



## **BIODIVERSITY MANAGEMENT PLAN**

Wallerawang Quarry

**FINAL**

February 2024



# BIODIVERSITY MANAGEMENT PLAN

Wallerawang Quarry

## FINAL

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

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### Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
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V1.1	Alex Irwin	4 April 2019	Alex Irwin	8 April 2019
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V3	Alex Irwin	17 November 2021	Kerry Burke (Walker Quarries)	23 November 2021
V4	Adam Williams	8 February 2024	Adam Williams	8 February 2024

Note \* V0 represents the first version of this plan prepared by Umwelt Pty Ltd. This follows from Rev 4 produced by RW Corkery & Co. Pty Limited.

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# 1.0 Scope

## 1.1 Purpose

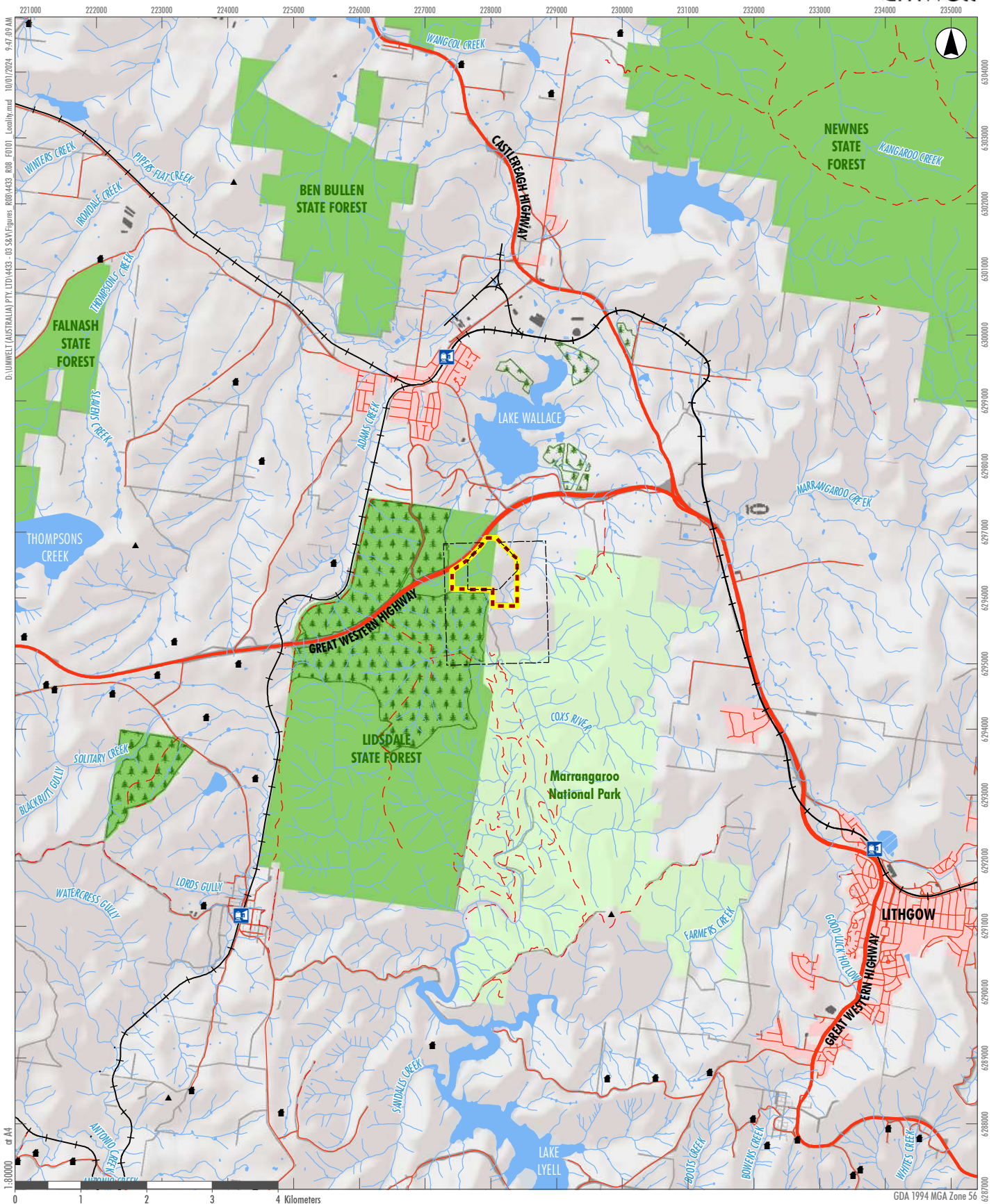
This Biodiversity Management Plan (BMP) for the Wallerawang Quarry (the Quarry) has been prepared by Umwelt (Australia) Pty Limited (Umwelt) on behalf of Walker Quarries Pty Ltd (Walker Quarries) in accordance with Schedule 3, Condition 26 of Development Consent DA 344-11-2001. This BMP was revised following the submission of the 2023 Annual Review and notification to the Department of Planning and Environment (DPE) (now Department of Planning, Housing and Infrastructure (DPHI)) on 20 December 2023 (Schedule 5, Condition 5 of DA 344-11-2001).

## 1.2 Quarry Operations

The Quarry is located approximately 8 kilometres (km) north-west of Lithgow (refer to **Figure 1.1**) and is operated in accordance with DA 344-11-2001. DA 344-11-2001 was initially issued by the Minister for Infrastructure and Planning on 14 October 2004 and has been modified three times.

DA 344-11-2001 approves disturbance up to 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 (refer to **Figure 1.2**). The Quarry is approved to produce 500 000 tonnes per year of Quarry products.





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

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

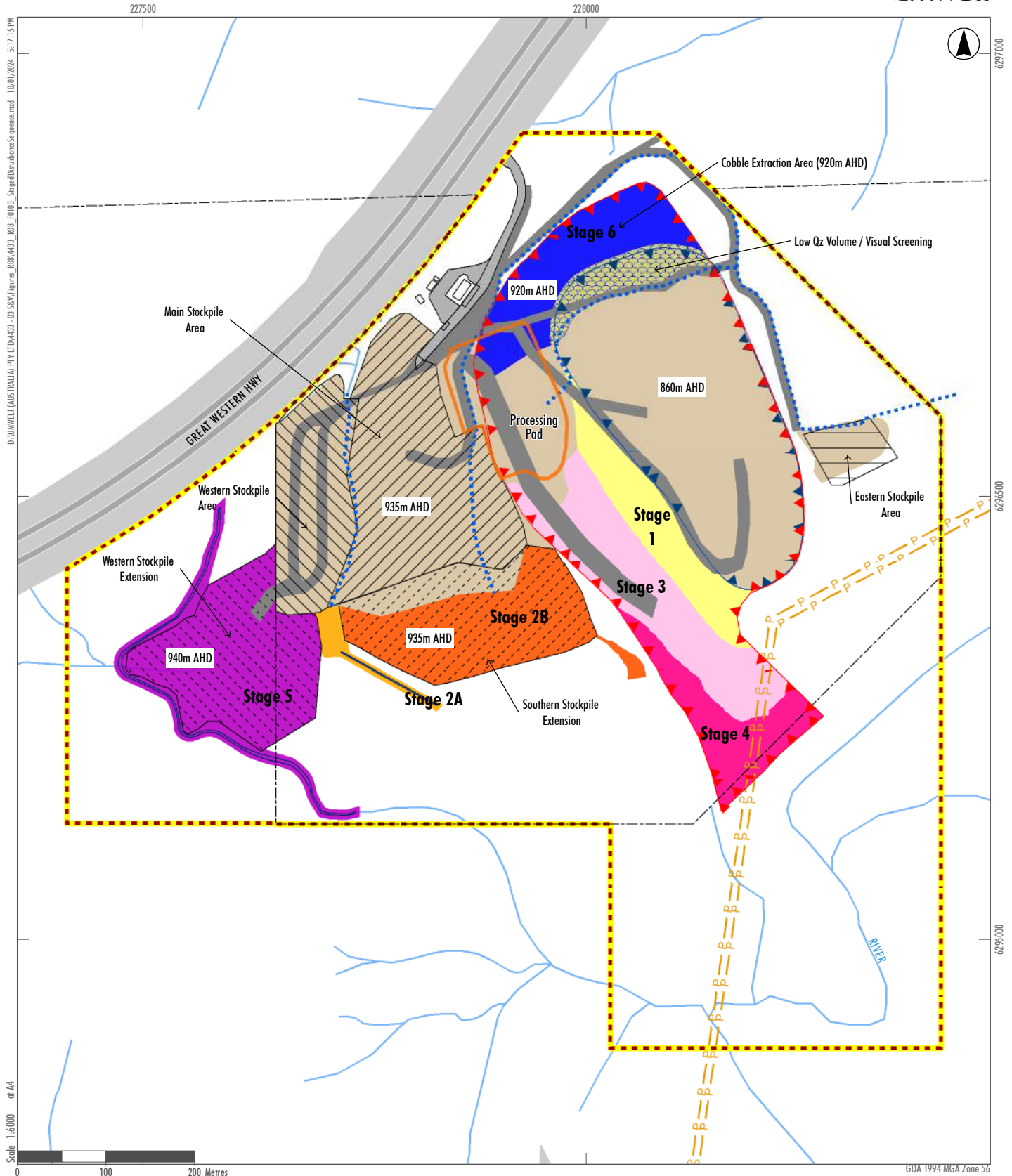




Image Source: Nearmap (2020) Data source: Walker Quarries (2019); Umwelt (2019); NSW LPI DTDB (2019); CEH Survey (November 2016)

The BMP identifies four disturbance tranches nominated by Schedule 3, Condition 28A and Figure 2 of Appendix 1 of DA 344-11-2001). These tranches have been created by combining the disturbance stages nominated in the BDAR (Ecoplaning, 2019a) and SEE (Umwelt, 2019) which supported the most recent modification to DA 344-11-2001 (Mod 3) (see **Figure 1.3** and **Table 1.1**).





## Legend

- |  |  |   |
|--|--|---|
| Quarry Site Boundary                   | Approved Extraction Area               | <b>Quarry Extension Staging</b>                                 |
| EL 4473                                | Processing Pad                         | Stage 1 - Extraction Stage A                                    |
| Project Quarry Site Mining Lease       | Main Stockpile Area (935m AHD)         | Stage 2A - Flow Through Dam & Cleanwater Diversion              |
| Watercourses                           | Southern Stockpile Area (935m AHD)     | Stage 2B - Southern Stockpile Extension & Sediment Basin        |
| Electricity Transmission Lines         | Western Stockpile Area                 | Stage 3 - Extraction Stage B                                    |
| Site Infrastructure                    | Western Stockpile Extension (940m AHD) | Stage 4 - Extraction Stage C                                    |
| Sealed Internal Roads                  | Eastern Stockpile Area                 | Stage 5 - Western Stockpile Extension & Sediment Basin          |
| <b>Water Management Infrastructure</b> | Indicative Internal Roads              | Stage 6 - Extraction Stage D (Cobble Extraction Area)           |
| Clean Water Diversion                  |  | Stage 6 - Extraction Stage D (Low Qz Volume & Visual Screening) |
| Buried Pipe Culvert                    |  | Continued Operations  |

Data source: Walker Quarries (2019) ; NSW LPI DTDB (2019); Umwelt (2020)

**FIGURE 1.3**  
**Staged Disturbance Sequence**

**Table 1.1 Development (Disturbance Stages)**

Tranche <sup>1</sup>	Stage <sup>2</sup>	Description	Area (ha)
A	1	The initial extension of the extraction area to the west, down to the 950 mAHD contour. This initial extension will target the outcropping quartzite and would allow for the immediate deepening of the quarry floor.	1.15
	3	Extension of the extraction area to the west (to the 920 mAHD contour).	2.91
B	2A	A diversion drain to allow for clean runoff from the Lidsdale State Forest to the west and Great Western highway to the north to be directed into a natural gully discharging into the Coxs River.	0.4
	2B	Construction of the Southern Stockpile Area.	3.05
	4	Extension of the extraction area to its southern and south-western perimeter, allowing for development of the Quarry down to the proposed maximum elevation of 860 m AHD (with extraction below 901 m AHD being subject to additional conditions).	1.2
C	5	Western Stockpile Extension would be prepared and constructed. A clean water drain would be constructed upstream to divert clean water from the second order drainage line originating within the Lidsdale State Forest to the south.	3.56
D	6	Northerly extension of the extraction area (also referred to as the Cobble Extraction Area) to recover the quartzite cobbles/pebbles which occur in seams within 5 m to 20 m of the surface.	1.76

Notes: <sup>1</sup> As defined by Table 5A of Schedule 3, Condition 28A of DA 344-11-2001.

<sup>2</sup> As identified by Ecoplanning (2019b) and Umwelt (2019).

Tranche 1-4 as per DA 344-11-2001 are presented as Tranche A-D for clarity with stages Ecoplanning (2019a) and Umwelt (2019a).

## 1.3 Document History

A Flora and Fauna Management Plan (FFMP) was originally prepared and submitted by Sitegoal Pty Ltd to the DPE (but not approved). Following an Independent Environmental Audit (IEA) completed in 2015, an updated FFMP was prepared by RW Corkery & Co Pty Limited (RWC) and approved by the Secretary of the DPE in September 2016.

Following the first modification to DA 344-11-2001, a BMP was prepared to replace the FFMP (RWC, 2017) and this document has been reviewed and updated at regular intervals. The BMP has been prepared to address the requirements of Schedule 3, Condition 26 of DA 344-11-2001. This version (V4) was prepared following the submission of the Annual Review 2023, in accordance with Schedule 5, Condition 5(c) of DA 344-11-2001.

## 1.4 Legal and Other Regulatory Requirements

DA 344-11-2001 includes several conditions relevant to the management of biodiversity. **Table 1.2** identifies these conditions and identifies the section of this BMP where each is addressed.

**Table 1.2 Biodiversity Management Related Conditional Requirements of DA 344-11-2001**

Condition Number	Condition	Section
<b>Biodiversity Management Plan</b>		
<b>Schedule 3, Condition 26</b>	The Applicant must prepare a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:	
	(a) be prepared by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;	<b>Appendix 1</b>
	(b) be prepared in consultation with BCD;	<b>Section 1.6</b>
	(c) be submitted to the Secretary within three months of providing a satisfactory BOS or by 31 March 2018, whichever is earlier;	<b>Section 1.3</b>
	(d) describe the short, medium, and long term measures to be undertaken to manage the remnant vegetation and fauna habitat on the site;	<b>Section 4.0</b>
	(e) include a detailed description of the measures described in paragraph (d) to be implemented over the next 3 years (to be updated for each 3-year period following initial approval of the plan) including the procedures to be implemented for:	
	○ maximising the salvage of environmental resources within the approved disturbance area, including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of any biodiversity offset areas or site rehabilitation;	<b>Section 4.5</b>
	○ restoring and enhancing the quality of native vegetation and fauna habitat in any biodiversity offset and rehabilitation areas through assisted natural regeneration, targeted vegetation establishment and the introduction of fauna habitat features;	<b>Section 4.2, Section 4.5, Section 4.6</b>
	○ protecting vegetation and fauna habitat outside the approved disturbance area on-site;	<b>Section 4.4, Section 5.2</b>
	○ minimising the impacts on native fauna, including undertaking pre-clearance surveys;	<b>Section 4.4.1</b>
	○ ensuring minimal environmental consequences for threatened species, populations and habitats, including the Purple Copper Butterfly;	<b>Section 4.9</b>
	○ collecting and propagating seed;	<b>Section 4.6</b>
	○ controlling weeds and feral pests;	<b>Section 4.7</b>
	○ controlling erosion; and	<b>Section 4.8</b>
	○ managing bushfire risk;	<b>Section 4.10</b>
	(f) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;	<b>Section 6.0</b>
	(g) identify the potential risks to the successful implementation of the Biodiversity Offset Strategy, and include a description of the contingency measures to be implemented to mitigate these risks; and	<b>Section 7.0</b>

Condition Number	Condition	Section
	(h) include details of who is responsible for monitoring, reviewing, and implementing the plan.	<b>Section 10.0</b>
	The Applicant must implement the Biodiversity Management Plan as approved from time to time by the Secretary.	Noted
<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:	
	(a) a summary of relevant background or baseline data;	<b>Section 2.0</b>
	(b) details of:	
	o the relevant statutory requirements (including any relevant approval, licence or lease conditions);	<b>Section 1.4</b>
	o any relevant limits or performance measures and criteria; and	<b>Section 4.0</b>
	o 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;	<b>Section 4.0</b>
	(c) any relevant commitments or recommendations identified in the document/s listed in condition 2(c) of Schedule 2;	<b>Section 4.0, Section 5.0 &amp; Section 6.0</b>
	(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	<b>Section 4.0</b>
	(e) a program to monitor and report on the:	
	o impacts and environmental performance of the development; and	<b>Section 5.0, Section 6.0</b>
	o effectiveness of the management measures set out pursuant to condition 2(c) of Schedule 2;	
	(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;	<b>Section 6.5</b>
	(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	<b>Section 10.3</b>
	(h) a protocol for managing and reporting any:	
	o incident, non-compliance or exceedance of the impact assessment criteria or performance criteria;	<b>Section 8.0</b>
	o complaint; or	
	o failure to comply with statutory requirements;	
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	<b>Section 9.0</b>
	(j) a protocol for periodic review of the plan.	<b>Section 10.3</b>

Condition Number	Condition	Section
<b>Schedule 5, Condition 4</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.	<b>Section 10.0</b>
<b>Schedule 5 Condition 5</b>	<p>Within 3 months of the submission of an:</p> <ul style="list-style-type: none"> <li>(a) incident report under condition 9 below;</li> <li>(b) Annual Review under condition 11 below;</li> <li>(c) audit report under condition 12 below; and</li> <li>(d) any modifications to this consent,</li> </ul> <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>	<b>Section 10.3</b>

DA 344-11-2001 also includes several conditions relating to the offsetting of disturbance at the Quarry. While several of these relate to requirements which have been previously addressed, they are presented in **Table 1.3** with the section of the BMP where each is discussed.

**Table 1.3 Biodiversity Offsetting and Related Conditional Requirements of DA 344–11–2001**

Condition Number	Condition	Section												
Biodiversity Offset Strategy														
Schedule 3, Condition 24	<p>By 28 February 2018, the Applicant must provide a Biodiversity Offset Strategy in accordance with the Framework for Biodiversity Assessment - NSW Biodiversity Offsets Policy for Major Projects, for the retirement of ecosystem and species credits as set out in Table 5, to the satisfaction of the Secretary and BCD.</p> <p><i>Table 5: Biodiversity credits to be retired</i></p> <table><tr><th>Credit type</th><th>Number of Credits</th></tr><tr><td colspan="2">Ecosystem Credits</td></tr><tr><td>PCT 732 – Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion</td><td>120</td></tr><tr><td>PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion</td><td>34</td></tr><tr><td colspan="2">Species Credits</td></tr><tr><td>Purple Copper Butterfly</td><td>184</td></tr></table>	Credit type	Number of Credits	Ecosystem Credits		PCT 732 – Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	120	PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	34	Species Credits		Purple Copper Butterfly	184	Section 5.1, Appendix 3
Credit type	Number of Credits													
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Species Credits														
Purple Copper Butterfly	184													
Security of Offsets														
Schedule 3, Condition 25	<p>By 31 December 2018, unless otherwise agreed with the Secretary, the Applicant must make suitable arrangements to provide appropriate long-term security for the Biodiversity Offset Strategy, to the satisfaction of the Secretary. Any mechanism must remain in force in perpetuity.</p>	Section 5.1, Appendix 3												



Condition Number	Condition	Section
	Note: Mechanisms to provide appropriate long-term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014.	
<b>Conservation Bond</b>		
<b>Schedule 3, Condition 27</b>	<p>Within six months of the approval of the Biodiversity Offset Strategy, unless otherwise agreed by the Secretary, the Applicant must lodge a Conservation Bond with the Department to ensure that the Biodiversity Offset Strategy is implemented in accordance with the performance and completion criteria in the Biodiversity Management Plan. The sum of the bond must be determined by:</p> <ul style="list-style-type: none"> <li>calculating the full cost of implementing the Biodiversity Offset Strategy at third party rates (other than land acquisition costs); and</li> <li>employing a suitably qualified, independent and experienced person to verify the calculated costs.</li> </ul> <p>The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to the lodgment of the bond.</p>	<b>Section 5.1</b>
<b>Schedule 3, Condition 28</b>	<p>The Conservation Bond must be reviewed and if required, an updated bond must be lodged with the Department within 3 months following:</p> <ul style="list-style-type: none"> <li>an update or revision to the Biodiversity Management Plan;</li> <li>the completion of an Independent Environmental Audit in which recommendations relating to the implementation of the Biodiversity Offset Strategy have been made; or</li> <li>in response to a request by the Secretary.</li> </ul> <p>If the Biodiversity Offset Strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the Secretary, the Secretary will release the bond.</p> <p>If the Biodiversity Offset Strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all, or part of, the conservation bond, and arrange for the completion of the relevant works.</p>	<b>Section 5.1</b>
<b>Schedule 3, Condition 28A</b>	<p>The Applicant must retire biodiversity credits for Stages A to D of the development approved under MOD 3 (Figure 2 in <b>Appendix 1</b>) as specified in Table 5A below, prior to commencing vegetation clearing in that Stage. The retirement of credits must be carried out in consultation with BCD and in accordance with the Biodiversity Offsets Scheme of the BC Act, to the satisfaction of the BCT.</p>	<b>Section 5.2</b>

Condition Number	Condition	Section												
	Table 5A: Biodiversity credit requirements													
	<table><tr><th>Credit Type</th><th>Credits Required</th></tr><tr><td colspan="2">Ecosystem Credits</td></tr><tr><td>Tranche 1 - Credits to be retired for Stage A PCT 1093 – 100 credits PCT 732 – 36 credits</td><td>136</td></tr><tr><td>Tranche 2 - Credits to be retired for Stage B PCT 1093 – 64 credits PCT 732 – 103 credits</td><td>167</td></tr><tr><td>Tranche 3 - Credits to be retired for Stage C PCT 1093 – 52 credits PCT 732 – 75 credits</td><td>127</td></tr><tr><td>Tranche 4 - Credits to be retired for Stage D PCT 1093 – 57 credits</td><td>57</td></tr></table>	Credit Type	Credits Required	Ecosystem Credits		Tranche 1 - Credits to be retired for Stage A PCT 1093 – 100 credits PCT 732 – 36 credits	136	Tranche 2 - Credits to be retired for Stage B PCT 1093 – 64 credits PCT 732 – 103 credits	167	Tranche 3 - Credits to be retired for Stage C PCT 1093 – 52 credits PCT 732 – 75 credits	127	Tranche 4 - Credits to be retired for Stage D PCT 1093 – 57 credits	57	
	Credit Type	Credits Required												
	Ecosystem Credits													
	Tranche 1 - Credits to be retired for Stage A PCT 1093 – 100 credits PCT 732 – 36 credits	136												
	Tranche 2 - Credits to be retired for Stage B PCT 1093 – 64 credits PCT 732 – 103 credits	167												
	Tranche 3 - Credits to be retired for Stage C PCT 1093 – 52 credits PCT 732 – 75 credits	127												
Tranche 4 - Credits to be retired for Stage D PCT 1093 – 57 credits	57													
Note: The stages referenced in Table 5A are shown in Figure 2 in <b>Appendix 1</b> .														

