Statement of Environmental Effects
for the
Broula Magnetite and Limestone Mine
January 2014

Prepared by:
R.W. CORKERY & CO. PTY. LIMITED
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Statement of Environmental Effects
for the
Broula Magnetite and Limestone Mine

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Ref No. 660/06
January 2014
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1 SCOPE</td>
<td>1</td>
</tr>
<tr>
<td>1.2 FORMAT OF THE STATEMENT</td>
<td>1</td>
</tr>
<tr>
<td>1.3 THE APPLICANT AND THE OPERATOR</td>
<td>3</td>
</tr>
<tr>
<td>1.4 BACKGROUND TO THE PROPOSAL</td>
<td>3</td>
</tr>
<tr>
<td>1.4.1 Geology and Resources</td>
<td>3</td>
</tr>
<tr>
<td>1.4.2 Approved Mine Operations</td>
<td>4</td>
</tr>
<tr>
<td>1.4.3 Environmental Performance</td>
<td>8</td>
</tr>
<tr>
<td>1.4.4 Additional Disturbance Areas</td>
<td>8</td>
</tr>
<tr>
<td>1.5 CONSULTATION</td>
<td>10</td>
</tr>
<tr>
<td>1.6 MANAGEMENT OF INVESTIGATIONS</td>
<td>10</td>
</tr>
<tr>
<td>2. DESCRIPTION OF THE PROPOSED MODIFICATION</td>
<td>12</td>
</tr>
<tr>
<td>2.1 INTRODUCTION</td>
<td>12</td>
</tr>
<tr>
<td>2.1.1 Objectives</td>
<td>12</td>
</tr>
<tr>
<td>2.1.2 Modification Sought</td>
<td>12</td>
</tr>
<tr>
<td>2.2 MODIFIED LAYOUT AND HOURS OF OPERATION</td>
<td>13</td>
</tr>
<tr>
<td>2.2.1 Modified Layout</td>
<td>13</td>
</tr>
<tr>
<td>2.2.2 Modified Hours of Operation</td>
<td>14</td>
</tr>
<tr>
<td>2.3 REMAINING SITE ACTIVITIES</td>
<td>14</td>
</tr>
<tr>
<td>2.4 REHABILITATION</td>
<td>14</td>
</tr>
<tr>
<td>2.4.1 Introduction</td>
<td>14</td>
</tr>
<tr>
<td>2.4.2 Rehabilitation Objectives</td>
<td>14</td>
</tr>
<tr>
<td>2.4.3 Final Landform and Land Uses</td>
<td>15</td>
</tr>
<tr>
<td>2.4.4 Rehabilitation Procedures</td>
<td>15</td>
</tr>
<tr>
<td>3. ENVIRONMENTAL SETTING</td>
<td>17</td>
</tr>
<tr>
<td>3.1 INTRODUCTION</td>
<td>17</td>
</tr>
<tr>
<td>3.2 TOPOGRAPHY AND DRAINAGE</td>
<td>17</td>
</tr>
<tr>
<td>3.2.1 Regional Topography and Drainage</td>
<td>17</td>
</tr>
<tr>
<td>3.2.2 Local Topography and Drainage</td>
<td>17</td>
</tr>
<tr>
<td>3.3 SOIL AND LAND CAPABILITY</td>
<td>20</td>
</tr>
<tr>
<td>3.4 METEOREOLOGY</td>
<td>20</td>
</tr>
<tr>
<td>3.4.1 Local Setting</td>
<td>20</td>
</tr>
<tr>
<td>3.4.2 Temperature</td>
<td>20</td>
</tr>
<tr>
<td>3.4.3 Rainfall</td>
<td>22</td>
</tr>
<tr>
<td>3.4.4 Winds</td>
<td>22</td>
</tr>
<tr>
<td>3.5 LAND USE AND LAND OWNERSHIP</td>
<td>24</td>
</tr>
<tr>
<td>3.5.1 Land Uses</td>
<td>24</td>
</tr>
<tr>
<td>3.5.2 Land Ownership</td>
<td>24</td>
</tr>
</tbody>
</table>
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>ASSESSMENT AND MANAGEMENT OF KEY ENVIRONMENTAL ISSUES</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>INTRODUCTION</td>
<td>26</td>
</tr>
<tr>
<td>4.2</td>
<td>FLORA AND FAUNA</td>
<td></td>
</tr>
<tr>
<td>4.2.1</td>
<td>Introduction</td>
<td>26</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Existing Environment</td>
<td>26</td>
</tr>
<tr>
<td>4.2.3</td>
<td>Assessment Methodology</td>
<td>28</td>
</tr>
<tr>
<td>4.2.4</td>
<td>Assessment Results</td>
<td>28</td>
</tr>
<tr>
<td>4.2.5</td>
<td>Issues and Constraints</td>
<td>30</td>
</tr>
<tr>
<td>4.2.6</td>
<td>Controls and Operational Safeguards</td>
<td>30</td>
</tr>
<tr>
<td>4.2.7</td>
<td>Assessment of Impacts</td>
<td>31</td>
</tr>
<tr>
<td>4.3</td>
<td>GENERAL ASSESSMENT OF ENVIRONMENTAL EFFECTS</td>
<td>31</td>
</tr>
<tr>
<td>5.</td>
<td>EVALUATION OF THE PROPOSAL</td>
<td>34</td>
</tr>
<tr>
<td>5.1</td>
<td>INTRODUCTION</td>
<td>34</td>
</tr>
<tr>
<td>5.2</td>
<td>EVALUATION OF RESIDUAL EFFECTS</td>
<td></td>
</tr>
<tr>
<td>5.2.1</td>
<td>Biophysical Considerations</td>
<td>34</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Social Considerations</td>
<td>34</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Economic Considerations</td>
<td>34</td>
</tr>
<tr>
<td>5.3</td>
<td>SECTION 96(2) CONSIDERATIONS</td>
<td>35</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Substantially the Same Development</td>
<td>35</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Consultation with the Relevant Minister, Public Authority or Approval Body</td>
<td>35</td>
</tr>
<tr>
<td>5.3.3</td>
<td>Notification of the Application</td>
<td>36</td>
</tr>
<tr>
<td>5.3.4</td>
<td>Submissions Regarding the Proposal</td>
<td>36</td>
</tr>
<tr>
<td>5.4</td>
<td>SECTION 79C(1) CONSIDERATIONS</td>
<td>36</td>
</tr>
<tr>
<td>5.4.1</td>
<td>Introduction</td>
<td>36</td>
</tr>
<tr>
<td>5.4.2</td>
<td>Section 79C (1)(a)</td>
<td>36</td>
</tr>
<tr>
<td>5.4.3</td>
<td>Section 79C(1)(b)</td>
<td>39</td>
</tr>
<tr>
<td>5.4.4</td>
<td>Section 79C(1)(c)</td>
<td>39</td>
</tr>
<tr>
<td>5.4.5</td>
<td>Section 79C(1)(d)</td>
<td>40</td>
</tr>
<tr>
<td>5.4.6</td>
<td>Section 79C(1)(e)</td>
<td>40</td>
</tr>
<tr>
<td>5.5</td>
<td>CONCLUSION</td>
<td>40</td>
</tr>
<tr>
<td>6.</td>
<td>REFERENCES</td>
<td>41</td>
</tr>
</tbody>
</table>
STATEMENT OF ENVIRONMENTAL EFFECTS
ABTERRA AUSTRALIA PTY LIMITED
Broula Magnetite and Limestone Mine

CONTENTS

APPENDICES

Appendix 1 Development Application .................................................. A1-1
Appendix 2 Development Consent DA 14/2007 ........................................... A2-1
Appendix 3 Coverage of Cowra City Council and Concurrency Agency Assessment Requirements .................................................. A3-1
Appendix 4 Flora Assessment ................................................................. A4-1
Appendix 5 Correspondence with Mine Safety Officers from the NSW Department of Trade and Investment ........................................... A5-1
Appendix 6 Property Vegetation Plan - Tallarook ................................... A6-1

FIGURES

Figure 1 Locality Plan ............................................................................ 2
Figure 2 Mine Site ................................................................................ 5
Figure 3 Approved Site Layout ............................................................. 7
Figure 4 Modified Site Layout ............................................................... 9
Figure 5 Modified Final Landform ........................................................ 16
Figure 6 Regional and Local Drainage ................................................... 18
Figure 7 Local Topography .................................................................... 19
Figure 8 Soil Mapping Units and Land Capability ................................. 21
Figure 9 Wind Roses ............................................................................ 23
Figure 10 Surrounding Residences and Land Ownership ..................... 25
Figure 11 Vegetation Communities ....................................................... 27
Figure 12 Property Vegetation Plan ....................................................... 29

TABLES

Table 1 Summary Of Government Agency Consultation ................................ 10
Table 2 Mean Monthly Meteorological Data .......................................... 22
Table 3 Summary of Environmental Safeguards and Effects .................... 32
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1. **INTRODUCTION**

1.1 **SCOPE**

This *Statement of Environmental Effects* (SoEE) has been prepared by R.W. Corkery & Co. Pty Limited on behalf of Abterra Australia Pty Limited (the Applicant) to accompany an application under Section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to Cowra Shire Council to modify Development Consent DA 14/2007 for the Broula Magnetite and Limestone Mine (the Mine). *Appendix 1* presents a copy of the modification application.

The Mine is situated approximately 1km north of the Mid Western Highway, approximately 19km west-southwest of the town of Cowra in Central Western NSW (*Figure 1*). DA 14/2007 was granted to Somerset Mining Pty Ltd on 26 June 2007 and mining activities commenced in late September 2008. The Mine was operating until mid February 2010 when it was placed into care and maintenance. On 23 February 2011, the Applicant purchased the Mine from Somerset Mining Pty Ltd and recommenced mining in April 2012. A copy of DA 14/2007 is presented in *Appendix 2*.

It was recognised by the Applicant in mid-2013 that the actual area of disturbance may not have corresponded with the area approved under DA 14/2007 and subsequent surveys of the Mine confirmed that approximately 1.4ha of land had been disturbed that was not included in the original approval. Consultation with the Department of Resources and Energy (DRE) and the Cowra Shire Council established that activity in the unapproved areas had begun prior to the Applicant’s ownership of the Mine and it was agreed that a modification to DA 14/2007 would be sought for the additional areas of disturbance. This application has been prepared as a result of that agreement. Due to the nature of the modification this document relies, in part, upon information gathered for the original *Environmental Impact Statement* prepared by R.W. Corkery & Co. Pty Limited on behalf of Somerset Mining in 2007, hereafter referred to as RWC (2007).

1.2 **FORMAT OF THE STATEMENT**

This SoEE has been prepared in five sections together with references and a set of appendices.

**Section 1:** Introduces the proposed modification and the Applicant and briefly reviews the background to the proposed modification, the existing operations of the Mine and consultation undertaken for the Proposal.

**Section 2:** Describes the proposed modification in detail and highlights where it differs from the currently approved operation. This section also provides an overview of planned rehabilitation of the Mine.

**Section 3:** Briefly describes specific aspects of the environmental setting, within and surrounding the Mine Site.

**Section 4:** Describes and presents the assessment of specific environmental impacts arising from the Proposal and management measures that the Applicant has incorporated into the proposed modification to minimise impact on the biophysical, social and economic environment, surrounding the Mine Site.
Section 5: This section provides an evaluation of the proposal with respect to the relevant planning instruments and provides a justification of the proposed modification with respect to biophysical, economic and social considerations.

References: Provides a list of documents that were referenced during the preparation of this document.

The document concludes with a set of appendices as follows.

Appendix 1: A copy of the application to modify Development Consent DA 14/2007.

Appendix 2: A copy of Development Consent DA 14/2007, as approved.

Appendix 3: A summary of assessment requirements provided by the various government agencies consulted with for the Proposal and where each has been addressed.

Appendix 4: An ecological assessment report submitted by Mr Phil Cameron of OzArk Environment and Heritage Pty Limited.

Appendix 5: A copy of correspondence between the Applicant and Mine Safety Officers with the NSW Department of Trade and Investment regarding the disturbance of one of the areas that is the subject of this modification.

Appendix 6: A copy of the Property Vegetation Plan (PVP) for the ‘Tallarook’ property.

1.3 THE APPLICANT AND THE OPERATOR

The Applicant, Abterra Australia Pty Limited, was incorporated in Australia on 23 March 2011 and is a wholly owned subsidiary of Abterra Ltd, a company listed on the Main Board of the Singapore Stock Exchange. Abterra Ltd. currently has businesses operating in Australia, India, China and Indonesia focusing on supply chain efficiencies in the production of coking coal, coke and iron ore.

The Mine is currently operated on behalf of the Applicant by Consolidated Mining and Civil Pty Ltd, a subsidiary of the Consolidated Group, which in addition to undertaking contract mining also offers civil earthworks, bulk earthmoving and haulage services. The company has been operating for over 100 years, currently employs over 300 people, owns and operates over 500 items of plant, and operates nationally.

1.4 BACKGROUND TO THE PROPOSAL

1.4.1 Geology and Resources

The Broula magnetite deposit is a steeply dipping (approximately 65° east-northeast) tabular ore body, approximately 200m in length, up to 20m in true width and pinching out at a depth of around 320m AHD. The ore body occurs at the contact between a diorite and limestone unit and is overlain by Silurian meta-sedimentary rocks, including a substantial body of limestone, having similar dip and strike characteristics to the magnetite body. The deposit is interpreted to be a skarn deposit formed by replacement of carbonate-rich rocks under the influence of iron-rich solutions emanating from an intrusive diorite (now adjacent to the magnetite) during
emplacement. At the northern end of the magnetite ore body, the meta-sedimentary rocks and diorite are unconformably overlain by a wedge of Upper Devonian layered clastic sedimentary rocks consisting of pebbly conglomerates, gritty sandstones and claystones which dip gently to the northeast.

Based on the previous drill hole data and computer-aided resource definition calculations undertaken by SMG Consultants the recoverable magnetite resource is approximately

- 1.3 million tonnes (Mt) of magnetite;
- 0.15 Mt of haematite; and
- 0.9 Mt of limestone.

These resource estimates have not been updated from the time of the original development approval in 2007.

### 1.4.2 Approved Mine Operations

#### 1.4.2.1 The Mine Site

The Mine Site consists of approximately 32ha of land coinciding with the boundary of ML1616 (Figure 2). The Mine Site comprises:

- part Lot 168 DP 42954; and
- Lot 115 DP 752932.

Access to the Mine is provided via a 700m mine access road intersecting with the Mid Western Highway, an RMS-controlled road, approximately 19km west-southeast of Cowra.

The Mine Site and Mine Access Road are located on the properties “Broulaside” owned by Mr and Mrs B. Walker and “Tallarook”, now owned by the Applicant. Details of current land ownership on and in the vicinity of the mine and the boundaries of ML1616 are discussed in Section 3.1.

#### 1.4.2.2 Existing Approvals

The Applicant currently operates the Mine under the following approvals.


  Development Consent 14/2007, granted by Cowra Shire Council for the Mine, remains valid for a period of 20 years (see Appendix 2).
- Environment Protection Licence No. 12804.
  Issued by the then Department of Environment and Climate Change (Environment Protection Authority) under the *Protection of the Environment Operations Act 1997* and is renewed annually.

- Mining Lease 1616 (granted 31 March 2008).
  Mining Lease 1616 granted by the then Department of Primary Industries - Mineral Resources (DPI-MR), incorporates 33.9ha and expires on 31 March 2029.

Other licences and approvals that have been sought or are being sought for the operation of the Mine include:

- Part 5 Licences under the *Water Act 1912* for the construction of two monitoring bores.

- Section 138 Approval under the *Roads Act 1993* for the connection of the Mine Access Road with the Mid Western Highway, a classified road.

- Water Access Licence (WAL) under Part 2 of the *Water Management Act 2000* (in preparation). This will include a subsequent purchase of a water allocation to account for the take of water from interception of the Lachlan Fold Belt Murray Darling Basin Fractured Groundwater source within the Open Cut.
1.4.2.3 Approved Activities

The approved activities are fully described in Section 2 of RWC (2007). However, in summary, the Applicant, through the Operator, is mining and crushing magnetite, limestone and haematite ore and transporting the crushed ore to the Applicant’s customers. In addition to this, the following activities are approved within the Mine Site.

- Land preparation including vegetation clearing, topsoil stripping and removal and placement of waste rock.
- Drill and blast methods for extraction of the ore and waste rock from the open cut.
- Progressive formation and rehabilitation of the waste rock emplacement.
- Construction of surface infrastructure including access roads, buildings and amenities and water management structure such as dams and erosion and sediment controls as required.

Figure 3 presents the approved Mine Site layout.

1.4.2.4 Mine Products, Properties and Uses

Magnetite

Magnetite is an iron oxide mineral (Fe₃O₄) with iron (Fe) representing 72.4% of the mineral. Pure magnetite is typically black and has a specific gravity of 5.18. However, the magnetite ore found within the Broula deposit has a specific gravity of approximately 4.6 as a result of incorporation of the other minerals into the ore.

Coal washeries which utilise dense media separation processes require magnetite ground in a wet ball milling process to either super fine (92% to 95% finer than 53 microns) or ultra-fine (95% to 99% finer than 53 microns) size grading. Raw material for both products are being produced at the Mine and processed at the Cowra Processing Facility.

