



## **ENVIRONMENTAL MANAGEMENT STRATEGY**

Wallerawang Quarry

**FINAL**

February 2024



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Wallerawang Quarry

### FINAL

Prepared by  
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on behalf of  
Walker Quarries Pty Ltd

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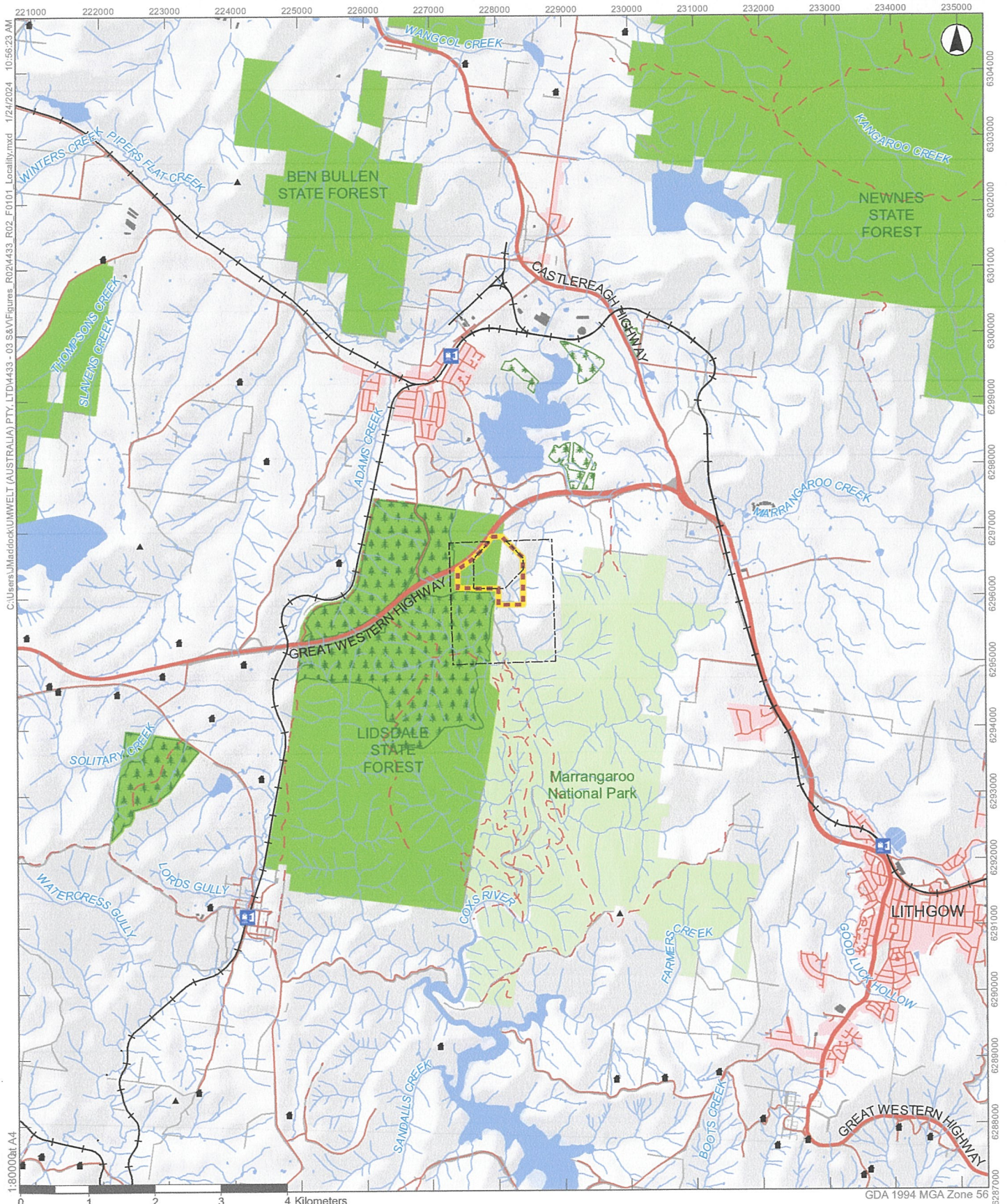
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Appendix 2	Environmental Monitoring Program
Appendix 3	Environmental Compliance Planner Template

# 1.0 Scope

This Environmental Management Strategy (EMS) for the Wallerawang Quarry (the Quarry) has been prepared by Umwelt on behalf of Walker Quarries Pty Limited (Walker Quarries) in accordance with Schedule 5 Condition 1 of Development Consent DA 344-11-2001. This version of the EMS (V4) was prepared following submission of the Annual Review to the Department of Planning and Environment (DPE) (now Department of Planning, Housing and Infrastructure (DPHI)) (30 September 2023), and notification provided to the DPE of the review and proposed revision.

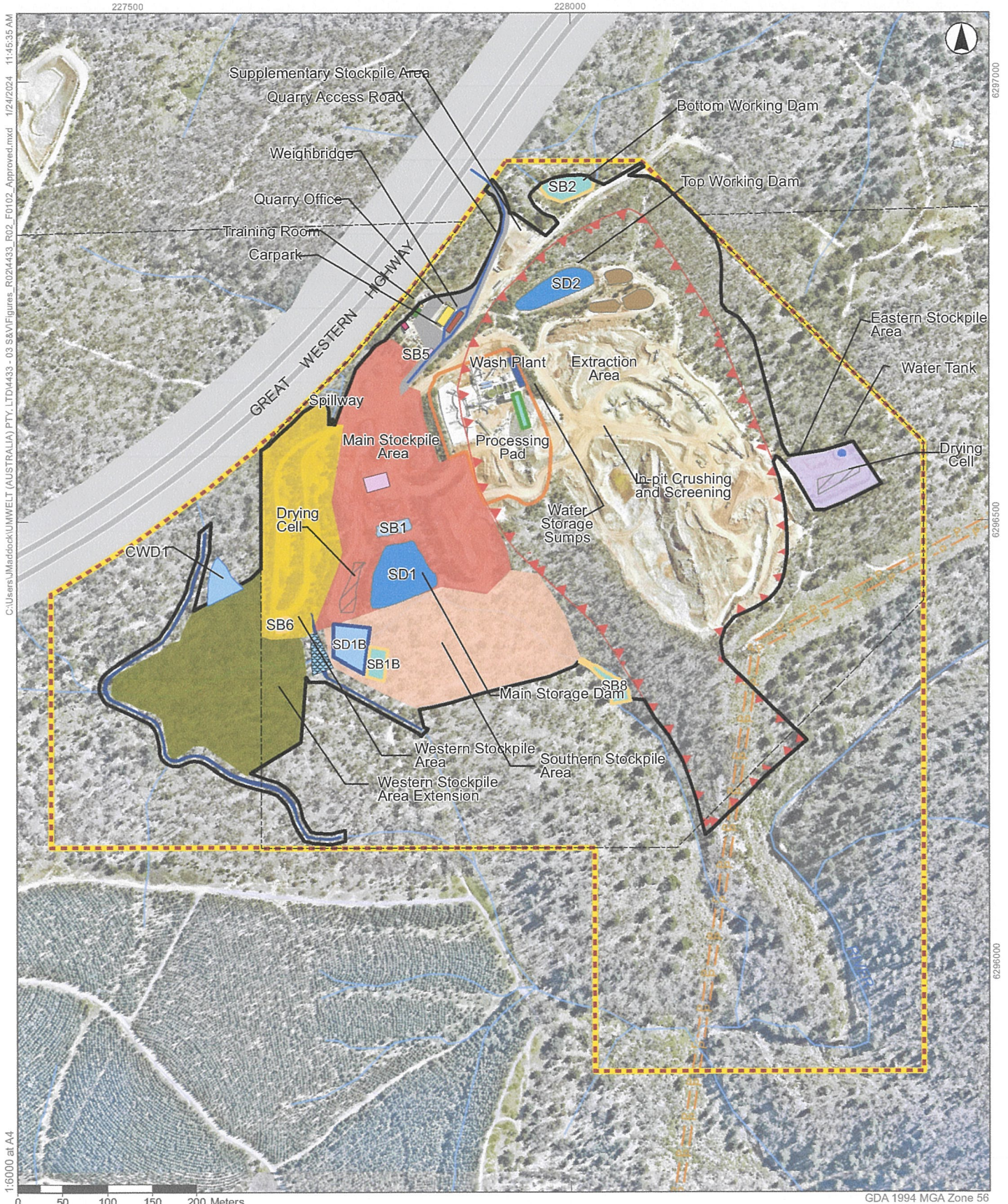
The Wallerawang Quarry (the Quarry) is located approximately 8 kilometres (km) northwest of Lithgow (**Figure 1.1**) and is approved to produce 500 000 tonnes per annum (tpa) of Quarry products. DA 344-11-2001 approves disturbance up to a maximum of 28.6 ha for the purpose of quartzite and other hard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



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

**FIGURE 1.1**  
Locality Plan



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 1:60000 at A4

0 50 100 150 200 Meters

GDA 1994 MGA Zone 56

**Legend**

- |   |  |                  |
|---|--|------------------|
| Quarry Site Boundary                    | Southern Stockpile Area (935m AHD)     | Sediment Basins  |
| Project Quarry Site Mining Lease        | Western Stockpile Area                 | Settlement Ponds |
| EL 4473                                 | Western Stockpile Extension (940m AHD) | Storage Dam      |
| Disturbed Areas for Modified Operations | Eastern Stockpile Area                 | Water Tank       |
| Approved Extraction Area                | Silt Cells                             | Rock-lined Drain |
| Main Stockpile Area (935m AHD)          | Electricity Transmission Lines         | Clean Water Dam  |
| Processing Pad                          | Clean Water Diversion                  |                  |

**FIGURE 1.2**  
Approved Quarry Site Layout



## 2.0 Site Description and Operations

### 2.1 Approved Activities

Approved activities at the Quarry are defined by the conditions of DA 344-11-2001 and are to be undertaken generally in accordance with the descriptions provided in the following documents.

