



Your ref: SSD-50629707  
Our ref: DOC24/344391

Kurtis Wathen  
Senior Environmental Assessment Officer  
Department of Planning, Housing and Infrastructure- NSW Planning Group  
Via Major Projects Portal: PAE-70327463

Dear Kurtis

**Subject: The Plains Wind Farm EIS (SSD-50629707)**

Thank you for your email dated 3 May 2024 seeking advice from the Biodiversity, Conservation and Science Group (BCS) of the NSW Department of Climate Change, Energy, the Environment and Water about the Environmental Impact Statement (EIS).

We have reviewed the exhibited EIS against the Secretary's Environmental Assessment Requirements (SEARs) issued to the proponent on 16 December 2022, the Supplementary SEARs issued to the proponent on 20 March 2023, and the BCS SEARs advice dated 30 November 2022.

BCS considers that the EIS is consistent with the Secretary's requirements for flooding, contingent on minor flood risk management issues being resolved prior to project determination.

BCS considers that the EIS does not currently meet the Secretary's requirements for biodiversity.

BCS has identified that the Biodiversity Development Assessment Report (BDAR) is not currently consistent with the Biodiversity Assessment Method (BAM). There are several matters that will need to be rectified in a revised BDAR with a Bird and Bat Adaptive Management Plan (BBAMP) appended to meet the SEARs for biodiversity. Until the assessment is complete, the biodiversity credit liability may not be correct and potential serious and irreversible impacts (SAII) cannot be determined.

To resolve the issues, the applicant and their BAM accredited assessor will be able to engage with BCS throughout the Response to Submissions stage.

In summary, the key matters that need to be addressed to ensure the BDAR is consistent with the BAM are:

- Survey effort and timing for some threatened species need to meet the requirements set out in the BAM survey guidelines or the Threatened Biodiversity Data Collection.

- All candidate species must be included in the assessment until adequate justification has been provided and/or targeted surveys have been completed to exclude them. Species polygons need to be prepared for all species according to the BAM.
- Further detail is needed on the efforts the proponent has made to avoid and minimise impacts to SAll entities. Further assessments and survey will need to be completed to adequately assess the impacts to SAll flora and Plains-wanderer.
- There are inaccuracies in vegetation classification, stratification and mapping that underpin the impact assessment, which are likely to affect the biodiversity credit obligation.
- Further information is necessary to identify all impacts of the proposal, including ancillary infrastructure and indirect impacts.
- Additional and more specific detail is needed for BCS to assess if the proposed mitigation measures will be effective in managing residual impacts.
- A separate Matters of National Environmental Significance (MNES) assessment has not been provided and the information is not currently consistent with Commonwealth guidelines. The BDAR also does not provide the information needed for BCS to complete a Bilateral Assessment in accordance with the SEARs.

Please note the BCS review is based on the original spatial data provided on 8 May 2024. Our response was completed before being supplied with updated spatial data on 3 June 2024, which has not been considered in this response.

To appropriately assess these matters above, the proponent will need to complete additional surveys, revise mapping of Plant Community Types (PCTs) and impact areas, update the BAM Calculator (BAM-C) and spatial data, and provide additional assessment and justification in a revised BDAR.

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

The project has been determined as a controlled action under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and impacts to EPBC Act-listed entities will be assessed under the Assessment Bilateral Policy. This response includes comments and recommendations related to the assessment of impacts to MNES to ensure that the assessment report that we prepare for the Australian Government contains all relevant information. **Attachment C** details the information and data required for this assessment, which was provided to the proponent on 27 April 2023.

All plans required as a Condition of Approval that relate to flood risk management or biodiversity should be developed in consultation with BCS to ensure all matters are adequately addressed.

If you have any questions about this advice, please contact Simon Maffei, Senior Project Officer Planning, via [planning.southwest@environment.nsw.gov.au](mailto:planning.southwest@environment.nsw.gov.au) or 02 6022 0646.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Adam Vey', with a stylized, cursive script.

Adam Vey

4 June 2024

**Director South West**

**Biodiversity, Conservation and Science Group**

**NSW Department of Climate Change, Energy, the Environment and Water**

ATTACHMENT A – BCS Assessment Summary for The Plains Wind Farm Environmental Impact Statement (SSD-50629707)

ATTACHMENT B – Detailed advice for The Plains Wind Farm Environmental Impact Statement (SSD-50629707)

ATTACHMENT C – BCS Bilateral Assessment information and data requirements

## **ATTACHMENT A    BCS Assessment Summary for The Plains Wind Farm Environmental Impact Statement (SSD-50629707)**

In preparing this advice BCS have reviewed the following documents:

- The Plains Wind Farm Environmental Impact Statement, ERM V1.0 24/4/2024 (EIS)
- The Plains Wind Farm Biodiversity Development Assessment Report (EIS Appendix G), ERM V1 23/04/2024 (BDAR).
- The Plains Wind Farm Environmental Impact Statement Technical Paper: Flooding (EIS Appendix M), Lyall & Associates Rev 1.1 March 2024.

### **Key Issues:**

#### Flood Risk Management

Additional consultation is required about emergency management requirements for flood risk

1. Consultation with relevant Councils and NSW SES on emergency management (EM) related flood impacts of the development has not been sufficiently demonstrated.

#### Biodiversity

The candidate list of threatened species, survey effort, suitable habitat and species polygons require review as they include errors or have not been prepared in accordance with the BAM.

2. Candidate species excluded from survey effort with inadequate justification will impact the credit obligation.
3. Spatial data survey effort does not support outcomes in the BDAR
4. Additional survey to reduce the area of assumed presence for species credit species should occur before project determination.
5. Species polygons for species credit species detected or assumed present are inconsistently applied and require further information to inform revision.

BCS is unable to determine SAll impacts due to conflicting information.

6. Assessment of serious and irreversible impacts requires revision.

The assessment and calculation of direct impacts does not include all ancillary infrastructure.

7. All ancillary infrastructure and indirect impacts should be identified and assessed according to the BAM.

PCT, TEC and vegetation zone identifications and mapping need to be revised as they have inaccuracies that can affect the biodiversity credit calculation.

8. Plant Community Type identification requires more information to support conclusions including adequate stratification of BAM plots.
9. Delineation of vegetation zones within the subject land requires revision and ground-truthing.
10. Vegetation integrity plot data provided is incomplete and inconsistent.
11. Areas mapped as non-native vegetation must include supporting evidence.

12. Identification of Sandhill Pine Woodland TEC requires clarification.

Specific detail is lacking to show how the proponent has avoided and minimised biodiversity impacts.

13. The BDAR lacks detail to demonstrate that biodiversity impacts have been avoided or minimised.

Assessment of prescribed and indirect impacts associated with the operation of the proposed project are insufficient and require review.

14. More detail is needed to adequately identify and assess prescribed impacts, including human-made structures and habitat connectivity.
15. The prescribed impact of wind farm developments requires revision, and the exclusion of species does not comply with the BAM.
16. The survey effort for bird and bat utilisation surveys (BBUS) are insufficient and survey data must be provided.
17. The turbine risk assessment and collision modelling are based on inadequate survey data, and aspects of the draft BBAMP need revision.

The indirect impact assessment requires review.

18. All indirect impacts should be identified and assessed according to BAM 2020.

Mitigation measures are not specific to the impact, location or affected threatened entities.

19. Mitigation measures need more detail to meet requirements of BAM section 8.4.

The assessment of Matters of National Environmental Significance requires review.

20. Assessment of the Natural Grasslands of the Murray Valley Plains TEC requires further information to support conclusions for its absence.
21. A separate and complete MNES assessment should be provided to address the Assessment Bilateral.