Haematite

In addition to the magnetite, the ore deposit contains approximately 150 000t of haematite, representing the upper oxidised portion of the deposit. Haematite is also an iron oxide mineral (Fe₂O₃) with iron (Fe) representing 70% of the mineral. Pure haematite is typically reddish and has a specific gravity of approximately 5.26.

All haematite ore is crushed on-site to finer than 10mm and is sold primarily for steel production.

Limestone

An estimated 0.9 million tonnes of limestone (CaCO₃) which occurs immediately above and adjacent to the magnetite and haematite is being progressively removed to obtain access to that ore. The limestone has been previously tested by Commercial Minerals Ltd for use in agriculture and found to be of appropriate quality. The limestone has a specific gravity of approximately 2.7.
Products suitable for a range of applications including agricultural limestone and mineral fillers would be manufactured from the limestone.

1.4.3 Environmental Performance

Environmental monitoring is completed generally in accordance with the requirements of EPL 12804 and all water, dust and particulate matter results are analysed for non-compliance by Nicholas Warren, Environmental Consultant with R.W. Corkery & Co. All monitoring results are readily available to the public via the Abterra Australia corporate website (http://www.abterra.com.sg/australia/index.html).

Monitoring results may be summarised as follows.

- Deposited dust results indicate that total insoluble solids monitored between June 2010 and the present trend between 0.3g/m$^2$ and 0.9g/m$^2$.
- Suspended particulate matter results indicate that PM$_{10}$ concentrations monitored between July 2011 and the present trend at approximately 2µg/m$^3$.
- Water samples taken from Water Storage Dam B have indicated compliance with the conditions of EPL12804.

1.4.4 Additional Disturbance Areas

The Applicant arranged for a survey of the Mine Site in mid-2013. As a result of that survey it was identified that land had been disturbed outside the approved footprint of disturbance as follows (Figure 4).

- Batter Area (approximately 0.4ha) – this area was disturbed to permit a cutback of the western high wall of the open cut to ensure safety of workers within the Mine. This cutback was undertaken in consultation with Mine Safety Officers with the NSW Department of Trade and Investment.
- Additional Waste Rock Emplacement (approximately 0.5ha) – this area was inadvertently used for placement of waste rock and for an access road.
- Workshop / Laydown Area (approximately 0.4ha) – this area has been partially prepared for a workshop and laydown area. The disturbance included removal of groundcover only, no trees have been removed from this area.
- Additional Access to Waste Rock Emplacement (approximately 0.1ha) – this area was disturbed to permit access to the processing and infrastructure areas and the waste rock emplacement to the east of the open cut.

The Applicant has undertaken an investigation of the timing and causes of the inadvertent disturbance and has determined that the majority of disturbance occurred prior to it assuming ownership of the Mine. Notwithstanding this, the Applicant has committed to prepare an application to “regularise” DA14/2007 and ensure that all areas of disturbance are approved.
1.5 CONSULTATION

After initial consultation with Mr Michael Carter, Director - Environmental Services with Cowra Shire Council, it was agreed that the Applicant would consult with each government agency involved with the original application for development consent to establish assessment requirements for the modification application. Table 1 provides a summary of the organisations contacted including whether a response and/or assessment requirements were provided. Where assessment requirements have been provided, they are summarised in Appendix 3 together with an indication of where each issue had been addressed in this document.

Table 1
Summary Of Government Agency Consultation

<table>
<thead>
<tr>
<th>Agency</th>
<th>Contact person</th>
<th>Response Received</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>Glen Oakley</td>
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</tr>
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<td>Department of Primary Industries - Fisheries</td>
<td>Trevor Daly</td>
<td>Yes (Email dated 29 October 2013)</td>
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<td>Environmental Protection Authority</td>
<td>Sheriden Ledger</td>
<td>Yes (Email dated 29 October 2013)</td>
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<td>Office of Environment and Heritage</td>
<td>Liz Mazzer</td>
<td>Yes (Email dated 29 October 2013)</td>
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<td>Department of Planning &amp; Infrastructure</td>
<td>Matthew Riley</td>
<td>Yes (Phone call 28 October 2013)</td>
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</tr>
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<td>Department of Primary Industries – Agriculture</td>
<td>Mary Kovac</td>
<td>Yes (Email dated 7 November 2013)</td>
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<td>NSW Office of Water</td>
<td>Jeanette Nestor</td>
<td>Yes (Letter dated 5 November 2013)</td>
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</tr>
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<td>Roads and Maritime Services</td>
<td>Tony Hendry</td>
<td>Yes (Letter dated 11 November 2013)</td>
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<td>Department of Trade and Investment, Regional Infrastructure and Services</td>
<td>David Forster</td>
<td>Yes (Email dated 7 November 2013)</td>
<td>No requirements</td>
</tr>
</tbody>
</table>

1.6 MANAGEMENT OF INVESTIGATIONS

The preparation of this document has involved a study team managed by Mr Mitchell Bland (B.Sc (Hons), MEcon Geol, LLB (Hons)), of R.W. Corkery & Co. Pty Limited and included Mr Nicholas Warren (B.Sc., M.Bus (Marketing), M. Env. Sc), Environmental Consultant with the same company. Representatives from Abterra Australia Pty Limited and Consolidated Civil and Mining (CMC) assisted with the preparation of this document, including:

- Mr Hing Loong (Edman) Wong, Director, Abterra Australia.
- Mr Peter Slattery, Business and Project Manager, CMC.
- Mr Lee Rossetti, Project Manager, CMC.
- Mr Jaimie Logan, Broula Mine Manager CMC.

An additional assessment of the disturbance and condition of flora at the Mine was commissioned by the Applicant through OzArk Environment and Heritage Pty Ltd and completed by Phil Cameron BSc, AssDip AppSci. A copy of the flora assessment is included as Appendix 4.
2. **DESCRIPTION OF THE PROPOSED MODIFICATION**

2.1 **INTRODUCTION**

2.1.1 **Objectives**

The Applicant’s principal objectives in modifying DA 14/2007 for the Broula Magnetite and Limestone Mine is to regularise the approval by incorporating additional areas of disturbance into the approval. The Applicant would continue to operate the Mine to meet the following objectives.

- To develop and operate a safe mine producing magnetite hematite and limestone products.
- To provide magnetite products suitable for use at coal washeries which utilise dense media separation processes.
- To provide hematite products suitable for manufacturing of steel.
- To provide limestone products suitable for agricultural applications and mineral fillers.
- To develop and operate the Mine in a manner that complies with all statutory requirements.
- To undertake all activities in an environmentally responsible manner, employing a level of control and integrating safeguards that would ensure compliance with appropriate criteria / goals or reasonable community expectations.
- To create a final landform amenable to agricultural activities and native vegetation conservation.

2.1.2 **Modification Sought**

The following modifications to DA 14/2007 are sought. Additional proposed text is underlined and text proposed to be deleted is presented as strikethrough.

- Condition 2 - The mining operation shall be undertaken in accordance with:
  
  
  
  **(iii)** Additional information letters prepared by RW Corkery & Co Pty Limited dated 7 February 2007, 22 February 2007, 14 March 2007 and 23 May 2007; and
iv) Additional information letter prepared by FerroMin Pty Ltd dated 25 June 2007; and


- Condition 5 - Activities at the premises, other than construction or non-audible maintenance work, may only be carried on between 7am and 8pm Monday to Friday.

  Note: This condition does not apply to the delivery of material outside the hours of operation permitted by condition if that delivery is required by police or other authorities for safety reasons; and/or the operation or personnel or equipment are endangered. In such circumstances, prior notification is provided to the DECC (EPA), Council and affected residents as soon as possible, or within a reasonable period in the case of emergency.

  Note: Non-audible maintenance work is work that cannot be heard at the closest non-Project related residence and includes maintenance of mobile and fixed plant.

### 2.2 MODIFIED LAYOUT AND HOURS OF OPERATION

#### 2.2.1 Modified Layout

The Applicant, through the Operator, arranged for a survey of the Mine to be completed in mid-2013 by Langford & Rowe Consulting Surveyors. That survey indicated that approximately 1.4ha of land had been disturbed that was not approved under DA14/2007. *Figure 4* presents the areas of additional disturbance as follows.

- Batter Area - An area of approximately 0.4ha identified in yellow on *Figure 4* was disturbed in consultation with Mine Safety Officers with the NSW Department of Trade and Investment. In summary, wall stability issues in the western section of the Open Cut required a cutback to ensure safety of workers within the Mine. *Appendix 5* presents correspondence in relation to this matter from the NSW Department of Trade and Investment.

- Additional Waste Rock Emplacement - An area of approximately 0.5ha to the west and north of the Batter Area that has been used for placement of waste rock and an access road.

- Workshop/Laydown Area - An area of approximately 0.4ha to the south of the Batter Area that has been partly prepared for a workshop and laydown area. The disturbance included removal of groundcover and spreading of gravel only. No trees were removed from this area.

- Additional Access to Waste Rock Emplacement - An area of approximately 0.1ha to the east of the Mine Access Road that has been used to permit access to the waste rock emplacement.
2.2.2 Modified Hours of Operation

Condition 5 of DA14/2007 identifies that all activities, other than construction work, must be undertaken between 7.00am and 8.00pm, Monday to Friday only. The Applicant at times requires maintenance work to be undertaken on critical items of plant such as the Mine’s excavator, front-end loader, crusher or screens that effectively halt production. The Applicant is seeking approval to undertake such activities, provided that they would not be audible at the closest non-Project related residence, outside the identified hours of operation. This would limit the potential for interruptions to production and ensure that preventative and scheduled maintenance can be undertaken in an efficient and effective manner.

Proposed activities that may potentially be undertaken outside of the approved hours of operation include but are not limited to the following.

- Minor maintenance of mobile plant, including changing of tyres, oils, filters and replacement of components of the plant. Major maintenance would continue to be undertaken off-site.
- Maintenance of fixed plant, including changing crusher wear components and screens.

2.3 REMAINING SITE ACTIVITIES

All other site activities would remain as approved. In particular, there would be no change to the approved extraction and transportation rate, hours and days of operation or site layout, other than that described in Section 2.2.

2.4 REHABILITATION

2.4.1 Introduction

Approved rehabilitation operations are described in Section 2.12 of RWC (2007). Subsequently, a more detailed rehabilitation strategy has been presented in Sections 4 to 6 of the Amended Mining Operations Plan for the Mine prepared by RW Corkery & Co Pty Limited in October 2013 (RWC, 2013). The following provides a brief overview of the final rehabilitation activities proposed in RWC (2007 and 2013).

2.4.2 Rehabilitation Objectives

The objectives for final rehabilitation include:

- the creation of a low maintenance, geotechnically stable, safe and vegetated landform which blends with the surrounding natural landscape;
re-establishment of approximately 5.8ha of Class VI and 6.4ha of Class VII land, including 5.8ha of native vegetation, 6.4ha of pasture land and approximately 3.5ha of open cut; and

- a nil increase in the pre-mining visual impact of the site from both local and distant vantage points.

In addition to the on-site rehabilitation objectives, it was also the Company’s objective to establish a minimum 19.5ha offset area, including 14ha of the White Box Endangered Ecological Community. This offset has been established in consultation with, then, DECCW, and includes approximately 23.6ha of White Box, Yellow Box, Blakely’s Red Gum Grassy Woodland.

### 2.4.3 Final Landform and Land Uses

The approved final landform will comprise the following (Figure 5). Minor modifications to the approved final landform to reflect the additional areas of disturbance are proposed.

- A bunded and secured, partially backfilled and revegetated open cut area. The lower section of the open cut would be permitted to fill with water through a combination of surface water inflow and minor groundwater inflow, providing a long-term water storage.

- A reprofiled and revegetated waste rock emplacement with maximum slopes of up to 18° (1:3 V:H) and with maximum elevation of up to approximately 470m AHD.

- Two water storage dams.

- All other areas of disturbance would be shaped to reflect the pre-existing topography and revegetated.

The final land uses of disturbed areas would be a combination of native vegetation conservation and agricultural/grazing activities, reflecting the pre-mining land uses within the area. Figure 5 presents the anticipated distribution of native vegetation and pasture on the final landform. Agricultural activities would be excluded from areas designated for native vegetation re-establishment.

### 2.4.4 Rehabilitation Procedures

An important component of the rehabilitation of the Mine Site continues to be progressive rehabilitation of those sections no longer required for mining-related operations. Detailed progressive and final rehabilitation procedures are identified in RWC (2013) and will be further developed in subsequent Mining Operations Plans to be prepared following the expiry of RWC (2013) in January 2015.
Figure 5

MODIFIED FINAL LANDFORM

Note: All soil covered slopes are <18°
3. ENVIRONMENTAL SETTING

3.1 INTRODUCTION

The descriptions of various environmental aspects of the proposed modification throughout Section 4 are reliant upon a range of background information common to many of the key environmental issues. In this section, background information is provided on the topography, soil and land capability, climate and land use and ownership. This information has been drawn from RWC (2007) and updated as required.

3.2 TOPOGRAPHY AND DRAINAGE

3.2.1 Regional Topography and Drainage

The Mine Site is located on the eastern margin of the Broula Range, a prominent line of ridges running in a southwesterly to northeasterly direction, rising to a topographic high of approximately 594m AHD. The Broula Range crosses the Mid Western Highway to the south of the Broula locality (see Figure 6).

The Mine Site also lies within the Upper Lachlan River Catchment in central western NSW, which covers an area of approximately 85,000km² and encompasses a number of major centres including Forbes, Parkes and Cowra (Figure 6). The Lachlan River is the primary river within the catchment and flows west from its headwaters on the Breadalbane Plain between Yass and Goulburn, and terminates in the Great Cumbung Swamp in south-west New South Wales. The Boorowa, Abercrombie, Belubula and Crookwell Rivers are major tributaries.

3.2.2 Local Topography and Drainage

The Mine Site is located within a small southeast sloping valley (Figure 7). The topography rises steeply to the northeast and northwest with a topographic high of 594m AHD on Mount Dribendrew approximately 450m north-northeast of the Mine Site. The topography to the east of Mount Dribendrew gently slopes towards the broad Lachlan River tributary valleys. Elevations within the Mine Site range from 415m AHD within the Yarra Creek valley to approximately 465m AHD on the nearby ridge.

Three ephemeral tributaries of Yarra Creek are located within the Mine Site. All tributaries generally flow in a south-easterly direction and only flow for short periods following rainfall (Figure 7). Yarra Creek has its headwaters approximately 2.25km to the north-northwest of the Mine Site and flows into Crowther Creek, which merges with the Lachlan River approximately 15km downstream from Cowra.
Figure 6
Regional and Local Drainage

Base Map Source: Water Resources Commission (undated)
Figure 7: Local Topography

REFERENCE
Mine Site (ML 1616) Boundary

SCALE 1:40 000 (A4)

Base Map Source: Grenfell & Coowra 1:50 000 Topographic Maps
3.3 SOIL AND LAND CAPABILITY

Soil mapping units and land capability classes are displayed in Figure 8. The 1:250,000 Bathurst Soil Landscape Sheet identifies three regional soil landscapes within the Mine Site, namely the Mandagery, Nangar and Koorawatha – Billimari Soil Landscapes. A comprehensive analysis of soil and land capability was completed for the preparation of RWC (2007) and has been relied upon for the following.

Ten soils profiles were used to characterise the soils of the Mine Site. Three soil mapping units (SMU) were identified across the mine site namely:

- SMU 1 – soils of the crest and upper slopes;
- SMU 2 – soils of the mid and lower slopes; and
- SMU 3 – soils of the drainage lines.

The soil profiles of the SMU's generally have loose to firm or hardsetting surfaces with topsoil to between 17cm and 21cm depth and subsoil depths of between 93cm and 230cm.

The soils of the Mine Site were assessed as having moderate erodability based on field observations and a SOILOSS analysis.

The 1:100,000 scale Land Capability Map of the Cowra area was used in the preparation of RWC (2007) to identify two land capability classes within the Mine Site, namely:

- Class V land or low capability land located to the south of the footprint of the open cut area and along the Mine Access Road; and
- Class VII land or very low capability land located within and surrounding the footprint of the open cut area.

3.4 METEOROLOGY

3.4.1 Local Setting

The climatic data presented in this subsection has been drawn from the Bureau of Meteorology (BOM) Grenfell Station No. 073014 located approximately 25km west of the Mine Site. This data is used for the assessment given the comparable elevation and topography between the Mine Site and the Grenfell Station. Available climatic data is presented in Table 2.