- Environmental Impact Statement for the Proposed Wallerawang Quarry, dated November 2001 (Pacrim Environmental, 2001).
- Environmental Assessment for Modification to Operations at the Wallerawang Quarry (DA 344-11-2001), dated May 2017 (RWC, 2017).
- Statement of Environmental Effects for Proposed Modification No 2 (MOD 2) to DA 344-11-2001 (Wallerawang Quarry), dated October 2018 (RWC, 2018).
- Statement of Environmental Effects for Proposed Modification No 3 (MOD 3) to DA 344-11-2001 (Wallerawang Quarry), dated June 2019 (Umwelt, 2019).

DA 344-11-2004 provides for the annual production of up to 500,000 tonnes (t) of Quarry products until July 2040. Extraction is permitted to a maximum depth of 860 m AHD, with extraction below 901 m AHD being subject to further conditions. **Figure 1.2** presents the approved MOD 3 Quarry Site layout. In summary, the following activities are undertaken, subject to market demand:

- Raw material is extracted using conventional drill and blast, load and haul methods.
- Overburden material is temporarily stockpiled within the footprint of the open cut, with material either used within the site for approved construction activities or sold.
- Processing of raw material involving crushing, screening and washing using fixed or mobile plant to meet customer requirements.
- Product transportation involves loading of road registered trucks. Trucks then enter the Great Western Highway directly from the Quarry Site entrance.
- Progressive rehabilitation will be undertaken where possible, in accordance with the Rehabilitation Management Plan.

Operations at the Quarry commenced in 2014 with the construction of a new intersection with the Great Western Highway. Quarrying activities commenced in late 2014 with the Quarry now producing a range of aggregates, pebbles and sand.

### 2.2 Hours of Operation

All operations will be undertaken in accordance with the approved hours of operation presented in **Table 2.1**.

**Table 2.1 Approved Hours of Operation**

Activity	Permissible Hours
Quarrying operations	7:00 am to 6:00 pm Monday to Friday; 8:00 am to 1:00 pm Saturday; and At no time on Sundays or public holidays.
Loading and despatch of trucks	May be conducted at any time, provided that these activities comply with the noise criteria in Table 2 of DA 344-11-2001.
Blasting	9:00 am to 5:00 pm Monday to Friday; 9:00 am to 1:00 pm Saturday; and At no time on Sundays or public holidays.
Maintenance.	May be conducted at any time, provided that these activities are not audible at any privately-owned residence.

Source: DA 344-11-2001– Schedule 3, Condition 1.

It is noted that under Schedule 2, Condition 3 of DA 344-11-2001, material may be delivered to the Quarry outside of the hours of operation if required by police or other authorities for safety reasons and/or emergency work to avoid the loss of lives, property or to prevent environmental harm. In such circumstances, prior notification shall be provided to the DPHI and affected residents prior undertaking the activities. Where prior notification is not possible, this will be undertaken at the first safe opportunity following the works.

## 3.0 Strategic Framework for Environmental Management

### 3.1 Environmental Policy

The Environmental Policy of Walker Quarries (**Appendix 1**) is to carry out mining, processing, transport and other ancillary activities at the Quarry in a manner that complies with relevant environmental legislation and is environmentally responsible. Walker Quarries is committed to ongoing improvements in its environmental management and aims to undertake regular reviews of this Policy to ensure it remains relevant and appropriate for operations at the time.

In recognition of the corporate Environmental Policy, Walker Quarries will endeavour to meet the following objectives:

- Comply with all applicable Commonwealth and State government legislation to protect the environment.
- Establish effective working relationships with government agencies responsible for land management within and surrounding the Quarry.
- Develop and maintain environmental performance in line with industry standards by implementing an EMS (this document) appropriate to the scale of the operation.
- Operate the established reporting process and verification procedure for any complaints, incidents or non-compliances with statutory approvals.
- Carry out environmental training to ensure that site personnel are aware of their environmental responsibilities.
- Undertake appropriate reviews and audits of operations to measure progress and to ensure compliance with the Environmental Policy.

The Environmental Policy and objectives have been endorsed by Walker Quarries Board of Directors and therefore commit Walker Quarries to achieving its objectives of environmental excellence.

### 3.2 Integrated Management

The EMS provides the overall framework for environmental management and an overall strategy for Quarry personnel to ensure environmental impacts are minimised and legislative requirements are complied with.

The principal strategies described within the EMS, including delegation of responsibilities, compliance management and monitoring, complaints management conflict resolution, consultation/information dissemination processes and adaptive management, form the basis for more detailed descriptions provided in the various technical Environmental Management Plans (EMP) (refer to **Section 6.2**).

## 4.0 Roles and Responsibility

Environmental management at the Quarry is the responsibility of all employees and contractors, with the Quarry Manager having overall responsibility for environmental management of the site. **Table 4.1** outlines the responsibility of Walker Quarries personnel with respect to environmental management of the Quarry Site.

**Table 4.1 Roles and Responsibilities of Personnel with Respect to Environmental Management**

Role	Responsibilities
Managing Director	<ul style="list-style-type: none"> <li>Responsible for the overall compliance and performance of the Quarry and operations.</li> <li>Ensure adequate resources are available to implement the EMS.</li> </ul>
Quarry Manager, or his/her nominee	<ul style="list-style-type: none"> <li>Ensure the implementation of the EMS.</li> <li>Oversee day-to-day environmental and rehabilitation performance across the site.</li> <li>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.</li> <li>Ensure environmental management documentation is up to date and available to site personnel where requested.</li> <li>Ensure the environmental monitoring program is implemented and results are regularly reviewed/evaluated and entered into the environmental database.</li> <li>Provide primary contact for complaints and supply follow-up information to any complainant.</li> <li>Initiate investigations of complaints as received from the public or government agency.</li> <li>Prepare, or commission a report to government agencies or neighbours following a notifiable pollution incident (<b>Section 7.3</b>).</li> <li>Inform the Managing Director of any incidents and measures taken to avoid, remediate or mitigate environmental impacts.</li> <li>Ensure employees are aware of responsibilities through training and awareness programs.</li> <li>Conduct reviews of the EMS (<b>Section 8.2</b>).</li> </ul>
On-site Personnel and Contract Staff	<ul style="list-style-type: none"> <li>Familiarise themselves with environmental management requirements and procedures relevant to their work area.</li> <li>Fully implement the relevant control measures within environmental management documentation.</li> <li>Operate in a manner that minimises risks of incidents to themselves, fellow workers or the surrounding environment.</li> <li>Notify the Quarry Manager of incidents or potential incidents that may result in environmental harm.</li> <li>Follow instruction and procedures issued by Walker Quarries with respect to environmental management.</li> </ul>
Truck Drivers	<ul style="list-style-type: none"> <li>Follow any instructions and procedures issued by any on-site personnel.</li> <li>Ensure loads are covered prior to exiting the Quarry Site.</li> </ul>

# 5.0 Statutory Requirements

## 5.1 Development Consent DA 344-11-2001

This EMS has been prepared in accordance with Schedule 5, Condition 1 of DA 344-11-2001. **Table 5.1** presents where each requirement has been addressed in this document.

