

# BMA



**BHP Mitsubishi Alliance**

## Appendix A

**DCCEEW Information Requirements for the Grevillea  
Pit Continuation Project Preliminary Documentation**



## Further information required for assessment by preliminary documentation

### Saraji Mine Grevillea Pit Continuation Project, near Dysart, Queensland (2023/09757)

On 4 June 2024, a delegate of the Minister for the Environment and Water determined the above project is a controlled action due to likely significant impacts on the following matters protected under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- Listed threatened species and communities (sections 18 & 18A)
- A water resource, in relation to coal seam gas development and large coal mining development (sections 24D & 24E)

The delegate also determined that the proposed action will be assessed by preliminary documentation. Preliminary documentation for the proposal will include:

- The information contained in the original referral
- The further information you provide on the impacts of the action and the strategies you propose to avoid, mitigate and offset those impacts (as described below)
- Any other relevant information on the matters protected by the EPBC Act.

The preliminary documentation should be sufficient to allow the Minister (or delegate) to make an informed decision on whether to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision above.

The preliminary documentation must follow the content, style and formatting requirements set out below.

### **PRELIMINARY DOCUMENTATION CONTENT, STYLE AND FORMATTING REQUIREMENTS**

<b>I. Content requirements</b>	
I.1	Be a stand-alone document containing sufficient information to avoid the need to search out appendices, previous submissions, or supplementary reports for key information.
I.2	Enable interested stakeholders and the Minister to easily understand the consequences of the project on matters of national environmental significance (MNES).
I.3	Be written so that any conclusions reached can be independently assessed. Include all key claims, findings, proposals and undertakings in the <b>main document</b> .
I.4	Refer to all relevant standards, policies and other guidance material published by the department. Any instances where published guidance is not followed must be justified. Where no Commonwealth standards exist, state government and industry standards may be useful.
I.5	Include the names, roles and qualifications (where relevant) of all persons involved in preparing the preliminary documentation.

I.6	Include a copy of this request for information and a cross-reference table indicating where the information fulfilling this request is included in the preliminary documentation (e.g. Section 4.2.2 and Appendix A, Chapter 2.1).
I.7	The preliminary documentation must state the following for all information provided: <ul style="list-style-type: none"> <li>• the source and date of the information</li> <li>• how the reliability of the information was tested</li> <li>• the uncertainties (if any) in the information</li> <li>• the guidelines, plans, and/or policies considered.</li> </ul>
<b>II. Format and style requirements</b>	
II.1	Be in a suitable format to be published in hardcopy (A4 or A3 size, with maps and diagrams in A4 or A3 size and in colour) and published in electronic format (e.g. MSWord or PDF) on the internet. All maps must follow the <a href="#">Guide to providing maps and boundary data for EPBC Act projects - DCCEEW</a> .
II.2	Include detailed technical information, studies or investigations necessary to support the information in the stand-alone document as appendices. The main findings and a summary of the appendices are to be included in the main document.
II.3	Be objective, clear, succinct, avoid technical jargon and, where appropriate, be supported by maps, plans, diagrams, data or other descriptive detail.
II.4	Reference all sources using the Harvard standard of referencing. Ensure that other supporting documents (e.g. academic studies, regulatory standards) are publicly accessible, with electronic links provided where possible.
II.5	Redact the names and contact details of departmental officers.
II.6	Not contain any commercial-in-confidence markings. If the preliminary documentation contains sensitive information, please discuss this with the assessment officer.
<b>III. Ecological data provision</b>	
III.1	The preliminary documentation must include an appendix of occurrence records (both sightings and evidence of presence) for all listed threatened species identified during field surveys for the proposed action. This data may be used by the department to update the relevant species distribution models that underpin the publicly available Protected Matters Search Tool (PMST).
III.2	The species occurrence records must be provided in accordance with the department's <a href="#">Guidelines for biological survey and mapped data (2018)</a> using the department's <a href="#">Species observation data template</a> . Sensitive ecological data must be identified and treated in accordance with the department's <a href="#">Sensitive Ecological Data – Access and Management Policy V1.0</a> (2016) or subsequent revision.

Following the style requirements above, the preliminary documentation must address the matters set out below.

## **FURTHER INFORMATION REQUIRED**

### **1. DESCRIPTION OF THE ACTION**

In the preliminary documentation, use the following definitions:

- Study area: the area where surveys have been conducted in relation to the development of the proposed action.
- Project area: the area encompassing all possible final layouts of the proposed action, allowing for micro-siting.
- Disturbance footprint: the area of the final layout of the proposed action.

<b>Information required</b>	
1.1	Provide all information presented in the referral on the description of the action in the preliminary documentation.
1.2	The location, boundaries and size (in hectares) of the study area, project area, and disturbance footprint, including any adjoining areas which may be indirectly impacted by the proposal, including nearby vegetation, as well as water resources. Include mapping and coordinates.
1.3	A description of all components of the action, including the anticipated timing and duration (including start and completion dates) of each component of the project including decommissioning. In addition, any components which were included in the referral material, but are no longer part of the proposed action, must be clarified. This includes any changes that have been made to the project since the referral documentation was submitted.
1.4	A description of the operational requirements of the action including any anticipated maintenance works.
1.5	A description of the land uses surrounding the project area that may be directly or indirectly impacted by the proposed action.
1.6	An indicative layout plan for the proposed action area, including the location and type of land use, key infrastructure, and the number and location of roads and buildings. Include mapping and coordinates for each of the above.
1.7	To the extent reasonably practicable, provide any alternatives to the proposed action and project design, including taking no action, with a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action.
1.8	Provide a description of any approval that has been obtained from a State or Commonwealth agency or authority, including any conditions that apply to the action. Include a statement identifying any additional approval that is required.