## **ATTACHMENT B Detailed advice for The Plains Wind Farm Environmental Impact Statement (SSD-50629707)**

### **Flood Risk Management**

BCS has reviewed the Water Resources, Hydrology and Flooding component in Section 6.10 of the EIS (and the Flooding Assessment in Appendix M). While the EIS does broadly address the Secretary's requirements for flooding, several items in the BCS Environmental Assessment Requirements (EARs) for flooding require further consideration.

**Additional consultation is required about emergency management requirements for flood risk.**

#### **1. Consultation with relevant Councils and NSW SES on emergency management (EM) related flood impacts of the development has not been sufficiently demonstrated**

Section 11 (h-j) of the BCS EARs required consultation with relevant Councils and the NSW SES regarding:

- the impacts of the development on existing EM arrangements
- the need for specific measures to manage risk to life from flood
- evacuation, access and contingency measures for the full range of flood events.

Given that there could be up to 700 workers on site at any one time and the onsite workers accommodation proposed, plans need to be developed to safely evacuate workers in the event of a major flood. Floods in this part of the State can last for weeks which precludes the use of shelter in place methods so evacuation is likely the only option if access routes are likely to be cut.

*Recommendation:*

- 1.1. Prior to construction, develop a construction phase flood emergency response plan for the proposal in consultation with the local Councils and the NSW SES.

### **Biodiversity**

**The Biodiversity Development Assessment Report (BDAR) at Appendix G does not meet the Secretary's requirements for biodiversity.**

Specific advice on the BDAR and related sections in the EIS are as follows.

**The candidate list of threatened species, survey effort, suitable habitat and species polygons require review as they include errors or have not been prepared in accordance with the BAM.**

#### **2. Candidate species excluded from survey effort with inadequate justification will impact the credit obligation.**

BCS do not agree with the exclusion of some candidate species from further survey as the removal of these species is not consistent with sections 5.2.2 and 5.2.3 of the BAM.

The information provided regarding the reasoning for excluding species credit species in general is limited and has not been justified with evidence (Table 1). In addition, BCS note that many candidate species have been excluded across the entire project site, rather than from specific vegetation zones, despite the diversity of PCTs and habitats within the project site.

Surveys for raptors were limited to bird utilisation survey (BUS) locations only (BDAR Table 2-8). Specific targeted surveys for breeding species credit species have not been conducted in accordance with the TBDC and the BAM.

**Table 1: Species credit species excluded from survey effort or minimal survey effort requiring review.**

Species	BDAR reason for exclusion from survey	BCS comment	BCS recommendation
Little Eagle and Square-tailed Kite	Subject Land does not contain suitable nest trees.	Species were excluded prior to survey effort but the reason for exclusion is a lack of suitable stick nests. However, many stick nests were located on site that could not be attributed to a specific species that may be suitable for these species. Not all stick nest surveys were completed during the appropriate breeding season for these species. In addition, the Little Eagle was observed in the wider Project area.	Conduct survey during the breeding season to confirm presence or absence of breeding pairs.
Southern Bell Frog	Subject Land does not contain microhabitat features for the Southern Bell Frog.	There are no geographic limitations or habitat constraints in the BAM-C that enable the exclusion of this species. This species moves across the landscape during flood events and then contracts to refuge locations during periods of dry. Exclusion of this species without survey when potential habitat and associated PCTs occur in the subject land is not consistent with section 5.2 of the BAM. In addition, the exclusion of the species from the candidate list further excluded the species from consideration of prescribed impacts (see BCS issue 14). General frog surveys are not considered appropriate as targeted survey effort for this species.	Conduct targeted surveys to determine the presence or absence of this species including surveys to inform potential prescribed impacts of connectivity and vehicle strike (see BCS issue 14).

<b>Species</b>	<b>BDAR reason for exclusion from survey</b>	<b>BCS comment</b>	<b>BCS recommendation</b>
<i>Brachyscome muelleroides</i>	Exclusion based on lack of previous records	A paucity of records within areas with suitable habitat does not mean the species does not occur. A lack of records is likely due to a lack of previous survey effort particularly in western parts of NSW that are poorly surveyed.	Conduct a targeted survey to determine the presence or absence of the species, obtain an expert report or assume presence within all associated vegetation zones.
<i>Convolvulus tedmoorei</i>	Exclusion based on lack of previous records	A paucity of records within areas with suitable habitat does not mean the species does not occur. A lack of records is likely due to a lack of previous survey effort particularly in western parts of NSW that are poorly surveyed.	Conduct a targeted survey to determine the presence or absence of the species, obtain an expert report or assume presence within all associated vegetation zones.
<i>Leptorhynchos orientalis</i>	Survey limited due to nearest record and grazing history of site.	Survey limited to 10 kilometres of transects within 76 hectares of associated PCTs with distance to nearest record and grazing used as justification for not meeting minimum survey requirements for species. The nearest record is also incorrectly identified as this species was recorded in the EnergyConnect East project.	Conduct targeted survey across all associated PCTs to determine the presence or absence of the species.
<i>Pilularia novae-hollandiae</i>	Subject Land is not situated east of Deniliquin, NSW.	The project is north and in line with Deniliquin and the species has been recorded at other locations northwest of Deniliquin in other SW REZ projects. This species is a SAll entity and cannot be excluded from survey without justification in accordance with section 5.2 of the BAM.	Conduct a targeted survey to determine the presence or absence of the species, obtain an expert report or assume presence within all associated vegetation zones.

**Recommendations:**

- 2.1. Update the BDAR to ensure that the exclusion of suitable habitat for all candidate species is in accordance with the BAM.
- 2.2. Prior to determination, conduct surveys for candidate species which have been excluded based on the presence/absence of nearby records.

### 3. Spatial data survey effort does not support outcomes in the BDAR

Note – BCS review is based on the original spatial data provided on 8 May 2024. The BCS response was completed prior to receiving updated spatial data provided on 3 June 2024, and has not been considered in this response.

Table 2-6 of the BDAR lists the associated PCTs for each candidate flora species but does not include an area of associated PCTs for each species where survey was required or conducted. Section 2.2.3.3 of the BDAR provides a total length of transect surveys for all species and Table 5-7 includes transect length per species, but this is not able to be correlated with any survey tracks for each species in the spatial data. The survey tracks provided in the spatial data have a survey month for some tracks and not listed for others. It is difficult to determine if surveys were completed for each species in the required survey months, in all the associated PCTs and to meet the minimum requirements of the *Surveying threatened plants and their habitats - NSW survey guide for the BAM*. While some survey locations appear to have parallel transects, others have walked the boundary of the turbine location with no parallel transects (Figure 1).

The survey transects for flora surveys were only completed at some turbine hardstand locations. There are no surveys on any access roads, or at ancillary facility sites. There is no survey effort for any flora species in the northwest of the site which includes at least 26 turbine locations and more than 20 kilometres of access tracks.

BCS note that the accredited assessor did not apply the large area survey guide in the *Surveying threatened plants and their habitats - NSW survey guide for the BAM* which may be suitable for some species and associated PCTs for this project.



**Figure 1: Spatial data showing no survey effort in the northern row for any flora species and none outside turbine hardstand areas. Green lines represent survey tracks and also show lack of consistent application of parallel transect surveys**

*Recommendations:*

- 3.1. Revise Table 2-6 to include, for each species credit species, the area of each associated PCT required to be searched and the length of transect that was conducted.
- 3.2. Revise the survey track spatial data according to Table 7 of Appendix D of the 'BAM Operational Manual – Stage 2' to enable cross-checking with Table 5-7, including survey month and vegetation zone.
- 3.3. Consult with BCS to determine if the large area survey method can be applied for some flora species and how this may be able to be used with existing data and additional surveys.

