Biodiversity Risk Assessment – Addendum
to Environmental Impact Statement dated 1\textsuperscript{st} March 2017.

Date 12 September 2017

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<table>
<thead>
<tr>
<th>Document Control</th>
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<tbody>
<tr>
<td><strong>Document</strong></td>
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<tr>
<td>EIS</td>
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<td>Request for additional information</td>
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<td>Addendum</td>
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Preamble

This document has been prepared in order to address a number of information requests issued by the Department of Environment and Heritage (OEH) received on the 4\textsuperscript{th} of May 2017. This addendum draws from analysis of environmental risk detailed in Section 3.3 of the Taronga Stage 1 Environmental Impact Statement (EIS) to expand upon the evolving Biodiversity Assessment and Management. Page numbers within this document reflect page numbers of Section 4.5 of the EIS.
4.5 BIODIVERSITY ASSESSMENT AND MANAGEMENT

4.5.1 Summary
Based on the environmental risk analysis undertaken for the Project (Section 3.3) the unmitigated potential risks, consequences and impacts for biodiversity are listed in Table 4.12.

<table>
<thead>
<tr>
<th>Unmitigated Risk Source / Potential Incident</th>
<th>Potential Consequence</th>
<th>Receptor/ Surounding Environment</th>
<th>Potential Environmental Impacts</th>
<th>Unmitigated Risk Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of native vegetation due to land clearing activities</td>
<td>Removal of habitat and disturbance of threatened species</td>
<td>Vegetation within Project Site and area of influence</td>
<td>• Loss or fragmentation of existing habitats • Direct impacts upon species</td>
<td>Minor Almost Certain High</td>
</tr>
<tr>
<td>Disturbance of fauna and fauna habitat as a result of Project operations, e.g. noise, dust, introduction of weeds, fire</td>
<td>Reduction in biodiversity in surrounding habitat</td>
<td>Vegetation within Project Site and area of influence</td>
<td>• Loss or fragmentation of existing habitats • Direct impacts upon species</td>
<td>Minor Possible Medium</td>
</tr>
<tr>
<td>Disturbance of cave dwelling bats due to noise</td>
<td>Reduction in biodiversity in surrounding habitat</td>
<td>Adits</td>
<td>• Direct impact upon species</td>
<td>Minor Possible Medium</td>
</tr>
<tr>
<td>Impact on native wildlife from contaminated waters</td>
<td>Reduction in biodiversity in surrounding habitat</td>
<td>Water dams</td>
<td>• Direct impact upon species</td>
<td>Minor Possible Medium</td>
</tr>
</tbody>
</table>

Two previous independent ecological surveys were conducted within the Stage 1 Project area in accordance with the Threatened Species Assessment Guideline\(^1\) in 2013 and 2015. An additional report was completed in 2017 and the results are included in the Ecological Assessment – Addendum dated **20th September 2017** (EEA). These surveys identified:

- Two vegetation communities occur within the Stage 1 Project Area. The communities include Silvertop Stringybark grassy open forest/woodland and Tumbledown Red Gum – Caleys Ironbark shrubby open forest/woodland;

- No threatened flora species listed in the TSC Act or EPBC Act were recorded during the 2015 or 2017 assessments. Based on the habitat present, there is little likelihood of threatened flora species occurring within the project area;

- Vegetation present at the site is not characteristic of any threatened ecological communities listed in the TSC Act or EPBC Act;

- One threatened fauna species (Koala) was recorded at the site and one threatened species (Grey-Crowned Babbler) was recorded just outside of the Stage 1 Project area. A further 20 threatened fauna species are considered potential occurrences based on habitat assessment and local records; and

\(^1\) GeoLINK (2013) Review of Environmental Factors – Exploration Activities for EL 7348 July 2013
\(^2\) GeoLINK (2015) Ecological Assessment Taronga Stage 1 Development August 2015
Based on the measures to minimise habitat disturbance (as above), there will be minimal impacts to key OEH habitats and wildlife corridors both at the site and in the locality.