1.9	Provide a map of the proposed action and the surrounding BM Alliance mine operations and their extensions including, but not limited to the Saraji mine initial Grevillea Pit – ML 1782.
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## 2. HABITAT ASSESSMENT

### Background

Based on the information provided in your referral, and other available information, the department considers that the listed threatened species and ecological communities identified below may be significantly impacted by the proposed action.

Please note, it is the proponent’s responsibility to be aware of any changes to the distribution of listed threatened and ecological communities, and information available in the [Species Profile and Threats \(SPRAT\) Database](#). The proponent must ensure that a recent [Protected Matters Search Tool \(PMST\)](#) report has been generated and considered before finalising the draft preliminary documentation.

The department does not accept the consideration of only Queensland Regional Ecosystem (RE) mapping to determine habitat for listed threatened species. Further, habitat assessments must not only consider remnant vegetation.

Habitat assessments must be informed by desktop and field surveys (in accordance with departmental guidelines or as defined by best practice surveys), and with reference to relevant departmental documents (e.g. approved Conservation Advices, Recovery Plans, draft referral guidelines and Listing Advices, and the SPRAT Database), including published research and other relevant sources. Where habitat assessments depart from departmental information, adequate justification must be provided to substantiate their suitability to the assessment.

The department notes that the referral indicates that some surveys for listed threatened species and ecological communities were undertaken for the proposed action over 5 years ago, while other surveys were undertaken more recently. The department recommends undertaking more recent surveys for listed threatened species and ecological communities to ensure that the data provided is recent to inform the assessment of the proposed action. If additional surveys are not undertaken and data is only provided for protected matters that is older than 5 years old, the department may need to take a precautionary approach to assessing the protected matters.

For each listed threatened species and community, provide the habitat assessment (section 2) and impact assessment (section 3) together under a heading of the species’ name so potential impacts can be easily understood.

Listed threatened species and communities:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) threatened ecological community - Endangered
- Greater glider (southern and central) (*Petauroides volans*) - Endangered
- Koala (*Phascolarctos cinereus*) (combined populations of Qld, NSW, and the ACT) - Endangered
- Squatter pigeon (southern) (*Geophaps scripta scripta*) - Vulnerable
- King blue-grass (*Dichanthium queenslandicum*) - Endangered
- Blue-grass (*Dichanthium setosum*) - Vulnerable

- Ornamental Snake (*Denisonia maculata*) - Vulnerable

## 2.1 Species and ecological communities general information

Information required for each listed threatened species or ecological community	
2.1.1	Provide a habitat assessment for relevant listed threatened species and ecological communities, including any habitat located outside and adjacent to the project area or downstream of the project area where they have the potential to be impacted. Update maps of potential species habitat and threatened ecological communities to indicate potential habitat and TEC information adjacent to the project area over a larger area than what has been shown in the maps provided in the referral. The scale of maps should allow the department to understand the size of any relevant habitat patches that the proposed action forms part of and be of a scale relevant to the potential impacts of the proposed action and the distance that listed fauna is likely to move.
2.1.2	Identify and describe known historical records of the listed threatened species and ecological communities in the broader region. All known records must be supported by an appropriate source (i.e. Commonwealth and State databases, published research, publicly available survey reports, etc.), the year of the record and a description of the habitat in which the record was identified, if available.
2.1.3	Provide detailed mapping of suitable habitat (within, adjacent to and downstream of the project area, where relevant) for all listed threatened species and ecological communities, which: <ul style="list-style-type: none"> <li>• is specific to the habitat assessment undertaken for each listed threatened species and ecological community (i.e. does not only illustrate relevant Queensland Regional Ecosystems)</li> <li>• includes an overlay of the project disturbance footprint</li> <li>• includes an overlay of the survey effort undertaken</li> <li>• includes known records of individuals derived from desktop analysis and field surveys</li> <li>• is provided separately as attachments in JPEG format.</li> </ul>
2.1.4	Include an assessment of the adequacy of any surveys undertaken (including survey effort and timing). Assess the extent to which these surveys were appropriate and undertaken in accordance with relevant departmental survey guidelines for the listed species or ecological community.
2.1.5	Include the total area of habitat (in hectares) for each relevant protected matter, including: <ul style="list-style-type: none"> <li>• total habitat within the project area</li> <li>• where relevant, total habitat in the project area and surrounds.</li> </ul>

## 2.2 Specific information for Listed threatened species and ecological communities

The preliminary documentation must address the following matters in addition to the general information listed above.

