



Office of
Environment
& Heritage

Your reference: DA 14/98 MOD 14
Our reference: DOC18/226271
Contact: Miranda Kerr
Ph 02 6022 0607
Date: 11 May 2018

Mandana Mazaheri
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Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Via email: mandana.mazaheri@planning.nsw.gov.au

Dear Ms Mazaheri

RE: Cowal Gold Mine Mod 14 (DA 14/98 MOD 14) – Exhibition of Environmental Assessment

I refer to your email dated 12 April 2018 seeking comment from the Office of Environment and Heritage (OEH) about the Environmental Assessment (EA) for the Cowal Gold Mine in the Bland Local Government Area.

We have reviewed the exhibited EA against the Secretary's Environmental Assessment Requirements (SEARs) provided by the Department of Planning and Environment (DPE) to the proponent on 17 November 2017.

OEH considers that the EA **does** meet the Secretary's requirements for biodiversity and Aboriginal cultural heritage assessment (ACH), contingent on the applicant addressing issues 1 to 11 identified in **Attachment A**.

A summary of our assessment, advice and recommended conditions of approval is provided in **Attachment A**. Detailed comments are in **Attachment B**.

On 6 November 2017, a delegate for the Commonwealth Minister for the Environment and Energy determined that the project (EPBC 2018/EPBC 2017/7989) is a "controlled action" under *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to listed threatened species and communities (Sections 18 and 18A).

Attachment C includes the OEH assessment of Commonwealth matters of national environmental significance protected by the EPBC Act, in accordance with the Bilateral Agreement.

All plans required as a Condition of Approval that relate to flooding, biodiversity or ACH should be developed in consultation and to the satisfaction of OEH, to ensure that issues identified in this submission are adequately addressed.

If you have any questions regarding this matter, please contact Miranda Kerr on (02) 6022 0607 or email miranda.kerr@environment.nsw.gov.au.

Yours sincerely

ANDREW FISHER
A/Senior Team Leader Planning
South West Branch
Regional Operations
Office of Environment & Heritage

ATTACHMENT A – OEH assessment summary for Cowal Gold Mine Mod 14 Environmental Assessment (DA 14/98 MOD 14)
ATTACHMENT B – Detailed comments for Cowal Gold Mine Mod 14 Environmental Assessment (DA 14/98 MOD 14)
ATTACHMENT C – OEH assessment of EPBC Act-listed threatened species and communities for Cowal Gold Mine Mod 14
Environmental Assessment (DA 14/98 MOD 14)

ATTACHMENT A OEH assessment summary for Cowal Gold Mine Mod 14 Environmental Assessment (DA 14/98 MOD 14)

Key Issues

1	<i>Issue</i>	<p>The FBA requires additional details about avoidance, mitigation and management measures to be included in the BAR and BOS. A consolidated list of commitments has been provided in the EA (Section 7) but it lacks specific details required by the FBA.</p> <p>Existing Cowal Gold Operations (CGO) management plans contain some of this detail.</p> <p>OEH recommend consolidation of biodiversity-related mitigation and monitoring measures into a form that is clear and transferrable to existing management plans.</p>
	<i>Extent and Timing</i>	Pre-construction
	<i>Recommended condition of approval:</i>	<ul style="list-style-type: none"> • <i>OEH require the following details for each mitigation action to ensure that mitigation and management actions are carried out at the appropriate time:</i> <ul style="list-style-type: none"> – <i>who will be responsible for individual actions (including the position title of the officer responsible)</i> – <i>outcome or measure of success</i> – <i>triggers for an alternative action</i> – <i>when the action will be completed</i> – <i>identification of the existing plan that will be updated to include each action.</i> <p><i>These details should be completed before the start of construction to clearly identify the proponent's commitments for management and mitigation. Each action should be individually identifiable to allow their inclusion in the various construction and operational management plans.</i></p>

2	<i>Issue</i>	Avoidance, mitigation and management measures in the BAR and BOS potentially impact current actions in existing biodiversity-related management plans and protocols, including the Compensatory Wetland Management Plan (CWMP) and Land Management Plan (LMP).
	<i>Extent and Timing</i>	Pre-construction
	<i>Recommended Condition of Approval</i>	<ul style="list-style-type: none"> • <i>Revise relevant Cowal Gold Operation management plans and protocols to include commitments in the BAR and BOS that are agreed with OEH.</i>

3	<i>Issue</i>	Detailed measures to manage disturbance to the Compensatory Wetland Area due to the Modification must be identified and included in the Modification construction management plan.
	<i>Extent and Timing</i>	Pre-construction
	<i>Recommended Condition of Approval</i>	<ul style="list-style-type: none"> • <i>Specify mitigation and monitoring measures to be implemented within the Compensatory Wetland Area in accordance with the BAR and Compensatory Wetland Management Plan.</i>

