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; d. the nature of the complaint; e. the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and f. if no action was taken by the licensee, the reasons why no action was taken.					Section 8.3
M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.					Section 8.3
M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.					Section 8.3
M6.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.					Section 8.3
M6.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.					Section 8.3
M6.3	The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.					Noted
Reporting Conditions						
R2 Note:	The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.					Section 8.1, Section 8.2
R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.					Section 1.1
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.					Section 1.1



## 2.3 Environmental Assessment Commitments

The Statement of Environmental Effects approved for Modification 3 of DA 344-11-2001 (Umwelt, 2019) contained a number of commitments relating to air quality management. The commitments and the section of this AQMP where they are addressed is provided in **Table 2.3**.

**Table 2.3 Air Quality Environmental Assessment Commitments**

Commitment	Section
Air quality will continue to be managed via the Quarry's existing AQMP, which will be updated to include the proposed Quarry extension.	Completed – refer to AQMP V2.2
Direct placement of overburden and soil will be undertaken where possible, to reduce double handling, potential for wind erosion and haulage distances.	Section 6.2
Where practical, the double handling of material will be minimised (i.e. direct movement of rock to the processing plant).	Section 6.2
Disturbance of long-term soil stockpiles and waste emplacements will be avoided where possible, or temporary rehabilitation will be undertaken.	Section 6.3
The existing air quality monitoring program is considered suitable for operations associated with the Proposed Modification.	Section 7.0

## 3.0 Objectives and Outcomes

**Table 3.1** presents the objectives and key performance outcomes relating to air quality management for the AQMP and the Quarry.

**Table 3.1 Air Quality Management Objectives and Key Performance Outcomes**

Objectives	Key Performance Outcomes
<b>To implement appropriate air quality management and mitigation measures during all stages of Quarry operation so as to minimise harm to the environment.</b> <b>To demonstrate compliance with air quality criteria.</b>	All identified air quality management and mitigation measures implemented. No exceedances of the air quality criteria identified in <b>Section 5.0</b> attributable to Quarry operations.
<b>To implement a monitoring program to establish compliance with relevant criteria during all stages of Quarry operation.</b>	All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals. Results reported in the Annual Review.
<b>To implement an appropriate complaint handling and response protocol.</b>	Complaints documented and responded to in accordance with <b>Section 8.3</b> of this AQMP. Complaints and responses documented and reported in the Annual Review.
<b>To implement appropriate corrective and preventative actions, if required.</b>	Corrective and preventative actions implemented, documented and reported.
<b>To implement an appropriate incident reporting program, if required.</b>	Incidents (if any) reported in accordance with <b>Section 8.1</b> and <b>Section 8.2</b> of this AQMP.

## 4.0 Local Setting and Baseline Quality

### 4.1 Local Setting

#### 4.1.1 Local Terrain and Land Use

The Quarry Site and surrounding region is defined by undulating topography, with an elevated ridgeline immediately to the southeast and the broader elevated terrain of the Great Dividing Range further to the east.

The land use of the area is a mixture of cleared agricultural land, residential development, active forestry and industrial development. With respect to the primary sources of air emissions, the Quarry Site adjoins the Lidsdale State Forest and is bounded to the north-west by the Great Western Highway. Rural residential properties are located to the north of the Great Western Highway and the town of Wallerawang is located approximately 2 km to the north.

The existing air quality environment in the vicinity of the Quarry Site is expected to be influenced by industrial development of the surrounding area, including:

- The Mount Piper Power station located approximately 8 km to the north.
- The Lidsdale coal siding located approximately 4 km to the north.
- The Springvale Colliery located approximately 4.5 km to the north-east.
- The Metromix Marrangaroo Quarry located approximately 3.5 km to the south-east.

Considering the local land uses, the local airshed will also be influenced by:

- Wind-generated dust from exposed areas.
- Fugitive dust emissions from agricultural activities during dry conditions.
- Dust entrainment due to vehicle movements along unsealed and sealed roads.
- Seasonal emissions from household wood heaters.
- Vehicle emissions from populated areas such as Lithgow.
- Episodic emissions from vegetation fires.
- Long-range transport of fine particles into the region.