**4. Additional survey to reduce the area of assumed presence for species credit species should occur before project determination.**

Section 10.2.1 includes a proposal for surveying areas of assumed presence and re-calculating the offset liability after project approval. The proposal to defer survey to post-approval means that it is not possible to gain a clear understanding of the total impact. BCS do not support the proposal to defer a significant amount of the project's surveys and impact assessment until post-approval. We cannot currently provide DPHI with sound advice on the likely impacts of the project, based on the large areas of assumed presence including SAll species.

BCS expect any further survey of assumed presence species polygons and revision of the offset liability to occur before the project is determined. The results must be provided in a revised BDAR.

*Recommendation:*

- 4.1. Ensure any additional targeted survey to reduce the area of assumed presence is finalised included in a revised BDAR before the project is determined.

**5. Species polygons for species credit species detected or assumed present are inconsistently applied and require further information to inform revision.**

The species polygon for several threatened flora species recorded including the SAll entity *Calotis moorei* have been created incorrectly according to the method for 'count species' where a buffer is placed around the record. *Calotis moorei*, *Lepidium monoplocoides*, *Maireana cheelii* and *Swainsona murrayana* are 'area species' and the species polygon should include the individuals detected, in addition to all suitable habitat, in accordance with section 5.2.5 of the BAM and the detail contained within section 4.4.5 of the BAM Operational Manual Stage 2. There is no justification for any of the buffers applied for any of the species polygons.

The species polygon GIS data does not correlate with the mapped species polygons in the BDAR and BAM-C. The species polygons do not include vegetation zone identifiers (as specified in Table 7 of Appendix D of the 'BAM Operational Manual – Stage 2'), so it is difficult to determine how impacted vegetation zones were entered into the BAM-C for each species.

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<sup>1</sup> <https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-operational-manual-stage-2>

The spatial data does not include a field to identify the source of the polygons (e.g. Surveyed and recorded or assumed presence) and we are unable to check the spatial data against the BAM-C.

In addition, *Calotis moorei* is a SAll entity and the species polygon has been prepared based on a count of the number of plants with a 30-metre buffer. The species was recorded in a turbine location and there is no discussion or avoidance of this SAll population in the BDAR (see BCS Issue 6).

*Recommendations:*

- 5.1. Revise the species polygons for 'area' species in accordance with section 5.2.5 of the BAM.
- 5.2. Revise the spatial data so all species polygons include vegetation zones with areas so that they can be matched against the BAM-C and the required species credits.

BCS is unable to determine SAll impacts due to conflicting information.

## **6. Assessment of serious and irreversible impacts requires revision.**

*Calotis moorei* was recorded in the development footprint and is also assumed present in associated PCTs where surveys were not completed. Due to discrepancies between the species polygon spatial data, SAll assessment maps and the areas entered in the BAM-C, BCS cannot rely on the information in the SAll assessment (Table 9-3 of the BDAR) to accurately assess potential SAll impacts to this species. Conflicting information includes:

- SAll assessment – 106 individual plants (this should be assessed by impact area not number of plants)
- Estimated extent in subject land – 51.23 hectares.
- Estimated extent in development footprint – 1.51 hectares
- Species polygon in supplied spatial data - 329 hectares
- Impacted area entered in BAM-C – 45 hectares.

BCS recognise that direct impacts to Plains-wanderer Important Habitat Map areas have been minimised from 23.3 hectares in the initial layout to 5.3 hectares in the exhibited EIS layout. This species is known to be impacted by increased predation when new access tracks are constructed that further encourage movement of predators like foxes across the species habitat. Criteria 4d (iii and iv) of the SAll assessment requires the assessor to determine how subpopulations of the species may become fragmented and threats to the subpopulation. The project has made minimal effort to minimise the fragmentation by linear placement of the development footprint through Important Habitat Map areas.

*Recommendations:*

- 6.1. Additional surveys are required to inform an accurate SAll assessment for *Calotis moorei*. The surveys outcomes should then be used to further develop avoid and minimise strategies for *Calotis moorei*.

- 6.2. Further avoidance and minimisation strategies for Plains-wanderer should be considered and included in the BDAR including use of existing access tracks to minimise direct impacts to Important Habitat Map areas and reduce fragmentation risk to the local subpopulation.

The assessment and calculation of direct impacts does not include all ancillary infrastructure.

## **7. All ancillary infrastructure and indirect impacts should be identified and assessed according to the BAM.**

The assessment must include all ancillary infrastructure and impacts, including those listed in the EIS section 3.4 and section 3.5 that are likely to have direct and indirect impacts requiring specific mitigation measures. The following ancillary facilities are not included in the BDAR (section 1 or Table 2-2 'Project components') or spatial data:

- meteorological masts and associated access tracks to the met masts (up to 10 in Table 2-2 of BDAR but only three in spatial data)
- sediment/erosion control measures and water management structures
- visual enhancement plantings
- security fencing including earthworks/clearing and asset protection zones, and clarifying if security fencing is this required around the entire project site, or just localised structures
- creek crossings.

For example, section 6.1 of the Bushfire Assessment (EIS Appendix R) includes commitments to asset protection zones of 10 metres for turbines and electrical infrastructure, and 24 metres for accommodation compounds. It is not clear in the BDAR if asset protection zones have been included in the disturbance footprint for all project components.

*Recommendation:*

- 7.1. Identify all ancillary infrastructure and revise the assessment and BAM-C to include all direct and indirect impacts to biodiversity.

PCT, TEC and vegetation zone identification and mapping need to be revised as they have inaccuracies that can affect the biodiversity credit calculation.

## **8. Plant Community Type identification requires more information to support conclusions including adequate stratification of BAM plots.**

The PCT descriptions in Tables 4-3 to 4-11 of the BDAR lack specific detail or reference to the vegetation integrity (VI) survey results. There are no photos of PCTs 13, 17, and 24. Photos of VI plots would provide greater confidence in the PCT classification and allocation of vegetation zones.

PCT mapping in Figure 4.1 does not align with soil types and may be incorrectly delineating PCTs. For example, the subject land within five kilometres of Plot 1 has all been mapped as

PCT 164 in moderate condition. On 2023 aerial imagery, this area appears to support either multiple PCTs (including 164, 153, and 157) or different condition states for PCT 164 (shown on Figure 2).

As per BAM section 4.2.1, the floristic assessment must be stratified to assess the expected environmental variation (and vegetation condition). The location of VI plots throughout the project area does not appear to represent variation in vegetation condition that is evident on aerial imagery. The plot locations also do not appear to be representative of the vegetation zones mapped on the subject land. For example, Figure 3 shows the VI plots (plots 11 and 16) that have been used to assess the vegetation integrity of PCT 13 Black Box – Lignum woodland wetland were sampled from the edge of woodland that looks on aerial imagery to be more disturbed than the vegetation in the development footprint of PCT 13.



**Figure 2: PCT mapping in the vicinity of Plot 1 has all been mapped as PCT 164 in moderate condition. Aerial imagery (2023) indicates that this area appears to support either multiple PCTs (including 164, 153, and 157) or different condition states for PCT 164.**



**Figure 3: BAM plots 11 (labelled as 2022-11-13P11ST) and 16 (labelled as 2022\_16\_15P16ST) appear to be located in relatively disturbed edges of PCT 13. The mapped area of PCT 13 Black Box – Lignum woodland wetland vegetation zone within the subject land (shown in dark grey) appears to be more intact.**

The limited extent of the spatial data showing tracks for targeted threatened flora survey also indicates that the site may not have been adequately covered to verify PCT and vegetation condition. There is no reference to the use of rapid data points (or similar) in the BDAR that may have been used to assist in vegetation zone mapping.