4	Issue	<p>Changes are proposed to reporting and monitoring methods for assessing fauna interaction with the final void.</p> <p>OEH require more information about how the fauna death monitoring has been analysed to ensure that the objectives of the monitoring and outcomes are being met and the proposed changes are in accordance with the conditions of development consent.</p> <p>We recommend an analysis of the fauna death data collected to date along with potential impacts from Mod 14 to provide evidence for streamlining reporting of fauna deaths. This could be in the context of a review of the Flora and Fauna Management Plan, or as a stand-alone study</p>
	Extent and Timing	Pre-construction

5	Issue	<p>Annual monitoring for Austral Pillwort (<i>Pilularia novae-hollandiae</i>) (Endangered, BC Act) is proposed to be discontinued.</p> <p>OEH do not agree that annual monitoring of Austral Pillwort can be discontinued without review of the program and consultation. Austral Pillwort is a <i>site-managed species</i> within the NSW government Saving Our Species program. Lake Cowal is one of two management sites where conservation activities need to take place to ensure conservation of this species</p>
	Extent and Timing	Pre-construction
	Recommended condition of approval	<ul style="list-style-type: none"> OEH coordinate a review of the Austral Pillwort monitoring project to identify potentially redundant effort and ensure future targeted survey or actions for the species contribute to the SOS program.

6	Issue	<p>BioBanking Credit Calculator reports for the Offset Areas in Attachments F1, F2, F3 and F4 are out of date and do not match the BOS or the BioBanking Credit Calculator.</p> <p>The Flora and Fauna Study in BAR/BOS Attachment A uses different labels for the Offset Areas to those presented in the BOS</p>
	Extent and Timing	Pre-determination
	Recommended Action	<ul style="list-style-type: none"> The BioBanking Credit Calculator reports at Attachment F must be updated to reflect the proposals in the BioBanking Credit Calculator and as presented in the BAR/BOS. The BOS requires a table at the start and/or addition to Table 28 showing the correlation between the Offset Area numbering and the Study Area labels used by AMBS in their 2017 Biodiversity Offset Investigation.

7	Issue	The BAR footprints are indicative.
	Extent and Timing	Pre-construction
	Recommended Condition of Approval	<ul style="list-style-type: none"> Any vegetation clearing required for the final development footprint that is additional to the BAR/BOS must be assessed in accordance with the FBA.

8	<i>Issue</i>	Conditions of development approval relating to the retirement of credits associated with this project must be consistent with the NSW biodiversity offsets policy for major projects.
	<i>Extent and Timing</i>	Pre-determination

9	<i>Issue</i>	Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP)
	<i>Extent and Timing</i>	Pre-construction
	<i>Recommended Action</i>	<ul style="list-style-type: none"> Updating of the approved IACHMP with information on the sites recorded current assessments, and amended as necessary to accommodate any legal instruments (AHIP or Care Agreements)

10	<i>Issue</i>	There is no Unanticipated finds protocol for Aboriginal cultural heritage
	<i>Extent and Timing</i>	Pre-determination
	<i>Recommended Action</i>	<ul style="list-style-type: none"> The EA must include an Unanticipated finds protocol for Aboriginal cultural heritage

11	<i>Issue</i>	An Aboriginal Heritage Impact Permit must be issued by OEH prior to any harm occurring to any Aboriginal objects within the modification area
	<i>Extent and Timing</i>	Pre-construction
	<i>Recommended Condition of Approval</i>	<ul style="list-style-type: none"> No harm can occur to any Aboriginal objects within the modification area unless an Aboriginal Heritage Impact Permit (AHIP) has been issued by OEH

OEH Advice

- | | | |
|------------|---|------------|
| 1.1 | Is the 'baseline' for impact assessment reasonable? | Yes |
| 1.2 | Are predictions of impact robust (and conservative) with suitable sensitivity testing? | Yes |
| 1.3 | Has the assessment considered how to avoid and minimise impacts? | Yes |
| 1.4 | Does the proposal include all reasonably feasible mitigation options? | Yes |
| 2. | Is the assessed impact acceptable within OEH's policy context? | Yes |
| 3. | Confirmation of statements of fact | |

All statements of fact are correct

- 4. Elements of the project design that could be improved**

None

ATTACHMENT B Detailed comments for Cowal Gold Mine Mod 14 Environmental Assessment (DA 14/98 MOD 14)

Aboriginal cultural heritage

OEH has undertaken a limited assessment of the archaeological report produced by Niche Environment and Heritage *Cowal Gold Operations Processing Rate Modification Environmental Assessment 2018: Appendix D Aboriginal cultural heritage assessment*. The EA recommends either an AHIP variation or a new application so a detailed review would be undertaken as part of the application process under s90K of *National Parks and Wildlife Act 1974* (NPW Act). This OEH assessment focuses on the recommendations in relation to statutory requirements, and is not a fine scale technical review.