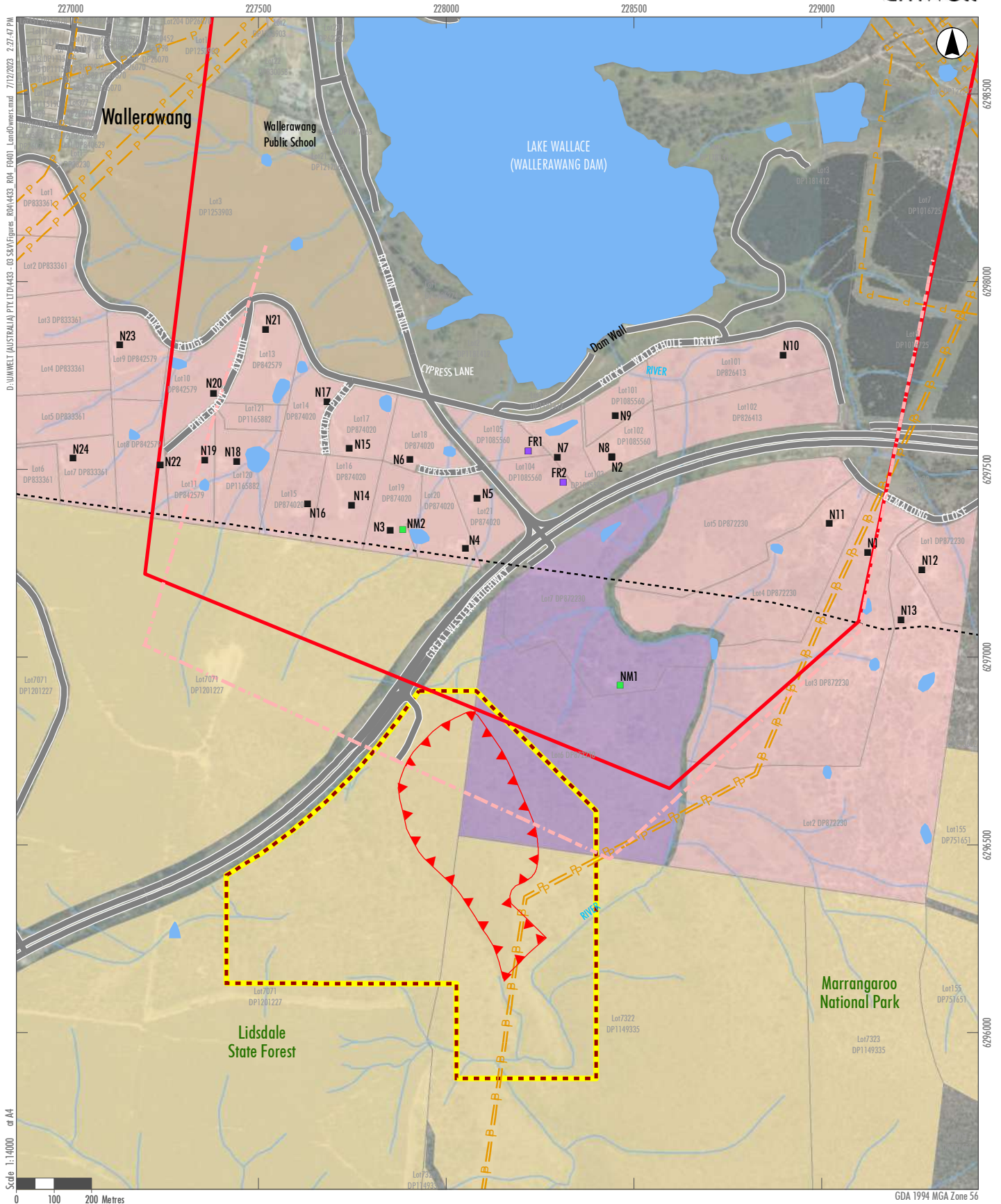
#### 4.1.2 Sensitive Receivers

There are 26 residential sensitive receptor receivers within 1 km of the Quarry (refer to **Figure 4.1**).

A further two properties on Rocky Waterhole Drive have also been identified as likely to have residences built on these in the coming years and they are identified as Future Residences (FR) on **Figure 4.1**.

The locations of these have been assumed to be in the most exposed location on the property. There are no sensitive locations such as schools, churches or major urban development are located near the Quarry.





Scale 1:14000 or A4

#### Legend

- |  |                      |
|--|----------------------|
| Project Site                             | Land Ownership       |
| Project Quarry Site Mining Lease         | Crown Land           |
| Modified Notification Area               | Lithgow City Council |
| Approved Extraction Area                 | Private landholdings |
| Wallerawang Dam Notification Area        | Quarry-related       |
| Residential Receiver Locations           |                      |
| Non-residential Receiver Location (shed) |                      |
| Future Residential Receiver Locations    |                      |

FIGURE 4.1

Land Ownership and Sensitive Receivers

### 4.1.3 Ambient (Background) Air Quality Levels

The following monitoring data from the region was reviewed (Ramboll, 2019) to establish background air quality levels in the vicinity of the Quarry:

- The dust deposition monitoring program of the Quarry.
- Dust deposition, particulate matter of less than 10 microns in size (PM<sub>10</sub>) and 2.5 microns in size (PM<sub>2.5</sub>) monitoring data collected for the Mount Piper Ash Emplacement Project (and reported in the Mount Piper 2018 Annual Environmental Management Report (AEMR)).
- The Office of Environment and Heritage (OEH) (a division of the DPE) particulate matter monitoring station at Bathurst.

Based on the reviewed data, the following baseline concentrations of particulate matter have been established:

- Annual average PM<sub>10</sub> concentration – 18.8 micrograms per cubic metre (µg/m<sup>3</sup>).
- Annual average PM<sub>2.5</sub> concentration – 7.0 µg/m<sup>3</sup>.
- Annual average total suspended particulate (TSP) concentration – 47.1 µg/m<sup>3</sup>.
- Annual average dust deposition – 1.5 grams per square metre per month (g/m<sup>2</sup>/month).

### 4.1.4 Predicted Air Quality Impacts of the Quarry

#### 4.1.4.1 Airborne Particulate Matter

Dispersion modelling completed by Ramboll (2019) predicted a minor increase in annual average PM<sub>10</sub>, PM<sub>2.5</sub>, and TSP concentrations at the identified sensitive receivers (refer to **Figure 4.1**) because of Quarry operations. The predicted increases were:

- PM<sub>10</sub> predicted to increase by between 0.1 and 0.9 µg/m<sup>3</sup>.
- PM<sub>2.5</sub> predicted to increase by between 0.04 and 0.2 µg/m<sup>3</sup>.
- TSP predicted to increase by between 0.4 and 2.9 µg/m<sup>3</sup>.

The highest predicted contribution to 24-hour average PM<sub>10</sub> and PM<sub>2.5</sub> is 10.3 µg/m<sup>3</sup> and 2.8 µg/m<sup>3</sup> respectively.

#### 4.1.4.2 Dust Deposition

The annual average dust deposition concentration at the identified sensitive receivers (refer to **Figure 4.1**), were predicted to increase by no more than 0.4 g/m<sup>2</sup>/month, with most increases predicted to be 0.2 g/m<sup>2</sup>/month (Ramboll, 2019).

