

MOOLARBEN STAGE 3 OPEN CUT EXTENSION – assessment completed 14 October 2025.

TABLE 1: CPHR OFFICER PROJECT ADVICE TO DPIE ON EPBC ACT LISTED THREATENED SPECIES AND COMMUNITIES

Requirement	Information	Reference (BAM / BLA ¹)
Background & Description of Action	Does the EIS/BDAR²: ☒ clearly show how operational and construction footprints, including clearing boundaries, structures to be built and elements of the action are situated with regard to MNES ☒ depict stages and timing of the action that may impact on MNES ☒ provide a map(s) of the subject land boundary showing the final proposal/disturbance footprint with respect to location of MNES, including GIS shape files Include references to where this detail is provided.	BAM Chapters 3, 4, 5 and 8
	Provide advice on the adequacy of the background and action description with respect to MNES and identify any recommended additional information requirements: The bilateral assessment for this project (Moolarben Stage 3, Open Cut 3 extension) relates to the proposed extension of open cut mining operations south of the approved (OC3) open cut pit, as well as development of four new open cut pits to the east and south-east of the approved OC3 mining area. The Project comprises open cut pit extension and the development of general facilities and infrastructure to support the extension of operations. The disturbance area of the proposed Project is approximately 675 ha. The <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) referral identified that the Project has the potential to significantly impact Box-Gum Woodland Critically Endangered Ecological Communities (CEEC) and the large-eared pied bat (<i>Chalinolobus dwyeri</i>) and may significantly impact cotoneaster pomaderris (<i>Pomaderris cotoneaster</i>) and pink-tailed legless lizard (<i>Aprasia parapulchella</i>). The Project has been determined to be a “Controlled Action” under the EPBC Act, and the controlling provisions are “listed threatened species and communities” and “a water resource, in relation to coal seam gas development and large coal mining development”. A total of 60 species require consideration under the EPBC Act, including 30 flora species and 30 fauna species. These include: • 19 fauna species identified as predicted ecosystem species or dual credit species under the Biodiversity Assessment Method (BAM)	

¹ Bilateral agreement (BLA) made under section 45 of the EPBC Act, including Amending Agreement No. 1 (2020)

² Or revisions of the BDAR and associated documentation made as a result of previous reviews or project changes post-exhibition.

Requirement	Information	Reference (BAM / BLA ¹)
	11 EPBC Act listed fauna species which were identified in the Protected Matters Search Tool (PMST) search including booroolong frog (<i>Litoria booroolongensis</i>), Sloane's froglet (<i>Crinia sloanei</i>), Australian painted snipe (<i>Rostratula australis</i>), eastern curlew (<i>Numenius madagascariensis</i>), curlew sandpiper (<i>Calidris ferruginea</i>), plains-wanderer (<i>Pedionomus torquatus</i>), grey falcon (<i>Falco hypoleucos</i>), malleefowl (<i>Leipoa ocellata</i>), red goshawk (<i>Erythrorhynchus radiatus</i>), New Holland mouse (<i>Pseudomys novaehollandiae</i>) and superb parrot (<i>Polytelis swainsonii</i>) - All 30 flora species are species credit species under the Biodiversity Assessment Method (BAM) The Biodiversity Development Assessment Report (BDAR), dated 4 November 2022, initially formed Appendix C of the Environmental Impact Statement (EIS) for the project. The BDAR was subsequently updated, with the current version labelled "Appendix C – updated BDAR" and dated 8 March 2024 (all references to the 'BDAR' in this assessment refer to the current version). The proposed project is staged to align with mine progression between 2025 and 2034 (see section 3.6.5 of the EIS). Under the <i>Biodiversity Conservation Act 2016</i> (BC Act), the consent for a staged development application provides for retirement of biodiversity credits before each stage of development is carried out. The Project is divided into three stages with credits relating to Matters of National Environmental Significance (MNES) entities included in each stage. The stages are defined by the geographic location of the proposed open cut mine pits in relation to the current operational footprint (see Figure 4 of the BDAR). The locations of MNES threatened species are presented in Figures 12, 15, 16, 17d and 17f of the BDAR. These figures includes the mapping of: <i>White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland Critically Endangered Ecological Community</i> (Box Gum Woodland CEEC) <i>Central Hunter Valley Eucalypt Forest and Woodland</i> CEEC (Eucalypt Forest and Woodland CEEC) - Recorded observations of cotoneaster pomaderris, koala (<i>Phascolarctos cinereus</i>), large-eared pied bat, brown tree creeper (<i>Climacteris picumnus victoriae</i>), diamond firetail (<i>Stagonopleura guttata</i>), broad-headed snake (<i>Hoplocephalus bungaroides</i>), and pink-tailed legless lizard - The species polygon for regent honeyeater (<i>Anthochaera phrygia</i>; important habitat map) - The species polygon for swift parrot (<i>Lathamus discolor</i>; assumed present)	