**Table 5.1 EMS Requirements of DA 344–11–2001**

Condition No	Condition	Section
<b>Environmental Management Strategy</b>		
Schedule 5, Condition 1	<p>The Applicant shall prepare and implement an EMS for the development to the satisfaction of the Secretary. This strategy must:</p> <ol style="list-style-type: none"> <li>Be submitted to the Secretary for approval within 6 months of the Secretary requiring preparation of the strategy by notice to the Applicant;</li> <li>Provide the overall strategic context framework for environmental management of the development;</li> <li>Identify the statutory requirements approvals that apply to the development;</li> <li>Describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;</li> <li>Describe the detailed procedures that would be implemented to, <ul style="list-style-type: none"> <li>Keep the local community and relevant agencies informed about the operation and environmental performance of the development</li> <li>Receive, record, handle and respond to complaints;</li> <li>Resolve any disputes that may arise during the course of the development;</li> <li>Respond to any non-compliance and any incident;</li> <li>Respond to emergencies; and</li> </ul> </li> <li>Include: <ul style="list-style-type: none"> <li>copies of any strategies, plans and programs approved under the conditions of this consent; and</li> <li>a clear plan depicting all monitoring to be carried out under the conditions of this consent.</li> </ul> </li> </ol> <p>The Applicant must implement the Environmental Management Strategy as approved from time to time by the Secretary.</p>	<p>Noted</p> <p><b>Section 3.0</b></p> <p><b>Section 5.0</b></p> <p><b>Section 4.0</b></p> <p><b>Section 7.1</b></p> <p><b>Section 7.2.1</b></p> <p><b>Section 7.2.2</b></p> <p><b>Section 7.3, Section 7.4</b></p> <p><b>Section 7.5</b></p> <p><b>Section 6.2, Appendix 2</b></p> <p><b>Section 6.3, Appendix 2</b></p> <p>Noted</p>
<b>Management Plan Requirements</b>		
Schedule 5, Condition 4	<p>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.</p>	<p><b>Section 4.0, Section 6.2</b></p>

Condition No	Condition	Section
Schedule 5, Condition 5	<p>Within 3 months of the submission of an:</p> <p>(a) incident report under condition 9 below</p> <p>(b) Annual Review under condition 11 below</p> <p>(c) audit report under condition 14 below</p> <p>(d) any modifications to this consent,</p> <p>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.</p>	Section 8.2

## 5.2 Environment Protection Licence 13172

Environment Protection Licence (EPL) 13172 has been issued by the NSW Environment Protection Authority (EPA). The following scheduled activities, as defined by the *Protection of the Environment Operations Act 1997* will be approved for the Quarry:

- Crushing, grinding or separating: >100 000 to 500 000 tonnes processed.
- Land-based extractive activity: >100 000 to 500 000 tonnes extracted processed or stored.
- Mining for minerals: >100 000 to 500 000 tonnes produced.

## 5.3 Mining Leases

Mineral Authorities issued to Walker Quarries for the Quarry are listed in **Table 5.2** below.

**Table 5.2 Mineral Authorities**

Issuing Authority	Approval Number	Date of Issue	Expiry	Minerals
Minister for Natural Resources (under delegation)	Exploration Licence (EL) 4473	13 January 1993	12 January 2023 (renewal pending)	Group 2
	EL 9255	23 July 2021	23 July 2026	Group 2
Minister for Industry, Resources & Energy (under delegation)	Mining Lease (ML) 1633	15 July 2009	15 July 2040	Quartzite
Minister for Natural Resources (under delegation)	ML 1864 ML 1865	27 October 2023	27 October 2044	Quartzite

# 6.0 Environmental Performance Management and Monitoring

## 6.1 Environmental Management Objectives and Outcomes

Walker Quarries principal objectives and key performance outcomes in the development and operation of the Quarry Site are listed in **Table 6.1**. These objectives and key performance outcomes will be updated following any review or modification of the relevant management plans to improve environmental performance for the Quarry.

**Table 6.1 Environmental Objectives and Outcomes**

Objectives	Key Performance Outcomes
<b>General</b>	
To ensure compliance with the conditions of DA 344-11-2001 and EPL 13172 and reasonable community expectations.	<ul style="list-style-type: none"> <li>Compliance with all relevant criteria and reasonable community expectations, as determined in consultation with the relevant government agencies.</li> </ul>
To implement an effective complaints handling and response protocol.	<ul style="list-style-type: none"> <li>Complaints (if any) handled and responded to in an appropriate manner.</li> <li>Complaints and responses documented in the Quarry Annual Review.</li> </ul>
To implement appropriate corrective and preventative actions, if required.	<ul style="list-style-type: none"> <li>Corrective and preventative actions implemented, if required.</li> </ul>
To implement an appropriate incident reporting program, if required.	<ul style="list-style-type: none"> <li>Incidents (if any) reported in an appropriate manner.</li> </ul>
<b>Noise</b>	
To implement appropriate noise management and mitigation measures during all stages of the Quarry so as to ensure that harm to the environment is minimised as far as possible.	<ul style="list-style-type: none"> <li>All identified noise management and mitigation measures nominated in the NMP are implemented.</li> </ul>
To implement an appropriate noise monitoring program to establish compliance or otherwise with relevant criteria during all stages of Quarry operation.	<ul style="list-style-type: none"> <li>All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals.</li> </ul>
<b>Blasting</b>	
To implement appropriate blast management and mitigation measures during all stages of Quarry operation.	<ul style="list-style-type: none"> <li>All identified blast management and mitigation measures implemented.</li> </ul>
To implement an appropriate blast monitoring program to establish compliance or otherwise with relevant criteria during all stages of Quarry operation.	<ul style="list-style-type: none"> <li>All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals.</li> </ul>
<b>Air Quality</b>	
To implement appropriate air quality management and mitigation measures during all stages of the Quarry so as to minimise harm to the environment. To demonstrate compliance with air quality criteria.	<ul style="list-style-type: none"> <li>All identified air quality management and mitigation measures implemented.</li> <li>No exceedances of the air quality criteria identified in the Air Quality Management Plan, attributable to</li> </ul>

Objectives	Key Performance Outcomes
To implement a monitoring program to establish compliance or otherwise with relevant criteria during all stages of Quarry operation.	<p>Quarry operations.</p> <ul style="list-style-type: none"> <li>All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals.</li> <li>Results reported in the Annual Review.</li> </ul>
<b>Water</b>	
To implement appropriate water management and mitigation measures during all stages of the Quarry so as to ensure that harm to the environment is minimised as far as possible.	<ul style="list-style-type: none"> <li>Implementation of the SWMP.</li> <li>Discharge of water in accordance with EPL 13172 criteria.</li> <li>No reportable incidents related to water management or pollution.</li> </ul>
To implement an appropriate monitoring program which reviews compliance with relevant criteria during all stages of the Quarry.	<ul style="list-style-type: none"> <li>All identified monitoring is undertaken in accordance with the relevant procedures and at the relevant intervals.</li> <li>Monitoring results are published and reported annually within the Annual Review/Annual Return.</li> </ul>
<b>Biodiversity</b>	
To minimise and measure impact to biodiversity.	<ul style="list-style-type: none"> <li>Implementation of the management and mitigation measures nominated in the Biodiversity Management Plan.</li> <li>Establishment of performance indicators and targets.</li> <li>Achievement of performance targets or implementation of corrective actions.</li> <li>Actively manage threats to biodiversity through suitable land management practices.</li> </ul>
To avoid or minimise impacts on threatened flora or fauna, including but not limited to the Purple Copper Butterfly.	<ul style="list-style-type: none"> <li>Threatened species, or their habitat identified and described.</li> <li>Measures implemented to minimise direct and/or indirect impacts.</li> <li>Appropriate offsets implemented.</li> </ul>
To offset any unavoidable impacts on biodiversity.	<ul style="list-style-type: none"> <li>Implementation of a Biodiversity Offsets Strategy (BOS) in accordance with the NSW Biodiversity Offsets Scheme.</li> <li>The Walker Quarries Biodiversity Management Plan (BMP) is currently being investigated due to an classification error under Clause 7.4 of the Act (exempted land). The BMP is being revised.</li> </ul>
To appropriately manage sections of the Quarry Site with remaining vegetation to achieve the approved final landform and land use.	<ul style="list-style-type: none"> <li>Operations managed in a manner that does not result in off-site impacts and ensures that the identified final landform and land use is established.</li> </ul>
<b>Traffic</b>	
To effectively manage Quarry-related traffic to minimise conflict between vehicles using the Great Western Highway.	<ul style="list-style-type: none"> <li>Complaints related to driver performance are minimised and actioned appropriately.</li> <li>Incidents involving Quarry-related traffic are avoided.</li> </ul>
<b>Rehabilitation</b>	



Objectives	Key Performance Outcomes
<p><b>Land Use</b></p> <p>Produce a sustainable native woodland community with management requirements no greater than the surrounding landforms.</p> <p>Minimise adverse socio-economic outcomes following mine closure.</p>	<ul style="list-style-type: none"> <li>Rehabilitate the Quarry Site in accordance with the Rehabilitation Management Plan.</li> <li>Consult with the community and government agencies in relation to the post-mining land use and rehabilitate the Site accordingly.</li> </ul>
<p><b>Landform</b></p> <p>Provide a low maintenance, geotechnically stable and safe, non-polluting landform and provides land suitable for the proposed final land use.</p> <p>Construct the final landform such that it is self-sustaining.</p> <p>Provide rehabilitated woodland communities which adjoin conserved and improved native vegetation remnants to create a contiguous corridor of woodland vegetation.</p>	<ul style="list-style-type: none"> <li>Geotechnical results show the landform is stable.</li> <li>Final landform aligns with the approved Final Landuse and Rehabilitation Plan.</li> <li>The final landform has maintenance requirements consistent with the agreed post mining land use(s).</li> <li>Rehabilitate the Quarry Site in accordance with the Rehabilitation Management Plan.</li> </ul>
<p><b>Surface Infrastructure</b></p> <p>Decommission and remove all surface infrastructure (unless required for a lawful post mining land use).</p>	<ul style="list-style-type: none"> <li>All surface infrastructure removed (unless required for a lawful post mining land use).</li> </ul>
<p><b>Final Voids</b></p> <p>Ensure the final void are safe, stable and secure.</p>	<ul style="list-style-type: none"> <li>A safety bund at least 1 m high will be constructed around the perimeter of the final void and a safety fence will also be installed.</li> <li>Final landform aligns with the approved Final Landuse and Rehabilitation Plan.</li> </ul>
<b>Heritage</b>	
<p>To appropriately manage Aboriginal objects that may be encountered during Quarry development.</p>	<ul style="list-style-type: none"> <li>Preparation and implementation of an Aboriginal Cultural Heritage Management Plan (ACHMP).</li> <li>Preparation and implementation of an Unanticipated Finds Protocol.</li> <li>Protect relocated artefacts of Site WQ1 and respond to reasonable requests of the Registered Aboriginal Parties (RAPs) for access or other information<sup>1</sup>.</li> </ul>
<p>To ensure that the development does not cause any direct or indirect impact on any identified heritage items located outside the approved disturbance area</p>	<ul style="list-style-type: none"> <li>Surface disturbance is restricted to the nominated disturbance footprint of the Quarry (unless further approval is obtained under consent).</li> </ul>
<p>To implement appropriate consultation and involvement of the Bathurst Local Aboriginal Land Council and other Aboriginal stakeholders in the conservation and management of the Aboriginal heritage.</p>	<ul style="list-style-type: none"> <li>Implementation of the Aboriginal Cultural Heritage Consultation Requirements for Proponents, as required.</li> </ul>
<b>Bushfire</b>	
<p>To identify, manage and control all fire hazards of the Quarry.</p>	<ul style="list-style-type: none"> <li>No avoidable ignition of fire as a result of Quarry operations.</li> </ul>
<p>To implement appropriate bushfire management and</p>	<ul style="list-style-type: none"> <li>All identified management and mitigation measures</li> </ul>