## 5.0 Air Quality Criteria

In accordance with Schedule 3, Condition 11 of DA 344-11-2001, the air quality criteria for all operations at the Quarry are provided in **Table 5.1**.

**Table 5.1 Air Quality Criteria**

Pollutant	Averaging Period	Criterion
Total suspended particulates (TSP)	Annual <sup>a,c</sup>	90 µg/m <sup>3</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour <sup>b</sup>	50 µg/m <sup>3</sup>
	Annual <sup>a,c</sup>	25 µg/m <sup>3</sup>
Particulate matter < 2.5 µm (PM <sub>2.5</sub> )	24 hour <sup>b</sup>	25 µg/m <sup>3</sup>
	Annual <sup>a,c</sup>	8 µg/m <sup>3</sup>
Deposited dust <sup>d</sup>	Annual Incremental Increase	2 g/m <sup>2</sup> /month <sup>b</sup>
	Annual Average Total Deposited Dust	4 g/m <sup>2</sup> /month <sup>a</sup>

<sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

<sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

<sup>c</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.

<sup>d</sup> 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.

Walker Quarries does not hold any agreements with any landowner to exceed the air quality criteria.

## 6.0 Air Quality Management System

### 6.1 Risk Impact

The results of air quality monitoring undertaken in accordance with previous versions of the AQMP have confirmed compliance with annual average dust deposition criteria. Occasional elevated monthly values recorded have been investigated and generally attributed to local environmental conditions or land uses, i.e. factors independent of the Quarry operations.

### 6.2 Standard Management Measures

The Quarry has been designed with an objective to minimise the air quality generated by extraction, processing and transport activities. **Table 6.1** outlines the various proactive controls to be implemented to minimise the potential for dust emissions.

**Table 6.1 Proactive controls to minimise dust emissions**

Task/Activity	Pre-Emptive Control Measures and Actions
<b>Induction</b>	<ul style="list-style-type: none"> <li>All employees and contractors are to be informed of the need to minimise dust generation on site through inductions and site-based training.</li> <li>Operational personnel will be provided instruction on operating practices to minimise dust generation.</li> <li>All employees and contractors will be encouraged to report dust issues to their supervisor immediately to avoid the problem developing into a non-compliance issue.</li> </ul>
<b>Quarry Design and General Earthworks</b>	<ul style="list-style-type: none"> <li>Quarry design will be optimised to minimise: <ul style="list-style-type: none"> <li>Travel distances for equipment.</li> <li>Rehandling of overburden, products and by-products.</li> </ul> </li> <li>Banks and bunds will be stabilised with groundcover to limit the potential for dust lift-off.</li> <li>Mobile equipment will be regularly maintained and serviced to maximise efficiency.</li> <li>Overburden and soil will be directly transferred to rehabilitation areas where possible to reduce the double handling of material, potential for wind erosion and haulage distances.</li> <li>Blasted rock will be transferred directly from active Quarry areas to the crushing plant (no intermediate stockpiles) to minimise double handling.</li> <li>Long-term soil and overburden stockpiles will be stabilised through methods described in the Rehabilitation Management Plan (RMP).</li> </ul>
<b>Vegetation clearing and soil stripping</b>	<ul style="list-style-type: none"> <li>Disturbance activities will be limited to that required to maintain site operations.</li> <li>Soil stockpiles will be stabilised through methods described in the RMP.</li> <li>Clearing and soil stripping will be undertaken preferentially between April and September when conditions are cooler and wetter.</li> </ul>

Task/Activity	Pre-Emptive Control Measures and Actions
	<ul style="list-style-type: none"> <li>Clearing and stripping activities will not be scheduled when temperatures exceeding 35°C are forecast with high wind conditions.</li> <li>Active disturbance areas will be minimised by progressively rehabilitating areas of the site that are no longer required for Quarry operations, where possible, in accordance with the RMP.</li> </ul>
<b>Drill and Blast Activities</b>	<ul style="list-style-type: none"> <li>Blasts will be scheduled to avoid higher wind conditions, especially when southerly or easterly winds prevail (which may result in a plume of particulate matter towards the most affected receivers to the north and west).</li> <li>Weather forecast monitoring for excessive wind conditions and adverse wind direction (towards the Great Western Highway and Wallerawang) will be undertaken in the days leading up to and on the day of each blast as described in the Blast Management Plan (BMP).</li> <li>Blasts will be restricted in size (generally &lt;60,000t).</li> <li>Regular watering of active extraction areas will be undertaken.</li> </ul>
<b>Load and Haul of Quarry Materials</b>	<ul style="list-style-type: none"> <li>Care will be taken to avoid spillage during loading.</li> <li>Drop heights will be minimised.</li> <li>Load sizes of internal haul trucks will be limited to ensure material does not extend above truck sidewalls.</li> <li>Activities will be modified or will not be scheduled during high wind periods.</li> </ul>
<b>Crushing and Processing Operations</b>	<ul style="list-style-type: none"> <li>The mobile crushing units will generally be operated within the extraction area and shielded from wind by a bund wall or highwall.</li> <li>Conveyor transfer points will be partially enclosed and be fitted with water sprays.</li> <li>Drop heights from trucks to stockpiles, front-end loaders to hoppers and trucks, and conveyors will be minimised.</li> </ul>
<b>Truck Loading and Vehicle Movements</b>	<ul style="list-style-type: none"> <li>Vehicles travelling within the Quarry Site will be limited 40 km/hr.</li> <li>Trucks entering and leaving the Quarry Site that are carrying loads will be covered at all times, except during loading and unloading.</li> <li>All trucks leaving the Quarry will make use of the wheel wash facility to limit dust tracking onto the Great Western Highway.</li> <li>Truck queuing and unnecessary idling of trucks and unnecessary trips will be reduced through logistical planning, where possible.</li> </ul>
<b>Road Maintenance</b>	<ul style="list-style-type: none"> <li>The seal on the Quarry Access Road between the Great Western Highway and the wheel wash will be maintained to reduce dust tracking, degradation and surface dust lift-off.</li> <li>As soon as practicable after clearing, all internal roads and hardstand surfaces subject to regular traffic will be surfaced with well graded materials to limit dust lift-off.</li> <li>Compacted gravel surfaces will be regularly watered and compacted to reduce the mobilisation of wheel generated dust.</li> </ul>
<b>Water Application</b>	<ul style="list-style-type: none"> <li>A water cart will be operated as required, in accordance with the Soil and Water Management Plan (SWMP).</li> <li>The number of applications will be at the direction of the Quarry Manager and consider factors including:</li> </ul>