Requirement	Information	Reference (BAM / BLA ¹)
	Existing waterways and conceptual surface water drainage on the development site is shown in Figure 3 of the BDAR. The BDAR has not addressed several residual issues including inadequacies in assessment of Box Gum Woodland CEEC on category 1-exempt land; prescribed impacts to rocky habitat within Munghorn Gap Reserve and lack of survey effort for several MNES species. These issues impact credit liability or avoidance strategies for Box Gum Woodland CEEC, giant burrowing frog (<i>Heleioporus australiacus</i>), large-eared pied bat and broad-headed snake. CPHR requested further justification and revisions for these entities (RFI; 12 February 2025) but have not received the update at the time of preparing this document. Furthermore, NPWS and CPHR have significant concerns about the cumulative impacts of Moolarben Coal Complex operations on groundwater drawdown and quality and have provided several recommendations (RFI; 12 February 2025; recommendations 17.1a, 17.1b, 29.2f, 29.2g, 29.2h). This RFI includes recommendations to further reduce impacts on groundwater dependent ecosystems, springs and creeks on the development site and within Munghorn Gap Nature Reserve; revise the groundwater assessment; and increase groundwater monitoring. These concerns have not been addressed at the time of preparing this document.	
Landscape Context of the MNES	Provide advice on the adequacy of the landscape context information and identify any additional information requirements: Section 3.1 'Site context' of the BDAR (pages 26 to 28) describes the landscape context and features for the project. These features are presented in figures 5, 6a and 6b. This section includes information which meets the requirements of the BAM. No additional information is required.	BAM Section 3.1 BLA clause 7.4
EPBC Act Listed Threatened Species & Communities	Verify that the EIS/BDAR includes relevant information on the identification of all EPBC Act listed threatened species and communities on the site or in the vicinity³ via: ☒ field based survey effort ☒ published peer reviewed literature ☐ local data ☒ supporting databases (such as the NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results) ☒ Verify that the EIS/BDAR includes appropriate mapping of all EPBC Act listed threatened species and communities in accordance with the relevant Commonwealth Listing Advice. The EIS/BDAR should	BAM Chapters 4 and 5

³ On land to which impacts may extend

Requirement	Information	Reference (BAM / BLA ¹)
	include important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans. Provide advice on the adequacy of the identification methods and mapping information / any additional information requirements: <i>Field-based survey effort:</i> The methods used for survey are documented in section 2.1 of the BDAR. Additional information is also presented in the Baseline Flora Report (ELA, 2023) (Appendix B of the BDAR) and Baseline Fauna Report (AMBS, 2023) (Appendix C of the BDAR). Field surveys were undertaken in accordance with relevant species-specific BAM survey guidelines and, where available, Commonwealth survey guidelines; listed in sections 2.1 and 11 of the BDAR. <u>The survey methodology for assessing native vegetation</u> (vegetation integrity plots and native vegetation mapping) is described in section 2.1.2. Floristic and vegetation integrity data were collected in accordance with the minimum requirements under the BAM, however, we note that approximately 500 rapid data points were collected across the Study Area which were not provided to CPHR for audit. No additional data has been provided to clarify how areas of Plant Community Types (PCTs) were delineated into vegetation zones. Vegetation surveys identified <i>White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland</i> CEEC (Box Gum Woodland CEEC) and <i>Central Hunter Valley Eucalypt Forest and Woodland</i> CEEC (Eucalypt Forest Woodland CEEC) on site. Section 3.3.2 of the BDAR states that 401.12 ha of Box Gum Woodland CEEC and 15.5 ha Eucalypt Forest Woodland CEEC, listed under the EPBC Act, will be directly impacted by clearing. Appendix E of the BDAR provides assessment of each EPBC Act listed Threatened Ecological Community (TEC) against the Commonwealth Threatened Species Scientific Committee (TSSC) listing criteria. Appendix E confirms that all but one BAM plot conform to the Commonwealth final determinations for these TECs. CPHR requested additional information be provided in the BDAR on the determination and justification for the presence/absence of Box Gum Woodland CEEC, noting that the impacts to BC Act and EPBC Act listed Box-Gum Woodland CEEC may be underestimated. The proponent has not adequately addressed this concern at the time of writing this document. <u>Descriptions of the survey effort for threatened flora and fauna</u> is provided in sections 2.1.3 and 2.1.4.	

Requirement	Information	Reference (BAM / BLA ¹)
	CPHR is satisfied that flora and fauna survey requirements for the BAM have been met for those species that were determined by the proponent as requiring survey assessment. See note below regarding inadequate survey effort for giant burrowing frog. One EPBC Act listed threatened flora species, cotoneaster pomaderris, was recorded within the study area for the proposed project. Four EPBC Act listed threatened fauna species were recorded on the project site: pink-tailed legless lizard, broad-headed snake, koala and large-eared pied bat. Although not detected during survey, the swift parrot has been assumed present and the development site falls within the regent honeyeater important habitat map, thus both species have been included for assessment. CPHR notes that an updated PMST search was undertaken in February 2024 which identified an additional eight threatened fauna species and one threatened flora species listed under the EPBC Act: ▪ <i>Hibbertia acaulothrix</i>, listed as Endangered, effective 7 September 2023 ▪ Southern whiteface (<i>Aphelocephala leucopsis</i>), listed as Vulnerable, effective 31 March 2023 • Brown treecreeper (eastern subspecies) ,listed as Vulnerable effective 31 March 2023 • Hooded robin (south-eastern form) (<i>Melanodryas cucullata cucullata</i>), listed as Endangered, effective 31 March 2023 ▪ Blue-winged parrot (<i>Neophema chrysostoma</i>), listed as Vulnerable, effective 31 March 2023 ▪ Diamond firetail, listed as Vulnerable, effective 31 March 2023 ▪ Latham’s snipe (<i>Gallinago hardwickii</i>), listed as Vulnerable, effective 5 January 2024 ▪ Sharp-tailed sandpiper (<i>Calidris acuminata</i>), listed as Vulnerable, effective 5 January 2024 • Bathurst grassland earless dragon (<i>Tympanocryptis mcartneyi</i>), listed as Critically Endangered, effective 1 June 2023. CPHR note that the proponent has not undertaken targeted surveys for these species as they were not listed under the EPBC Act at the time of the controlled action decision (2 May 2022). Two of the fauna species identified in the updated PMST search (brown treecreeper, diamond firetail) were recorded during bird surveys at EIS and one species (hooded robin) is known to occur in the adjacent nature reserve (Bionet Atlas records). As a result, these species were included as ecosystem credit species in MNES assessment (Table 36).	

