

Department of Planning and Environment
Planning and Assessment Group
Locked Bag 5022
PARRAMATTA NSW 2150

Attention: Mr Anthony Ko

Dear Mr Ko

RE: Oven Mountain Pumped Hydro – EIS (SSI – 12422997)

Thank you for the notification dated 15 September 2023, about the Environmental Impact Statement (EIS) for the Oven Mountain Pumped Hydro Critical State Significant Infrastructure project requesting advice from the Biodiversity and Conservation Division (BCD) of the Department of Planning and Environment (DPE). I appreciate the opportunity to provide input.

BCD has reviewed the EIS dated August 2023 and the Biodiversity Development Assessment Report (BDAR) dated September 2023, both prepared by EMM, as well as other associated documents. BCD staff also completed a site inspection on 19 and 20 April 2023. The advice below builds on the advice BCD provided to EMM following our review of the draft EIS, draft BDAR and associated documents.

The information provided in the BDAR and EIS indicates the proposal will have substantial impacts on biodiversity and is likely to result in Serious and Irreversible Impacts (SAIL) on brush-tailed rock-wallaby and *Pultenaea rubescens*. At this stage, the EIS does not assess all the impacts associated with the proposal.

The key issues we identified in our review include:

- some species polygons are not mapped in accordance with the Biodiversity Assessment Method 2020 (BAM)
- the disturbance footprint and construction envelope are inconsistently mapped
- targeted flora surveys were not completed in some areas of suitable habitat
- the Eastern cave bat species polygon and impact assessment are not correct and require revision
- there is missing data to assign Plant Community Type (PCT) 868 and its condition score
- stormwater and surface water discharge point impacts were not assessed
- the presence of the cryptic forest twiner is unconfirmed, and other related data and information inconsistencies require review and rectification
- biodiversity impacts of water extraction from the Macleay River have not been clearly identified
- additional information is required to allow the bilateral assessment to be completed
- information used to assess the significance of impact for some entities listed as Matters of National Environmental Significance (MNES) is incomplete or inaccurate and
- further information is required on the assessment of a critically endangered ecological community (CEEC) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The NSW National Parks and Wildlife Service (NPWS) has also reviewed the EIS and provided comments and recommendations in relation to the project's impacts on the NPWS estate. NPWS has also made comments and recommendations on how the potential impacts on wilderness values within adjoining areas of declared wilderness under the *Wilderness Act 1987* has been assessed, as well as the potential impacts of the project on amenity for visitors staying at the heritage-listed East Kunderang Homestead and the range of heritage values (state, national and world heritage values) that occur in the vicinity of the site.

BCD and NPWS recommendations are provided in **Attachment 1** to this letter, with detailed comments from BCD at **Attachment 2** and detailed comments from NPWS at **Attachment 3**. To understand the full impacts on biodiversity and the NPWS estate, it is recommended that the proponent submit a revised BDAR and address the issues raised and recommendations listed in the attachments in the response to submissions.

The anticipated impacts of this project on threatened species, ecological communities, and their habitats, as well as on the NPWS Estate and declared wilderness, are substantial.

If you have any questions about this advice, please do not hesitate to contact Ms Gabrielle Pietrini, Director North East Biodiversity and Conservation Division, at gabrielle.pietrini@environment.nsw.gov.au or 6659 8232.

Yours sincerely



BRENDAN BRUCE
Deputy Secretary
Biodiversity, Conservation and Science

22/112023

Attachment 1 – BCD Recommendations – Oven Mountain Pumped Hydro – EIS

Attachment 2 – Detailed BCD comments – Oven Mountain Pumped Hydro – EIS

Attachment 3 – Detailed NPWS comments – Oven Mountain Pumped Hydro – EIS

Attachment 1: BCD and NPWS Recommendations - Oven Mountain Pumped Hydro – Environmental Impact Statement

BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCD	Biodiversity and Conservation Division
BOS	NSW Biodiversity Offsets Scheme
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
EEC	Endangered Ecological Community
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EIS	Environmental Impact Statement
IBRA	Interim Bio-Regionalisation of Australia
MNES	Matters of National Environmental Significance
PCT	Plant Community Type
RTS	Response to Submissions
SAIL	Serious and Irreversible Impact
TBDC	Threatened Biodiversity Data Collection

BCD Recommendations

The Biodiversity and Conservation Division of the Department of Planning and Environment recommends that:

- 1.1 The consent authority notes that proceeding with the project at the proposed scale in the proposed location will result in substantial impacts to threatened species, ecological communities, and their habitats.
- 2.1 The BDAR be revised to remove the incorrect terminology which reports ‘occupied’ and ‘potential’ brush-tailed rock-wallaby denning habitat and these habitat categories be combined and correctly referred to as ‘actual brush-tailed rock-wallaby denning and refuge (critical) habitat.’
- 2.2 The consent authority notes the project is likely to have a SAIL on the brush-tailed rock-wallaby.
- 2.3 The consent authority notes the project is likely to have a SAIL on *Pultenaea rubescens*.
- 2.4 The proponent consults with BCD to identify additional and appropriate measures to avoid and mitigate the likely SAIL on the brush-tailed rock-wallaby and *Pultenaea rubescens* and document these in the response to submissions report.
- 3.1 The BDAR be revised to include further information to determine whether the proposal will result in a SAIL for wandering pepper cress.
- 4.1 The construction envelope be reduced to align with the disturbance footprint in locations containing threatened flora species, SAIL entities, and critical habitat for SAIL entities.

- 5.1 The BDAR be revised to map the species polygon for *Pultenaea rubescens* in line with the requirements of the BAM and to remove all references to 'occupied' and 'potential' habitat within that species polygon.
- 5.2 The revised BDAR clarify how the species polygon for wandering pepper cress (*Lepidium peregrinum*) was mapped in accordance with the BAM, with consideration of the vegetation zone mapping in Figure 5.1 of the BDAR.
- 5.3 The BDAR be revised to map species polygons for brush-tailed phascogale (*Phascogale tapoatafa*) in accordance with section 5.2.5 of the BAM and the requirements of the TBDC.
- 6.1 The RTS report include an assessment of the impacts of road widening associated with the project along the Kempsey Armidale Road.
- 6.2 Clarification be provided on whether upgrading the TransGrid line 965 and connecting the pumped hydro project to line 965 will result in any impacts to biodiversity and, if impacts will occur, then an assessment of these impacts be included in a revised BDAR and RTS report.
- 6.3 Additional information be provided in a revised BDAR on prescribed impacts on downstream aquatic and riparian biota, including threatened species and ecological communities, or their habitats, arising from reducing the streamflow of the Macleay River and from operational discharges to the river associated with the project.
- 6.4 Information be provided in a revised BDAR and RTS report on how the proponent proposes operating the pumped hydro system during extended periods of drought without the required water top ups of the reservoirs from the Macleay River, to ensure the biodiversity impacts during operations are fully assessed.
- 6.5 The BDAR be amended to include an assessment of the potential impacts of *Phytophthora cinnamomi* on *Pultenaea rubescens* from the various disturbances associated with the project.
- 7.1 The BDAR be revised to determine the presence of candidate threatened flora species in all areas of unsurveyed 100 metre (m) grid intersection locations by surveying, by assuming presence or by obtaining an expert report.
- 8.1 The BDAR be revised to include the Eastern cave bat as a candidate species for all IBRA subregions on the project site within the subject land.
- 8.2 The BDAR be revised to include a SAIL assessment for the Eastern cave bat for any impacts to its breeding habitat (caves, cliffs, scarps, and rock overhangs including a 100m buffer).
- 9.1 A revised BDAR demonstrate that a minimum of one BAM plot has been completed in the mapped northern-most extent of the area mapped as PCT 868 to determine if this is the correct PCT and to provide data to determine the vegetation integrity score.
- 10.1 The BDAR be revised to include assessments of the impacts from stormwater and surface water discharge points on threatened flora, threatened flora habitat, and EECs known to occur on the project site.
- 11.1 Positive identification of the cryptic forest twiner (*Tylophora woollsii* or *Tylophora* sp.*) be determined and the BDAR revised as required.
- 12.1 The data and information inconsistencies in the BDAR identified in Attachment 2 of this response be reviewed and corrected.
- 13.1 Additional information be included in a revised BDAR on the MNES impact assessment as outlined in Attachment 2 of this response to allow the project to be assessed under the bilateral agreement with the Australian Government.