3.4.2 Temperature

January on average is the hottest month of the year, with a mean daily maximum temperature of 31.8°C and a mean daily minimum temperature of 16.3°C. The coldest month of the year is typically July, with mean daily maximum and mean daily minimum temperatures of 12.9°C and 3.1°C respectively.
Figure 8
SOIL MAPPING UNITS AND LAND CAPABILITY

REFERENCE
- Mine Site (ML 1616) Boundary
- Open Cut Mine
- Waste Rock Emplacement
- Soil Stockpile Boundary
- Limit of Subsoil Stockpiles
- Mine Access Road
- Creek / Drainage Line

SCALE 1:6 000 (A4)

Agricultural Land Suitability Boundary
Agricultural Land Capability Class VI
Agricultural Land Capability Class VII
Soil Test Pit
Soil Mapping Unit Boundary
Soil Mapping Unit 1
Soil Mapping Unit 2
Soil Mapping Unit 3
### Mean Monthly Meteorological Data

<table>
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<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<td><strong>TEMPERATURE (°C)</strong> Average for years 1907 to 2013</td>
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<td>Mean Maximum</td>
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<td>30.9</td>
<td>27.8</td>
<td>22.6</td>
<td>17.7</td>
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<td>14.8</td>
<td>18.4</td>
<td>22.6</td>
<td>26.6</td>
<td>29.9</td>
<td>22.5</td>
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<tr>
<td>Mean Minimum</td>
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<td>16.1</td>
<td>13.4</td>
<td>9.3</td>
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<td><strong>RAINFALL Average for years 1907 to 2013</strong></td>
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<td>Mean (mm)</td>
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<td>6</td>
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<td>9</td>
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<td>Highest (mm)</td>
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<td>344.4</td>
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<td><strong>WINDS (km/hr) Average for years 1965 to 2013</strong></td>
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<td>Mean 9am Wind Speed</td>
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<td>11.2</td>
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<td>8.7</td>
<td>10.2</td>
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<td>Mean 3pm Wind Speed</td>
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<td>15.5</td>
<td>15.2</td>
<td>13.9</td>
<td>13.7</td>
<td>13.2</td>
</tr>
</tbody>
</table>

Source: Australian Bureau of Meteorology 2013 Grenfell (Manganese Rd) Site number: 073014

### 3.4.3 Rainfall

Average annual rainfall for Grenfell is 624.8mm, with a relatively even distribution throughout the year. April is the driest month receiving an average of 46.6mm of rain and June and July are the wettest, receiving an average of 57.6mm and 55.9mm respectively. On average, there are 88 rain days per year with the winter months having approximately five more rain days than the summer months.

### 3.4.4 Winds

Seasonal and annual wind roses are presented in Figure 9. The wind roses indicate that the Grenfell Station (No. 073014) consistently measures winds from the southwest, west and northwest with the majority from the southwest (23% to 25%). The frequency of winds is consistent throughout the year as are the frequency of calms. The strongest winds are evident in spring during which time recorded winds are higher on average and wind speeds of over 40km/hr are more likely in each of the high frequency wind directions.
Figure 9
WIND ROSES

Source: Bureau of Meteorology (2013)
3.5 LAND USE AND LAND OWNERSHIP

3.5.1 Land Uses

The land immediately surrounding the Mine Site is currently used for grazing and cropping including wheat, canola, oats and hay with some olives also grown in the area. It is recognised that the surrounding land is also used for ‘lifestyle’ purposes and recreation by private landholders.

3.5.2 Land Ownership

The Mine Site is located on the “Broulaside” property owned by Mr and Mrs B. Walker and the “Tallarook” property owned by the Applicant. Figure 10 shows the “Broulaside” and “Tallarook” properties and the surrounding land ownership and residences.

The closest non-mine related residence to the Mine Site is located approximately 1km to the south-southeast on “Avonmore”, owned by D. S. West. It is understood that the residence is currently unoccupied and has been for a period of time. As the proposed operations would occur within a valley, the surrounding topography would provide greater than 40m of topographic shielding to residences located to the north and west.
STATEMENT OF ENVIRONMENTAL EFFECTS

ABTERRA AUSTRALIA PTY LIMITED

Report No. 660/06
Broula Magnetite and Limestone Mine

REFERENCE
OWNER

1  I R & A M Whittle
2  S J Harvey & C R Klinger
3  F D & K J Quirk
4  G K & J M Lawrence
5  Cowra Shire Council
6  W S Walker
7  I & A J Ross
8  Abterra Australia Pty Limited
9  M L & Z J Stanford
10 D S West
11 R L & D E Guilhot

REFERENCE
OWNER

12 R L & J L Guilhot
13 Crown &
14 H T & J F Montgomery
15 Toowoong Pty Ltd
16 A & F Corkery
17 J M Mineham
18 I R & B J Donges
19 K H Hazel
20 K H Hazel
21 R D Milton
22 B & N Walker

REFERENCE
Mine Site (ML 1616) Boundary
Residence (Project Related)
Residence (Non-project Related)

SCALE 1:50 000 (A4)

Source: FerroMin Pty Ltd & Department of Lands

R. W. CORKERY & CO. PTY. LIMITED

Figure 10
SURROUNDING RESIDENCES AND LAND OWNERSHIP
4. ASSESSMENT AND MANAGEMENT OF KEY ENVIRONMENTAL ISSUES

4.1 INTRODUCTION

The following subsections address impacts associated with the additional areas of disturbance described in Section 2.2. Section 4.2 provides an overview of the anticipated flora and fauna, related impacts and Section 4.3 provides an overview of all other environmental impacts.

4.2 FLORA AND FAUNA

4.2.1 Introduction

OzArk Environmental and Heritage Management Pty Ltd undertook a site inspection focusing on the unapproved areas of disturbance. The resulting report is presented as Appendix 4 and is referred to hereafter as OzArk (2013).

4.2.2 Existing Environment

A total of four vegetation communities (including the White Box Endangered Ecological Community (EEC)), 35 native plant species and 16 weed species were recorded in the fauna assessment completed during the preparation of the original EIS for the Mine (Ecolens, 2006). The four vegetation communities are described as follows and displayed on Figure 11.

- Box-Gum Closed Woodland.
- Open Cut Mine.
- White Box EEC.
- Exotic Pasture.

None of the 35 originally identified native species were classed as threatened or endangered, however, State and national databases suggest the habitat suitable to contain three species classified as Vulnerable, may exist in the vicinity of the Mine Site (Ecolens, 2006). The relevant species are Silky Swainson-pea, Tricolour Orchid and McBarron’s Goodenia.

Of the 16 weed species identified, two are declared noxious weeds under the Noxious Weeds Act 1993, namely St Johns Wort and Scotch Thistle.

A total of 40 fauna species, including six introduced species and three threatened species (Brown Treecreeper, Superb Parrot, Turquoise Parrot) were recorded by Ecolens (2006). A search of State and national threatened species databases and an assessment of the existing habitat within the Mine Site indicated that a further five species, namely the Black-chinned Honeyeater, Grey-crowned Babbler, Major Mitchell’s Cockatoo, Regent Honeyeater and Swift Parrot, have a high likelihood of occurring within the Mine Site (Ecolens, 2006).
Figure 11

Vegetation Communities

REFERENCE
- Mine Site (ML 1616) Boundary
- Open Cut Mine (as approved)
- Waste Rock Emplacement (as approved)
- Soil Stockpile Boundary
- Mine Access Road
- Water Storage Dam
- Vegetation Community Boundary
- Vegetation Quadrat & Identifier

Vegetation Community Zone
- Zone 1: Box-Gum closed woodland
- Zone 2: Open Cut Mine
- Zone 3: White Box EEC
- Zone 4: Exotic Pastures

SCALE 1:5 000 (A4)
The areas of unapproved disturbance, the subject of this application, include areas classified by Ecolens (2006) as:

- Box-Gum Closed Woodlands; and
- White Box EEC.

In light of the unapproved disturbance of a community classified by Ecolens (2006) as an Endangered Ecological Community, OzArk (2013) were engaged to undertake an assessment of the vegetation in the vicinity of the areas of unapproved disturbance. The assessment methodology and results are presented in the following subsections.

Finally, a Property Vegetation Plan (PVP) was established on the “Tallarook” property in 2011 under the Native Vegetation Act 2003 as an offset for cleared vegetation associated with the original development application. The intent of the offset was to preserve a minimum of 19.5ha of native vegetation, including 14ha of White Box EEC. The PVP area includes approximately 23.6ha of White Box, Yellow Box, Blakely’s Red Gum Grassy Woodland. The area of the PVP and vegetation protected is shown on Figure 12. A copy of the PVP is provided as Appendix 6.

4.2.3 Assessment Methodology

OzArk (2013) established three vegetation plots within the Mine Site (Figure 11). Plots 1 and 2 were prepared as analogues for the Additional Waste Rock Emplacement, Workshop/Laydown Area and Additional Access to the Waste Rock Emplacement areas, while Plot 3 was an analogue of the Batter Area.

The previously identified vegetation communities were also assessed for evidence of disturbance prior to impact from Mine operations, their conservation status, the impact of the hydrology of the affected areas on the vegetation communities and a consideration of known or likely species listed as threatened, that may indicate likelihood of impact by the activity.

OzArk (2013) provides a detailed description of the assessment methodology.

4.2.4 Assessment Results

The results of the surveys and assessment completed by OzArk (2013) are provided in Appendix 4 and may be summarised as follows.

- Vegetation condition - The Additional Waste Rock Emplacement, Workshop/Laydown Area and Additional Access to the Waste Rock Emplacement are likely to have met the Biobanking Assessment Methodology (DECC 2008) definition of ‘Low Condition’ prior to clearing. The Batter Area is described by OzArk (2013) as being in ‘Moderate to Good Condition’.

- Species Composition - Neither Plot 1 nor Plot 2 has an understory comprised of predominantly native species. However, Plot 3 included 57% native species.
PROPERTY VEGETATION PLAN

REFERENCE
- Mine Site (ML 1616) Boundary
- Cadastral Boundary
- Property Vegetation Area
- Protected Area (Map Unit 4a)

SCALE 1:10 000 (A4)

Base Photo Source: Langford & Rose Consulting Surveyors
- Date of Photo 23 August 2013 & Google Earth

Figure 12
• Ecological communities – OzArk (2013) determined that the surrounding vegetation does not meet the criteria to be classified as an Endangered Ecological Community under either the NSW Threatened Species Conservation Act 1995 or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

• Threatened Species - No threatened species populations, ecological communities or migratory birds were considered likely to be in the areas of unapproved disturbance. However, 28 species were identified by OzArk (2013) as having ‘potential’ to use these areas. However, none of these were observed during the survey.

• Assessment of significance - OzArk (2013) determined that the nature and extent of clearing within the areas of unapproved disturbance is unlikely to significantly affect listed species, populations or communities.

4.2.5 Issues and Constraints

Based on the assessment provided by OzArk (2013) the removal of vegetation in the additional areas of disturbance has not created any issues regarding flora and fauna and therefore does not constrain the proposed modification.

4.2.6 Controls and Operational Safeguards

The Applicant would ensure that the following existing controls and operational safeguards, that were approved under DA 14/2007, would be extended to the additional disturbance areas.

• Stock would gradually be reintroduced to areas designated for agricultural produce.

• The sediment and erosion control plan would continue to be implemented and the final landform would be stabilised.

• Disturbed areas would be progressively rehabilitated using species that mimic the natural floristic structure of the White Box Yellow Box Blakely’s Red Gum Woodlands.

• Logs and stumps with hollows would be placed across rehabilitation areas as appropriate.

• Fertilisers would not be applied to areas undergoing rehabilitation which are intended to have a final land use of native vegetation conservation.

• A weed management plan would be developed and the Mine Site (particularly stockpile areas, roads and cleared areas) regularly monitored to identify invasive weed species and appropriate control measures implemented.

• Machinery would be washed and cleaned before being brought onto the Mine Site to prevent weed introductions.
• Cypress Pine regrowth would be controlled to prevent dense regrowth preventing regeneration of other native flora species.

• A feral pest management plan would continue to be implemented and appropriate control measures, particularly for rabbits, foxes and feral dogs, implemented as required.

• Appropriate noise and dust management practices would be implemented.

The Applicant notes that Cowra Shire Council requested that a new *Flora and Fauna Management Plan* be prepared for the Mine Site (see Appendix 4). The Applicant has reviewed the current Plan which is presented as Appendix 5 of the *Mining Operations Plan* for the Mine and contends that the Plan remains valid and may simply be applied to the areas of unapproved disturbance.

In addition, the Applicant contends that further biodiversity offsets are not required for the areas of unapproved disturbance for the following reasons.

• The areas of disturbance individually and collectively are small and not significant in a local or regional context.

• OzArk (2013) have determined that the majority of vegetation disturbed was in a ‘Low Condition’, with an area of approximately 0.4ha described as being in, a ‘Moderate to Good Condition’.

• The original application required a biodiversity offset of approximately 14ha of White Box EEC. The final PVP included an area of approximately 23.6ha of White Box, Yellow Box, Blakely’s Red Gum Grassy Woodland, or 9.6ha more than the minimum required. As a result, the Applicant contends that the existing PVP adequately compensates for the areas of unapproved disturbance.

### 4.2.7 Assessment of Impacts

Considering the previously disturbed nature of the land, the condition of the surrounding vegetation surveyed by OzArk (2013) and that the identified vegetation communities are not listed State or Commonwealth Endangered Ecological Communities, the additional areas of disturbance are considered to have minimal impact to the ecology of the Mine Site.

### 4.3 GENERAL ASSESSMENT OF ENVIRONMENTAL EFFECTS

*Table 3* presents the Applicant’s objectives in managing the various environmental aspects, an overview of environmental management and mitigation measures that would be implemented and an assessment of the anticipated environmental effects of the proposed modification.
## Table 3
Summary of Environmental Safeguards and Effects

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Management/Mitigation Measures</th>
<th>Environmental Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOIL AND LAND CAPABILITY</strong></td>
<td>Soil management and rehabilitation-related commitments made in RWC (2007) would be extended to areas included in this modification.</td>
<td>The Proposal would have no impact to existing soil and land capability or on future rehabilitation of the Mine Site</td>
</tr>
<tr>
<td>To ensure that the Proposal includes an environmentally sound approach to soil management and rehabilitation.</td>
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<tr>
<td><strong>SURFACE WATER</strong></td>
<td>Surface water management and erosion and sediment control measures would be established based on the existing Surface Water Management Plan for the Mine. This incorporates measures for monitoring of water quality and water quantity.</td>
<td>The Proposal would have no impact to water quality or quantity and would not impact on existing control and management measures.</td>
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<td>To ensure that the Proposal does not impact local water quality and quantity and that suitable management controls and procedures are established.</td>
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<td><strong>GROUNDWATER RESOURCES</strong></td>
<td>As no additional groundwater will be intercepted and no additional water will be required, no additional mitigation measures are required.</td>
<td>The Proposal would not impact groundwater resources.</td>
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<td>To ensure the Proposal does not adversely impact local groundwater resources.</td>
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<tr>
<td><strong>TRANSPORTATION AND TRAFFIC</strong></td>
<td>The Proposal would not modify existing extraction rates, product transport or increase passenger related traffic to and from the Mine Site. No additional mitigation or management measures are necessary.</td>
<td>The Proposal would not influence traffic and transport levels outside of existing impacts approved under DA 14/2007.</td>
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<tr>
<td>To ensure that appropriate measures are taken to manage any additional traffic generated as a result of the Proposal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AIR QUALITY</strong></td>
<td>No additional management or mitigation measures are necessary.</td>
<td>The Proposal will not modify existing impacts to air quality that, through regular monitoring, have been shown to comply with EPA guidelines.</td>
</tr>
<tr>
<td>Ensure the potential air quality impacts generated as a result of the Proposal are appropriately reduced, mitigated and/or managed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOISE CLIMATE</strong></td>
<td>Given that the proposed out-of-hours maintenance activities would be non-audible at the closest non-Project related residence, no additional mitigation or management measures are necessary.</td>
<td>As the Proposal will not alter existing extraction rates or procedures, there are no additional noise generating impacts to be considered.</td>
</tr>
<tr>
<td>Ensure potential noise related impacts from the Proposal are appropriately reduced, mitigated and/or managed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INDIGENOUS HERITAGE</strong></td>
<td>As no Aboriginal sites were identified within the areas of unapproved disturbance existing protocols relating to the unexpected discovery of sites or artefacts with Aboriginal Heritage value would be extended to the areas under consideration in this modification.</td>
<td>The areas of additional disturbance were included in original Mine Site surveys conducted in 2006 for the preparation of RWC (2007). As no items were identified at that time there is no impact expected as a result of the Proposal.</td>
</tr>
<tr>
<td>To identify any sites of Aboriginal heritage value and consider the area within a regional Aboriginal heritage context.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 (Cont’d)
Summary of Environmental Safeguards and Effects

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Management/Mitigation Measures</th>
<th>Environmental Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EUROPEAN HERITAGE</strong></td>
<td>No additional protocols or measures relating to European heritage are considered necessary.</td>
<td>Surveys of the Mine Site for the preparation of the RWC (2007) did not identify potential heritage items in the vicinity of the additional areas of disturbance. No additional impact is considered to be likely to occur.</td>
</tr>
<tr>
<td>To identify any sites of European heritage value and consider the area within a regional European heritage context.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VISIBILITY</strong></td>
<td>No additional mitigation or management measures are considered necessary.</td>
<td>Due to the close proximity of the additional areas of disturbance to the existing approved areas and the nature of disturbance, no additional impact is considered likely to occur as a result of the Proposal.</td>
</tr>
<tr>
<td>To ensure the visual amenity of local residents and tourists is maintained and where necessary mitigated or managed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUSHFIRE MANAGEMENT</strong></td>
<td>Existing bushfire management controls and safeguards would be extended to cover the areas of unapproved disturbance.</td>
<td>The extension of existing controls and safeguards is considered suitable to ensure bushfire hazards are appropriately managed.</td>
</tr>
<tr>
<td>To ensure the Mine Site does not cause a fire hazard for local residents and that local bushfire risks are appropriately managed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SOCIO-ECONOMIC SETTING</strong></td>
<td>No additional mitigation or management measures are considered necessary.</td>
<td>The Proposal would have negligible impact to local amenity and other than allowing for continued operation would not change the economic benefits of the Mine.</td>
</tr>
<tr>
<td>To ensure the social and economic impacts of the Proposal are considered and measures taken to ensure impacts to amenity are mitigated where appropriate.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. EVALUATION OF THE PROPOSAL

5.1 INTRODUCTION

This Section has been compiled to assist Cowra Shire Council to evaluate whether the Proposal addressed in this document would result in minimal environmental impact and can be appropriately considered as a modification of DA 14/2007. Section 5.2 reviews the residual environmental effects of the Proposal considering the pre-disturbance environment and any planned future impacts to the additional areas of disturbance.