Requirement	Information	Reference (BAM / BLA ¹)
	Section 8 of the BDAR details the justification and decision-making for the MNES assessment and the detailed assessment of significance for MNES entities is included in Appendix D of the BDAR. <i>Published peer reviewed literature:</i> Section 11 'References' of the BDAR includes peer-reviewed papers that were used for the assessment of MNES entities and Commonwealth Government guidance documents and websites are included. The peer-reviewed literature generally lacks papers addressing microhabitat requirements for exclusion of species from assessment. CPHR recommended the addition of further peer-reviewed literature at RTS to support the removal of species from assessment based on lack of habitat features; this has not been fully addressed at the time of writing this document. <i>Local data:</i> No local data was used for the proposed project. <i>Supporting databases:</i> The following databases were cited as being used for the MNES assessment: 1. NSW DCCEEW BioNet Vegetation Classification Database 2. NSW DCCEEW BioNet Threatened Biodiversity Data Collection (TBDC) 3. NSW DCCEEW BioNet Atlas 4. DCCEEW EPBC Protected Matters Search Tool (PMST) 5. Atlas of Living Australia Appropriate mapping of all EPBC Act-listed species and communities in accordance with relevant Commonwealth Listing Advice: The locations of MNES in relation to the development are presented in Figures 12, 15, 16, 17d and 17f of the BDAR. CPHR raised concerns during the EIS (15 March 2023; recommendations 14.1, 14.2 and 15.1) that the land categorisation method had inadequately justified the absence of Box Gum Woodland CEEC within land mapped as category 1-exempt on the draft Native Vegetation Regulatory (NVR) map, thus potentially underestimating the extent of Box Gum Woodland CEEC required to be cleared for the project.	

Requirement	Information	Reference (BAM / BLA ¹)
	During the response to submission phase (25 June 2024; recommendations 14.1a and 14.1b) and the request for further information (RFI; 12 February 2025; residual matter 5), CPHR noted that the issue of underestimation of Box Gum Woodland CEEC had not been addressed. Mapping concerns relating to Box Gum Woodland CEEC remain unresolved. Mapping of species polygons relevant to MNES assessment are provided in Figures 17a-l of the BDAR for: • cotoneaster pomaderris • broad-headed snake • koala • swift parrot • regent honeyeater • large-eared pied bat • pink-tailed legless lizard. CPHR raised issues with species polygon determination for cotoneaster pomaderris, gang-gang cockatoo (<i>Callocephalon fimbriatum</i>) and giant burrowing frog at exhibition of the EIS. CPHR accepted the issues as resolved for cotoneaster pomaderris and gang-gang cockatoo at RTS (25 June 2024; recommendations 12.1, 12.2 and 13.1); however, absence of survey effort and potential species polygon mapping for the giant burrowing frog remains an unresolved residual matter (RFI; 12 February 2025; recommendation 21.1) at the time of writing this document. Any important populations and critical habitat, as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans: The subject land is within a mapped important habitat area for regent honeyeater. Advise whether there is appropriate justification and supporting evidence for the addition and/or exclusion of any EPBC Act listed threatened species and/or communities from the list (if applicable): The proponent initially identified a total of 60 species as requiring consideration under the EPBC Act, including 30 flora species and 30 fauna species (see Table 34 of the BDAR). One flora species (spiny peppergrass, <i>Lepidium aschersonii</i>) was excluded from assessment due to lack of suitable habitat within the area and CPHR accepted this exclusion. The remaining 29 species were subject to targeted survey, and one species was recorded (cotoneaster pomaderris) in the subject area.	