- 14.1 The BDAR be revised to correct the information used in assessments of significance for MNES and rectify the issues described in Attachment 2 of this response.
- 14.2 The consent authority notes that BCD disagrees with the conclusion of the MNES assessment assessments of significance for brush-tailed rock-wallaby and *Pultenaea rubescens*, and that BCD's review of the project suggests it is likely to have a significant impact on these two MNES entities.
- 15.1 Further information be provided in a revised BDAR to demonstrate how species richness was determined in accordance with the EPBC Act listing advice for Lowland Rainforest of Subtropical Australia (DSEWPC 2011).

NPWS Recommendations

The NPWS of the DPE recommends that:

- 16.1 As part of a RTS report, additional assessment be completed of the noise and vibration impacts for sites and areas within the declared wilderness, treating wilderness users as 'sensitive receivers' that are more sensitive than residents.
- 16.2 The existing visual impact assessment be revised as part of a RTS report to include additional analysis of the predicted impacts at vantage points overlooking the project site located in the declared Macleay Gorges and Kunderang wilderness areas.
- 17.1 The potential for impacts on the World Heritage values of the Gondwana Rainforests be reassessed as part of a RTS report, considering changes in movement and population dynamics of motile species such as brush-tailed rock-wallabies.
- 17.2 The RTS include appropriate mitigation options to limit impacts to the park's threatened species due to works within the project site.
- 18.1 Potential impacts on the East Kunderang Station's amenity and setting be discussed with the Aboriginal community before the development application is determined, and specifically in the context of the State Heritage Register listing.
- 18.2 The noise and vibration impact assessments be revised as part of a RTS report to predict likely impacts on visitors staying at the East Kunderang Station, with this site being considered equivalent to a sensitive residential receiver rather than a commercial accommodation facility.
- 18.3 Any construction works likely to generate noise impacts more than 35dB(A) in the surrounding national park estate be conditioned to avoid school holidays and weekends
- 18.4 Pumping water from the Macleay River be conditioned to only occur during periods of quantifiable high-water flow, so that environmental flows are maintained and the impacts on aquatic ecology are minimised.
- 19.1 The modelled noise impact assessment be revised as part of a RTS report to include meteorological conditions that reflect the weather conditions commonly recorded in the surrounding area.
- 20.1 Appropriate mitigation measures be identified as part of a RTS report to reduce unauthorised use of the NPWS parks and declared wilderness near the project site.
- 21.1 Approvals for access to and from the south of the project site onto the Carrai Plateau through the Carrai State Conservation Area and private lands be identified as 'other approvals' and included in the conditions of consent.

- 22.1 The proposed upgrade to Line 965 be included in the RTS report noting the SEPP (Planning Systems) 2021 identifies the existing transmission network upgrade to be part of the project.
- 22.2 NPWS be identified as a key stakeholder in the proposed Kempsey Road and Line 965 upgrades.

Attachment 2: Detailed BCD Comments – Oven Mountain Pumped Hydro – Environmental Impact Statement

The BCD of DPE has reviewed the EIS for the Oven Mountain Pumped Hydro Critical State Significant Infrastructure project prepared by EMM dated August 2023, the BDAR prepared by EMM dated September 2023, and other associated documents. After its review of these documents, BCD provides the following comments and recommendations, noting that some of the issues identified were previously raised in letters from BCD to EMM dated 30 May 2023 and 26 June 2023 following initial review of the draft EIS, draft BDAR and associated documents and a site inspection undertaken on 19 and 20 April 2023.

1. The project will result in substantial residual biodiversity impacts.

Despite the proponent making efforts to avoid impacts to biodiversity through amending the project design, the scale of the project proposed in the current location will result in high impacts to biodiversity due to the remote location and the intact, undisturbed vegetation on site. Also, topographic and landscape constraints restrict the ability to relocate most of the project components, so the impact to areas of significant biodiversity cannot be avoided. A summary of the impacts of the project is provided in Table 1.

Table 1. Direct and indirect impacts to biodiversity

Removal of native vegetation	328 hectares (ha) (direct impacts) 530 ha (direct and indirect impacts combined)
Removal of EEC	7.4 ha

Threatened Entity	NSW threat status	Commonwealth threat status	Area of habitat or count of species impacted (direct and indirect)
Guthries grevillea (<i>Grevillea guthrieana</i>)	Endangered	Endangered	60 individuals
Tall velvet sea-berry (<i>Haloragis exalata</i> subsp. <i>Velutina</i>)	Vulnerable	Vulnerable	1412 individuals
Wandering pepper cress (<i>Lepidium peregrinum</i>)	Endangered and SAII entity	Endangered	0.5 ha
<i>Pultenaea rubescens</i>	New undescribed species (three known populations in NSW) (Will be SAII entity once described listed)	New undescribed species	0.9 ha*
Cryptic forest twiner (<i>Tylophora woollsi</i>)	Endangered	Endangered	25 ha
Glossy black-cockatoo (<i>Calyptorhynchus lathami</i>)	Vulnerable	Vulnerable	15 ha**
Barking owl (<i>Ninox connivens</i>)	Vulnerable	-	1.5 ha**
Powerful owl (<i>Ninox strenua</i>)	Vulnerable	-	1.5 ha**
Masked owl (<i>Tyto novaehollandiae</i>)	Vulnerable	-	2 ha**
Brush-tailed rock-wallaby (<i>Petrogale penicillate</i>)	Endangered and SAII entity	Vulnerable	244 ha
Long-nosed potoroo (<i>Potorous tridactylus</i>)	Vulnerable	Vulnerable	207 ha
Squirrel glider (<i>Petaurus norfolcensis</i>)	Vulnerable	-	451 ha
Greater glider (<i>Petauroides volans</i>)	Endangered	Endangered	206 ha
Brush-tailed phascogale (<i>Phascogale tapoatafa</i>)	Vulnerable	-	177 ha***

Threatened Entity	NSW threat status	Commonwealth threat status	Area of habitat or count of species impacted (direct and indirect)
Koala (<i>Phascolarctos cinereus</i>)	Endangered	Endangered	116 ha
Common planigale (<i>Planigale maculata</i>)	Vulnerable	-	138 ha**
Southern myotis (<i>Myotis Macropus</i>)	Vulnerable	-	83 ha
Eastern cave bat (<i>Vespadelus troughtoni</i>)	Vulnerable	-	15 ha

*As discussed further, impacts to *Pultenaea rubescens* habitat are expected to be significantly greater than this figure

**These species were assumed present

***As discussed further, this species polygon has been incorrectly mapped and impacts will be greater than this figure

In addition to the above threatened species recorded, or assumed present, in the project area, the surveys recorded additional threatened species in the project area which are treated as ecosystem species in the Biodiversity Offsets Scheme (BOS). These have been included as being impacted and requiring ecosystem credit obligations (Table 2).

Table 2. Additional Threatened Species recorded within the project area

Threatened species	NSW threat status	Commonwealth threat status
Spotted-tailed quoll (<i>Dasyurus maculatus</i>)	Vulnerable	Endangered
Hastings river mouse (<i>Pseudomys oralis</i>)	Endangered	Endangered
Eastern false pipistrelle (<i>Falsistrellus tasmaniensis</i>)	Vulnerable	-
Eastern coastal free-tailed bat (<i>Micronomus norfolkensis</i>)	Vulnerable	-
Little lorikeet (<i>Glossopsitta pusilla</i>)	Vulnerable	-
White-throated needletail (<i>Hirundapus caudacutus</i>)	-	Vulnerable
Scarlet robin (<i>Petroica boodang</i>)	Vulnerable	-
Wompoo fruit-dove (<i>Ptilinopus magnificus</i>)	Vulnerable	-
Speckled warbler (<i>Pyrrholaemus sagittatus</i>)	Vulnerable	-
Diamond firetail (<i>Stagonopleura guttata</i>)	Vulnerable	-

The proponent proposes to offset the impacts shown in Tables 1 and 2 above, however, the residual impacts from the project (after all attempts to avoid impacts have been made) will result in substantial impacts to threatened species, ecological communities, and their habitats.

BCD Recommendation

1.1 The consent authority notes that proceeding with the project at the proposed scale and in the proposed location will result in substantial impacts to threatened species, ecological communities, and their habitats.

2. The proposal is likely to have SAI on brush-tailed rock-wallaby and *Pultenaea rubescens*

The BDAR has provided an assessment of SAI for the listed SAI entities present within the project area. Our review of the SAI assessment has identified SAI related issues for brush-tailed rock-wallaby and *Pultenaea rubescens* as set out below.

Brush-tailed rock-wallaby

The impact of removing important habitat and prolonged disturbance of adjacent occupied habitat supporting brush-tailed rock-wallabies is understated in the SAI assessment. The proposal will remove 184ha of brush-tailed rock-wallaby foraging habitat. The proposal will also indirectly impact an additional 60ha of foraging habitat.

