

Attachment 4: Relevant State Service Agency and landowner assessment criteria

In accordance with section 60ZJ of the *Land Use Planning and Approvals Act 1993*, the Department of Natural Resources and Environment Tasmania (NRE Tas) provides the following advice in its role as both a landowner for land within and adjoining the Major Project area and as a relevant State Service Agency.

These matters are not part of the Assessment Requirement Notice issued above in accordance with NRE Tas's role as a Relevant Regulator.

NRE Tas offers this advice in accordance with section 60ZJ(1)(a) & (b) as an owner of land on which the Major Project is to be situated and owner of adjoining land, section 60ZJ(1)(f) as the manager of Crown land, and section 60ZJ(1)(e) as a State Service Agency which may have an interest in a matter to which the Major Project relates.

The following assessment criteria are requested for inclusion in the Major Project Impact Statement (MPIS) in order to enable NRE Tas to assess and provide specialist advice regarding impacts to natural and cultural values from the Major Project. The inclusion of these criteria may also be considered in any decision to commence or otherwise a Parks and Wildlife Service (PWS) Reserve Activity Assessment (RAA) process.

Assessment criteria under section 60ZJ

1. **Flora and threatened native vegetation communities (TNVC)** - provide an assessment of the potential impacts of the Major Project on native flora and vegetation communities, particularly those listed as threatened under the *Nature Conservation Act 2002* (NCA) and those of conservation significance, will be avoided, minimised and mitigated and provide details of any proposed measures to mitigate or offset adverse impacts on flora and TNVC, where impacts cannot be avoided.
2. **Avian fauna and avian fauna habitat** - provide an assessment of how the potential impacts of the Major Project on native avian fauna and their habitats are avoided, mitigated or offset and provide details of any proposed measure to minimise, mitigate or offset adverse impacts on listed avian fauna where impacts cannot be avoided.
3. **Terrestrial fauna** - provide an assessment of how the potential impacts of the Major Project on native terrestrial fauna and their habitats are avoided, mitigated or offset and provide details of any proposed measure to minimise, mitigate or offset adverse impacts on listed terrestrial fauna where impacts cannot be avoided. This should include the potential impact of roadkill. Provide a traffic impact assessment for the Major Project and any measures to mitigate roadkill impacts.
4. **Aquatic fauna** - provide an assessment of how the potential impacts of the Major Project on native aquatic fauna and their habitats are avoided, mitigated or offset and provide details of any proposed measure to minimise, mitigate or offset adverse impacts on listed aquatic fauna where impacts cannot be avoided.

5. **Geoconservation** - provide an assessment of the potential impacts of the Major Project on geoconservation sites and how those impacts will be avoided, minimised and mitigated including consideration of effectiveness.
6. **Aquatic Natural Values** - provide an assessment of how the potential impacts of the Major Project on aquatic natural values are avoided, mitigated or offset and provide details of any proposed measures to minimise, mitigate or offset adverse impact on those values.
7. **Crown land including Reserved land** - provide an assessment of how the potential impacts of the Major Project on areas of Crown land, including areas reserved under the NCA, should be avoided, minimised and mitigated and provide details of any proposed measures to mitigate or offset adverse impacts on biodiversity and nature conservation values, where impacts cannot be avoided.
8. **Crown land including Future Potential Production Forest (FPPF) land** - provide an assessment of how the potential impacts of the Major Project on areas of Crown land, including areas reserved as FPPF land under the *Forestry (Rebuilding the Forest Industry) Act 2014*, should be avoided, minimised and mitigated and provide details of any proposed measures to mitigate or offset adverse impacts on forestry values, where impacts cannot be avoided.

Information to be provided in the MPIS in addressing the matters identified above:

I. Flora and TNVC

The Project land includes areas of reserved land including the Mount Heemskirk Regional Reserve, the Meredith Range Regional Reserve and the Parting Creek Regional Reserve. The Project land has the potential to contain flora species of conservation significance that are not currently listed under the TSPA. This may include uncommon species that only occur in few locations, which have not been previously listed due to the low likelihood of threats. Such species may warrant listing under the *Threatened Species Protection Act 1995* (TSPA) if they are significantly impacted by the Project. It is also possible that the area contains new or previously unrecorded plant species which may warrant listing under the TSPA.