A number of commitments were provided in the Statement of Environmental Effects (SEE) submitted as part of Modification 3 of DA 344-11-2001 (refer to **Table 1.4**).

**Table 1.4 Commitments from Mod 3 SEE**

Commitment	Section
The existing Biodiversity Management Plan will be updated to include Project activities.	Refer to BMP V2.1
Impacts will be restricted to areas identified within the SEE and assessed as part of the BDAR.	<b>Section 2.4</b>
Clearing will only be undertaken to allow for the following 12 months operations.	<b>Section 4.4.1, Section 4.7.1</b>
The Applicant will prepare an updated Biodiversity Offset Strategy to identify and document the methods for offsetting the progressive disturbance to native vegetation and threatened species habitat. It is likely that a combination of measures will be used to retire the required credits including entering into a Biodiversity Stewardship Agreement payment into the Biodiversity Conservation Fund and purchase of credits on the open market. Rehabilitation of impacted areas in accordance with any published 'ancillary rules' under Section 6.5 of the BC Reg may also be used to generate the required credits.	<b>Section 5.2</b>

## 1.5 Objectives and Outcomes

**Table 1.5** presents the objectives and key performance outcomes relating to flora and fauna management for the BMP and the Quarry.

**Table 1.5 Objectives and Key Performance Outcomes**

Objectives	Key Performance Outcomes
To ensure compliance with all relevant Quarry approval conditions, statements of commitment 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 minimise and measure impact to biodiversity.	<ul style="list-style-type: none"> <li>Implementation of the biodiversity management and mitigation measures nominated in the BMP.</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 and natural resource 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 Offset Strategy (BOS) in accordance with the NSW Biodiversity Offsets Scheme.</li> </ul>
To appropriately manage sections of the Quarry 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>
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>

## 1.6 Consultation

### 1.6.1 Biodiversity & Conservation Division/NSW Office of Environment & Heritage

Schedule 3, Condition 26(b) requires the BMP to be prepared in consultation with the Biodiversity and Conservation Division (BCD) of DPHI. The role of the BCD was previously undertaken by the former NSW Office of Environment & Heritage (OEH). The consultation undertaken in the preparation of the BMP and revisions, is provided in the following sections. Key documents, including emails, referenced below can be reviewed as **Appendix 1**.

#### 1.6.1.1 Original BMP (V0) Consultation

On 20 October 2017, an email was sent to the OEH seeking feedback in relation to the content requirements of the Plan. OEH responded on 2 November 2017 and endorsed the requirements of Schedule 3, Condition 26 of DA 344-11-2001. **Table 1.2** identifies where each of these requirements have been addressed in the BMP.

OEH suggested the format of the BMP should reference the *Draft Guidelines for the Preparation of Biodiversity Management Plans for Major Projects* (OEH, 2014) as this provides an overview of the information OEH consider relevant to a BMP.

OEH made specific reference to the following matters:

- Delineation of the site into appropriate management zones (refer to **Section 2.4**).
- Development of an appropriate monitoring program (refer to **Section 6.0**).
- Creation of Key Performance Indicators (KPIs) that link into that monitoring plan (refer to **Section 4.0**).
- Development of a TARP to ensure that the KPIs are met (refer to **Section 7.0**).

OEH also requested that where a management zone requires “active” management, e.g. revegetation, the KPIs should consider relevant timeframes such that the expected ecological trajectory can be monitored and relevant response actions can be implemented.

The BMP was updated following Modification 2 of DA 344-11-2001, however, no consultation was undertaken at this time given the minor nature of the modification (12 month extension to operations).

#### **1.6.1.2 BMP V2 Consultation**

Following review of the BMP following the most recent modification to DA 344-11-2001 (Mod 3), an email was sent to the BCD on 18 March 2020 requesting any requirements for the update of the BMP. On 23 March 2020, Mr David Geering, Senior Conservation Planning Officer, North West of the BCD responded by phone requesting the BMP be provided for review. The preference of Walker Quarries to obtain inclusion requirements prior to drafting the modified Biodiversity Management Plan was expressed to Mr Geering and as a result an email was received from the BCD referring again to OEH (2014).

The BMP was submitted via the NSW Major Projects Planning Portal on 9 April 2020 where it was understood it would be referred to the BCD. After not receiving any further feedback, a query regarding status of review was emailed to the BCD on 28 April 2020 regarding the status of review. On 29 April, an email was received from Mr Geering of BCD noting that an initial request to review the BMP had been withdrawn and consequently BCD had not reviewed.

On 6 May 2020, a copy of the BMP was emailed to the BCD for review and on 22 May 2020 a response containing recommendations following this review was received. **Table 1.6** presents the recommendations of the BCD’s 22 May 2020 correspondence and where these are addressed in the BMP.

**Table 1.6 BCD Recommendations (22 May 2020)**

Recommendation		Comment	Section
1.1	Quantitative performance measures, targets and trigger points for corrective action be developed	Additional quantitative performance and completion criteria included in relation to weed management.	<b>Section 4.7.2 (Table 4.6)</b>
1.2	A detailed monitoring plan to track performance towards completion criteria be developed	Additional detail on monitoring of weeds against the updated performance and completion criteria of <b>Section 4.7.2 (Table 4.6)</b> is provided.	<b>Section 6.3.3</b>
1.3	Trigger points in the TARP be quantifiable and relate to performance or completion criteria	Additional and quantified triggers included in <b>Table 7.1</b> with reference to the updated performance and completion criteria of <b>Section 4.7.2 (Table 4.6)</b> .	<b>Section 7.0 (Table 7.1)</b>
2.1	The BMP to reflect the Consolidated Consent Conditions in regards retirement of the approved credit requirement	The MOD 3 Biodiversity Offset Strategy has been revised to reflect the requirements of Schedule 3, Condition 28A of DA 344-11-2001. Reference to the initial retirement of credits has been removed, however, sections on Application of the Biodiversity Offsets Scheme, Credit Obligations and Implementation Strategy have been retained with modifications to reflect the requirements of Schedule 3, Condition 3.	<b>Section 5.2</b>

Following submission in May 2020, the BMP was referred to the BCD for further review, comments and recommendations provided by the BCD were provided by the DPHI with a request to address these. The correspondence from the BCD is included in **Appendix 1**. **Table 1.7** summarises the recommendations made by BCD, how these have been addressed and the relevant section.

**Table 1.7 BCD Recommendations (7 September 2020)**

BCD Recommendation		Response	Section
1.1	Standard plot-based floristic surveys consistent with the BAM should be used to determine condition of vegetation and to track performance of rehabilitation areas towards completion criteria.	This recommendation is accepted and planning is underway to undertake BAM based vegetation monitoring as part of the next (Spring) monitoring campaign.	<b>Section 6.3.2</b>
1.2	Monitoring of weeds should occur across the entire quarry in order to identify and control weeds as required.	The scope of annual monitoring of the Quarry has been extended to allow for further survey of weed species distribution and density across the Quarry.	<b>Section 6.3.3</b>

BCD Recommendation		Response	Section
2.1	Proactive management in consultation with a species expert should be undertaken to maximise the potential for the Purple Copper Butterfly to recolonize suitable areas of the quarry.	A commitment to identify and consult with a species expert is included as a management measure.	<b>Section 4.9.2</b>
2.2	Known feed plants for adult Purple Copper Butterflies should be included into the seed mix for rehabilitation areas.	This was already identified under Purple Copper Butterfly Management Measures, however, also now included under Rehabilitation Management Measures.	<b>Section 4.2.2 &amp; Section 4.9.2</b>
2.3	The potential to establish additional patches of Bursaria should be explored within the Conservation Biodiversity Management Areas.	Walker Quarries has committed to desktop and field investigations as part of the next monitoring campaign to identify suitable areas for re-establishment of Bursaria. If identified, the BMP will be updated, in consultation with BCD, to include a replanting / re-establishment schedule.	<b>Section 4.9.2, Section 4.9.3 &amp; Section 6.4.2</b>
2.4	Additional monitoring sites for the Purple Copper Butterfly should be established on rehabilitation areas where Bursaria becomes established.	This commitment is now included in the BMP.	<b>Section 6.4.2</b>
3.1	The terminology used in the BMP should be standardised to ensure clarity.	All references have been standardised to refer to Tranches (relating to Condition 28A) or Stages if reference is to the original staging of the BDAR.	This BMP, <b>Section 5.0</b>
3.2	Clarification of point 2c of Section 5.4.2 is required. Further assessment of the credit obligation of previously assessed areas is not appropriate.	The Implementation Strategy has been simplified and reference to credit obligation review removed.	<b>Section 5.2.4</b>
3.3	The inclusion of BCF payment figures is not required in the BMP as the cost of retiring credits via payment to the BCF is updated quarterly and therefore may change over time.	Noted and removed.	<b>Table 5.1, Table 5.3</b>
4.1	BCD is to be consulted in regards any recommendations made relating to changes to monitoring or management actions.	Understood and agreed. Reference to this review by BCD has been included in the BMP along with a commitment to consult with BCD prior to any future updates to the BMP.	<b>Section 1.6.3</b>

### **1.6.2 Department of Planning, Housing and Infrastructure (DPHI)**

DPHI (formerly DPE) was queried as to the relevance of Schedule 3, Conditions 24 and 25 of DA 344-11-2001 in a telephone conversation on 23 March 2020. While noting the specific offsetting requirements referenced in these conditions had been completed, the DPHI noted the conditional requirement for a BOS remained by virtue of Schedule 5, Condition 5 which requires any strategies, plans and programs required under this consent, to be reviewed and updated following modification to DA 344-11-2001.

In this same discussion, the utility of an updated BOS to allow for alternative biodiversity credit retirement to that of Schedule 3, Condition 28A was confirmed, subject to satisfying the requirements of the BCD and Biodiversity Conservation Trust (BCT) (with the BCT being the statutory authority responsible for the effective implementation of the NSW Biodiversity Offsets Scheme).

### **1.6.3 Future Consultation**

Prior to any future updates to the BMP, the BCD will be consulted, and any comments and recommendations considered in the updated version of the BMP.

## 2.0 Local Setting

### 2.1 Landscape Context

The Quarry is located on land adjacent to remnant native vegetation which is bounded to the north and west by the Great Western Highway, to the south by Lidsdale State Forest plantation timber and to the east by the Coxs River. The terrain is steeply sloping to the south and east towards the Coxs River. **Table 2.1** provides various regional and local landscape features of the Quarry.

**Table 2.1 Landscape Context of the Quarry**

Landscape feature	Occurrence
Interim Biogeographic Regionalisation for Australia (IBRA) region	South Eastern Highlands.
IBRA sub regions	Hill End (Extraction Area, Southern Stockpile Area and Eastern Stockpile Area). Capertee Uplands (Quarry Office, Main Stockpile Area, Western Stockpile Area).
NSW (Mitchell) Landscapes (within 1,500 m)	Mount Horrible Plateau <sup>1</sup> /Capertee Plateau/Bathurst Granites.
Rivers, streams and estuaries	Ephemeral tributaries of the Coxs River flow from Lidsdale State Forest to the west in an easterly than southerly direction.
Wetlands	No local or important wetlands area present within the study area.
Habitat connectivity	The vegetation of the Quarry is connected to the south to Marrangaroo National Park.

*Note <sup>1</sup> For the purposes of impact assessment and biodiversity credit calculations, the Mount Horrible Plateau NSW Landscape (which makes up the majority of the Quarry) has been used.*

Source: Ecoplaning Pty Ltd (2019b).

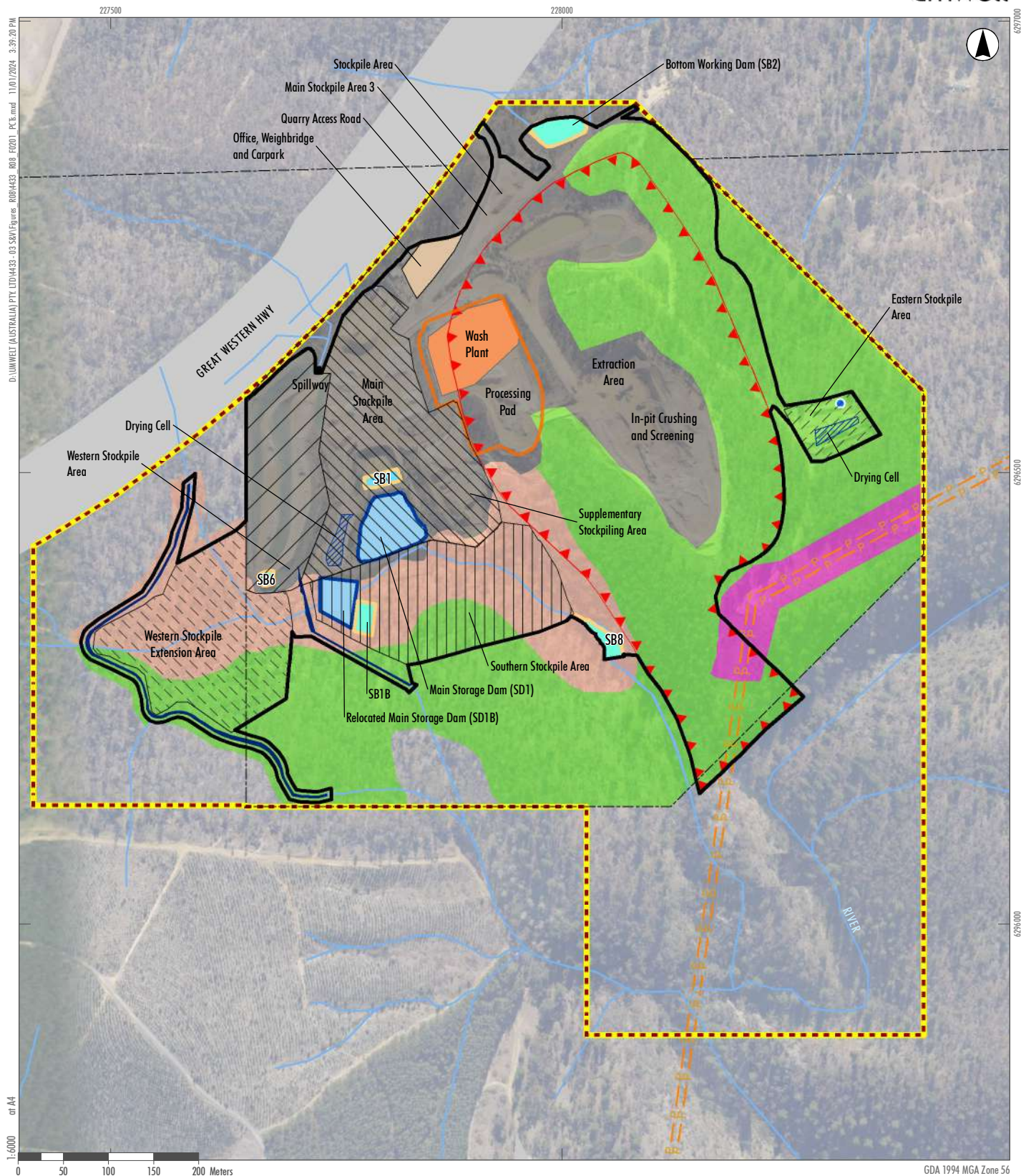
### 2.2 Remnant Vegetation

The remnant vegetation of the Quarry and surrounds is presented on **Figure 2.1** as the following two Plant Community Types (PCTs):

- PCT 732 – Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion.
- PCT 1093 – Red Stringybark Brittle Gum –Inland Scribbly Gum dry open forest of the tablelands South Eastern Highlands Bioregion.

Neither PCT is identified within the BioNet Vegetation Classification as Threatened Ecological Communities (TECs) (as listed under the *Biodiversity Conservation Act 2016*).





# Legend

- |                                  |  |  |
|----------------------------------|--|--|
| Quarry Site Boundary             | Office, Weighbridge and Carpark  | 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands South Eastern Highlands Bioregion, Intact |
| EL 4473                          | Wash Plant Facility  | 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands South Eastern Highlands Bioregion, Slash  |
| Project Quarry Site Mining Lease | Main Stockpile Area (935m AHD)   | Other - cleared/disturbed vegetation   |
| Approved Disturbance Area        | Southern Stockpile Area (935m AHD)   |  |
| Watercourses                     | Western Stockpile Area   |  |
| Electricity Transmission Lines   | Western Stockpile Extension (940m AHD)   |  |
| Clean Water Diversion            | Eastern Stockpile Area   |  |
| Sediment Basins                  | <b>Plant Community Types (PCTs)</b>  |  |
| Settlement Ponds                 | 732 - Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion, Intact |  |
| Storage Dam                      |  |  |
| Water Tank                       |  |  |
| Processing Pad                   |  |  |

FIGURE 2.1

Plant Community Types of the Quarry Site

## 2.3 Threatened Species

In accordance with the Biodiversity Assessment Methodology (BAM), a total of five flora and 18 fauna species credit species were identified as potentially occurring within the subject land<sup>1</sup> (Ecoplaning, 2019b).

### Flora

- *Eucalyptus cannonii* (Capertee Stringybark)
- *Eucalyptus pulverulenta* (Silver-leafed Gum)
- *Grevillea divaricata*
- *Persoonia marginata* (Clandulla Geebung)
- *Veronica blakelyi*.

### Fauna

- Gang-gang cockatoo (*Callocephalon fimbriatum*) (breeding)<sup>2</sup>
- Glossy Black-Cockatoo (Breeding) (*Calyptorhynchus lathami*) (breeding)
- Eastern Pygmy-possum (*Cercartetus nanus*)
- Large-eared Pied Bat (*Chalinolobus dwyeri*)
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*)
- Little Eagle (*Hieraaetus morphnoides*)
- Booroolong Frog (*Litoria booroolongensis*)
- Square-tailed Kite (*Lophoictinia isura*) (breeding)
- Barking Owl (*Ninox connivens*)
- Powerful Owl (*Ninox strenua*)
- Purple Copper Butterfly (*Paralucia spinifera*)<sup>2</sup>
- Squirrel Glider (*Petaurus norfolcensis*)
- Brush-tailed Phascogale (*Phascogale tapoatafa*)
- Koala (*Phascolarctos cinereus*) (breeding)<sup>3</sup>
- Masked Owl (*Tyto novaehollandiae*).

<sup>1</sup> It is noted this list includes additional species to those listed in the previous version of the BMP. This reflects the adoption of the BAM for the most recent biodiversity assessment of the Quarry (Ecoplaning, 2019) compared to the Framework for Biodiversity Assessment used for previous biodiversity assessment.

<sup>2</sup> Has been identified on or adjacent to the Quarry.

<sup>3</sup> While Koala may occur locally due to the presence of the Ribbon Gum (*Eucalyptus viminalis*) which is a feed tree for the species, all field surveys have failed to identify a resident population of Koala or evidence of past habitation such as scats or scratches. In accordance with *State Environmental Planning Policy 44 – Koala Habitat Protection* the Quarry Site is therefore considered to be 'potential' Koala habitat but does not contain 'core' Koala habitat.

Of these, only the Purple Copper Butterfly has been identified on the site. The Purple Copper Butterfly's life cycle<sup>4</sup> relies on a 'mutualistic' relationship with the ant, *Anonychomyrma itinerans* (CSIRO, 2002; Dexter & Kitching, 1991a). Monitoring for the presence of Purple Copper Butterfly and *Anonychomyrma itinerans* has been undertaken since 2016 and despite the species being recorded at other locations within the locality, it has not been identified on the site. As the Purple Copper Butterfly has a life-cycle with one generation completed annually, and neither the species nor attendant ant species has been detected by the monitoring surveys between 2016 and 2023, it has been concluded by EcoPlanning (2022) that the population(s) which once occurred within the Quarry, is likely to be locally extinct or very small and difficult to detect.

Other threatened species which have been identified on or adjoining the Quarry are:

- Scarlet Robin (*Petroica boodang*): identified by Lesryk (2017a).
- Varied Sittella (*Daphoenositta chrysoptera*): identified by Lesryk (2016).
- Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*): identified by Wildthing (1999).

In each case, the Quarry has been identified as comprising only a minor portion of the range of each species with significant areas of equivalent habitat available in the immediate surrounds. Quarry operations have been assessed as unlikely to impact on the life cycle of each species as long as the habitat and fauna management measures described in **Section 4.0** are adhered to.

## 2.4 Biodiversity Management Areas

### 2.4.1 Introduction

The management of biodiversity within the Quarry has been divided into two Biodiversity Management Areas (BMA):

- Impact BMA: comprising the area of the Quarry which could be directly impacted by Quarry operations in accordance with DA 344-11-2001.
- Conservation BMA: comprising the area of the Quarry (excluding the powerline easement through Lot 6 in Deposited Plan (DP) 872230 and Lot 7322 in DP1149335) to remain undisturbed by the Quarry.

**Figure 2.2** identifies the relative areas of these two BMA.

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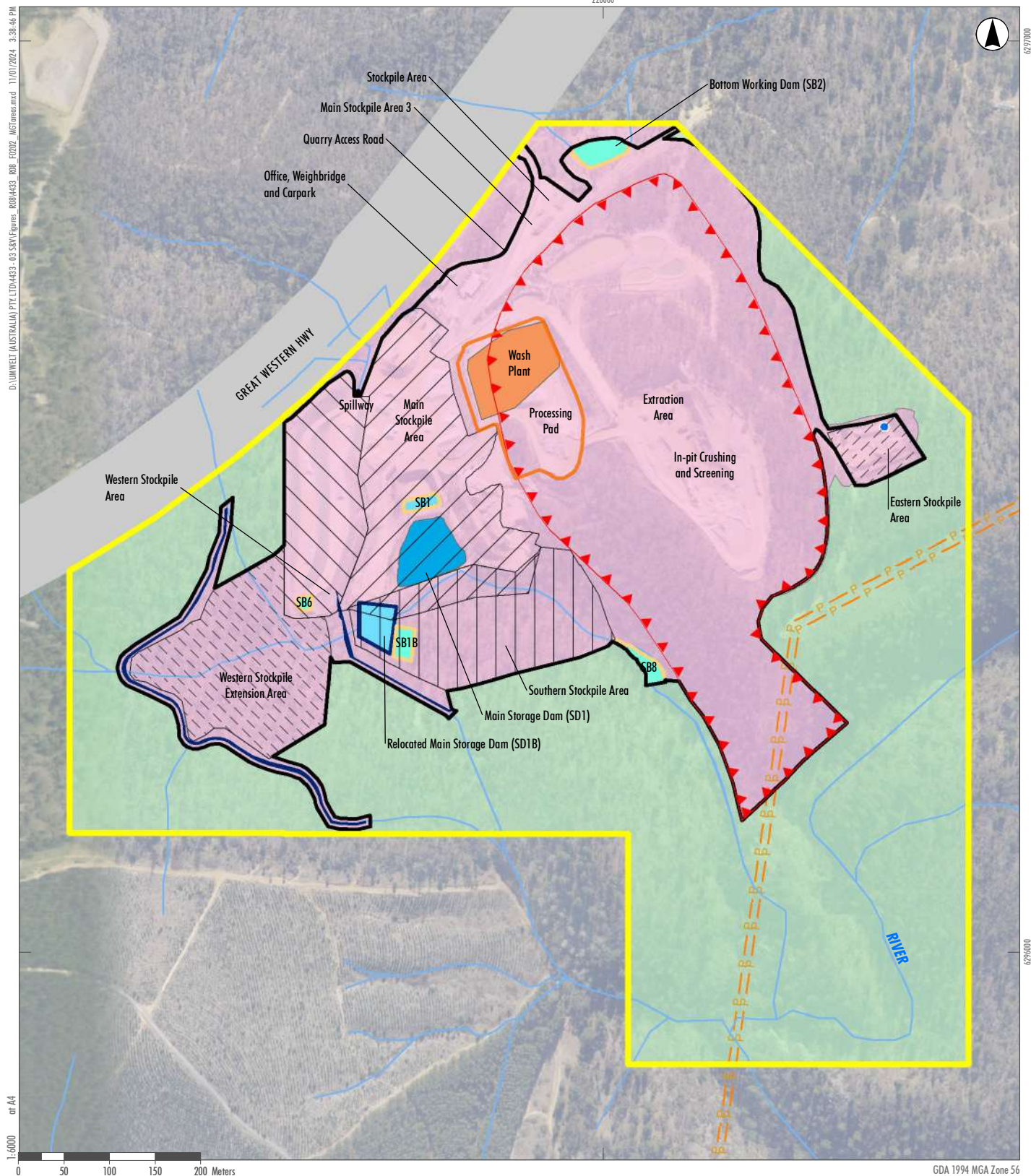
<sup>4</sup> Refer to <https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/native-animal-facts/purple-copper-butterfly> for further detail on Purple Copper Butterfly life cycles and mutualistic relationship with *Anonychomyrma itinerans*.