Information required	
<b>Ornamental snake (<i>Denisonia maculata</i>) – Vulnerable</b>	
2.2.1	A discussion of vegetation composition and structure on relevant land zones (i.e. riparian vegetation, gilgai mounds and depressions, Brigalow TEC, cracking clay soils and microhabitat features). In the species' habitat assessment, include consideration of riparian vegetation and dispersal habitat between habitat patches.
2.2.2	Details and locations (including a map) of water bodies that may provide known food sources (i.e. frog species).
2.2.3	A discussion of habitat use requirements (e.g. shelter/refuge, foraging, dispersal, etc.), including consideration of known important habitat and suitable habitats.
2.2.4	The total area (in hectares) of each identified habitat type (e.g. shelter/refuge, foraging, dispersal, etc.).
<b>Greater glider (southern and central) (<i>Petauroides volans</i>) – Endangered</b>	
2.2.5	The <u><i>Conservation Advice for Petauroides volans (greater glider (southern and central))</i></u> (greater glider conservation advice) states that all populations of greater glider are considered to be important populations. Include consideration of this within the preliminary documentation.
2.2.6	<p>The department does not consider that the habitat definitions for denning, foraging and dispersal provided in the referral documentation are consistent with the greater glider conservation advice or the <i>Guide to greater glider habitat in Queensland</i>.</p> <p>The department considers that habitat definitions for denning and foraging/dispersal should be updated as follows:</p> <ul style="list-style-type: none"> <li>• <b>Foraging/Dispersal Habitat:</b> All areas containing locally important dominant/co-dominant trees for foraging, such as (but not limited to) <i>Corymbia citriodora</i>, <i>Eucalyptus moluccana</i>, <i>E. tereticornis</i>, <i>E. crebra</i>, <i>C. intermedia</i> and <i>E. portuensis</i>.</li> <li>• <b>Potential/Future Denning Habitat:</b> All areas containing appropriate trees with a diameter at breast height greater than 30 cm, but less than the relevant Regional Ecosystem threshold for large trees.</li> <li>• <b>Likely/Current Denning Habitat:</b> All areas containing appropriate trees with a diameter at breast height greater than the relevant Regional Ecosystem threshold for large trees.</li> </ul>
2.2.7	Provide a map indicating habitat for the species within and adjacent to the project area to indicate the extent of the species' habitat and the context of the project area.
2.2.8	Present an analysis of the availability and density of tree hollows suitable for use by the greater glider (southern and central) within the project area and project footprint.

2.2.9	<p>The department notes that ground-based surveys for hollows are not considered adequate to determine hollow size or presence (per the greater glider conservation advice).</p> <p>Ensure that adequate surveys are undertaken to determine the presence and density of large trees within the development footprint, or undertake tree-climbing based hollow surveys), to inform hollow presence within the study area.</p>
<b>Squatter pigeon (southern) (<i>Geophaps scripta scripta</i>) – Vulnerable</b>	
2.2.10	A discussion of vegetation composition and structure on relevant land zones (i.e. specific tree and grass species). A discussion of non-native grasslands that the species may utilise as it moves between habitat patches, noting that it is known to occur in disturbed areas.
2.2.11	A discussion of breeding, foraging and dispersal habitat requirements. Include information of the presence or lack thereof of any stony rises in the study area and adjacent areas that may provide breeding habitat.
2.2.12	Identification of permanent water bodies or watercourses within one (1) kilometre of the disturbance footprint to support breeding habitat.
2.2.13	Identification of permanent or seasonal water bodies or watercourses within three (3) kilometres of the disturbance footprint to support foraging habitat.
2.2.14	The total area (in hectares) of each breeding, foraging and dispersal habitat type, including consideration of disturbed (non-remnant vegetation) areas.
<b>Koala (<i>Phascolarctos cinereus</i>) (combined populations of Qld, NSW and the ACT) – Endangered</b>	
2.2.15	A discussion of vegetation composition and structure (i.e. known food trees). Provide a map indicating habitat for the species within the project area and adjacent to the project area to indicate the extent of the habitat patch that the project area encompasses.
2.2.16	A discussion of habitat use requirements (e.g. foraging, dispersal, shelter, etc.).
2.2.17	Update mapping and the habitat assessment to include all areas of koala dispersal habitat, including open grassland areas, and areas of non-remnant habitat that contain habitat patches or paddock trees that facilitate the koala's movement and use of habitat in the landscape.
2.2.18	Provide an update to the total area (in hectares) of each identified habitat type (e.g. foraging, dispersal, shelter, etc.)
2.2.19	The referral states that the koala habitat in the project area is unlikely to be provide habitat critical to the survival of the species. Provide justification for this statement.
<b>Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant) threatened ecological community – Endangered</b>	
2.2.20	An assessment (in a cross-reference table) of vegetation composition against the key diagnostic characteristics and condition thresholds for Brigalow

	( <i>Acacia harpophylla</i> dominant and co-dominant) threatened ecological community (Brigalow TEC), including consideration of remnant and regrowth Brigalow TEC.
2.2.21	Provide information (from within the last 5 years) on the extent of weed cover for the potential Brigalow TEC present in the project area.
2.2.22	The total area (in hectares) of identified remnant and regrowth Brigalow TEC.
2.2.23	The department notes that the referral states that surveys for the Brigalow TEC were undertaken in 2016. Provide an updated assessment of potential Brigalow TEC present within and surrounding the project area with the inclusion of data from the past few years.
<b>Bluegrass (<i>Dichanthium setosum</i>) – Vulnerable</b>	
2.2.24	A discussion of habitat composition (i.e. soil composition, cleared woodland, grassy roadside remnants etc) relevant to the persistence of bluegrass in the proposed action area and surrounding region. The department does not accept only information on REs as a habitat description.
2.2.25	Provide a map of species records and potential habitat including potential habitat outside and adjacent to the project area.
<b>King bluegrass (<i>Dichanthium queenslandicum</i>) – Endangered</b>	
2.2.26	A discussion of habitat composition (i.e. soil composition, cleared woodland, grassy roadside remnants etc) relevant to the persistence of King Bluegrass in the proposed action area and surrounding region.
2.2.27	The species has been associated with basalt (Fensham, 1999). Include this information in the habitat assessment for the species.