	Ten fauna species were justified by the proponent for exclusion from assessment based on lack of suitable habitat (curlew sandpiper; Sloane's froglet; red goshawk; grey falcon; giant burrowing frog; malleefowl; booroolong frog; eastern curlew; plains-wanderer; and Australian painted snipe). The remaining species were subject to targeted survey. A total of four species were recorded (koala, pink-tailed legless lizard, broad-headed snake, large-eared pied bat), one species assumed present (swift parrot) and the site falls within the important habitat map for one species (regent honeyeater). CPHR considers that there is inadequate justification for the exclusion of the giant burrowing frog. We note that there are no habitat constraints for this species in the TBDC and the development footprint is within the known distribution for the species. The absence of nearby records cannot be used to exclude candidate species from the requirement for targeted survey. No published literature has been presented to support the removal of the species on the basis of an absence of microhabitats. This issue was raised during exhibition (EIS) and remains a residual issue (RFI; 12 February 2025; recommendation 21.1). The proponent identified that Box Gum Woodland CEEC and Eucalypt Forest and Woodland CEEC required consideration under the EPBC Act (see Table 35 of the BDAR). As of February 2025 (RFI; 12 February 2025), CPHR considers that the full area of impact has not been correctly identified for Box Gum Woodland CEEC. The BDAR indicates the project is likely to have a significant impact on five MNES entities: Box-Gum Woodland CEEC, pink-tailed legless lizard, regent honeyeater, koala and large-eared pied bat. The BDAR considers the project is not likely to have a significant impact on the Eucalypt Forest and Woodland CEEC, cotoneaster pomaderris, swift parrot or broad-headed snake. An analysis of the significance of the impacts in accordance with the <i>Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (DEWHA 2013)</i> for relevant ecological communities and threatened species is provided in Appendix D of the BDAR and summarised in section 8.4. Species polygons are provided in Figures 17a-I of the BDAR for: • cotoneaster pomaderris • broad-headed snake • koala • swift parrot • regent honeyeater • large-eared pied bat • pink-tailed legless lizard. Mapping of polygons for TECs are provided in Figure 12 of the BDAR.	
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Requirement	Information	Reference (BAM / BLA ¹)
Avoidance, Minimisation, Mitigation & Management	Verify that the EIS/BDAR demonstrates all feasible alternatives and efforts to avoid and minimise impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including an analysis of alternative: ☒ designs and engineering solutions ☒ modes or technologies ☒ routes and locations of facilities ☒ sites within the subject site ☒ Verify that the EIS/BDAR identifies any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc). Verify that the EIS/BDAR provides feasible measures to mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including: ☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts ☒ any adaptive management strategy proposed to monitor and respond to impacts. Provide advice on whether all feasible impact avoidance, minimisation, mitigation and management measures have been considered and are adequately justified: CPHR considers that the impacts of the Project on biodiversity values are significant. The native vegetation, context in the landscape and connectivity to the neighbouring Munghorn Gap Nature Reserve result in the project area having exceptionally high biodiversity value. Several threatened species and their habitats have been identified on the site during surveys. No additional information was provided in the RFI regarding opportunities to cumulatively avoid impacts to threatened entities. Section 4 of the BDAR discusses measures to avoid and minimise impacts, including the analysis of alternative locations (section 4.1.1), alternative modes or technologies (section 4.1.2), alternative routes (section 4.1.3), and alternative sites within a property on which the proposal is located (section 4.1.4). The BDAR describes all impact avoidance and mitigation measures applied to the project for each relevant MNES in section 4.2.1. Figure 18a and 18b present development footprint changes between EIS and RTS; no further changes have been made to the development footprint following RTS.	BAM Chapters 6, 7 and 8 BLA clause 7.1

Requirement	Information	Reference (BAM / BLA ¹)
	Section 4.4 of the BDAR outlines the efforts undertaken to demonstrate how the project has avoided prescribed impacts. Efforts included avoiding direct and indirect impacts to caves and cliffs, forest edges, riparian corridors, wetlands, gullies and water bodies to minimise impacts to fauna. Section 4.5 and 4.6 outline actions and measures to avoid direct and indirect impacts on threatened species and ecological communities at risk of Serious and Irreversible Impacts (SAIL). Consideration of serious and irreversible impacts is addressed for each SAIL entity in Appendix F of the BDAR. Table 20 provides the techniques, timing, frequency and responsibility of the avoidance and minimisation measures for direct, indirect and prescribed impacts. The key avoidance and minimisation measures incorporated as part of the amended project footprint for each MNES are discussed in Section 8 of the BDAR. <u>Specific comments on avoidance and minimisation of impacts to MNES are included below.</u> In our response to the exhibited EIS (15 March 2023), CPHR raised several significant issues with the avoidance and minimisation strategy of the project. Specific concerns included: • the quantum of impact to Box Gum Woodland CEEC was significant and further avoidance should be undertaken • the quantum of impact to regent honeyeater habitat was significant and further avoidance should be undertaken • The prescribed impacts on threatened biodiversity values were inadequately assessed and lacked a long-term management plan; primarily, impacts from blasting noise and vibration on rocky habitat within Munghorn Nature Reserve • The assessment and quantification of residual prescribed impacts for Groundwater Dependant Ecosystems were not adequate and required revision CPHR recommended that the development footprint be revised to further avoid and minimise impact. Project refinement was undertaken based on CPHR advice between exhibition of the EIS and RTS. Additional information was included in the revised BDAR; however, the development footprint was not refined further and CPHR considers that these issues remain outstanding. Following RTS (RFI; 12 February 2025), CPHR advised that further consideration should be given to: • Impact to the serious and irreversible impact (SAIL) entities, Box Gum Woodland CEEC and regent honeyeater	