## 2.4.2 Impact BMA

### 2.4.2.1 Description

The approved extension to the extraction area and stockpile areas of the Quarry would result in additional disturbance at the Quarry of up to 14.1 ha. This includes approximately 8.6 ha of PCT 1093 (Red Stringybark Brittle Gum Inland Scribbly Gum dry open forest of the tablelands South Eastern Highlands Bioregion) and 5.5 ha of PCT 732 (Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion). As discussed in **Section 2.2**, neither is identified as a TEC. As noted previously (**Section 1.2**), disturbance within the Impact BMA has been staged and the full extent of disturbance may not occur.





## Legend

- |   |  |  |
|---|--|--|
| <span style="border: 2px solid yellow; padding: 2px;"> </span> Quarry Site Boundary                                       | <span style="border: 1px solid black; padding: 2px;"> </span> Main Stockpile Area (935m AHD)                           | <b>Biodiversity Management Areas (BMAs)</b>  |
| <span style="border: 2px solid black; padding: 2px;"> </span> Approved Disturbance Area                                   | <span style="border: 1px solid black; padding: 2px;"> </span> Southern Stockpile Area (935m AHD)                       |  |
| <span style="color: red;">▲</span> Approved Extraction Area   | <span style="border: 1px solid black; padding: 2px;"> </span> Western Stockpile Area                                   |  |
| <span style="color: blue;">—</span> Watercourses  | <span style="border: 1px solid black; padding: 2px;"> </span> Western Stockpile Extension (940m AHD)                   |  |
| <span style="color: orange;">—P—</span> Electricity Transmission Lines  | <span style="border: 1px solid black; padding: 2px;"> </span> Eastern Stockpile Area                                   |  |
| <span style="background-color: darkblue; width: 10px; height: 10px; display: inline-block;"></span> Clean Water Diversion | <span style="background-color: lightgreen; width: 10px; height: 10px; display: inline-block;"></span> Conservation BMA | <span style="background-color: pink; width: 10px; height: 10px; display: inline-block;"></span> Impact BMA |
| <span style="background-color: cyan; width: 10px; height: 10px; display: inline-block;"></span> Sediment Basins           |  |  |
| <span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Water Tank                |  |  |
| <span style="border: 1px solid orange; padding: 2px;"> </span> Processing Pad   |  |  |
| <span style="background-color: orange; width: 10px; height: 10px; display: inline-block;"></span> Wash Plant Facility     |  |  |

**FIGURE 2.2**  
**Biodiversity Management Areas**

The vegetation of the Impact BMA has been confirmed as potential habitat for a number of threatened species of flora and fauna. However, impacts to all species are associated with the disturbance to the vegetation and therefore subject to appropriate offsetting of disturbance (refer to **Section 5.0**), the 'no net loss standard' of the BAM would be achieved.

#### **2.4.2.2 Objectives**

The objectives of biodiversity management within the Impact BMA are:

- Restrict disturbance to the defined Impact BMA.
- Manage weed and pest species, focusing on noxious species.
- Optimise use/recycling of the cleared vegetation and soils or vegetation requiring clearing or thinning.
- Rehabilitate the impacted areas to establish a safe and non-polluting landform and sustainable ecological communities.

#### **2.4.2.3 Threats**

The threats to the biodiversity objectives of the Impact BMA, which are discussed in **Section 3.1**, and associated biodiversity management measures to be implemented, which are discussed in **Section 4.0**, are identified in **Table 2.2**.

#### **2.4.2.4 Rehabilitation**

Rehabilitation of the BMA will be in accordance with the Quarry RMP. The Final Landform and Rehabilitation Plans are provided in Section 5.0 of the RMP.

**Table 2.2 Summary of Threats and Associated Management Measures for the Impact BMA**

Management Measures	Threats								
	Vegetation Clearing (Section 3.1.1)	Disturbance to Habitat (Section 3.1.2)	Weeds (Section 3.1.3)	Feral Pest Species (Section 3.1.4)	Erosion and Sedimentation (Section 3.1.5)	Changes to Local Drainage (Section 3.1.6)	Noise and Dust Emissions (Section 3.1.7)	Vehicle Trauma (Section 3.1.8)	Land Contamination (Section 3.1.9)
Rehabilitation (Section 4.2)	✓		✓	✓	✓				✓
Access Tracks (Section 4.3)	✓	✓						✓	
Vegetation Clearing (Section 4.4)	✓	✓			✓	✓			
Salvage, Storage and Reuse of Environmental Resources (Section 4.5)	✓		✓						
Collection and Propagation of Seed (Section 4.6)		✓	✓						
Weed and Feral Pest Management (Section 4.7)			✓	✓					
Erosion and Sediment Control (Section 4.8)					✓				

Management Measures	Threats								
	Vegetation Clearing (Section 3.1.1)	Disturbance to Habitat (Section 3.1.2)	Weeds (Section 3.1.3)	Feral Pest Species (Section 3.1.4)	Erosion and Sedimentation (Section 3.1.5)	Changes to Local Drainage (Section 3.1.6)	Noise and Dust Emissions (Section 3.1.7)	Vehicle Trauma (Section 3.1.8)	Land Contamination (Section 3.1.9)
<i>Bursaria spinosa</i> (Potential Purple Copper Butterfly Habitat) Management (Section 4.9)	✓	✓							
Bushfire Management (Section 4.10)	✓								



## 2.4.3 Conservation BMA

### 2.4.3.1 Description

The Conservation BMA incorporates land dominated by remnant native woodland which is to remain undisturbed by the Quarry (refer to **Figure 2.2**). As far as has been mapped by Ecoplanning (2019b), the Conservation BMA is dominated by PCT 1093 on the slopes, and PCT 732 in gullies and along local drainage lines. Dominant species including the Ribbon Gum, Snow Gum, Mountain Gum and Black Sallee. These canopy species are of varying ages with some containing hollows.

The understorey is sparse to non-existent and consists predominantly of younger specimens of the canopy species while the shrub layer consisted of Broom Heaths, Wattles, Finger Hakea, Narrow-leaved Geebung and Cherry Ballart. Groundcover is well established and included native grasses including Snow Grass, Three-awn Eargrass, Wallaby Grass, Forest Hedgehog Grass and Kangaroo Grass.

The area of land between the powerline easement and south-eastern boundary of the Quarry is excluded from the Conservation BMA due to the restricted access created by the powerline easement and steep terrain.

### 2.4.3.2 Objectives

The objectives of biodiversity management within the Conservation BMA are:

- Prevent disturbance to native vegetation.
- Protect and enhance fauna habitat.
- Manage weed and feral pest species effectively.

### 2.4.3.3 Threats

The threats to the biodiversity objectives of the impact BMA, which are discussed in **Section 3.1**, and associated biodiversity management measures to be implemented, which are discussed in **Section 4.0**, are identified in **Table 2.3**.

**Table 2.3 Summary of Threats and Associated Management Measures for the Conservation BMA**

Management Measures	Threats								
	Vegetation Clearing (Section 3.1.1)	Disturbance to Habitat (Section 3.1.2)	Weeds (Section 3.1.3)	Feral Pest Species (Section 3.1.4)	Erosion and Sedimentation (Section 3.1.5)	Changes to Local Drainage (Section 3.1.6)	Noise and Dust Emissions (Section 3.1.7)	Vehicle Trauma (Section 3.1.8)	Land Contamination (Section 3.1.9)
Access Tracks (Section 4.3)	✓	✓						✓	
Weed and Feral Pest Management (Section 4.7)			✓	✓					
Erosion and Sediment Control (Section 4.8)					✓	✓			✓
Potential Purple Copper Butterfly Habitat Management (Section 4.9)	✓	✓					✓		
Bushfire Management (Section 4.10)	✓								

## 3.0 Threats to Biodiversity

### 3.1 Threat Identification

#### 3.1.1 Vegetation Clearing

As noted in **Section 2.4.2.1**, up to 14.1 ha of native woodland vegetation (of both PCT 1093 and PCT 732) will be progressively disturbed under the existing limits of DA 344-11-2001. The clearing of vegetation has the potential to:

- Result in a net loss to the biodiversity value of the region and state.
- Reduce the extent of habitat for threatened flora and fauna (refer also to **Section 3.1.2**).
- Cause direct harm or death to native fauna (refer to **Section 3.1.8**).
- Lead to erosion and sedimentation (refer to **Section 3.1.5**).
- Promote the spread and establishment of noxious or environmental weeds, as well as vermin and other pest species (refer to **Section 3.1.3** and **Section 3.1.4**).

Progressive clearing and rehabilitation following completion of quarry activities in areas will ensure disturbance is undertaken in a planned manner and impacts to biodiversity values are progressively mitigated. Furthermore, tree clearing will be scheduled to minimise impact on breeding birds and other arboreal fauna (refer to **Section 4.4**).

The implementation of the Quarry BOS (refer to **Section 5.0**) will ensure that impacts to biodiversity are offset prior to disturbance and during rehabilitation establishment.

No significant impact will occur to any listed TEC.

#### 3.1.2 Disturbance to Habitat

Disturbance of habitat will be limited to the Impact BMA. While various ecological assessments of the Quarry (Wildthing, 1999, 2002, Lesryk, 2017c, Ecoplanning 2017 and 2019a) have concluded that the Quarry operations and disturbance within the Impact BMA will not place any species, population or community at risk of local extinction, disturbance has included vegetation identified as known or potential habitat for the threatened Purple Copper Butterfly and other species.

No additional tracks or roads are to be constructed within the Conservation BMA and as such there will be no direct disturbance to habitat within the Conservation BMA. Disturbance resulting from the following indirect impacts could occur and will be managed.

- Spread of weed and feral pest species (**Section 3.1.3** and **Section 3.1.4**).
- Erosion of the landscape due to surface disturbance (**Section 3.1.5**).
- General changes to local drainage (**Section 3.1.6**).

- Noise and dust impacts associated with operations (**Section 3.1.7**).
- Vehicle trauma to native fauna (**Section 3.1.8**).

### **3.1.3 Weeds**

Several exotic flora species have been identified on the Quarry, most notably *Hypericum perforatum* (St Johns Wort), *Pinus radiata* (Radiata Pine) and *Rubus ulmifolius* (Blackberry) (Ecoplanning, 2020), these species could occur within both BMAs.

Blackberry and St John's Wort are classified as noxious weed species of control class 4.

Other weed species are expected to occur and have the potential to threaten the objectives of the BMP (refer to **Table 1.5**) through competition with native species, in particular disturbance of colonising species.

### **3.1.4 Feral Pest Species**

During the most recent flora and fauna surveys of the Quarry no feral species were observed. It is likely, however, that introduced exotic species such as fox, cat, rabbit, European hare, starling and Indian minor will utilise the Quarry either on a permanent or temporary basis and could directly impact on endemic fauna and flora species through grazing, competition for resources or predation.

### **3.1.5 Erosion and Sedimentation**

Removal of ground stratum from the Impact BMA increases the potential for soil erosion, modifying the local setting and downstream habitat. Under these conditions, valuable resources for rehabilitation and re-establishment of native biodiversity may be lost and the downstream ecology of watercourses (within the Conservation BMA and beyond) adversely affected by discharge of turbid water with high sediment loads.

### **3.1.6 Changes to Local Drainage**

Modified drainage within the Impact BMA could influence the volume and quality of water discharged and flowing within the drainage lines of the Conservation BMA. Modified flows have the potential to affect the type and density of vegetation, which in turn may impact on the habitat value of these watercourses for native fauna.

### **3.1.7 Noise and Dust Emissions**

If overly noisy or dusty, native fauna may be discouraged from utilising the Conservation BMA as breeding or foraging habitat.

### **3.1.8 Impact Trauma**

The clearing of vegetation and movement of vehicles around the Quarry has the potential to directly harm native fauna. This is primarily a threat associated with the Impact BMA, however, while movements within the Conservation BMA will be restricted, there remains the potential for collision with native fauna.

### 3.1.9 Land Contamination

With the operation of the Quarry comes the risk of contamination through spillage of hydrocarbons. These have the potential to contaminate land and affect the ability of Walker Quarries to achieve the nominated biodiversity objectives for the two BMA.

Silts washed from the sand products will be captured initially in silt dams before being transferred to the Eastern Stockpile Area for drying. Should these structures spill or leak, it is possible for runoff containing elevated concentration of suspended solids to discharge to local watercourses which could impact on the achievement of the nominated biodiversity objectives.

## 3.2 Risks to Achieving Outcomes

**Table 3.1** summarises the risk(s) posed by each of the threats identified in **Section 3.1**, relevant performance objectives, the management strategies to be implemented and the overall risk associated with each threat. The management measures referenced, along with performance criteria, are further defined and described in **Section 4.0**.

**Table 3.1 Threats to Biodiversity Outcomes**

Threat	Performance Objectives	Management Strategies	Risk Level
Vegetation Clearing	Implement access track management strategy	Access tracks ( <b>Section 4.3</b> ).	Low
	All clearing undertaken within approved impact footprint.	Rehabilitation ( <b>Section 4.2</b> ). Vegetation clearing ( <b>Section 4.4</b> ).	Low
Habitat disturbance	No avoidable impacts on fauna habitat.	Access tracks ( <b>Section 4.3</b> ). Vegetation clearing ( <b>Section 4.4</b> ).	Low
	All pre and post vegetation clearing administrative controls implemented	Vegetation clearing ( <b>Section 4.4</b> ).	Low
	Maximise re-establishment of fauna habitat in final landform.	Salvage, storage and reuse of environmental resources ( <b>Section 4.5</b> ). Collection and propagation of seed ( <b>Section 4.6</b> ). Rehabilitation ( <b>Section 4.2</b> ).	Low
	Avoid additional impacts on threatened species.	Vegetation clearing ( <b>Section 4.4</b> ). Weed and feral pest management ( <b>Section 4.7</b> ). Purple Copper Butterfly and <i>Bursaria spinosa</i> management ( <b>Section 4.9</b> ).	Low

Threat	Performance Objectives	Management Strategies	Risk Level
Weed and Feral Pest Species	Decrease in number and abundance of weed species.	Salvage, storage and reuse of environmental resources ( <b>Section 4.5</b> ). Collection and propagation of seed ( <b>Section 4.6</b> ). Rehabilitation ( <b>Section 4.2</b> ). Weed and feral pest management ( <b>Section 4.7</b> ).	Low
	Reduction in feral pest numbers.	Weed and feral pest management ( <b>Section 4.7</b> ).	Low
Erosion and Sedimentation	Reduction in land area subject to active soil erosion and stream bed erosion.	Access tracks ( <b>Section 4.3</b> ). Vegetation clearing ( <b>Section 4.4</b> ). Erosion and sediment control management (ESCM) ( <b>Section 4.8</b> ).	Low
Changes to Local Drainage	Avoid adverse effects on drainage line habitat.	Vegetation clearing ( <b>Section 4.4</b> ). ESCM ( <b>Section 4.8</b> ).	Low
Noise and Dust Emissions	Minimise reduction in local fauna.	Salvage, storage and reuse of environmental resources ( <b>Section 4.5</b> ). Collection and propagation of seed ( <b>Section 4.6</b> ). Rehabilitation ( <b>Section 4.2</b> ). Weed and feral pest management ( <b>Section 4.7</b> ).	Low
Vehicle Trauma	Minimise fauna mortality	Access tracks ( <b>Section 4.3</b> ).	Low
Land Contamination	Prevent contamination of land and water.	Access tracks ( <b>Section 4.3</b> ). ESCM ( <b>Section 4.8</b> ).	Low

## 4.0 Biodiversity Management Measures

### 4.1 Introduction

The following sub-sections describe the measures to be implemented to achieve the objectives nominated in **Section 1.5** (for overall biodiversity management), **Section 2.4** (for each BMA individually) and manage the threats to biodiversity identified in **Section 3.0**.

Management measures are classified as occurring in either the short-, medium- or long-term. Short-term management measures include targeted activities with an approximate duration of between 18 months and two years. Medium-term management measures include activities, which require longer-term duration but have a defined end point, such as managing cleared vegetation, typically have an approximate duration of between two and five years. Long-term management measures include ongoing or repeat activities over the life of the Quarry or beyond, such as weed and feral pest management and bushfire risk management.

Performance targets and completion criteria are provided for each of the management measures and are described in **Table 7.1** (refer to **Section 7.0**) with individual Trigger Action Response Plans (TARPs), to be implemented in response to these targets or criteria not being achieved.

### 4.2 Rehabilitation

#### 4.2.1 Goals and Objectives

Details of rehabilitation activities and final land use are provided in the RMP. In summary, rehabilitation aims to re-establish native vegetation over the majority of the final landform, with selected areas retained as either:

- water management areas
- infrastructure, or
- final void.

It is intended that the final landform (excluding the approved final void) will be consistent with the surrounding landscape and vegetation. The site rehabilitation objectives are provided in the Quarry's RMP.

#### 4.2.2 Management Measures, Performance and Completion Criteria

Rehabilitation procedures, performance criteria and measurement, and approach to contingency and adaptive management (of the Impact BMA) are addressed in the Quarry's RMP.

As is noted in **Section 4.9.2** and **Section 4.9.3**, *Bursaria spinosa* will be included in seed mixes and tubestock plantings on suitable areas of the final landform (when assisted revegetation is undertaken). A qualified ecologist or species expert will be consulted prior to commencement of revegetation activities to ensure the most appropriate location is chosen and best method of application/planting is used.

## 4.3 Site Security and Access Tracks

### 4.3.1 Management Measures

#### 4.3.1.1 Site Security

The Quarry boundary is fenced to exclude access of trail bike riders, firewood cutters and other non-quarry or Forestry Corporation of NSW personnel.

Access to Forestry Corporation of NSW will be provided by existing trails which are gated and locked.

#### 4.3.1.2 Access Tracks

Existing tracks will be used in preference to new tracks wherever possible on the Quarry.

Where a new track is required, e.g. to enable activities such as weed and feral pest management, fire hazard reduction and monitoring, disturbance will be kept to a minimum. Approval for new access track construction will require approval by Walker Quarries Operations Manager (or equivalent), preparation and retention of a clearing plan, and implementation of all vegetation clearing protocols (refer to **Section 4.4.1**). Once no longer required, i.e. on completion of activities, the access track will be closed and rehabilitated.

### 4.3.2 Performance and Completion Criteria

**Table 4.1** presents performance and completion criteria relevant to site security and access tracks within the Quarry during the mining phase.

**Table 4.1 Performance and Completion Criteria – Access Tracks**

Action	Performance Criteria	Completion Criteria
Fence the Quarry boundary	Installation of fencing and gates across established Lidsdale SF roads (where safe to do so and with approval of FC NSW).	Completion of fencing by end 2021/2022 reporting period (30 June 2022).
Access track mapping	Map all existing tracks.	Up to date maps identifying all access tracks completed and maintained.
	Identify and map tracks to be retained.	Retained tracks restricted to those required for property management.
Avoid creation of new tracks	New tracks only created following review and authorisation by Operations Manager	Documentation completed and retained to confirm clearing plan and vegetation clearing protocol followed. New tracks remain within the approved disturbance footprint.
Access track management strategy	Complete redundant track rehabilitation (if required). Annual review of existing or new access tracks with redundant tracks rehabilitated.	Complete rehabilitation of all non-essential tracks. Identify any track rehabilitation in Annual Review.



**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.1**.

## 4.4 Vegetation Clearing

### 4.4.1 Management Measures

Clearing will be limited to approved areas only and only following retirement of biodiversity credits in accordance with the Quarry BOS (refer to **Section 5.0**). Staged retirement of credits and progressive clearing will ensure that vegetation is retained for as long as possible and only removed immediately before an area is required for operations.

The forecast life of mine disturbance and rehabilitation schedule is provided in Section 6.0 of the RMP. The Quarry will remain a very 'static' site with respect to the future disturbance footprint due to the single open-pit design.

Vegetation clearing will be undertaken strictly in accordance with DA 344-11-2001.

The following measures will be implemented to ensure that vegetation clearing is restricted to approved areas:

- Clearing will only proceed following confirmation that extents are as approved under DA 344-11-2001 and biodiversity credit retirement in accordance with the Quarry BOS (**Section 5.0**).
- All employees and contract staff will be inducted and trained on environmental requirements, including vegetation clearing restrictions and procedures.
- The extent of vegetation to be cleared will be restricted to that required for the subsequent 12 months operation as far as practicable. It is noted that due to the very steep terrain of the Quarry, larger areas may be cleared due to the difficulty in moving earthmoving equipment into and out of these areas.
- Clearing will only proceed following the implementation of measures to manage the potential impacts of erosion and sedimentation (**Section 4.8**).
- All clearing will be undertaken in accordance with the Vegetation Clearing Protocol (as follows).

#### Vegetation Clearing Protocol

Prior to and during clearing activities, the following protocol will be implemented.

##### Desktop Review

- The area is to be identified on a legible map, including an accurate calculation of the area to be cleared.
- Areas planned to be cleared within the following three years will be nominated in the Forward Program.
- The map, area (in hectares) to be cleared, approved disturbance boundaries, associated biodiversity credit requirement and certificate confirming retirement of biodiversity credits are to be provided to the Operations Manager (or delegate) for confirmation and/or further instruction.