### 2.3 Summary of habitat assessment information required

2.3.1	Provide a summary table stating: <ul style="list-style-type: none"> <li>the relevant departmental documents used for the listed species or community</li> <li>the survey requirements for the listed species or community within these documents</li> <li>the survey methods utilised</li> <li>the survey effort undertaken.</li> </ul>
2.3.2	Provide a summary table of the area (in hectares) of habitat for each listed threatened species and ecological community within the project area and the disturbance footprint.

### 2.4 Water resource information

The preliminary documentation must address the following matters in relation to groundwater and surface water resources onsite and adjacent to the proposed action area and that may be impacted by the action.

<b>Information required</b>	
<b>Water Resources</b>	
<b>General</b>	
2.4.1	Provide an assessment of water resources within the project area and broader landscape that is relevant to the proposed action.
2.4.2	Ensure that any data relied on in the preliminary documentation is recent, including but not limited to, the flood modelling analysis to better reflect realistic scenarios.
2.4.3	<p>Provide the following information:</p> <ul style="list-style-type: none"> <li>• Regional overview of the proposed action area and water resources within and adjacent to the proposed action area. Include description of geological basin, coal resource, surface water catchments, groundwater systems and water-dependent assets.</li> <li>• Provide a hydrology report in relation to surface water and groundwater impacts and mitigation measures to water resources within and adjacent to the proposed action area.</li> <li>• Describe any third-party users of water resources within and adjacent to the proposed action area (including municipal, agricultural, industrial, recreational and environmental uses of water).</li> <li>• Ensure reference to the checklist within the <a href="#">Independent Expert Scientific Committee (IESC) guidelines</a></li> <li>• Undertake appropriate risk analysis of proposed action including but not limited to flood modelling, drawdown, groundwater and surface water impacts.</li> </ul>
<b>Surface Water</b>	
2.4.4	<p>Provide an assessment of waterways in the locality proposed action including:</p> <ul style="list-style-type: none"> <li>• A discussion on water quality and local receiving environment, including water quality monitoring data and baseline data and where samples were obtained.</li> <li>• Quantify current surface water flow regimes, both within and adjacent to the proposed action area. Ensure there is sufficient baseline information to assess how location, volume, velocity and timing of flows may change as a result of the proposed action.</li> <li>• Discussion on flooding potential and consideration for effects of climate change.</li> <li>• Discussion on nearby water-dependent assets (e.g. wetlands, rivers, lakes, etc.) and how they may be affected by the proposed action.</li> </ul>
2.4.5	Provide information on water quality monitoring data including upstream and downstream of any waterways within or adjacent to the proposed action area.
2.4.6	Provide information and modelling on impacts of controlled and uncontrolled releases of water within catchments and waterways as a result of the proposed action within and adjacent to the proposed action area.
<b>Ground Water</b>	
2.4.7	Provide habitat assessment for any known or likely terrestrial, aquatic, and subterranean Groundwater Dependant Ecosystems (GDEs) on site.
2.4.8	Identify and describe known historical records of known and likely terrestrial, aquatic, and subterranean GDEs in the project area and broader region. All known records must be supporting by:

	<ul style="list-style-type: none"> <li>• an appropriate source (i.e. Commonwealth and State databases, published research, publicly available survey reports, etc.);</li> <li>• the year of the record; and</li> <li>• a description of the habitat in which the record was identified.</li> </ul>
2.4.9	Identify and discuss the uncertainties in your predictions surrounding groundwater according to the <a href="#">Information Guidelines Explanatory Note – Uncertainty analysis– Guidance for groundwater modelling within a risk management framework (2018)</a> .

### 3. IMPACT ASSESSMENT

#### Background

The preliminary documentation must include an assessment of direct, indirect and consequential impacts on the relevant controlling provisions as a result of the proposed action and must be assessed in accordance with relevant departmental policies and guidelines, including the SPRAT Database.

For each listed threatened species and community, provide the habitat assessment (section 2) and impact assessment (section 3) together under a heading of the species' name so potential impacts can be easily understood.

#### 3.1 Listed threatened species and ecological communities

Information required	
3.1.1	<p>An assessment of the likely impacts associated with the proposed action. At a minimum, assess the following potential impacts from the proposed action on protected matters within the project area and surrounds:</p> <ul style="list-style-type: none"> <li>• vegetation clearance and loss of habitat</li> <li>• habitat fragmentation and patch isolation, with consideration of species movement patterns</li> <li>• habitat degrading processes, including edge effects and weed invasion</li> <li>• increased risk of vehicle strike</li> <li>• increased vibration and light and noise pollution</li> <li>• sedimentation and erosion</li> <li>• flooding and fire events</li> <li>• habitat avoidance.</li> </ul>
3.1.2	<p>Include the direct and indirect loss and/or disturbance of protected matters and their habitat as a result of the proposed action. This must include the area (in hectares) and quality of the habitat to be impacted and quantification of the individuals to be impacted (where applicable).</p>

3.1.3	An assessment of the likely duration of impacts to protected matters as a result of the proposed action.
3.1.4	A discussion of whether the impacts are likely to be repeated, for example as part of maintenance.
3.1.5	A discussion of whether any impacts are likely to be unknown, unpredictable or irreversible.
3.1.6	Justify, with supporting evidence, how the proposed action will not be inconsistent with: <ul style="list-style-type: none"> <li>• Australia’s obligations under the Biodiversity Convention, the Convention on Conservation of Nature in the South Pacific (Apia Convention), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)</li> <li>• a recovery plan or threat abatement plan.</li> </ul>
3.1.7	Provide an assessment and discussion of potential sedimentation impacts to waterways and habitat for protected matters within and adjacent to the project area.
3.1.8	Provide an assessment on impacts to ornamental snake habitat and frog abundance (primary food source for the ornamental snake).
3.1.9	Provide a risk analysis for fire regimes and potential impacts to the above listed threatened species and ecological communities from an uncontrolled burn in the project area and adjacent areas prior to the proposed action and following the proposed action.