In order for Council to consider the modification of development consent, it needs to satisfy itself that the pre-requisites listed in Section 96(2) of the Environmental Planning and Assessment Act 1979 have been satisfied. Section 5.3 of this report list the pre-requisites included in Section 96(2) and provides a response to each.

In addition, Section 96(3) of the Environmental Planning and Assessment Act 1979 also requires the Consent Authority to take into consideration the matters referred to in Section 79C(1) of that Act. These matters are addressed in Section 5.4.

5.2 EVALUATION OF RESIDUAL EFFECTS

5.2.1 Biophysical Considerations

The Proposal would not result in a significantly greater level of disturbance than is presently approved under DA 14/2007. Minor vegetation clearing of the areas in question has been completed in line with practices presented in the original EIS for the Mine. All existing environmental controls, including surface water management, would be extended to incorporate the additional areas and continue to be adopted in the existing manner. Given that the modification would not increase the extraction rate, transportation or hours of operation no other biophysical impacts are considered likely in the future.

5.2.2 Social Considerations

The Mine has been established and continues to operate such that impacts on the local community have been, and would continue to be, negligible. This is evident in the lack of complaints received and the historic monitoring data that indicates compliance with all noise, air quality and water quality guidelines.

As shown in Section 4.2 and 4.3 above, the existing environmental management protocols would be extended to the areas considered under the Proposal. With these in place the residual impacts of the Proposal on amenity values at all surrounding receptors would be comparable to the existing levels and within the relevant guidelines administered by the EPA.

5.2.3 Economic Considerations

As identified in Section 4.1, the Proposal would not result in an increase to the extraction rate, transportation rate or hours of operation for the Mine and, other than allowing operations to continue, would not result in a change to the economic environment.
The existing development consent provides for operations at the Mine to continue until 2027. The economic benefits of the continued operation to the local community would include direct employment of workers, the use of local contractors and services and additional flow on benefits from equipment purchase and hire.

5.3 SECTION 96(2) CONSIDERATIONS

5.3.1 Substantially the Same Development

Section 96(2)(a) of the EP&A Act 1979 nominates that “A consent authority may...modify a consent if:

a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all) under this section”.

The applicant contends that the proposed modification, if approved, would effectively remain “substantially the same development” for the following reasons.

- The Mine would continue to extract ore and waste rock from an Open Cut, place waste rock within a waste rock emplacement, crush and stockpile and dispatch magnetite, hematite and limestone.
- The approved rate of production and transportation on public roads, hours of operation and life of the Mine would not change.
- All other aspects of the approved development, with the exception of the additional areas of disturbance, would remain the same.
- The combined area of additional disturbance is not significant compared within the approved area of disturbance.

5.3.2 Consultation with the Relevant Minister, Public Authority or Approval Body

Section 96(2)(b) of the EP&A Act 1979 states that “A consent authority may...modify a consent if:

b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 5) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent”.

The Applicant notes that this is a matter for Council. However, as discussed in Section 1.5 the Applicant has consulted with all government agencies involved in the original consent (DA 14/2007). Details of the agencies involved and the assessment requirements that were provided are available in Table 1 and Appendix 3.
5.3.3 Notification of the Application

Section 96(2)(c) of the EP&A Act 1979 states that “A consent authority may…modify a consent if:

c) “it has notified the application in accordance with:

   (i) the regulations, if the regulation so require, or

   (ii) a development control plan, if the consent authority is a council that has made a development control plan under section 72 that requires the notification or advertising of applications for modification of a development consent”.

The Applicant notes that this is a matter for Council. However, the Applicant anticipates that Council will notify relevant parties in accordance with clause 118 of the Environmental Planning and Assessment Regulation 2000.

5.3.4 Submissions Regarding the Proposal

Section 96(2) (d) of the EP&A Act 1979 states that “A consent authority may…modify a consent if:

d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be”.

This is a matter for the Council to consider. However, the Applicant would be pleased to respond to any submissions received by Council during the assessment process.

5.4 SECTION 79C(1) CONSIDERATIONS

5.4.1 Introduction

Section 96(3) of the EP&A Act 1979 states that “in determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in Section 79C (1) as are of relevance to the development the subject of the application”.

The matters that the Council is required to consider under Section 79C (1) of the Act are set out in the following subsections.

5.4.2 Section 79C (1)(a)

Section 79C(1) (a) of the EP&A Act 1979 states that “In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

e) the provisions of:

   i) any environmental planning instrument, and
ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority the making of the proposed instrument has been deferred indefinitely or has not been approved), and

iii) any development control plan, and

iiiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and

iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and

v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979) that apply to the land to which the development application relates”.

The environmental planning instruments relevant to this Application are as follows.

- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.*

- *Cowra Local Environmental Plan 2012.*

Each of these is addressed as follows.

**State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007**

Clause 7 of the Policy states that development for the purposes of mining or extractive industry may only be carried out with development consent.

Clause 12AA requires that the Consent Authority consider the significance of the resource that is the subject of the application. Broula magnetite deposit provides a domestic source of raw materials for dense media separation in coal washeries. Given the significance of the coal industry to NSW and Australian economies, the Applicant contends that the Broula Magnetite Deposit is a regionally significant resource.

Clause 12AB sets out non-discretionary development standards for mining. These standards refer to noise, air quality, blasting, vibration and aquifer interference levels. As described in Section 4.3, the Applicant contends that the Proposal would result in minimal change to these factors and would therefore continue to meet the standards as provided in the Mine Site’s existing EPL 12804 and that those standards are consistent with those identified in Clause 12AB.

Clause 12(a) states that “in determining an application for development consent for the purposes of a mine or extractive industry, the consent authority must:

a) consider:

i) the existing uses and approved uses of land in the vicinity of the development, and
ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and

iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and

b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii), and

c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a) (iii)”.

Existing land uses in the vicinity of the Mine Site include agriculture and rural residential land uses. The Applicant contends that the proposed modification would not have a significant impact on these uses of land as the proposed modification involves only minor increases in the area of disturbance compared with the size of the existing area of disturbance and these areas lie directly adjacent to the currently approved disturbance area. In addition, as indicated in Section 4, the proposed environmental impacts are not anticipated to be significant.

Clause 13 requires that the Consent Authority consider the compatibility of the Proposal with existing mine, petroleum production facility or extractive industry activities. The closest relevant operation is the Broula King Mine located approximately 6.5km to the southwest of the Mine Site. The Broula King Mine is a small gold mine and the two operations have been operating concurrently for some time without adversely impacting on each other's operations.

Clause 14(1) of the Policy states that “before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following:

a) that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable,

b) that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable,

c) that greenhouse gas emissions are minimised to the greatest extent practicable”.

As indicated in Section 4, the Applicant contends that the proposed modification would not result in significant impacts on water resources, threatened species, biodiversity or greenhouse gas emissions in the vicinity of the Mine Site. All existing management and mitigation measures would be extended to include the additional areas of disturbance further reducing the likely environmental impacts of the Proposal.

Clause 15 of the policy requires that the Consent Authority consider the efficiency or otherwise of the development in terms of resource recovery. The Proposal would result in improved recovery of the resource as the layback of the western wall of the Open Cut would result in improved safety for workers and continued access to the magnetite resource.
Cowra Local Environmental Plan 2012

The Mine Site is located on land zoned RU1 Primary Production. The objectives of this zone are:

- “To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones”.

Development for the purpose of open cut mining is permissible with development consent.

5.4.3 Section 79C(1)(b)

Section 79C(1)(b) of the EP&A Act 1979 states that: “In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality”.

The likely impacts of the Proposal have been addressed in Sections 4.2 and 4.3 of this document. Emphasis was placed on ecological issues as these were considered most likely to be impacted by the Proposal. The assessment found no additional constraints and that residual environmental effects were minimal.

The proposed modification would be unlikely to result in any additional social or economic impacts as the modification would not influence extraction, transportation or hours of operation.

5.4.4 Section 79C(1)(c)

Section 79C(1)(c) of the EP&A Act 1979 states that: “in determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

c) the suitability of the site for the development”.

The additional areas of disturbance are located immediately adjacent to the existing areas of disturbance. As a result, the Applicant contends that the areas are suitable for the proposed activities.
5.4.5 Section 79C(1)(d)

Section 79C(1)(d) of the EP&A Act 1979 states that: “in determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

   d) any submissions made in accordance with this Act or the regulations”.

Cowra Council, as the determining authority, is required to take into account any submissions received with regards the proposed modification.

5.4.6 Section 79C(1)(e)

Section 79C(1)(e) of the EP&A Act 1979 states that: “in determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

   e) the public interest”.

The Applicant contends that the public interest would be best served by continued operations and, through this, the economic benefits of the Mine.

5.5 CONCLUSION

Considering the discussion above, it is concluded that the proposal to incorporate the additional areas of disturbance into the existing approval DA 14/2007 can appropriately be considered by Council as a modification of DA 14/2007 under Section 96(2) of the Environmental Planning and Assessment Act 1979.
6. REFERENCES


**Ecolens, 2006. Flora and Fauna Assessment** for the Broula Magnetite and Limestone Mine, prepared on behalf of Ferromin Pty Ltd.


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Appendices

(Total No. of pages including blank pages = 78)

Appendix 1  Development Application
Appendix 2  Development Consent DA 14/2007
Appendix 3  Coverage of Cowra City Council and Concurrence Agency Assessment Requirements
Appendix 4  Flora Assessment
Appendix 5  Correspondence with Mine Safety Officers from the NSW Department of Trade and Investment
Appendix 6  Property Vegetation Plan – Tallarook

(Note: A copy of Appendices 4 and 6 are available on the Proposal CD)
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Appendix 1

Development Application

(Total No. of pages including blank pages = 6)
1. Applicant Details

<table>
<thead>
<tr>
<th>Name</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr ☑ Miss ☐</td>
<td>Ms ☐</td>
</tr>
<tr>
<td>Hing Loong (Edman) Wong</td>
<td></td>
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<tbody>
<tr>
<td>Suite 201, 10 Century Circuit</td>
<td>NSW</td>
<td>2153</td>
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<table>
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<tr>
<td>1300 043232</td>
<td>+61 2 9659 3641</td>
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<table>
<thead>
<tr>
<th>Email</th>
<th>Applicant(s) signature</th>
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<tbody>
<tr>
<td><a href="mailto:edmanwong@abterra.com.sg">edmanwong@abterra.com.sg</a></td>
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2. Site Details

<table>
<thead>
<tr>
<th>Street/Rural Address No.</th>
<th>Street/Road Name</th>
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<tbody>
<tr>
<td>&quot;Broulaiside&quot;</td>
<td>Mid Western Highway</td>
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</table>

<table>
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<tr>
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<tr>
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<td>DP 42954</td>
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<tr>
<td>Lot 115</td>
<td>DP 752932</td>
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<td>Lot 1</td>
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</table>

3. Owners Consent

<table>
<thead>
<tr>
<th>Owner(s) Name</th>
<th>Owner(s) Address</th>
<th>Owner(s) Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abterra Australia Pty Limited</td>
<td>Suite 201, 10 Century Circuit, BAULKHAM HILLS NSW 2153</td>
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4. Development Consent Details

Description of development: The Broula Magnetite and Limestone Mine currently operates under Development Application (DA) 14/2007 granted by Cowra Shire Council on 25 June 2007. The Proposal seeks a modification to DA 14/2007 to include an additional 1.4 ha of land inadvertently...
STATEMENT OF ENVIRONMENTAL EFFECTS

Broula Magnetite and Limestone Mine

Report No. 660/06

1. Applicant Details

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<thead>
<tr>
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<tr>
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<td>DP 752932</td>
</tr>
<tr>
<td>Lot 1</td>
<td></td>
<td>DP 1044550</td>
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</tbody>
</table>

3. Owners Consent

Owner(s) Name: BRIAN FREDERICK & NORMA MARY WALKER

Owner(s) Address: "CHIPPENDALE", GRENFELL ROAD, COWRA

Owner(s) Signature: [Signature]

Date: 24/01/2014

4. Development Consent Details

Description of development: The Broula Magnetite and Limestone Mine currently operates under Development Application (DA) 14/2007 granted by Cowra Shire Council on 25 June 2007. The Proposal seeks a modification to DA 14/2007 to include an additional 1.4 ha of land inadvertently
disturbed for the purposes of mine stability, waste rock emplacement, access to the waste rock emplacement and construction of a workshop. The Proposal also seeks to permit non-audible maintenance activities outside the currently approved hours of 7.00am to 3.00pm, Monday to Friday.

DA Number 14/2007

Date of DA Determination: 26 June 2007
5. **Modification Details**

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<tbody>
<tr>
<td>☐ Minor Modification – defined Section 96(1)</td>
<td>☑ Other – defined in Section 96(2)</td>
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</table>

In the case of a minor modification please indicate here the minor miscalculations or misdescription:

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**Please Note:**
The personal information required on this form may be available for public access under various legislation.

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**Office Use Only**

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<td>Assessment:</td>
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<td>Parcel(s):</td>
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Appendix 2

Development Consent DA 14/2007

(Total No. of pages including blank pages = 16)
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26 June 2007

FerroMin Pty Ltd
PO Box 1114
MITTAGONG NSW 2575

Dear Sir and Madam,

Development Application No: 14/2007
Proposal: Broula Magnetite and Limestone Mine
Property Description: Lot 168 DP 42954, Lot 115 DP 752932, Lot 1 DP 1044550 – Mid Western Highway, Broula via Cowra.

I refer to your development application lodged with Council on 15 January 2007.

I advise that on 25 June 2007, Development Application No. 14/2007 was determined and consent was approved.

Please find attached the determination document relating to Development Application 14/2007.

Having regard to Development Application No. 14/2007, Section 83 of the Environmental Planning and Assessment Act 1979 provides that in the case of Designated Development to which an objection has been made, the consent becomes effective and operates following the expiration of 28 days from the date that is endorsed on the notice of determination of the development application given to the applicant in accordance with Section 81(1) of the Environmental Planning and Assessment Act 1979.

Should you require any further information please contact Duncan Wallace on (02) 6340 2090.

Yours faithfully,

Michael Carter
Director – Environmental Services
Notice of Determination of Development Application
Issued Under Section 81 (1)
Environmental Planning and Assessment Act, 1979

Issued to: FerroMin Pty Ltd
PO Box 1114
Mittagong NSW 2575


Development Application: 14/2007

Description of Development: Broula Magnetite and Limestone Mine

Property Description: Lot 168 DP 42954, Lot 115 DP 752932, Lot 1 DP 1044550 - Mid Western Highway, Broula via Cowra.

Consent to Operate from: 25 June 2007

Consent to Lapse on: 24 June 2012

Building Code of Australia
Building Classification: 5 and 7

Determination: Consent granted subject to conditions described below.

Conditions of Consent:

Approved Plans and Documentation:

1. Consent is granted for the construction and operation of a magnetite, haematite and limestone mine on land known as Lot 168 DP 42954, Lot 115 DP 752932 and Lot 1 DP 1044550 Mid Western Highway, Broula via Cowra for a period of 20 years from the date of this consent.

2. The mining operation shall be undertaken in accordance with:

   (i) DA 14/2007 lodged with Cowra Shire Council on 15 January 2007;

   (ii) Environmental Impact Statement for the Broula Magnetite and Limestone Mine, prepared by RW Corkery and Co Pty Limited dated 10 January 2007;

   (iii) Additional information letters prepared by RW Corkery & Co Pty Limited dated 7 February 2007, 22 February 2007, 14 March 2007 and 23 May 2007; and

This page relates to Development Application 14/2007

unless otherwise modified by the conditions of this consent.

General Terms of Approval:

3. The following General Terms of Approval have been integrated with this consent and
must be adhered to by the applicant and respective Approval Body in the carrying out
of this development:

(i) General Terms of Approval - Rivers and Foreshores Improvement Act 1948,
for the construction of road crossing on, in or under protected land, issued by
the NSW Department of Water and Energy dated 30 March 2007;

(ii) General Terms of Approval - Protection of the Environment Operations Act
1997, for the granting of an Environment Protection Licence, issued by the
NSW Department of Environment and Climate Change dated 3 April 2007;

(iii) General Terms of Approval - Mining Act 1992, for the granting of a Mining
Lease, issued by the NSW Department of Primary Industries dated 3 April
2007; and

(iv) General Terms of Approval - Roads Act 1993, for the granting of permit to
undertake road works on the Mid Western Highway, issued by the NSW Roads
and Traffic Authority dated 16 April 2007.

A copy of the General Terms of Approval issued by the relevant Approval Bodies for
this development is attached to this consent.

Limitations on Consent:

4. All construction work at the premises must only be conducted between 7am and 6pm
Monday to Friday.

5. Activities at the premises, other than construction work, may only be carried on
between 7am and 8pm Monday to Friday.