Task/Activity	Pre-Emptive Control Measures and Actions
	<ul style="list-style-type: none"> <li>○ the task to be carried out, noting activities such as soil stripping will generate greater dust emissions</li> <li>○ location of the works, noting the applications to be concentrated on active or highly trafficked areas</li> <li>○ visible dust emissions.</li> <li>• The Quarry will retain a record of water application with the application rate reviewed regularly by the Quarry Manager. Indicative application rates under various meteorological conditions are provided in the SWMP. Water usage for the purpose of dust suppression will be reported in the Annual Review.</li> <li>• Water application is to be carried to avoid unsafe / slippery conditions.</li> </ul>
<b>Water Cart Availability</b>	<ul style="list-style-type: none"> <li>• In the circumstance where no water cart is available due to unplanned maintenance, water supply issues etc. a review of activities and weather conditions will be completed. Quarry operations may be suspended (refer also to <b>Appendix 1</b>).</li> <li>• Where works are suspended, these will not re-commence until dust control measures are reinstated.</li> </ul>
<b>Pre-watering prior to works commencing during dry conditions</b>	<ul style="list-style-type: none"> <li>• When it is evident that the road surface or work area may generate dust, the area that is to be utilised during the shift is to be watered prior to works commencing. This includes access roads, haul roads and work areas.</li> </ul>

## 6.3 Supplementary Measures

Walker Quarries implements a dust TARP (Appendix 1), which provides corrective actions to be taken where a trigger has been observed.

## 6.4 Best Practice

Schedule 3, Conditions 13(a) and 14(b) of DA 344-11-2001 require the application of best practice air quality management at the Quarry. The air quality management measures described in **Section 6.2** and **Section 6.3** demonstrate consideration of both design and operational controls to reduce dust levels. Air quality modelling undertaken for the Quarry identified compliance with air quality criteria could be achieved even in scenarios where all emission sources were operating concurrently in exposed surface locations.

Walker Quarries are committed to implementing the controls in **Sections 6.2** to **Section 6.3** and will continue to present outcomes of management effectiveness within the Annual Review, along with consideration of management controls which have become available during the previous 12 months and could be utilised at Wallerawang Quarry. Where new management controls become available and their use is intended, this AQMP will be updated accordingly.

## 7.0 Air Quality Monitoring Program

### 7.1 Introduction

This section describes the air quality monitoring program that will be implemented to meet the conditions of DA 344-11-2001 and EPL 13172, and assist Walker Quarries to protect the local environment, the amenity of the surrounding rural setting and to minimise the likelihood of air quality-related complaints.

### 7.2 Meteorological Monitoring

**Figure 7.1** identifies the location of a meteorological station installed in accordance with Schedule 3, Condition 15 of DA 344-11-2001 and Condition M4.1 of EPL 13172. The meteorological station is located away from natural or artificial obstructions and areas with the potential to influence local thermodynamics, e.g. concrete or bitumen surfaces, generally in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in NSW (EPA, 2022, which supersedes Department of Environment and Conservation (DEC), 2007).

The parameters, units of measure, averaging period and frequency recorded by the meteorological station are specified in **Table 7.1** and are compliant with Condition M4.1 of EPL 13172.

**Table 7.1 Meteorological Monitoring**

Parameter	Units of Measure	Frequency	Averaging Period
Rainfall	mm	Continuous	1 hour
Air temperature (2 m and 10 m)	°C	Continuous	10 minutes
Relative humidity	%	Continuous	10 minutes
Wind direction at 10 m	°	Continuous	10 minutes
Wind speed at 10 m	m/s	Continuous	10 minutes
Sigma theta	°	Continuous	10 minutes

Wind measurements comply with AS 3580.14-2014: Methods for sampling and analysis of ambient air, Meteorological monitoring for ambient air quality monitoring applications (Standards Australia, 2014).