### 3.2 A water resource, relation to coal seam gas development and large coal mining development

Information required	
General	
3.2.1	Provide the following information: <ul style="list-style-type: none"> <li>• Describe cumulative impacts on water resources within and adjacent to the proposed action area as well as in relation to other projects in the area. This includes current and previous mine projects including but not limited to the Saraji mine initial Grevillea Pit – ML 1782.</li> <li>• Ensure duration of impacts are considered and properly addressed and whether they are likely to be repeated (e.g. as part of maintenance) and whether any impacts are likely to be unknown, unpredictable, or irreversible.</li> </ul>
3.2.2	Specifically, provide an assessment of the impacts on groundwater drawdown, groundwater contamination and surface water contamination of the following aspects as a result of the proposed action within and surrounding the project area: <ul style="list-style-type: none"> <li>• changes to hydrological regimes from diversion of drainage features, creation of new temporary and permanent landforms affecting flood waters, and potential releases of water to the surrounding environment affecting water quality.</li> <li>• Changes to geomorphology and flow characteristics of Phillips Creek through flood barriers/berms.</li> <li>• Reduction in Phillips Creek alluvial drainage system and potential to impact vegetation along creek.</li> </ul>

	<ul style="list-style-type: none"> <li>• Reduced flows in local drainage lines and potential for erosion and sedimentation in downstream environment</li> <li>• Potential increases in depth and energy conditions for flood behaviour in Spring and Phillips Creek</li> <li>• Hydrogeological flood impacts resulting from residual void maintained as a groundwater sink.</li> <li>• Reduction in groundwater and availability of use for GDEs</li> <li>• Long term impacts to groundwater from ongoing final pit void water evaporation</li> <li>• Reduced groundwater levels and alterations to the groundwater regime post closure</li> </ul>
3.2.3	<p>Provide supporting information for the following claims as mentioned in the referral:          “It was determined that a minor change in the overall mine affected water was modelled using the Central Region Water Balance Model” (p.40, Referral).          “The removal of thin unsaturated alluvium during the open cut mining is not considered to markedly impact on the alluvium groundwater or the Phillips Creek” (p.41, Referral).</p>
<b>Surface water</b>	
3.2.7	Provide information on sedimentation and erosion impacts on waterways within and adjacent to the proposed action area as a result of the proposed action.
3.2.8	An assessment of the likely impacts to surface water resources associated with the proposed action, including from vegetation clearance, construction, operation, maintenance, and decommissioning components of the proposed action.
<b>Groundwater</b>	
3.2.9	Provide an assessment of groundwater drawdown and direct, indirect, and cumulative impacts to water quality and groundwater contamination as a result of the proposed action.
3.2.10	Provide a map of monitoring bore locations within the project area and surrounding area.
3.2.11	<p>Construct and provide appropriate groundwater models including predictive scenarios and uncertainty analysis.</p> <p>Review the risk analysis and uncertainty analysis considering the model predictions and revise and rerun groundwater models (if required).</p>
3.2.12	Provide information on relevant GDEs within and adjacent to the proposed action area.
3.2.13	<p>Provide information on final voids including:</p> <ul style="list-style-type: none"> <li>• Precise location of final void</li> <li>• Assessment of design of final void and how the design will minimise impacts as well as an assessment of water quality within the final void. This assessment must consider any changes that will be made to current voids as an extent of the extension.</li> <li>• Provide details and reasoning on predicted water levels in the final void/s along with expected groundwater level at which the voids will cease to be sinks and begin recharging local groundwater.</li> <li>• Discuss whether through-flow groundwater conditions could be established. As void water is predicted to become hyper-saline, provide discussion on whether this water has any potential to leave pit lakes.</li> </ul>
3.2.14	<p>Provide details of field investigations undertaken (and any relevant previous published and/or unpublished studies) to determine presence and composition of stygofauna communities in the region and proposed action area.</p> <p>Include results of any groundwater bores sampled (e.g. levels and water quality) and justification regarding representativeness of samples taken.</p>

	<p>Ensure assessment of the suitability of local habitat and subterranean aquatic fauna is provided and that the assessment is based on local geological, hydrological and other relevant information (e.g. alluvium presence in proposed action area, likely hydrological connectivity with geological formations, etc.).</p> <p>Stygofauna assessment guidance is available through the <a href="#">Queensland Government Background information on sampling bores and stygofauna</a> and <a href="#">Guideline for the environmental assessment of subterranean aquatic fauna</a>.</p>
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#### 4. AVOIDANCE, MITIGATION AND MANAGEMENT MEASURES

##### Background

Avoidance and mitigation measures are the primary methods of eliminating and reducing significant impacts on protected matters. Where possible and practicable, it is best to avoid impacts. Even if it is not possible to completely avoid a protected matter there may be ways to reduce the impact. If impacts cannot be avoided, then they should be minimised or mitigated as much as possible.

Avoidance and mitigation measures must be investigated thoroughly as a part of the assessment and be supported by evidence to demonstrate likely success. The SPRAT Database, and associated statutory documents, may provide relevant mitigation measures for protected matters. Management commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the document author or other technical expert.