### Site Preparation

- The area of clearing will be identified and entry/exit points and laydown areas for equipment nominated and marked.
- Limits to clearing will be identified by survey markers, painted ground or flagging tape.
- The Operations Manager (or delegate responsible for the implementation of the Vegetation Clearing Protocol) will inspect and confirm the location as correct with respect to the approved maps. The inspection will confirm that survey markers, paint or tape is clearly visible from both possible directions of development.
- Erosion and sediment control features, e.g. diversion banks, sediment fencing, will be installed in accordance with the Quarry Erosion and Sediment Control Plan (ESCP).

### Pre-Clearance Inspections

- A qualified ecologist will be engaged to review the proposed area of clearing and determine whether threatened species or habitat trees are present.
- If threatened species are identified, and cannot be relocated, clearing will not commence until the animal can be relocated or relocates naturally.
- If habitat trees are identified, these will be inspected (unless impractical) for the presence of threatened arboreal species.
- Relocation will only be undertaken under the guidance of a qualified ecologist.

### Clearing Operations

- Soil and groundcover will be directly transferred onto rehabilitation areas, where suitable areas are available to maximise the opportunity for retention of the natural seed stock, and thereby maximise the revegetation of the final landform with endemic species. Where soil/subsoil cannot be directly placed on proposed rehabilitation areas, it will be stockpiled in accordance with the RMP.
- Large trees and those in which species have previously been identified will be carefully felled as follows:
  - Check for the presence of nesting or roosting fauna before felling or pushing then start tree removal immediately after visual inspection.
  - Initially nudging the tree to induce any fauna to vacate. This process should progressively increase in force.
  - Wait a period of 5 minutes to allow the fauna to vacate the tree. Repeat this step if necessary.
  - Select the preferred direction of fall and push the tree from a high point along the trunk towards the preferred direction of fall.
  - If the tree is too strong to be pushed with all roots intact, some of the roots on the restraining side will be cut and/or excavated.
  - The speed of fall and ground impact will be reduced where possible.
- If native arboreal species are detected, a 10 m buffer will be established around the tree and it will be left overnight to allow the animal to vacate the tree.

### Post-clearing Management

- A post clearing survey of the cleared vegetation will be undertaken to determine if further species need relocating.
  - Hollows will be checked at the end of the process for wildlife.
  - Avoid leaving trees on ground unmanaged for more than two weeks as these would quickly become habitat for hollow dependent species. Stockpiling and application of habitat features will be in accordance with the RMP.
- Where fauna remains or is captured during vegetation clearing the animal will be released into nearby native vegetation where it will not be injured.
- Should clearing activities result in injury to any native fauna species, the local WIRES organisation or a suitable alternative will be contacted immediately for assistance.

## 4.4.2 Performance and Completion Criteria

**Table 4.2** presents the performance and completion criteria relevant to vegetation clearing within the Quarry.

**Table 4.2 Performance and Completion Criteria – Vegetation Clearing**

Action	Performance Criteria	Completion Criteria
Identify areas to be cleared and detail management required in these areas.	Area to be cleared is approved.	All clearing undertaken within approved impact footprint.
	Biodiversity credits identified and retired prior to commencement.	Confirmation of credit retirement retained at Quarry Office. Disturbance/offset balance reported in Annual Review.
Implement Vegetation Clearing Protocol	Qualified ecologist completes pre-clearance surveys prior to all non-trivial vegetation clearing	Pre-clearance and clearance procedures documented.
	Complete and retain records of clearing, including identification of any fauna.	No avoidable impacts on roosting or nesting native fauna.
	Qualified ecologist engaged to manage and undertake fauna relocation (if required).	Details of specific fauna management completed during (or immediately following) clearing documented.
	Procedures governing handling, relocation and management of fauna (including injured fauna) followed.	Controls followed and documented.
Staff awareness of clearing protocols.	Identify administrative controls re: clearing during induction.	Inductions and training completed and documented.

**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.2**.

## 4.5 Salvage, Storage and Reuse of Environmental Resources

### 4.5.1 Management Measures

#### 4.5.1.1 Trees and Vegetation

Cleared vegetation is managed to maximise the opportunity for recycling and reuse in rehabilitation of the Quarry.

##### **Habitat Features**

Large landscape features such as major tree trunks, limbs and, if possible, minor branches will be salvaged and where possible used directly in progressive rehabilitation activities, or stockpiled for future use. Large habitat features will create a rehabilitation area with structural complexity and encourage many species into the area. Stockpiling and application of habitat features will be in accordance with the Quarry RMP.

##### **Tree Hollows**

Tree-hollows are a particularly important resource for many native fauna species and are vital for some species. The retention and protection of hollow-bearing trees is an important element in the maintenance of biodiversity. The following specific protocols relating to hollow-bearing trees will be implemented.

- Tree hollows will be identified as part of the Vegetation Clearing Protocol (refer to **Section 4.4.1**). This requires the trees to be inspected by a qualified ecologist, and habitat trees and features identified and marked prior to commencement.
- A controlled felling technique will be used for clearing of hollow-bearing trees (as described in **Section 4.4.1**).
- Once felled, these trees will be set-aside for special consideration of use prior to stockpiling, removal or mulching.
- Large trees with hollows will be stockpiled for placement on sections of rehabilitated land (habitat structures and erosion control).
- Subject to identification of available areas, hollow-bearing trees that have been felled will be placed in rehabilitation areas or undisturbed areas of the Quarry.
- Tree felling will only be undertaken following the implementation of the Vegetation Clearing Protocol described in **Section 4.4.1**.

##### **Stockpiling and Mulching**

Larger materials surplus to immediate requirements will be track rolled and stockpiled for future placement over final surfaces of the Quarry which have been covered with soil or other growth media, in accordance with the RMP. Where stockpiles of cleared vegetation are retained, or likely to be retained for in excess of 18 months, these will be mulched to reduce stockpile size and the potential for these as havens for vermin and weeds.

## Remnant Vegetation and Offset Areas

The Quarry contains no biodiversity offset areas and there is currently no intention for offset areas to be established.

The Quarry includes areas of undisturbed native vegetation surrounding the Quarry disturbance and adjoining the Coks River, native vegetation of Lidsdale State Forest and cleared private land. Walker Quarries currently monitors the condition of this vegetation (refer to **Section 6.3.2**) and based on monitoring to date can confirm the condition of this vegetation has not suffered since the commencement of Quarry operations in 2015. There is currently no intention to undertake any remedial vegetation management strategy on these undisturbed lands.

### 4.5.1.2 Soil

Although availability of soil is limited across the site, soil stripping, stockpiling and re-spreading will be undertaken in accordance with the methods described in the RMP.

Erosion controls described in the Quarry ESCP will be implemented as necessary.

## 4.5.2 Performance and Completion Criteria

**Table 4.4** presents the performance and completion criteria relevant to Salvage, Storage and Reuse of Environmental Resources within the Quarry.

**Table 4.3 Performance and Completion Criteria – Salvage, Storage and Reuse of Environmental Resources**

Action	Performance Criteria	Completion Criteria
Trees and Vegetation		
Salvage or recycle material removed.	Complete material salvage in accordance with nominated management measures.	Suitable timber available for rehabilitation.
Retain cleared resources for future use in rehabilitation	Establish register/inventory of cleared and stockpiled vegetation.	Environmental Resource Inventory maintained.
	Update inventory annually and report each year.	
Tree Hollows		
Complete hollow removal in accordance with vegetation clearing measures	Document tree hollow removal, including temporary or final placement location.	Use of tree hollows maximised in rehabilitation.
	Report on tree hollow removal and replacement annually.	Storage of hollow bearing trees for use in rehabilitation.
Soil Resources		
Strip soil to maximise value as rehabilitation resource.	Prepare a map identifying areas of soil stripping. Complete soil stripping in accordance with nominated management measures. Update the map in response to annual review of rehabilitation/revegetation progress against objectives (annual).	Soil available for rehabilitation.

Action	Performance Criteria	Completion Criteria
Retain soil in stockpiles	Establish register/inventory of stockpiled soil. Update the soil inventory annually and report each year.	Soil reused for rehabilitation purposes.
	Soil retained in stockpiles is stabilised (non-eroding).	Groundcover >70% established on stockpiles (within 10 weeks of construction).

**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.4**.

## 4.6 Collection and Propagation of Seed

### 4.6.1 Management Measures

Walker Quarries principal strategy in relation to the propagation of seed will be through the replacement of the environmental resources salvaged and reused in the rehabilitation of final landform (refer to **Section 4.5.1**). This method ensures only endemic species, able to withstand the harsh climate of the area, will succeed.

Weed and feral pest control (**Section 4.7.1**) will be undertaken to promote the successful establishment of vegetation which germinates.

This revegetation strategy will include:

- collection and propagation of seed material from the Quarry Site (Provenance Seed)
- purchase and propagation of seed (Commercial Seed)
- application of hydromulch or suitable erosion control products on steep slopes.

#### Provenance Seed Collection, Propagation and Management

Seed has previously been collected and retained by Lithgow Community Nursery for future use in revegetation programs. The following management procedure for provenance seed management will be followed:

- Prior to clearing campaigns, Walker Quarries will review seed and tubestock held by the Lithgow Community Nursery (or other facility engaged to retain and maintained seed material and tubestock).
- Walker Quarries will retain internal records of seed and tubestock held at nursery facilities, and report new activities relating to seed management in the Annual Rehabilitation Report.



- Where these stocks are diminished, Walker Quarries will engage the nursery, or alternative company or individual, to collect seed prior to clearing an area. Seeds will be stored until sowing by being placed in labelled zip-lock bags and stored in a refrigerator until required (to reduce humidity or warmth that could cause seed to deteriorate or die from fungal disease or rotting). Most seed will remain viable in this way for many years.
- As required, the seed will be collected by the revegetation contractor, incorporated into a site-specific seed mix and sown over the final landform.

### Commercial Seed Purchase

If provenance seed is not available, Walker Quarries will contact a local seed supplier to supply seed of the desired species for application to the final landform as part of rehabilitation activities, or propagation as tubestock for future infill planting.

### Hydromulch Application

Landform features with steep slopes requiring stabilisation will have a hydromulch product (or equivalent stabilisation product) applied following landform establishment and seeding.

## 4.6.2 Performance and Completion Criteria

**Table 4.4** presents the performance and completion criteria relevant to Collection and Propagation of Seed within the Quarry.

**Table 4.4 Performance and Completion Criteria – Collection and Propagation of Seed**

Action	Performance Criteria	Completion Criteria
Promote collection of provenance seed	Review seed stock retained by nursery prior to each clearing campaign.	Inventory of available seed resource retained. Provenance seed and propagated tube stock available for rehabilitation.
Seed collection and application (if required)	Annual monitoring and review of species diversity of regenerating vegetation. Seed mix reflects vegetation of target community.	Species diversity and density of final vegetation community equivalent to analogue community site.
Hydromulch/ Erosion Control Product application	Apply following soil application and seeding on steep slopes.	Rehabilitation records in accordance with the RMP.

**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.5**.

## 4.7 Weed and Feral Pest Management

### 4.7.1 Management Measures

#### 4.7.1.1 Weeds

All noxious weeds will be managed and controlled in accordance with the requirements of the *Noxious Weeds Act 1993*.

Weed control within the Quarry will focus upon the removal of Weeds of National Significance (WoNS), noxious weeds and reducing the risk of further weed invasion. This will be achieved by deterring the growth of weeds in recently disturbed areas and preventing the transportation of weeds into the Quarry.

Measures to control the spread and establishment of weed species are:

- Any mobile equipment to be operated on the Quarry will be required to be cleaned (to remove any residual soil and vegetative material) prior to entering the Quarry.
- Disturbance will be limited to only that required for the ensuing 12 months of development (to reduce areas of bare ground and more readily colonised by weed species).
- The Quarry Manager (or delegate) will periodically inspect cleared areas, soil stockpiles and rehabilitation areas for signs of noxious weeds, WoNS or other environmental weeds. If present, the Quarry Manager will engage a weed spraying contractor to apply a herbicide to the weed affected areas.
- Targeted weed spray campaigns will be implemented annually or as necessary following inspections, which is reported in the Annual Review and Annual Rehabilitation Report.
- Any weed spraying campaigns will consider the weather conditions, soil conditions and time available for spraying. All herbicides will be handled and applied generally in accordance with the manufacturer's instructions.

A list of declared weed species, their classification and suitable management approach for each species that is relevant to the Quarry is maintained by the Department of Primary Industries – Agriculture for the Upper Macquarie County Council (this Local Control Authority area includes the local council areas of Bathurst Regional Council, Blayney Shire Council, Lithgow City Council and Oberon Council). Weed management measures relating to rehabilitation areas are provided in the RMP (refer to Section 6.0 and Section 10.0 of the RMP).

#### 4.7.1.2 Feral Pests

As noted in **Section 3.1.4**, feral pest species are not an identified feature of the local setting. While no controls are currently required, Walker Quarries makes the following commitments with respect to feral pest management:

- Walker Quarries will engage a local contractor to maintain site fencing as a feral pest deterrence.
- Regular site inspections will note evidence of the presence of feral pest species. Where a trigger from the TARP (**Table 7.1**) is detected during inspection, the relevant response will be implemented.
- Subject to provision of appropriate safe work procedures and licences, Walker Quarries will comply with any requests of the Council or DPI in relation to access to the Quarry to undertake feral pest control measures.
- This BMP will be updated to include any additional feral pest control measures should these be identified as necessary.

## 4.7.2 Performance and Completion Criteria

**Table 4.5** presents the performance and completion criteria relevant to weed and feral pest management within the Quarry.

**Table 4.5 Performance and Completion Criteria – Weed and Feral Pest Management**

Action	Performance Criteria	Completion Criteria
Implement weed control/management programs.	Complete inventory of weed species and densities.	Annual monitoring completed and documented
	Reduce the diversity and extent of weed species.	Reduction in density of high threat exotic weeds. <i>Rubus ulmifolius</i> (Blackberry) and <i>Hypericum perforatum</i> (St Johns Wort) Weed species groundcover coverage <10% Weed species diversity (<20% total species richness)
	Develop specific weed control plans for target species. Undertake weed control/management in accordance with target species weed management plans	Complete annual weed spraying campaign.
Monitoring and Reporting.	Document any weed management activities.	Weed management activities reported in Annual Rehabilitation Report.

**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.6**.

## 4.8 Erosion and Sediment Controls

Erosion and sediment controls for the Quarry are described in the ESCP, which is included in the Soil and Water Management Plan (SWMP). In summary, water management within the Quarry involves implementation and maintenance of:

- Temporary and permanent water management infrastructure such as sediment basins, storage dams and water diversions or drains.

- A stormwater management program that includes water discharge protocols.
- Other erosion and sediment controls, to be implemented as required, such as sediment fencing, rock armouring and strategic groundcover establishment.

A copy of the SWMP can be viewed on Walker Quarries website.

## 4.9 Purple Copper Butterfly and *Bursaria spinosa* Management

### 4.9.1 Occurrence

While the population of Purple Copper Butterfly previously identified on the Quarry by Wildthing (1999, 2002) is considered to be locally extinct (Ecoplanning, 2019b) (refer to **Section 2.3**), the native Blackthorn plant (*Bursaria spinosa ssp lasiophylla*) on which the Purple Copper Butterfly is known to be dependent as a food source remains on the Quarry (refer to **Figure 4.1**).

### 4.9.2 Management Measures

Management of the species will be directed towards protection of the Blackthorn. The following measures will be implemented to protect and conserve Blackthorn within the Quarry.

- The removal of Blackthorn will be prevented by restricting any further clearing within the Conservation BMA and applying the management measures related to Access Tracks.
- Existing Blackthorn populations are marked on **Figure 2.2** so the site personnel will be able to identify the species and avoid contact or unnecessary removal.
- Natural vegetation screenings will be maintained for the existing Blackthorn populations within the Quarry to minimise dust impacts from operations.
- Targeted monitoring of the Blackthorn and Purple Copper Butterfly will be undertaken by a qualified ecologist on an annual basis. Monitoring is described in more detail in **Section 6.3.1**.

The following measures will be undertaken to maximise the potential for the Purple Copper Butterfly to recolonize suitable areas of the Quarry:

- Blackthorn populations will be included in revegetation activities associated with progressive rehabilitation of the Quarry. A suitably qualified person will be commissioned to provide advice on preferred slope and aspect for establishment of the Blackthorn to encourage development of suitable habitat for the Purple Copper Butterfly.
- Where suitable landforms and community structure is confirmed, Walker Quarries (in consultation with the consulting ecologist) will provide for progressive planting of Blackthorn. The area and density of plantings will be at least comparable (subject to available area) to the stands of Blackthorn contained within the approved impact areas.
- The results of desktop and field investigations of suitable landforms and community types will be documented in the annual biodiversity monitoring report and Annual Review. This BMP will be updated to reflect the recommendations contained within the annual biodiversity monitoring report, where required.

- Walker Quarries, or the consulting ecologist, will identify a species expert and consult with them to review whether there are any additional management measures which could be implemented to increase the potential for Purple Copper Butterfly to recolonise the Quarry. The results of this consultation, and any recommendations will be included in the subsequent biodiversity monitoring report and Annual Review.

### 4.9.3 Performance and Completion Criteria

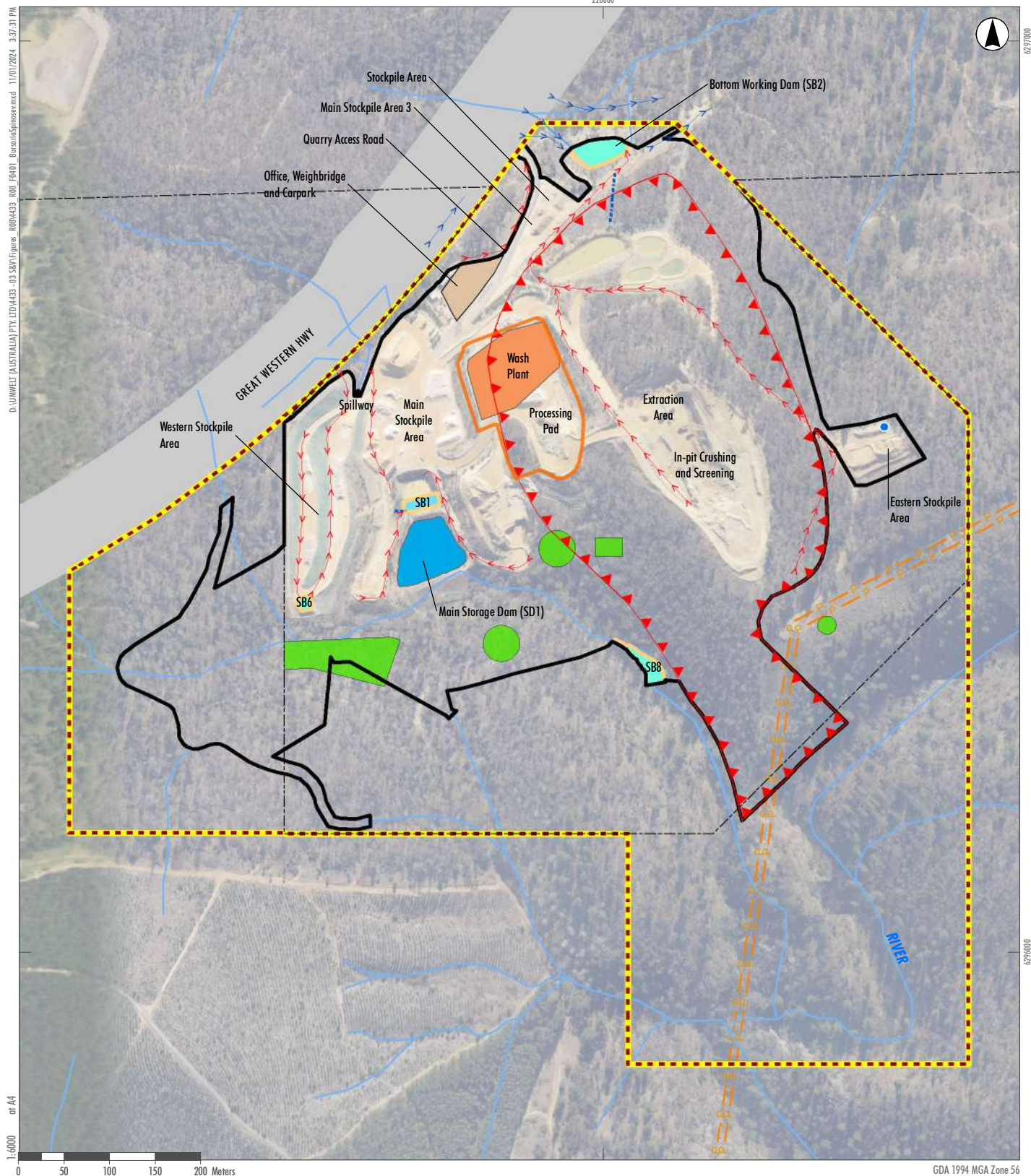
**Table 4.6** presents the performance and completion criteria relevant to Purple Copper Butterfly Management within the Quarry.

**Table 4.6 Performance and Completion Criteria – Purple Copper Butterfly Management**

Action	Performance Criteria	Completion Criteria
Clearance of <i>Bursaria spinosa</i> avoided	Maintain a map of <i>Bursaria spinosa</i> and update if additional patches are identified. Implement protective measures on identified patches.	Remnant <i>Bursaria spinosa</i> within the Conservation BMA retained in situ. Update the mapping of Blackthorn following annual monitoring.
Include <i>Bursaria spinosa</i> in rehabilitation	Include <i>Bursaria spinosa</i> in seed mix and/or the use of tubestock (when assisted revegetation undertaken).	<i>Bursaria spinosa</i> included in vegetation community of the final landform.
Identify suitable landforms for re-establishment of <i>Bursaria spinosa</i>	Map, by desktop and field investigations, suitable areas for re-establishment.	Document desktop and field investigations in annual biodiversity monitoring. Complete during Spring 2020 and at least every three years following.
Replant <i>Bursaria spinosa</i>	Replacement (by density and area) of Blackthorn to be removed by Quarry disturbance (subject to available landform being present).	Include a replanting schedule in future versions of the BMP. Document completion of replanting in Annual Reviews.
Complete annual monitoring	Complete monitoring in during the active Purple Copper Butterfly period each year (typically September–November).	Reporting completed each year.

**Section 7.0** (and **Table 7.1**) provides the relevant TARPs associated with the management measures nominated in **Table 4.6**.





# Legend

- Quarry Site Boundary
- Project Quarry Site Mining Lease
- EL 4473
- Approved Disturbance Area
- Processing Pad
- Sediment Basins
- Water Tank
- Wash Plant Facility
- Office, Weighbridge and Carpark
- Remnant Patches of *Bursaria spinosa*
- ▶ Approved Extraction Area
- Watercourses
- Electricity Transmission Lines
- Clean Water Drain
- Dirty Water Drain
- Water Pipeline

FIGURE 4.1

Identified *Bursaria spinosa* of the Quarry Site



## **4.10 Bushfire Management**

### **4.10.1 Management Measures**

Bushfire management measures are described in the Bushfire Management Plan (BFMP) for the Quarry (refer to Walker Quarries' website).