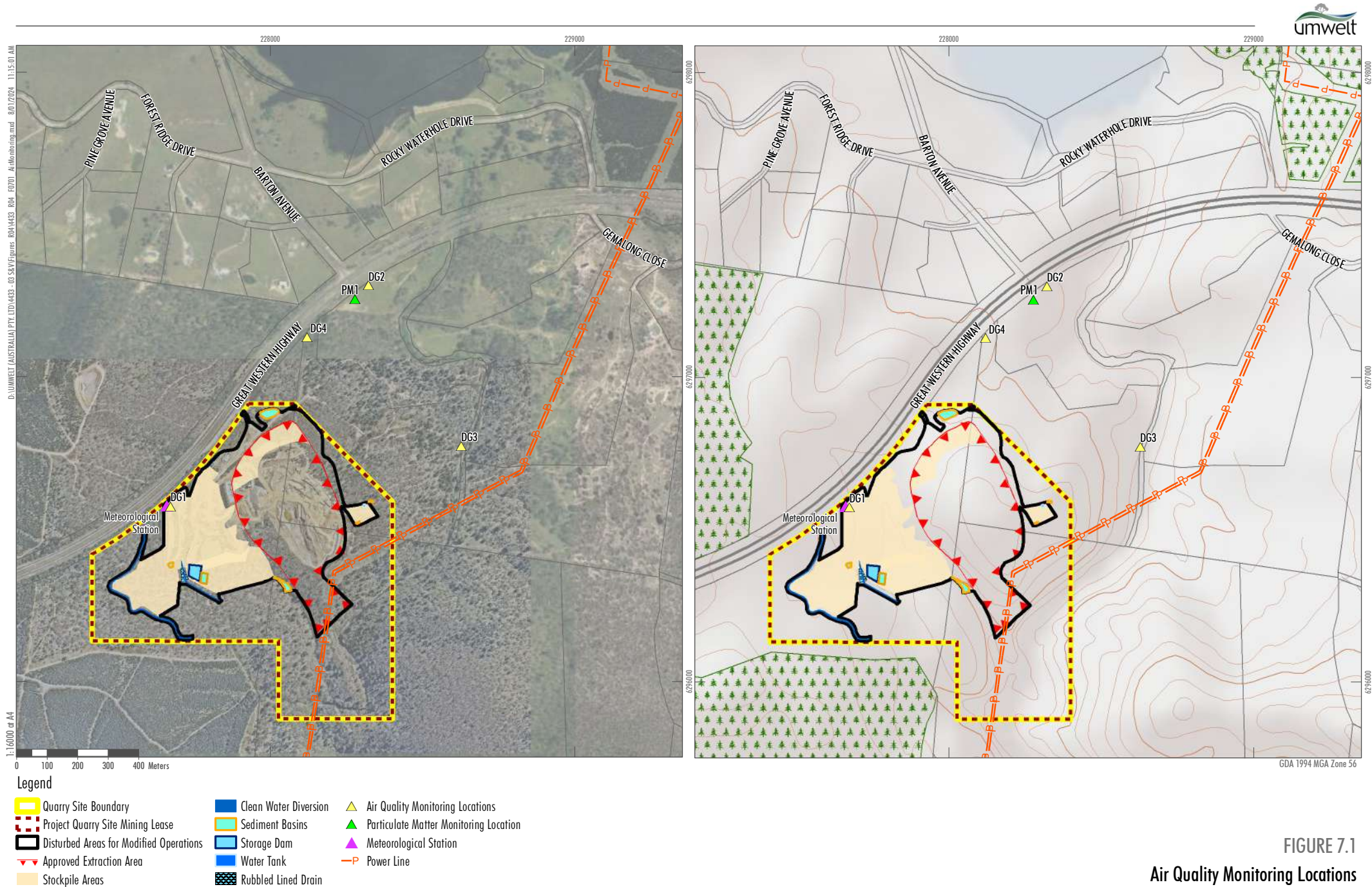
### 7.3 Emissions Monitoring

To demonstrate compliance with the air quality criteria described in **Section 5.0**, Walker Quarries will implement an air emissions monitoring program as described in **Table 7.2**. The following subsections describe the methodology, frequency, analysis and evaluation of monitoring results.

**Table 7.2 Ambient Air Quality Monitoring Program**

Pollutant	Units of Measure	Averaging period	Frequency	Sampling Method <sup>1</sup>	Australian Standard
Deposited Dust	g/m <sup>2</sup> /month	Annual	Monthly	AM-19	3580.10.1-2016
PM <sub>10</sub> / PM <sub>2.5</sub>	µg/m <sup>3</sup>	24 Hour, Annual	Continuous	AM-18	3580.9.9-2017
TSP Matter	µg/m <sup>3</sup>	Annual			

<sup>1</sup> For more information refer to DEC (now EPA) 2007, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.





### 7.3.1 Deposited Dust

The deposited dust gauges have been installed in accordance with Australian Standard (AS) AS 3580.10.1-2016.

Four gauges (**Table 7.3**) have been established to monitor ambient air quality (**Figure 7.1**). The locations have been chosen to allow for an assessment of the levels discharging from the Quarry Site or land owned by the Company.

**Table 7.3 Deposited Dust Gauge Locations**

Gauge Name	Location	Purpose
<b>DG1</b>	North-western perimeter of the Quarry Site	To assess dust leaving the Quarry in this direction (which could potentially affect traffic on the Great Western Highway).
<b>DG2</b>	North of the Quarry Site	To provide an indication of dust levels which could be received at residential receivers of Rocky Waterhole Drive to the north of the Great Western Highway.
<b>DG3</b>	Northeast of the Quarry Site	The most safe and practical location for the dust gauge between the quarrying operations and residential receivers to the northeast.
<b>DG4</b>	Within a cleared easement on the Company owned property to the direct north of the quarry operations.	This will allow for dust levels which could affect property owners of Cypress Place to the north to be monitored and also improves access and safety for personnel collecting and replacing the gauge each month.

Deposited dust monitoring is undertaken in accordance with the following documents:

- Approved methods for the sampling and analysis of air pollutants in NSW (EPA, 2022) and the relevant Ambient Air Monitoring Methods:
  - AM-1: Ambient Air – Guide for the Siting of Sampling Units (AS 2922:1987).
  - AM-19: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method (AS/NZS 3580.10.1:2016).

The following sampling records will be maintained as required by EPL 13172:

- The date(s) on which the sample was taken.
- The time(s) at which the sample was collected.
- The point at which the sample was taken.
- The name of the person who collected the sample.
  - Deposited dust levels will be analysed by a National Association of Testing Authorities (NATA) registered laboratory in accordance with AS 3580.10.1 – 2016 and yield data:



- Insoluble solids comprising
  - Combustible material.
  - Ash ( $\text{g/m}^2/\text{month}$ ).
- Soluble solids.
- Total solids (being the accumulation of insoluble and soluble material).

All measurements are presented in units of  $\text{g/m}^2/\text{month}$ .