Requirement	Information	Reference (BAM / BLA ¹)
	• Development of additional and appropriate measures for Box Gum Woodland CEEC and regent honeyeater • Further avoidance and minimisation of impacts to biodiversity values; primarily rocky habitat, koala and squirrel glider habitat • Management of blast impacts to rocky habitat for the broad-headed snake and large-eared pied bat • Noise monitoring and action to intervene where noise pollution is unacceptable • Blast and vibration monitoring and action to intervene where blasting impacts are unacceptable • Application of a standard 500 metre buffer from the development footprint to Munghorn Gap Nature Reserve to ensure adequate protection of this asset • Inadequate groundwater monitoring regime for the purpose of monitoring or assessing any putative impact on Munghorn Gap Nature Reserve and Goulburn River National Park	
Impact Assessment	Verify that the EIS/BDAR: ☒ identifies the residual adverse impacts likely to occur to each EPBC Act listed threatened species and/or community after the proposed avoidance and mitigation measures are taken into account ☒ provides adequate justification and evidence for the predicted level of impact, with reference to the: • Commonwealth's Significant Impact Guideline: https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf • DPIE Guidance to Assist a Decision-Maker to Determine a Serious and Irreversible Impact (SII): (https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf) Complete the following information for each EPBC Act listed threatened species and/or community (add/remove rows as necessary): • EPBC Act listed threatened species and/or community • nature and consequences of impacts (i.e. direct and indirect) • duration of impact (e.g. construction, operation, life of project) • quantum of impact	BAM Chapters 8 and 9 BLA clauses 6.2(b)(i)-(ii) and 7.1

Requirement	Information	Reference (BAM / BLA ¹)
	consequences of impacts on the species, the population and / or extent of the community at local, state and national scales Confirm the level of predicted impact (cross appropriate): ☒ high risk of impact (requiring offsets)[#] or SAIL ☒ Low risk of impact (not requiring offsets) [#]For purposes of EPBC approval, as a minimum, significant adverse residual impacts must be offset (significant impact can be evaluated with reference to the significance impact guidelines) Provide advice on whether adequate justification and evidence is provided for species and communities that have been identified as being at low risk of impact. <i>Summary information provided by the proponent, see below: Table 3 - Impact summary for all MNES threatened species and communities</i> Section 8.4 of the BDAR identifies and assesses the likely residual impacts for each MNES entity after the proposed avoidance and mitigation measures are considered and details the likelihood of significant impacts to MNES. Section 6 of the BDAR assesses likelihood of serious and irreversible impacts to MNES. Appendix D of the BDAR details the EPBC Act significant impact assessment for each MNES entity considered at risk of impact by the project. The BDAR considers the project is likely to have a significant impact on five MNES entities: Box Gum Woodland CEEC, pink-tailed legless lizard, regent honeyeater, koala and large-eared pied bat. The BDAR considers the project is not likely to have a significant impact on the Eucalypt Forest and Woodland CEEC, cotoneaster pomaderris, swift parrot or broad-headed snake. The BDAR identified two species as being at low risk of impact and thus do not require offsetting: the swift parrot and broad-headed snake. Despite approximately 105 hectares of associated PCTs being impacted by clearing, the swift parrot was considered low risk as the development area does not fall within the important habitat mapped area for this species and an abundance of suitable habitat is available in the surrounding area. As the development does not fall within the important habitat map for this species, species credits are not required. Similarly, it concludes that there is low risk of impact to broad-headed snake as suitable habitat on site is completely avoided (rocky habitat), extensive suitable habitat occurs in adjacent Munghorn Gap Reserve, and to date no important populations have been defined for this species. It is acknowledged that removal of 15.5 ha of Eucalypt Forest and Woodland CEEC is likely to increase fragmentation of the ecological community, but overall	

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	unlikely to have significantly impact as the occurrence of the community within the development footprint represents approximately 0.02% of the likely extent of the CEEC in the Kerrabee subregion. All three MNES entities identified as low risk have been assessed under the BAM and offset under the BC Act. <u>Prescribed impacts</u> The BDAR concludes that mitigation measures (100m setbacks from mapped rocky habitat and limiting vibration to 50 mm/s) will reduce impacts on rocky habitat to negligible levels so that there will be no residual prescribed impacts. Due to this, no offsets for prescribed impacts on rocky habitat are proposed. CPHR expressed concerns at RTS (RFI; 12 February 2025; residual matter 6) that the prescribed impacts to rocky habitat in Munghorn Gap Nature Reserve had not been adequately addressed or mitigated. We consider that that the vibration level of 50 mm/s is too high and may cause impacts to sandstone features in Munghorn Gap Nature Reserve. CPHR recommended that the setback should be at least 500 meters from all rocky habitat features; a 100-meter setback has been proposed by the proponent. If the consent authority decides to grant the MCO3 extension with a 100-meter setback from Munghorn Reserve, CPHR have recommended that the approval be conditioned: a) to establish and maintain the minimum 100 metre buffer, but allow for variable buffer applications where permitted, ensuring no encroachment of any MCC OC3 operations into the established 100 metre buffer, and b) to require, as part of the Trigger Action Response Plan (TARP), set criterion regarding detected impacts to Munghorn Gap Nature Reserve, immediate notification to NPWS, and where an adverse, or significant impact is detected, immediate implementation of the 500-meter buffer, affecting all future staged operations at the MCC MOC3 Extension. CPHR noted in our response to the EIS (15 March 2023; recommendation 16.1) that impacts to non-native vegetation which supports threatened species habitat is listed as prescribed impact under Section 6 of the BAM. Section 5.3.1 of the BDAR estimates 25.3 ha of residual prescribed impacts for the pink-tailed legless lizard on land mapped as category 1-exempt and a species polygon was established to calculate credits for residual prescribed impacts on this species. We note that these species credits are additional to the credits calculated in the BAM-C and presented the credit reports in appendices H, I, and J of the BDAR. <u>Impacts to Serious and Irreversible Impact (SAIL) entities</u>	