OEH concurs with the following recommendations:

1. Updating of the approved CHO Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP) to incorporate the current assessment results (but only in so much as it does not create a conflict with any variations to existing AHIPS, or with a new one)
2. All new sites need to be reported to OEH in the prescribed format – being Aboriginal Heritage Information Management System (AHIMS) site cards in fulfilling requirements of s89A of the Act
3. The oven sites (Lake Cowal 2017-057, Lake Cowal 2017-030, Lake Cowal 2017-012, Lake Cowal 2017-025 and Lake Cowal 2017-037) should be excavated and dated prior to disturbance
4. Salvage excavation should occur at sites Lake Cowal 2017-057, Lake Cowal 2017-036 and Lake Cowal 2017-023 prior to development
5. ACH values should be properly assessed via relevant methods: residue, dendrochronology, use wear, and absolute dating
6. A procedure for discovery of human remains

Other recommendations in the ACHA concern either variation to the existing AHIPs, or application of a new one.

OEH provides the following advice in relation to recommendations around variation to existing Permits (s87 NPW Act) and Consents (s90 NPW Act). This advice was also provided to Evolution Mining via email on 06/04/18 and also during a meeting with OEH on 10/04/18:

1. Variation: Under section 90D of the NPW Act a variation to an existing AHIP would not be appropriate where:
 - a. the proposal increases geographic extent outside of what was originally assessed
 - b. the proposal will, or may, result in increase to harm of Aboriginal objects or places beyond what was originally assessed and approved
 - c. the proposal increases either geographic extent, or increases harm to Aboriginal objects outside of what was originally consulted on with the Registered Aboriginal Parties at the time of approval

NOTE: OEH reserves the right to refuse variations on pre-2010 legislative reform instruments (NPW Act 1974).
2. New AHIP:
 - a. a new AHIP may be sought for the expanded area. This would be independent of the existing consents and permits.
 - b. a new AHIP may be applied for to cover the entire activity area making previous permits and consents redundant (OEH preferred option)

Regardless of whether it is a variation, or a new AHIP to cover the Mod 14 area, the consultation needs to be in accordance with Part 6 of the NPW Act, s80C of the *National Parks and Wildlife Regulations 2009* and the 'Aboriginal Cultural Heritage consultation requirements for proponents' (OEH 2010). It is noted by OEH that a comprehensive consultation program has already been

undertaken as part of this project (Appendix 1), and that this may be in accordance with requirements and support an AHIP application, or a variation.

The EA does contain a recommendation for a contingency should human skeletal material be found, but does not contain an unanticipated finds protocol. This disparity needs to be remedied.

Consideration should be given to requirements for a Care Agreement (s90 NPW Act) and long-term management of salvaged Aboriginal objects.

The approved CHO Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP) must be updated to include information on the sites recorded during this assessment, and amended as necessary to accommodate the recommendations.

The EA meets the Secretary's requirements for Aboriginal cultural heritage assessment.

Recommended actions:

- *Updating of the Indigenous Archaeology and Cultural Heritage Management Plan IACHMP with information on the sites recorded current assessments, and amended as necessary to accommodate any legal instruments (AHIP or Care Agreements)*
- *OEH requires an Unanticipated finds protocol to be developed. The following protocol is recommended:*
 - *If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must:*
 1. *Not further harm the object*
 2. *Immediately cease all work at the particular location*
 3. *Secure the area so as to avoid further harm to the Aboriginal object*
 4. *Notify OEH as soon as practical on 131555, providing any details of the Aboriginal object and its location*
 5. *Not recommence any work at the particular location unless authorised in writing by OEH.*

In the event that skeletal remains are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and OEH contacted.

Recommended condition of development consent:

- *No harm can occur to any Aboriginal objects within the modification area unless an Aboriginal Heritage Impact Permit (AHIP) has been issued by OEH*

Biodiversity

The Biodiversity Assessment Report (BAR) and Biodiversity Offset Strategy (BOS) have been assessed against minimum requirements listed in Tables 20–22 (Appendix 7) of the Framework for Biodiversity Assessment (FBA).

The EA meets the Secretary's requirements for biodiversity assessment.

It requires additional work, particularly to update BioBanking reporting requirements and provide more detail about mitigation and management actions.

We commend the proponent on a thorough field survey component and for planning the program to ensure targeted survey is undertaken during the appropriate month. We also appreciate the use of ecological expertise to include assessment of species that occur on the site but were not identified by the OEH BioBanking Credit Calculator.

1.2 BAR Footprints

We note that the BAR footprints are indicative.

Recommended condition of development consent:

- *Any vegetation clearing required for the final development footprint that is additional to the BAR/BOS must be assessed in accordance with the FBA.*

2.2.1 Plant Community Types

OEH understand that it may be unwieldy for the BAR to refer to the NSW Plant Community Types (PCTs) when the BioBanking Credit Calculator uses Biometric Vegetation Types (BVTs). However, BVTs have been phased out and any future assessments or auditing of Offset Areas will use PCTs. The EPBC Act bilateral assessment undertaken by OEH on behalf of the Commonwealth also requires reporting by PCT.

Corresponding PCTs have been added to tables in most tables in Sections 2 and 3 but generally not in Section 4.

Recommended action:

- *Include PCT numbers in Table 10, 14, 19, 28, 29, 30 and 31.*

4 STAGE 2 – Impact Assessment

Maps listed in Table 21 (FBA Appendix 7, page 102) as required for the Impact Summary is section have not been individually included. While the information is included in earlier parts of the BAR, providing the required maps would be helpful given there are two assessment areas.