## 5.0 Biodiversity Offset Strategy

### 5.1 BOS (DA 344-11-2001 MOD 1)

Schedule 3, Condition 24 of DA 344-11-2001 requires a BOS for the retirement of ecosystem and species credits generated by the disturbance to 2.4 ha of native vegetation associated with Modification 1 of DA 344-11-2001. As a result of delays in the determination of the biodiversity credits required to be retired, an Interim BOS was submitted on 27 February 2018. Following confirmation by BCD (formerly OEH) as to the biodiversity credits to be retired on 14 June 2018 (refer to **Appendix 2**), a Final BOS was submitted on 13 July 2018 (hereafter referred to as the Stage 1 BOS) (Umwelt, 2019c).

In accordance with the Stage 1 BOS (refer **Appendix 3**), Walker Quarries has retired the ecosystem and species credits identified in **Table 5.1** by payment into the Biodiversity Conservation Fund.

**Table 5.1 Biodiversity Offset Requirements**

Credit type	Area of impact (ha)	No. credits
<b>Ecosystem credits</b>		
<b>PCT 732 – Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion</b>	1.90	65
<b>PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion</b>	0.5	19
<b>Species credits</b>		
<b>Purple Copper Butterfly</b>	2.4	96

Conditions 25, 27 and 28 of Schedule 3 of DA 344-11-2001 require the establishment and payment of a conservation bond associated with the BOS. The sum of the conservation bond is to be determined by:

- calculating the full cost of implementing the BOS at third party rates (other than land acquisition costs), and
- employing a suitably qualified, independent and experienced person to verify the calculated costs.

Payment into the Biodiversity Conservation Fund for the required 96 credits (**Table 5.1**) constitutes the required conservation bond (refer to **Section 2.0**).

## 5.2 BOS (DA 344-11-2001 MOD 3)

### 5.2.1 Scope

Schedule 3, Condition 28A of DA 344-11-2001 requires the retirement of biodiversity credits associated with the increased disturbance area of MOD 3, prior to the commencement of vegetation clearing. The retirement of these credits is required to be carried out in accordance with the Biodiversity Offsets Scheme of the BC Act and to the satisfaction of the BCT.

This second BOS (**Appendix 3**), herein referred to as the MOD 3 BOS, has been prepared to demonstrate the retirement of credits will be in accordance with the requirements of the Biodiversity Offsets Scheme.

### 5.2.2 Application of the Biodiversity Offsets Scheme

**Table 5.2** identifies the five key steps of the Biodiversity Offsets Scheme and how each has been addressed in the development of the MOD 3 BOS (**Appendix 3**).

**Table 5.2 The Biodiversity Offsets Scheme**

Step	Application
1. The proponent determines whether the Biodiversity Offsets Scheme applies.	The Quarry is State Significant Development and has not received dispensation from the Secretary of DPHI that the project is not likely to have a significant impact.
2. An accredited assessor applies the BAM and offsetting rules to the activity.	A BDAR was prepared to support the application to modify DA 344-11-2001. The BDAR satisfactorily demonstrated how the development has applied steps to avoid and minimise impacts on biodiversity, and setting out the number and type of ecosystem and species credits required to offset residual impacts of the activity on biodiversity ('credit obligation').  On the basis of the proposed staged disturbance of the Quarry, the BDAR calculated the credit obligation for seven separate stages of development.
3. The consent authority assesses the application and determines whether to approve or refuse the application.	Approval to modify DA 344-11-2001 was granted under delegation of the Minister for Planning on 26 February 2020.
4. The consent authority determines the application and sets the offset obligation.	Schedule 3, Condition 28A of DA 344-11-2001 provides for a consolidation of the development stages nominated in the BDAR into four Tranches.
5. The Proponent satisfies its credit obligation and can begin the approved activity.	The MOD 3 BOS ( <b>Appendix 3</b> ) sets out the proposed approach to meeting its credit obligation.

### 5.2.3 Credit Obligation

**Table 5.3** presents the credit obligation of Walker Quarries for DA 344-11-2001. **Table 5.3** identifies both the Tranches nominated by Schedule 3, Condition 28A, as well as the original stages assessed by the BDAR (Ecoplaning, 2019b). The Tranches are identified on **Figure 5.1**.

**Table 5.3 Biodiversity Credit Obligations**

Tranche <sup>1</sup>	Stage <sup>2</sup>	Vegetation (PCT)	Area (ha)	Credit Requirement	
				PCT 1093	PCT 732
<b>A</b>	<b>1</b>	PCT 1093	1.15	39	
	<b>3</b>	PCT 1093	1.75	61	
		PCT 732	0.92		36
<b>B</b>	<b>2A</b>	PCT 1093	0.15	5	
		PCT 732	0.25		10
	<b>2B</b>	PCT 1093	0.63	20	
		PCT 732	2.42		93
	<b>4</b>	PCT 1093	1.2	39	
<b>C</b>	<b>5</b>	PCT 1093	1.61	52	
		PCT 732	1.95		75
<b>D</b>	<b>6</b>	PCT 1093	1.76	57	
<b>Total</b>			<b>14.05</b>	<b>273</b>	<b>214</b>

Notes: <sup>1</sup> As identified by Table 5A of DA 344-11-2001.

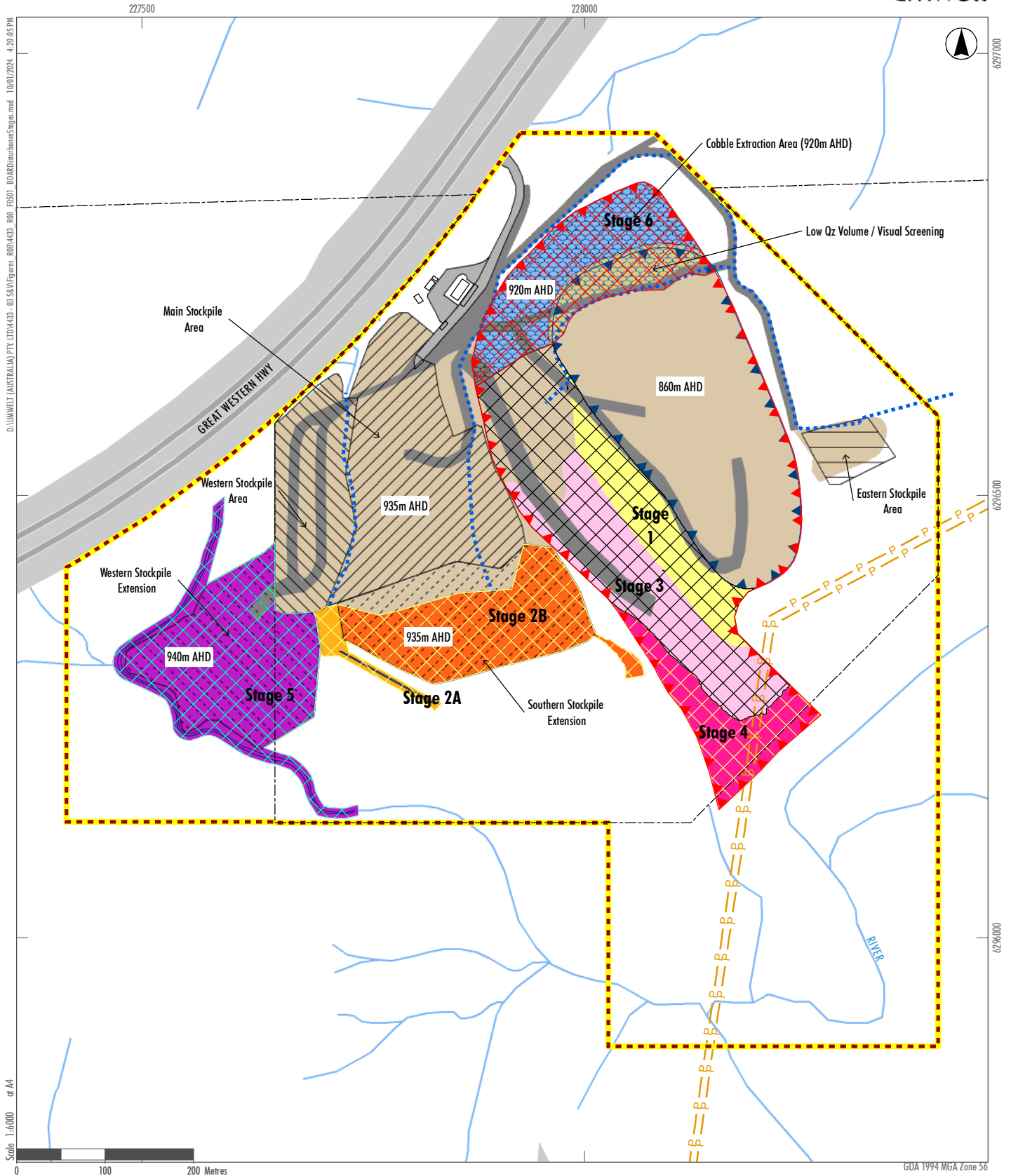
<sup>2</sup> As nominated by BDAR (Ecoplaning, 2019b).

It is noted that the intent of the NSW Biodiversity Offsets Scheme is to ensure offset obligations are retired prior to disturbance. It is also noted that the credit obligation of **Table 5.3** is for the maximum impact footprint of the Quarry and reflects the credit price for the two PCTs at the time of BMP preparation.

As nominated in the BDAR, the credit obligations of Schedule 3, Condition 28A and Table 5A of DA 344-11-2001 will be progressively retired over the life of the Quarry to reflect the actual disturbance footprint of the Quarry and actual credit value of the PCTs at that time. With reference to the Biodiversity Offsets Scheme as described in **Section 5.2.2**, the credits will be retired through one of the following mechanisms:

1. Purchase of 'like for like' credits in the market via the Biodiversity Offsets and Agreement Management System (BOAMS).
2. Establishment of a Biodiversity Stewardship Site and Biodiversity Stewardship Site Agreement for credits (or a portion of).
3. Use the offsets payment calculator to determine the cost of the credit obligation, and transfer this amount to the Biodiversity Conservation Fund via the BOAMS. Once payment is accepted, the responsibility for identifying and securing the credit obligation transfers to the Biodiversity Conservation Trust.

**Section 5.2.4** provides the implementation strategy with respect to the credit obligations nominated in **Table 5.3**.



#### Legend

- |   |   |  |  |
|---|---|--|--|
| <ul style="list-style-type: none"> <li>Quarry Site Boundary</li> <li>EL 4473</li> <li>Project Quarry Site Mining Lease</li> <li>Watercourses</li> <li>Electricity Transmission Lines</li> <li>Site Infrastructure</li> <li>Sealed Internal Roads</li> <li>Water Management Infrastructure</li> <li>Clean Water Diversion</li> </ul> | <ul style="list-style-type: none"> <li>Buried Pipe Culvert</li> <li>Approved Extraction Area</li> <li>Main Stockpile Area (935m AHD)</li> <li>Southern Stockpile Area (935m AHD)</li> <li>Western Stockpile Area</li> <li>Western Stockpile Extension (940m AHD)</li> <li>Eastern Stockpile Area</li> <li>Cobble Extraction Area (920m AHD)</li> <li>Indicative Internal Roads</li> </ul> | <h4>Quarry Extension Staging</h4> <ul style="list-style-type: none"> <li>Stage 1 - Extraction Stage A</li> <li>Stage 2A - Flow Through Dam &amp; Cleanwater Diversion</li> <li>Stage 2B - Southern Stockpile Extension &amp; Sediment Basin</li> <li>Stage 3 - Extraction Stage B</li> <li>Stage 4 - Extraction Stage C</li> <li>Stage 5 - Western Stockpile Extension &amp; Sediment Basin</li> <li>Stage 6 - Extraction Stage D (Cobble Extraction Area)</li> <li>Stage 6 - Extraction Stage D (Low Qz Volume &amp; Visual Screening)</li> <li>Continued Operations</li> </ul> | <h4>Condon 28A Tranche</h4> <ul style="list-style-type: none"> <li>Tranches 1</li> <li>Tranches 2</li> <li>Tranches 3</li> <li>Tranches 6</li> </ul> |
|---|---|--|--|

FIGURE 5.1

BDAR Disturbance Stages and Table 5A Tranches

## 5.2.4 Implementation Strategy

As proposed in the BDAR, and confirmed by Schedule 3, Condition 28A of DA 344-11-2001, a staged retirement of offset credit obligations is to be undertaken by Walker Quarries. The staging of Condition 28A (Tranches) has been pre-empted by the BDAR (Stages 1 to 6).

Walker Quarries will approach the retirement of offset credits as follows:

1. Walker Quarries will identify the area to be disturbed (with respect to the Tranches identified by Condition 28A (refer to **Table 5.3**).
2. Walker Quarries will review the relative merits of the three credit retirement options identified in **Section 5.2.3**.
  - i. Walker Quarries will lodge a 'Credits Wanted' application on the BOAMS website and undertake relevant searches in the Biodiversity Offsets Scheme Public Register. In the event that credits for PCT 732 or 1093 are available, contact with the credit owner will be made to review quantity and cost.
  - ii. Walker Quarries will review the availability of property within the local area and applicability as a Biodiversity Stewardship Site.
  - iii. Walker Quarries will calculate the cost of retiring the credit obligation through the Biodiversity Conservation Fund.

The approach to credit obligation retirement taken will consider:

- a. availability of credits on the open market
- b. availability of land for purchase, likelihood of containing allowable credits, condition of vegetation and management measures required
- c. likely time to complete application process and retire credits
- d. total cost.

Walker Quarries acknowledges that cost will remain an important consideration in approach.

3. On identification of the preferred credit retirement option, Walker Quarries will make the relevant application through BOAMS, including justification for the proposed approach.

This is to demonstrate that all three options have been given consideration and the most reasonable and feasible option taken.

4. The nominated offset transaction will be completed with BOAMS.



## 6.0 Biodiversity Monitoring Program

### 6.1 Introduction

This section provides detail on the ecological monitoring program for the Quarry. The monitoring is designed to assess the adequacy of the ecological management strategies to be undertaken as part of the BDMP.

Rehabilitation monitoring is detailed in the RMP.

### 6.2 Objectives of the Monitoring Program

The objectives of the monitoring program are to:

- Evaluate the success of flora and fauna management strategies.
- Record and document changes in retained vegetation within the Quarry, and allow for comparison with previous records.
- Record and document fauna population changes and identify any breeding and critical habitat.
- Ensure the ecological significance of the remnant vegetation or rehabilitated areas are maintained or improved as a result of ongoing management practices.

### 6.3 Monitoring Locations, Frequency and Procedures

#### 6.3.1 Purple Copper Butterfly

Remnant vegetation of the Quarry will be monitored annually by a qualified ecologist who will measure/monitor for evidence of Purple Copper Butterfly and the health and distribution of Blackthorn.

Five patches of Blackthorn (**Figure 6.1**) will be monitored in during the active Purple Copper Butterfly period each year (typically September - November) with the following objectives:

- Determine if any Purple Copper Butterfly is present on the Quarry.
- Determine if the ant species *Anonychomyrma itinerans* is present (this ant has a mutualistic relationship with the butterfly).
- Identify the general condition of each site and if any new Blackthorn seedlings have established.
- Determine any further recommendations that should be adopted to ensure each of the five sites (or newly identified sites) remain as habitat for the Purple Copper Butterfly.

The field survey will be completed by a qualified ecologist, generally in accordance with:

- On the day of the field survey, weather conditions will be noted.

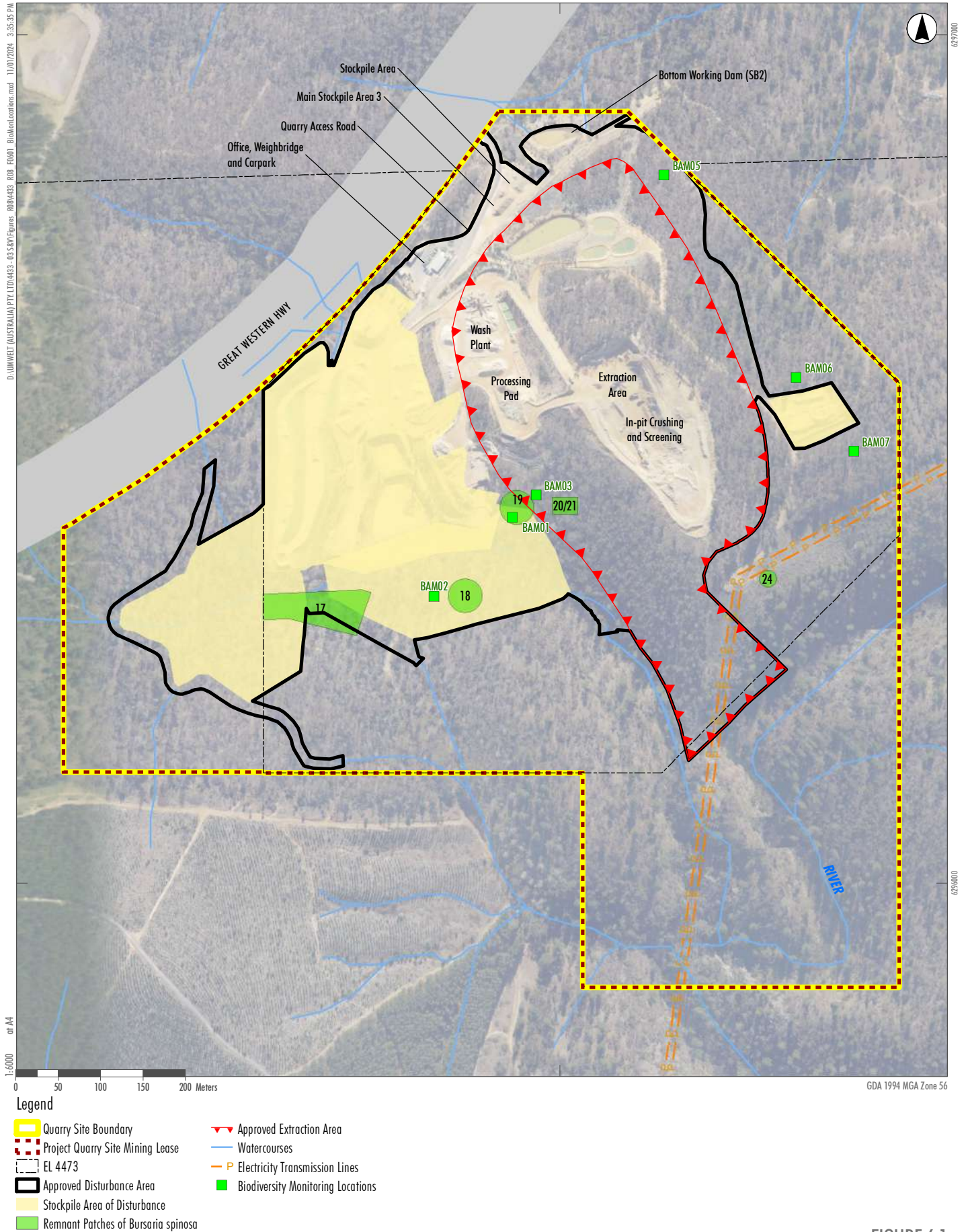


FIGURE 6.1

Biodiversity Monitoring Locations

- At least one of three control sites, being sites where the Purple Copper Butterfly is known to occur, will be inspected to confirm the species as active. These sites are currently:
  - Cox's Creek, Wallerawang – this site located around 6.5 km north of the Quarry on the eastern side of the Castlereagh Highway
  - Eusdale Road, Yetholme – located approximately 23 km west of the Quarry, this site is present east and south of Eusdale Road, and/or
  - Cheetham Flats Travelling Stock Route (TSR) – located at Hampton Road, Rydal, approximately 13 km south-west of the Quarry.
- At each of the monitoring and relevant control sites the following methods will be employed:
  - The ecologist will position themselves to survey the site and conduct visual inspections to observe any butterfly activity for at least 10 minutes per site.
  - Random plants will be searched for butterfly caterpillars.
  - Random plants will be selected and searched for ants.
  - Select Blackthorn plants will be gently shaken to trigger a flight response from any butterflies if present.
  - The age of plants (large plants and seedlings present), health (any new shoots present) and evidence of grazing (chewed leaves) will be recorded.
- A net will be used to collect any butterflies observed. Any butterflies collected will be keyed out in accordance with the field guide, Butterflies of Australia (Braby, 2016).
- All animals collected will be released at their point of capture.

Ecological surveys will be undertaken to coincide with the adult flying season of the Purple Copper Butterfly which is generally between September and November.

### 6.3.2 Vegetation

Monitoring of local vegetation to assess the level of impact, if any, of the Quarry on the local ecological setting will be undertaken annually.

Standard plot-based floristic surveys consistent with the NSW Biodiversity Assessment Method (BAM) (NSW Government 2017) will be undertaken at the locations identified on **Figure 6.1**. The previously used site BAM04 was impacted by approved vegetation clearing in 2021. Site BAM07 was selected to replace BAM04, on the basis of a matching PCT Type and general vegetation conditions.

- The survey sites are: East of the Supplementary Stockpile Area – BAM01 (previously WALLQ1).
- South of the main storage dam (SD1) – BAM02 (previously WALLQ2).
- South of the extraction area – BAM03 (previously WALLQ3).
- Northeast of the top working dam – BAM05 (previously WALLQ5).

- Northeast of the extraction area - BAM06 (previously WALLQ6).
- Southeast of the Eastern Stockpile Area – BAM07 (previously WALLQ7).

A star-picket is located at the north-western corner of each plot (which have previously been surveyed as 10 x 10 m plots).

Vegetation monitoring will include:

- Survey areas consisting of 20 m x 20 m plots with 50 m transects.
- Species composition and structure (species and percent cover) data collected from within each plot.
- Vegetation function data (size and number of trees, presence of hollow-bearing trees and woody debris) collected from within each plot.
- Percent of litter cover data collected within five 1 m x 1 m squares positioned at 5 m, 15 m, 25 m, 35 m and 45 m points of 50 m transect.

In keeping with previous field surveys, a photograph of each plot will be taken from the north-western corner.

Within the six monitoring plots, and future monitoring plots on rehabilitation under maintenance, the following information on weeds will be collected:

- Exotic species richness (no. exotic species).
- Occurrence of weeds defined as high threat exotic weeds, under the BAM.
- Ground coverage percentage by exotic species.
- Trends associated with the above across monitoring campaigns.

### 6.3.3 Weeds

As part of annual vegetation monitoring, the consulting ecologist will complete a more general walkover of the Quarry and record the type, location and density of weed species.

Where weed species or density is identified that may impact on the biodiversity values of the Quarry, the consulting ecologist will provide immediate advice and recommendations to the Quarry Manager on control or management measures which should be implemented.

The results, advice and recommendations on weed management requirements will also be included in the annual biodiversity monitoring report prepared by the consulting ecologist.

The locations of subsequent weed spraying or other management will be recorded and these areas inspected by the consulting ecologist during the next years vegetation monitoring to determine success or progress towards the completion criteria of **Table 4.5**.



### **6.3.4 Local Fauna**

Observations of local fauna will be made through visual observation, call recognition and assessment of scat or signs of fauna.