The preliminary documentation must demonstrate how the mitigation hierarchy has been applied and all options exhausted to avoid and mitigate harm to protected matters, before resorting to environmental offsets.

Relevant management plans should be included as appendices to the preliminary documentation. Sufficient detail must be provided in each plan to ensure an assessment can be undertaken as to their likely suitability and effectiveness. Please note that, where the department recommends a proposed action be approved with conditions, the department is likely to recommend to the Minister (or delegate) that the conditions of approval require relevant plans to be approved and implemented prior to the commencement of the proposed action.

The department notes the referral includes a detailed description of the proposed avoidance, mitigation, and management measures to be implemented by the proponent during the construction, operation, and maintenance stages of the proposed action. The referral also states that the following relevant management plans will be developed prior to the commencement of the proposed action:

- Sedimentation and Erosion Control Plan
- Waste Management Plan
- Topsoil Management Plan
- Rehabilitation Management Plan
- Receiving Environment Management Plan
- Water Management Plan

Information required	
4.1	Include the plans specified above (in approved or draft format) as appendices to the preliminary documentation.
4.2	<p>Provide a detailed summary of measures proposed to be undertaken by the proponent to avoid, mitigate and manage relevant impacts of the proposed action on relevant protected matters (including any measures required through other Commonwealth, State and/or local government approvals).</p> <p>Proposed measures must be based on best available practices, appropriate standards, evidence of success for other similar actions and supported by published scientific evidence. All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed measures.</p> <p>All proposed measures must also be drafted to meet the 'S.M.A.R.T' principle:</p> <ul style="list-style-type: none"> <li>• S – Specific (what and how)</li> <li>• M – Measurable (baseline information, number/value, auditable)</li> <li>• A – Achievable (timeframe, money, personnel)</li> <li>• R – Relevant (conservation advices, recovery plans, threat abatement plans)</li> <li>• T – Time-bound (specific timeframe to complete).</li> </ul>
4.3	Describe how habitat fragmentation and patch isolation will be avoided, with consideration of whether avoidance areas will enable species mobility across the project area and still be connected to habitat in the broader landscape.
4.4	Information on the timing, frequency and duration of the proposed avoidance, mitigation and management measures to be implemented.
4.5	Details of specific and measurable environmental outcomes to be achieved for relevant protected matters, including an assessment of the expected or predicted effectiveness of the proposed measures.
4.6	Any statutory or policy basis for the proposed measures, including reference to the SPRAT Database and relevant approved conservation advice, recovery plan or threat abatement plan, and a discussion on how the proposed measures are consistent with relevant plans.
4.7	Details of ongoing management and monitoring programs, including timing, to validate the effectiveness of proposed measures and demonstrate that environmental outcomes will be, or have been, achieved.
4.8	Details of tangible, on-ground corrective actions that will be implemented, including timing, in the event that monitoring programs indicate that the environmental outcomes have not been, or will not be, achieved.

4.9	Provide information relating to mitigating potential direct, indirect, and cumulative impacts relating to groundwater and surface water, including a water management plan, modelling of groundwater drawdown associate with the project and potential impacts from dewatering, water quality data from different strata.
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## 5. REHABILITATION REQUIREMENTS

Information required	
5.1	The details of any rehabilitation activities proposed to be undertaken and how they meet best practice standards, including for the restoration of habitat for relevant protected matters and avoidance of sedimentation/erosion.
5.2	The details of any rehabilitation activities proposed to be undertaken as required by any Commonwealth, state, and/or local government approvals.
5.3	A summary of the vegetation community/habitat that is being rehabilitated and the dominant species that will be included in the rehabilitation site. <b>Note:</b> climate suitable local seed mix should be included in the rehabilitation methodology where appropriate.
5.4	The proposed final landform, including rehabilitation completion criteria, and its relation to the pre-disturbance vegetation community. Include an assessment of the expected or predicted effectiveness of the proposed rehabilitation activities.
5.5	Provide detailed mapping of the project area that clearly identifies areas to be rehabilitated.
5.6	Information on the timing, frequency and duration of proposed rehabilitation activities to be implemented, including anticipated time to completion (refer to 'S.M.A.R.T' principle above). All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed activities.
5.7	Details of ongoing management and monitoring programs, including timing, to validate the effectiveness of proposed rehabilitation activities and demonstrate that completion criteria will be, or have been, achieved.
5.8	Details of tangible, on-ground corrective actions that will be implemented, including timing, in the event that monitoring programs indicate that the completion criteria have not been, or will not be, achieved.

## 6. OFFSETS

### Background

Environmental offsets are measures that compensate for the residual significant impacts of an action on the environment. Offsets provide environmental benefits to counterbalance the impacts that remain after consideration of avoidance and mitigation measures. Offsets do not reduce the impacts of an action, and are not intended to make proposals with unacceptable impacts acceptable.

It is important to consider environmental offsets early in the assessment process. Correspondence with the department regarding offsetting is highly encouraged. Any proposed offsets must meet the key principles of the [EPBC Act Environmental Offsets Policy \(2012\)](#) (Offsets Policy).

Where residual significant impacts are identified, include a draft Offset Management Plan (OMP) as an appendix in the preliminary documentation for assessment and approval. Please note, the department's [preference is for OMPs and offset sites to be approved at the same time as the final approval decision. If this is not possible, the department](#) is likely to recommend to the Minister (or delegate) that the conditions of approval require the environmental offset/s ~~or~~ and the OMP be approved and implemented prior to the commencement of the proposed action.