<sup>1</sup> The following are identified RAPs of the development: Yurrandaali Cultural Services, Barraby Cultural Services, Murra Bidgee Mullangari Aboriginal Corporation Cultural Heritage, Mingaan Wiradjuri Aboriginal Corporation, Merrigarn, Muragadi Heritage Indigenous Corporation, Yulay Cultural Service, Warrabinga Native Title Aboriginal Corporation, Gundungurra Tribal Council Aboriginal Corporation and Bathurst Local Aboriginal Land Council.

Objectives	Key Performance Outcomes
mitigation measures during all stages of the Quarry.	implemented.
To contain any outbreak of fire as a result of Quarry operations.	<ul style="list-style-type: none"> <li>No spread of fire initiated on the Quarry Site beyond the Quarry Site.</li> </ul>
To provide assistance as required to the RFS in the event of a local bushfire event.	<ul style="list-style-type: none"> <li>All identified management and mitigation measures implemented.</li> </ul>
Waste	
Employees are educated in the importance of waste stream segregation for recycling.	<ul style="list-style-type: none"> <li>Informed workforce on the management of waste and recycling.</li> </ul>
The ease of waste storage, handling, disposal and tracking is improved.	<ul style="list-style-type: none"> <li>Efficient waste management strategies implemented.</li> </ul>
The potential for contamination of general waste streams is reduced.	<ul style="list-style-type: none"> <li>The potential for contamination by general waste has been minimised.</li> </ul>
The costs of disposal for some items can potentially be reduced.	<ul style="list-style-type: none"> <li>Disposal of general waste minimised.</li> </ul>

## 6.2 Environmental Management Documentation

To meet the environmental objectives described in **Section 6.1**, and in accordance with the requirements of DA 344-11-2001, Walker Quarries has prepared a range of environmental management documentation to ensure that specific management measures are implemented to mitigate potential impacts. The environmental management documentation for the Quarry has been prepared to describe the environmental performance criteria and the measures that would be implemented to meet these criteria, monitor performance and report on compliance.

The following management plans have been prepared and are implemented by Walker Quarries:

- Noise Management Plan.
- Blast Management and Explosives Control Plan.
- Soil and Water Management Plan (incorporating an Erosion and Sediment Control Plan).
- Biodiversity Management Plan.
- Bushfire Management Plan.
- Air Quality Management Plan.
- Aboriginal Cultural Heritage Management Plan.
- Rehabilitation Management Plan.
- Pollution Incident Response Management Plan.

Revisions to these plans will be periodically completed and submitted to the relevant regulatory authority for approval or endorsement over the life of the Quarry (in accordance with Schedule 5, Condition 5 of DA 344-11-2001. Whilst these revisions are prepared and assessed, Walker Quarries will continue to apply existing approved management plan, strategies or monitoring programs, until the approval of revised documents is received.

All approved management plans and the current Pollution Incident Response Management Plan can be viewed on Walker Quarries' website.

### 6.3 Environmental Monitoring Program

An *Environmental Monitoring Program* is maintained by Walker Quarries which consolidates the environmental monitoring requirements of site management plans. A copy of the *Environmental Monitoring Program* is provided as **Appendix 2** and is also available on the Walker Quarries website.

To demonstrate compliance with environmental criteria nominated for the Quarry (as included in the statutory approvals noted in **Section 5.0**), and to measure environmental performance of the Quarry, monitoring of the following will be undertaken:

- Noise generated by Quarry operations (Noise Management Plan).
- Noise and vibration generated by Quarry blasting activities (Blast Management and Explosives Control Plan).
- Dust and airborne particulate emissions generated by the Quarry (Air Quality Management Plan).
- Water quality of discharged and receiving waters (Soil and Water Management Plan).
- Potential impacts on local vegetation and threatened species (Biodiversity Management Plan).

The *Environmental Monitoring Program* provides information on the location, frequency, criteria, timing and record keeping for monitoring the relevant emissions, outputs or activities.

The Quarry Manager is responsible for the implementation and continued monitoring requirements for the Quarry. Summaries of monitoring results are available on the Walker Quarries website.

### 6.4 Progressive and Final Rehabilitation

Final rehabilitation of the Quarry will involve removal of all infrastructure (other than those approved for retention in the final land form), revegetation with native species commensurate with adjacent vegetation, and the retention of a final void.. Activities proposed during operations and post-closure are described in detail in the Rehabilitation Management Plan. Figure 5.1 and Figure 5.2 of the Rehabilitation Management Plan provide the approved Final Landuse and Rehabilitation Plan for the Quarry. To minimise disturbance, progressive rehabilitation will be undertaken at areas of the Quarry no longer required for operations in accordance with the Rehabilitation Management Plan.

## 7.0 Environmental Management Procedures

### 7.1 Consultation and Information Distribution

#### 7.1.1 Community Consultative Committee

In accordance with Schedule 5, Condition 8 of DA 344-11-2001 a Community Consultative Committee (CCC) was formed in January 2010. The committee comprises representatives of Lithgow City Council, Walker Quarries and the community. Meetings are held approximately every 6 months with meeting minutes published on Walker Quarries website.

#### 7.1.2 Environmental Monitoring Documentation

Walker Quarries will retain records of meteorological monitoring and relevant environmental monitoring for a minimum period of 4 years. Monitoring records will be made available to relevant government authorities following a written request.

#### 7.1.3 Reporting and Publication of Monitoring Data

A summary of relevant monitoring is publicly available on the Walker Quarries website in accordance with Section 66(6) of the *Protection of the Environment Operations Act 1997* and Schedule 5, Condition 17a(vii) of DA 344-11-2001. The Quarry Manager is responsible for publication of all relevant monitoring information.

A summary of all monitoring data and incidents, including dates of occurrence, corrective measures taken and success of these measures, will be compiled and reported in the Annual Review, submitted by the end of September each year and required by Schedule 5, Condition 12 of DA 344-11-2001 to the DPHI. The Annual Review will be published on the Walker Quarries website.

### 7.2 Complaints Management and Dispute Resolution

#### 7.2.1 Complaints Handling

To receive, record and respond to any complaints in a timely manner, Walker Quarries has established a dedicated complaints section on the Walker Quarries website, which features

- telephone number (0263244066)
- email address - [accounts@walkerquarries.com.au](mailto:accounts@walkerquarries.com.au)
- Web site - [walkerquarries.com.au](http://walkerquarries.com.au)

All complaints will be registered in an internal database and appropriate action will be taken to determine the cause of the complaint and identify appropriate actions to remediate the complaint source. A detailed response will be provided within 10 days. The following information will be recorded in the internal database:

- 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.

A public complaints register is maintained on the Walker Quarries website and is updated monthly.

A summary of the complaints received in each 12-month period will also be included in the Annual Review.

## 7.2.2 Dispute Resolution

Specific matters for which dispute resolution may be necessary include:

- Damage to a property within 2 km of the Quarry Site as a result of blasting impacts (Schedule 3, Condition 5 of DA 344-11-2001).
- Mitigation of visual impacts at residences to the west or northwest of the Quarry Site (Schedule 3, Condition 33 and Schedule 4, Condition 3 of DA 344-11-2001).
- Additionally, potential complaints could also relate air quality, water quality, noise and traffic.

If any complainant does not consider that the response or reactions adequately address their concerns, the following procedure will be adopted:

- A meeting will be convened with the Quarry Manager or other senior personnel to seek if there is a dispute and if possible a potential resolution of the matter. The complainant will be provided with a written response, detailing the results of investigations undertaken and the agreed actions to be taken regarding the measures to be implemented.
- On implementation of the nominated measures, a further meeting will be convened to seek advice of satisfaction, or otherwise, regarding the outcomes.