I.1 Threatened Native Vegetation Communities

The MPP has identified several TNVCs listed under the NCA, which may occur within the Project land. However, it should be noted that only approximately 0.8 per cent of the vegetation mapping within the Project land has been field validated. NRE Tas recommends that extensive on-ground surveys are undertaken to determine the vegetation mapping accuracy of TNVCs within the Project land. Additionally, the MPIS should include distribution maps of these communities across the Project land, along with a description of the predicted impacts to each area of TNVC from the Project. In addition to TNVCs, the MPIS should demonstrate the avoidance or minimisation of fragmentation of vegetation communities more vulnerable to disturbance such as rainforest vegetation (especially uncommon communities with high paleoendemic significance such as *Lagrostrobos franklinii* rainforest and scrub). NRE Tas recommends that the MPIS includes an assessment of how impacts to TNVCs will be avoided and/or minimised. Survey data should be collected and mapped following the recommended TASVEG data structure.

2. Avian Fauna and Avian Fauna Habitat

There are several avian fauna species listed under the TSPA and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) that may have habitat within the Project land and may be impacted by the proposed Project.

grey goshawk

The grey goshawk *Accipiter novaehollandiae* has previously been recorded in the Project area and the proposed development occurs within the core range of the species. The species was also recorded during surveys. Grey goshawks nest in mature wet forest, usually in the vicinity of a watercourse, but can also be observed in open woodland and around urban fringes. They have large ranges, and are predominantly ambush predators, hunting from perches in the forest canopy, but can also hunt from low heights. Threats to the species include collisions with infrastructure, particularly WTGs, powerlines and cables. Surveys for grey goshawk and its nests should target areas where the development is likely to encroach on its habitat, ie areas where infrastructure such as cables and roads will cross riparian vegetation and waterways.

blue-winged parrot

The blue-winged parrot *Neophema chrysostoma* is listed as Vulnerable under the EPBCA and is currently being considered for listing under the TSPA. As such, it is recommended that blue-winged parrots are included in any further bird surveys and that potential impacts on the species are considered by the Project.

It is noted that there were five records in the Bird and Bat Assessment (BBA) survey of blue-winged parrots flying at rotor height (MPP, Table 8). Please note that blue-winged parrot mortalities caused by WTGs have been recorded by other wind farms in Tasmania and it is recommended that mitigation measures to prevent rotor blades striking parrots are included in the MPIS.

The BBA also states that blue-winged parrots generally move in small flocks and while crossing open land they fly mostly at heights below 30 metres but occasionally at Rotor Swept Area heights (Nature Advisory Desktop Assessment, pg. 29 & BBA, pg. 18). It is recommended that the appropriate reference for the statement is included in the MPIS.

Tasmanian azure kingfisher

The proposed development site occurs within the core range of the Tasmanian azure kingfisher and there are previous records nearby on the Pieman River near Corinna and a tributary of Lake Pieman near Renison Bell. The habitat of the azure kingfisher is shady and overhanging forest vegetation along the forested margins of major rivers, usually dominated by wet sclerophyll and mixed forest supporting mainly eucalypt species. It is likely that the species occurs onsite and further surveys are recommended for the species in areas where the development is likely to encroach on its habitat, ie areas where infrastructure such as cables and roads will cross waterways.

Swift parrot

Swift parrots have previously been observed within the site and nearby, with potential habitat for the species – *Eucalyptus ovata* forest and woodland (DOV) – occurring onsite and nearby. Further potential habitat also occurs nearby: *Eucalyptus brookeriana* wet forest (WBR) to the Project land. The site also partially occurs within the western potential breeding range of the swift parrot and there is a swift parrot nest record near Rosebery. As such, there is potential for swift parrots to use the site both for breeding and foraging, and they may also fly through the Project land while migrating to other areas of the State. While breeding and foraging by swift parrots has not been recorded as often on the West Coast of Tasmania compared to the East Coast, it still occurs to some extent and the species should not be discounted as the lack of records may be largely due to a lack of survey effort in the vicinity. It is recommended that the swift parrot is included in any further bird surveys and that potential impacts on the species are considered by the Project.