## **6.4 Future Modifications to Monitoring**

### **6.4.1 Relocation of Monitoring Sites**

Where a BAM plot or Purple Copper Butterfly monitoring site is forecast to be disturbed by approved operations within the following 12 months, a suitable alternative site will be identified.

#### **Vegetation Monitoring**

The existing sites will continue to be monitored for as long as they remain uncleared by approved Quarry development. Forward planning schedules for clearing will be reviewed annually and when clearing of a site is planned within the upcoming 12 months, an alternative site will be identified. Where feasible, the new site will be surveyed for at least one year concurrent with the site to be disturbed using the same methods to establish it as a reasonable replicate of the site to be cleared. This will allow for assessment of trends to be continued.

#### **Purple Copper Butterfly Monitoring**

The existing monitoring sites represent the patches of available habitat on the Quarry. No other habitat is known to occur and as such, immediate replication of these monitoring sites will not be possible. It is noted that disturbance to this habitat has been assessed as part of the BDAR completed for the Quarry modification and offsetting requirements calculated.

However, as supplementary plantings of Blackthorn are established on the Quarry, either through revegetation of the rehabilitated final landform or within suitable areas of the Quarry Conservation BMA, Walker Quarries will commence monitoring for Purple Copper Butterfly within these areas.

In the event of any change to the location or number of monitoring sites, this BMP will be updated in consultation with BCD.

### **6.4.2 Rehabilitation Monitoring Sites**

As rehabilitation of the Quarry is completed, additional monitoring plots will be established to allow for comparison of the vegetation of rehabilitated landform to the surrounding landforms.

The establishment of Blackthorn on suitable landforms will be prioritised and once established will be included in the annual monitoring for Purple Copper Butterfly.

Rehabilitation monitoring is outlined in the RMP.

## 6.5 Analysis of Results and Contingency Management

The results of the annual Purple Copper Butterfly, vegetation, weed and fauna monitoring will be reviewed by the ecologist to assess whether there are any observable or significant trends in the occurrence of specific species or quality/quantity of available habitat. Recommendations of the ecologist engaged to undertake the monitoring will be sought and these implemented, potentially in consultation with the BCD, if deemed reasonable and feasible.

Should annual monitoring identify additional threatened species not previously identified, further advice from the ecologist and/or BCD will be sought. If additional monitoring or alternative management measures are developed in response to the identification of additional threatened species, the BMP will be updated to include these.

Should annual monitoring identify an incident involving material impacts, or the potential for material impacts on biodiversity which is not approved by DA 344-11-2001, Walker Quarries will immediately notify the DPHI and BCD. Within seven days of the date of the incident, Walker Quarries will provide the DPHI and BCD with a detailed report on the incident, including the time and date of the incident, details of the incident, measures implemented to prevent re-occurrence. Additional reports will be prepared and provided to DPHI and BCD as requested.



## 7.0 Risks to Successful Implementation and Contingency Management

**Table 7.1** identifies the key risks to successful achievement of the biodiversity performance objectives of the BMP (**Table 3.1**) (based on the key threats described in **Section 3.1**) and outlines the approach to contingency management in the form of TARP.

**Table 7.1 Trigger Action Response Plans**

Threat	Objective	Potential Adverse Outcome	Trigger	Action/Response
Vegetation Clearing	Implement access track management strategy.	Uncontrolled access on Quarry Site and disturbance to vegetation.	Evidence of uncontrolled access observed.	Implement additional training or instruction to workforce.  Remediate any damage caused by uncontrolled Quarry-related vehicular access.
	All clearing undertaken within approved impact footprint.	Unauthorised impacts on native flora & fauna.	Clearing beyond approved impact footprint.	Notification of the DPHI and BCD.  Remediation and rehabilitation of cleared area in conjunction with other instruction provided by regulatory authorities.  Review and update (as required) of vegetation clearing protocol.
Habitat Disturbance	No unauthorised impacts on fauna habitat.  All pre and post vegetation clearing administrative controls implemented.	Unauthorised impacts on native flora and fauna.	Observed injury/death to native fauna.	Transfer of injured wildlife to wildlife rescue service.  Notification of relevant regulatory authority.  Review and update (as required) of vegetation clearing protocol.

Threat	Objective	Potential Adverse Outcome	Trigger	Action/Response
Weed and Feral Pest Species	Decrease in number and abundance of weed species.	Occurrence of weed species.	High threat exotic weeds, as defined under the BAM identified.	Include specific species and areas in annual weed spaying program.
		Increased abundance/ coverage of weed species.	No. weed species within vegetation plots >20% total species richness. Ground coverage by weed species > 10%.	
	Reduction in feral pest numbers.	Feral pests observed in significant numbers.	Identification in annual biodiversity monitoring. Observation by personnel.	Consult with local pest management authorities. Review and propose management controls. Implement reasonable and feasible controls.
Erosion and Sedimentation	Reduction in land area subject to active soil erosion and stream bed erosion.	Reduction in habitat value of downstream drainage lines.	Observation of sedimentation below Quarry water storages.  Elevated total suspended sediment (TSS) in discharge (refer to SWMP).	Remove sediment and review on-site water management strategies as part of SWMP review.
Changes to Local Drainage	Avoid adverse effects on drainage line habitat.			
Land Contamination	Prevent contamination of land and water.			
Vehicle Trauma	Minimise fauna mortality	Reduced biodiversity	Observed fauna mortality.	Report to relevant agency/agencies e.g. BCD.

Where notification to the DPHI and BCD is nominated, this will be undertaken in accordance with Schedule 5, Conditions 9 and 10 of DA 344-11-2001, including:

- Should the trigger represent an incident involving material impacts, or the potential for material impacts on biodiversity which is not approved by DA 344-11-2001, Walker Quarries will notify and provide a report to DPHI and BCD in accordance with **Section 8.0**.

**Section 8.0** provides further information on incident identification, management, notification and reporting.

## 8.0 Incident Management, Notification and Reporting

### 8.1 Incident Identification

In accordance with Schedule 5, Condition 9 of DA 344-11-2001, Walker Quarries will immediately notify the DPHI and BCD of an incident which results in, or has the potential to cause material harm to local biodiversity (in addition to that approved by DA 344-11-2001). The definition of 'material harm' is consistent with Section 147 of the *Protection of the Environment Operations Act 1997* (POEO Act), where harm to the environment is considered material if:

- *it involves actual or potential harm to ecosystems that is not trivial; or*
- *it results in actual or potential loss or property damage of an amount, or amounts in aggregate exceeding \$10,000.*
- *Loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*

### 8.2 Incident Management, Notification and Reporting

On identification of an incident as defined in **Section 8.1**, which may follow receipt of a complaint or notification by an external party, the Quarry Manager will be notified and an investigation commenced. The form of investigation will vary depending on the nature of the incident (or potential incident) but follow the general steps nominated below:

- The Quarry Manager (or delegate) will inspect the location where the incident has been identified.
- Where the incident involves clearing, the Quarry Manager will review any disturbance against DA 344-11-2001 and the management measures nominated in **Section 4.3** to **Section 4.10**.
- If the disturbance has been undertaken in compliance with DA 344-11-2001 and BMP management measures, no further action will be taken and in the case of a complaint, the Quarry Manager will confirm with the complainant that the incident has been investigated.
- If the Quarry Manager is not satisfied the disturbance is compliant, Walker Quarries will immediately notify the DPHI and BCD.
- Where the disturbance is determined by the Quarry Manager (or delegate) to be minor and will not impact on any threatened flora or fauna, a plan to remediate the area of disturbance will be prepared.
- Where the Quarry Manager is unable to confirm the disturbance as minor, or unlikely to impact on any threatened flora or fauna, Walker Quarries will commission a qualified ecologist to advise on appropriate mitigation.

- Within seven days of the date of the incident, the Applicant will provide the DPHI and BCD with a report on the incident, including the time and date of the incident, details of the incident, measures to be implemented to mitigate the impacts of the incident and measures to be implemented to prevent re-occurrence.
- Additional reports will be prepared and provided to DPHI and BCD in accordance with commitments made in the initial incident report or as requested.

Following implementation and review of the corrective measures, a short description of the incident, actions taken, and results of the corrective actions will be documented by the Quarry Manager.

Within three months of the submission of the initial incident report to the DPHI and BCD, Walker Quarries will review this BMP and any other relevant strategies, plans and programs as required by DA 344-11-2001 and revise them if necessary. Walker Quarries will notify the DPHI in writing that this review is being undertaken. If the review does lead to revision, Walker Quarries will submit the revised BMP to DPHI within three months of the incident for approval.

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 Review to DPHI.

## **9.0 Data Management, Reporting and Documentation Requirements**

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

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

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

The Quarry's Annual Review will include an assessment of biodiversity management performance against the requirements of DA 344-11-2001 and the approved BMP.

In accordance with Schedule 5, Condition 17(a) of DA 344-11-2001 the Annual Review and a comprehensive summary of biodiversity monitoring data will be made publicly available on the Walker Quarries' website.

# 10.0 Plan Implementation

## 10.1 Roles and Responsibilities

**Table 10.1** outlines the roles and responsibilities of personnel with reference to management of flora and fauna.

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

Roles	Responsibility
Managing Director	<ul style="list-style-type: none"> <li>Accountable for the overall environmental performance of the Quarry, including the outcomes of the BMP.</li> <li>Must ensure adequate resources are available to enable implementation of the Plan.</li> <li>Manage the implementation of biodiversity management measures nominated in <b>Section 4.0</b>.</li> <li>Ensure personnel are available to implement the responsibilities of the Quarry Manager during any time of the Quarry Manager's absence from site.</li> <li>Approve implementation of contingency measures as required.</li> <li>Coordinate the review of the BMP (<b>Section 10.3</b>).</li> </ul>
Quarry Manager/ Supervisor	<ul style="list-style-type: none"> <li>Ensure the implementation of the BMP, including reporting of trigger value exceedances, and subsequent implementation of the relevant action plan.</li> <li>Ensure monitoring is undertaken in accordance with the BMP.</li> <li>Review and analyse all monitoring data.</li> <li>Review performance against performance criteria and initiate contingencies as required.</li> <li>Ensure all internal and external reporting requirements are met.</li> <li>Initiate investigations of complaints as received from the public or government agency.</li> </ul>
Employees and Contractors	<ul style="list-style-type: none"> <li>Operate in a manner that minimises risks of incidents to themselves, fellow workers and biodiversity values of the Quarry.</li> <li>Ensure operations are undertaken in accordance with instructions.</li> <li>Ensure appropriate notification and response in the event of an environmental incident.</li> <li>Show due care not to cause environmental harm.</li> <li>Follow direction provided by the Quarry management.</li> <li>Show due care not to cause environmental harm.</li> <li>Notify Supervisor or Quarry management of an environmental incident.</li> </ul>



## 10.2 Competence Training and Awareness

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

After completing the induction, workers will sign a statement of attendance and records of this are kept in the administration office.

Toolbox meetings are held to discuss whole-of-site production, management, safety and environmental issues.

The Quarry Operations Manager shall be responsible for ensuring the appropriate protection of biodiversity across the site.

## 10.3 Plan Review and Continual Improvement Protocol

In accordance with the *Environmental Management Strategy*, and Schedule 5, Condition 5 of DA 344-11-2001, this BMP will be reviewed within three months of the submission of an:

- Incident report as defined by **Section 8.1**.
- Annual Review.
- An Independent Environmental Audit.
- 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 BMP, submit a copy to the Secretary of the DPHI for approval (within 6 weeks of the review). Walker Quarries will consult with BCD as part of any review and update to the BMP.

The reviews will ensure the adequacy of the BMP and allow for opportunities of adaptive management and continual improvement. Each review will also evaluate the effectiveness of the overall biodiversity monitoring program and whether it needs to be modified.

## 11.0 References

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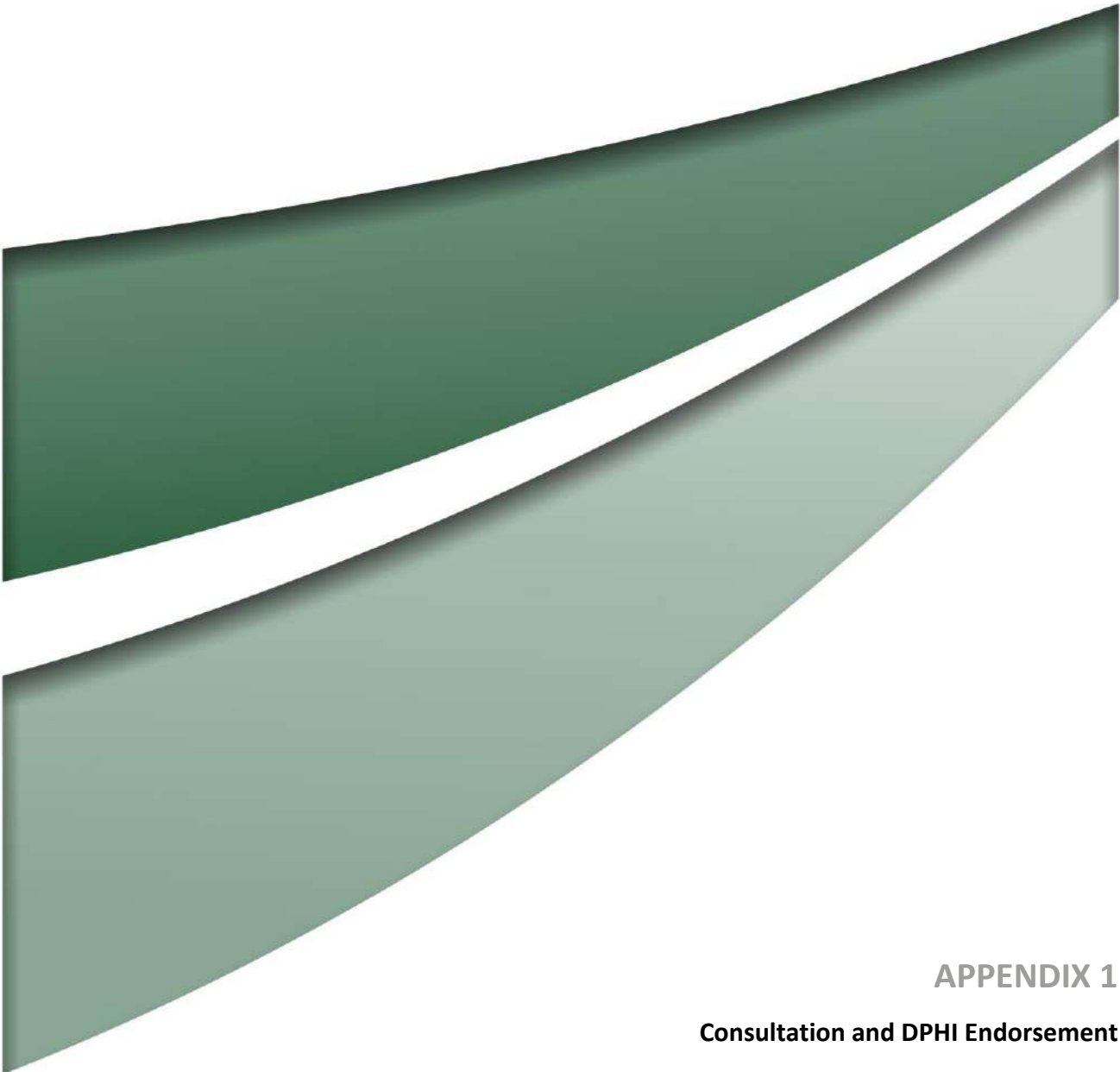
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## APPENDIX 1

### Consultation and DPHI Endorsement

Mr Alex Walker  
Principal Environmental Consultant

Wallerawang Quarry  
963 Great Western Highway  
MARRANGAROO NSW 2790

28/05/2020

Dear Mr Irwin

**Wallerawang Quarry (DA344-11-2001)  
Approval of Expert for Management Plan Preparation**

I refer to your request for the Planning Secretary's approval of suitably qualified persons to prepare three management plans required under the Wallerawang Quarry (DA344-11-2001) development consent.

The Department has reviewed the nomination of Mr Alex Walker, and the supporting information you have provided, and is satisfied that Mr Walker is suitably qualified and experienced. The Department also notes that Mr Walker has been previously approved by the Department to prepare the management plans listed below.

Consequently, I can advise that the Planning Secretary approves the appointment of Mr Walker to prepare and/or revise the following management plans:

- Soils and Water Management Plan (as required by condition 18(a) of Schedule 3);
- Biodiversity Management Plan (as required by condition 26(a) of Schedule 3); and
- Rehabilitation Management Plan (as required by condition 31(a) of Schedule 3).

If you wish to discuss the matter further, please contact Melissa Anderson on 8275 1392.

Yours sincerely



Matthew Sprott  
Director  
Resource Assessments (Coal & Quarries)

As nominee of the Planning Secretary

## Alex Irwin

---

**From:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Sent:** 2 November 2017 12:16 PM  
**To:** Alex Irwin  
**Cc:** Gen Seed; Samantha Wynn  
**Subject:** RE: 949 - Wallerawang Quarry - Requirement to Consult with OEH  
**Attachments:** OEH NW Draft BMP Guidelines\_August 2014.doc.PDF

Hi Alex,

As discussed on Tuesday please find attached some draft guidelines for the preparation of Biodiversity Management Plans. Please note that these guidelines are now 3 years old and the new legislation has superseded some of the advice, but in general it provides an understanding of the information that we look for in a BMP.

Of particular importance is the description of the site, delineation of the site into appropriate management zones, development of an appropriate monitoring program, creation of KPIs that link into that monitoring plan, and development of a TARP to ensure that the KPIs are met.

Where a management zone requires “active” management (eg. revegetation) ensure that KPIs are developed for relevant timeframes (eg. 2, 5, 10, 15 years etc) so that the expected ecological trajectory can be monitored and relevant response actions can be implemented where the KPIs aren’t met.

Ensure that all of the components in Schedule 3 Condition 26 of the project approval are addressed in the BMP.

Relevant information from the existing Flora and Fauna Management Plan can be inserted into the BMP if/where it is appropriate.

If you have any other questions please do not hesitate to contact me.

Regards,  
Renee.

Renee Shepherd  
Senior Conservation Planning Officer  
North West Branch  
Regional Operations Division  
Office of Environment and Heritage  
48-52 Wingewarra Street (PO Box 2111) Dubbo NSW 2830  
Ph: 02 6883 5355  
W: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

*Please note that I work Tuesday, Thursday, Friday*

---

**From:** Alex Irwin [mailto:alex@rwcorkery.com]  
**Sent:** Friday, 20 October 2017 3:50 PM  
**To:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Subject:** 949 - Wallerawang Quarry - Requirement to Consult with OEH

Good afternoon Renee,

Walker Quarries Pty Ltd received approval for a modification to the project approval for the Wallerawang Quarry (DA 344-11-2001) on 25 August 2017 (attached).



## Alex Irwin

---

**From:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Sent:** 2 November 2017 12:16 PM  
**To:** Alex Irwin  
**Cc:** Gen Seed; Samantha Wynn  
**Subject:** RE: 949 - Wallerawang Quarry - Requirement to Consult with OEH  
**Attachments:** OEH NW Draft BMP Guidelines\_August 2014.doc.PDF

Hi Alex,

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Of particular importance is the description of the site, delineation of the site into appropriate management zones, development of an appropriate monitoring program, creation of KPIs that link into that monitoring plan, and development of a TARP to ensure that the KPIs are met.

Where a management zone requires “active” management (eg. revegetation) ensure that KPIs are developed for relevant timeframes (eg. 2, 5, 10, 15 years etc) so that the expected ecological trajectory can be monitored and relevant response actions can be implemented where the KPIs aren’t met.

Ensure that all of the components in Schedule 3 Condition 26 of the project approval are addressed in the BMP.

Relevant information from the existing Flora and Fauna Management Plan can be inserted into the BMP if/where it is appropriate.

If you have any other questions please do not hesitate to contact me.

Regards,  
Renee.

Renee Shepherd  
Senior Conservation Planning Officer  
North West Branch  
Regional Operations Division  
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*Please note that I work Tuesday, Thursday, Friday*

---

**From:** Alex Irwin [mailto:[alex@rwcorkery.com](mailto:alex@rwcorkery.com)]  
**Sent:** Friday, 20 October 2017 3:50 PM  
**To:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Subject:** 949 - Wallerawang Quarry - Requirement to Consult with OEH

Good afternoon Renee,

Walker Quarries Pty Ltd received approval for a modification to the project approval for the Wallerawang Quarry (DA 344-11-2001) on 25 August 2017 (attached).

Conditions 3(5) and 3(18) of DA 344-11-2001 require Walker Quarries to consult with OEH in the preparation of a Biodiversity Management Plan and Rehabilitation Management Plan respectively.

With respect to the nominated conditions, and noting that Walker Quarries is currently operating under a Floral and Fauna Management Plan (also attached), can you provide any specific requirements of OEH for the preparation and/or update of these.

I note DA 344-11-2001 requires the RMP to be submitted to the Secretary for approval by 25 November 2017 (the Biodiversity MP is not required until 31 March 2018) and so we would appreciate any advice as soon as possible.

Regards,

**Alex Irwin**

Senior Environmental Consultant  
(Mobile 0429 635 975)

**RW Corkery & Co Pty Limited**

Geological and Environmental Consultants



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With respect to the nominated conditions, and noting that Walker Quarries is currently operating under a Floral and Fauna Management Plan (also attached), can you provide any specific requirements of OEH for the preparation and/or update of these.

I note DA 344-11-2001 requires the RMP to be submitted to the Secretary for approval by 25 November 2017 (the Biodiversity MP is not required until 31 March 2018) and so we would appreciate any advice as soon as possible.

Regards,

**Alex Irwin**

Senior Environmental Consultant  
(Mobile 0429 635 975)

**RW Corkery & Co Pty Limited**

Geological and Environmental Consultants



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## Alex Irwin

---

**From:** Denise Wallace <Denise.Wallace@environment.nsw.gov.au> on behalf of OEH ROD BAM Support Mailbox <bam.support@environment.nsw.gov.au>  
**Sent:** Wednesday, 18 March 2020 3:00 PM  
**To:** Alex Irwin  
**Subject:** BSM-661 4433\_Requirement to consult with BCD

Alex

Your request has been forwarded to the relevant officer and they will be in contact soon.

This call is now closed.

Regards  
The BAM Support Team

---

**From:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>  
**Sent:** Wednesday, 18 March 2020 11:44 AM  
**To:** OEH ROD BAM Support Mailbox <[bam.support@environment.nsw.gov.au](mailto:bam.support@environment.nsw.gov.au)>  
**Subject:** 4433\_Requirement to consult with BCD

To the relevant Officer,

As discussed with one of your personnel, the recently modified development consent for the Wallerawang Quarry (SSD 344-11-2001) includes a condition requiring a Biodiversity Management Plan to be prepared in consultation with the Biodiversity & Conservation Division (BCD) of the DPIE.

I've attached 344-11-2001. The relevant condition is 26(b) of Schedule 3 (on page 14).

In the first instance, I am seeking guidance as to who within the BCD should be consulted.

If such consultation is outside the scope of the BCD's responsibilities, an email to confirm is requested such that I can discuss further with the compliance division of DPIE to confirm that the conditional requirement is satisfied.