Overall, while the Proposal will impose a number of incremental and cumulative negative impacts, it is unlikely to result in a significant impact on any TSC Act or EPBC Act listed threatened or migratory species, endangered populations or EECs.

To minimise the impact outlined in Tables 4.12 and 4.13 on flora or fauna, the Applicant proposes a number of management controls to reduce the consequence and likelihood of environmental risk to any flora and fauna, which in summary include:

- Measures to be undertaken to minimise the level of habitat disturbance, but where necessary, alternative habitat (e.g. nesting boxes) to be provided;
- Vegetation to be retained would be clearly defined and marked prior to the commencement of site establishment to ensure that native vegetation clearing is confined only to those areas required for Project operations;
- Development and implementation of a habit removal plan;
- Noxious weeds would be controlled within the Stage 1 Project Area; and
- Establishment of a biodiversity offset area.

Following the adoption of the proposed management controls, the mitigated consequences and impacts for risks to biodiversity are listed in Table 4.13.

### Table 4.13 – Mitigated Risk Assessment for Biodiversity

<table>
<thead>
<tr>
<th>Unmitigated Risk Source / Potential Incident</th>
<th>Potential Environmental Impacts</th>
<th>Unmitigated Risk Rating</th>
<th>Mitigants</th>
<th>Mitigated Risk Rating</th>
</tr>
</thead>
</table>
| Removal of native vegetation due to land clearing activities | Loss or fragmentation of existing habitats  
Direct impacts upon species | High | • Management controls to reduce removal of habitat  
• Installation of alternative habitat | Almost certain  
Significant | Medium |
| Disturbance of fauna and fauna habitat as a result of Project operations, e.g. noise, dust, introduction of weeds, fire | Loss or fragmentation of existing habitats  
Direct impacts upon species | Medium | • Management controls to reduce removal of habitat  
• Retention of key OEH habitat and corridors  
• Establishment of bio-diversity offset | Unlikely  
Significant | Low |
| Disturbance of cave dwelling bats due to noise | Direct impact upon species | Medium | • Anabat survey of adits indicate no microbats are present and adits subsequently completely sealed. | Unlikely  
Significant | Low |
| Impact on native wildlife from contaminated waters | Direct impact upon species | Medium | • Water quality of proposed dams expected to approximate that currently found at existing dams in neighbouring properties.  
• Wildlife scarers to be employed as appropriate. | Unlikely  
Minor | Low |
The following section describes the legislative requirements, the environment both existing and applicable to the Stage 1 Project and the proposed management controls.

The information presented in this section is drawn from GeoLINK’s Ecological Assessment Taronga Stage 1 Development dated August 2015 (Appendix 5 of the EIS), GeoLINK’s Ecological Assessment – Addendum dated September 2017 (Attachment 1) and Birdwing Ecological Service’s Offset Biodiversity Assessment Report dated August 2017 (Attachment 2).

4.5.2 Biodiversity Risks and Constraints

The key risk relating to biodiversity for the Stage 1 Project identified for management is the potential to impact Threatened Species as identified from the OEH BioNet Database. A comprehensive ecological assessment was undertaken by GeoLINK Pty Ltd to meet the requirements of the following legislative requirements under the Environmental and Planning Assessment Act 1979; the Threatened Species Conservation Act 1995; Environment Protection and Biodiversity Conservation Act 1999 (EPBC) and State Environmental Planning Policy (SEPP) 44 – Koala Habitat Protection. The ecological assessment concluded that based on the sites occurrence within a relatively contiguous and well-connected forested landscape, and that none of the species assessed have specialist habitat or lifecycle requirements specific to the site, the impacts of the proposal are unlikely to be substantial.