Information required	
6.1	An assessment of the likelihood of residual significant impacts occurring on relevant protected matters, after avoidance, mitigation and management measures have been applied.
6.2	If a residual significant impact is likely, provide a summary of the proposed environmental offset and key commitments to achieve a conservation gain for each protected matter in accordance with the Offsets Policy.
6.3	If the nominated offset area/s is not secured prior to the submission of the PD, include a discussion regarding the risk that the nominated offset area/s may fail to be secured.
6.4	The OMP must meet the information requirements set out in <a href="#">Appendix A</a> , and must be prepared by a suitably qualified ecologist and in accordance with the department's <i>Environmental Management Plan Guidelines</i> (2014), available at: <a href="https://www.dcceew.gov.au/environment/epbc/publications/environmental-management-plan-guidelines">https://www.dcceew.gov.au/environment/epbc/publications/environmental-management-plan-guidelines</a> .
6.5	<u>The department expects offset proposals to engage specifically with the ecological requirements of the protected matters being offset.</u>  <u>For greater gliders, management measures such as weeding and fencing will not generally be accepted as suitable compensation for the loss of denning habitat, which is a limiting habitat requirement for the species. Where denning resources are proposed to be impacted, offset proposals should demonstrate an increase in the quality and / or availability of denning resources at an offset site, relative to the quantum of impact. Offsets proposals based on creation of hollows (or artificial denning resources) must realistically address whether they will be used by greater gliders, whether they will attract predator or competitor species and their durability, accompanied by suitable monitoring and performance measures. Deviations from these principles will need to be explained and justified.</u>

## 7. ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD)

Information required	
7.1	A description of how the proposed action meets the principles of ESD, as defined in section 3A of the EPBC Act. The following principles are <b><i>principles of ecologically sustainable development</i></b> :

	<ul style="list-style-type: none"> <li>• decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations</li> <li>• if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation</li> <li>• the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations</li> <li>• the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making</li> <li>• improved valuation, pricing and incentive mechanisms should be promoted.</li> </ul>
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## 8. ECONOMIC AND SOCIAL MATTERS

Information required	
8.1	An analysis of the economic and social impacts of the action, both positive and negative.
8.2	Details of any public consultation activities undertaken and their outcomes.
8.3	<p>Details of any consultation with Indigenous stakeholders.</p> <p><b>Indigenous engagement</b></p> <p>Identify existing or potential native title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and communities, possibly impacted by the proposed action and the potential for managing those impacts.</p> <p>Describe any Indigenous consultation that has been undertaken, or will be undertaken, in relation to the proposed action and their outcomes.</p> <p>The department considers that best practice consultation, in accordance with the <a href="#">Guidance for proponents on best practice Indigenous engagement for environmental assessments under the EPBC Act</a> (2016) includes:</p> <ul style="list-style-type: none"> <li>• identifying and acknowledging all relevant affected Indigenous peoples and communities</li> <li>• committing to early engagement</li> <li>• building trust through early and ongoing communication for the duration of the project, including approvals, implementation and future management</li> <li>• setting appropriate timeframes for consultation</li> <li>• demonstrating cultural awareness.</li> </ul> <p>Describe any state requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action with regards to Indigenous peoples and communities.</p>
8.4	Projected economic costs and benefits of the project, including the basis for their estimate through cost/benefit analysis or similar studies.

8.5	Employment opportunities expected to be generated by the project (including construction and operational phases).
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## 9. ENVIRONMENTAL RECORD OF THE PERSON PROPOSING TO TAKE THE ACTION

Information required	
9.1	<p>Include details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:</p> <ul style="list-style-type: none"> <li>• the person proposing to take the action</li> <li>• for an action for which a person has applied for a permit, the person making the application</li> <li>• if the person is a body corporate—the history of its executive officers in relation to environmental matters</li> <li>• if the person is a body corporate that is a subsidiary of another body or company (the parent body)—the history in relation to environmental matters of the parent body and its executive officers.</li> </ul>

### References

Fensham RJ (1999) Native grasslands of the central highlands, Queensland, Australia. Floristics, regional context and conservation. *The Rangeland Journal* 21 82-103.

## APPENDIX A: Information Requirements for EPBC Act Offset Proposals

Guidance on environmental offsets is available on the department’s website at:

<https://www.dcceew.gov.au/environment/epbc/advice-for-complying-with-the-epbc-act/environmental-offsets-under-epbc/environmental-offsets-guidance>.