Regards,

**Alex Irwin**  
Principal Environmental Consultant

**Umwelt (Australia) Pty Limited**  
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## Alex Irwin

---

**From:** David Geering <David.Geering@environment.nsw.gov.au>  
**Sent:** Monday, 23 March 2020 3:01 PM  
**To:** Alex Irwin  
**Subject:** RE: MBP guidelines

Hi Alex

I would suggest you discuss this with your colleagues as I imagine that someone in Umwelt will have experience with the preparation of these documents.

Regards

David

**David Geering**  
**Senior Conservation Planning Officer, North West**  
**Biodiversity and Conservation Division | Department of Planning, Industry and Environment**

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[www.dpie.nsw.gov.au](http://www.dpie.nsw.gov.au)

---

**From:** Alex Irwin <airwin@umwelt.com.au>  
**Sent:** Monday, 23 March 2020 2:56 PM  
**To:** David Geering <David.Geering@environment.nsw.gov.au>  
**Subject:** RE: MBP guidelines

Thanks David,

The reference to the guideline is appreciated. I note that there is a Biodiversity Management Plan for the Wallerawang Quarry so hopefully we will not have to revise / reinvent too much.

I also note that the consent for Wallerawang Quarry also contains a condition requiring a Biodiversity Offset Strategy to be prepared in consultation with BCD (see attached). I had originally considered this as redundant as it references the offset requirements of Mod 1 and completion by February 2018, however, on further discussion with the Department of Planning, Industry and Environment I understand this ought to be updated to reflect Modification 3. Furthermore, it is referenced in the condition requiring a Biodiversity Management Plan.

Is there anyone within BCD I can discuss the preparation of an updated Biodiversity Offset Strategy with? In particular, I am interested in discussing the relationship between Condition 24, 26 and 28A.

Regards,

**Alex Irwin**  
Principal Environmental Consultant

**Umwelt (Australia) Pty Limited**  
Office 1, 3 Hampden Avenue  
Orange, NSW 2800



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Mobile: 0436 606 529

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**From:** David Geering <[David.Geering@environment.nsw.gov.au](mailto:David.Geering@environment.nsw.gov.au)>

**Sent:** Monday, 23 March 2020 1:26 PM

**To:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>

**Subject:** MBP guidelines

Hi Alex

I've attached some unofficial guidelines for the preparation of BMPs. These guidelines are some 6 years old but the basic principles will be the same.

Again, it is important that the document is clear and that the targets are measurable and realistic.

Regards

David

**David Geering**

**Senior Conservation Planning Officer, North West**

**Biodiversity and Conservation Division | Department of Planning, Industry and Environment**

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## Alex Irwin

---

**From:** David Geering <David.Geering@environment.nsw.gov.au>  
**Sent:** Friday, 22 May 2020 8:47 AM  
**To:** Alex Irwin  
**Subject:** Wallerawang Quarry Biodiversity Management Plan  
**Attachments:** BCD response - Wallerawang Quarry BMP.pdf

Hi Alex

Please find attached OEH's comments on the Wallerawang Quarry BMP.

Please let me know if you have any questions.

David

**David Geering**  
**Senior Conservation Planning Officer, North West**  
**Biodiversity and Conservation Division | Department of Planning, Industry and Environment**

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PO Box 2111 Dubbo NSW 2830  
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---

**From:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>  
**Sent:** Wednesday, 6 May 2020 9:40 AM  
**To:** David Geering <[David.Geering@environment.nsw.gov.au](mailto:David.Geering@environment.nsw.gov.au)>  
**Subject:** HPE CM: RE: 4433\_Wallerawang Quarry Biodiversity Management Plan

David,

Please find attached. For your information and hopefully ease of review) updated / revised information from the previous version (of April 2019) is identified in blue text.

Thank you for getting back to me on this matter.

Regards,

**Alex Irwin**  
Principal Environmental Consultant

**Umwelt (Australia) Pty Limited**

Office 1, 3 Hampden Avenue  
Orange, NSW 2800

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Mobile: 0436 606 529

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**From:** David Geering <[David.Geering@environment.nsw.gov.au](mailto:David.Geering@environment.nsw.gov.au)>  
**Sent:** Wednesday, 6 May 2020 9:37 AM  
**To:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>  
**Subject:** RE: 4433\_Wallerawang Quarry Biodiversity Management Plan

Alex

Further to your query on 28 April 2020 about the BMP for Wallerawang Quarry. I still have not received this document. If you wish us to review it you will need to forward it to me again.

Cheers

David

**David Geering**  
**Senior Conservation Planning Officer, North West**  
**Biodiversity and Conservation Division | Department of Planning, Industry and Environment**

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PO Box 2111 Dubbo NSW 2830  
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---

**From:** David Geering  
**Sent:** Wednesday, 29 April 2020 8:53 AM  
**To:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>

**Cc:** Samantha Wynn <[Samantha.Wynn@environment.nsw.gov.au](mailto:Samantha.Wynn@environment.nsw.gov.au)>

**Subject:** RE: 4433\_Wallerawang Quarry Biodiversity Management Plan

Alex

A request to review the BMP did come through the Major Projects portal but this was withdrawn almost immediately, again as a notification in the Major Projects portal. As a consequence this BMP was not reviewed.

Regards

David

**David Geering**

**Senior Conservation Planning Officer, North West**

**Biodiversity and Conservation Division | Department of Planning, Industry and Environment**

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PO Box 2111 Dubbo NSW 2830

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---

**From:** Alex Irwin <[airwin@umwelt.com.au](mailto:airwin@umwelt.com.au)>

**Sent:** Tuesday, 28 April 2020 2:14 PM

**To:** David Geering <[David.Geering@environment.nsw.gov.au](mailto:David.Geering@environment.nsw.gov.au)>

**Subject:** 4433\_Wallerawang Quarry Biodiversity Management Plan

David,

We spoke in late March regarding the preparation of a revised Biodiversity Management Plan (BMP) and Biodiversity Offset Strategy (BOS) for the Wallerawang Quarry (as approved on 26 February as SSD DA 344-11-2001).

Taking note of the draft *Guidelines for the Preparation of Biodiversity Management Plans for Major Projects* provided, I submitted the document to DPIE on 9 April 2020 under the understanding / instruction the document was to have been forwarded to BCD for review.

Not sure if this has occurred.

The Proponent is keen to progress retirement of first lot of biodiversity credits and therefore seek confirmation of the proposed biodiversity offset strategy contained in the BMP. Can you review and confirm the proposed BOS on behalf of BCD?

Or would you advise the Proponent commence application to retire biodiversity offset credits?

Regards,

**Alex Irwin**

Principal Environmental Consultant

**Umwelt (Australia) Pty Limited**

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Our ref: DOC20/353524

Senders ref:

Mr Alex Irwin  
Principal Environmental Consultant  
Unwelt (Australia) Pty Ltd  
airwin@umwelt.com.au

Dear Alex,

**Wallerawang Quarry - Biodiversity Management Plan**

Thank you for your email dated 6 May 2020 to the Biodiversity and Conservation Division (BCD) requesting review of the Wallerawang Quarry Biodiversity Management Plan (BMP).

BCD has reviewed the BMP. Recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**.

Should you require further clarification on the items above please contact David Geering, Senior Conservation Planning Officer, via david.geering@environment.nsw.gov.au or 02 6883 5335.

Yours sincerely

A handwritten signature in black ink that reads 'Samantha Wynn'.

**Samantha Wynn**  
**Senior Team Leader Planning - North West**  
**Biodiversity and Conservation Division**

21 May 2020



## BCD's recommendations

### Wallerawang Quarry – Biodiversity Management Plan

---

- 1.1 Quantitative performance measures, targets and trigger points for corrective action be developed.
- 1.2 A detailed monitoring plan to track performance towards completion criteria be developed.
- 1.3 Trigger points in the TARP be quantifiable and relate to performance or completion criteria.
- 2.1 The BMP to reflect the Consolidated Consent Conditions in regards to the retirement of the approved credit requirement.

## BCD's detailed comments

### Wallerawang Quarry – Biodiversity Management Plan

---

#### 1 Targets should be clear and quantifiable

Successful management plans include tailored, quantitative performance measures and targets, completion criteria, monitoring and trigger points for corrective action which adhere to the SMART principles (specific, measurable, achievable, realistic, timely). Management targets must be measurable and expressed in a manner that assists in the evaluation of progress toward the strategic goals that define the completion criteria.

BCD notes that for weed management the BMP includes actions to establish baseline weed occurrence and densities and weed control and management. Performance and completion currently indicate the eradication of noxious weed species and no increase in the area of occupancy of environmental weeds. The weed control program should aim for a decrease in percent cover of environmental weeds on the site, for example less than 10% of ground cover. Targets should be quantitative and measurable.

It is also not clear how weeds will be monitored on site other than observations of type, distribution and density of weed species. It is noted that six vegetation monitoring plots are proposed with data on weed species and percentage cover being collected. This proposed monitoring may be sufficient; however, this is not clear in the BMP. A detailed monitoring plan outlining what will be done and when should be provided.

While a Trigger Action Response Plan is provided the section relating to weeds is general, i.e. the trigger for further action being an increase in weeds. Trigger points should be quantifiable and relate to performance or completion criteria.

#### Recommendations:

- 1.1 Quantitative performance measures, targets and trigger points for corrective action be developed.
- 1.2 A detailed monitoring plan to track performance towards completion criteria be developed.
- 1.3 Trigger points in the TARP be quantifiable and relate to performance or completion criteria.

#### 2. Biodiversity Offset Strategy is not required for Modification 3

BCD notes that Section 5.2 of the BMP refers to *Condition 3(28A)* of DA 344-11-2001 and the retirement of biodiversity credits associated with the increased disturbance area of Modification 3.

The consent conditions clearly state that “*The Applicant must retire biodiversity credits for Stages A to D ... prior to commencing vegetation clearing in that Stage*”. The BMP however suggests that credits relating only to the actual disturbance may be retired. Section 5.2.4.1 specifically states “*Prior to application to retire offset credit obligations, Walker Quarries will define the area against the relevant Stage and Tranche defined by Table 5.3, and provide for the retirement of the appropriate proportion of the credit obligation*”.

It is a condition of the consent that the entire credit obligation for the stage, as detailed in Table 5A, be retired prior to the commencement of vegetation clearing in that stage. If clearing of a particular stage were not to occur, then there would be no obligation to retire the credit obligation for that stage. The entire offset obligation for a stage must be retired in full prior to impact. Retirement of a portion of a stage is not permissible under the biodiversity offset scheme. The BMP should be revised to ensure consistency with the consent conditions and the Biodiversity Conservation Act 2016.

#### Recommendation:

- 2.1 The BMP to reflect the Consolidated Consent Conditions in regards retirement of the approved credit requirement.

Our ref: DOC20/692587

Senders ref:

Mr Wayne Jones  
Team Leader Post Approval  
Planning & Assessment Group  
[wayne.jones@planning.nsw.gov.au](mailto:wayne.jones@planning.nsw.gov.au)

Dear Wayne,

**Wallerawang Quarry - Biodiversity Management Plan**

Thank you for your email dated 19 August 2020 to the Biodiversity and Conservation Division (BCD) requesting a further review of the revised Wallerawang Quarry Biodiversity Management Plan (BMP).

In regard to our previous comments, BCD note that quantitative performance measures, targets and trigger point have been included in the BMP; however, the monitoring plan particularly for vegetation is still considered insufficient to achieve the BMP's stated objectives. Clarity is also required around the staging of the retirement of the biodiversity offset obligation.

Recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**.

Should you require further clarification on the items above please contact David Geering, Senior Conservation Planning Officer, via [david.geering@environment.nsw.gov.au](mailto:david.geering@environment.nsw.gov.au) or 02 6883 5335.

Yours sincerely



**Samantha Wynn**  
**Senior Team Leader Planning - North West**  
**Biodiversity and Conservation Division**

7 September 2020

## BCD's recommendations

### Wallerawang Quarry – Biodiversity Management Plan

---

- 1.1 Standard plot-based floristic surveys consistent with the BAM should be used to determine condition of vegetation and to track performance of rehabilitation areas towards completion criteria.
- 1.2 Monitoring of weeds should occur across the entire quarry in order to identify and control weeds as required.
- 2.1 Proactive management in consultation with a species expert should be undertaken to maximise the potential for the Purple Copper Butterfly to recolonize suitable areas of the quarry.
- 2.2 Known feed plants for adult Purple Copper Butterflies should be included into the seed mix for rehabilitation areas.
- 2.3 The potential to establish additional patches of *Bursaria* should be explored within the Conservation Biodiversity Management Areas.
- 2.4 Additional monitoring sites for the Purple Copper Butterfly should be established on rehabilitation areas where *Bursaria* becomes established.
- 3.1 The terminology used in the BMP should be standardised to ensure clarity.
- 3.2 Clarification of point 2c of Section 5.4.2 is required. Further assessment of the credit obligation of previously assessed areas is not appropriate.
- 3.3 The inclusion of BCF payment figures is not required in the BMP as the cost of retiring credits via payment to the BCF is updated quarterly and therefore may change over time.
- 4.1 BCD is to be consulted in regards any recommendations made relating to changes to monitoring or management actions.

## BCD's detailed comments

### Wallerawang Quarry – Biodiversity Management Plan

---

#### 1 A rigorous monitoring plan should be developed

BCDs previous comments dated 21 May 2020 recommended that a detailed monitoring plan to track performance towards completion criteria be developed.

The objectives of monitoring, outlined in Section 6 of the BMP, include:

- evaluate the success of flora and fauna management strategies,
- facilitate continuous improvement in rehabilitation and revegetation practices,
- record and document changes in retained vegetation within the Quarry Site, and allow for comparison with previous records, and
- ensure the ecological significance of the remnant vegetation or rehabilitated areas are maintained or improved as a result of ongoing management practices.

The BMP indicates that vegetation monitoring will identify the abundance of all vascular plant species, the dominant species and the foliage cover in each stratum in six 10 m by 10 m quadrats with additional quadrats established in rehabilitated areas. The size of the quadrats, combined with the proposed survey methodology, is unlikely to provide data representative of the vegetation communities sampled that can be used as a benchmark or identify changes in condition in a timely manner. It is also unlikely to capture the variability that might be expected in rehabilitation. For the BMP's objectives to be achieved a more rigorous survey methodology is required.

BCD recommends that standard plot-based floristic surveys, consistent with the Biodiversity Assessment Method (BAM), be used to determine condition of the vegetation of the six analogue sites and to track performance of rehabilitation areas towards completion criteria.

The BMP also suggests that monitoring of weeds will also be undertaken within the vegetation monitoring quadrats. It is important that monitoring of weeds occurs across the entire quarry in order to identify and control weeds as required.

#### Recommendations:

- 1.1 Standard plot-based floristic surveys consistent with the BAM should be used to determine condition of vegetation and to track performance of rehabilitation areas towards completion criteria.
- 1.2 Monitoring of weeds should occur across the entire quarry in order to identify and control weeds as required.

#### 2. Management measures for Purple Copper Butterfly should be proactive

Section 4.9 of the BMP outlines the management measures for Purple Copper Butterfly and *Bursaria spinosa*.

It is noted that the Purple Copper Butterfly is considered extinct on the quarry site as it has not been identified during four years of monitoring (2016-2019) although it is acknowledged that this species has been recorded at other sites within the locality of the quarry. The BMP further states that the attendant ant species has also not been detected within the quarry during these survey periods.

The absence of the butterfly and the attendant ant species should not be taken as evidence that the species is extinct at a site. The ant is often difficult to detect when there are no butterfly larvae present and the butterfly is capable of colonising sites in favourable years. There is also evidence to suggest that the attendant ant species may disappear and then recolonise areas where butterflies are not present.



BCD therefore recommends that proactive management, in consultation with a species expert, be undertaken to maximise the potential for recolonization of the quarry by the Purple Copper Butterfly. This should include actions to revitalise areas of senescing *Bursaria* as well as including known feed plants for adult butterflies (such as *Cymbonotus lawsonianus*, *Asperula conferta*, *Ranunculus lappaceus*, *Davesia latefolia*, *Hardenbergia violacea* and *Hovea linearis*) into the seed mix for rehabilitation areas. The potential to establish additional patches of *Bursaria*, where suitable microhabitat conditions occur, should be explored within the Conservation Biodiversity Management Areas.

It is noted that the BMP commits to monitoring five patches of *Bursaria* each year; however, four of the monitoring sites occur within or immediately adjacent to the approved area of disturbance. The BMP states that no alternative monitoring sites will be established. BCD recommends that as *Bursaria* is included in the seed mix on rehabilitation areas, monitoring sites for the Purple Copper Butterfly be established at sites where *Bursaria* becomes established.

#### Recommendations:

- 2.1 Proactive management in consultation with a species expert should be undertaken to maximise the potential for the Purple Copper Butterfly to recolonize suitable areas of the quarry.
- 2.2 Known feed plants for adult Purple Copper Butterflies should be included into the seed mix for rehabilitation areas.
- 2.3 The potential to establish additional patches of *Bursaria* should be explored within the Conservation Biodiversity Management Areas.
- 2.4 Additional monitoring sites for the Purple Copper Butterfly should be established on rehabilitation areas where *Bursaria* becomes established.

### **3. Staging of the retirement of the biodiversity offset obligation needs to be clearly articulated**

Section 5.2.4 of the BMP is difficult to follow. This could be improved with the consistent use of terminology. For example, there is reference to “packets”, “portions”, and “stages” within Tranches and “packages” of offsets. Table 5.3 refers to stages of the development. This should be the term used throughout the BMP when referring to the staging of the retirement of the offset obligations.

The intent of point 2c of Section 5.2.4 is unclear. It appears to imply that a modification of the development may be required if the credit requirement of the stages is deemed to have varied due to a change in the vegetation integrity score over time. The credit obligation of the development was assessed in the BDAR for the project. Further assessment of these areas is not appropriate.

Table 5 of the BMP includes the Biodiversity Conservation Fund (BCF) payment figures based on the credit value for PCTs at the time. These values change in accordance with updates of the Biodiversity Offsets Payment Calculator (BOPC). As the retirement of biodiversity credits for the project will be staged it is probable that the credit values presented in Table 5 will be inaccurate at the time of retirement of the credits. The inclusion of these payment figures is not required in the BMP.

#### Recommendations:

- 3.1 The terminology used in the BMP should be standardised to ensure clarity.
- 3.2 Clarification of point 2c of Section 5.4.2 is required. Further assessment of the credit obligation of previously assessed areas is not appropriate.
- 3.3 The inclusion of BCF payment figures is not required in the BMP as the cost of retiring credits via payment to the BCF is updated quarterly and therefore may change over time.

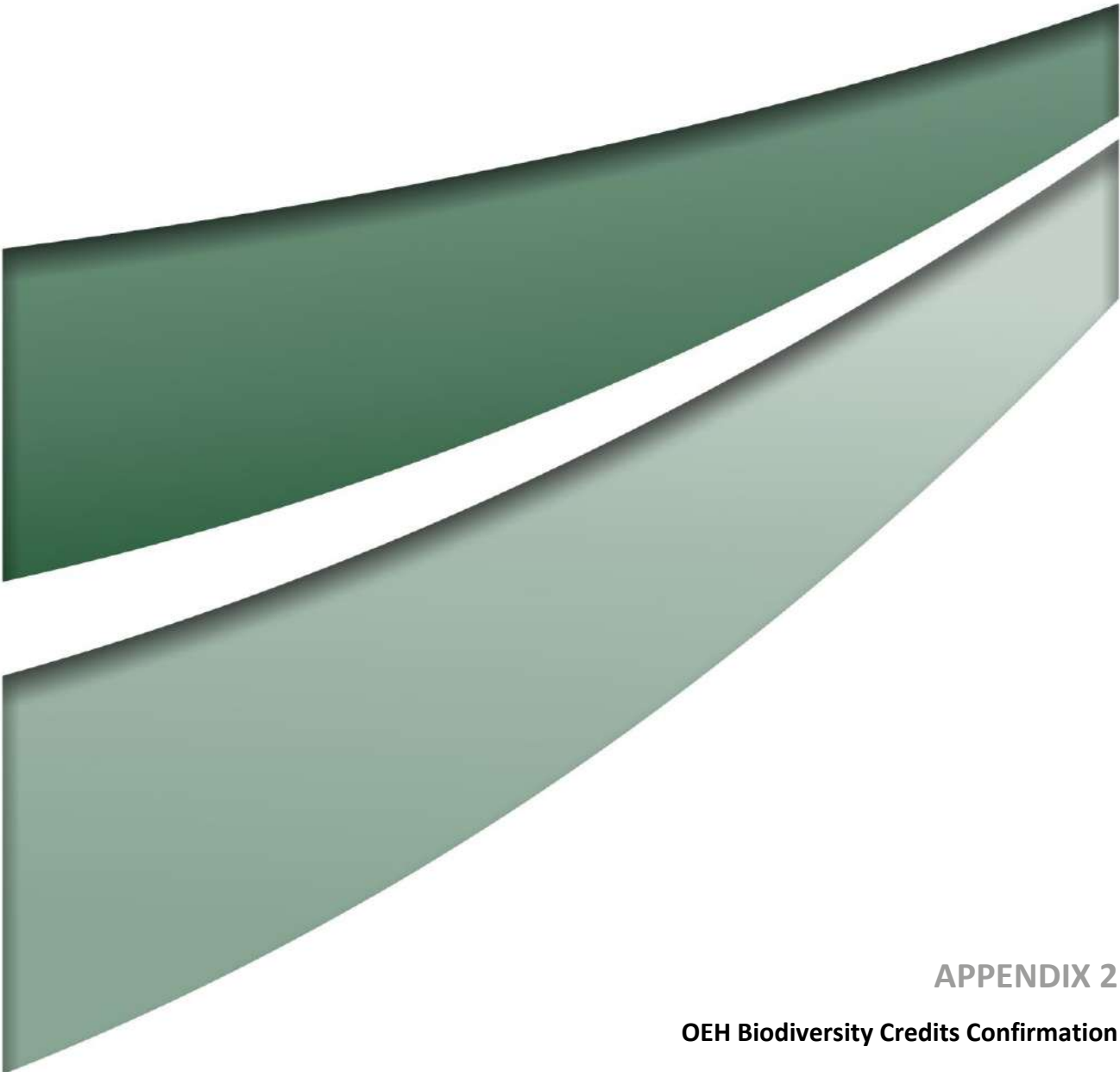
#### **4. Changes to monitoring or management actions should be undertaken in consultation with BCD**

BMPs should utilise an adaptive management approach with management measures amended in response to monitoring results to ensure more effective management and mitigation are implemented over time.

It is stated in Section 6.5 that “*recommendations of the ecologist engaged to undertake the monitoring will be sought and these implemented, potentially in consultation with the BCD, if deemed reasonable and feasible*”. BCD wishes to be consulted with regards to any recommendations made relating to changes to monitoring or management actions.

##### Recommendation:

- 4.1 BCD is to be consulted in regards any recommendations made relating to changes to monitoring or management actions.