Section 4.1.7 of the BDAR should explain why floristic surveys were timed during late summer (February 2022 and 2023) and if that timing is likely to have resulted in lower VI scores than survey in spring when native annuals are identifiable. The floristic data from plots sampled in February 2022 and 2023 appear to be depauperate, and there is no discussion about why the single plot sampled in December 2023 (Plot 23.100) has substantially more species than other plots for which datasheets are provided.

It is noted in the limitations (BDARs s2.2.6) that there is variation in flora composition and structure over the different survey events. However, there is no discussion in section 4.1.7 about how the timing of VI plots may have affected the analysis or if it has been addressed.

There appear to be inconsistencies in the floristic analysis, including:

- The PCT allocation of SIMPROF Group I to PCT 163 Dillon Bush shrubland does not match the available datasheets for Plots 14 and 79 (shown in Chart 4-1). According to the field data sheets in Appendix C, plots 14 and 79 sampled in 2022 are dominated by Black Blue-bush, *Maireana pyramidata* (15% over in both plots), compared to Dillon Bush (*Nitraria billardieri*, at 0.3% in plot 14 and not recorded from plot 79).
- Group I results are missing and should be presented in Table 4-1
- Plots 14 and 79 may need to be re-assigned to PCT 153, as recorded on the field data sheets and evident by the species composition.

- Table 4-2 should be updated to correct the allocation of groups to PCT 153 and 163 and should include plot identifiers.

*Recommendations:*

- 8.1. Revise PCT mapping to more accurately reflect boundaries evident on aerial imagery.
- 8.2. Sample additional VI plots to demonstrate that vegetation condition across the subject land has been adequately sampled and considered.
- 8.3. Include photos of all PCTs on the subject land in the BDAR to support PCT and vegetation zone justification.
- 8.4. Revise the floristic analysis and discussion in Section 4.1.3 to ensure groups have been accurately allocated to PCTs and that the results are supported by the field data presented.
- 8.5. Update Table 4-2 to include plot identifiers for all VI plots classified to each PCT.

**9. Delineation of vegetation zones within the subject land requires revision and ground-truthing.**

There is inadequate floristic sampling or evidence of ground-truthing (such as rapid data points) to justify the delineation of a single vegetation zone or condition state for each PCT. Aerial imagery shows there is likely to be vegetation in relatively good condition that is not represented accurately in vegetation zones.

Because each PCT has only been allocated one vegetation zone, the number of VI plots required by section 4.3.4 of the BAM is lower. The low number of VI plots (46) across the subject land is likely to under-represent the variability in condition zones (and therefore the habitat suitability for threatened species) across a large project site with a direct impact area of almost 2000 hectares. If the variability of the vegetation zone is not captured via the minimum number of BAM plots (as defined in BAM Table 3), additional plots may be needed to ensure a representative sample is taken for the vegetation zone (BAM 2020 s4.3.4.2).

The BDAR does not provide a table showing which plots were used to determine PCTs and vegetation zone VI scores. Plot identifiers should be provided in in Table 2-4 of the BDAR.

Vegetation zones with high VI scores have been labelled 'moderate' condition. For example:

- VZ2 (PCT 17-moderate) has a VI of 79.2
- VZ5 (PCT44-moderate) has VI of 84.7
- VZ6 (PCT153-moderate) has a VI of 84.6
- VZ8 (PCT163-moderate) has a VI of 76.9
- VZ9 has a VI of 86.4.

These should be labelled as 'High' or 'Good' to ensure that any micro-siting into lower condition vegetation and avoidance of higher condition areas will genuinely avoid good condition vegetation and threatened species habitat.

*Recommendations:*

- 9.1. Revise vegetation zone mapping and descriptors according to BAM section 4.3.1. Include additional justification if further ground-truthing demonstrates that one vegetation zone is adequate to represents the variation of each PCT present in the subject land.
- 9.2. Ensure vegetation zones in good condition are indicated as such in the BDAR, BAM calculator, and spatial data.
- 9.3. List VI plot identifiers used to define each vegetation zone in Table 2-4.

**10. Vegetation integrity plot data provided is incomplete and inconsistent.**

To facilitate a thorough and timely assessment of a development, the BAM requires the proponent to provide all plot field data at the time of lodgement.

BAM plot identifiers in the spatial data are inconsistently named and do not match plot identifiers on data sheets provided in Appendix C. Plot identifiers in Table 4-17 do not match datasheets or spatial data.

Not all datasheets have been provided. There are 47 plots used for the floristic analysis, and Appendix C only includes 44 datasheets. The spatial data contains 100 points which may include start and end points of a VI plot but this is not recorded in the spatial data.

*Recommendations:*

- 10.1. Provide field datasheets for all VI plots used in the assessment.
- 10.2. Label each field datasheet with a unique identifier that match the spatial data attributes and VI plot references in the BDAR.

**11. Areas mapped as non-native vegetation must include supporting evidence.**

In accordance with BAM section 4.1.2, justification must be provided for all parts of the subject land that do not contain native vegetation. Evidence needs be provided for areas mapped as non-native vegetation on the subject land, including the haulage route on which only one BAM plot was sampled.

*Recommendations:*

- 11.1. Provide evidence, including field datasheets, to justify the mapping of non-native vegetation on the haul route.

**12. Identification of Sandhill Pine Woodland TEC requires clarification.**

The Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions' endangered ecological community (Sandhill Pine Woodland EEC) generally occurs as a patchy woodland, often without an overstorey. It's unclear from section 4.1.6.1 of the BDAR if all areas of PCT 28 present on the subject land (including those without a *Callitris glaucophylla* overstorey) have been mapped as Sandhill Pine Woodland EEC.

*Recommendations:*

- 12.1. Ensure all areas of PCT 28 present on the subject land have been mapped as Sandhill Pine Woodland EEC.

Specific detail is lacking to show how the proponent has avoided and minimised biodiversity impacts.

**13. The BDAR lacks detail to demonstrate that biodiversity impacts have been avoided or minimised.**

Impacts to areas of Plains-wanderer Important Habitat Map have been reduced through design changes from 23.3 hectares to 5.32 hectares. However, most of the measures to minimise impacts listed in Table 7-21 are proposed to be developed when management plans are prepared after project determination. In accordance with BAM 7.1.2 and 7.2.2(2), the BDAR needs to specifically detail any measures (actions or activities) that are relied on to avoid or minimise impacts.

BCS support the avoidance of areas of threatened ecological communities (Sandhill Pine Woodland and Weeping Myall Woodland) to the south of the project area (BDAR section 7.1.1). Spatial data has been provided, however a generalised map is given in the BDAR that does not map the avoided extent of the TEC to demonstrate where these TECs occur outside the current development footprint. To demonstrate avoidance of each TEC, areas of avoided TECs should be mapped separately on Figure 7-1 and referred to the map in the TEC discussion in 7.1.1 of the BDAR.