Tasmanian masked owl

The proposed development site occurs within the core range of the Tasmanian masked owl and there are previous records within 5 km of the proposed development, near the Wilson Bridge over Lake Pieman. The species occurs across the State, with fewer records in the West and South West, which may be due to lack of survey effort. Masked owls inhabit a diverse range of forests and woodlands including agricultural and forest mosaics. Nesting occurs in large tree hollows of living or dead trees. Tree hollows suitable for masked owl breeding are large (≥ 15 cm diameter at the entrance), deep and generally spacious enough to provide protection for up to four masked owls. Trees ≥ 100 cm diameter-at-breast-height have a higher probability of containing suitable nesting hollows.

It is possible that the species occurs within or adjacent to the proposed development footprint and further surveys are recommended for the species in areas where the development is likely to encroach on its habitat, i.e., areas where infrastructure such as cables and roads will cross forests and woodlands. Potential impacts on the species should be considered by the Project. Please note that masked owls can be very discreet, and a combination of techniques should be used to minimise the risk of a nest being overlooked.

For initial masked owl surveys, NRE Tas recommends two deployments of acoustic recorders, with each deployment lasting at least three weeks. The two deployments need to be in different seasons, e.g., one in spring and one in summer. The recording schedule needs to run over the entire night to determine presence/absence. The data analysis (i.e., detection of masked owl calls) needs to be done either manually by a trained rater or by reliable software. Detection range of recorder types and variables such as weather, topography and vegetation must be considered when interpreting and presenting passive acoustic monitoring data.

A survey for masked owl nesting habitat should also be undertaken as part of the natural values surveys in areas of potential habitat. If any potential nest trees are recorded within or near to the proposed development areas, further investigations should be carried out to determine the likely presence of the species, potential impacts of the development of the species, and to inform avoidance and mitigation measures.

Orange-bellied parrot

General Comments:

The MPP states that targeted surveys for the orange-bellied parrot *Neophema chrysogaster* (OBP) have been completed and suggests that few (if any) OBPs migrate beyond 150 m of coastal waters in this area (Nature Advisory Desktop Assessment, pg. 16, Section 1.4). However, this statement fails to consider the broader biology, ecology and migration patterns of the species:

- Given the low probability of OBP detection – resulting from small population size, low density, the cryptic nature of the species, high mobility, and wide distribution during migration – the absence of detection does not mean the species does not or is unlikely to use the habitat or range.
- OBPs are known to favour locations, using them repeatedly over several years, then changing locations for several years to exploit new areas, which further complicates interpretation of lack of detections.
- OBPs are also known to change locations during the non-breeding season, meaning a location not currently in use, may be used at another time in the season.
- Most of the population is not observed in the non-breeding season, meaning there are currently important, but unknown locations of occupancy.

Due to the above considerations, the absence of OBP detections cannot be relied upon to infer that locations or habitat are never used or not important to the species. It is likely that current locations will continue to be used, that other habitat areas are important to undetected birds, and that additional available habitat will be important as the population continues to expand.

The area of occupied OBP habitat appears to be expanding in both the breeding and non-breeding range, as the population grows and birds are being detected in areas where they have not been seen for some time (e.g., Discovery Bay in Victoria in 2020, for the first time in 26 years; Andersons Inlet in Victoria in 2022, for the first time in 24 years; Hindmarsh Island in South Australia in 2021, the first South Australian record in eight years). Birds are also being seen in sites where they have not previously been recorded (e.g., Peterborough in 2020). Given the changes that are occurring, all potential OBP habitat should be considered as important to the future of the species, regardless of whether the birds have been sighted in that habitat in recent years, or historically.

It is noted that the proponent has participated in the OBP tracking program for the northerly 2023 migration and a radio receiver station was installed by the proponent at Granville Harbour to improve the understanding of migratory path of birds tagged during the trial. However, the methodology and results of this trial have not been provided in the MPP. It is recommended that the OBP tracking program methodology and results are included in the MPIS.

The MPP (p 291) states that “the expected flight path of the bulk of the OBP population would be coastward of a line 150 metres inland” and “the species as a whole is rarely if ever seen more than three kilometres inland during its migration and wintering areas (Higgins, 1999)”. These statements are inaccurate and based on outdated data, which is evidenced by contemporary records collected in the 25 years since Higgins 1999. Of the 70 accurate OBP records from mainland Tasmania verified on the Natural Values Atlas (NVA), 30 records are within 50 m of the coast, 15 records are between

151 m – 1.5 km from the coast, 18 records are between 1.5 km – 3 km from the coast, 5 records are >3 km from the coast, and 2 records are >5 km from the coast. To reduce risk to the OBP, a WTG exclusion zone of a minimum 3 km and preferably 5 km is supported by data and would greatly reduce the risk to the species population. Construction outside of the OBP migration period should also be considered to reduce disturbance to the migrating population.