Note: This condition does not apply to the delivery of material outside the hours of
operation permitted by condition that delivery is required by police or other
authorities for safety reasons; and/or the operation of personnel or equipment
are endangered. In such circumstances, prior notification is provided to the
DECC (EPA), Council and affected residents as soon as possible, or within a
reasonable period in the case of emergency.

6. Noise from the premises must not exceed:

- An $L_{eq} (15 \text{ min})$ noise emission criterion of 35dB(A) (7am to 6pm) Monday to
  Friday; and

- an $L_{Aeq} (15 \text{ min})$ noise emission criterion of 35dB(A) during the evening (6pm to
  10pm) Monday to Friday.
Note: Noise from the premises is to be measured at the residences of "Tallarook" (NM & MA Smith residence), "Avonmore" (DS West), "Spring Valley" (IR & AM Whittle) and "Springdale" (residences immediately west of the property "Broulaside" – KH Hazell) to determine compliance with this condition.

7. Blasting operations on the premises may only take place between 10am and 3pm Monday to Friday. No blasting shall be conducted on Saturdays/Sundays and public holidays. Blasting at the premises is to be limited to one blast per day and one blast per week on average over a 12 month period, or at such other times as may be approved by the Department of Environment and Climate Change (EPA).

8. The overpressure level from blasting operations on the premises must not exceed:

- 115dB (Lin Peak) for more than 5% of the total number of blasts over a period of 12 months; and

- 120dB (Lin Peak) at any time,

when measured at any point within 1 metre of any affected residential boundary or other noise sensitive location such as a school or hospital.

Note: The airblast overpressure values stated above apply when the measurements are performed with equipment having a lower cut-off frequency of 2Hz or less. If the instrumentation has a higher cut-off frequency then a correction of 5dB should be added to the measured value. Equipment with a lower cut-off frequency exceeding 10Hz should not be used for the purpose of measuring airblast overpressure.

9. Ground vibration peak particle velocity from the blasting operations at the premises must not exceed:

- 5mm/s for more than 5% of the total number of blasts over a period of 12 months; and

- 10mm/s at any time,

when measured at any point within one metre of any affected residential boundary or other noise sensitive location such as a school or hospital.

10. The mine shall not be used for any forms of public or private land fill/waste disposal. In addition, all domestic waste products generated at the mine site (eg: rubbish from office/amenities buildings, tyres, fuel drums) shall be disposed of at a licensed Landfill. Temporary storage of domestic waste in a suitable waste container/area shall only be permitted.

11. An approval under Part 5 of the Water Act 1912 must be obtained from the Department of Water and Energy before commencing any works involving mining below 400m AHD or upon intersecting the water table, whichever occurs first.
Mining Operations Plan:

12. Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director-General of the Department of Primary Industries - Mineral Resources.

Road-Works:

13. The final design and construction of the new mine access to the Mid Western Highway (including fully developed right turn lane and left turn acceleration lane) shall incorporate the following:

- Safe Intersection Sight Distance as outlined in the RTA Road Design Guide (Section 4.7.4.1) in both directions on the Mid Western Highway, such sight distance measured at around 1.15m eye height with a reaction time of 2.5 seconds.

- A Type CHR (Channelised Right Turn) pavement widening with a protected right turn in accordance with RTA Road Design Guide (Section 4.8.5.3) on the Mid Western Highway. The length of the right turn bay is to be dependent on deceleration rates applicable to a B-Double truck slowing from 100kmh to 15kmh to make the required turn.

- A Type BAL (Basic Left Turn) treatment in accordance with RTA Road Design Guide (Figure 4.8.35) along with a highway acceleration lane to allow mine traffic to accelerate to at least 80kmh before entering the highway traffic stream. The length of the highway acceleration lane is to be dependent on acceleration rates applicable to a B-Double truck accelerating from 15kmh to 80kmh.

- The erection of truck turning signs (with distance plate) on top of Broula Hill.

- Advance Truck warning signs (W5-22 Size B) with a distance plate (W8-5 Size B) under, located 300 metres in advance of the access in each direction on the highway.

- The intersection treatments, acceleration and deceleration lanes to be sealed to RTA requirements.

- Lighting of the intersection to Australian Standard AS 1 158 is to be provided, operated and maintained by the applicant to highlight the intersection during operation in darkness, times of fog and other periods of limited visibility.

- Fluorescent markers are to be placed adjacent the highway 250m either side of and facing the access and maintained by the applicant as an indication in times of fog that adequate sight distance is available to enter and exit the access road, if these markers are not visible then haulage operations are to be closed down until such time as sight distance again becomes available.

A copy of the detailed construction plans for the proposed road-works associated with all access points onto the Mid Western Highway are to be submitted to the Roads and Traffic Authority for approval prior to works commencing. The plans are to include details of all proposed signage and line-marking.
14. The access road from the Mid Western Highway to the mine site shall be constructed to a 6 metre wide sealed and properly drained standard for a length of 200 metres from the Mid Western Highway. Full engineering details of the access road shall be submitted to Council for approval prior to any road works being undertaken.

15. The mine entrance gate shall be located 30 metres clear of the Mid Western Highway road formation to enable B-Doubles to stand off the highway.

16. The internal access road shall be signposted to display a 40 km/h speed limit for its full length from the Mid Western Highway to the mine site.

17. The internal access road from the Mid Western Highway to the mine site shall be formalised on the land title as a "right of way".

18. A suitable access road is to be constructed that will provide NM & MA Smith with appropriate access to the north-west and south-west sections of the property "Tallarook".

19. All costs associated with the provision of new and upgraded roads shall be at full cost to the applicant and no cost to either Cowra Shire Council or the Roads and Traffic Authority.

**Groundwater Protection:**

20. The applicant shall prepare a Bore Impact Management Plan (BIMP) to the satisfaction of the Department of Water and Energy. The plan is to contain provisions to remediate an impact on groundwater users within a 3 kilometre radius of the excavation zone. The groundwater users addressed within the BIMP are to include those who access groundwater from a bore and those reliant on groundwater seepage from springs.

21. Three groundwater monitoring bores are to be established in consultation with the Department of Water and Energy within 6 months of the commencement of mining activities. An approval under Part 5 of the Water Act 1912 must be obtained from the Department of Water and Energy prior to installation of these monitoring bores.

**Flora and Fauna Management Plan:**

22. The applicant must prepare and implement a Flora and Fauna Management Plan (FFMP). The FFMP should be a practical document which can be used effectively on the ground by the relevant personnel during the operation of the mine and allow for a high level of accountability and include, but not necessarily be limited to:

- The proposed mitigation measures to be adhered to during all activities conducted on site which will minimise the potential impact of the proposal on flora and fauna;

- Steps that will be taken to ensure that the proposed mitigation measures are explicitly followed on the ground, and their implementation subject to ongoing monitoring and reporting;
• What measures will be employed on the ground in particular situations and who will have responsibility for these;

• Provide clear delineation of disturbance areas;

• Pre-clearance survey methodology;

• Fauna management strategies during clearing;

• Vegetation clearance procedures including inspection of felled trees, salvaging of habitat features, seed collection etc;

• Re-vegetation plan and management/maintenance;

• Vegetation removal and management;

• Weed management; and

• Pest management.

The FFMP is to be submitted to the Department of Water and Energy for approval prior to commencement of construction.

Note: While the EIS proposes several measures to mitigate impacts on flora and fauna, a number of these measures are very general (ie: the removal of vegetation will be limited wherever possible) without specifying how and where this will be achieved. The validity of the assessment of the likely impacts on flora and fauna species is dependent on the adequate implementation of the proposed mitigation measures. Therefore it is important that the applicant specifies procedures and makes provision for the implementation of these measures.

23. Rehabilitation measures are to be employed to establish vegetative cover on constructed drainage channels and other disturbed sites immediately following construction. The re-spraying of topsoil to a minimum depth of 50mm shall be applied prior to re-vegetation of sites. For temporary short term cover, exotic grasses and cover crop species are most effective because of their rapid germination and growth and ready availability of seed. For long term cover, native grasses, shrubs and trees will be more appropriate.

24. Debris from the clearing operations must not be stacked within 20 metres of the property boundary.

25. Debris from the clearing operations must not be burned within 20 metres of remaining native trees or shrubs.

26. Debris from the clearing operation must not be stored within 20 metres of flow lines.
Biodiversity Offset:

27. The applicant must establish in its own right or contribute to, a biodiversity offset area that satisfies the following:

- An offset area which contains at least a 2:1 and like-for-like for the White Box Yellow Box Blakely’s Red Gum Endangered Ecological Community (EEC) and 1:1 for native vegetation lost as a result of the proposal; and

- Be the subject of an agreement that defines the long term management required to maintain the biodiversity values of the offset area.

Note: The DECC considers it appropriate that the loss of the area of 7 hectares of White Box Yellow Box Blakely’s Red Gum Endangered Ecological Community (EEC) and a further loss of 5.5 hectares of native vegetation should be compensated for.

Heritage Protection:

28. Compliance with the recommendations at Section 11 of the Aboriginal Heritage Assessment of the Broula Magnetite and Limestone Mine, undertaken by Australian Archaeological Survey Consultants Pty Ltd dated December 2006, except as covered by other conditions contained within this consent.

29. Appropriate protective measures must be applied to ensure the protection and management of Aboriginal artefacts found during the construction and operation of the mine. Should any item of potential Aboriginal heritage be located during the construction or operation of the mine, work should cease and advice sought from the Department of Environment and Climate Change.

Driver Code of Conduct:

30. The applicant must prepare a Driver Code of Conduct. The Code of Conduct should be a practical document, which can be used effectively on the ground by the relevant mining personnel as well as any haulage contractors, and allow for a high level of accountability and include, but not necessarily be limited to, strategies to achieve the following:

- Road safety along the Mid Western Highway, including procedures dealing with vehicle speeds as well as procedures to avoid conflict with school bus routes/timetables;

- Contingencies and procedures dealing with poor weather conditions;

- Maintenance of all product haulage trucks to ensure they are being maintained in a proper and efficient condition.

The Code of Conduct is to be prepared in consultation with the Cowra Bus Service and is to be submitted to the Cowra Shire Council for approval prior to commencement of mineral product haulage.
Stormwater/Sediment Control:

31. The applicant must prepare a Soil and Water Management Plan (SWMP) for the mine site. The plan must describe the measures that will be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during construction and operational phases of the mine. The SWMP should be prepared in accordance with the requirements for such plans outlined in Managing Urban Stormwater: Soils and Construction (available from LANDCOM) and submitted to the Cowra Shire Council for approval prior to commencement to construction works commencing on the site.

Dust Control:

32. Activities occurring at the mine site and along haulage routes must be carried out in a manner that will minimise emissions of dust from the premises.

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

34. The submission, approval and implementation of a comprehensive Dust Control Plan. The plan shall specifically outline progressive rehabilitation, perimeter bunds and landscaping, topping of internal roads with coarse gravel, watering of internal roads when necessary, speed limit signage, blast stemming, covering of product loads when leaving the site and prohibition of operations during high wind periods. The required plan and details shall be approved by Council, the Department of Water and Energy and the Department of Environment and Climate Change prior to work commencing.

35. The applicant must ensure that the dust emissions generated by the mine do not cause exceedances of the air quality impact assessment criteria provided below, at any residence. Where the applicant is unable to comply with impact assessment criteria, in accordance with the Department of Planning "Land Acquisition Criteria in relation to air emissions", the applicant must consider land acquisition in order to comply.

Impact Assessment Criteria - Total Suspended Particulates (TSP)

<table>
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<tr>
<th>Pollutant</th>
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<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSP</td>
<td>Annual</td>
<td>90μg/m³</td>
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</tbody>
</table>

Impact Assessment Criteria – PM₁₀ (particulate matter with an aerodynamic diameter less than 10 micrometres)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particles as PM₁₀</td>
<td>24 hours</td>
<td>50μg/m³</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>30μg/m³</td>
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</tbody>
</table>

Building Control:

36. Prior to construction of approved buildings it is necessary to obtain a Construction Certificate. A Construction Certificate may be issued either by Cowra Shire Council or the appointed certifying authority. Submitted plans will need to address matters raised as conditions of this consent.
37. All building work must be carried out in accordance with the provisions of the Environmental Planning and Assessment Act 1979 and the Building Code of Australia.

38. Any external materials to be used on the buildings and structures shall be of a new appearance and/or consistent with those used on other existing/proposed building(s) located on the site.

39. The Builder must at all times maintain on the work site a legible copy of the plan(s) and specification approved with the Construction Certificate.

40. A sign must be erected in a prominent position on any site on which building work, is being carried out:

   (i) showing the name, address and telephone number of the principal certifying authority for the work;

   (ii) showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours; and

   (iii) stating that unauthorised entry to the work site is prohibited.

Note: Any such sign is to be maintained while the building work is being carried out, but must be removed when the work has been completed.

41. The applicant is to submit to Cowra Shire Council, at least two days prior to the commencement of any works, the attached 'Notice of Commencement of Building or Subdivision Works' and 'Appointment of Principal Certifying Authority'.

42. The applicant is to obtain a Certificate from Cowra Shire Council or an Accredited Certifying Authority, certifying compliance with the Building Code of Australia and any other relevant condition of consent for the stages of construction listed below. For the purposes of obtaining the Certificate, the work must be inspected by Council or an Accredited Certifying Authority at the times specified below:

   (a) Footings: When the footings of buildings have been excavated and all steel reinforcement has been placed in position.

   (b) Slab: When reinforcement steel has been placed in position in any concrete slab, whether or not the slab is suspended, on the ground, or on fill.

   (c) Structural Framework: Prior to covering of framework.

   (d) Completion: When the stormwater and roof water drainage system has been completed and upon compliance with all conditions of approval and prior to occupation.

Note 1: A Final Occupation Certificate in relation to the buildings cannot be issued by Council or an accredited certifying authority until all Compliance Certificates required by this condition have been issued or registered with Cowra Shire Council.
Note 2: The above Compliance Certificates are required irrespective of whether the work has been inspected by a structural engineer, lending authority or any other person.

Note 3: If the Compliance Certificates are not issued, Cowra Shire Council may refuse to issue a Building Certificate under section 149A of the Environmental Planning and Assessment Act 1979.

43. Roof water from all buildings shall be provided with roof gutter and down pipes and conveyed to water storage tanks and to permanent surface or subsoil drains or a combination of both.

44. All liquid waste generated from the wash down of trucks and other mechanical equipment shall be collected and properly treated to standards acceptable to Cowra Shire Council's Director - Environmental Services. Full details of the proposed methods of treatment of liquid waste shall be submitted to Council for approval with the Construction Certificate.

45. Any toilet, kitchen, shower or laundry facilities on the site shall be serviced by an approved on-site sewage management system.

Compliance Reporting and Community Liaison:

46. The applicant must lodge an Environmental Management Report (EMR) with Cowra Shire Council on or before 30 June each year or at dates otherwise directed. The EMR must:
   - report against compliance with the MOP (including the Supplementary MOP);
   - report on progress in respect of rehabilitation completion criteria;
   - report on the extent of compliance with regulatory requirements; and
   - have regard to any relevant guidelines adopted by the Director-General.

47. The applicant must establish a community environment liaison committee, comprising representatives of the community and the applicant, that will meet at least bi-annually. Discussion at the meetings should include the implementation of the development consent and other statutory approvals, and provide adequate time for the community to raise matters of concern associated with the environmental impact of the development, with a view to achieving mutually satisfactory solutions.

Recording of Pollution Complaints:

48. The mining operator must keep a legible record of all complaints made to the mining company or any employee or agent of the mining company. The record must include details of the following:
   - the date and time of the complaint;
   - the method by which the complaint was made;
   - any personal details of the complainant which were provided by the complainant.
or, if no such details were provided, a note to that effect:

- the nature of the complaint;
- the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by the licensee, the reasons why no action was taken.

The record of a complaint must be kept for at least 4 years after the complaint was made. The record must be produced to any authorised officer of the Council who asks to see them.

<table>
<thead>
<tr>
<th>Other Approvals:</th>
<th>N/A</th>
</tr>
</thead>
</table>

**Right of Review:**  
Section 82A of the Environmental Planning and Assessment Act 1979 confers the right for an applicant to request the Council to review its determination at any time, other than after the time limited for the making of an appeal under Section 97 expires (if no such appeal is made against the determination) or after an appeal under Section 97 against the determination is disposed of by the Court (if such an appeal is made against the determination). Any request for a review is required to be accompanied by a fee as set by Council's Revenue Policy.

**Right of Appeal:**  
Section 97 of Environmental Planning and Assessment Act 1979 confers the right for an applicant who is dissatisfied with Council's determination to appeal to the Land and Environment Court within 12 months after the date on which you receive this notice.

**Signed:**  
On behalf of the consent authority:

**Signature:**  

**Name:**  
Michael Carter  
Director - Environmental Services

**Date:**  
26 June 2007
Reasons for Imposition of Conditions:

Development Application No. 14/2007 was assessed using current procedures developed by the Cowra Shire Council and other resource information. This includes:

- The requirements of Section 79C(1) of the Environmental Planning and Assessment Act 1979 which states:

  **Section 79C(1) Matters for consideration – general**

  In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

  (a) the provisions of:

   (i) any environmental planning instrument, and

   (ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority, and

   (iii) any development control plan, and

   (iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and

   (iv) any matters prescribed by the regulations that apply to the land to which the development application relates.

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments and social and economic impacts in the locality.