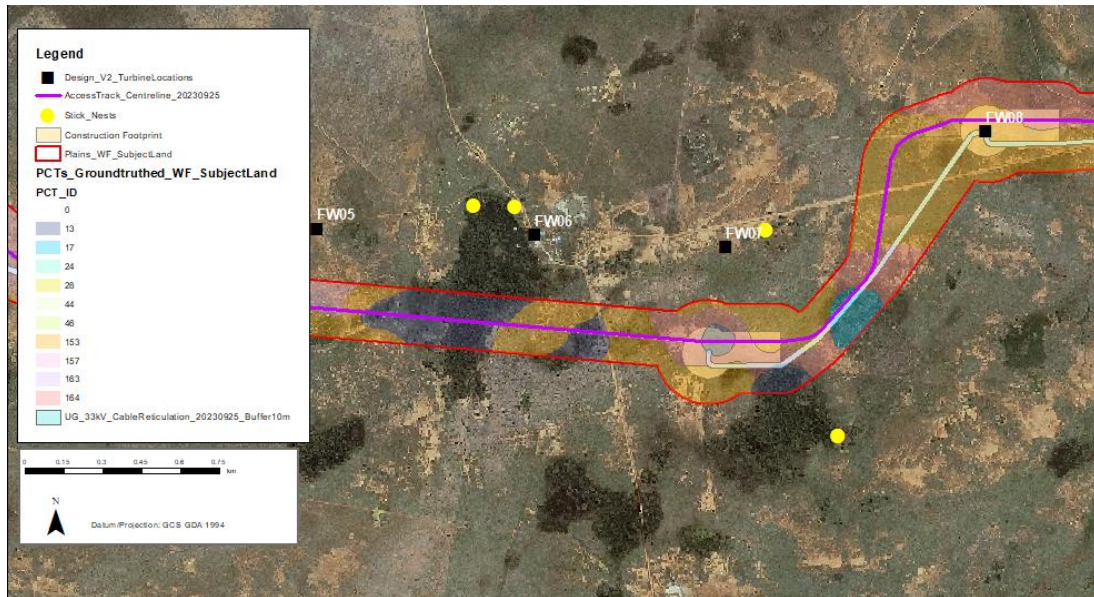
The information about bird and bat turbine strike currently in the avoid and minimise section of the BDAR should be moved to a separate appendix as a stand-alone BBAMP report and clearly referenced in Table 6-1 (see Issue 16 and 17).

There has been no genuine consideration of modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology. The only mention of unfeasible options is for the haul route through Broken Hill where it is unfeasible to use existing routes through town, thus requiring construction of a new 3.7 kilometre bypass.

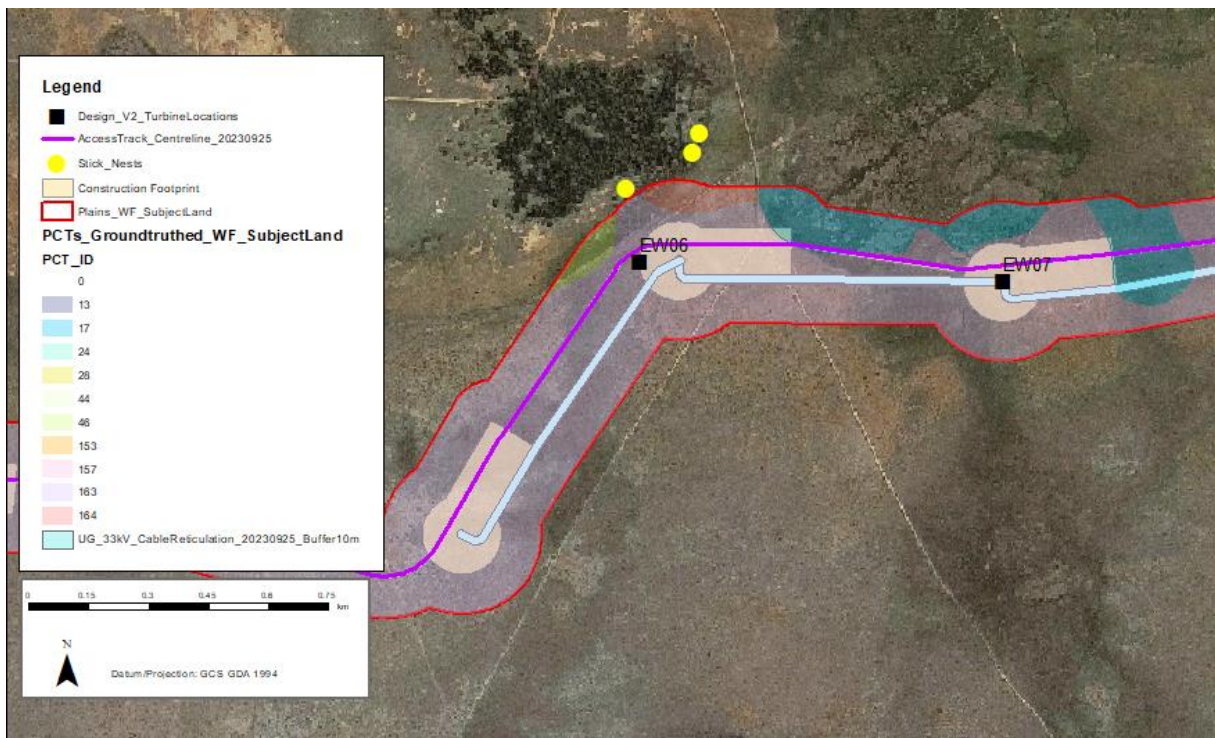
BAM section 7.1.2(4) requires the BDAR to demonstrate selection of routes that would avoid or minimise impacts on biodiversity values and to justify selection of the proposed routes.

The proposed new track and cable reticulation trenching between some turbine locations does not appear to have been located to maximise the existing track network and avoid native vegetation. For example, around turbine location FW06 shown on Figure 4, a cable reticulation route is proposed to go through intact native vegetation (including PCT 13 Black Box – Lignum woodland wetland) instead of being co-located with the nearby existing track network. We note that the spatial data for proposed turbines does not match the disturbance footprint in this location.

Similarly, the existing track network has not been used for tracks or cabling either side of proposed turbine EW06 shown on Figure 5. The proposed location of all tracks should be re-visited to ensure the existing network is used, and co-locating cable reticulation with the existing disturbance.



**Figure 4: Proposed tracks and cable routes through intact native vegetation (PCTs 13 and 153), noting that the turbine location spatial data and development footprint are not consistent in this location.**



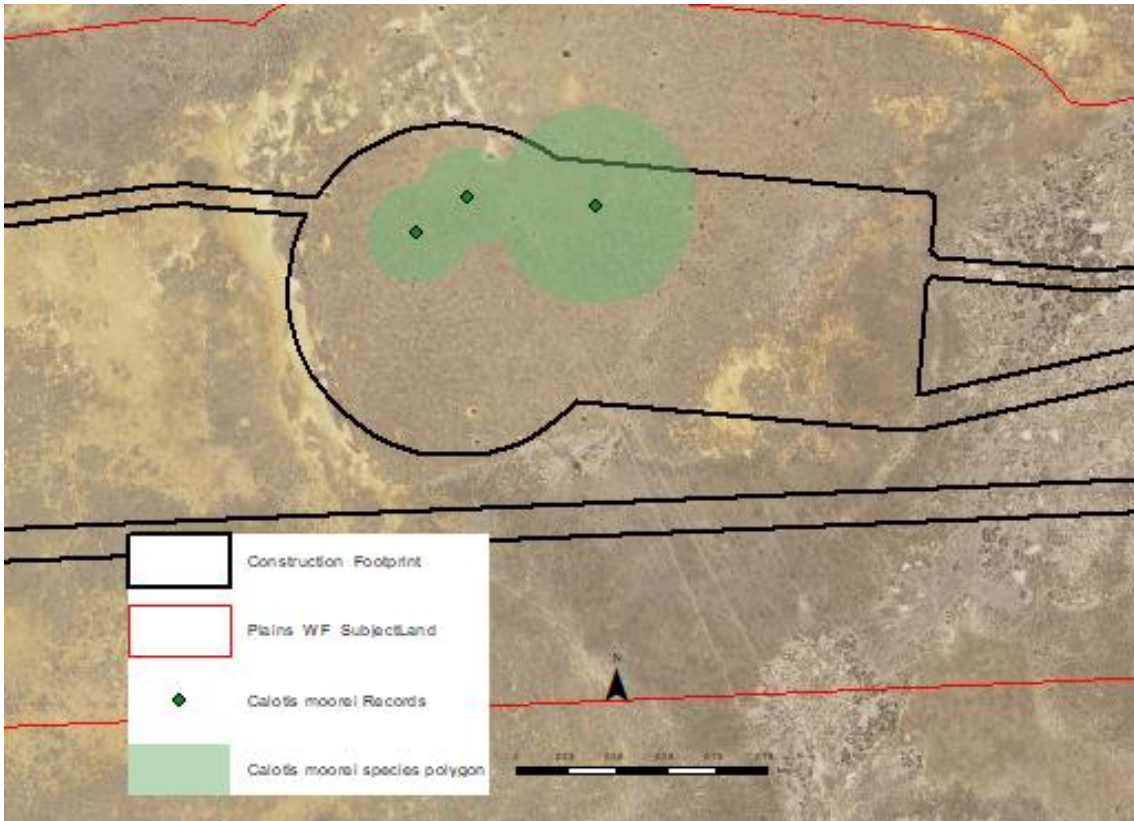
**Figure 5: New tracks and cable routes proposed around Turbine EW06 through native vegetation instead of following existing tracks.**