The previous draft BDAR prepared by EMM (March 2023) and reviewed by BCD, indicated that 1ha of brush-tailed rock-wallaby denning habitat (rocky areas that contain overhangs, crevices, caves, and ledges), which EMM said was critical habitat, would be directly impacted by the project. Without any changes to the disturbance footprint, the BDAR exhibited with the EIS now indicates that 0.002ha (20m²) of brush-tailed rock-wallaby denning habitat will be impacted. This change is predicated on dividing critical habitat into 'occupied' and 'potential' habitat.

For this response, we have used the term 'critical habitat' to encompass brush-tailed rock-wallaby denning habitat used for breeding and refuge habitat used for shelter.

The surveys to determine occupancy of habitat for this species consisted of brief observations made over a short period of time. Brush-tailed rock-wallabies are likely to rely on areas of nearby 'potential' habitat to shelter from predators and stochastic events (e.g. bushfire) and to facilitate safe movement between colonies, even if those areas are unsuitable for permanent occupation. The brief surveys conducted for the BDAR cannot be relied upon to verify that areas identified as 'potential' habitat are unsuitable or unoccupied. The separation of critical habitat into 'occupied' and 'potential' habitat, and the subsequent significant reduction in reported impacts to the denning component of that critical habitat, is not supported by evidence and does not comply with the BAM.

Table 9.10 of the BDAR also indicates the construction envelope contains 0.13ha of occupied brush-tailed rock-wallaby refuge habitat. Whilst some of this critical habitat may not be directly impacted, section 6.9 of the EIS indicates that construction will be undertaken for 24 hours, 7 days per week for up to 5 years, including the use of lighting and ongoing noise during these phases. This will impact all of the brush-tailed rock-wallaby critical habitat in the construction envelope.

We also note the EPBC Act Assessment of Significance for the brush-tailed rock-wallaby in Table 13.18 of the BDAR has correctly specified the project will impact 0.13ha of occupied brush-tailed rock-wallaby denning habitat. This area of impact is inconsistent with the lesser area of impact specified in the SAIL assessment for this species in section 9 of the BDAR.

The BAM requires the assessor to identify the area of brush-tailed rock-wallaby habitat impacted by the project in the SAIL assessment, noting the TBDC states '*Any impacts on rocky habitat used by this species could be considered potentially serious and irreversible*'. Table 9.10 has significantly underestimated the area of impact by only considering the impacts to the critical habitat and omitting the 184ha of brush-tailed rock-wallaby foraging habitat being impacted within the project area.

There is a high risk that rock-wallabies displaced from areas of currently occupied habitat will not persist for the 5-year duration of the construction disturbance. As individual rock-wallabies move to new areas, intraspecific competition for scarce habitat resources can be expected to limit survival. Displacement of the animals occupying the project area will likely result in disturbance to the social structure of the brush-tailed rock-wallaby locally, as the displaced animals try to find suitable refuge areas. As a result, the displaced animals may either be lost or may displace other brush-tailed rock-wallaby individuals locally, resulting in a net loss of brush-tailed rock-wallaby within the area. Given the uncertainty of rock-wallabies persisting throughout the construction phase, along with the direct impacts to the 184ha of foraging habitat, the assessor should have applied the precautionary principle by assuming loss of all critical habitat within the construction envelope as a minimum.

As noted in the BDAR, the access road to be constructed for the project will create a break in the escarpment that will likely be crossed by brush-tailed rock-wallabies to access their critical habitat. This access road to and between the reservoirs within the area of critical habitat will continue to be used by vehicles during operation of the project. Mortality or injury associated with vehicles on roads is considered a critical threat for brush-tailed rock-wallabies and this aspect of the project will exacerbate this threat.

Creation of tracks that pass close to or through critical and foraging habitat of brush-tailed rock-wallabies can also significantly improve access for predators and other feral herbivores. Predator access to the colony is likely to significantly increase if this project proceeds. The prescribed impact

on areas connecting threatened species habitat such as movement corridors is significantly underestimated in Table 8.4 of the BDAR.

The BDAR states that *‘the construction of the access road between the two reservoirs is likely to impact on the two colonies within the development footprint’*, while Table 9.10 says only one colony will be impacted. This discrepancy indicates further impacts to brush-tailed rock-wallaby outside of the disturbance footprint will occur.

Table 9.10 has estimated that the project area supports approximately 126 brush-tailed rock-wallaby individuals and that this equates to 12% of the NSW population. This information demonstrates the high significance of the population within the project area in relation to the NSW population.

Also, as demonstrated by the map in Figure 9.4 of the BDAR, the brush-tailed rock-wallabies within the project site and adjacent areas represent the eastern extent of the Macleay gorge meta-population. This makes the colony even more important given it is on the edge of its range within the Macleay gorge. BioNet records show that populations of brush-tailed rock-wallaby identified during project surveys are the only records outside of formal reserves east of the project site.

Information provided in the additional impact assessment for brush-tailed rock-wallaby in Table 9.11 of the BDAR recognises the typically low migration rates between colonies and low recolonisation rates. Table 9.11 states that, should there be a loss of the colony within the development footprint, this may have an impact on nearby colonies as it relates to gene flow.

The likely loss of one colony (minimum of 11 individuals) and possible impacts to a second colony, direct impacts to 0.13ha of critical habitat, loss of 184ha of foraging habitat and prolonged disturbance of the remaining critical habitat within the construction envelope and project area, is likely to have a SAIL on this species.

Pultenaea rubescens

The species polygon for *Pultenaea rubescens* shown in Figure 6.7 of the BDAR has mapped a 30m buffer around recorded individuals and labelled this area as ‘occupied’ habitat, with the remaining area of the polygon labelled ‘potential habitat’. This mapped ‘occupied’ and ‘potential’ habitat, referred to throughout the BDAR and in the SAIL assessment, is inconsistent with the BAM.

The BAM requires the species polygon to encompass all habitat of the *Pultenaea rubescens*, as it meets the definition of a species to be assessed by area in the NSW Guidelines for Surveying Threatened Plants and their Habitats. These species are generally cryptic, clonal, logistically difficult to survey (e.g. dangerous for the surveyor) or cannot be reliably counted because abundance above ground fluctuates by an order of magnitude in response to environmental conditions and/or disturbance regimes.

In addition, the BDAR contains data inconsistencies for this species. Table 9.5 of the SAIL assessment indicates 0.74ha of *Pultenaea rubescens* habitat being impacted but Table 11.5 of the BDAR and information in the BAM-C indicates 0.9ha of *Pultenaea rubescens* habitat being impacted.

The species polygon for *Pultenaea rubescens* mapped in the BDAR used topographic data to identify likely habitat for the species given uncertain microhabitat requirements. BCD is satisfied with this approach, noting caution is required when using microhabitats to map species polygons as there is no scientific literature yet published for this species.

The draft description of the new species (Barrett et al. in prep 2023) notes the species is known in three locations, being two locations on the Oven Mountain Pumped Hydro project site at Carrai and one location 47km south in Werrikimbe National Park. The SAIL assessment in the BDAR has considered that all records of this species at the project site are part of the same subpopulation on the basis that the proximity of individuals recorded at the site result in it being likely that genetic material is exchanged between individuals. Hence, based on the BDAR, there are currently only two

known populations of *Pultenaea rubescens* in NSW, with one (Werrikimbe National Park) not verified since 2010.

The SAIL impact assessment for *Pultenaea rubescens* in table 9.5 of the BDAR states that: “*The development footprint and construction envelope were moved to avoid all suitable habitat that was recorded in the project area to support this species*”. This statement is not accurate, as the spoil piles in the disturbance area will be placed on 0.9ha of actual *Pultenaea rubescens* habitat, which has been included in the species polygon and proposed to be offset for the direct impacts on this species.

Figure 6.7 of the BDAR (see Figure 1 below) shows direct impacts to *Pultenaea rubescens* habitat in the spoil pile area and, where individuals were recorded at the time of survey, a 30m buffer has been placed around them where piling of spoil material is excluded. Section 8.3.1(v) of the BDAR details the design of the spoil piles which include a 10m high bench height and grading of rockfill in the spoil piles attempting to allow the piles to drain, including the installation of drainage systems.

Regardless of the spoil pile designs and installation of drainage systems, placement of 10m high spoil piles 30m from the records of *Pultenaea rubescens* individuals and almost surrounding individuals in this area will alter the natural light, specific water flow patterns, drainage, and the wetting and drying regime of the habitat relied upon by this species. We consider the impacts of the spoil piles in this area are highly likely to degrade that area of *Pultenaea rubescens* habitat resulting in decline and loss of individuals at that location.