4.1.1 Measures to avoid and minimise impacts (page 59)

The FBA requires a table of measures to avoid and minimise the impacts of the project, to be implemented before, during and after construction, including action, outcome, timing and responsibility (Table 21, page 102).

As discussed in this section, mitigation measures in existing Cowal Gold Operations management plans and protocols are applicable to the Modification. There are a number of interrelated and potentially overlapping management plans that are shown on page 13 of the Cowal Gold Operations Environmental Management Strategy 2014, available from the Evolution Mining website (evolutionmining.com.au/wp-content/uploads/2015/07/Environmental-Management-Strategy.pdf).

Section 7 of the EA has a consolidated summary of environmental management and monitoring measures that does not provide the required detail.

Recommended action:

- *OEH require the following details for each mitigation action to ensure that mitigation and management actions are carried out at the appropriate time:*
 - *who will be responsible for individual actions (including the position title of the officer responsible)*
 - *outcome or measure of success*
 - *triggers for an alternative action*
 - *when the action will be completed.*

These details should be completed before the start of construction to clearly identify the proponent's commitments for management and mitigation. Each action should be individually identifiable to allow their inclusion in the various construction and operational management plans.

4.1.2 Direct Impacts & measures to avoid and minimise impacts

4.1.2.1 Land clearance – CGO Compensatory Wetland (page 62)

The BAR lists measures from the CGO Compensatory Wetland Management Plan (CWMP) that may be used to manage disturbance to the Compensatory Wetland area due to the modification. OEH agree that the measures are appropriate but recommend a stronger commitment to specific measures to ensure continued improvement in condition of the Compensatory Wetland Area and to meet the requirements of Condition 3.10(A)(ii) of the development consent.

Actions mentioned in BAR Section 4.1.4 (page 68) are also appropriate and should be applied to any area of disturbance within the Compensatory Wetland area. Activities must avoid increasing the likelihood of failure of enhancement measures currently underway.

Specific measures to be implemented in the Compensatory Wetland Area should include, but not be limited to:

- Limiting vehicular access to the Compensatory Wetland area according to Section 6.1.6 (page 21) of the CWMP.
- Weed control as per CWMP section 7.2 (page 29) and Section 6 of the Land Management Plan or relevant update in LMP Addendum 2015.
- Prevention of weed establishment and spread by ensuring vehicle hygiene measures for any earthworks machinery brought in for the works (LMP Section 6.4 page 25).
- Increased monitoring in the 12 months following construction to prevent weed establishment, including monthly inspections for erosion, sedimentation, slumping, weeds establishment and weed control following details mentioned in Section 4.1.4 (page 68).

Recommended action:

- *Specify mitigation and monitoring measures to be implemented within the Compensatory Wetland Area in accordance with the BAR and Compensatory Wetland Management Plan.*

4.1.3 Indirect Impacts and Measures to Avoid and Minimise Impacts

4.1.3.1 Fauna interaction with the integrated waste landform (page 65)

The EA proposes changes to the reporting of fauna deaths. OEH require more information about how the fauna death monitoring has been analysed to ensure that the objectives of the monitoring and outcomes are being met and the proposed changes are in accordance with the conditions of development consent.

Recommended action is provided below (EA Section 3.15.2).

4.1.4 Impacts on Landscape Features that Require Further Consideration

OEH agree that any impacts to the state significant biodiversity link will be minimised by filling the excavated channel, followed by monthly monitoring for weed establishment and erosion/sedimentation issues, and corrective actions if detected.

Recommended action:

- *Include mitigation actions described in Section 4.1.4 in the LMP or updates.*

4.1.5 Cumulative Impacts

The total offset including existing areas has been provided but not the accumulated area of native vegetation and fauna habitat clearing for the Cowal Gold Operation (page 69).

4.4 Summary of the impact avoidance and mitigation measures

OEH generally support the avoidance and mitigation measures in Table 24 (page 76). More details are required to meet the requirements of the FBA, as discussed for Section 4.1.1 above.

Austral Pillwort monitoring

The BAR states that annual monitoring for Austral Pillwort (*Pilularia novae-hollandiae*), listed as endangered under the *Biodiversity Conservation Act 2016*, will be discontinued.

OEH do not agree that annual monitoring of Austral Pillwort can be discontinued on the basis that monitoring since 2012, including the current survey, has not detected the species. There is potentially over 20 years of survey and monitoring data (1995 – 2018) so a comprehensive review of the monitoring program is due.

Austral Pillwort is a *site-managed species* within the NSW Government Saving Our Species program. That means that it requires site-based management to secure it from extinction in NSW for 100 years. Lake Cowal is one of two management sites where conservation activities need to take place to ensure conservation of this species. More information can be found on the OEH website www.environment.nsw.gov.au/savingourspeciesapp/Project.aspx?results=c&ProfileID=10628.