Several inconsistencies relating to OBP threats, foraging habitat, breeding habitat and migration period have been identified in the documentation provided. When developing the MPIS, the following resources and recommendations are advised to inform considerations relating to OBPs:

- Review the National OBP Recovery Plan (DELWP 2016) to better understand the species foraging habitat requirements, and ensure the threats listed for the species in the MPIS reflect the most recent list of known and potential threats to the species recovery, evidence for impact and risk ratings.
- Undertake a comprehensive review of wider and more current literature for the species.
- Review the intersection between NVA records and TASVEG 4.0 vegetation communities, with a focus on the variety of habitats used by OBPs in Tasmania, including the Bass Strait Islands.
- Provide a clear distinction between current and historic breeding range and the current breeding situation.
- Review and update the migration period for the species. While March to May is stated as the OBP migration period in the BBA (pg. 31), NVA data from 2021 to 2023 show that departures from Melaleuca occur between January to April inclusive. Additionally, NVA data shows that OBPs have been recorded migrating through the search region defined in Section 5.3.1 of the BBA (area north of Strahan and south of the Pieman River) between February and April inclusive, presumably during their northward migration).

Field Assessment Limitations:

NRE Tas acknowledges the field assessment limitations stated in Section 5.3.4 (pg. 283) of the MPP and recommends the following limitations are also acknowledged:

- The overall survey effort was temporally limited and likely to underestimate the use of the site by OBPs. Surveys were undertaken during the southward migration period for four days in 2021, and eight days in 2022. OBPs are expected to migrate through this area between February and April inclusive, so the number of survey days represents just 5 per cent of the migration period in 2021, and 10 per cent of the southward migration period in 2022.
- There is no mention of the northward OBP migration period. OBPs are expected to migrate south from the mainland to Melaleuca through this site from September through December inclusive. Surveys during this period are unlikely to yield results due to the fast rate of movement during southward migration.
- OBPs have been recorded migrating at night on at least three occasions, a time when they would not be detected during visual observation.
- Surveys were biased toward vehicle tracks and survey effort was biased toward the coast.

- OBPs are most active in the hours following sunrise (6:00am-6:30am during survey periods) and prior to sunset (8:00pm-9:00pm during survey periods) and less active or roosting / loafing in the middle of the day, but field surveys were mostly conducted between 9:00am and 5:00pm.
- Flight heights are not known for OBPs and there is currently no method available to reliably collect this information.

Post-Survey Analysis Limitations:

The statistics paragraphs in Section 3.4 of the BBA (pg. 10-12) require editing, and the statistical approach also requires reconsideration. P-values are all $P < 0.05$ indicating statistically significant differences between the mean number of birds counted at the observation points during Autumn 2021, Summer 2022, and autumn and summer seasons, however the text states no significant differences. In addition to the comparisons made, it would be useful to know whether there were also significant differences in the number of species counted at observation points during Autumn 2021 or Summer 2022, and the number of birds counted between the two seasons of the survey.

Analysis of variance (ANOVA) does not appear to be an appropriate statistical test for analysis these data. A comparison of the mean of two groups (eg summer and autumn) should use a t-test, ANOVA is used for comparison of three or more groups. For statistically meaningful results both the t-test and ANOVA assume that data are normally distributed with equal variance among groups; the previous paragraph indicates unequal variance among groups and the data in Tables 4 and 5 appear to indicate a non-normal distribution of data (left skewed with a significant outlier). Data transformation with removal of outlier or a non-parametric test should be used for these analyses if the assumptions of normally distributed data with homogenous variance are not met. The results state that the number of species using the entire ridge was very low compared to other wind farms in Tasmania, but references Nature Advisory unpublished data. The referenced data should be included in the MPIS to substantiate this statement for assessment purposes.

The following statement in Section 3.5 of the BBA requires review once the statistical analysis has been reviewed and updated: “the results from the bird utilisation surveys are statistically robust and support a Before-After Control-Impact (BACI)” (pg. 20).