In summary, the *Pultenaea rubescens* population in the project area is one of only two known populations of this species in NSW, noting the other population 47km south in Werrikimbe National Park was recorded in 2010 and there is no information on the status of that population since that date. The BDAR assumes the project will result in 0.9ha of direct impacts to *Pultenaea rubescens* habitat. The indirect impacts of the spoil piles surrounding the recorded individuals are also likely to result in decline of the habitat in that area and loss of *Pultenaea rubescens* individuals in that location.

We consider these project impacts are likely to have a SAIL on *Pultenaea rubescens*.

BCD Recommendations

- 2.1 The BDAR be revised to remove the incorrect terminology which reports ‘occupied’ and ‘potential’ brush-tailed rock-wallaby denning habitat and these habitat categories be combined and correctly referred to as ‘actual brush-tailed rock-wallaby denning and refuge (critical) habitat.’
- 2.2 The consent authority notes the project is likely to have a SAIL on the brush-tailed rock-wallaby.
- 2.3 The consent authority notes the project is likely to have a SAIL on *Pultenaea rubescens*.
- 2.4 The proponent consults with BCD to identify additional and appropriate measures to avoid and mitigate the likely SAIL on the brush-tailed rock-wallaby and *Pultenaea rubescens* and document these in the RTS report.

3. Further information is required to address SAIL on Wandering Pepper Cress.

The SAIL assessment for wandering pepper cress detailed in Table 9.3 of the BDAR notes the project will impact 0.06ha of habitat for this species. This is inconsistent with Table 11.5 and the BAM-C which notes 0.5ha of direct and indirect impacts on the habitat of this species.

Table 9.3 indicates the population on the project site is the largest population recorded in NSW and speculates that the species is likely to be much more extensive in NSW than previously realised. This statement is not supported by evidence and should be removed from the assessment.

The survey results for the wandering pepper cress suggest the project site may be the largest current stronghold of this species. As the site is on the edge of the species' known range, it may have high importance to genetic diversity of this species, making it a key population for the species.

As the disturbance footprint is directly upslope of the population, the SAI assessment needs to address how erosion, sediment control and stormwater will be managed to avoid further indirect impacts and possible decline of this key population.

BCD Recommendation

- 3.1 The BDAR be revised to include further information to determine whether the proposal will result in a SAI for wandering pepper cress.

4. The disturbance footprint and construction envelope have been inconsistently mapped.

The BDAR has mapped a construction envelope and disturbance footprint and Table 2.2 of the BDAR has defined the construction envelope as the maximum extent of disturbance during the construction of the project. The construction envelope is additional land either side of the disturbance footprint that ranges in width from 10m to 40m depending on the location within the project area.

EMM has advised BCD the disturbance footprint nominated in the BDAR may move within the construction envelope following detailed engineering design, however the disturbance footprint will remain the same size, hence the credit obligation will remain the same.

This approach may be appropriate where PCTs, ecosystem credit species and fauna species polygons are impacted within the disturbance footprint and construction envelope. However, in areas where avoided threatened flora species are also within the construction envelope, it is necessary for the disturbance footprint and construction envelope to be aligned. This is because moving the disturbance footprint within the construction envelope could increase edge impacts on threatened flora or fragment a threatened flora population.

Such impacts would require additional species credits. These credits would not be calculated if the flexibility to move the disturbance footprint within the construction envelope is retained for areas containing threatened flora species.

Table 2.2 of the BDAR indicates the construction envelope has been reduced to align with the disturbance footprint in locations that contain threatened flora species which are candidates for SAI and, where practical, in locations containing other threatened flora species. This was done to ensure no additional direct impacts to these threatened flora species will occur above what is assessed within the disturbance footprint.

BCD notes, however, the construction envelope has not been reduced to align with the disturbance footprint in several locations containing threatened flora species, including SAI threatened flora species, as shown in Figures 6.4, 6.5, 6.8, 8.2, 8.4 and 8.5 of the BDAR.

Also, Figure 8.7 of the BDAR shows the construction envelope encompassing large areas of occupied brush-tailed rock-wallaby critical habitat.

Reducing the construction envelope so that it aligns with the disturbance footprint in locations containing avoided threatened flora species, SAI entities, and critical habitat for these entities will negate post-approval impacts to these entities that would not be subject to biodiversity assessment or credits.

BCD Recommendation

- 4.1 The construction envelope be reduced to align with the disturbance footprint in locations containing threatened flora species, SAI entities, and critical habitat for SAI entities.

5. Species polygons have not been mapped in accordance with the BAM.

Pulteneea rubescens and Wandering peppergrass species polygon

The species polygon for *Pulteneea rubescens* shown in Figure 6.7 of the BDAR has mapped a 30m buffer around recorded individuals and labelled this area as ‘occupied’ habitat and the remaining area of the polygon labelled as ‘potential’ habitat. This mapped ‘occupied’ and ‘potential’ habitat is also referred to throughout the BDAR. The BAM requires the species polygon to include all known habitat of *Pulteneea rubescens*, because it is a ‘boom and bust’ species that can occur anywhere in that habitat under suitable conditions.

Mapping a species polygon for *Pulteneea rubescens* that is partitioned into ‘occupied’ and ‘potential’ habitat for this species in the BDAR does not accord with the BAM. Analysis of impacts on *Pulteneea rubescens* should be revised to consider all habitat as a whole, rather than ‘occupied’ and ‘potential’ habitat.

Further clarification is required as to how the species polygon for wandering pepper grass was prepared in accordance with the BAM requirements for species assessed by area, because the species polygon in Figure 6.6 is inconsistent with the vegetation zone mapping in Figure 5.1.

Brush-tailed phascogale species polygon

As indicated in the TBDC, low population densities, large home range size, annual male die-off and fluctuating local abundance make brush-tailed phascogales difficult to detect reliably. Despite the difficulty detecting this species, 18 individuals were recorded in the northern part of the project area and in the central part of the project area on the southern side of the Macleay River, in all PCTs associated with this species on the subject land. In the BDAR, species polygons were only mapped in the areas where brush-tailed phascogale were recorded.

The TBDC states, “*If detected or presence is assumed (impact site only) the species polygon is drawn around the outer-edge of the PCTs that the species is associated, as defined in the TBDC*”.

The exhibited BDAR has not revised the brush-tailed phascogale species polygon and the polygon justification in Table 6.23 of the BDAR states that, “*This species is only predicted to occur within the Macleay Gorges IBRA subregion, this is representative of what was observed on site from the camera survey effort*”.

The Department’s species profile for brush-tailed phascogale, notes this species is known to occur in the Macleay Hastings and Carri Plateau IBRA subregions and is predicted to occur in the Macleay Gorges IBRA subregion. The survey results contained in the BDAR include 19 records within the Macleay Hastings IBRA subregion and 12 records within the Macleay Gorges IBRA subregion.

Presence of the brush-tailed phascogale was detected in the northern, eastern, western, and central parts of the site in the same PCTs and vegetation zones with associated habitat constraints as the remainder of the impact area. Hence, in accordance with the requirements of the TBDC the species polygon must be mapped around the outer edge of the PCTs that the species is associated, as defined in the TBDC.

BCD Recommendations

- 5.1 The BDAR be revised to map the species polygon for *Pulteneea rubescens* in line with the requirements of the BAM and remove all reference to ‘occupied’ and ‘potential’ habitat within that species polygon.
- 5.2 The revised BDAR clarify how the species polygon for wandering pepper grass (*Lepidium peregrinum*) was mapped in accordance with the BAM, with consideration of the vegetation zone mapping in Figure 5.1 of the BDAR.

- 5.3 The BDAR be revised to map species polygons for brush-tailed phascogale (*Phascogale tapoatafa*) in accordance with section 5.2.5 of the BAM and the requirements of the TBDC.

6. All impacts of the project have not been considered in the EIS

Section 6.8 of the EIS notes that some localised road widening may be required at sections along Kempsey Armidale Road between Pee Dee Creek and Pee Dee Road, O’Sullivans Gap, Blackbird Flat, Mc Gees Flat and Smiths Bluff. These road widenings, if required, are to be designed and approved by the relevant councils and funded by the project. These upgrades do not form part of the EIS and would be undertaken separately by the local councils.

The road widening upgrades are necessary for construction and operation of the project and the impacts of the road upgrades should be assessed as part of the EIS for the Oven Mountain Pumped Hydro project.

Table 2.1 of the BDAR indicates the project requires connection to the TransGrid line 965, and line 965 will require an upgrade which will be the subject of a separate application.

It is unclear if the upgrade of TransGrid line 965 or connection of the Oven Mountain Pumped Hydro project to TransGrid line 965 will result in any impacts to biodiversity. If biodiversity impacts will occur as part of the upgrade and connection, then they should be included in the project impacts and assessed in the same EIS.