Recommended action:

- *Evolution Mining to provide all references related to Austral Pillwort to OEH for review, including unpublished monitoring reports and data.*
- *OEH coordinate a review of the Austral Pillwort monitoring project to identify potentially redundant effort and ensure future targeted survey or actions for the species contribute to the SOS program.*
- *Survey for Austral Pillwort must be included in assessments for any future development applications.*

Biodiversity Offset Strategy (BOS)

The BOS has been prepared in accordance with the FBA and the NSW Offset Policy and the proposed offset strategy is appropriate. Revisions and updates to the strategy must be agreed with OEH.

BioBanking Credit Calculator reports for the Offset Areas in Attachments F1, F2, F3 and F4 are out of date and do not match the BOS or the BioBanking Credit Calculator. The Flora and Fauna Study in BAR/BOS Attachment A uses different labels for the Offset Areas to those presented in the BOS.

Recommended Action:

- *The BioBanking Credit Calculator reports at Attachment F must be updated to reflect the proposals in the BioBanking Credit Calculator and as presented in the BAR/BOS.*
- *The BOS requires a table at the start and/or addition to Table 28 showing the correlation between the Offset Area numbering and the Study Area labels used by AMBS in their 2017 Biodiversity Offset Investigation.*
- *Conditions of development approval relating to the retirement of credits associated with this project must be consistent with the NSW biodiversity offsets policy for major projects.*

5.2.7 Management of the proposed offset areas (page 93)

As far as OEH are aware, to date there has been no independent audit of the change in biodiversity values and site condition at the existing CGO Offset Areas. Management of the proposed offset areas to achieve the improvement in site condition required at a BioBank site may be different to that currently employed by Evolution Mining at the CGO Offset Areas.

Environmental Assessment Report

3.15.2 Clarification of Reporting of fauna Deaths (page 3-17)

OEH generally support the streamlining of monitoring and reporting by the proponent. Section 3.15.2 proposes to modify Development Consent condition 3.2(b) and the Flora and Fauna Management Plan to focus reporting only on cyanide-related native fauna deaths.

While consent condition 3.2 does have a focus on impact of the tailings dam on native fauna, OEH need to be sure that fauna deaths from other potential impacts will not be inadvertently overlooked because of the proposed changes. The purpose of this reporting is to determine if deaths are attributable to activities on the site and to implement contingency measures if impacts are occurring.

Recommended Action:

- *An analysis of the fauna death data collected to date along with potential impacts from Mod 14 to provide evidence for streamlining reporting of fauna deaths. This could be in the context of a review of the Flora and Fauna Management Plan, or as a stand-alone study.*

7 Consolidated summary of environmental management and monitoring measures (p7-1)

Recommended Action:

- *Existing CGO management plans must be updated to include commitments in the BAR and BOS.*

ATTACHMENT C OEH assessment of EPBC Act-listed threatened species and communities for Cowal Gold Mine Mod 14 Environmental Assessment (DA 14/98 MOD 14)

1. Identifying MNES

(a) **Confirm** whether all the EPBC Act-listed threatened species and communities that occur on the project site, or in the vicinity are identified in the EIS. Note which species and/or communities have not been identified. *The Commonwealth has provided NSW with referral documentation which includes a possible list of MNES recorded on and within the vicinity of the project site generated from the Environmental Reporting Tool (ERT Report). If you do not have the referral documentation contact the DP&E assessment officer.*

Reports from the EPBC Act Protected Matters Search Tool (PMST) were generated on 9 May 2018 for the mine site and pipeline development footprints (**Attachments C1 and C2**). All EPBC Act-listed threatened species and communities that were identified by the PMST reports to occur on the project site, or in the vicinity, have been identified in the EA.

(b) **Comment** on whether the Framework for Biodiversity Assessment (FBA) has been applied to all EPBC Act-listed threatened species and communities that occur on the project site or in the vicinity.

The Framework for Biodiversity Assessment has been applied to all EPBC Act-listed threatened species and communities that occur on the project site or in the vicinity.

(c) In the circumstance where there are EPBC Act-listed species that are not addressed by the FBA (i.e. migratory species) **comment** on whether these species have been assessed in accordance with the SEARs and provide references to where the assessment information is detailed in the EIS.

All EPBC Act-listed species have been addressed by the FBA.

(d) **Verify** that the proponent has expressed a statement about the potential impact i.e. likely significant, low risk of impact, not occurring, for each listed threatened species and community protected by the EPBC Act referred to in 1(a). Note which species and/or communities have not been addressed in this manner.

The potential impact on each EPBC Act-listed threatened species or community found within the mine site footprint is stated in Appendix C Section 2.3.9 (page 37). The potential impact on EPBC Act-listed threatened species or community recorded from the pipeline footprint is in Section 3.3.7 (page 55).

Appendix C Section 4.2 (p 69-75) provides a consolidated impact statement for Grey Box EEC, Weeping Myall Woodland EEC and Superb Parrot, including assessment against the MNES Significant Impact Guidelines.