Requirement	Information	Reference (BAM / BLA ¹)
	Section 6.1 of the BDAR outlines the avoidance and minimisation measures for reducing impacts to entities at risk of an SAIL. The SAIL assessment is detailed in Appendix F of the BDAR. NSW DCCEEW has provided specialist advice on SAIL for the decision-maker to consider in their assessment of the project, based on a review of the information presented in the BDAR. SAIL advice presented by NSW DCCEEW is in accordance with the relevant requirements under the BC Act and the <i>Biodiversity Regulation 2017</i> (BC Regulation). SAIL assessments presented by DCCEEW in our RTS response (25 June 2024) were prepared with input from relevant internal experts, including accountable officers for each SAIL entity. CPHR remain concerned that the proposed project is likely to result in a SAIL on Box Gum Woodland CEEC, regent honeyeater, broad-headed snake, eastern cave bat and large-eared pied bat. - Box Gum Woodland CEEC - The loss of 401.12ha would cause a further decline of the ecological community by increasing habitat fragmentation and decreasing the area of high-quality habitat. . - Regent honeyeater - The loss of 80.5 ha of regent honeyeater habitat, a key threatening process, would contribute to further decline of the species. - Broad-headed snake, eastern cave bat and large-eared pied bat indirect impacts upon rocky habitat within Munghorn Gap Nature Reserve. These SAIL species require habitat components that cannot be recreated within offset sites; damage to the rocky habitat of these species is irreversible.	
Offsets	Verify that the EIS/BDAR: ☒ identifies any MNES that haven't been offset using the BAM ☒ identifies how impacts requiring offsets correlate to MNES impacts ☒ identifies the plant community types (PCTs) requiring offset and the number and type of ecosystem credits required for impacts to MNES ☒ identifies threatened species requiring offset and the number of species credits required for impacts to MNES ☒ correctly uses the BAM (and BAM calculator) to identify the number and class of biodiversity credits that need to be offset to achieve a standard of 'no net loss' of biodiversity ☒ identifies if ecological rehabilitation and/or biodiversity conservation actions are proposed for offsetting ☒ if known, identifies any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures[#].	BAM Chapter 10 BLA clauses 7.1 and 7.2

Requirement	Information	Reference (BAM / BLA ¹)
	# In accordance the BAM there is no longer a requirement to define the offsetting approach at EIS stage. Two MNES entities have not been offset using the BAM; the proponent identifies them as unlikely to be impacted by the amended project. This includes the broad-headed snake as the species breeding habitat has been avoided by the amended project development footprint and the swift parrot as the amended project development footprint does not occur in an area mapped as Important Habitat for the species. Provide advice on the adequacy of the proposed offsets in meeting the requirements of the BAM: Section 8.7 of the BDAR describes the Biodiversity Offset Strategy for MNES. Section 9 of the BDAR describes the general offset strategy for the project and indicates the proponent is investigating the following options to satisfy the offset obligation for both State and Commonwealth entities, which includes the following: • Establishment of a Biodiversity Stewardship Site(s) with the required biodiversity values to formally retire credits • Retire credits from existing MCO BioBanking/Biodiversity Stewardship Sites • Purchase biodiversity credits from the credit market • Payment of the biodiversity offset obligation into the Biodiversity Conservation Fund. The proponent states they reserve the right to discharge their offset obligation through one of these options upon project approval. CPHR note the Project is proposed to be staged and consent to a staged development application provides for a corresponding staged retirement of biodiversity credits before each stage of development is carried out. Issues identified above relating to inadequate identification of absence of Box Gum Woodland CEEC and inadequate justification for exclusion of giant burrowing frog from survey may impact final calculations of credit liability but should not impact the method of discharge of credit liability.	
Other Considerations	Verify if any relevant Commonwealth guidelines and policy statements are applicable to the action and listed threatened species and/or community, including but not limited to: ☒ International environmental obligations ☒ Recovery Plans	BLA clauses 6.2(b)(iv), 7.2(c), 7.3 and 7.4

Requirement	Information	Reference (BAM / BLA ¹)
	☒ Approved Conservation Advice ☐ Threat Abatement Plans <i>The relevant Commonwealth guidelines and policy statements for each species and community are available at: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl</i> For each EPBC Act listed threatened species and/or community, provide advice on whether the assessment has been adequately informed by applicable Commonwealth guidelines and/or policy statements. For example, the interaction between the proposed action and important populations or critical habitat identified in policy documents and/or the interaction between the proposed action and threatening processes or recommended conservation actions outlined in Commonwealth policies and plans. <u><i>International environmental obligations</i></u> The proponent does not discuss impacts to MNES in relation to Australia's international obligations. The bilateral migratory bird agreements are not discussed. The proposal site does not impact on any Ramsar wetlands. <u><i>Recovery Plans</i></u> Recovery plans for Box Gum Woodland CEEC, cotoneaster pomaderris, regent honeyeater, swift parrot, large-eared pied bat and koala are referenced in Table 39 of the BDAR. Recovery plans have generally been referenced to inform the identification of areas of important habitat for the above species and communities. <u><i>Conservation Advices</i></u> Conservation advices for Eucalyptus Forest and Woodland CEEC and Box Gum Woodland CEEC are referenced in Appendix C in relation to the relevant recovery and threat abatement actions for each TEC relevant to the proposal. Conservation advices for <i>Hibbertia acaulothrix</i>, pink-tailed legless lizard, regent honeyeater, swift parrot, pilotbird, large-eared pied bat, koala and broad-headed snake are referenced throughout and in relation to EPBC Act Significant Impact Assessment (Appendix D). <u><i>Threat Abatement Plans</i></u> Are not addressed <u><i>Key Threatening Processes</i></u>	