The Surface Water Assessment (EMM May 2023) prepared for the EIS indicates the water take for construction and initial storage fill will be 6,865 megalitres per year, for five years, which represents 1% of the annual stream flow and 12.6% of the daily stream flow of the Macleay River adjacent to the project area. The project is also predicted to require maximum annual water top up of 710 megalitres and extraction is proposed to occur from the Macleay River only during high flow conditions and not during extended dry periods or drought.

The impacts of this reduction of stream flow associated with the project on riparian and aquatic species and ecological communities downstream of the project has not been assessed in detail in the EIS. In addition, the Surface Water Assessment has not provided details of how the project will operate in extended periods of drought without the required water top ups, noting the subject area experienced drought conditions for two years from 2017 to 2019.

Section 4.2.4 of the Surface Water Assessment indicates that operational discharges may be required to occur from a low-level outlet at the base of the lower dam and reservoir to facilitate emergency dewatering and the water quality is expected to have similar water quality as the Macleay River. It is not clear how this water will be similar when water temperatures discharging from the base of the reservoir may be significantly lower than the river water temperatures. Water quality may also differ when originating from within a stored system as opposed to a natural flowing river. This could have impacts for aquatic and riparian biota downstream.

Table 8.5 of the BDAR assesses the prescribed impacts on water quality, water bodies and hydrological processes and notes the consequences of these prescribed impacts will be slight. There is no evidence in the BDAR to support this and no assessment of the impacts on downstream aquatic and riparian biota, threatened species habitat and ecological communities.

It is highly likely that *Pultenaea rubescens* is susceptible to infection by the soil-borne pathogen *Phytophthora cinnamomi*, as the information provided in Barrett et al (in prep 2023) indicates that *Pultenaea rubescens* is closely related to *Pultenaea parissiae*. *Pultenaea parissiae*, along with many other species of this genus, is known to be susceptible to infection by *Phytophthora*. This threat is a listed key threatening process for many threatened *Pultenaea* species.

The impact assessment in Section 8 of the BDAR has not provided information that indicates whether *Phytophthora* is present within the soil at the project site and has not assessed the potential impacts to *Pultenaea rubescens* from this pathogen, which may be introduced and/or spread through the

project area via disturbance, ingress of materials and machinery equipment, and significantly increased frequency and extent of access.

BCD Recommendations

- 6.1 The RTS report include an assessment of the impacts of road widening associated with the project along the Kempsey Armidale Road.
 - 6.2 Clarification be provided on whether upgrading the TransGrid line 965 and connecting the pumped hydro project to line 965 will result in any impacts to biodiversity and, if impacts will occur, then an assessment of these impacts be included in a revised BDAR and RTS report.
 - 6.3 Additional information be provided in a revised BDAR on prescribed impacts on downstream aquatic and riparian biota, including threatened species and ecological communities, or their habitats, arising from reducing the streamflow of the Macleay River and from operational discharges to the river associated with the project.
 - 6.4 Information be provided in a revised BDAR and RTS report on how the proponent proposes operating the pumped hydro system during extended periods of drought without the required water top ups of the reservoirs from the Macleay River, to ensure the biodiversity impacts during operations are fully assessed.
 - 6.5 The BDAR be amended to include an assessment of the potential impacts of *Phytophthora cinnamomi* on *Pultenaea rubescens* from the various disturbances associated with the project.
7. Targeted flora survey effort has not covered all areas of suitable habitat for candidate species.

Section 6.3.3 of the BDAR indicates the two phased grid-based method was used for species where their habitat was >50ha in accordance with the NSW Guidelines for Surveying Threatened Plants and their Habitats (2020). Targeted threatened flora survey effort is presented in Figure 6.1, with Maps 1 to 8 of the BDAR depicting the 100m survey grid intersection locations and the GPS tracking to these locations requiring survey within the construction envelope.

However, some of the grid intersections requiring survey in maps 2 and 4 of Figure 6.1, do not appear to have been surveyed, as shown in Figures 2 and 3 below.

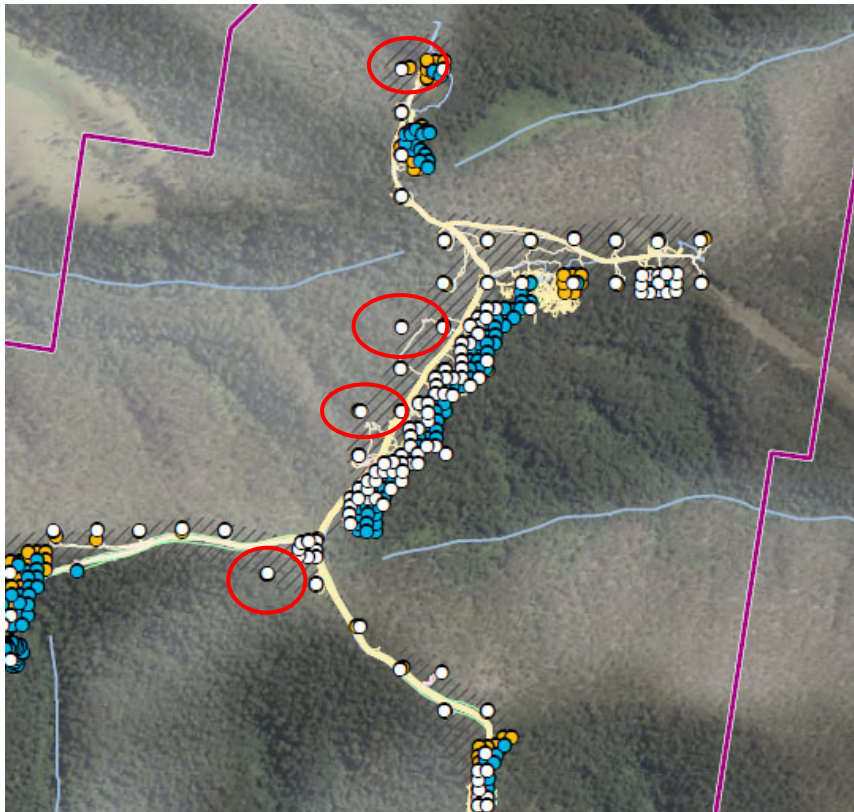


Figure 2. Extract from figure 6.1, Map 2 of 8 of BDAR showing targeted flora survey effort with red circles added to indicate examples of unsurveyed 100m grid intersection locations.

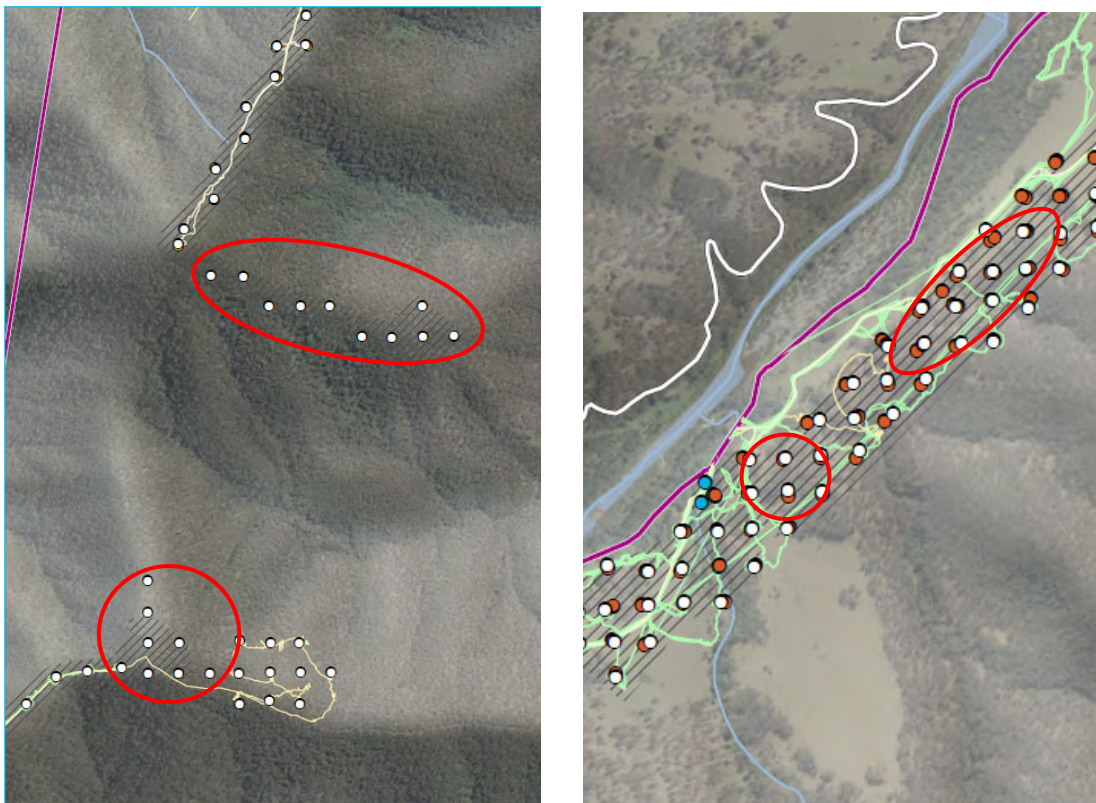


Figure 3. Extract from figure 6.1, Map 4 of 8 of BDAR showing targeted flora survey effort with red circles added to indicate examples of unsurveyed 100m grid intersection locations.