(e) **Identify** where further information from the proponent is critical to the assessment of MNES particularly in relation to mapping Table 1 (A), analysis of impacts Table 1 (F) and Table 2 (F), avoidance, mitigation and offsetting, and 6.

No additional information is critical to the assessment

2. Assessment of the relevant impacts

All EPBC Act-listed species and/or communities that the Commonwealth consider would be significantly impacted (as noted in the referral documentation) should be assessed and offset. These are referred to as relevant impacts. *If you do not have the Commonwealth's referral brief contact the DP&E assessment officer.*

(a) **Verify** [by ticking the following boxes]:

- ☒ the nature and extent of all the relevant impacts has been described
- ☒ measures to avoid and mitigate have been described
- ☒ an appropriate offset for any residual adverse significant impact has been determined. *Note an offset is appropriate if calculated by the FBA and provides an offset specifically for the entity impacted.*

(b) **Note** if information in relation to any of these boxes has not been provided for any relevant EPBC Act-listed species and communities.

Descriptions of avoidance and mitigation measures have been provided and are adequate. In general, the following additional details for mitigation and offset management actions relating to the Grey Box EEC and habitat for Superb Parrot have not been included in the EA:

- who will be responsible for individual actions (including the position title of the officer responsible)
- outcome or measure of success
- triggers for an alternative action
- when the action will be completed.

Details of existing monitoring and management actions at Cowal Gold Mine are in the Land Management Plan, Biodiversity Offset Management Plan, Rehabilitation Management Plan, Compensatory Wetland Management Plan and Flora and Fauna Management Plan (Appendix C, Table 22, p51).

(c) There may be listed threatened species and communities for which the proponent will claim that the impact will be **not** significant in accordance with the *EPBC Act Significant Impact Guidelines*. Please **provide** advice for cases where OEH disagrees with this finding. *Note that generally the Commonwealth will not accept that a species determined to be significantly impacted at the referral decision stage is not likely to be significantly impacted unless strong evidence can be provided.*

OEH agrees with the proponent's findings regarding significance of impacts.

(d) Provide references to where specific lists or tables are detailed in the EIS i.e. *List of EPBC Act-listed EECs Appendix J Table 4 pg 65*

The following tables and report sections include information about likelihood of presence of entities and impacts.

Mine Site:

- Threatened Ecological Communities in the BAR Footprint Associated with the Mine Site. Appendix C, Table 3, page 18
- Threatened (Species Credit) Species Habitat Features - BAR Footprint Associated with the Mine Site. Appendix C, Table 5, page 20
- Threatened (Species Credit) Species Survey Timing - BAR Footprint Associated with the Mine Site. Appendix C, Table 6, page 21.
- Ecosystem Species from the OEH Biobanking Credit Calculator - BAR Footprint Associated with the Mine Site. Appendix C, Table 9, page 31
- EPBC Act Threatened Species and Communities for the Mine Site. Appendix C, S2.3.9, page 37

Pipeline duplication

- Threatened Ecological Communities in the BAR Footprint Associated with the Pipeline Duplication. Appendix C, Table 14, page 48
- Threatened (Species Credit) Species Habitat Features - BAR Footprint Associated with the Pipeline Duplication. Appendix C, Table 16, page 50
- Threatened (Species Credit) Species Survey Timing - BAR Footprint Associated with the Pipeline Duplication. Appendix C, Table 17, p52
- Ecosystem Species from the OEH Biobanking Credit Calculator – BAR Footprint Associated with the Pipeline Duplication. Appendix C, Table 18, p53
- Vegetation Zones and Predicted Threatened Species - BAR Footprint Associated with the Pipeline Duplication. Appendix C, Table 19, p54
- Relevant Species Credit Species (Associated with the Pipeline Duplication). Appendix C, Table 20, p54
- EPBC Act Threatened Species and Communities (Associated with the Pipeline Duplication). Appendix C, s3.3.7, p5

Complete footprint

- Vegetation clearance summary. Appendix C Table 23, p64.
- **EPBC Act threatened species and communities. Appendix C, Section 4.2, p69**
- List of threatened and migratory fauna recorded in the study area, Appendix C, Appendix A, Table 3.5, p45
- Likelihood of threatened flora occurrence Appendix C, Appendix A, Appendix D, p65

3. Avoid, mitigate and offset

Comment on whether or not the EIS identifies measures to avoid and minimise impacts on the relevant EPBC Act-listed threatened species and communities. Section 8 of the FBA requires that proponents detail these efforts and commitments in the EIS. Identify gaps in the discussion on measures to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS.

Relevant EPBC Act-listed threatened species and communities are Weeping Myall Woodland EEC, *Grey Box* (*Eucalyptus microcarpa*) *Grassy Woodlands and Derived Native Grasslands of South-east Australia* EEC (Grey Box EEC) and Superb Parrot.

Section 4 of the BAR is generally consistent with Subsection 8.3.2 of the FBA.

Section 4.1 (page 59) includes measures to avoid and minimise direct and indirect impacts. Table 22 (page 59) describes existing measures in general terms with reference to the existing various management plans required by conditions of consent for the mining operation. Some of these plans have been recently reviewed by OEH. The discussion includes use of existing biodiversity monitoring results at CGO to support the assessment.