If the complainant and Walker Quarries continue to disagree, either party may refer the matter to the Secretary of DPHI (in accordance with the independent dispute resolution process of the DPHI identified in **Figure 7.1** Error! Reference source not found..



## 7.3 Incident and Compliance Management

### 7.3.1 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 may or may not result in an exceedance of noise 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:

- a) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
- b) 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).
- c) Loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good the harm to the environment.

An incident which only breaches or exceeds the criteria is referred to as a non-compliance.

It is noted that an incident may be defined as both a pollution incident and a non-compliance.

### 7.3.2 Incident and Non-Compliance Management

Following identification of an incident, an investigation will be commenced into the source of the pollution, non-compliance or complaint in accordance with relevant EMP.

Following confirmation of an incident, the Quarry Manager will immediately notify DPHI and relevant agencies 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 and any relevant public authorities (as deemed by the Secretary of DPHI) in accordance with Appendix 3 of DA 344-11-2001, and to EPA and relevant authorities 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), which is available on the Walker Quarries website.

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.

Management Plans prepared to address performance measures/conditions are developed to include notification and response processes specific to that performance measure/condition. These Management Plans are summarised in **Section 6.2**.

Reporting of incidents and non-compliances is outlined in **Section 7.3.3**.

### 7.3.3 Reporting

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Secretary, Walker Quarries will provide the DPHI and any relevant public authorities (as determined by the Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested. The Incident Report will include:

- (a) a summary of the incident
- (b) outcomes of an incident investigation, including identification of the cause of the incident
- (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence
- (d) details of any communication with other stakeholders regarding the incident.

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 7.2**).

Within seven days of becoming aware of a non-compliance, Walker Quarries will provide written notification to the DPHI by email to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au).

Written notification of a non-compliance will:

- (a) identify the development and application number
- (b) out the condition of this consent that the development is non-compliant with
- (c) why it does not comply and the reasons for the noncompliance (if known)
- (d) what actions have been, or will be, undertaken to address the non-compliance.

It is noted that notification for the purpose of a pollution incident, where this describes the non-compliance satisfies the notification requirements above.

A summary of all pollution incidents and non-compliances, 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 DPHI.

## 7.4 Evaluating Compliance

### 7.4.1 Environmental Monitoring

Following completion of site-based monitoring programs (e.g. surface water, groundwater, noise, blasting and biodiversity), a summary or report will be prepared by the monitoring contractor or specialist consultant. In accordance with the requirements of Section 66(6) of the POEO Act, each month Walker Quarries will publish a meaningful summary of air quality 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).



The Quarry Manager (or equivalent position), or delegate, will review all monitoring results, associated logs, summaries and reports against the relevant criteria and/or triggers. The actions nominated in the appropriate EMPs will be implemented if exceedances of criteria or other triggers are identified.

An evaluation of environmental performance, as measured by environmental monitoring results, will be included in the Annual Review, which will be made available on the Walker Quarries website.

## 7.4.2 Statutory Conditions

A compliance schedule is maintained (**Appendix 3**). This schedule allows for the checking of compliance against the conditions of DA 344-11-2001, EPL 13172 and MLs. The compliance schedule will be reviewed internally annually (refer to **Section 7.4.3.1** and **Section 8.1**) and independently every 3 years as a component of an Independent Environmental Audit (IEA) (refer to **Section 7.4.3.2**). Copies of published IEA's and Annual Reviews are available on the Walker Quarries website.

## 7.4.3 Audit

### 7.4.3.1 Internal Audits

Throughout the year, the Quarry Manager will complete the Environmental Compliance Planner (**Appendix 3**) to confirm that environmental obligations are being met.

During the preparation of each Annual Review (refer to **Section 8.1**), the Quarry Manager will evaluate (either directly or by delegation to a third party) of the environmental performance of the Quarry against the requirements of DA 344-11-2001, EPL 13172 and MLs.

The Annual Review will document whether operations are compliant or non-compliant, the risk posed in the event of a non-compliance, corrective actions to be implemented and timeframe for implementation.

Copies of published Annual Reviews are available on the Walker Quarries website.

### 7.4.3.2 Independent Audit

Schedule 5, Condition 13 of DA 344-11-2001 requires Walker Quarries to commission an IEA of the Quarry every three years (unless directed by the Secretary of DPHI). The IEA will:

- Be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary.
- Include consultation with the relevant agencies and the CCC.
- Assess the environmental performance of the development and whether it is complying with the relevant requirements in the development consent, water licences and mining leases (including any assessment, strategy, plan or program required under the consent).
- Review the adequacy of any approved strategy, plan or program required under the abovementioned approvals.
- Recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, strategy, plan or program required under the abovementioned approvals.
- Be conducted and reported to the satisfaction of the Secretary.

Quarry personnel, directed by the Quarry Manager, will be available during the audit to provide information to the audit team.

Within 12 weeks of the completion of this audit, or as otherwise agreed by the Secretary, Walker Quarries shall submit a copy of the report to the DPHI and any other NSW agency that requests it, together with the response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. Walker Quarries will implement these recommendations, to the satisfaction of the Secretary.

Copies of published IEA's are available on the Walker Quarries website.

## **7.5 Emergency Management**

Hazards at the Quarry are managed in accordance with a PIRMP, Hazardous Substances Management Plan and a Bushfire Management Plan. The PIRMP and Bushfire Management Plan are available on the Walker Quarries website.

The Quarry Manager is responsible for implementing and updating these documents as needed.

## **7.6 Competence Training and Awareness**

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

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

## 8.0 Environmental Performance Review

### 8.1 Annual Review

By the end of September each year, an Annual Review of quarry operations will be completed and submitted to the DPHI. In accordance with Schedule 5, Condition 12 of DA 344-11-2001, the Annual Review will:

- Describe Quarry operations (including any progressive rehabilitation) carried out in the previous financial year, and operations proposed over the next financial year.
- Include a comprehensive review of the monitoring results and complaints over the previous financial year, comparing these results against the:
  - relevant statutory requirements, limits or performance measures/criteria
  - requirements of any plan or program required under this consent
  - monitoring results of previous years, and
  - relevant predictions in the documents listed in Schedule 2, Condition 2(a).
- Identify any non-compliance, and describe what actions were (or are being) taken to ensure compliance.
- Identify any trends in the monitoring data over the life of the development.
- Identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies.
- Describe what measures will be implemented over the current financial year to improve the environmental performance of the development.

### 8.2 Strategy Review

In accordance with Schedule 5, Condition 5 of DA 344-11-2001, the EMS will be reviewed within 3 months of the submission of an:

- a) incident as defined by **Section 7.3**
- b) Annual Review.
- c) an Independent Environmental Audit, and
- 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 EMS, submit a copy to the Secretary of the DPHI for approval (within 6 weeks of the review). The reviews will ensure the adequacy of the EMS and allow for opportunities of adaptive management and continual improvement.

## 9.0 References

Environment Protection Authority (EPA) (2012). Environmental Guidelines: Preparation of Pollution Incident Response Management Plans, March 2012.

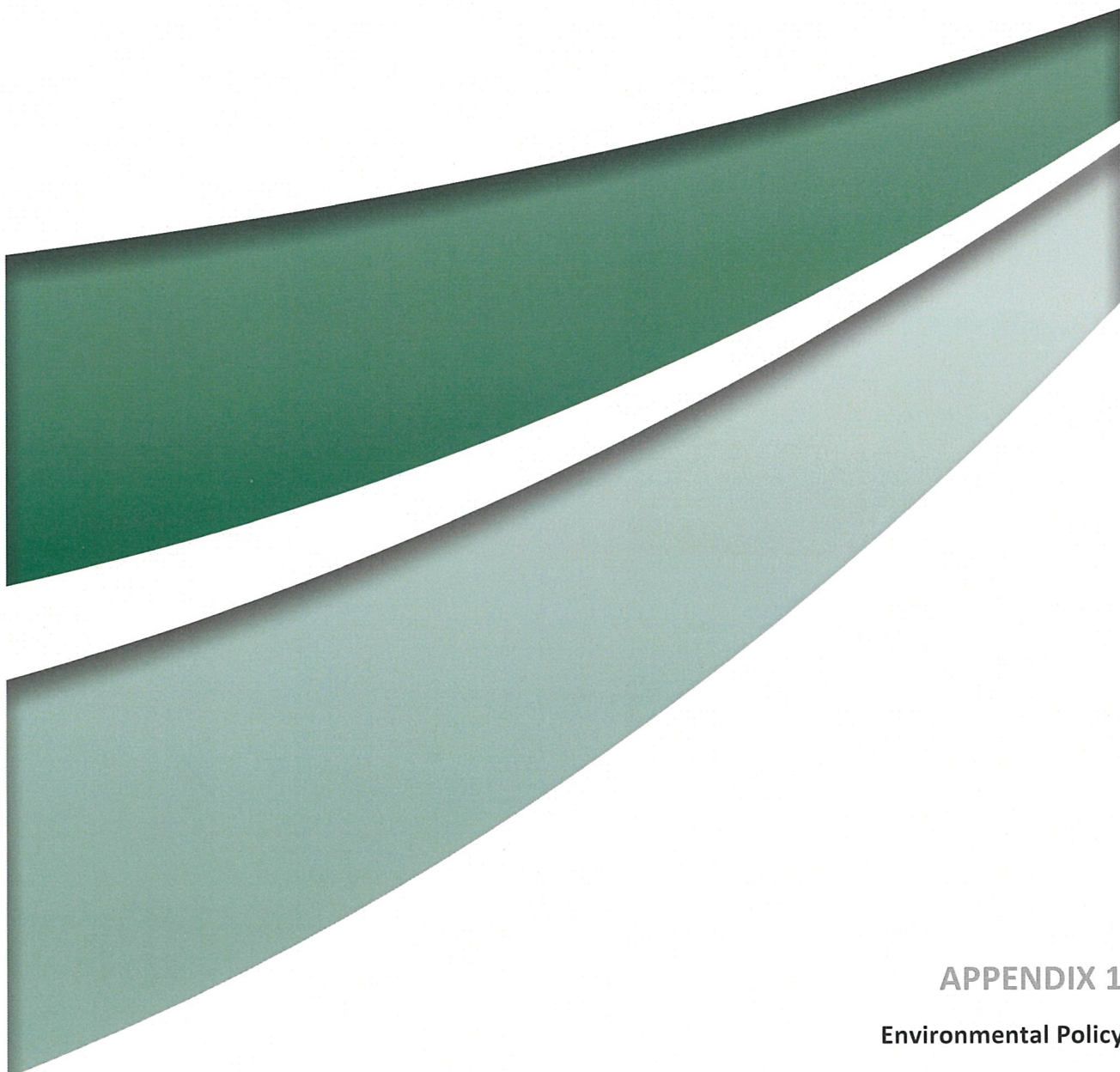
Environment Protection Authority (EPA) (2013). Requirements for publishing pollution monitoring data, October 2013.