BCD Recommendation

- 7.1 The BDAR be revised to determine the presence of candidate threatened flora species in all areas of unsurveyed 100 metre (m) grid intersection locations by surveying, by assuming presence or by obtaining an expert report.

8. The Eastern cave bat survey, species polygon and impact assessment are not correct and require revision.

Table 6.2 of the BDAR indicates the Eastern cave bat (*Vespadelus troughtoni*) was excluded from survey as a species credit species despite suitable habitat being present. However, it also notes this species was found in surveys of the site, despite the surveys not meeting the required survey effort outlined in the NSW BAM Survey Guide for *Species credit threatened bats and their habitats* (OEH 2018). Survey for this species does not meet the requirements of the BAM.

The microchiropteran bat survey results in Table 6.21 of the BDAR indicate the Eastern cave bat was recorded by acoustic detector but not recorded with harp trapping. Since the harp trapping did not meet the required survey effort and roost searching was limited, breeding must be assumed, and breeding habitat mapped in accordance with the NSW bat survey guidelines.

The BDAR has mapped a species polygon for the Eastern cave bat (all habitat on the subject land within 2km of caves, scarps, cliffs, and rock overhangs) only in the associated PCT occurring within the Macleay Hastings IBRA subregion. We note the breeding habitat features for this species on the project site also occur within the Macleay Gorges and Carrai Plateau IBRA subregions. Section 5.2.1(6) of the BAM requires that if a threatened species has been incidentally observed on a site, then it must be included as a candidate species for the site.

As the survey effort for assessing breeding habitat for the Eastern cave bat on the project site was not met, presence of this breeding habitat must be assumed, and the species polygons mapped within the areas of impact in suitable habitat within 2km of breeding habitat within the areas of the Macleay Gorges and Carrai Plateau IBRA subregions as well.

The Eastern cave bat is a SAI entity, and the BAM requires a SAI assessment to determine whether a SAI is likely to occur. The BDAR has not included an assessment of SAI for this species.

BCD Recommendations

- 8.1 The BDAR be revised to include the Eastern cave bat as a candidate species for all IBRA subregions on the project site within the subject land.
- 8.2 The BDAR be revised to include a SAI assessment for the Eastern cave bat for any impacts to its breeding habitat (caves, cliffs, scarps, and rock overhangs including a 100m buffer).

9. The BDAR lacks data to identify PCT 868 (High) and to assign it a vegetation integrity score.

Figure 5.1, Map 4 of the BDAR shows the areas of PCT 868 (High) in the north-eastern part of the project area. However, the northern-most patch of this vegetation zone was not sampled with BAM plots and is separated by over 1km from other patches, with significant landscape features occurring between this patch and the nearest other BAM plots (see Figure 4 below). The BAM – Stage 1 Operational Manual states that, “Where multiple discontinuous areas of vegetation form a vegetation zone, plots must be evenly distributed across these areas if size permits. This requirement is essential for linear development proposals. If size is restrictive, as a minimum, at least one plot should be placed in each of the separate areas”.

We note the minimum required number of plots for the PCT 868 (High) vegetation zone across the entire subject area has been met, however insufficient data is available to determine the PCT and its vegetation integrity score in the mapped northern-most patch of PCT 868.



Figure 4. The northern extent of mapped PCT 868 (Purple colour) showing BAM plots as black dots

BCD Recommendation

- 9.1 A revised BDAR demonstrate that a minimum of one BAM plot has been completed in the mapped northern-most extent of the area mapped as PCT 868 to determine if this is the correct PCT and to provide data to determine the vegetation integrity score.

10. Impacts from stormwater and surface water runoff discharge points have not been assessed.

Table 2.1 of the BDAR notes that site drainage will include a combination of cross drainage culverts, drainage pits and pipe, open channels/open drains, levees, and detention basins. Also, various treatment plants will be used for construction drainage and water treatment facilities and specific discharge locations are planned for stormwater and surface water runoff.

The BDAR has not assessed the possible impacts from stormwater and surface water discharge points on threatened flora, threatened flora habitat and EECs known to occur on the project site.

BCD Recommendation

- 10.1 The BDAR be revised to include assessments of impacts from stormwater and surface water discharge points on threatened flora, threatened flora habitat, and EECs known to occur on the project site.

11. Identification of the cryptic forest twiner has not been confirmed.

The BDAR indicates samples of the plant, identified by EMM as the cryptic forest twiner (*Tylophora wool/sii*), found within the project area were sent to the National Herbarium of NSW for confirmation but could not be confirmed due to lack of flowering parts for identification. We note the habitat for this species will be impacted by the proposal. At this stage, the identification of this species remains unconfirmed by the Herbarium. We understand that further flowering plant material is required for the Herbarium to confirm identification of this species.

The identification of this species must be resolved and the BDAR revised as required.

BCD Recommendation

- 11.1 Positive identification of the cryptic forest twiner (*Tylophora woollsii* or *Tylophora* sp.*) be determined and the BDAR revised as required.

12. The BDAR contains several data and information inconsistencies.

Table 6.1 of the BDAR indicates the Australasian bittern (*Botaurus poicilopilus*) and the Black bittern (*Ixobrychus flavicollis*) were excluded as ecosystem species despite the habitat constraints being present within the project area. However, these two species have not been excluded in the BAM-C. These species should be included in the BDAR, to comply with section 5.2 of BAM.

Table 6.3 and Table 9.1 of the BDAR refer to the draft description of the new species *Pultenaea rubescens* in preparation as 'Barrett, in press'. However, this document has not completed a peer review process nor been accepted for publication, so it is not 'in press'. References to the draft description of *Pultenaea rubescens* should be referred to as 'Barrett, in prep'.

Table 6.10 of the BDAR indicates that potential roost sites for microchiropteran bats were searched for signs for use by microbats but only where access could be safely achieved. Further clarification is required on which parts of the project site were not searched due to safety reasons and if the species was assumed present in these areas.

Section 8.3 of the BDAR uses an impact hierarchy for the project of avoid, minimise, and mitigate, but this does not accord with the BAM impact hierarchy terminology, which is 'Avoid and minimise' and only when these first two steps have been applied the 'offset is used to assess direct, indirect, or prescribed impacts on biodiversity values'. The wording in section 8.3 must accord with the terminology used in the BAM.

BCD Recommendation

- 12.1 The data and information inconsistencies in the BDAR identified in this response be reviewed and corrected.

Assessment for Matters of National Environmental Significance (MNES)

13. Additional information is required to enable BCD to assess the project under the bilateral agreement with the Australian Government.

BCD has reviewed the BDAR, including Section 13.1 – Assessment of EPBC Act, and has identified the additional information required to allow the bilateral assessment to be completed:

- New maps that show the location/s of each impacted MNES entity in relation to the project's footprint.
- Further details of survey methodologies for impacted MNES species and, if surveyed and not recorded, how the survey methodologies were consistent with (or justification of divergence from) published Australian Government guidelines and policy statements.
- A table that details and addresses the relevant published Commonwealth guidelines, policy statements and their applicable actions for each MNES entity for this project.

BCD Recommendation

- 13.1 Additional information be included in a revised BDAR on the MNES impact assessment as outlined in Attachment 2 of this response to allow the project to be assessed under the bilateral agreement with the Australian Government.

14. There is incorrect information and underestimation of impacts in the assessments of significance for some MNES.

Table 13.9 of the BDAR provides the assessment of significance for the tall velvet sea berry and notes the project will remove up to 363 individuals over an area of 4.2ha and that the population extends outside of the construction envelope. However, there is no information in the BDAR on how extensive the population is outside of the construction envelope. The assessment states, “*The project is therefore likely to lead to a long-term decrease in the size of an important population of the species*”, and that, “*This reduction in individuals and habitat could result in a long-term reduction in the size of the local population of the species*”. The assessment concludes the project is unlikely to have a significant impact on the tall velvet sea berry. Further information is required to demonstrate how a long term decrease of an important population comprising the removal of 363 individuals and the loss of 4.2ha of habitat is unlikely to have a significant impact on this species.