Requirement	Information	Reference (BAM / BLA ¹)
	There is no detailed discussion around Key Threatening Processes (KTP's) in the BDAR. There is reference to KTP's in Appendix D and Section 8.4 of the BDAR in relation to Box Gum Woodland CEEC, pink-tailed legless lizard and regent honeyeater, however there is no detailed discussion.	
Recommended Conditions	Provide advice on any recommended conditions and reasons for imposing the conditions: CPHR provided a formal response (dated 12 February 2025; RFI) to DPHI on the version of the BDAR submitted with the RTS report. Numerous residual issues remain unresolved. CPHR has not received draft conditions for review as at the time of preparing this report and therefore recommendations on potential conditions cannot be provided. CPHR have recommended to DPHI the following conditions be considered for inclusion in the consent conditions: <i>Recommendation 1.3:</i> <i>If the project is approved, ensure that the 405 species credits calculated for prescribed impacts to pink-tailed legless lizard are included in the consent conditions.</i> <i>Recommendation 3.3c:</i> <i>If the project is approved, include consent conditions that:</i> <i>define a performance measure of indistinguishable damage on sensitive geological features.</i> <i>set an upper blast vibration limit based on the Peak Particle Velocity threshold criteria for sensitive geological structures.</i> <i>set an airblast overpressure maximum limit that effectively mitigates airblast impacts on threatened species and their habitats outside the development footprint.</i> <i>require a blast management plan that includes pre-blast and post-blast monitoring, recording, and reporting along with a quantifiable and measurable trigger, action, response plan.</i> <i>Recommendation 4.1c:</i> <i>If approved, include consent conditions requiring:</i> <i>Monthly visual inspections of mapped rocky habitat closest to blast locations before and after the associated blasts to determine whether blast-related impacts have occurred. Document these inspections with georeferenced photographic evidence.</i> <i>The blast management plan is to be prepared in consultation with CPHR.</i>	BLA clause 6.2(c)(iii)

Requirement	Information	Reference (BAM / BLA ¹)
	Recommendation 29.2g: <i>If approved, include consent conditions requiring no drawdown of groundwater, variation to groundwater quality, or effects on groundwater dependent ecosystems on Munghorn Gap Nature Reserve or Goulburn River National Park are to occur as part of the MCO3 Extension Project.</i> Recommendation 29.2h: <i>If approved, include a consent condition requiring the proponent to:</i> • <i>revise the Groundwater Management Plan to:</i> i) <i>update the number of (new) piezometers, ensuring the number and locations ensure the MCO3 Extension groundwater monitoring program is adequate to detect impacts to Munghorn Gap Nature Reserve. Include additional monitoring sites to cover the Triassic (aquifer) eastern side, Tertiary paleochannel and Quaternary alluvial deposits associated with waterways proximate to Munghorn Gap Nature Reserve and the Ulan Seam.</i> ii) <i>establish monitoring bores as recommended by the Australasian Groundwater and Environment Consultants Pty Ltd (AGE) (2022). Include a bore between OC3B pit and Munghorn Gap Nature Reserve to monitor the extent of groundwater drawdown and quality impacts.</i> iii) <i>provide raw groundwater data to NPWS for independent assessment and review.</i> Recommendation 33.2b (Alternative) <i>If DPHI – Planning as the consent authority decides to grant the MCO proposed 100 metre minimum buffer between the development footprint and Munghorn Gap Nature Reserve, the approval be conditioned:</i> i) <i>to establish and maintain the minimum 100 metre buffer, but allow for variable buffer applications where permitted, ensuring no encroachment of any MCC OC3 operations into the 100 metre buffer, and</i> ii) <i>to require as part of the TARP set criterion regarding detected impacts to Munghorn Gap Nature Reserve which require escalation requiring mitigation measures and notification to NPWS. Where a significant impact is detected NPWS TARP action to initiate a greater buffer zone (500 metres preferred).</i>	

TABLE 2: MNES IMPACT AND OFFSET SUMMARY

Table G-1.2. Impact and offset summary for all MNES threatened species and communities

Threatened Species / Community listed under EPBC Act	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS/BDAR)
Cotoneaster Pomaderris (<i>Pomaderris cotoneaster</i>)	Species Credit Species	0.07*	2	Retire biodiversity credits based on the like-for-like provisions in the BC Regulation	Section 8.7 of the Updated BDAR (Niche, 2024)
Pink-tailed Legless Lizard (<i>Aprasia parapulchella</i>)	Species Credit Species	207.14	4,147^		
Regent Honeyeater (<i>Anthochaera phrygia</i>)	PCTs 266, 281, 1610, 1655, 1656, 1661, 1711~	80.5	3,410		
Swift Parrot (<i>Lathamus discolor</i>)	PCTs 266, 281, 1629, 1655	105.52	0	N/A	
Koala (<i>Phascolarctos cinereus</i>)	Species Credit Species	113.02	3,425	Retire biodiversity credits based on the like-for-like provisions in the BC Regulation	
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	Species Credit Species	113.02	5,137		
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	PCTs 266, 281, 483	401.12	9,610		
Central Hunter Valley Eucalypt Forest and Woodland	PCTs 1655	15.5	372		
TOTAL			26,103		

* 0.07 ha loss associated with the 30 m buffer around the area of suitable habitat where the species was observed. No individuals would be impacted.