(c) the suitability of the site for the development.

(d) any submissions made in accordance with this Act or the regulations.

(e) the public interest.

- The requirements of Cowra Local Environmental Plan 1990.

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Appendix 3

Coverage of Cowra City Council and Concurrence Agency Assessment Requirements

(Total No. of pages including blank pages = 4)
Table A2-1
Coverage of Environmental Issues

<table>
<thead>
<tr>
<th>Paraphrased Requirement</th>
<th>Relevant SoEE Section(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COWRA SHIRE COUNCIL</strong></td>
<td></td>
</tr>
<tr>
<td>• Consult with all approval bodies in respect of conditions imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval.</td>
<td>1.5</td>
</tr>
<tr>
<td>• Submit an amended Flora and Fauna Management Plan required by condition 22 of the development consent.</td>
<td>4.2.6</td>
</tr>
<tr>
<td><strong>OFFICE OF ENVIRONMENT AND HERITAGE</strong></td>
<td></td>
</tr>
<tr>
<td>• Describe the proposal, the existing environment and impacts of the proposal.</td>
<td>2 and 4</td>
</tr>
<tr>
<td>• Consider any potential direct and indirect impacts as a result of both construction and operation of the project.</td>
<td>4.2 and 4.3</td>
</tr>
<tr>
<td>• Assess any cumulative impacts of this and other developments in the area.</td>
<td>5.4.2</td>
</tr>
<tr>
<td>• At a minimum, the SoEE should include:</td>
<td></td>
</tr>
<tr>
<td>– Quantification of the additional areas of each vegetation community impacted.</td>
<td>4.2 and Appendix 3</td>
</tr>
<tr>
<td>– Assessment of the flora and fauna species, including threatened species, which have been impacted by unauthorised activities.</td>
<td>Appendix 3</td>
</tr>
<tr>
<td>– Details of the current PVP, including its location, and the authorised activities and management conditions that apply.</td>
<td>4.2</td>
</tr>
<tr>
<td>– An offset proposal for the additional areas of native vegetation that have been impacted through the activities not currently permitted by DA 14/2007, and for any additional impacts that will occur as a result of the modified proposal.</td>
<td>4.2.6</td>
</tr>
<tr>
<td>• Include any previous cultural heritage studies conducted for the area as well as details of any due diligence process that was conducted prior to the additional disturbance.</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>NSW OFFICE OF WATER</strong></td>
<td></td>
</tr>
<tr>
<td>• Provide a Surface Water Management Plan for the management of dirty water on site and include adequate water disposal methods and water storage structures.</td>
<td>4.3</td>
</tr>
<tr>
<td>• Demonstrate adequate sediment and erosion control on site. This should link in with the Surface Water Management Plan.</td>
<td>4.3</td>
</tr>
<tr>
<td>• Describe any water reticulation infrastructure that supplies water to and within the site.</td>
<td>4.3</td>
</tr>
<tr>
<td>• Identify adequate mitigating and monitoring requirements for both water quality and water volume.</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>TRANSPORT ROADS &amp; MARITIME SERVICES</strong></td>
<td></td>
</tr>
<tr>
<td>• Demonstrate compliance with Conditions 13 through to 18 of DA 14/2007.</td>
<td>1.4.3</td>
</tr>
<tr>
<td>• Include confirmation that traffic movements/generation will remain unchanged to those originally provided in 2007.</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Table A2-1
Coverage of Environmental Issues

<table>
<thead>
<tr>
<th>Paraphrased Requirement</th>
<th>Relevant SoEE Section(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRADE &amp; INVESTMENT NSW PRIMARY INDUSTRIES (AGRICULTURE)</strong></td>
<td></td>
</tr>
<tr>
<td>• Demonstrate that the interface between the disturbance area and agricultural land has been minimised.</td>
<td>4.3</td>
</tr>
<tr>
<td>• Consider future agricultural use of the land as an outcome in the Mine Operations Rehabilitation Plan.</td>
<td>2.4</td>
</tr>
</tbody>
</table>
Appendix 4

Flora Assessment

(Total No. of pages including blank pages = 26)

Note: A copy of this Appendix is available on the Proposal CD
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22 November 2013

Nick Warren
Graduate Environmental Consultant
RW Corkery & Co Pty Limited
Geological and Environmental Consultants
Level 1, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083
Phone: (02) 9985 8511
Fax: (02) 9985 8208
Email: brooklyn@rw Corkery.com
Website: www.rw Corkery.com

Ecology Letter: Retrospective assessment of vegetation / habitat affected by clearing 1.5 hectares to modify DA 14/2007 at the Broula Magnetite and Limestone Mine, Cowra LGA, NSW.

Dear Nick,

This letter provides a retrospective assessment of 1.5 hectares of vegetation cleared in four areas (Areas 1 to 4) on the Broula Magnetite and Limestone Mine, Cowra NSW (Figures 1 to 4).

To estimate ecological values lost in Areas 1 to 4, three vegetation / habitat plots were placed in adjoining representative habitat (Figure 3, Tables 1 to 3).

This letter describes attributes captured during the assessment to assist the determining authority to:

- Describe vegetation communities recorded following the Biometric system. See Section 1.
- State the condition of vegetation communities recorded following the BioBanking Assessment Methodology (2006). See Section 2.
- Provide a detailed description of vegetation structure, spatial distribution and the location of the assessment plots in relation to the areas affected. See Section 3.
- Predict the disturbance condition of areas prior to being affected. See Section 4.
- Provide comment on the conservation status of the vegetation communities affected. See Section 5.
- Provide comment on hydrology of the areas affected and how this related to the dynamics of the vegetation communities. See Section 6.
- Provide a list of known and likely species listed in the TSC and EPBC Acts and indicate 'likelihood' to be affected by the activity. See Section 7.
- Provide comment on the impacts effects to flora and fauna on adjoining habitat. See Section 8.
- Provide a species list for rehabilitation should this be required for mine closure. See Section 9.

Tel: 6882 0118; Fax: 6882 0630; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkhelm.com.au / phil@ozarkhelm.com.au
Figure 1: Location Map NSW LGAs, Study Area in Green.

Figure 2: Cowra LGA Locality Map, Study Area in Green.
Figure 3: Study Area.

Legend
Vegetation (20x20) / Habitat (20x50m) plots
 Vehicle and Pedestrian Transects

Areas
Google Satellite

Tel: 6882 0118; Fax: 6882 0630; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkehm.com.au / phil@ozarkehm.com.au
1. VEGETATION COMMUNITIES RECORDED

Three vegetation (20x20m) / habitat attribute plots (20x50m) were used to describe the vegetation community adjoining each Area affected by clearing (Figures 3 and 4, Table 1). One biometric community was recorded in adjoining vegetation - LA216 White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272). This is consistent with mapping provided in a 2005 ecological assessment for DA 14/2007 (the nomenclature used in this letter has been updated to match biometric).

Table 1: Vegetation Plot Summary Details

<table>
<thead>
<tr>
<th>Project Name: Broula Magnetite and Limestone Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plot</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1</td>
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<td>2</td>
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Details

<table>
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<tr>
<th>Details</th>
<th>Plot 1</th>
<th>Plot 2</th>
<th>Plot 3</th>
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<tbody>
<tr>
<td>Dominant Stratum</td>
<td>Lower</td>
<td>Upper</td>
<td>Upper</td>
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<tr>
<td>Dominant Stratum % Cover</td>
<td>60</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Landscape Position and Mitchell Landscape</td>
<td>Warrumbage Range and Slopes</td>
<td>Warrumbage Range and Slopes</td>
<td>Warrumbage Range and Slopes</td>
</tr>
<tr>
<td>Health (NSW Forests definition)</td>
<td>Healthy</td>
<td>Healthy</td>
<td>Healthy</td>
</tr>
<tr>
<td>Condition (Biobanking definition)</td>
<td>Low</td>
<td>Low</td>
<td>Moderate to Good</td>
</tr>
<tr>
<td>Biometric Veg Type ID</td>
<td>LA216</td>
<td>LA216</td>
<td>LA216</td>
</tr>
<tr>
<td>Biometric Vegetation Name</td>
<td>White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272)</td>
<td>White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272)</td>
<td>White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272)</td>
</tr>
<tr>
<td>EEC?</td>
<td>No*</td>
<td>No*</td>
<td>No*</td>
</tr>
<tr>
<td>Over Cleared Vegetation Type 7 &gt;90% in CMA</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Highly Cleared Vegetation Type 7 &gt;70% in CMA (Red flag)</td>
<td>No - 60% cleared</td>
<td>No - 60% cleared</td>
<td>No - 60% cleared</td>
</tr>
<tr>
<td>Upper Stratum % cover</td>
<td>1</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Med Stratum % Cover</td>
<td>55</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lower Stratum % Cover</td>
<td>80</td>
<td>95</td>
<td>80</td>
</tr>
<tr>
<td>Upper Stratum height (m)</td>
<td>25</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Med Stratum height (m)</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Lower Stratum height (m)</td>
<td>0.05</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>% Bare Ground</td>
<td>2</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>% Rocks</td>
<td>10</td>
<td>&gt;1</td>
<td>10</td>
</tr>
<tr>
<td>Ground loop 20x50m &gt;10cm diameter</td>
<td>0</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

Tree Hollows 20x50m area

<table>
<thead>
<tr>
<th>Plot</th>
<th>Very Large</th>
<th>Large</th>
<th>Medium</th>
<th>Small</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
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</tr>
</tbody>
</table>

Stratum Summary Details

<table>
<thead>
<tr>
<th></th>
<th>No of Upper Stratum sp</th>
<th>No of Med Stratum sp</th>
<th>No of Lower Stratum sp</th>
<th>No of Native sp</th>
<th>No of exotic species</th>
<th>% Native sp</th>
<th>Biodiversity links 7 (State, Regional, Local)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plot 1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>14</td>
<td>22.22</td>
<td>Local</td>
</tr>
<tr>
<td>Plot 2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>13</td>
<td>16</td>
<td>44.83</td>
<td>Local</td>
</tr>
<tr>
<td>Plot 3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>10</td>
<td>56.52</td>
<td>Local</td>
</tr>
</tbody>
</table>

*See Section 5 for detail

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Figure 4: Photos of each Area and Vegetation / Habitat Plot.

- Area 1 (disturbed soils in the background) and Plot 1
- Plot 1 – Upper, Mid and Lower stratum
- Plot 1 - Lower stratum
2. CONDITION OF VEGETATION COMMUNITIES

Plots 1 and 2 were analogues for Areas 2, 3 and 4. These plots showed Areas 2, 3 and 4 are likely to have met the Biobanking Assessment Methodology (2008) definition of ‘Low Condition’ prior to clearing. Plot 1 had only 22% native species while Plot 2 had 45% native species (Table 1). Plot 3 (Area 1 analogue) was comprised of 57% native species; it is in ‘Moderate to Good Condition’.

3. DETAILED DESCRIPTION OF VEGETATION STRUCTURE, SPATIAL DISTRIBUTION AND THE LOCATION OF THE ASSESSMENT PLOTS IN RELATION TO THE AREAS AFFECTED.

Table 2 provides details of species recorded within each structural layer (stratum) on Plots 1 to 3. Table 1 provides details on structure within each plot.

<table>
<thead>
<tr>
<th>Table 2: Vegetation Plot Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habitat features, including feeding, prey species, nesting, rocky habitat and refuge resources, including non-native hollow-bearing trees</strong></td>
</tr>
<tr>
<td><strong>Terrestrial habitat</strong></td>
</tr>
<tr>
<td><strong>Upper Stratum spp</strong></td>
</tr>
<tr>
<td>1 (Dominant species)</td>
</tr>
<tr>
<td>2 (Sub dominant 1)</td>
</tr>
<tr>
<td>3 (Sub dominant 2)</td>
</tr>
<tr>
<td><strong>Mid Stratum spp</strong></td>
</tr>
<tr>
<td>1 (Dominant species)</td>
</tr>
<tr>
<td>2 (Sub dominant 1)</td>
</tr>
<tr>
<td>3 (Sub dominant 2)</td>
</tr>
<tr>
<td>Tumbledown Gum (L. deabata)</td>
</tr>
</tbody>
</table>

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# STATEMENT OF ENVIRONMENTAL EFFECTS

**ABTERRA AUSTRALIA PTY LIMITED**  
Broula Magnetite and Limestone Mine

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**OzArk Environmental & Heritage Management Pty Ltd**  
145 Wingewara St / PO Box 2093 DUBBO NSW 2830  
WEB: www.ozarkhelm.com.au  
ABN: 59 104 582 354

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## Lower Stratum spp (Red = exotic spp.)

<table>
<thead>
<tr>
<th>Plot 1</th>
<th>Plot 2</th>
<th>Plot 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prairie Grass (Bromus wildenowii)</td>
<td>Soft Brome (Bromus mollis)</td>
<td>Poison Rock Fern (Chelianithes austrotemudalis)</td>
</tr>
<tr>
<td>Red Leg Grass (Bothriochloa macra)</td>
<td>Common Wheatgrass (Elymus scaber)</td>
<td>Rough Speargrass (Austrostipa scabra)</td>
</tr>
<tr>
<td>Saffron thistle (Carthamus lanatus)</td>
<td>Shivery Grass (Briza minor)</td>
<td>Proliferous Pink (Petrophaga nanteuilii)</td>
</tr>
</tbody>
</table>

**GRASS**

- Hill Wallaby Grass (Austrodanthonia eranthei)  
- Iron Grass (Lomandra multiflora)  
- Rough Speargrass (Austrostipa scabra)  
- Common Wheatgrass (Elymus scaber)  
- Brush Wiregrass (Anisida bethania)  
- Red-antler Wallaby Grass (Joycea pallocia)  
- Austrodanthonia caespitosa  
- Red Leg Grass (Bothriochloa macra)

**SEDGES**

<table>
<thead>
<tr>
<th>Forbes / Other</th>
<th>Plot 1</th>
<th>Plot 2</th>
<th>Plot 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivy-leaved Violet (Viola hederacea)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Wireweed (Wijeweed) (Polygonum aviculare and Polygonum amesedum)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swamp Dock (Rumex brownii)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lesser Joyweed (Allerancha dentifolata)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hydrocotyle laevigata</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Cypress Pine (Callitris glaucaphilis)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Black Cypress Pine (Callitris endlicheri)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Australian Biddy Weed (Convolvulcus erubescens)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Poison Rock Fern (Chelianithes austrotemudalis)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Golden Everlasting Daisy (Xerocrysum bracteatum)</td>
<td></td>
<td>1</td>
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</tr>
</tbody>
</table>

**SALT BUSHES**

<table>
<thead>
<tr>
<th>Weeds</th>
<th>Plot 1</th>
<th>Plot 2</th>
<th>Plot 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheppard's purse (Capsella bursapastoris)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>White Horehound (Marumullum vulgare)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackberry Nightshade (Solanum nigrum)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Spotted Burre Medic (Medicago arbacia)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Spear Thistle (Cirsium vulgare)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wild sage (Salsola verbenaca)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Weed (Acartheca caenula)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft Brome (Bromus mollis)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Shivery Grass (Briza minor)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saffron thistle (Carthamus lanatus)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Proliferous Pink (Petrophaga nanteuilii)</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Matress Star-thistle / Cockspur Thistle (Centaurea melitensis)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Flatweed (Hypochenris radicata)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Clover sp. (Trifolium sp.)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hares Foot Clover (Trifolium arvense)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Barley Grass (Hordeum murinum)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delicate Lovegrass (Eragrostis tenella)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Wild lettuce (Lactuca viosa)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Paterson's curse (Echium plantagineum)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prairie Grass (Bromus wildenowii)</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

---

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OzArk Environmental & Heritage Management Pty Ltd  
A4-11
4. PREDICTED DISTURBANCE CONDITION OF AREAS PRIOR TO BEING AFFECTED.

Google and Bing aerial images used in this letter were predominately taken prior to clearing (Figure 3). The dates of the images are not known.

Area 1 prior to clearing had moderate levels of disturbance. Ground layers appear absent however a scattered tree layer consisting of Tumbledown Gum (Eucalyptus dealbata) which has a light grey / blue hue tint on the aerial image and Black Cypress Pine (Callitris endlicheri) which has a darker olive / green hue in the image, were present. Approximately four Tumbledown Gum (Eucalyptus dealbata) and Black Cypress Pines (Callitris endlicheri) were removed in this area. Vegetation Plot 3 recorded three small tree hollows in a 20x50m adjoining area.

Area 2 had been cleared the aerial image was taken. No additional information can be provided. Vegetation Plot 3 recorded three small tree hollows in a 20x50m adjoining area. Vegetation Plot 2 recorded three small and three medium sized tree hollows in a 20x50m adjoining area.

Area 3 prior to clearing had low levels of recent disturbance however historic disturbance may have removed trees (during farming days); alternately tree spacing may have reflected an ‘open grassy woodland’. Ground layer evidence surrounding Area 2 suggests a mostly exotic ground stratum was present. No trees were removed in this area. Vegetation Plot 2 recorded three small and three medium sized tree hollows in a 20x50m adjoining area.

Area 1 prior to clearing had moderate levels of disturbance. Ground layers appear to have been absent however two White Box (Eucalyptus albens) which has a light grey / blue hue tint the aerial image with a ‘decent sized’ canopy cover. No trees appear to have been removed; a hard stand area has been built to encase them. No tree hollows were recorded in this area.