Section 3.5 of the BBA states that “*the selection of the current site for the establishment of a wind farm would create very low adverse effects on the bird population in the area as bird density was very low and over 92% of the observed birds flew below RSA height*” (pg. 20). The MPIS should include additional information on the accuracy and precision of flight height estimation, conducting surveys across all four seasons, at an appropriate time of day, and a minimum of two years, and increased survey effort during key migration periods to substantiate the validity of this conclusion.

Section 3.5 of the BBA also states that “*migratory birds will be present in the late Summer/Autumn season and therefore the Autumn survey was adequate to observe these migratory birds before leaving the area*” (pg. 20). Please note that migratory birds will be present, potentially for short periods although for some species longer, from late summer and over autumn, and during spring. A survey period of 11 days during autumn only, is not representative of site use for birds migrating through the area. It also needs to be noted that some birds migrate at night, where they cannot be detected through visual observation.

2.1 Bird Utilisation Studies

Bird utilisation data should be presented in a manner that is representative of the 3-dimensional nature of movement patterns (eg contour maps) and overlaid with the proposed infrastructure locations for context. The siting of WTGs, distribution/ transmission lines and other infrastructure should be included in the mapping and consider the results of the bird utilisation and raptor surveys (and any GPS tagging) to avoid or mitigate potential impacts.

There are some inconsistencies in the BBA regarding numbers of birds sighted. For example, there were two wedge-tailed eagles sighted in the Bird Utilisation Survey (BUS), and 21 sighted during the Raptor Surveys, as well as 18 incidental sightings during the nest checks. This adds up to a larger total overall than stated in the BBA and the MPP. Similarly, 9 blue-winged parrots were sighted in the BUS and >25 were sighted on nearby properties during the orange-bellied parrot survey. The MPIS should include tables showing the total numbers of birds sighted across the various survey types, also including ones sighted nearby for context. This should include the dates of the surveys rather than just the month/season.

It is noted that the BUSs were performed over four days in both March (autumn) and January (summer).

- It is recommended that additional bird surveys are also performed in spring and winter to get an indication of the full range of species using the site across the year, this is especially important for migratory species.
- The period of four days of surveying (with two staff) per season is also considered insufficient to determine the range of birds visiting the site over the season. It is recommended that the bird surveys are spread out over each season to capture more of the season being measured and should be conducted across a minimum of two years.
- The effort (number of observers, number of survey points, duration of survey period, etc.) should be commensurate with the scale of the Project land. As an example, for previous wind farm assessments, utilisation surveys have required observations for a minimum of five days per season.
- Surveys should include multiple experienced human observers carrying out multi-day surveys, from dawn to dusk, during all four seasons and be representative of different local wind conditions, for a period of two years. Two years is the recommended minimum overall survey period as eagle utilisation is known to vary significantly between years.
- The bird surveys did not cover all habitat types across the site that may be visited by birds, or the extent of the site. It is recommended that additional bird surveys are performed in all habitat types throughout the site to determine the full extent of bird species at the site.

Please note that many of the tables indicate that the numbers of birds counted, and heights of birds should be shown. However, only the bird count has been shown in Tables 4, 5, 7 etc. The Tables should be amended accordingly.

All high-flying bat species present in Tasmania were detected in the bat surveys undertaken at the proposed WTG locations. Based on the proposed WTG blade height, some of the bat species using the area are likely to fly within the rotor sweep area and are at risk of collision. It is recommended that further surveys are undertaken to determine whether the at-risk bat species are present at every proposed WTG site. Where possible, mitigation measures should be applied to avoid the risk of collisions. Given that a third of the recorders deployed during the autumn bat surveys failed, and those that worked were only deployed at the start of the season, the bat survey results may underrepresent the bat species present at some sites, and some of the proposed WTG locations may not have been surveyed at all. Any further surveys should consider these limitations.

2.2 Eagle Nest Searches and Productivity Assessment

Section 4.3.2 of the BBA states that there were no active eagle nests observed during the aerial eagle nest surveys (BBA, pg. 27). However, the surveys were conducted during May-June, which is outside the eagle breeding period, and as such no nest activity would have been evident. NRE Tas recommends this misleading statement be removed from the documentation.