In addition to the above, the following legislative requirements were taken into account but not were deemed not applicable to the Stage 1 Project, including National Parks and Wildlife Act 1974 (Torrington State Conservation Area is approximately 7.5km from the Stage 1 Project Area) or the NSW State Groundwater Dependent Ecosystem Policy (refer Section 4.4).

4.5.3 Biodiversity Environment

4.5.3.1 Background

The Stage 1 Project Area was subject to a previous assessment as part of proposed exploration drilling in 2013 (GeoLINK, 2013). The results of the 2013 survey together with searches of relevant databases were used as a basis for the methodology for the 2015 ecological survey and are incorporated into the ecological assessment conducted by GeoLINK in 2015 as provided in Appendix 5 in the EIS. The ecological assessment - Addendum completed in 2017 is provided as an attachment to this document.

A field survey within the Stage 1 Project Area was undertaken on 14-17 July 2015 and a biodiversity offset assessments undertaken during July 2017. During the survey, notes were made on the distribution of canopy species and their relationship to environmental characteristics including aspect, elevation, topographic position and soils; the floristics within different vegetation types; the presence of weed species and the presence of any threatened or significant flora species. The site visit involved traversing all areas of native vegetation within and adjacent to the proposed disturbance footprint, as well as areas of native vegetation within the Stage 1 Project Area which may be retained. The survey also incorporated standard survey and environmental assessment for fauna, including diurnal bird surveys and opportunistic fauna sightings; fauna meander surveys and habitat; camera traps, stag watches, spotlighting, call playbacks, microchiropteran bat surveys and Koala spot assessment surveys.

4.5.3.2 Existing Flora

Two vegetation communities occur within the Stage 1 Project Area. The communities include Silvertop Stringybark grassy open forest/woodland and Tumbledown Red Gum – Caleys Ironbark shrubby open forest/ woodland. These communities are present in a moderate condition within the development footprint due to impacts arising from previous exploration and pastoral activities within the Stage 1 Project Area. The remainder of the study area is comprised of cleared land with low conditional regrowth and occasional remnant tress from these communities. The vegetation
communities are depicted in Figure 1 of the Biodiversity Assessment Report dated August 2017 (Attachment 2), and further details are provided in Appendix 5 of the EIS.

![Figure 4.9 – Location of vegetation communities at the project area (Birdwing 2017)](image)

No threatened flora species listed in the TSC Act or EPBC Act were recorded at the site during the 2015 or 2017 assessments. Based on the habitat present, there is little likelihood of threatened flora species occurring within the project area. Vegetation present at the site is not characteristic of any threatened ecological communities listed in the TSC Act or EPBC Act.

### 4.5.3.3 Existing Fauna

Evidence of only one threatened fauna species was identified (Koala) within the project area, but further investigations in accordance with SEPP 44 found that the Stage 1 Project Area did not support core Koala habitat as nominated in the SEPP 44 definition. Therefore, significant impacts to State or federally-listed communities are unlikely as a result of the Stage 1 Project and no further consideration of Threatened flora species or Endangered Ecological Communities in relation to the provisions of the TSC Act or EPBC Act is considered necessary (refer GeoLINK 2015, and GeoLINK 2017).

A group of five Grey-crowned Babblers (GCB) were recorded in cleared/low condition regrowth vegetation just outside the Stage 1 project area. All areas of native vegetation at the site provide potential foraging and nesting habitat for this species. Family groups of GCB support home ranges typically around 10 ha, suggesting the site has potential to support the core range of several groups. Habitat of similar value within the locality is common and interconnected, hence providing a broad habitat range for GCB. Consequently the site provides only a small area of the potential habitat locally for this species and alternative available potential habitat is relatively extensive.
Furthermore, a Bio BioNet search results identified records of 16 threatened fauna species within 10 km of the site, including four species listed in the EPBC Act (refer to Table 4.14).