As detailed in section 2 (above), the impacts to brush-tailed rock-wallaby have been underestimated in the assessment of significance in Table 13.11 of the BDAR. The BDAR indicates that whilst 184ha of foraging habitat and 0.13ha of occupied refuge habitat will be impacted by the proposal, the project is unlikely to result in further decline of the remaining sub-population in the area. This is not supported by evidence, as the project is likely to cause the loss of one colony of brush-tailed rock-wallaby, and possibly two colonies, within the project area, resulting in a decline of the species in that location.

The issues raised in section 2 (above) about the SAI assessment for *Pultenaea rubescens* are relevant to the assessment of significance for the species in Table 13.11 of the BDAR. Current information indicates only two populations of this species are known in NSW, one population at the Oven Mountain Pumped Hydro project site and one population recorded from two samples in 2010, 47km south in Werrikimbe National Park. No current information is available on the status of the Werrikimbe population recorded in 2010.

Table 13.11 contains incorrect information: “*The disturbance footprint has been designed to avoid habitat where this species was recorded*” and “*No suitable habitat was recorded in the disturbance footprint*”. The disturbance footprint of the project will directly impact 0.9ha of *Pultenaea rubescens* habitat by placement of the spoil piles, with this impact proposed to be offset through credit obligations. Spoil piles to a height of 10m will be placed around other recorded individuals, altering the natural light, water flow patterns and drainage that this species requires. The spoil piles are likely to degrade that area of *Pultenaea rubescens* habitat, resulting in decline and loss of individuals at that location.

The assessment of significance concludes the project is unlikely to significantly impact *Pultenaea rubescens*. Evidence provided in the BDAR does not support this conclusion.

BCD Recommendations

- 14.1 The BDAR be revised to correct the information used in assessments of significance for MNES and rectify the issues described in Attachment 2 of this response.
- 14.2 The consent authority notes that BCD disagrees with the conclusion of the MNES assessment assessments of significance for brush-tailed rock-wallaby and *Pultenaea rubescens*, and that BCD’s review of the project suggests it is likely to have a significant impact on these two MNES entities.

15. Further information is required on assessment of a CEEC listed under the EPBC Act.

Table 5.10 of the BDAR notes that PCT 1106 could be associated with the CEEC *Lowland Rainforest of Subtropical Australia* listed under the EPBC Act. However, it was indicated that all occurrences of this CEEC were determined to be inconsistent with the definitions under the EPBC Act as they do not meet the species richness required in the Australian Government’s listing advice (DSEWPC 2011).

The information in Table 5.10 does not include how species richness was determined. We note that the area of PCT 1106 is 1.3ha and the sampling protocol in the condition threshold advice in the listing criteria of this CEEC (DSEWPC 2011) specifies that for sites ≤ 2 ha the entire site must be evaluated for canopy cover and species richness. Also, 50m x 20m BAM plot data may only be used to determine species richness for sites of PCT 1106 > 2 ha.

BCD Recommendation

- 15.1 Further information be provided in a revised BDAR to demonstrate how species richness was determined in accordance with the EPBC Act listing advice for Lowland Rainforest of Subtropical Australia (DSEWPC 2011).

Attachment 3: Detailed NPWS comments – Oven Mountain Pumped Hydro – Environmental Impact Statement

The National Parks and Wildlife Service (NPWS) holds concerns regarding the proposed Oven Mountain Pumped Hydro Scheme (OMPHS) due to its potential impacts on the natural, cultural, heritage and wilderness values of lands reserved under the *National Parks and Wildlife Act 1974*. These lands include parts of the Gondwana Rainforests World Heritage Property and areas declared as wilderness under the *Wilderness Act 1987*.

These impacts will mainly arise during construction and the eventual decommissioning of the scheme. Construction noise and lighting, in particular, will affect visitor amenity in the surrounding parks for a period of up to 5 years.

NPWS considers the EIS's assessment of these impacts is inadequate, particularly in relation to the assessment of potential impacts on wilderness values, on the amenity of visitors staying at the heritage-listed East Kunderang Homestead, and on the range of heritage values (state, national and world heritage values) that occur in the vicinity of the site.

NPWS also highlights that the proposed upgrades of the Kempsey Road and Transgrid's Line 965 may also affect NPWS-managed lands. NPWS requests further detail regarding any proposed upgrades of this existing infrastructure in the vicinity of national parks or nature reserves.

16. The project is likely to impact on areas of declared wilderness.

Areas declared as part of the Macleay Gorges and Kunderang wildernesses under the NSW *Wilderness Act 1987* lie to the west and south (respectively) of the development site (not 'east', as stated in the EIS's Executive Summary and Section 2.3.2). The SEARs required consideration of wilderness in the EIS as part of:

- the strategic context for the project
- an assessment of amenity impacts associated with construction, operational and road noise, blasting and visual impacts, including lighting and impacts on views from key vantage points
- an assessment of social impacts of the project on wilderness users.

The impacts to wilderness users and the qualities they value, such as the feelings of solitude and remoteness from evidence of the modern world, have not been assessed.

Appendix A (SEARs compliance table) identifies the impacts to areas of declared wilderness under the *Wilderness Act 1987* have been addressed in Appendix S, U [sic.] and V (noting that the Noise and Vibration Impact Assessment is actually Appendix T). This is not the case.

For example, both the Landscape and Visual Impact Assessment (Appendix S) and the Noise And Vibration Impact Assessment (Appendix T) have not considered the impacts on people camping or hiking in the wilderness of Oxley Wild Rivers and Cunnawarra national parks.

The **noise impact assessment** focuses on residential receivers, with East Kunderang Homestead being the only site in a park that is considered. No sites in the wilderness have been considered.

It is noted the EIS concludes there will be a medium level of impact associated with noise and vibration during construction. This impact will be occurring 24/7 during the 5 years of construction. NPWS considers this level of impact to be unacceptable in a wilderness area.

The **visual impact assessment** only considers those visitors to recreational areas and facilities, such as designated lookouts and the East Kunderang Homestead. There is no consideration of visual impacts from vantage points in the wilderness apart from Marys View.

Hence, there is no assessment of visual impacts from vantage points in the wilderness. For example, a walking route between East Kunderang and Marys View is a popular activity for visitors staying in the park; another is to a local high point known as East Kunderang View. Vantage points along these routes have not been considered. Other vantage points exist in the Macleay Gorges Wilderness in Cunnawarra National Park, such as along Haydons Trail.

NPWS recommendations

- 16.1 As part of a RTS report, additional assessment be completed of the noise and vibration impacts for sites and areas within the declared wilderness, treating wilderness users as 'sensitive receivers' that are more sensitive than residents.
- 16.2 The existing visual impact assessment be revised as part of a RTS report to include additional analysis of the predicted impacts at vantage points overlooking the project site located in the declared Macleay Gorges and Kunderang wilderness areas.

17. Impacts to Gondwana Rainforests of Australia require revision.

The EIS correctly identifies that the Gondwana Rainforests of Australia is both a World Heritage property and a National Heritage Place. However, the EIS (e.g. in Table 6.19) does not identify the Gondwana Rainforests is also listed on the State Heritage Register (as SHR #01002). While the listing of the Gondwana Rainforests on the State Heritage Register does not contain any additional values not identified in its listing on the National or World Heritage lists, the implications of the SHR listing and the State heritage significance of the Gondwana Rainforests should be recognised and considered in Appendix L Statement of Heritage Impact and the EIS. Currently, the only consideration given to the heritage values of the Gondwana Rainforests is in a separate report (i.e. Appendix V).

The EIS states (in section 6.11.1) the attributes that define the identified World Heritage values have not been identified for the Gondwana Rainforests. This is incorrect. A major reference identifying these attributes is the document *World Heritage and Associative values of the Central Eastern Rainforest Reserves of Australia* (Hunter 2004), available at www.environment.nsw.gov.au/research-and-publications/publications-search/world-heritage-and-associative-natural-values-central-eastern-rainforest-reserves-of-australia.

The process of re-defining the attributes in Appendix V (e.g. in Table 7.1) appears to have resulted in limited recognition of the number of threatened species (criterion x) and relic species (criterion ix) occurring in proximity to the development as contributing to World Heritage values.