The network of access tracks will impact 5.35 hectares of Important Habitat Map for the SAll Plains-wanderer. Despite section 7.1.1 of the BDAR saying that existing access tracks have been used where possible, this statement is not reflective of the maps and spatial data which shows new access tracks next to existing access tracks (see Figure 5).

Section 7.1.1 of the BDAR states that:

*“the Project will aim for the total avoidance of Calotis moorei...”*

This statement does not match the reported impacts in the BDAR or BAM-C for this species where the development footprint includes complete removal of the identified population of *Calotis moorei*. There are also areas of assumed presence within the development footprint. The vague commitment of aiming to totally avoid impacts to the species is not supported by the species polygon at a turbine location (Figure 6) and the required credit obligation.



**Figure 6: Known location of SAIL *Calotis moorei* in development footprint despite BDAR saying impacts will be avoided.**

*Recommendations:*

- 13.1. Provide detail for all avoid and minimise measures to be implemented through post-approval environmental management plans, in accordance with BAM sections 7.1.2 and 7.2.2(2).
- 13.2. Demonstrate avoidance by revising the proposed location of all tracks and cabling to ensure the existing network is used, and that cable reticulation is co-located with tracks or within existing cleared areas wherever possible.

Assessment of prescribed and indirect impacts associated with the operation of the proposed project are insufficient and require review.

**14. More detail is needed to adequately identify and assess prescribed impacts, including human-made structures and habitat connectivity.**

The identification of applicable prescribed impacts in Table 6-1 is based on flawed assumptions and unjustified statements about threatened species and the habitat value of non-woody native vegetation (i.e. natural grasslands and chenopod shrublands) within the

riverine plains. Section 6 should be comprehensively revised with reference to current ecological literature and existing species records.

In particular:

- There is no list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts.
- The assumption that connectivity is restricted to trees, so the project area and subject land have no connectivity, is flawed. This has resulted in inadequate application of BAM section 3.1.3 (landscape features) in Table 3-1 and BAM section 6.13 (prescribed impacts) in Table 6-1. Native vegetation without trees provides habitat for many of the species predicted to occur on the project area, such as the Plains-wanderer, Southern Bell Frog, Australasian Bittern, White-fronted Chat, and Blue-billed Duck.
- BCS disagree with the statement in Table 6-1 that creeks and farm dams are unlikely to sustain threatened species populations. Human-made dams, waterways and ephemeral creeks provide refuge habitat and resources in a semi-arid riverine plains landscape. Southern Bell Frog was excluded as a candidate species, however it has been commonly recorded in the local area using farm dams and channels as refuge. It also has potential to be impacted by vehicle strike during rainfall and flood events where it is dispersing across the landscape.
- No threatened fauna or protected fauna species that are part of a TEC have been identified as being at risk of vehicle strike, and requirements of BAM section 8.3.6 1(a-d) have not been addressed.

*Recommendations:*

- 14.1. Comprehensively revise the identification and assessment of all prescribed impacts according to BAM sections 6 and 8.3, with reference to current ecological knowledge, literature and existing species records.
- 14.2. Review the assessment to address the connectivity values of naturally open or non-woody native vegetation. Revise in detail all aspects of the BDAR where connectivity has been assessed and/or is relied on to justify exclusion of species from the assessment.

#### **15. The prescribed impact of wind farm developments requires revision, and the exclusion of species does not comply with the BAM.**

Information relating to the identification of prescribed impacts for wind farm developments specified in BAM section 6.1.5 has been provided in the 'avoid and minimise' chapter (Section 7.1.3), which has resulted in the prescribed impact assessment appearing to be incomplete.

The assessment of the impacts of wind turbine strike in BAM section 8.3.5 have also been provided in Section 7.1.3, along with the draft Bird and Bat Adaptive Management Plan (BBAMP), the development of which is to address the uncertain impacts of turbine strike in BAM section 8.5.

Regarding the content in Section 7.1.3 that should be included in Chapter 6, the candidate list of protected animals that may use the development site as a flyway or migration route requires revision. Species have been excluded from the prescribed impact assessment

without adequate justification. For example, Yellow-bellied Sheathtail-bat is known to be a high-flying and migratory species<sup>2</sup> so should be assessed as a species at risk of collision and included in the assessment. Other species that cannot be excluded on the evidence provided in the BDAR include Southern Myotis and White-fronted Chat.

The exclusion of birds in BDAR section 7.1.4.2 and Table 7-5 due to vagrancy does not comply with the BAM. BAM section 5.2.2(2c) enables the assessor to remove species unlikely to occur on the subject land if the species is a vagrant to the IBRA subregion, and the BAM glossary defines vagrant species as “occasional records of species in NSW that are outside their normal distribution or habitat, including escaped animals and planted specimens”. BAM section 5.2.2(2c) requires the assessor to record their reasoning for the determination.

The justification in section 7.1.4.2 is a general comment that the species were not present at the time of survey despite potentially suitable habitat being present, with no specific justification for each species. There is no evidence that these species are outside their normal distribution or habitat, particularly as the assessment has demonstrated that the habitat is present on the subject land.

For example, while the Australian Bustard could be considered rare on the Hay Plain, BioNet and eBird database records in the last ten years indicate that there is a small resident population. As noted in Table 7-4, Australian Bustards are regarded as mostly an intra-regional mover<sup>3</sup>, thus they are unlikely to all be vagrants. In addition, Australian Bustards do fly when needing to travel longer distances and are potentially at risk of collision.

Further assessment of the prescribed impacts of turbine strike according to BAM section 8.5 should then be addressed with the impact assessment in Chapter 8. The BBAMP is a stand-alone adaptive management plan, intended for implementation after project approval, so the draft BBAMP should be provided as a separate document appended to the BDAR (see issue 16).

#### *Recommendations:*

- 15.1. Revise the information in section 7.1.4 of the BDAR to clearly address the prescribed impact identification requirements in BAM section 6.1.5, the avoid and minimise considerations in BAM section 7.2.1, and the assessment of the (prescribed) impacts of wind turbine strike in BAM section 8.3.5.
- 15.2. Revise the prescribed impact assessment to justify the exclusion of protected birds and bats.
- 15.3. Revise the list of vagrant species to comply with BAM s5.2.2 and the BAM glossary revise the assessment to include any species that do not meet the BAM definition of vagrant.
- 15.4. Prepare a separate BBAMP that is appended to the BDAR.

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<sup>2</sup> Churchill SK (2008). *Australian Bats*. Allen and Unwin, Sydney.

<sup>3</sup> Ziembicki M (2009) *Ecology and movements of the Australian Bustard Ardeotis australis in a dynamic landscape*. Thesis submitted for the degree of Doctor of Philosophy, University of Adelaide.