- A copy of monthly dust monitoring results will be reviewed internally, and periodically by an external environmental consultant, with a rolling 12-month average compared against dust deposition criteria.
- A comprehensive summary of deposited dust monitoring results will be made available on the Walker Quarries website in accordance with Schedule 5, Condition 17(a)(vii) of DA 344-11-2001.

### 7.3.2 Particulate Matter

Monitoring of  $\text{PM}_{2.5}$ ,  $\text{PM}_{10}$  and TSP is undertaken using a Dust Master Pro real-time particulate monitoring unit located to the north of the Quarry on Lot 7 DP872230 and known as site PM1 (refer to **Figure 7.1**). The location has been chosen on the basis of:

- Being located between dust emitting operations of the Quarry Site and residential receivers most likely to be affected by the operations.
- Being located a sufficient distance from remnant woodland vegetation to avoid canopy interference (in accordance with AS 2922:1987).
- Proximity to electricity supply by mains power.

The Dust Master Pro conforms to AS/NZS 3580.9.6:2015 Methods for sampling and analysis of ambient air and has the capacity for real-time measurement of up to 5 particulate matter fractions simultaneously. Walker Quarries will monitor  $\text{PM}_{2.5}$ ,  $\text{PM}_{10}$  and TSP.

Remotely accessible software will provide Quarry Management with real-time particulate monitoring data to support active air quality management decisions and assisting with monitoring reporting requirements.

- A comprehensive summary of particulate matter monitoring results will be made available on the Walker Quarries website in accordance with Schedule 5, Condition 17(a)(vii) of DA 344-11-2001.

An alert system has been established which provides the Quarry Manager with an email following any 24-hour period (midnight to midnight) when:

- 24 hr average  $\text{PM}_{10}$  exceeds  $50\mu\text{g/m}^3$
- 24 hr average  $\text{PM}_{2.5}$  exceeds  $25\mu\text{g/m}^3$
- the alert allows for an investigation to be undertaken immediately following an event indicating an exceedance.

## 8.0 Incident and Compliance Management

### 8.1 Incident Identification

Condition R2 of EPL 13172 requires that Walker Quarries must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident. An incident which causes or threatens to cause material harm to the environment (and an exceedance of air quality criteria) is referred to as a pollution incident.

In accordance with the definition provided by Section 147 of the Protection of the Environment Operations Act 1997 (POEO Act), harm to the environment is deemed to be material if:

2. it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or
3. it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations).

An incident which is only an exceedance of air quality criteria, is referred to as a non-compliance.

An incident which causes or threatens to cause material harm to the environment is referred to as a pollution incident.

### 8.2 Incident and Non-compliance Management and Reporting

Following identification of an incident, an investigation will be commenced into the source of the pollution, non-compliance or complaint in accordance with the response and corrective actions described in **Section 6.3**.

Following confirmation of an air quality pollution incident, the Quarry Manager will immediately notify DPHI and EPA of the incident and actions being taken to remediate the source of the pollution. Within 30 days of the incident, a detailed report will be provided to DPHI in accordance with Appendix 3 of DA 344-11-2001, and to EPA in accordance with Condition R2 of EPL 13172.

Walker Quarries will also notify other regulatory authorities and the local community (as relevant) in accordance with the procedures nominated in the Quarry Pollution Incident Management Response Management Plan (PIRMP).

Within seven days of becoming aware of a non-compliance, Walker Quarries will provide written notification to the DPHI identifying the nature of the non-compliance and the actions taken to address the non-compliance.

If an exceedance of particulate matter criteria is detected in real-time, Walker Quarries will undertake corrective actions as necessary, as described in **Section 6.3**. An investigation will also be conducted into meteorological and regional factors that may have contributed to the exceedance.

If an exceedance result is assessed to be anomalous due to factors beyond the control of Walker Quarries, and Walker Quarries proposes to exclude the result from data from reporting calculations, the DPHI will be notified of the investigation, outcomes and provided with a request to exclude following the conclusion of the investigation. Unless advised otherwise by the relevant authorities, the anomalous result will then be excluded from calculations.

If the incident was identified following receipt of complaint, the complainant will also be provided with a report confirming the incident, source or cause of the incident, actions taken and ongoing management to prevent subsequent incident (see also **Section 6.2**).

Within three months of the submission of an incident report, Walker Quarries will review this AQMP and notify the DPHI of the review. Where a revision is necessary, the revised AQMP will be submitted to the DPHI within six weeks of notification of the review.

A summary of all incidents, including dates of occurrence, corrective measures taken and success of these measures will be compiled and reported in the Annual Return to the EPA and the Annual Review to the DPHI.

### 8.3 Air Quality Related Complaints

A Complaints Management Procedure is provided in Section 6.2 of the Environmental Management Strategy (EMS). Walker Quarries operates a telephone line available for complaints, which is provided on the company website.

Following receipt of a complaint, appropriate action will be taken to determine the cause of the complaint and identify appropriate actions to remediate the complaint source. The following details will be recorded following receipt of any air quality related complaint:

- The date and time of the complaint.
- The method by which the complaint was made.
- Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- The nature of the complaint.

Within 48 hours of receipt of a complaint, action to identify the cause of the complaint and identify appropriate actions to respond to the complaint will be commenced. On completion of actions to address the complaint, the following information will be added to the internal complaint record:

- The action taken in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken, the reasons why no action was taken.
- Complaint records will be stored for at least four years from when the complaint was made, and will be made available to any authorised EPA officer who asks to see them.
- A public complaints register is maintained on the Walker Quarries website and is updated monthly.

## **9.0 Data Management and Reporting**

### **9.1 Review and Recording of Monitoring Data**

Walker Quarries will retain records of meteorological monitoring and air quality monitoring for a minimum period of four years. Monitoring records will be made available in a legible form to relevant government authorities following a written request.