Section 4.1.2 states that siting and layout of the proposed Modification included avoidance of areas with known biodiversity values (App C, page 61). Additional impact avoidance and mitigation measures for Mod 14 are provided in Table 24 (page 76) that are not specific to MNES. Table 24 includes measures during the design phase, addition to the vegetation clearance protocol for the construction phase and operational measures.

Measures to avoid and minimise impacts to the Grey Box EEC are in accordance with the Approved Conservation Advice for the Grey Box (*Eucalyptus microcarpa*) *Grassy Woodland and Derived Native Grasslands of South-east Australia* (DEWHA 2010), mainly through siting of the proposal in previously disturbed land. According to SPRAT, no Threat Abatement Plan is relevant for this EEC and there is no adopted or made Recovery Plan.

Comment on the adequacy and feasibility of measures to avoid and minimise impacts. Identify inadequacies where further efforts could be made to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS that discuss avoidance and mitigation measures relevant to EPBC Act-listed species and communities.

The analysis of measures to avoidance and minimise impacts on Weeping Myall Woodland EEC, Grey Box EEC and Superb Parrot is detailed in App C, Section 4.2, pages 69 to 75. The assessment is adequate.

4. Offsetting

(a) **Verify** [by ticking the following boxes] that the offsets proposed to address impacts to EPBC-listed threatened species and communities are in accordance with the requirements under the EPBC Act.

- ☒ An appropriate offset for any residual adverse significant impact has been determined.
- ☒ Proposed offsets for EECs provide a like for like outcome i.e. proponents have identified PCTs attributed to the specific threatened ecological community being impacted
- ☒ Proposed offsets have been determined using the FBA

If offsets have not been determined in accordance with the FBA, Planning is required to discuss the proposed approach with the Commonwealth as soon as possible.

5. Comment on whether the information and data relied upon for the assessment have been appropriately referenced in the EIS. Comment on the validity of the sources of information and robustness of the evidence.

The list of references used for supporting the BAR/BOS and appendices (AMBS 2018a and 2018b) includes long-term monitoring reporting and previous studies undertaken by environmental consultants considered by OEH to be reliable. The AMBS flora and fauna studies (2018a, 2018b) include a thorough review of existing knowledge and relevant databases. The biodiversity survey was appropriately timed and in accordance with the stated survey guidelines.

References:

AMBS Ecology & Heritage (2018a) *Cowal Gold Operations Processing Rate Modification - Flora and Fauna Survey Report*. Prepared for Evolution Mining (Cowal) Pty Limited. Australian Museum Business Services, Sydney.

AMBS Ecology & Heritage (2018b) *Cowal Gold Operations Processing Rate Modification – Biodiversity Offset Investigation*. Prepared for Evolution Mining (Cowal) Pty Limited. Australian Museum Business Services, Sydney.

Department of the Environment, Water, Heritage and the Arts (2010) *Approved Conservation Advice for the Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-east Australia*. Department of the Environment, Water, Heritage and the Arts, Canberra.

Table C-1 Impact Summary Relevant EPBC Act – listed Ecological Communities (refer to section 3)

A	B	C	D	E		F	G
EPBC Act -listed EEC	Y/N	PCTs	Y/N comment	Ha	Credits	Comment	Relevant page numbers in the EIS
Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Yes	PCT 82: Inland Grey Box - Poplar Box - White Cypress Pine tall woodland on red loams mainly of the eastern Cobar Penneplain Bioregion (semi-cleared in moderate condition = 6.5 ha, derived grassland in low condition = 5 ha)	Yes	11.5	816* (part)	Analysis of nature and extent of direct and indirect impacts in App C, Section 4.2 (p70) is adequate. No further information is required.	App C, Section 4.2, p70 App C, Table 25, p77. Community description App C, App A, s3.1.3, page 27 TEC allocation App C, App A, s3.1.5, page 33
Weeping Myall Woodlands	Yes	PCT26: Weeping Myall open woodland of the Riverina and NSW South Western Slopes Bioregions (semi-cleared in moderate condition)	Yes	1.5	109* (part)	Nature and extent of direct and indirect impacts is given in App C, Section 4.2 (p72-73) and is appropriate given the EEC will be cleared. No further information is required.	App C, Table 25, p77. App C, Section 4.2, p72-3 App C, Table 21, p58 Community description App C, App A, s3.1.3, page 24 TEC allocation App C, App A, s3.1.5, page 35

* The credit requirement for EPBC Act-listed EECs has not been separated from BC Act-listed EEC credit requirement in App C, Table 25 (p77). The actual credit requirement will be a proportion of this figure.