5. CONSERVATION STATUS OF THE VEGETATION COMMUNITIES AFFECTED

Commonwealth Environmental Protection Biodiversity Conservation Act 1999

Areas 1, 2, 3 and 4 do not meet the criterion to be listed as the Commonwealth listed White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (Figure 5, Tables 1 and 2). No further consideration is required.

NSW Threatened Species Conservation Act 2004

LA216, White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272) is not listed as an EEC in the 2013 issue of the Biometric data base.

LA216 is a Western Slopes Grassy Woodland vegetation type (see BioMetric list). The NSW OEH threatened species website lists 11 Western Slopes Grassy Woodland vegetation types as being associated with the endangered ecological community. One of these is ‘White Box - Black Cypress Pine - red gum +/- Mugga Ironbark shrubby woodland in hills of the NSW central western slopes’. This is consistent with the EEC if Tumbledown Gum (Eucalyptus dealbata) is considered to be a ‘red gum’. Unfortunately ‘red gum’ is not defined by species on the website to provide clarity.

The NSW Scientific Committee description of White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland is not consistent with the assemblage of LA216 / (Benson 272). The description for the EEC does not include Tumbledown Gum (Eucalyptus dealbata) and Black Cypress Pine (Callitris endlicheri).

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1 Accessed 21 November 2013
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Figure 9: Department of Environment Assessment Criterion to be listed as the Commonwealth EEC.

Conclusion

LA216  White Box - Black Cypress Pine - Tumbledown Gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes (Benson 272) is not an EPBC listed EEC. NSW TSC listing is conflicting but predominately shows that LA216 is not the NSW listed EEC. The definition of 'red gum' in the NSW Office of Environment and Heritage (OEH) threatened species website is subjective and requires further advice from OEH to finalise the determination.

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6. HYDROLOGY OF THE AREAS AFFECTED AND HOW THIS RELATED TO THE DYNAMICS OF THE VEGETATION COMMUNITIES.

All surface water runoff is contained on site. Changes in hydrology due to clearing in Areas 1 to 4 will not affect adjoining vegetation communities.

7. LIST OF KNOWN AND LIKELY SPECIES LISTED IN THE TSC AND EPBC ACTS INDICATING ‘LIKELIHOOD’ TO BE AFFECTED BY THE ACTIVITY

An assessment of likelihood of occurrence was made for threatened species of flora, fauna, populations, ecological communities and migratory species identified from OEH and the Commonwealth Department of Environment (DoE) database searches (search date 22.11.2013). Filters used to narrow down the searches included using ‘habitat’ and region (Lachlan CMA Upper Slopes Sub Region with a Western Slopes Grassed Woodlands filter) for OEH searches and using a 10km polygon to delineate the search area for the DoE Protected Matters Search.

The NSW Wildlife Atlas database was searched (search date 22.11.2013). The results were plotted on Figure 6 to show records within ten kilometres and one kilometer of the Study Area.

Five terms for the likelihood of occurrence of species are used in this letter. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the field survey and professional judgment. The terms for likelihood of occurrence are defined below:

- “Known to occur within the Study Area” = the species was or has been observed on the site.
- “Likely” = a medium to high probability that a species uses the Study Area.
- “Potential” = suitable habitat for a species occurs on the Study Area, but there is insufficient information to the species as likely to occur, or unlikely to occur.
- “Unlikely” = a very low to low probability that a species uses the Study Area.
- “No” = habitat on-site and in the vicinity is unsuitable for the species.

Three species are ‘Known to occur within the Study Area’ within the Study Area:

1. Superb Parrot (EPBC Act, TSC Act). This species has been recorded four times within 10km of the Study Area (Table 3) and was recorded during the 2006 assessment of the property. The survey records do not appear on the NSW Wildlife Atlas database. No trees in the Study Area were observed as having hollows of sufficient size for the species to use for breeding. The assessment was carried out during breeding season and no individuals were observed in trees or around tree hollows.

2. Turquoise Parrot (TSC Act). This species has been recorded three times within 10km of the Study Area (Table 3) and was recorded during the 2006 assessment of the property. The survey records do not appear on the NSW Wildlife Atlas database. The assessment was carried out during breeding season and no individuals were observed in trees or around tree hollows.

3. Brown Treecreeper (eastern subspecies) (TSC Act). This species has been recorded six times within 10km of the Study Area (Table 3) and was recorded during the 2006 assessment of the property. The survey records do not appear on the NSW Wildlife Atlas database. No trees/fence post/stumps in the Study Area were observed as being used for breeding. The assessment was carried out during breeding season and no individuals were observed.

No species were considered “likely” to be in the Study Area (Table 3).

28 species were identified as having ‘potential’ to use habitat in the Study Area (Table 3). 21 of listed species are birds that have feeding, breeding, resting/refuge/habitat in the Study Area. It is unlikely that breeding resources would have been removed by clearing. Feeding and resting/refuge/perching resources were affected in Areas 1 and possibly Area 3 with tree removal.
Three species of microbats were identified as having feeding, breeding, resting / refuge habitat in the Study Area (Table 3). As no bat data exists (no formal assessments undertaken in 2006) it is not possible to determine what species may have been affected by the activity in Areas 1 and possibly Area 3 with tree removal. Tree hollows suitable for these species were identified in Plots 2 and 3 (Table 1).

Three species of marsupials were identified as having potential breeding, feeding and resting / refuge resources in the Study Area (Table 3). Tree hollows suitable for Squirrel Glider (TSC Act) were identified in Plots 2 and 3 (Table 1). These species were not recorded in the 2006 assessments which included nocturnal assessments during suitable seasons for their detection. Based upon the quality of habitat affected and the 2006 results it is unlikely that any of these species would have been affected by habitat clearing.

Figure 6: NSW Wildlife Atlas records showing 10km and 1km buffers around the Study Area.
## Table 3: Likelihood of listed species to be affected by the activity

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type of Species</th>
<th>NSW Status</th>
<th>OEH Occurrence</th>
<th>EPBC Status</th>
<th>NSW Wildlife Atlas Record 10 km</th>
<th>NSW Wildlife Atlas Records km from Study Area</th>
<th>Consultants Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litoria booroolumgensis</td>
<td>Booroolum Frog</td>
<td>Animal &gt; Amphibians</td>
<td>Endangered</td>
<td>Known</td>
<td>Endangered</td>
<td>Not Predicted</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Crinia sloanei</td>
<td>Sloane's Froglet</td>
<td>Animal &gt; Amphibians</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Not Listed</td>
<td>N/A</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Nyctophilus corbetti</td>
<td>Corbin's Long-eared Bat</td>
<td>Animal &gt; Bats</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Vulnerable</td>
<td>Species or species habitat known to occur within area</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Miniopterus schreibersi</td>
<td>Eastern Benthing-bat</td>
<td>Animal &gt; Bats</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Not Listed</td>
<td>N/A</td>
<td>1</td>
<td>NIL</td>
</tr>
<tr>
<td>Chalinotus picatus</td>
<td>Little Pied Bat</td>
<td>Animal &gt; Bats</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Not Listed</td>
<td>N/A</td>
<td>1</td>
<td>NIL</td>
</tr>
<tr>
<td>Myotis macropus</td>
<td>Southern Myotis</td>
<td>Animal &gt; Bats</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Not Listed</td>
<td>N/A</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Saccolaimus flaviventris</td>
<td>Yellow-bellied Sheath-tail-bat</td>
<td>Animal &gt; Bats</td>
<td>Vulnerable</td>
<td>Known</td>
<td>Not Listed</td>
<td>N/A</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Ardeotis australis</td>
<td>Australian Bubbar</td>
<td>Animal &gt; Birds</td>
<td>Endangered</td>
<td>Not Predicted</td>
<td>Not Listed</td>
<td>N/A</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>Botaurus poicilopis</td>
<td>Australasian Bittern  [1001]</td>
<td>Animal &gt; Birds</td>
<td>Endangered</td>
<td>Species or species habitat known to occur within area</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>No</td>
</tr>
</tbody>
</table>

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E-mail: jodie@ozarkehm.com.au / phil@ozarkehm.com.au
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<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type of Species</th>
<th>NSW Status</th>
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<th>EPBC Status</th>
<th>Predicted Potential Effects</th>
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### Scientific Name | Common Name | Type of Species | NSW Status | QM Occurrence | EPBC Status | EPBC Prediction | NSW Wildlife Atlas Records 10 km | NSW Wildlife Atlas Records km from Study Area | Consultant's Prediction |
---|---|---|---|---|---|---|---|---|---|
Pachycephala inornata | Gilbert's Whistler | Animal > Birds | Vulnerable | Known | Not Listed | N/A | 4 | N/A | Potential |
Calyptrocyclus lathami | Glossy Black-Cockatoo | Animal > Birds | Vulnerable | Known | Not Listed | N/A | 1 | N/A | No |
Pomatostomus temporalis temporalis | Grey-crowned Babbler (eastern subspecies) | Animal > Birds | Vulnerable | Known | Not Listed | N/A | 2 | N/A | Potential |
Melanodias cucullata cucullata | Hooded Robin (south-eastern form) | Animal > Birds | Vulnerable | Known | Not Listed | N/A | 3 | N/A | Potential |
Gellinago hardwickii | Latham's Snipe, Japanese Snipe [863] | Animal > Birds | Vulnerable | Vulnerable | Species or species habitat known to occur within area | NIL | NIL | NIL | No |
Hiraeetus morphnoides | Little Eagle | Animal > Birds | Vulnerable | Known | Not Listed | N/A | 4 | N/A | Potential |
Glossopsitta pusilla | Little Lorikeet | Animal > Birds | Vulnerable | Not Predicted | Vulnerable / Migratory | Species or species habitat known to occur within area | NIL | NIL | No |
Lepido ocellata | Malleefowl [934] | Animal > Birds | Vulnerable | Not Predicted | Migratory | Species or species habitat known to occur within area | NIL | NIL | No |
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<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type Of Species</th>
<th>NSW Status</th>
<th>OEH Occurrence</th>
<th>EPBC Status</th>
<th>EPBC Prediction</th>
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<th>NSW Wildlife Atlas Records 1km from Study Area</th>
<th>Consultant's Prediction</th>
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<td>Type of Species</td>
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<td>OEH Occurrence</td>
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<td>NSW Wildlife Atlas 10 km</td>
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<td>Species or species habitat known to occur within area</td>
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<td>NIL</td>
<td>Unlikely</td>
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</tbody>
</table>

Tel: 6882 0118; Fax: 6882 0630; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkehm.com.au / phil@ozarkehm.com.au

OzArk Environmental & Heritage Management Pty Ltd
### STATEMENT OF ENVIRONMENTAL EFFECTS

**ABTERRA AUSTRALIA PTY LIMITED**

**Report No. 680/06**

**Broula Magnetite and Limestone Mine**

---

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type of Species</th>
<th>NSW Status</th>
<th>OEH Status</th>
<th>EPBC Status</th>
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<td>Plant &gt; 1 Hectare</td>
<td>Community Threatened</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Species or species known to occur within area</td>
<td>NIL</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Tel: 6882 0118; Fax: 6882 0630; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkehm.com.au / phil@ozarkehm.com.au

OzArk Environmental & Heritage Management Pty Ltd

A4-23
4. PROVIDE COMMENT ON THE IMPACTS EFFECTS TO FLORA AND FAUNA ON ADJOINING HABITAT.

The nature and extent of subject clearing is unlikely to significantly affect listed species, populations or communities in habitat adjacent to the Study Area.

5. PROVIDE A SPECIES LIST FOR REHABILITATION SHOULD THIS BE REQUIRED FOR MINE CLOSURE.

**Upper Stratum (Canopy Species)**

White Box (Eucalyptus albens), Black Cypress Pine (Callitris endlicheri), Tumbledown Red Gum (Eucalyptus delegata).

The canopy layer should be dominated by White Box (Eucalyptus albens) on the lower slopes and Tumbledown Red Gum (Eucalyptus delegata) on higher, rockier elevations. Other tree species i.e. Mugga Ironbark (Eucalyptus sideroxylon) and Kurrajong (Brachychiton populneus subsp. populneus) are often present and may be co-dominant.

Plant 55% White Box (Eucalyptus albens) or Tumbledown Red Gum at 15 metre intervals to technically meet the definition of ‘dominant’ with the remaining percentage of the other noted canopy species.

To keep it as a grassy woodland aim for no more than 20 to 50% crown cover of the trees in the area to be rehabilitated (allow for 20m circle for a tree canopy).

**Mid Stratum (Understory Species)**

Acacia penniserris, Acacia decora, Acacia implexa, Dodonaea viscosa subsp. angustifolia, Indigofera adesmifolia, Black Cypress Pine (Callitris endlicheri).

In general, the upper crown cover limit for shrubs in the mid layer of the ecological community is in the order of 40%. In many situations, however, the crown covers for shrubs in the mid layer is less than 30%. Aim for 30% - these will feed the Superb Parrots and provide habitat for the regions listed Robins.

**Lower Stratum (ground layer)**

Austrodanthonia spp, Austrostipa densiflora, Red-antler Wallaby Grass (Joycea pallida), Acaena ovina, Scutellaria humilis, Einaida hastata, Hydrocotyle laxiflora.

To keep it as a grassy woodland aim 80 to 50% ground cover of the area to be rehabilitated.
CONCLUSION

Clearing did not affect a NSW or State listed endangered ecological community however OEH advice should be sought to clarify wording of the EEC description on the NSW Threatened Species website as detailed in Section 5 to completely address this issue.

It could not be concluded if three species of listed microbats with potential to be recorded in the Study Area could have been affected by the activity. The 2006 assessment did not include AnaBat detection to provide a greater degree of confidence.

It is unlikely that any species known to occur, or the remaining species with potential to occur in the Study Area would have been affected by the activity.

Please feel free to contact me if there are any further questions.

Phil Cameron
Senior Project Manager / Principal Ecologist
BioBanking Assessor 0117, OEH Sci License SL101087, DPI Ethics 11/5475
OzArk Environmental & Heritage Management Pty Limited
PO Box 2069 DUBBO 2830
Ph 02 6882 0118 / 0423 196 898
Fax 02 6882 0630
phil@ozarkehm.com.au

Tel: 6882 0118; Fax: 6882 0630; Mob: 0403 763 504 / 0423 198 898
E-mail: jodie@ozarkehm.com.au / phil@ozarkehm.com.au
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Appendix 5

Correspondence with Mine Safety Officers from the NSW Department of Trade and Investment

(Total No. of pages including blank pages = 6)
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Mitchell Bland

From: Michael Skeen <michael.skeen@trade.nsw.gov.au>
Sent: Thursday, 10 October 2013 4:34 PM
To: Mitchell Bland
Subject: Re: 660_Broula Magnetite Mine - Request for information
Attachments: Response to inspection Oct 2009 t0NEEGY.doc

Follow Up Flag: Follow up
Flag Status: Flagged

Mitchell

I hope the following is of assistance.

I conducted an inspection on the 2/10/2009 and a Section 131 notice issued to the mine identifying the hazards of unconsolidated material in the mine and surrounding stockpiles.

A follow up inspection was conducted in 23 October 2009 by Senior Inspector Robert Jay and another notice issued for improvements to make the work place safe in regards to unconsolidated material in the working face and over hang of stocked material.

Attached is the mines response to these notices.

Inspection 02/02/2010 advised mine closed and planned to reopen in August 2010.

An inspection I conducted on the 26/06/2010 identified that Contractors (consolidated) were cutting back unconsolidated material from waste area. The mine (mining of ore) was not in operation and future was unknown at this point of time.

regards

Michael Skeen
Senior Mine Safety Officer
NSW Department Trade & Investment
161 Kite Street Orange NSW 2800
Ph 02 63605335 Fax 02 63605363
Mob 0428 293 446

On Thu, Oct 10, 2013 at 3:37 PM, Mitchell Bland <mitchell@rwcorkery.com> wrote:

Dear Mike

As discussed this afternoon, Cowra Shire Council have requested that Abterra provide them with information in relation to the cutback of the western face of the Open Cut for the Broula Magnetite Mine. The information has been requested to provide background to an application that is to be made under s96(2) of the EP&A Act to modify the existing development consent to include additional areas of disturbance, including the cutback area. We are assisting Abterra prepare the modification application.
I would be grateful if you could please provide me with an overview of the discussions the Department had with the operator at the time and what instructions, if any, were issued to the operator.

Thanks Mike. I appreciate your assistance in this matter. Enjoy your day off tomorrow.

Regards

Mitch

Mitchell Bland
Principal Environmental Consultant

RW Corkery & Co Pty Limited
Geological and Environmental Consultants

<table>
<thead>
<tr>
<th>Brooklyn</th>
<th>Orange</th>
<th>Brisbane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1, 12 Dangar Road</td>
<td>62 Hill Street</td>
<td>Suite 5, Building 3,</td>
</tr>
<tr>
<td>PO Box 239</td>
<td>ORANGE NSW 2800</td>
<td>Pine Rivers Office Park</td>
</tr>
<tr>
<td>BROOKLYN NSW 2083</td>
<td></td>
<td>205 Leitches Road</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BRENDALE QLD 4500</td>
</tr>
</tbody>
</table>

Phone: (02) 9985 8511      Phone: (02) 6362 5411      Phone: (07) 3205 5400
Fax: (02) 9985 8208        Fax: (02) 6361 3622        Fax: (02) 9885 8208
Email: brooklyn@rworkery.com Email: orange@rworkery.com Email: brisbane@rwworkery.com
Website: www.rwworkery.com

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Dear Robert

In regards to your inspection of the Broula Magnetite & limestone mine and the letter that followed your visit plus Michael and your and concern of both side going down the ramp we have since blasted both side and when the waste is cleared the batters that will be left are laying back at 25 degrees so this should fix the problem also Michael Skene has had a look at it and seems to be happy with what we have done. We are drilling the western side of the pit where the ore is still on the side to lay that back at 15 degrees that will be fired on Wednesday 9/12/09. Also we have a Mine engineer by the name Jim Simpson coming to have a look at the site as soon as he can fine time next week to give us some advice on what to go from here.