### **9.2 Reporting and Publication of Monitoring Data**

A comprehensive summary of air quality monitoring results will be made available on the Quarry website and Walker Quarries will include a review of the results in the Annual Review. In accordance with the requirements of Section 66(6) of the POEO Act, each month Walker Quarries will publish a meaningful summary of all ambient pollution monitoring data on the company's website. The summary will be published within 14 days of obtaining the monthly monitoring data. In addition, Walker Quarries will provide a copy of obtained data to a member of the public when requested in writing. These requirements are presented in detail in Requirements for Publishing Pollution Monitoring Data (EPA, 2013).

A summary of all monitored data will be included in the Annual Return submitted to the EPA and the Annual Review submitted to the DPHI.

## 10.0 Plan Implementation

### 10.1 Roles and Responsibilities

Table 10.1 outlines the roles and responsibilities of personnel with reference to management of air quality.

**Table 10.1 Roles and Responsibilities of Personnel with Respect to Management of Air Quality**

Role	Responsibilities
<b>Managing Director</b>	<p>Ensure adequate resources are available to implement the AQMP.</p> <p>Ensure suitably trained personnel are available to implement the responsibilities of the Quarry Manager during any time of the Quarry Manager's absence from site.</p>
<b>Quarry Manager, or his/her nominee</b>	<p>Ensure the implementation of the AQMP.</p> <p>Ensure compliance with the AQMP.</p> <p>Ensure quartzite monitoring requirements are adhered to (in accordance with legislation).</p> <p>Ensure air quality monitoring results are regularly reviewed/evaluated.</p> <p>Ensure reviews of meteorological forecasts are undertaken on a daily basis prior to the commencement of operations.</p> <p>Implementation of the Air Quality Management System (<b>Section 6.0</b>).</p> <p>Relocate or postpone relevant activities in the event of adverse weather conditions.</p> <p>Provide primary contact for complaints and supply follow-up information to any complainant.</p> <p>Initiate investigations of complaints as received from the public or government agency.</p> <p>Prepare a report to government agencies or neighbours following a notifiable pollution incident (<b>Section 8.0</b>).</p> <p>Inform the Managing Director of identified causes of elevated dust and any alterations to site operations that has influenced dust levels.</p> <p>Coordinate the review of the AQMP (<b>Section 10.3</b>).</p>
<b>All On-site Personnel</b>	<p>Operate in a manner that minimises risks of incidents to themselves, fellow workers, or the surrounding environment.</p> <p>Report any anomalous dust plumes or extraordinary events to the Quarry Manager.</p> <p>Follow any instructions provided by the Quarry Manager.</p>
<b>All Truck Drivers</b>	<p>Follow any instructions provided by any on-site personnel.</p>

### 10.2 Competence Training

All personnel and contractors working at the Quarry undergo an induction. This induction includes information on the management of dust while working on site.



Regular toolbox meetings are held to discuss whole-of-site production, management, safety and environmental issues. Matters relating to the mitigation and management of air quality are raised during these meetings, when necessary.

### 10.3 Plan Review

In accordance with the EMS, and Schedule 5, Condition 5 of DA 344-11-2001, the AQMP will be reviewed within three months of the submission of an:

- a. Incident report as defined by **Section 8.1**.
- b. Annual Review.
- c. Independent Environmental Audit.
- d. Any modification to DA 344-11-2001.

Walker Quarries will notify the DPHI in writing of any review being undertaken and if this review results in any revisions to the AQMP, submit a copy to the Secretary of the DPHI for approval (within six weeks of the review). The reviews will ensure the adequacy of the AQMP and allow for opportunities of adaptive management and continual improvement. Each review will also evaluate the effectiveness of the overall air quality monitoring program and whether it needs to be modified.