Pacrim Environmental (Pacrim) (2001). Environmental Impact Statement Proposed Wallerawang Quarry. Prepared for Sitegoal Pty. Limited, November 2001 (report 01/206.1).

RW Corkery & Co Pty Limited (2017). Environmental Assessment for the Modification to the Operations at the Wallerawang Quarry (DA 344-11-2001).

RW Corkery & Co Pty Limited (2018). Statement of Environmental Effects for Proposed Modification No 2 (MOD 2) to DA 344-11-2001 (Wallerawang Quarry), dated October 2018.

Umwelt (Australia) Pty Limited (Umwelt) (2019). Statement of Environmental Effects Wallerawang Quarry Modification 3 (DA 344-11-2001).



**APPENDIX 1**  
**Environmental Policy**



## Environmental Safety Policy

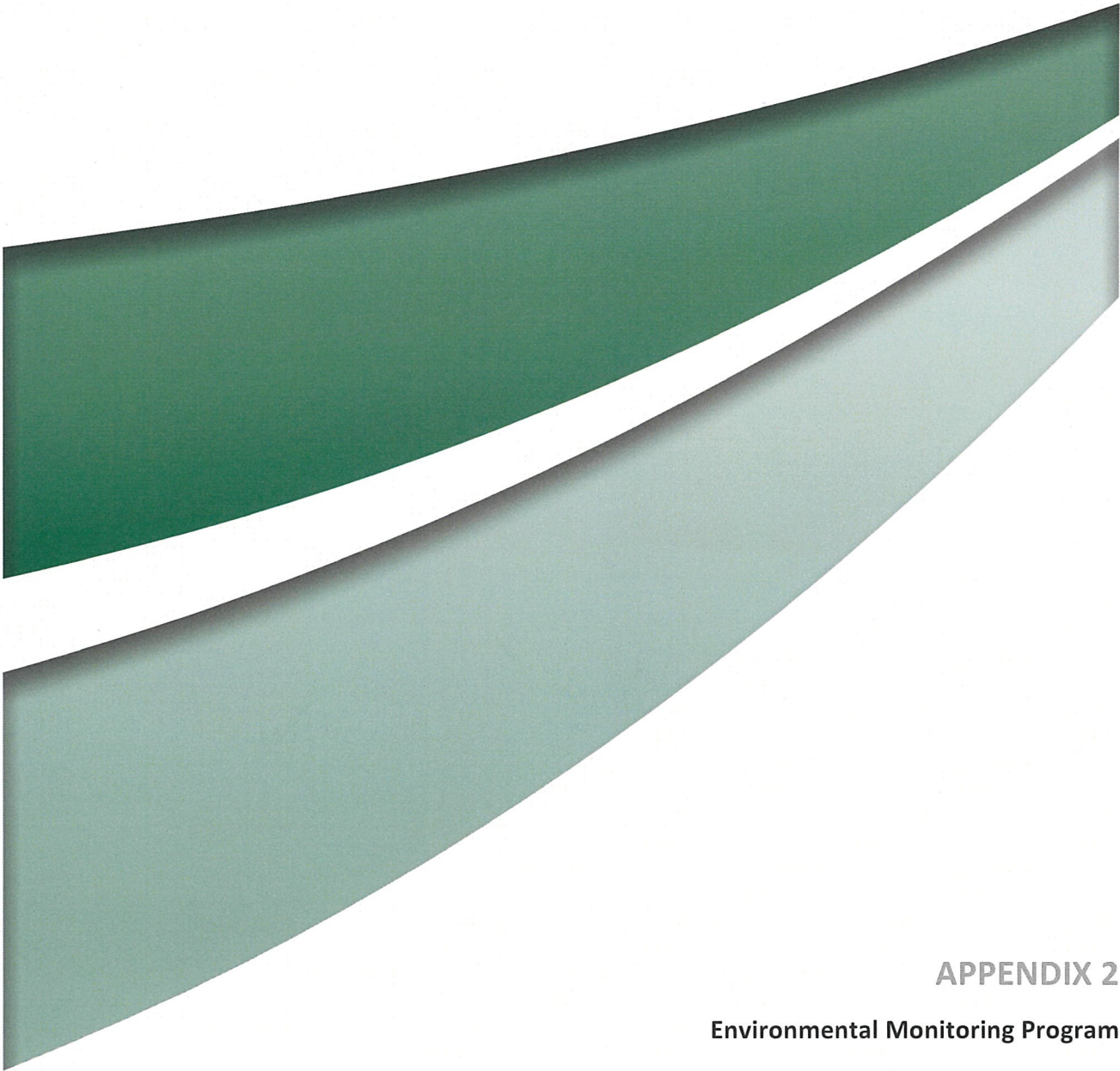
The environmental policy of Walker Quarries Pty Limited is to carry out the mining activities at Walker Quarry in a manner that complies with relevant environmental legislation and is environmentally responsible. The company is committed to ongoing improvements in its environmental management and aims to undertake reviews of this environmental policy to ensure that it remains relevant and appropriate for the existing and future operations.

In recognition of the corporate environmental policy, the Company will endeavour at all times to:

- ❑ comply with all applicable Commonwealth and State Government legislation to protect the environment;
- ❑ establish effective working relationships with Government agencies responsible for land management within the Walker Quarries Pty Ltd/Sitegoal Pty Ltd leases;
- ❑ develop and maintain environmental performance in line with industry standards by implementing an Environmental Management System (EMS) appropriate to the scale of the operation;
- ❑ establish a reporting process and verification procedure for any non-conformances within the EMS;
- ❑ carry out environmental training to ensure that the workforce on site are aware of their environmental responsibilities;
- ❑ undertake appropriate reviews and audits of the operation to measure progress and to ensure compliance with the environmental policy.