- (A) **List** the relevant EPBC Act listed ecological communities that will be significantly impacted in accordance with the referral documentation.
- (B) **Verify** that there is evidence in the EIS that listed EEC and species habitat has been mapped in accordance with relevant listing guidelines (Yes/No).
Proponents are required by the SEARs to ensure that EPBC-listed communities are mapped in accordance with EPBC Act listing criteria. It is important that any derived native grassland components of an EPBC listed EEC are included in the mapping of native vegetation extent.
- (C) **List** the Plant Community Types (PCTs) associated with the ecological communities in accordance with Chapter 5 of the FBA.
- (D) **Confirm** that the identification of PCTs has been correct (Yes/No) and comment if not correct.
- (E) **Record** the area of impact (ha) and credits required.
- (F) **Comment** on the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the EEC. Note whether further information might be required.
- (G) **Cite** relevant page numbers for details provided the EIS and Appendices for each EEC.

Table C-2 Impact Summary Relevant EPBC Act – listed Species (refer to section 4)

A	B	C	D	E		F	G
Threatened species (listed under the EPBC Act)	Credit Type (SC/EC)	Record PCTs associated with ecosystem credits	Y/N Comment	Ha (total sp. habitat)	Credits (total sp. habitat)	Comment	Page no. in EIS & App
Superb Parrot (<i>Polytelis swainsonii</i>)	Dual Species Credit / Ecosystem Credit	PCT 249 River Red Gum Forest (<i>River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW</i>)	Y	0.4	7	Recorded in pipeline footprint. Assessment and analysis of impacts in App C, Section 4.2 (p73) is appropriate and includes direct and indirect impacts (also in s4.1.2 and 4.1.3).	App C, Section 4.2, p73. Pipeline: App C, Section 3.3.4, p54 Mine site: App C, S2.3.5-66, p36 EA App C, App A, page 65 (Appendix E)

- (A) **List** the relevant threatened species that will be significantly impacted in accordance with the referral documentation.
- (B) **Record** whether the relevant threatened species is classified as “species credit species” of ecosystem credit species for the purposes of the FBA.
- (C) **List** the PCTs associated with the ecosystem credit species.
- (D) **Verify** that the habitat polygons for MNES have been mapped appropriately representing the foraging and/or breeding habitat for the species that will be impacted by the development.
- (E) **Record** the area of impact (ha) and credits required. For impacts associated with ecosystem credit species identify the total credit requirements associated with the cleared PCTs identified as habitat for the species.
- (F) **Comment** on the adequacy of the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the species. Note if further information is required.
- (G) **Cite** relevant page numbers for details provided in the EIS and Appendices for each threatened species.

Table C-3 Summary of Offset Requirements

A	B	C	D	E	F
Threatened species or EEC (listed under the EPBC Act)	Credits required as calculated by the FBA	Credits generated from offsets in remnant vegetation	Credits generated from offsets proposed by other means	Comment on the proposed offsets.	Page no. in EIS & App
Superb Parrot (<i>Polytelis swainsonii</i>)	7	96	n/a	Proposed Offset Area 3 has potential breeding habitat equivalent to impacted habitat. Survey results show Superb Parrots recorded in Offset Area 3. Foraging habitat impacts can be offset using ecosystem credits from any PCT.	App C, Section 4.2, p75. App C, Table 34, p94 Ecosystem credits: App C, Section 5.2.4, p86 Species credits: App C Section 5.2.5, p92.
Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	816* (part)	2084 PCT 82 in Offset Area 6	n/a	Offset Areas have been assessed in accordance with the FBA. Credits have been calculated using the OEH BioBanking Credit Calculator and are adequate for meeting requirements of the BC and EPBC Acts.	App C, Table 30, p87 App C, Table 34, p94
Weeping Myall Woodlands	109* (part)	305 PCT 26 in Offset Area 3	n/a	Offset Areas have been assessed in accordance with the FBA. Credits have been calculated using the OEH BioBanking Credit Calculator. Offsets are adequate for meeting requirements of the BC and EPBC Acts. (Table 32 calculates the Weeping Myall Woodland ecosystem credits in Offset 3 as ~23 but previously given as part of 109. This could be further clarified in an Offset Management Plan)	App C, Table 30, p87 App C, Table 32, p89 App C, Table 34, p94

- (A) **List** the relevant threatened species or ecological community included in the proposed offset package (these are the listed species and communities that will be significantly impacted in accordance with the *EPBC Act Significant Impact Guidelines 1.1.*). Identify any relevant species or ecological communities which have not been included in the proposed offset package.
- (B) **List** the total credit requirement identified by the FBA for impacted listed threatened species and ecological community. For EECs and ecosystem credit species this is the sum of the credits generated by PCTs associated.
- (C) **Identify** the total number of required credits which are proposed to be retired through conserving and managing remnant / mature vegetation.
- (D) **Identify** the number of credits proposed to be met through other methods allowable under the FBA, such as rehabilitation of impacted areas or regrowth vegetation.
- (E) **Comment** on the adequacy of the proposed offset in meeting requirements of the FBA and the EPBC Act. In particular is there a reasonable argument for a shortfall in credits required for MNES and/or non-compliance with like-for like? Are the offsets proposed by means other than protection of remnant vegetation adequate?
- (F) **Reference** the relevant page numbers from the EIS and Appendices for each threatened species and community.