**16. The survey effort for bird and bat utilisation surveys (BBUS) are insufficient and survey data must be provided.**

The Bird and Bat Utilisation Surveys (BBUS) were conducted once in each season over one year, from spring 2021 to winter 2022.

While BCS acknowledge that the proponent has committed to another 12 months of BBUS surveys, we do not support the approach in section 7.1.4.4 of the BDAR that this additional 12 months of data collection is completed during construction.

BCS expect the BBAMP to be based on at least two years of BBUS, across all seasons, including paired at-height data for bats to establish a thorough understanding of the project's potential impacts. This duration is required to reflect the seasonality in the local system, considering the variability of rainfall and its influence on vegetation flowering, coupled with the nomadic and/or migratory nature of many Australian bird and bat species. The additional survey data should be collected, analysed and incorporated into the BBAMP prior to project determination.

No raw data for bird surveys completed as part of the BBUS surveys to date have been provided in the BDAR, which means BCS are unable to assess if the risk assessment provided in section 7.1.1 adequately addresses the at-risk bird species. All results should be detailed in the BDAR as an appendix and provided in the digital data package.

*Recommendations:*

- 16.1. Conduct a full two years of pre-construction BBUS, across all seasons and including paired at height data to ensure the BBAMP is supported by sufficient data.
- 16.2. Provide the raw data from BBUS results in the BDAR and digital data package.

**17. The turbine risk assessment and collision modelling are based on inadequate survey data, and aspects of the draft BBAMP need revision.**

BBUS and turbine and collision risk have been completed, however it is unclear how the results of the BBUS have been used to inform the risk assessment. For example, the results of the BBUS have not been used to map any flight paths. It is unclear how turbine risk and strike has been reliably assigned when a key parameter in the matrix (BDAR Table 7-6 and 7-9) is "*migratory or nomadic species habitual flight path*" when no flight paths have been mapped. The collected data from BBUS to inform collision risk and modelling is not included in any form in the BDAR.

Section 7.1.1 discusses avoidance of raptor nests including a two-kilometre buffer for a confirmed Little Eagle nest (listed as vulnerable under the BC Act) and 500 metre buffer for other raptor nests. The spatial data has 130 records for stick nests, including Wedge-tailed Eagle, a species known to be at increased risk of collision. BCS has buffered those locations and there are 17 turbines (centre points) within 500 metres of at least one stick nest. There is no discussion about how impacts to raptors will be minimised (as per BAM section 7.2.1(4)) for the 17 turbines with stick nests within 500 metres.

While the approach to the Collision Risk Modelling (CRM) appears to be appropriate, it is difficult to determine if the species identified as 'high' and 'very high' risk are suitable and

appropriate and supported by results of the BBUS to date. The survey data used to inform the model have not been included in the BDAR so BCS are unable to assess the validity of the modelling.

The Yellow-bellied Shearwater bat has been excluded from collision analysis based on one publication that discusses the height that the species often flies at while foraging. However, the species is generally recognised to often fly at greater heights than many other bats and is also known to be migratory so may pass through the area on migration, resulting in an increased risk. Given that the species was recorded on site despite the limited BBUS surveys it is essential that its collision risk is assessed.

While the BDAR suggests uncertainty around the identification of the Southern Myotis on site there were many possible records collected in the BBUS. Given that there was flooding in the area at the time of some of the surveys the possibility of the species occurring during the surveys is more likely. As a threatened species in NSW with potential records on site it needs to be included in the collision risk assessment. There is no justification for excluding either of these bat species.

None of the species identified as 'vagrant' in Table 7-5 have been included in the risk assessment. As discussed in BCS Issue 15, the classification of vagrant species is not BAM compliant. When present in the area, these species are likely to be at risk of turbine strike and should be added back into the risk assessment. For example, waterbirds that will respond to episodic rainfall and flooding events include Australasian Bittern, Brolga, Blue-billed Duck and Freckled Duck which may be present during favourable seasons. Grey Falcon and Pink Cockatoo should also be included in Tables 7-6, 7-7 and 7-8.

Carcass persistence trials and searcher efficiency trials should be done prior to construction and operation to inform the BBAMP. The proposed carcass search area outlined in section 7.1.4.4 is inadequate. The Hull and Muir model being relied upon was developed based on hub heights up to 94 metres and blade lengths up to 56 metres, which is considerably lower and shorter than those proposed at The Plains Wind Farm. The search area proposed (100 metres for bats and small birds and 100-150 metres for medium to large birds) may not be large enough to complete searches based on the size of turbines proposed at The Plains. Further literature and justification around search areas is required before these areas can be finalised in the BBAMP.

Justifications for proposed triggers in Section 7.1.4.5 must be supported with literature that is relevant to the species and the region. For example, the trigger of five protected or locally abundant species at the same WTG during a 12-month period is likely too high. The proposed trigger requirements in s7.1.4.5 of the BDAR should be justified for both threatened and non-threatened species.

The BBAMP is an important tool for monitoring, mitigating and potentially offsetting residual prescribed impacts resulting from turbine strikes. As such, a more comprehensive draft BBAMP, prepared in consultation with BCS, should be included that justifies outcomes based on the results of the BBUS data and assessment.

*Recommendations:*

- 17.1. Revise the draft BBAMP in consultation with BCS, and ensure outcomes based on the results of the BBUS data are fully justified with supporting information and literature.
- 17.2. Document measures to avoid and minimise impacts to raptors at proposed turbines that are within 500 metres of recorded stick nests.

The indirect impact assessment requires review.

**18. All indirect impacts should be identified and assessed according to BAM 2020.**

The indirect impact assessment in BDAR Table 8-4 needs additional consideration and detail. It is expected that this assessment would include the indirect impacts of runoff and sedimentation to Plains-wanderer Important Habitat Map areas (and any other habitat occupied by Plains-wanderer that is outside the extent of the Important Habitat Map).

The likelihood and consequences of the impacts presented in Table 8-4 are non-specific and not justified. For example:

- b) states the likelihood of reduced viability of adjacent habitats due to edge effects as being very low. BCS consider this impact to be highly likely due to the considerable soil disturbance described in the EIS for construction, which is different to the existing land use, and an increase in vehicle movements from outside the locality.
- d) identifies the risk of weed and pathogen spread but provides no detail about the location and species of weeds present, or the consequences of the risk they pose to existing native vegetation and threatened species habitat.
- j) Rubbish dumping due to improper waste management has been assessed as not applicable, however BCS consider this issue to be likely, particularly around accommodation camps. Construction and operational staff may not be aware that discarding food scraps can provide a food source for feral animals (cats, rats and foxes) resulting in increased threat to threatened fauna, including Plains-wanderer. This issue also relates to m) increase in predators, and n) increase in pest animal populations.
- k) An increase in wood collection is possible if accommodation camps are in the project area, due to gathering of fallen timber for informal campfires. It may be appropriate to include staff education about the value of fallen timber for threatened species habitat and as important components of a TEC. For example, Sandhill Pine Woodland TEC naturally regenerates very infrequently. Logs and litter on the ground are an important component of the TEC and create a microhabitat that promotes seed retention and germination.

Table 8-4 of the BDAR states residual indirect impacts are unlikely due to the planned implementation of the CEMP. Without any detail on what and where these controls are, BCS are unable to determine if the proposed controls are adequate.

*Recommendations:*

- 18.1. Identify and assess all indirect impacts of the proposal on native vegetation and habitat during construction and operation in Sections 8.2 and Table 8-4, and include the results in Section 11.4.
- 18.2. Provide details for all measures necessary to mitigate or manage indirect impacts.

Mitigation measures are not specific to the impact, location or affected threatened entities.