<b>Minimum Requirements for an Offset Management Plan</b>	
<b>The Offset Management Plan (OMP) outlines what needs to be done to manage an offset site, such as setting milestones, monitoring, and reporting. It should also include a risk assessment and identify triggers for adaptive management. All direct offsets require an OMP.</b>	
A1	Details of the residual impacts to protected matters as a result of the proposed action. This must include the area/s of habitat (in hectares) and its quality (see Section A3 below) within the impact site for which the offset/s is to compensate (i.e. the quantum of impact).
A2	A description of the offset area/s, including location, size, condition, environmental values present, and surrounding land uses.
A3	<p>A methodology that is suitable for the species in question must be used to assess habitat quality (i.e. endorsed by the department or supported by literature), noting the same scoring mechanism must be used at both the impact site and the offset site.</p> <p>The department encourages proponents to consult and seek endorsement from the department on a proposed method prior to undertaking any habitat quality assessment at both impact and offset site(s).</p> <p>The department currently prefers the use of the Modified Habitat Quality Assessment (MHQA) method, an adaptation of the <a href="#">Queensland Guide to determining terrestrial habitat quality v1.2</a> (2017). MHQA was developed to better reflect the requirements of the EPBC Act Environmental Offsets Policy for determining habitat quality.</p> <p>To support the habitat quality assessment, a copy of the MHQA scoring spreadsheet template and guidance material is attached.</p> <p><u>Please note</u>, the ‘absence of threats’ component of the score must only contain indicators that reflect the current habitat quality of the site (e.g. presence of pest species). Indicators that instead relate to a site’s potential future condition must be excluded (e.g. risk of clearing or development). These threats are appropriately dealt with in consideration of future risk of loss in the Offsets Assessment Guide and so should not be included in the score for current habitat condition.</p>
A4	Baseline data and other supporting evidence that documents the presence of the relevant protected matter/s within the offset area/s.
A5	Details, with supporting evidence, of how the environmental offset/s meets the requirements of the <a href="#">Offsets Policy</a> .
A6	<p>Details, with supporting evidence, to demonstrate how the environmental offset/s compensate for residual significant impacts of the proposed action on relevant protected matters, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide, including:</p> <ul style="list-style-type: none"> <li>• total area of habitat (in hectares)</li> <li>• habitat quality (see A3 above)</li> <li>• time over which loss is averted (max. 20 years)</li> <li>• time until ecological benefit</li> <li>• risk of loss (%) without offset*</li> <li>• risk of loss (%) with offset*</li> </ul>

	<ul style="list-style-type: none"> <li>confidence in result (%).</li> </ul> <p>* <u>Please note</u>, risk of loss should not include consideration of stochastic events (e.g. bushfires), activities that contribute to changes in habitat quality scores, or impacts that would otherwise require an offset under any relevant legislation. The department considers that the risk of loss should only include consideration of development pressures that are not otherwise captured under legislation (e.g. if an area would require an EPBC Act referral prior to clearance, the department considers its risk of loss to be 0% as the impacts from that clearance would be subject to assessment).</p>
A7	Maps and shapefiles to clearly define the location and boundaries of the offset area/s, accompanied by the offset attributes (e.g. physical address of the offset area/s, coordinates of the boundary points in decimal degrees, the relevant protected matter that the environmental offset/s compensates for, and the size of the environmental offset/s in hectares).
A8	Evidence that the relevant protected matter and/or their habitat are, or can reasonably be thought to be, present in the potential offset area/s.
A9	<p>Specific, committal, and measurable environmental outcomes that detail the nature of the conservation gain to be achieved for each protected matter, including the creation, restoration, and revegetation of habitat in the proposed offset area/s.</p> <p>Specific measures may include the creation, restoration, and revegetation of habitat in the proposed offset area/s. As noted in point 6.5 above, the department expects offset proposals to engage specifically with the ecological requirements of the species.</p>
A10	Details of how the offset area/s will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the relevant protected matter.
A11	Specific offset completion criteria derived from the offset area habitat quality to demonstrate the improvement in the quality of habitat in the offset area/s over a 20-year period.
A12	Details of the management measures, and timeframes for implementation, to be carried out to meet the offset completion criteria. All proposed management measures must be written using committed language (e.g. 'will' and 'must').
A13	<p>Details of the management measures, and timeframes for implementation, to be carried out to meet the offset completion criteria. Management measures must:</p> <ul style="list-style-type: none"> <li>be targeted towards the needs of the protected matter that is offset and must align with the recovery objectives for the species as identified in relevant National Recovery Plans or Conservation Advices</li> <li>take into account relevant threat abatement plans</li> <li>be site-specific (e.g. informed by surveys at the offset site)</li> <li>have timeframes for implementation</li> <li>be written using committal language (e.g. 'will' and 'must')</li> <li>be specifically linked to the attribute of the protected matter for which the management measure applies</li> <li>be derived from recognised principles, practice, or guidelines, and is justified – technically, scientifically and legally (e.g., by recommendation in a national recovery plan) – as an effective and appropriate measure to attain and/or maintain the plan's completion criteria and/or performance targets.</li> </ul>
A14	<p>All management measures be drafted to meet the 'S.M.A.R.T' principle:</p> <ul style="list-style-type: none"> <li>S – Specific (what and how)</li> </ul>

	<ul style="list-style-type: none"> <li>• M – Measurable (baseline information, number/value, auditable)</li> <li>• A – Achievable (timeframe, money, personnel)</li> <li>• R – Relevant (conservation advices, recovery plans, threat abatement plans)</li> <li>• T – Time-bound (specific timeframe to complete).</li> </ul>
A15	Interim milestones that set targets at 5-yearly intervals for progress towards achieving the offset completion criteria.
A16	Details of the nature, timing and frequency of monitoring to inform progress against achieving the 5-yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area/s are likely to achieve those milestones in adequate time to implement all necessary corrective actions).
A17	Proposed timing for the submission of monitoring reports which provide evidence demonstrating whether the interim milestones have been achieved.
A18	<p>Details of the tangible, on-ground corrective actions, and timeframes for implementation, if monitoring activities indicate an interim milestone has not been achieved, including an approach to monitoring the effectiveness of the corrective actions.</p> <p>All proposed corrective actions must be written using committed language (e.g. 'will' and 'must').</p>
A19	Risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the OMP and timely achievement, and continued maintenance, of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with a risk assessment matrix. Where relevant, address the risk of any management measures resulting in a perverse outcome (e.g. control of feral predators results in an increase in feral herbivores).
A20	Details and execution timing of the mechanism to legally secure the proposed offset area/s, such that legal security remains in force for at least the duration of the proposed action, and to provide enduring protection for the offset area/s against development incompatible with conservation.