Table 4.14 - Threatened Fauna Recorded within 10km of the Site

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>TSC Act</th>
<th>EPBC Act</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Myuchelys bellii</em></td>
<td>Bell’s Turtle</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Anthochaera phrygia</em></td>
<td>Regent Honeyeater</td>
<td>CE</td>
<td>CE</td>
</tr>
<tr>
<td><em>Artamus cyanopterus cyanopterus</em></td>
<td>Dusky Woodswallow</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Chthonicola sagittata</em></td>
<td>Speckled Warbler</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Climacteris picumnus victoriae</em></td>
<td>Brown Treecreeper (eastern subspecies)</td>
<td>V</td>
<td>-</td>
</tr>
<tr>
<td><em>Daphoenositta chrysoptera</em></td>
<td>Varied Sittella</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Glossopsitta pusilla</em></td>
<td>Little Lorikeet</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Hieraaetus morphnoides</em></td>
<td>Little Eagle</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Lophoicinia isura</em></td>
<td>Square-tailed Kite</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Melanodryas cucullata cucullata</em></td>
<td>Hooded Robin (south-eastern form)</td>
<td>V</td>
<td>-</td>
</tr>
<tr>
<td><em>Neophema pulchella</em></td>
<td>Turquoise Parrot</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Stagonopleura guttata</em></td>
<td>Diamond Firetail</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dasyurus maculatus</em></td>
<td>Spotted-tailed Quoll</td>
<td>V</td>
<td>E</td>
</tr>
<tr>
<td><em>Falsistrellus tasmaniensis</em></td>
<td>Eastern False Pipistrelle</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Miniopterus schreibersii oceanensis</em></td>
<td>Eastern Bentwing-bat</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td><em>Phascolarctos cinereus</em></td>
<td>Koala</td>
<td>V</td>
<td>V</td>
</tr>
</tbody>
</table>

V = Vulnerable; E = Endangered; CE = Critically Endangered

PMST results identified:

- Habitat for 21 threatened fauna species within 10 km of the site.
- Habitat for 13 migratory fauna species within 10 km of the site.

OEH mapping indicates that the Stage 1 Project Area marginally impinges a section of the Grampians Range regional corridor, however, based on the extent of retained habitat locally within and adjacent to the mapped corridor area, the total values of these corridors in terms of maintaining wildlife connectivity at a regional level is unlikely to be compromised. No listed critical habitat areas are relevant to the Stage 1 Project.

4.5.3.4 Stage 1 Operations

The Stage 1 Project would involve the clearing of 3.92ha of Stringybark shrubby open forest and 1.98ha of Tumbledown Red Gum shrubby open forest. Whilst the Stage 1 Project area will marginally impinge on regional wildlife corridors, the proposal would not result in habitat fragmentation or isolation.

The clearing of vegetation would result in the contraction of habitat available to fauna including approximately 56 hollow-bearing trees, localised rock outcrops and scree slopes, and fallen timber. The Applicant intends to adopt various recommendations proposed by GeoLINK (2015) and GeoLINK
to minimise the impact of any clearing and reduce the likelihood of direct mortality/injury during such activities (Refer Appendix 5 of the EIS and Attachment 1).

Notwithstanding the Stage 1 Project is unlikely to result in a significant impact on any TSC Act or EPBC Act listed threatened or migratory species, endangered populations or EECs, the Applicant proposes to establish a offset area (refer Figure 2 of the Biodiversity Assessment Report dated August 2017 (Appendix B, Attachment 1) as detailed in a letter provided by OEH doted 23rd August 2017.

The majority of impacts would occur during the construction and establishment phases of the project and all construction activities will be governed by the Construction Environmental management Plan (CEMP). The CEMP will set out a detailed description of the sequence of the major construction activities and of the proposed management measures to be implemented to avoid or minimise the environmental impacts during the construction phase. Implementation also includes ongoing auditing, review and reporting.