For example, the brush-tailed rock-wallaby is a threatened species considered to be an attribute contributing to the world heritage values of the Gondwana Rainforests. The EIS dismisses the impacts to brush-tailed rock-wallaby populations as not significant. This is likely to be understated. There will be significant disturbance to colonies on the development site, resulting in localised extirpation of this population as individuals are displaced by noise and activity. The displaced animals will either be lost, move into habitat already occupied by other individuals or become isolated outliers of the Macleay gorge metapopulation. There is potential for this movement to lead to disturbance to the social structure, population dynamics and genetic diversity of the colonies in nearby sections of park.

NPWS recommendations

- 17.1 The potential for impacts on the World Heritage values of the Gondwana Rainforests be reassessed as part of a RTS report, considering changes in movement and population dynamics of motile species such as brush-tailed rock-wallabies.
- 17.2 The RTS include appropriate mitigation options to limit impacts to the park's threatened species due to works within the project site.

18. Impacts to East Kunderang Homestead require further assessment.

The SHR statement of significance for East Kunderang Station references the Station's role with the Aboriginal community. The EIS does not recognise the link between historic and Aboriginal cultural heritage as described in the SHR listing.

As noted in Section 6.4.2 of the EIS:

“East Kunderang Station ... has been subject to broader visual impact considerations as part of the EIS, and shown to have no visual impacts to the homestead. However, this did not include assessment of the entire property and the implications of this finding has not been specifically discussed with the local Aboriginal community to determine specific impacts on cultural values”.

This lack of discussion with the local Aboriginal community is a current gap in the assessment.

For the purposes of Appendix T Noise and Vibration Impact Assessment, the heritage listed East Kunderang Homestead is characterised as a commercial property. NPWS considers that the setting of East Kunderang is unlike that of a commercial accommodation facility such as a hotel or caravan park, and the remoteness of the site forms part of its heritage value.

Given its location, a key value that attracts visitors to the site is its quietness and remoteness. A 5 dB(A) increase in baseline noise levels would be noticeable, and possibly unacceptable, to visitors.

NPWS is concerned that East Kunderang Station (R45) is missing from Table 6.2 (predicted maximum noise levels from project construction likely to affect sleep). This is important information to understand potential impacts to park visitors staying at the homestead. If 24/7 operation is permitted, the ambience of the homestead will be degraded, and is likely to reduce visitor numbers to East Kunderang. NPWS would likely need to consider discounting the fees charged to visitors due to this loss of amenity.

NPWS notes the initial filling of the reservoirs (and later 'top ups') will utilise water pumped from the Macleay River. The EIS states this will only occur during periods of high-water flow in the river. However, even the extra natural noise of water flow in the river may not drown out the sound of the pump which, at 106 dB(A) is one of the noisiest items of plant and equipment listed in Table 5.6 of Appendix T. It is unclear where this pump facility will be located and whether it will be heard at East Kunderang. Extraction of water during periods of low water flow should not occur as this may impact on fish populations in the river. Fishing is one of the activities commonly undertaken by visitors to the homestead.

NPWS recommendations

- 18.1 Potential impacts on the East Kunderang Station's amenity and setting be discussed with the Aboriginal community before the development application is determined, and specifically in the context of the SHR listing.
- 18.2 The noise and vibration impact assessments be revised as part of a RTS report to predict likely impacts on visitors staying at the East Kunderang Station, with this site being considered equivalent to a sensitive residential receiver rather than a commercial accommodation facility.
- 18.3 Any construction works likely to generate noise impacts more than 35dB(A) in the surrounding national parks estate be conditioned to avoid school holidays and weekends.
- 18.4 Pumping of water from the Macleay River be conditioned to only occur during periods of quantifiable high-water flow, so that environmental flows are maintained and the impacts on aquatic ecology are minimised.

19. Additional information and revision of the noise assessment are required.

In addition to the above comments regarding the assessment of noise and vibration impacts in areas of national park and wilderness, NPWS has general concerns regarding the validity of the adopted meteorological conditions for the modelled assessment of noise impacts. These conditions include a temperature of 10°C in both the evening and at night (ref: Tables 3.3 and 5.3, Appendix T).

During winter, colder conditions are likely to be experienced in the Macleay valley with temperatures less than 10°C often recorded, and frosts common. See, for example, observations at the Bureau's station at Kempsey Airport (the mean minimum temperature recorded at that station in July 2023 was 4.1°C and, on several nights, temperatures below zero were recorded). Temperatures in the Upper Macleay are likely to be colder than Kempsey.

As sound travels farther in cooler conditions, the zone of the proposal's impact due to noise is likely to be greater than modelled in the EIS.

NPWS recommendation

- 19.1 The modelled noise impact assessment be revised as part of a RTS report to include meteorological conditions that reflect the weather conditions commonly recorded in the surrounding area.

20. Unauthorised use of national park has not been assessed.

In its input to the SEARs, NPWS requested the risk of unauthorised access to NPWS estate be considered in the EIS, including measures to prevent such access. This became part of the SEARs in the following point:

“an assessment of the impacts of the project on the... public access to recreational facilities (including rivers and trails)”.

This requirement is considered in section 5.12 of Appendix R Traffic Impact Assessment but the risk of unauthorised access to NPWS parks has not been addressed. Instead, Appendix R merely states:

“Access for users of the National Trail will not be restricted or impacted as a result of the Project both during construction and operations. Access to other recreational activities will not be impacted by the Project. This includes access to the river from public spaces or reserves, or access to national park estates”.

NPWS is concerned the roading associated with the project plus the housing of over 600-workers in an on-site accommodation camp will result in additional recreational pressure on nearby parks, including potentially inappropriate uses (e.g. trailbike riding) in the wilderness.

NPWS recommendation

- 20.1 Appropriate mitigation measures be identified as part of a RTS report to reduce unauthorised use of the NPWS parks and declared wilderness near the project site.

21. Further information and approvals are required for future access through the Carrai State Conservation Area.

It seems to be assumed in the EIS that no construction access through Carrai State Conservation Area will be required for construction purposes. As noted in the EIS, NPWS has so far only provided short-term consents so that the development site could be accessed for the geotechnical investigations.

In granting these consents, NPWS has been clear that they do not set a precedent for future agreements to allowing access and egress to the site during construction or operations.

If there is an intention for the roads through the Carrai State Conservation Area to be used for access to or from the site, even for emergency egress (as indicated in the EIS), this is subject to a longer-

term licence under the *National Parks and Wildlife Act 1974*, and would be dependent on the proponent securing an easement or other agreement with the owners of the private lands traversed by Cochrane Road.

These other approvals are not listed in Section 4.3 of the EIS.

NPWS recommendation

- 21.1 Approvals for access to and from the south of the project site onto the Carrai Plateau through the Carrai State Conservation Area and private lands be identified as ‘other approvals’ and included in the conditions of consent.

22. Upgrades to existing infrastructure and roads have not been assessed in the EIS.

The development of the OMPHS is contingent on the upgrade of two key pieces of existing infrastructure: the Kempsey Road and Transgrid’s Line 965. NPWS should be considered a stakeholder that must be consulted for both upgrade projects.

Kempsey Road upgrade

Appendix R of the EIS identifies several necessary upgrades to the Kempsey Road, depending on whether delivery of personnel, equipment and materials occurs via Armidale or Kempsey. NPWS highlights that several national parks and nature reserves are located immediately adjacent to the road. Any proposed realignment of the road that encroaches into land reserved under the *National Parks and Wildlife Act 1974* would be subject to a bill through the NSW Parliament revoking the affected part of the park. More information is available in the NPWS [Revocation, recategorisation and road adjustment policy](#).

Transmission line upgrade

The declaration of the OMPHS as critical State significant infrastructure (CSSI) under the *State Environmental Planning Policy (Planning Systems) 2021* incorporates transmission works, inclusive of ‘upgrades on the existing transmission network back to, or in the vicinity of, the existing substation at Armidale’ [ref: [section 20\(2\)\(b\)\(ii\) in Schedule 5 of the Planning Systems SEPP](#)]. It is therefore not clear why the EIS states the following in Section 3.2.1:

Power will be transmitted and received to the Project by way of the establishment of new transmission lines and associated infrastructure which will connect to Line 965. The existing section of Line 965 from the Project to Armidale will need to be upgraded, however, this upgrade does not form part of the Project.

This statement contradicts the declaration of this project as CSSI.

NPWS must be considered a key stakeholder in any proposed upgrade of Transgrid’s Line 965 as it traverses sections of Cunnawarra National Park, and small parts of Georges Creek Nature Reserve and Oxley Wild Rivers National Park.

NPWS recommendations

- 22.1 The proposed upgrade to Line 965 be included in the RTS report noting the SEPP (Planning Systems) 2021 identifies the existing transmission network upgrade to be part of the project.
- 22.2 NPWS be identified as a key stakeholder in the proposed Kempsey Road and Line 965 upgrades.