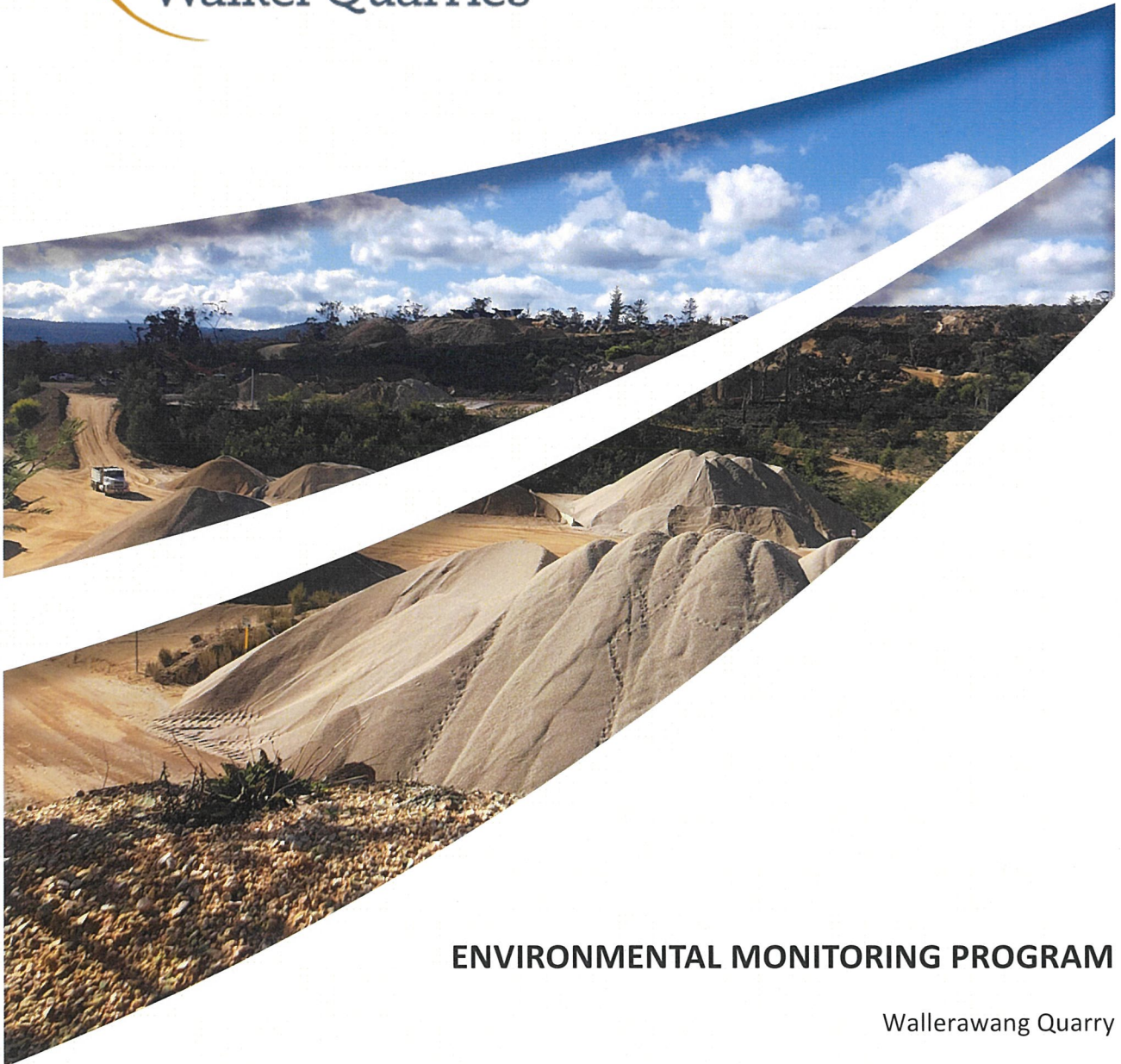
This Environmental Policy have been endorsed by the Company's Board of Directors and therefore commit the Company to achieving its objectives of environmental excellence.

Date: .....20<sup>th</sup> July 2017



**APPENDIX 2**

**Environmental Monitoring Program**



## ENVIRONMENTAL MONITORING PROGRAM

Wallerawang Quarry

**VERSION 4.0**

January 2024







## ENVIRONMENTAL MONITORING PROGRAM

Wallerawang Quarry

### VERSION 4.0

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

Project Director: Adam Williams  
Project Manager: Caroline Gazi  
Report No. 4433/R10  
Date: January 2024



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Quality Management System.

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### Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
V2.1	Alex Irwin	24 April 2020	Alex Irwin	24 April 2020
V2.2	Alex Irwin	13 August 2020	Johann van der Merwe (Walker Quarries)	14 August 2020
V3.0	Alex Irwin	5 January 2020	Johann van der Merwe (Walker Quarries)	12 January 2020
V3.1	Alex Irwin	17 November 2021	Kerry Burke	23 November 2021
V4.0	Adam Williams	24 January 2024		

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# 1.0 Scope

This Environmental Monitoring Program (EMP) has been prepared for the Wallerawang Quarry (the Quarry) by Umwelt (Australia) Pty Limited (Umwelt) on behalf of Walker Quarries Pty Ltd (Walker Quarries) in accordance with Schedule 5, Condition 1(f) of Development Consent DA 344-11-2001.

To demonstrate compliance with environmental criteria nominated for the Quarry (as included in the statutory approvals), and to measure environmental performance of the Quarry, monitoring of the following will be undertaken in accordance with the referenced management plans:

- Noise Management Plan
- Blast and Explosives Control Management Plan
- Soil and Water Management Plan (incorporating an Erosion and Sediment Control Plan)
- Biodiversity Management Plan
- Bushfire Management Plan
- Air Quality Management Plan
- Rehabilitation Management Plan
- Aboriginal Cultural Heritage Management Plan, and
- Pollution Incident Response Management Plan.

These management plans provide detailed information on the location, frequency, parameters, procedures and record keeping for monitoring the relevant emissions, outputs or activities. This EMP consolidates the environmental monitoring requirements of these management plans.

The Quarry Manager is responsible for the implementation and continued monitoring requirements for the Quarry. The EMP will be updated following any review and update to the referenced environmental management plan above.

**Table 1.1** presents a summary of all environmental monitoring activity and presents the monitoring parameters, frequency, timing and additional information requirements for each monitoring requirement. The locations of all monitoring points are presented on **Figure 1.1**.

## 2.0 Environmental Monitoring Summary

In accordance with the requirements of Section 66(6) of the *Protection of the Environment Operations Act 1997* (PoEO Act), Walker Quarries will publish relevant monitoring data on their website.

All incident reporting and notifications would occur in accordance with the referenced environmental management plans and the EMS.

**Table 1.1 Monitoring Requirements**

Monitoring Parameter	Monitoring Location	Frequency	Criteria	Timing	Purpose	Additional Information to be Recorded													
<b>Meteorological Monitoring</b>																			
Rainfall (mm) Air Temperature (°C) Wind Direction at 10 m (°) Wind Speed at 10 m (m/s) Relative Humidity (%) Sigma Theta (°)	Quarry Meteorological Station (northeast corner of ML 1633)	Continuous	Not Applicable	Continuous	To assist assessment of noise and air quality monitoring and for operational planning.	Annual summary to be reported in the Annual Review.													
<b>Noise Monitoring</b>																			
Attended Noise Monitoring L <sub>Amx</sub> L <sub>Aeq</sub> If considered necessary at the time of monitoring: L <sub>A10</sub> , L <sub>A50</sub> , L <sub>A90</sub> , L <sub>A99</sub> , L <sub>Amin</sub>	N1: "Gemalong" property residence. N2: Access to "Cockatoo Pines" property. N3: 2 Cypress Place, Wallerawang. RL1: Quarry Site northern perimeter.	Biannually (twice per year)	43 dB(A) L <sub>Aeq(15 minutes)</sub> (Day). 39 dB(A) L <sub>Aeq(15 minutes)</sub> (Evening). 35 dB(A) L <sub>Aeq(15 minutes)</sub> (Night).	15 minutes.	To establish compliance with noise criteria and allow for review of noise controls.	Operator's Name. Location of Monitoring. Recording Intervals (date and time). Meteorological conditions. Statistical noise level descriptor with notes identifying noise sources. Instrument make, model, serial number and calibration details. Description of activities occurring during monitoring.													
<b>Blast Monitoring</b>																			
Ground Vibration Airblast Overpressure	1: 3 Cypress Place 2: Lake Wallace Dam Wall 3: 4 Beacroft Place Or other locations on request by landowner	Each blast event	Ground Vibration 5mm/s exceeded on no more that 5% of occasions and 10mm/s limit on all occasions. Airblast Overpressure 115dB <sub>(Lin Peak)</sub> exceeded on no more that 5% of occasions and 120dB <sub>(Lin Peak)</sub> limit on all occasions.	Instantaneous	To establish compliance with blast criteria and provide feedback on future blast design to blasting contractors.	Date Time Maximum Instantaneous Charge. Blast Location. Monitoring Location. Name of person recording the monitoring result.													
<b>Air Quality Monitoring</b>																			
Deposited Dust	4 x Dust Gauges DG1: northeast corner of ML 1633 DG2: Lot 1, DP872230 DG3: Coxs River DG4: Lot 6, DP872230	Monthly	Annual Average Total Deposited Dust: 4g/m <sup>2</sup> month. Annual Incremental Increase: 2g/m <sup>2</sup> month.	Continuous through gauge placement analysed monthly and assessment based on the annual average.	To establish compliance with air quality criteria and manage potential dust impacts to the local environment including privately-owned residences and significant flora and fauna.	Date Time Monitoring Location. Name of person recording the monitoring result.													
Particulate Matter (PM <sub>2.5</sub> , PM <sub>10</sub> and Total Suspended Particulates [as PM <sub>total</sub> ])	1 Dust Master Pro (PM1)	Continuous	<table border="1"> <tr> <td>TSP</td> <td>Annual</td> <td>90 µg/m<sup>3</sup></td> </tr> <tr> <td rowspan="2">PM<sub>10</sub></td> <td>24 hour</td> <td>50 µg/m<sup>3</sup></td> </tr> <tr> <td>Annual</td> <td>25 µg/m<sup>3</sup></td> </tr> <tr> <td rowspan="2">PM<sub>2.5</sub></td> <td>24 hour</td> <td>25 µg/m<sup>3</sup></td> </tr> <tr> <td>Annual</td> <td>8 µg/m<sup>3</sup></td> </tr> </table>	TSP	Annual	90 µg/m <sup>3</sup>	PM <sub>10</sub>	24 hour	50 µg/m <sup>3</sup>	Annual	25 µg/m <sup>3</sup>	PM <sub>2.5</sub>	24 hour	25 µg/m <sup>3</sup>	Annual	8 µg/m <sup>3</sup>	Continuous	To establish compliance with health based air quality criteria	None
TSP	Annual	90 µg/m <sup>3</sup>																	
PM <sub>10</sub>	24 hour	50 µg/m <sup>3</sup>																	
	Annual	25 µg/m <sup>3</sup>																	
PM <sub>2.5</sub>	24 hour	25 µg/m <sup>3</sup>																	
	Annual	8 µg/m <sup>3</sup>																	
<b>Surface Water Monitoring - Discharge</b>																			
TSS Sulfate Grease and Oil Electrical Conductivity pH Turbidity	EPL 1 (SW1) EPL 2 (SW2)	Monthly during discharge for EPL 1 (SW1) and EPL 2 (SW2)	30mg/L 250mg/L 5mg/L 1,500 µS/cm 6.5-8.5 25 NTU	Monthly during discharge at EPL 1 (SW1) and EPL 2 (SW2) or quarterly.	To establish compliance with water quality criteria and manage potential impacts to the local environment.	Date Time Monitoring Location. Name of person recording the monitoring result.													