Arthur Kelly
Production Manager
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Appendix 6

Property Vegetation Plan - Tallarook

(Total No. of pages including blank pages = 18)

Note: A copy of this Appendix is available on the Proposal CD
Lachlan
Catchment Management Authority
Conservation
PROPERTY VEGETATION PLAN
Native Vegetation Act 2003
‘TALLAROOK’
73 Tallarook Road
COWRA NSW 2794

This Property Vegetation Plan applies to the land described in Schedule 1, as shown on Map 7 in Schedule 4 of this agreement.

The Landholder is authorised to undertake the activities set out in Schedule 2 and agrees to carry out the management actions and management action details set out in Schedule 2. The Landholder agrees to comply with the requirements of Schedule 3.

Notes:
1. The Director-General of DECCW (or delegate) will notify the Registrar-General once all landholders and parties with a prescribed interest have consented to the registration of this PVP. Once notified by the Director-General, the Registrar-General is required to register this PVP. This PVP will then be binding on all current and future landholders.
2. This Plan does not exempt the landholder from any Council clearing consent requirements.
3. In order to carry out the works under this PVP, the Landholder may be required to obtain other approvals from other government agencies.

Edward Ambler
Director - Mining Tenement Management Pty Ltd
Signature: [Signature]
Date: 31/1/01

Chris Glennon
General Manager of the Lachlan Catchment Management Authority
Delegate of the Minister for Climate Change and the Environment
Signature: [Signature]
Date: 12/1/01

Request No: 8076
File No.: CMA_01038-1
### SCHEDULE ONE — DESCRIPTION OF LAND TO WHICH THIS PVP APPLIES

<table>
<thead>
<tr>
<th>Lot</th>
<th>DP</th>
<th>LGA</th>
<th>Parish</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>115</td>
<td>752932</td>
<td>COWRA</td>
<td>BROULA</td>
<td>FORBES</td>
</tr>
</tbody>
</table>
## SCHEDULE TWO — AUTHORISED ACTIVITIES AND MANAGEMENT ACTIONS

### AUTHORISED ACTIVITY

<table>
<thead>
<tr>
<th>Map Number (as per Schedule 1)</th>
<th>Map Unit</th>
<th>Details of Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4a</td>
<td>Conservation of 23.58 hectares of the vegetation community: White Box, Yellow Box, Blakely's Red Gum Grassy Woodland.</td>
</tr>
</tbody>
</table>

### MANAGEMENT ACTIONS FOR CONSERVATION PVPS

1. The management actions and management action details are to be continued for, or completed within, the duration specified in the column "Duration of Management Action".

2. The management actions and management action details set out below must be undertaken in the specified map unit as identified in Schedule 4.

<table>
<thead>
<tr>
<th>Map Number (as per Schedule 4)</th>
<th>Map Unit</th>
<th>Management Action</th>
<th>Duration of Management Action</th>
<th>Management Action Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4a</td>
<td>Retain dead timber</td>
<td>In perpetuity</td>
<td>The landholder is not to remove any standing or fallen dead timber from within Map Unit 4a at any time.</td>
</tr>
<tr>
<td>1</td>
<td>4a</td>
<td>Retain regrowth</td>
<td>In perpetuity</td>
<td>The native vegetation in Map Unit 4a is protected regrowth and the landholder is not to clear this vegetation, unless otherwise stated in this plan.</td>
</tr>
<tr>
<td>1</td>
<td>4a</td>
<td>No bush rock disturbance / removal</td>
<td>In perpetuity</td>
<td>The landholder will not disturb or remove rocks from within Map Unit 4a at any time.</td>
</tr>
<tr>
<td>1</td>
<td>4a</td>
<td>No fertiliser application</td>
<td>In perpetuity</td>
<td>The landholder will not apply any fertilisers to Map Unit 4a at any time.</td>
</tr>
<tr>
<td>Map Unit</td>
<td>Map Number (Schedule 4)</td>
<td>Management Action Details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------</td>
<td>----------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4a</td>
<td>Weed control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Strategic Grazing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4a</td>
<td>Monitor and Manage Total Grazing Pressure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The landholder is to control weeds within Map Unit 4a to encourage the establishment of native species.

The landholder must not use herbicides within Map Unit 4a except to spot-spray non-native weed species.

The landholder is to monitor and control all weeds within Map Unit 4a annually.

If grazing, the landholder is to ensure that the grazing strategy concentrates on maintaining native plant diversity.

The landholder is to ensure that stocking in Map Unit 4a does not exceed two (2) animals per hectare during the period from November to the 31st of March each year, with a minimum rest period of two (2) weeks, to allow native grasscover to flower and set seed.

The landholder is to manage stock grazing in Map Unit 4a from 1st April to the 30th of September each year to maintain total grasscover above a minimum of 60%.

All native species are to be protected above Map Unit 4a to prevent damage to native vegetation and maintain a minimum of 60% grasscover.

The landholder is to monitor and manage total grazing pressure within Map Unit 4a as this can influence weeds and nutrients to the site.

The landholder is to manage all areas according to the established strategies.
<table>
<thead>
<tr>
<th>Map Number (as per Schedule 4)</th>
<th>Map Unit</th>
<th>Management Action</th>
<th>Duration of Management Action</th>
<th>Management Action Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4a</td>
<td>Annual Groundcover Monitoring</td>
<td>For the life of the Broula Magnetite and Limestone Mine</td>
<td>The landholder must annually monitor groundcover within Map Unit 4a for the life of the Broula Magnetite and Limestone Mine as follows: 1. The monitoring is to be undertaken in accordance with Appendix A; 2. The landholder must complete the recording sheets in Appendix A on an annual basis for the life of the Broula Magnetite and Limestone Mine. The recording sheets are to be included as part of the Annual Environmental Management Report for the Broula Magnetite and Limestone Mine as required by Mining Lease 1616.</td>
</tr>
<tr>
<td>1</td>
<td>4a</td>
<td>Permitted Routine Agricultural Management Activities (RAMAs)</td>
<td>In perpetuity</td>
<td>The landholder must not clear native vegetation in the areas identified as Map Unit 4a for routine agricultural management activities (RAMAs), except when the landholder is clearing native vegetation for the following routine agricultural management activities: * the operation and maintenance only of permanent fences only (as permitted by s. 22 and s. 11(1)(a) Native Vegetation Act 2003 and cl 20 Native Vegetation Regulation 2005); * the removal of noxious weeds under the Noxious Weeds Act 1993 (as permitted by s. 22 and s. 11(1)(b) Native Vegetation Act 2003); * the control of noxious animals under the Rural Lands Protection Act 1998 (as permitted by s. 22 and s. 11(1)(c) Native Vegetation Act 2003); * any activity reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property (as permitted by s. 22 and s. 11(1)(i) Native Vegetation Act 2003). The clearing of any vegetation in contravention of this clause is excluded from being an activity permitted to be carried out under Part 3 Division 3 s.22 of the Native Vegetation Act 2003.</td>
</tr>
</tbody>
</table>

Initial: ___________________________
SCHEDULE THREE - STANDARD CONDITIONS

Commencement
1. This PVP will commence from the date at which it is signed by the Minister for Climate Change and the Environment (or delegate).

Words and phrases used
2. In this Schedule:
   "CMA" means the Catchment Management Authority that is a party to this property vegetation plan ("PVP");
   "Landholder" means the landholder who is a party to this PVP and once this PVP is registered all future landholders;
   "the works under this PVP" means the clearing, the management actions, the mitigating actions and all other works that the Landholder is authorised or required to take under this PVP;
   "the Land" means the land to which this PVP applies; and
   "DECCW" means the Department of Environment, Climate Change and Water and includes its successor departments or agencies.

Monitoring and auditing
3. The carrying out of any works under this PVP may be subject to auditing by officers of the CMA or DECCW who are authorised officers under the Native Vegetation Act 2003, as set out in sections 34 and 35.
4. Subject to reasonable notice, the Landholder will allow authorised officers of the CMA or DECCW access to the Land and allow those officers to do all things reasonably necessary for the purpose of monitoring or auditing compliance with this PVP.
5. Clauses 3 and 4 do not affect the powers of authorised officers of the CMA, DECCW or other government agencies to carry out investigations under the Native Vegetation Act 2003.

Registration of PVP on Title
6. For the purpose of sections 31(1) and 31(2) of the Native Vegetation Act 2003, the Landholder consents to the registration of this PVP in accordance with section 31 of the Native Vegetation Act 2003.

Dispute resolution
7. The parties agree to attempt to resolve any dispute in relation to this PVP by negotiation in the first instance. Such negotiation may involve agreeing on a variation to the PVP. However, this clause does not apply to a dispute relating to a possible breach of the Native Vegetation Act 2003.
8. Where appropriate, if negotiations are not successful, the CMA agrees to provide a written notice to the Landholder setting out the nature of any contravention and requesting the Landholder to take the steps specified in that notice, in the time specified in that notice, to rectify that contravention. This clause does not apply to a possible breach of the Native Vegetation Act 2003.
9. The Landholder agrees to comply with that notice in the time specified in the notice. Failure to comply with that notice is a breach of this plan. If the Landholder does not comply with the notice, the Minister (or delegate) may consider terminating this plan, in accordance with the procedure set out in section 30 of the Native Vegetation Act 2003. The CMA or DECCW may also take other action under that Act.
10. The landholder also agrees to provide access to the property to officers of the CMA and DECCW.

Note: The procedure for varying or terminating a PVP is set out in section 30 of the Native Vegetation Act 2003 and clause 11 of the Native Vegetation Regulation 2001.

Subdivision
11. The Landholder agrees to notify the CMA of any proposal to subdivide the Land.
12. The Landholder agrees to submit to the CMA an application to vary this PVP to divide it into separate PVPs relating to the Land as subdivided in the same or similar terms to this PVP, if so requested by the CMA.
Apportionment of risk/indemnity

13. The parties agree to apportion risk as follows:

(i) The CMA accepts the risk for the actions of CMA staff in entering the Land and carrying out functions associated with this PVP and for the actions of other visitors to the Land as organised by the CMA.

(ii) All other risks associated with this PVP and the works under this PVP rest with the Landholder.

Disclosure of Information

14. Subject to clause 15, personal information contained in this PVP will be treated in accordance with the Privacy and Personal Information Protection Act 1998, under which you have rights of access and correction.

15. Information contained in this PVP may be disclosed:

(i) In the case of a PVP that specifies a date for the definition of "regrowth", certain information from the PVP will be included on the register of PVPs and development consents, which will be publicly available on the Internet and available for inspection at the office of the CMA.

(ii) to DECCW for compliance and statistical purposes.

(iii) in circumstances where disclosure is otherwise required or authorised by law, including the Government Information (Public Access) Act 2009.
SCHEDULE FOUR — MAPS

Map 1  PVP Area and Activities authorised by this PVP.

Map 7  Cadastral Map of land associated with activities authorised by this PVP

All maps must be printed for each PVP, unless it is not applicable to this PVP.
APPENDIX A – METHOD FOR ASSESSING GROUNDCOVER

What is groundcover?
Groundcover means any type of herbaceous vegetation. It also includes low-growing shrubs and woody plants less than one (1) metre in height.

Suggested assessment methods for groundcover alone
Landholders may use any method of assessment, so long as it is scientific and objective. One example is the step-point method, which is outlined below. Additionally a photo point should be established with every assessment to provide visual evidence of rehabilitation and establish a known point for ongoing monitoring.

Assessment Method: Step Point Method
a) Before arriving at the site, mark a random straight-line transect on a map for every 100 hectares of an assessment area. This is to avoid subconsciously choosing a better or poorer part of the paddock. Once at the site, mark each end of the transect with a permanent marker so repeatable surveys can be done.
b) Make a 1mm wide mark on the toe of each boot.
c) Walk across the paddock following the transect and at each step record:
   \( D \) = presence of any vegetation (includes leftover plants & residues)
   \( E \) = presence of living native groundcover vegetation
   \( F \) = presence of living non-native groundcover vegetation
d) Take at least 50 consecutive steps for every straight-line transect.
e) For each assessment area, the relevant figures are calculated as per the Pointed Stick Method above.

Permanent Photo-Points
Keeping a photographic record of your project area is the simplest way of monitoring it. A permanent photo-point consists of two steel posts fixed into the ground so that you have a permanent frame of reference.

A permanent photo-point ensures you take the same photo from the same spot every time and can therefore compare photos from year-to-year or season-to-season to see changes.

a) Mark the site by hammering two steel posts into the ground 10 metres apart (as shown in Diagram 1). Try to position these two posts along a north-south line so there is no shade or sun glare in your photo. Either use a GPS to record the posts location or mark their location on a property map.

Diagram 1 – Photo-point layout
b) Using a board or thick cardboard, write in very large text the date, your property name, your PVP number and site number if appropriate.

c) Take your camera and select a setting that best allows you to capture the landscape. Make sure you use the same zoom level every time a photograph is taken, otherwise your photos will contain different objects from photo to photo. We suggest you take a copy of the photo from your previous monitoring to ensure a similar field of view.

TAKE YOUR LANDSCAPE PHOTO - Standing at the first post, frame your scene in the camera viewfinder so that the top of the second post is exactly in the centre of the viewfinder, take your picture (Diagram 2).

Diagram 2 - How to take your landscape photo

TAKE YOUR GROUNDCOVER PHOTO – Standing beside your photo point post, take a photo of the ground as shown in the figure below (Diagram 3).

Diagram 3 – How to take your groundcover photo

d) If you are getting your photos printed at a photographic shop, get double prints so that you can keep one print as a record of your monitoring and attach the other to the groundcover assessment. If you are using a digital camera and downloading photos onto a computer, label the photo, print and attach to the groundcover assessment.
Conservation Property Vegetation Plan
Groundcover monitoring RECORDING SHEETS

PVP No.: .............
Map Unit.: 4a
Section 1  Basic Information

<table>
<thead>
<tr>
<th>Name of Landholder:</th>
<th>PVP Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Name:</td>
<td>Map Unit Number:</td>
</tr>
<tr>
<td>Property Address:</td>
<td>Date of Photos:</td>
</tr>
<tr>
<td>GPS Location:</td>
<td></td>
</tr>
</tbody>
</table>

Date Site Last Monitored: ___/___/____
Date of this monitoring: ___/___/____

Monthly Rainfall (for monitoring period)

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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</thead>
<tbody>
<tr>
<td>Rainfall (mm)</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Comments or Observations:

Seasonal Conditions during period
Excellent □  Good □  Fair □  Poor □  Very Poor □

Site and/or Paddock Condition Rating as current
Excellent □  Good □  Fair □  Poor □  Very Poor □

Environmental events (eg pests, flood, drought, wildfire):

Other Comments / General Observations:

Was there any type of ground disturbance during the period? (Yes / No)
If so, describe methods employed (including date if possible).
Section 2  Grazing movements over period

Stock in paddock at start of record period

<table>
<thead>
<tr>
<th>Class/Type</th>
<th>No. of class/type</th>
<th>Class/Type</th>
<th>No. of class/type</th>
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</thead>
<tbody>
<tr>
<td>(eg. Dry sheep, ewes &amp; lambs, dry cows, weaner cattle, cows &amp; calves etc.)</td>
<td></td>
<td>(eg. Dry sheep, ewes &amp; lambs, dry cows, weaner cattle, cows &amp; calves etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Stock Movements over record period

<table>
<thead>
<tr>
<th>INTO PADDock</th>
<th>OUT OF PADDock</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
<td>Class/Type</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stock in paddock at end of record period

<table>
<thead>
<tr>
<th>Class/Type</th>
<th>No. of class/type</th>
<th>Class/Type</th>
<th>No. of class/type</th>
</tr>
</thead>
<tbody>
<tr>
<td>(eg. Dry sheep, ewes &amp; lambs, dry cows, weaner cattle, cows &amp; calves etc.)</td>
<td></td>
<td>(eg. Dry sheep, ewes &amp; lambs, dry cows, weaner cattle, cows &amp; calves etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other, uncontrolled grazing pressure (estimated)

<table>
<thead>
<tr>
<th>Type (eg. Pigs, goats, rabbits, kangaroos)</th>
<th>Estimated number per day over entire period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other Grazing-Management actions (eg. stock movements, change stock water system, pasture work, cropping):

Initials: [signature]
Section 3  Site photos

INSERT LANDSCAPE PHOTO HERE

INSERT GROUND COVER PHOTO HERE
### Section 4  Step Point Method Recording Table

<table>
<thead>
<tr>
<th>Step Number</th>
<th>Bare Ground</th>
<th>Cryptogams (eg. lichen, fungi, moss)</th>
<th>Litter (eg. leaves, twigs)</th>
<th>Grass (Native)</th>
<th>Grass (Non-native)</th>
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