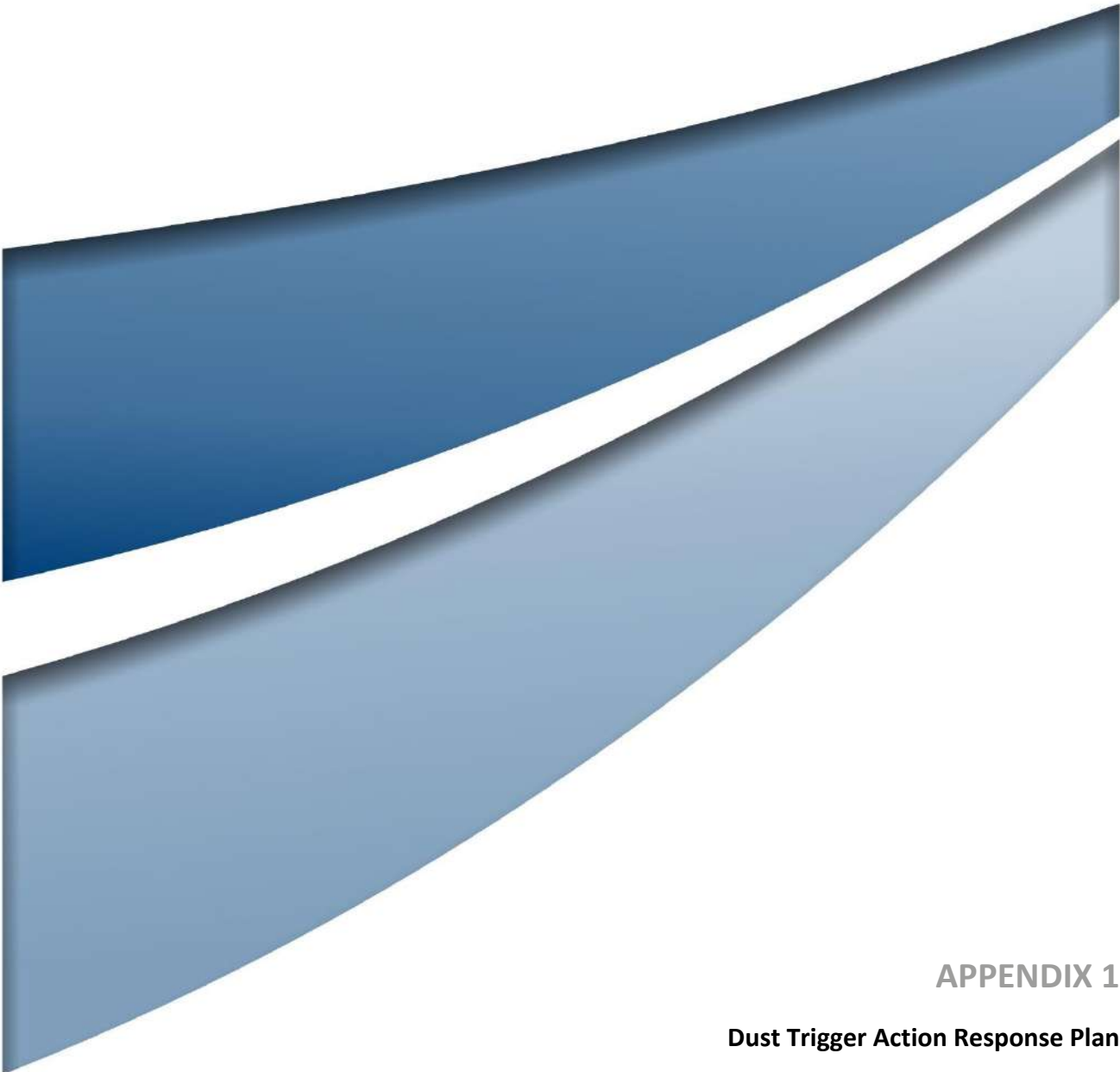
## 11.0 References

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## APPENDIX 1

### Dust Trigger Action Response Plan

	Normal Operations		Minor Operational Changes		Major Operational Changes	
Work Area/Equipment	Trigger	Action/Response	Trigger	Action/Response	Trigger	Action/Response
<b>Haul Trucks/Haul Roads</b>	Dust below wheel height 	<ul style="list-style-type: none"> <li>No visible dust observed.</li> <li>Normal activities to proceed subject to standard measures being carried out.</li> <li>Climate – Temperature forecasts to remain below 35 degrees Celsius or wind speed below 20km/h (5.5m/s).</li> </ul>	Dust above wheel height, but below tray height 	<ul style="list-style-type: none"> <li>Quarry Manager to complete inspections of operating equipment and review emissions.</li> <li>Implement Supplementary and targeted dust mitigation measures including: Water application to active zones; Relocation of activities (to utilise natural wind breaks where possible)</li> </ul>	Dust above tray height 	<ul style="list-style-type: none"> <li>Inspect all active and static areas of the Quarry Site and identify locations of excessive dust generation.</li> <li>Suspend operations creating the greatest dust emissions.</li> <li>Increase rate of water application to areas of excessive dust generation static areas of the Quarry Site.</li> </ul>
<b>Dozers</b>		<ul style="list-style-type: none"> <li>No visible dust observed.</li> <li>Normal activities to proceed subject to standard measures being carried out.</li> <li>Climate – Temperature forecasts to remain below 35 degrees Celsius or wind speed below 20km/h (5.5m/s).</li> </ul>		<ul style="list-style-type: none"> <li>Water application to active zones;</li> <li>Relocation of activities (to utilise natural wind breaks where possible.</li> <li>Limit travel speed.</li> <li>Reduce drop height of materials.</li> </ul>		<ul style="list-style-type: none"> <li>Suspend operations creating the greatest dust emissions.</li> <li>Increase rate of water application to areas of excessive dust generation static areas of the Quarry Site.</li> <li>Only recommence work if the dust suppression system is operable, site preparation is adequate and weather conditions permit.</li> </ul>
<b>Excavator/Loaders</b>		<ul style="list-style-type: none"> <li>No visible dust observed.</li> <li>Normal activities to proceed subject to standard measures being carried out.</li> <li>Climate – Temperature forecasts to remain below 35 degrees Celsius or wind speed below 20km/h (5.5m/s).</li> </ul>		<ul style="list-style-type: none"> <li>Water application to active zones;</li> <li>Relocation of activities (to utilise natural wind breaks where possible.</li> <li>Limit tramming or pushing distances.</li> </ul>		<ul style="list-style-type: none"> <li>Suspend operations creating the greatest dust emissions.</li> <li>Increase rate of water application to areas of excessive dust generation static areas of the Quarry Site.</li> </ul>
<b>Drills</b>	No visible dust below deck height 	<ul style="list-style-type: none"> <li>No visible dust observed.</li> <li>Normal activities to proceed subject to standard measures being carried out.</li> <li>Climate – Temperature forecasts to remain below 35 degrees Celsius or wind speed below 20km/h (5.5m/s)</li> <li>Continue to monitor operations.</li> <li>Monitor dust suppression activities.</li> </ul>	Dust visible at deck height 	<ul style="list-style-type: none"> <li>Water application to active zones;</li> <li>Relocation of activities (to utilise natural wind breaks where possible.</li> <li>Assess impact of weather conditions and modify operations as required.</li> </ul>	Emissions of dust above deck height 	<ul style="list-style-type: none"> <li>Suspend operations creating the greatest dust emissions.</li> <li>Increase rate of water application to areas of excessive dust generation static areas of the Quarry Site.</li> <li>Only recommence work if the dust suppression system is operable, site preparation is adequate and weather conditions permit.</li> </ul>