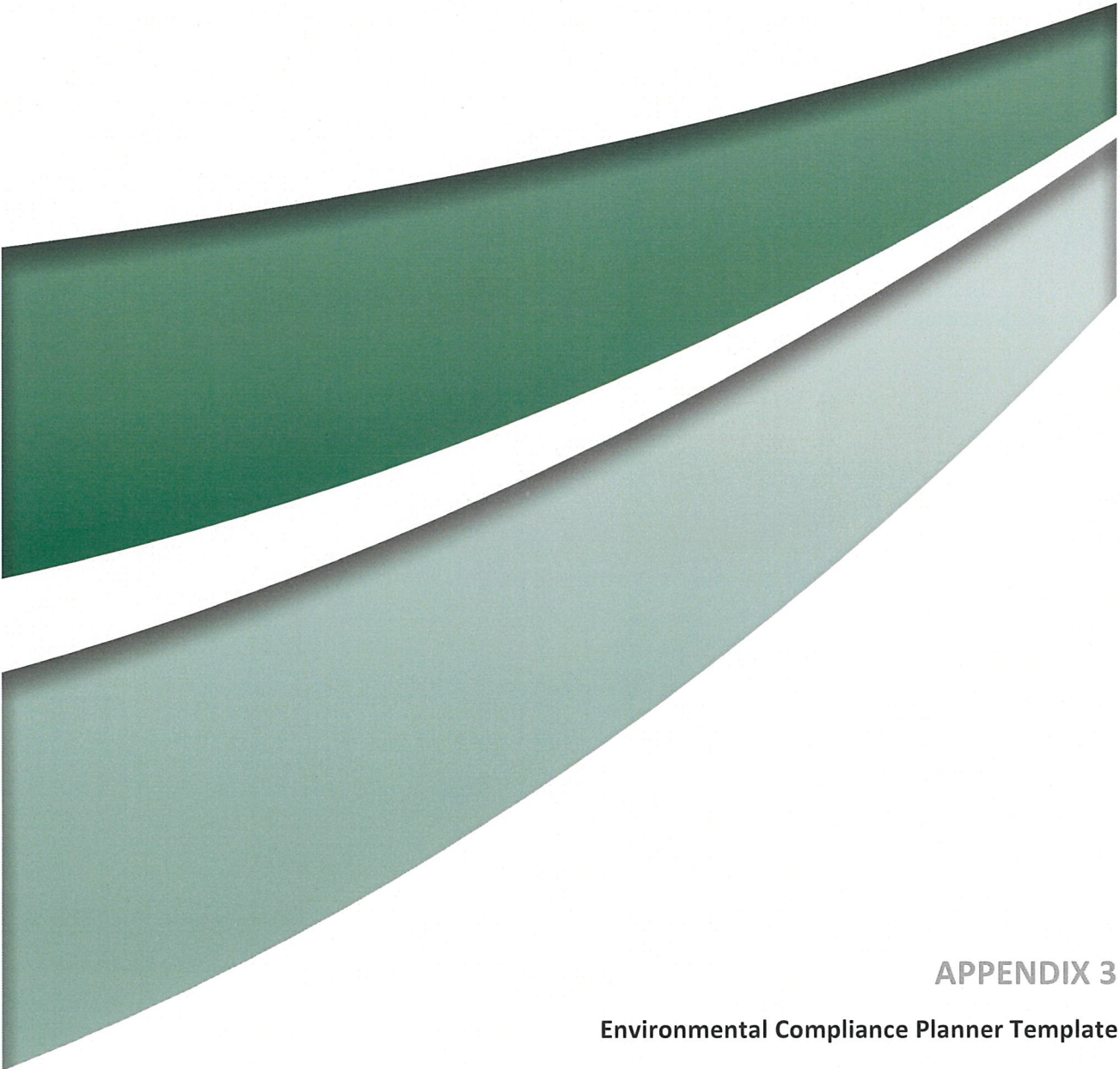
Monitoring Parameter	Monitoring Location	Frequency	Criteria	Timing	Purpose	Additional Information to be Recorded
<b>Surface Water Monitoring - Background</b>						
Electrical Conductivity (EC) Oil and Greases (O&G) pH Sulphate (SO4) Total Suspended Solids (TSS) Turbidity	SW3 (Coxs River upstream) SW4 (Coxs River downstream)	Monthly	N/A	Monthly	To establish background concentrations of potential pollutants associated with groundwater and Site Specific Quality Criteria	Rainfall in 7 days preceding.
Arsenic (dissolved) Cadmium (dissolved) Chromium (dissolved) Copper (dissolved) Nickel (dissolved) Lead (dissolved) Zinc (dissolved) Mercury (dissolved)		Quarterly	N/A	Quarterly		
<b>Groundwater</b>						
Groundwater Level	GW1 – GW3	Continuous	N/A	Quarterly	Establish baseline groundwater levels and natural seasonal fluctuation	Date Time Actual depth to water Pit floor elevation (approximate) Odour Name of sampler.
<b>Water Quality</b> <b>General:</b> <ul style="list-style-type: none"> <li>pH, Electrical Conductivity alkalinity (hydroxide, carbonate, bicarbonate and total)</li> </ul> <b>Metals:</b> <ul style="list-style-type: none"> <li>arsenic, cadmium, chromium, copper, nickel, lead, zinc, mercury</li> </ul> <b>Anions/Cations:</b> <ul style="list-style-type: none"> <li>sulphate, chloride, calcium, magnesium, sodium, potassium.</li> </ul>	GW1 – GW3	Six monthly	N/A	Six monthly	Establish baseline groundwater quality and natural seasonal fluctuation	



Monitoring Parameter	Monitoring Location	Frequency	Criteria	Timing	Purpose	Additional Information to be Recorded
<b>Biodiversity Monitoring</b>						
Purple Copper Butterfly sightings / presence and Blackthorn distribution and condition	Blackthorn Patches <sup>1</sup> : – 17; – 18; – 19; – 20/21; and – 24.	Annual	Not applicable	Monitoring will coincide with the adult flying and juvenile larval seasons (October-November), respectively.	To monitor presence of the threatened species and the distribution and condition of habitat within the Quarry Site.  To record performance of management measures and rehabilitation activities incorporating the Blackthorn.	Date Time Name of person undertaking monitoring.
Vegetation: Flora species diversity Percentage foliage cover by canopy, lower-storey and groundcover Weed species and percentage cover Fauna species presence	Plots <sup>2</sup> : – BAM01; – BAM02; – BAM03; – BAM05; – BAM06 and – BAM07.	Annual	Not applicable	Monitoring will be undertaken in spring.	To monitor existing vegetation condition and performance of management measures and rehabilitation activities. Parameters to include: <ul style="list-style-type: none"><li>• vascular plant species abundance (modified Braun-Blanquet scale),</li><li>• dominant species, and</li><li>• foliage cover in each stratum.</li></ul>	Date Time Name of person undertaking monitoring.
<b>Rehabilitation Monitoring</b>						
Landform Survey	Completed landforms	Following landform construction	Relevant approved or proposed Rehabilitation Completion Criteria.	Following final landform construction	Confirm final landform establishment criteria achieved.	
Visual Inspections	General Quarry Site	Quarterly	Not applicable.	Quarterly (approximately)	Confirm no occurrence of erosional, weeds or other issues that may be detrimental to rehabilitation.	Photos to be taken
Soil Analysis	Soil application areas	Following soil spreading onto final rehabilitation areas	Soil depth	Following soil application	Confirm progress against relevant approved or proposed Rehabilitation Completion Criteria	Photos to be taken
		Prior to growth medium application	Soil parameter testing and amelioration advice/rates.	Prior to soil application		Laboratory results
Vegetation	Rehabilitation Areas (locations to be established following completion of significant rehabilitation campaign)	Annual	Comparison to analogue sites beyond the Quarry Site (BAM plots)	Spring	To review progress of vegetation against proposed or approved Rehabilitation Completion Criteria. Parameters to include: <ul style="list-style-type: none"><li>• Ecological composition,</li><li>• ecological structure, and</li><li>• ecological function.</li></ul>	

Notes <sup>1</sup> Until removed by Quarry operations (not to be replaced)

<sup>2</sup> To be progressively relocated prior to Quarry disturbance.



**APPENDIX 3**

**Environmental Compliance Planner Template**