^ Including 405 credits for impacts to habitat on Category 1 – exempt land.

~ Including PCTs mapped within the Development Footprint that intersect with the species Important Habitat Mapping.

Table 3: Impact summary for all MNES threatened species and communities

Name of EPBC Act listed entity	Nature & consequence of impact (direct & indirect)	Duration of impact (e.g. construction, operation, life of project)	Quantum of impact	Consequence of impact (Local, state & national scales)	Impact requires offsetting? (significant or not)
Cotoneaster Pomaderris (<i>Pomaderris cotoneaster</i>)	The Project would result in the clearance of approximately 0.07 ha of the 30 m buffer around the area of suitable cotoneaster pomaderris	Clearance would occur during the construction phase of the Project.	The Project's adverse impacts on the cotoneaster pomaderris are considered not likely to be significant given the small size of the impact (approximately 0.07 ha) is within the buffer of records outside of the	The impacts on the cotoneaster pomaderris would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required

	habitat. No individuals will be directly impacted as a result of the Project.		Development Footprint that will not be directly impacted.		
Pink-tailed Legless Lizard (<i>Aprasia parapulchella</i>)	The Project would result in the clearance of approximately 207.14 ha of suitable pink-tailed legless lizard habitat.	Clearance would be progressive during the construction phase.	The Project's adverse impacts on approximately 207.14 ha of suitable pink-tailed legless lizard habitat is considered likely to have a significant impact on the species.	The impacts on the pink-tailed legless lizard would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required
Broad-headed Snake (<i>Hoplocephalus bungaroides</i>)	The Project would not result in the clearance of any broad-headed snake mapped rocky habitat. Adjoining areas of habitat may potentially be indirectly impacted (noise, vibration and lighting impacts).	Indirect impacts would occur during construction and operation of the Project.	The Project will not directly impact the broad-headed snake and indirect impacts are considered unlikely to have a significant impact on the species.	Impacts on the broad-headed snake are considered unlikely to be significant.	No offsetting required
Regent Honeyeater (<i>Anthochaera phrygia</i>)	The Project would result in the clearance of approximately 80.5 ha of regent honeyeater Important Habitat Mapping.	Clearance would be progressive during the construction phase of the Project. Progressive rehabilitation and revegetation is proposed following completion of active mining operations.	The Project's adverse impacts on approximately 80.5 ha of regent honeyeater Important Habitat Mapping is considered likely to have a significant impact on the species.	The impacts on the regent honeyeater would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required
Swift Parrot (<i>Lathamus discolor</i>)	The Project would result in the clearance of approximately 105.52 ha of swift parrot foraging habitat.	Clearance would be progressive during the construction phase of the Project. Progressive rehabilitation and revegetation is proposed following completion of active mining operations.	The Project's adverse impacts on approximately 105.72 ha of Swift Parrot foraging habit is considered unlikely to have a significant impact on the species.	Impacts on the swift parrot are considered unlikely to be significant.	No offsetting required
Koala (<i>Phascolarctos cinereus</i>)	The Project would result in the clearance of approximately 113.02 ha of koala habitat.	Clearance would be progressive during the construction phase of the Project. Progressive	The Project is considered likely to affect habitat that has the potential to be critical to the survival of the	The impacts on the koala would be offset in accordance with the NSW	Offsetting required

		rehabilitation and revegetation is proposed following completion of active mining operations.	koala. The Project's adverse impacts on approximately 113.02 ha of koala habitat is considered likely to have a significant impact on the species.	Biodiversity Offsets Scheme (Section 8.7 the BDAR).	
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	The Project would result in the clearance of approximately 113.02 ha of large-eared pied bat potential foraging habitat. The Project would not result in the clearance of any large-eared pied bat mapped rocky habitat.	Clearance would be progressive during the construction phase of the Project. Progressive rehabilitation and revegetation is proposed following completion of active mining operations.	The Project's adverse impacts on approximately 113.02 ha of large-eared pied bat potential foraging habitat is considered to have the potential to significantly impact the species.	The impacts on the large-eared pied bat would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC	The Project would result in the clearance of approximately 401.12 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.	Clearance would be progressive during the construction phase of the Project. Progressive rehabilitation and revegetation is proposed following completion of active mining operations.	The Project's adverse impacts on approximately 401.12 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is considered likely to have a significant impact on the ecological community.	The impacts on the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required
Central Hunter Valley eucalypt forest and Woodland CEEC	The Project would result in the clearance of approximately 15.5 ha of Central Hunter Valley Eucalypt Forest and Woodland.	Clearance would be progressive during the construction phase of the Project. Progressive rehabilitation and revegetation is proposed following completion of active mining operations.	The Project's adverse impacts on approximately 15.5 ha of Central Hunter Valley Eucalypt Forest and Woodland is considered unlikely to have a significant impact on the ecological community.	The impacts on the Central Hunter Valley Eucalypt Forest and Woodland would be offset in accordance with the NSW Biodiversity Offsets Scheme (Section 8.7 the BDAR).	Offsetting required