#### **19. Mitigation measures need more detail to meet requirements of BAM section 8.4.**

BAM section 8.4 requires that all measures to mitigate and manage impacts are documented in detail in the BDAR. Table 8-7 lacks specific detail for some proposed mitigation and management measures and does not assess the risk and consequence of any residual impacts. The detail should not be deferred to post-approval management plans (such as the CEMP or BMP). The measures do not directly link to specific residual impacts or avoid and minimise measures. As a result, they are unlikely to be effective in managing specific risks, such as indirect impacts to Plains-wanderer habitat.

For example, the second measure in Table 8-7 of the BDAR refers to a clearing protocol for protecting 'treed habitat' that will be detailed in the post-approval CEMP. Without detail, BCS are unable to evaluate if the measure will protect native vegetation or habitat for threatened species in areas where clearing occurs, so cannot assess if the calculated credit liability reflects the likely harm to threatened biodiversity.

Mitigation measures in Table 8-7 should also be given a unique identifier to allow each action to be carried through to post-approval plans and be tracked for auditing. Note that these measures are labelled Bio1 to Bio12 in the EIS Appendix B.

#### *Recommendations:*

- 19.1. Revise Table 8-7 to detail auditable mitigation and management measures to be implemented through post-approval plans.
- 19.2. Include a unique identifier for each mitigation measure in Table 8-7 and ensure they correspond with the EIS.

The assessment of Matters of National Environmental Significance requires review.

#### **20. Assessment of the Natural Grasslands of the Murray Valley Plains TEC requires further information to support conclusions for its absence.**

The justification for excluding the 'Natural Temperate Grasslands of the Murray Valley Plain' listed as critically endangered under the Commonwealth EPBC Act requires further discussion, including whether the survey was timed to allow identification of the characteristic species. For example, clarify whether it was too dry in February for native annual species characteristic of the critically endangered ecological community (CEEC), including *Arthropodium*, *Bulbine*, *Wahlenbergia* and *Wurmbea* species, to be identifiable.

#### *Recommendation:*

- 20.1. Provide additional justification for excluding the presence of the 'Natural Temperate Grasslands of the Murray Valley Plain' CEEC from the subject land.

## **21. A separate and complete MNES assessment should be provided to address the Assessment Bilateral.**

The assessment of biodiversity impacts and offsetting is being completed under the EPBC Act Assessment Bilateral Policy. As this is a controlled action bilateral assessment project, additional information is required for BCS to confirm that all relevant MNES have been addressed. Supplementary SEARs for the project were issued by the NSW Government outlining the additional assessment requirements, which have been replicated in the BDAR Table 1-1.

The BDAR currently does not demonstrate that Commonwealth assessment requirements for impact to MNES have been adequately addressed. Although Table 1-1 in the BDAR provides a reference for each required element of the Australian Government DCCEEW Bilateral Assessment, the required MNES information (provided in **Appendix C** to this response) is not readily apparent in some of the referenced sections or has not been provided.

For example,

- Table 1-1 Item 4a) under the 'DCCEEW Bilateral Assessment' heading requires demonstration of all efforts to avoid and minimise impacts on EPBC Act-listed threatened species and communities. Section 7 provides specific avoidance measures for Plains-wanderer and EPBC Act-listed TECs but does not address any other EPBC Act-listed threatened species.
- Table 1-1 Item 6 requires identification of any MNES that have not been offset using the BAM and details about how the calculated offsets relate to MNES. Some of this information is provided for all assessed species, however only Table 10-3 listing species credit species requiring an offset specifically includes EPBC status. No other concluding information in Section 10 or Section 11 is readily available for BCS to determine if the assessment has been completed.

*Recommendation:*

- 21.1. Provide a section or chapter in the BDAR and specifically address each of the Bilateral assessment requirements detailed in BDAR Table 1-1 (and **Attachment C** to this response).

## **ATTACHMENT C    BCS Bilateral Assessment information and data requirements**

For BCS to complete the assessment of EPBC Act-listed threatened species and communities, the following information is required in the BDAR.

### **1. Background and description of action**

The EIS / BDAR must include:

1. Descriptions and maps of the operational and construction footprints of the project that relate to MNES.
2. Descriptions and maps of staging and timing of the action that may impact on MNES.
3. Maps of the subject land boundary showing the final proposal and disturbance footprint with regards to MNES.

Submit GIS shapefiles of all maps that relate to MNES.

### **2. Landscape context of the MNES**

Ensure that the 'Establishing the site context' of BAM 2020 (Section 3) have been fully met in the BDAR in relation to MNES.

### **3. EPBC Act listed threatened species and communities**

The EIS / BDAR must include the following:

1. Demonstration that field-based survey effort meets BCD survey guidelines and, where available, Commonwealth survey guidelines.
2. Demonstration of access and use of supporting databases (e.g. NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results).
3. Demonstration of access and use of published peer-reviewed literature.
4. Demonstration of access and use of local data (if relevant).
5. Demonstration of appropriate mapping of all EPBC Act-listed threatened species and communities in accordance with the relevant Commonwealth listing advice.
6. Demonstration of consideration of important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans.
7. A list of all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity (including species that are 'ecosystem credits' in BAM).
8. A discussion, with data and analysis where any species and communities identified by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) referral documents have been ruled out as occurring on or near the subject site.

#### 4. Avoidance, minimisation, mitigation and management

The EIS / BDAR must include:

1. The demonstration of 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:
  - a. designs and engineering solutions
  - b. modes or technologies
  - c. routes and locations of facilities
  - d. sites within the subject site
  - e. the identification of any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc).
2. A discussion and justification of all feasible measures to avoid, mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including:
  - a. techniques, timing, frequency and responsibility
  - b. identify measures for which there is risk of failure
  - c. evaluate the risk and consequence of any residual impacts
  - d. any adaptive management strategy proposed to monitor and respond to impacts.

#### 5. Impact assessment

The EIS / BDAR must include the following:

1. Identification of 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.
2. Justification and evidence for the predicted level of impact, with reference to the Commonwealth's 'Significant Impact Guidelines 1.1 - Matters of National Environmental Significance'<sup>4</sup> and DPIE's 'Guidance to Assist a Decision- Maker to Determine a Serious and Irreversible Impact'<sup>5</sup>.
3. Provide a summary table with the following information:

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<sup>4</sup><https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance#:~:text=This%20Significant%20impact%20guidelines%20provide,and%20Biodiversity%20Conservation%20Act%201999.>

<sup>5</sup><https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/guidance-decision-makers-determine-serious-irreversible-impact-190511.pdf>

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)

4. Provide data and justification where any EPBC Act-listed threatened species or communities to be considered in the BDAR are considered to be at low risk of impact during the assessment.

## 6. Offsets

The EIS / BDAR must include the following:

1. The identification of any MNES that have not been offset using the BAM.
2. Details of how impacts requiring offset correlate to the MNES impacts.
3. Details of the PCTs that require offsetting and the number and type of ecosystem credits required for impacts to MNES.
4. Details of threatened species requiring offset and the number of species credits required for impacts to MNES.
5. A demonstration of the correct 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.
6. Any details of ecological rehabilitation and/or biodiversity conservation actions proposed for offsetting.
7. The identification of any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures.
8. Provide a summary table with the following information:

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 )
<b>TOTAL</b>					

## **7. Other considerations**

The EIS / BDAR must include the following:

1. Consideration of all relevant Commonwealth guidelines and policy statements that are applicable to the action and listed threatened species and/or communities, including but not limited to:
  - a. International environmental obligations
  - b. Recovery Plans
  - c. Approved Conservation Advice
  - d. Threat Abatement Plans
2. An assessment for each EPBC Act listed threatened species and/or community, that 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.