## APPENDIX 2

### OEH Biodiversity Credits Confirmation

## Appendix 2

# Consultation with OEH

**Alex Irwin**

---

**From:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Sent:** 2 November 2017 12:16 PM  
**To:** Alex Irwin  
**Cc:** Gen Seed; Samantha Wynn  
**Subject:** RE: 949 - Wallerawang Quarry - Requirement to Consult with OEH  
**Attachments:** OEH NW Draft BMP Guidelines\_August 2014.doc.PDF

Hi Alex,

As discussed on Tuesday please find attached some draft guidelines for the preparation of Biodiversity Management Plans. Please note that these guidelines are now 3 years old and the new legislation has superseded some of the advice, but in general it provides an understanding of the information that we look for in a BMP.

Of particular importance is the description of the site, delineation of the site into appropriate management zones, development of an appropriate monitoring program, creation of KPIs that link into that monitoring plan, and development of a TARP to ensure that the KPIs are met.

Where a management zone requires "active" management (eg. revegetation) ensure that KPIs are developed for relevant timeframes (eg. 2, 5, 10, 15 years etc) so that the expected ecological trajectory can be monitored and relevant response actions can be implemented where the KPIs aren't met.

Ensure that all of the components in Schedule 3 Condition 26 of the project approval are addressed in the BMP.

Relevant information from the existing Flora and Fauna Management Plan can be inserted into the BMP if/where it is appropriate.

If you have any other questions please do not hesitate to contact me.

Regards,  
Renee.

Renee Shepherd  
Senior Conservation Planning Officer  
North West Branch  
Regional Operations Division  
Office of Environment and Heritage  
48-52 Wingewarra Street (PO Box 2111) Dubbo NSW 2830  
Ph: 02 6883 5355  
W: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

*Please note that I work Tuesday, Thursday, Friday*

---

**From:** Alex Irwin [mailto:[alex@rwcorkery.com](mailto:alex@rwcorkery.com)]  
**Sent:** Friday, 20 October 2017 3:50 PM  
**To:** Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>  
**Subject:** 949 - Wallerawang Quarry - Requirement to Consult with OEH

Good afternoon Renee,

Walker Quarries Pty Ltd received approval for a modification to the project approval for the Wallerawang Quarry (DA 344-11-2001) on 25 August 2017 (attached).

Conditions 3(5) and 3(18) of DA 344-11-2001 require Walker Quarries to consult with OEH in the preparation of a Biodiversity Management Plan and Rehabilitation Management Plan respectively.

With respect to the nominated conditions, and noting that Walker Quarries is currently operating under a Floral and Fauna Management Plan (also attached), can you provide any specific requirements of OEH for the preparation and/or update of these.

I note DA 344-11-2001 requires the RMP to be submitted to the Secretary for approval by 25 November 2017 (the Biodiversity MP is not required until 31 March 2018) and so we would appreciate any advice as soon as possible.

Regards,

**Alex Irwin**  
Senior Environmental Consultant  
(Mobile 0429 635 975)

**RW Corkery & Co Pty Limited**

Geological and Environmental Consultants



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## Statement of assessment of reasonable equivalence of biodiversity credits

A delegate of the Chief Executive of the Office of Environment and Heritage has determined that the number of biodiversity credits required to be retired under the *Threatened Species Conservation Act 1995 (TSC Act)* as part of the development consent listed in Part 1, are reasonably equivalent to the number and class of biodiversity credits under the *Biodiversity Conservation Act 2016 (BC Act)* set out in Part 2.

This document outlines that determination, made in accordance with clause 22(3) of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*.

### Part 1 Existing statutory obligation to retire credits

Request made by:	Walker Quarries Pty Ltd (ACN 003 061 890)
Date received	23 <sup>rd</sup> April 2018
Development Consent number	DA 344-11-2001
Development name	Wallerawang Quarry, Lot 6, Great Western Highway, Wallerawang NSW

Existing statutory obligation reference	Biodiversity credit name (Plant Community Type name and ID, or threatened species name)	IBRA sub region	Number of credits
DA 344-11-2001	Broad-leaved Peppermint-Ribbon Gum Grassy open forest in the north east of the South Eastern Highlands Bioregion (PCT 732)	Oberon – Hawkesbury/Nepean	120
DA 344-11-2001	Red Stringybark -Brittle Gum-Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (PCT 1093)	Oberon – Hawkesbury/Nepean	34
DA 344-11-2001	Purple Copper Butterfly	NA	184

## Part 2 Determination of reasonable equivalence

The number and class of biodiversity credits that are reasonably equivalent under the BC Act are:

### Ecosystem Credits

1. **Name of Plant Community Type** Broad-leaved Peppermint-Ribbon Gum Grassy open forest in the north east of the South Eastern Highlands Bioregion (PCT 732)

Number of ecosystem credits required	65
Offset trading group	Grassy Woodlands - percent cleared value greater than or equal to 50% and less than 70%
Vegetation class	Grassy Woodlands
Vegetation formation	Southern tableland Grassy Woodlands
IBRA <sup>1</sup> subregion	Oberon - Hawkesbury/Nepean

2. **Name of Plant Community Type** Red Stringybark -Brittle Gum-Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (PCT 1093)

Number of ecosystem credits required	19
Offset trading group	Dry Sclerophyll forests (shrubby sub-formation) - percent cleared value greater than or equal to 50% and less than 70%
Vegetation class	Dry Sclerophyll forests (shrubby sub-formation)
Vegetation formation	Southern Tableland Dry Sclerophyll Forests
IBRA <sup>2</sup> subregion	Oberon - Hawkesbury/Nepean

<sup>1</sup> Interim Biogeographic Regionalisation for Australia

<sup>2</sup> Interim Biogeographic Regionalisation for Australia

**Species Credits**

1. Name of threatened species Purple Copper Butterfly *Paralucia spinifera*

Number of species credits required	96
IBRA region	N/A

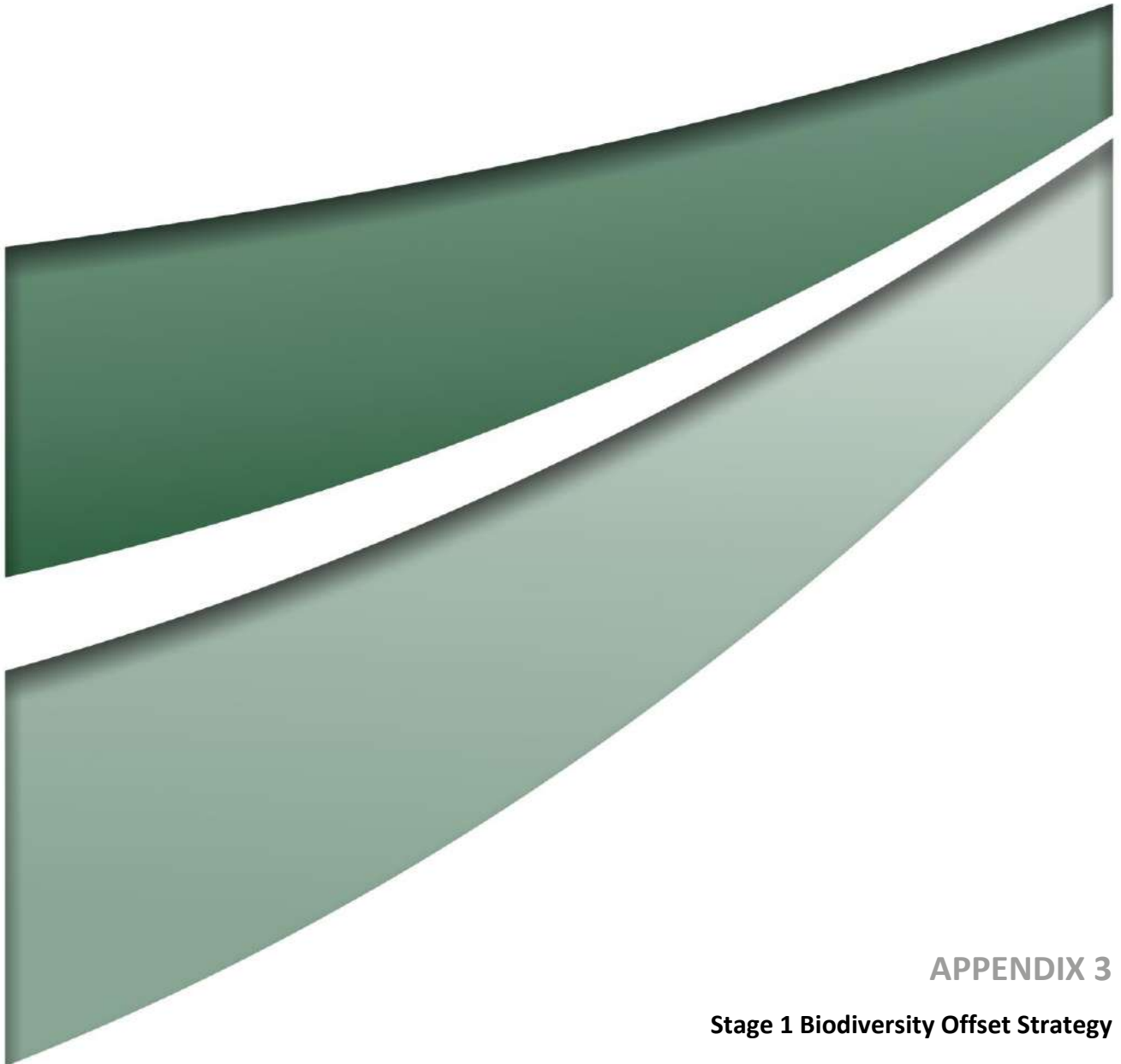
This statement was issued on 14 June 2018.

Authorised by:



Jane Gibbs  
Director, Ecosystem  
Assessment & Planning

Delegate of Chief Executive Officer  
Office of Environment and Heritage



## APPENDIX 3

### Stage 1 Biodiversity Offset Strategy

#### **Appendix 4**

## **Biodiversity Offset Strategy**



**ecoplanning**

ecology | planning | offsets

## Biodiversity Offset Strategy



### Wallerawang Quarry

Prepared for: Walker Quarries

**13 July 2018**



<b>PROJECT NUMBER</b>	2017-111	
<b>PROJECT NAME</b>	Wallerawang Quarry – Biodiversity Offset Strategy	
<b>PROJECT ADDRESS</b>	Lot 6 // DP 872230, 963 Great Western Highway, Marrangaroo NSW 2791	
<b>PREPARED FOR</b>	Walker Quarries	
<b>AUTHOR/S</b>	Brian Towle, Lucas McKinnon	
<b>REVIEW</b>	Lucas McKinnon	
<b>VERSION</b>	<b>Version</b>	<b>Date to client</b>
	1.0 – Draft	26 February 2018
	1.0 – Final	27 February 2018
	1.1 – Draft	13 July 2018
	1.1 – Final	13 July 2018

This report should be cited as: *Ecoplanning (2018). Wallerawang Quarry – Biodiversity Offset Strategy. Prepared for Walker Quarries.*

**Disclaimer:** This report has been prepared by Ecoplanning Pty Ltd for Walker Quarries and may only be used for the purpose agreed between these parties, as described in this report. The opinions, conclusions and recommendations set out in this report are limited to those set out in the scope of works and agreed between these parties. Ecoplanning P/L accepts no responsibility or obligation for any third party that may use this information or for conclusions drawn from this report not provided in the scope of works or following changes occurring subsequent to the date that the report was prepared.

ECOPLANNING PTY LTD | 74 HUTTON AVE BULLI NSW 2516 | M: 0421 603 549

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## Glossary and abbreviations

ACRONYM	DESCRIPTION
BAM	Biodiversity Assessment Methodology – Established under the BC Act
BBAM	BioBanking Assessment Methodology
BBCC	BioBanking Credit Calculator
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
BSA	Biodiversity Stewardship Agreement
BOA	Biodiversity Offset Area
BOS	Biodiversity Offset Strategy
DA	Development Application
FBA	Framework for Biodiversity Assessment – Now replaced by the BAM
OEH	NSW Office of Environment and Heritage
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>

# 1. Introduction

Walker Quarries, a subsidiary of Sitegoal Pty Ltd, operates the Wallerawang Quarry under development consent DA 344-11-2001 issued on 19 October 2004. Wallerawang Quarry is located approximately 2.5 km south-east of the town of Wallerawang (Figure 1.1) and produces quartzite and rock aggregates, sands and other products.

DA 344-11-2001 was modified on 25 August 2017 to address and regularise non-compliant clearing (2.4 ha) on the Quarry Site (Figure 1.1). Condition 3(24) of the Notice of Modification for DA 344-11-2001 requires the development a Biodiversity Offset Strategy (BOS) for the retirement of ecosystem and species credits as set out in Table 1.1.

Table 1.1: Offset requirements outlined in the Notice of Modification.

Credit type	Area of impact (ha)	Number of credits
<b>Ecosystem credits</b>		
PCT 732 – Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	1.90	120
PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	0.5	34
<b>Species credits</b>		
Purple Copper Butterfly	2.4	184

The Notice of Modification (DPE 2017), specifies that the BOS must be prepared in accordance with the 'Framework for Biodiversity Assessment' (FBA; OEH 2014a) for retirement of the necessary biodiversity credits. The FBA underpins the 'Biodiversity Offsets Policy for Major Projects' (BOPMP; OEH 2014b). It contains the assessment methodology that is adopted by the policy to quantify and describe the impact assessment requirements and offset guidance that apply to Major Projects (OEH 2014b). It uses the BioBanking Assessment Methodology (BBAM; OEH 2014c) established under Part 7A of the NSW *Threatened Species Conservation Act 1995* (TSC Act), to generate biodiversity credits that can be traded to offset impacts of major projects.

On 25 August 2017 the *NSW Biodiversity Conservation Act 2016* (BC Act) came into force repealing the TSC Act and establishing a new offset scheme using the 'Biodiversity Assessment Methodology' (BAM). Section 22(2) of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* (the 'transitional arrangements') states that:

*If biodiversity credits that are required to be retired under any such obligation [conditions of a development consent] have not been retired on the commencement of the new Act, the obligation is to be construed as requiring the retirement of biodiversity credits under the new Act that remain to be retired.*

Consequently, despite the specification within the Notice of Modification to prepare the BOS in accordance with the FBA, the transitional arrangements under the BC Act specify that the BAM must be used to calculate biodiversity credit generation. This position has been confirmed in correspondence with the NSW Office of Environment and Heritage (OEH).

Under the BC Act the generation of biodiversity credits is through the establishment of a Biodiversity Stewardship Agreement (BSA). The biodiversity credit obligations under the two methodologies (FBA and BAM) are not equal and section 22(3) of the transitional arrangements specify that: *the Environment Agency Head may determine the biodiversity credits under the new Act that are reasonably equivalent to the remaining biodiversity credits under the TSC Act.* A 'Statement of assessment of reasonable equivalence of biodiversity credits' was received from OEI, dated 14 June 2018 (DOC18/370808) (Table 1.2; see also Appendix A).

Table 1.2: Offset requirements outlined in the Notice of Modification.

Credit type	Area of impact (ha)	Number of credits
<b>Ecosystem credits</b>		
PCT 732 – Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	1.90	65
PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	0.5	19
<b>Species credits</b>		
Purple Copper Butterfly	2.4	96

Conditions 3(25), 3(27) and 3(28) of the Notice of Modification require the establishment and payment of a conservation bond associated with the BOS. The sum of the conservation bond is to be determined by:

- (a) calculating the full cost of implementing the Biodiversity Offset Strategy at third party rates (other than land acquisition costs); and
- (b) employing a suitably qualified, independent and experienced person to verify the calculated costs.

This BOS provides for payment into the Biodiversity Conservation Fund, established under the BC Act. Payment into the Biodiversity Conservation Fund for the number of reasonably equivalent credits (Table 1.2) would constitute the required conservation bond (in satisfaction of Conditions 3(27) and 3(28)) (see Section 2).



Figure 1.1: Location of Wallerawang Quarry and the proposed Biodiversity Offset Area.



## 2. Biodiversity Offset Strategy

Under the BOPMP (OEH 2014a), Principle 5 states that:

*...biobanking agreements must be used to secure offsets if any of the following conditions are met:*

- *there are appropriate credits available on the market for purchase (noting that 'reasonable steps' to locate offsets includes a requirement that an expression of interest be put on the biobanking credit register for a minimum of six months)*
- *the fund has been established, or*
- *a service agreement for establishment of biobanking agreements has been put in place by OEH.*

Prior to the BC Act coming into force, attempts were made by RW Corkery to purchase and retire the required credits using the Biobanking Public Register. That is to find, purchase and retire the required credits which have been generated from a BioBanking Agreement (RW Corkery 2017). No established BioBanking Agreements generating the credits required were identified.

Further, calculation of credit generation potential over residual land adjacent at the quarry (identified as the Biodiversity Offset Area on Figure 1.1) was investigated (Ecoplanning 2018). Following receipt of the reasonably equivalent credit requirement (OEH 2018b), it was determined that the credit generation of this initially proposed Biodiversity Offset Area would not meet the entire credit obligation. Consequently, the desired approach of Walker Quarries to meet the biodiversity credits obligations is payment into the Biodiversity Conservation Fund.

The costs for payment into the fund is outlined within the BAM Calculator and the 'Offsets Payment Calculator public tool' (OEH 2018b). The costs for payment into the Biodiversity Conservation Fund for the required credits are outlined in Table 2.1.

Table 2.1: Credit prices for payment into the BCF calculated using the 'Biodiversity Offsets Payment Calculator (OEH 2018b)'.

Credit type	Cost / credit (ex GST) <sup>1</sup>	Reasonably equivalent credit	Total
<b>Ecosystem credits</b>			
PCT 732 – Broad-leaved Peppermint Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	\$3,486.75	65	\$226,638.43
PCT 1093 – Red Stringybark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	\$3,486.175	19	\$66,248.16
<b>Ecosystem credits sub-total (ex. GST)</b>			<b>\$292,886.59</b>
<b>Species credits</b>			
Purple Copper Butterfly	\$316.96	96	\$36,377.81
<b>Species credit sub-total (ex. GST)</b>			<b>\$36,377.81</b>
<b>Total (ex GST)</b>			<b>\$329,264.40</b>
<b>Grand Total (incl. GST)</b>			<b>\$362,190.84</b>

<sup>1</sup> Price based on BOPC as 13 July 2018 (OEH 2018b)

The process of purchasing and retiring credits from the BCF is provided in Figure 2.1.



Figure 2.1: Steps for payment into the Biodiversity Conservation Fund (Source BCT 2018).

In accordance with Condition 3(25), payment will be made into the BCF by 31 December 2018. It is noted that the final value of payment required to retire the biodiversity credits will be subject to the following:

- Any fluctuation (change) in the credit costs for the credit types identified in Table 2.1 (this may be up or down).
- Any reduction in final cost applicable (in accordance with the BC Act) for disturbance on land contained within Lidsdale State Forest (equivalent to payments already made to Forestry Corporation NSW for the disturbance of this vegetation).

Should equivalent credits (of the type and quantum nominated in Table 1.2) become available prior to 31 December 2018, or the price rises in the BOPC (OEH 2018b) so as make the establishment of a Biodiversity Stewardship site more cost effective, Walker Quarries reserve the right modify this BOS.

## References

Ecoplanning (2018). Wallerawang Quarry – Interim Biodiversity Offset Strategy. Prepared for Walker Quarries (v 1.0).

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NSW Office of Environment and Heritage (2014a). *Framework for Biodiversity Assessment*. State of NSW and Office of Environment and Heritage, Sydney.

NSW Office of Environment and Heritage (2014b). NSW Biodiversity Offsets Policy for Major Projects. State of NSW and Office of Environment and Heritage, Sydney.

NSW Office of Environment and Heritage (2014c). *BioBanking Assessment Methodology 2014*. State of NSW and Office of Environment and Heritage, Sydney.

NSW Office of Environment and Heritage (2018a). BioNet Vegetation Classification. Accessed at: <http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx>

NSW Office of Environment and Heritage (2018b). Biodiversity Offset Payment Calculator: <https://www.lmbc.nsw.gov.au/offsetpaycalc>

R.W. Corkery & CO. (2017) Response to Submissions for the Wallerawang Quarry. Unpublished report prepared for Walker Quarries, dated July 2017.

## Appendix A: Statement of reasonable equivalence



DOC18/370808

### Statement of assessment of reasonable equivalence of biodiversity credits

A delegate of the Chief Executive of the Office of Environment and Heritage has determined that the number of biodiversity credits required to be retired under the *Threatened Species Conservation Act 1995 (TSC Act)* as part of the development consent listed in Part 1, are reasonably equivalent to the number and class of biodiversity credits under the *Biodiversity Conservation Act 2016 (BC Act)* set out in Part 2.

This document outlines that determination, made in accordance with clause 22(3) of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*.

#### Part 1 Existing statutory obligation to retire credits

Request made by:	Walker Quarries Pty Ltd (ACN 003 061 890)
Date received	23 <sup>rd</sup> April 2018
Development Consent number	DA 344-11-2001
Development name	Wallerawang Quarry, Lot 5, Great Western Highway, Wallerawang NSW

Existing statutory obligation reference	Biodiversity credit name (Plant Community Type name and ID, or threatened species name)	IBRA sub region	Number of credits
DA 344-11-2001	Broad-leaved Peppermint-Ribbon Gum Grassy open forest in the north east of the South Eastern Highlands Bioregion (PCT 732)	Oberon – Hawkesbury/Nepean	120
DA 344-11-2001	Red Stringybark -Brittle Gum-Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (PCT 1093)	Oberon – Hawkesbury/Nepean	34
DA 344-11-2001	Purple Copper Butterfly	NA	184

## Part 2 Determination of reasonable equivalence

The number and class of biodiversity credits that are reasonably equivalent under the BC Act are:

### Ecosystem Credits

1. **Name of Plant Community Type** Broad-leaved Peppermint-Ribbon Gum Grassy open forest in the north east of the South Eastern Highlands Bioregion (PCT 732)

Number of ecosystem credits required	65
Offset trading group	Grassy Woodlands - percent cleared value greater than or equal to 50% and less than 70%
Vegetation class	Grassy Woodlands
Vegetation formation	Southern tableland Grassy Woodlands
IBRA <sup>1</sup> subregion	Oberon - Hawkesbury/Nepean

2. **Name of Plant Community Type** Red Stringybark -Brittle Gum-Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (PCT 1093)

Number of ecosystem credits required	19
Offset trading group	Dry Sclerophyll forests (shrubby sub-formation) - percent cleared value greater than or equal to 50% and less than 70%
Vegetation class	Dry Sclerophyll forests (shrubby sub-formation)
Vegetation formation	Southern Tableland Dry Sclerophyll Forests
IBRA <sup>2</sup> subregion	Oberon - Hawkesbury/Nepean

<sup>1</sup> Interim Biogeographic Regionalisation for Australia

<sup>2</sup> Interim Biogeographic Regionalisation for Australia

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### Species Credits

1. Name of threatened species Purple Copper Butterfly *Paralucia spinifera*

Number of species credits required	96
IBRA region	N/A

This statement was issued on 14 June 2018.

Authorised by:



Jane Gibbs  
Director, Ecosystem  
Assessment & Planning

Delegate of Chief Executive Officer  
Office of Environment and Heritage