![Figure 4.11 – Potential areas identified for biodiversity offset and mapped vegetation units](image)

4.5.3.5 Post Stage 1 Operations

It is intended the Stage 1 Project would provide the Applicant with the technical information required to evaluate the future exploitation of the larger mineral resource and ore reserve (Section 2.2.2). Should the decision be made not to proceed with the future exploitation of the mineral resource, then the Applicant would implement Phase 2 of rehabilitation, incorporating final site rehabilitation. Phase 2 would be undertaken in consultation with the Department of Industry (Division of Resources and Energy) in a manner consistent with the Mining Operations Plan, and taking into account the technical outcomes of Stage 1 so as not to sterilise the resource for future exploitation. In designing the Phase 2 rehabilitation program, it is recognised that the land on which the Stage 1 Project would be undertaken currently has no productive use, and has not done so for a
number of years since Lot 2 DP 1008294 was subdivided from a larger pastoral property. It has also been determined that the soil quality at the site is poor and the topography too steep to support commercial pasture or grazing activities.

4.5.3.6 Threatened Flora & Fauna Management Controls

The identified ecological values of the study area are not unique to the Stage 1 Project Area and common values of the forest/woodland adjacent to the site on the Grampians Range and throughout the broader locality. Overall, while the Proposal will impose a number of incremental and cumulative negative impacts, it is unlikely to result in a significant impact on any TSC Act or EPBC Act listed threatened or migratory species, endangered populations or EECs.

The Applicant plans to reduce the consequence and likelihood of environmental risk to local flora and fauna, which in summary includes the following:

**Measures would be undertaken to minimise the level of habitat disturbance.** The area of proposed mining, processing and waste storage has been surveyed and any notable habitat identified. To the extent possible, site establishment, construction and operations activities would be undertaken to reduce the disturbance of any notable habitat, and where not possible, alternative habitat (e.g. nesting boxes) would be provided.

**Vegetation to be retained would be clearly defined and marked prior to the commencement of site establishment to ensure that native vegetation clearing is confined only to those areas required for Project operations.** In addition to these measures it is proposed that a pre-clearance inspection would be undertaken prior to vegetation clearing to determine the presence of breeding/nesting native fauna within the disturbance area. This survey would be undertaken by inspection of trees from the ground and by searches for other evidence of nesting, particularly by threatened bird species.

**Noxious weeds would be controlled on the Project site.** Heavy off-road vehicles previously employed at other mining sites would be treated prior to be mobilised to site. Light vehicles and heavy road vehicles would be restricted to designated project roads and parking areas. Periodic monitoring of project roads for noxious weeds would be undertaken and any identified weeds treated.

**Retention of key OEH habitats and wildlife corridors.** Based on the measures to minimise habitat disturbance (as above), there will be minimal impacts to key OEH habitats and wildlife corridors both at the site and in the locality. Signs would be erected at the boundary of the regional corridor proximate to the mining and processing operations to warn personnel of the potential for fauna.

**Establishment of a biodiversity offset area.** Notwithstanding the Project is unlikely to result in a significant impact on any TSC Act or EPBC Act listed threatened or migratory species, endangered populations or EECs, the Applicant proposes to establish a biodiversity offset area. A Biodiversity Offset Report (Attachment 2) has been undertaken and two areas within Lot 2 DP 1008294 identified.

**Development and Implementation of a habitat removal plan** An ecologist/wildlife carer will be present during Stage 2 clearing. Each habitat tree cleared should be assessed after felling and the number and size of hollows recorded. This information will be utilised in determining replacement ratios for nest boxes (refer below) to ensure there is no net loss of hollows. Stag-watches would be undertaken where the subject hollow-bearing tree/s are unable to be felled slowly and the subject tree provides good potential nesting/denning/roosting opportunities for threatened species. The need for stag watches would be determined by the ecologist/wildlife carer involved in the clearing and following discussions with the clearing contractor/personnel. Should threatened hollow-obligate species be present, an ecologist would provide advice on appropriate actions to minimise the risk of adverse impacts.