Appendix D of the MPP, relating to eagle nest searches on the Project land, states that previously recorded eagle nests (#663, #714 and #1809) were unable to be located during surveys and it is probable these nests are no longer present (pg. 6). Please note that formal declaration of old nest records as 'absent' requires a minimum of one aerial nest survey undertaken by a suitably qualified observer plus one ground-based nest survey. In addition, one nest survey is to include the surrounding 500 m (to account for nest location inaccuracies and/or nest 'relocation') and all nest survey data must be reported to the NVA. Nest search effort (GPS tracks) should be provided as supporting evidence for assessment.

Two eagle nests were detected nearby to the Project land that were in good, viable condition, that could potentially be used as eagle nesting locations in future years (nests #1771 and the new nest). Potential impacts by the wind farm on the eagle nests and mitigation options should be considered in the MPIS.

Eagle nest searches should incorporate all potentially suitable habitat within the Project land and include at least 1 km outside of the Project land.

- To ensure that impacts can be appropriately monitored and managed, eagle nest searches should be undertaken annually, and results reported to NRE Tas, until the wind farm is fully commissioned. Ground-based nest condition assessments may be conducted using unmanned aerial vehicles (drones) if they are conducted in accordance with the Forest Practices Authority's *Fauna Technical Note No.1* Eagle nest searching, activity checking and nest management (Section 10) and conducted outside of the breeding season.
- Nest searches should be conducted outside the eagle breeding season (July - January inclusive).
- Nest productivity/productivity assessments should be carried out for all known nests within 1 km of the wind farm annually prior to commissioning, with results reported to NRE Tas. The results may be useful for informing the development and infrastructure layout, as well as determining nest use before/after construction.

- Ongoing nest activity/productivity checks should only be conducted where there is a clear commitment to ongoing monitoring and the application of the results to mitigation of impacts on eagles, or conservation management of eagles on the wind farm sites, or for application to future Tasmanian wind farm proposals, and where this is statistically robust (ie there is enough data on an individual nest or multiple nests to inform the mitigation/management).
- Aerial nest activity/productivity checks must only be conducted by NRE Tas-recognised species specialists, as the nest checks have the potential to cause breeding failure if performed incorrectly. When performed appropriately they have a very low (negligible) risk of causing impacts to breeding.
- All eagle nest surveys must be carried out in accordance with the FPA's *Fauna Technical Note No.1 Eagle nest searching, activity checking and nest management* (https://fpa.tas.gov.au/Documents/Fauna%20Tech%20Note%201_Eagle%20nest%20management%20V4.1.pdf)
- Known local nest site habitat characteristics should be used to inform and map future nesting habitat.

2.3 Avifauna Management Plan

Avian Collision Management

- Collisions with WTGs and associated infrastructure (eg distribution/ transmission lines) are considered to be the biggest causes of potential impacts to eagles from wind farms. The MPIS should outline how collisions are proposed to be avoided or mitigated and provide an offset strategy to address any residual impacts expected over the life of the wind farm.
- NRE Tas does not consider Collision Risk Modelling (CRM) to be sufficient as a stand-alone tool to predict impacts to avian species, as CRM is not considered to be a reliable indicator of collision risk. If the proponent intends on developing a CRM, it should be used in conjunction with other assessment methods, such as Bird Utilisation Surveys (BUSs). Additionally, if BUSs are used to inform collision risk and WTG site placement, it is strongly recommended that the survey data is verified by direct comparison to GPS-harnessed eagle flight data collected in parallel on site. It is highly recommended that the proponent engages with the relevant researchers to determine the feasibility of GPS tracking a subset of eagles within the Project land to improve air-scape usage information and inform both WTG micro-siting and collision risk models.
- If technology-based mitigation or avoidance approaches are proposed (eg Robin Radar, IdentiFlight, etc), then an assessment of their likely effectiveness at the site should be presented in the MPIS. It is recommended that this is informed by results from their use at existing wind farms, especially in the Tasmanian context.
- Other mitigation strategies such as the use of black blades on WTGs should also be discussed in the MPIS.

Avian Collision Monitoring

A comprehensive avifauna monitoring program should be presented in the MPIS to outline how collisions (injuries and mortalities) will be detected and reported, and how the results will inform appropriate management responses to mitigate impacts. This should include carcass scavenging and carcass detectability trials to inform the design of the monitoring program. The MPIS should also outline how the proponent intends to compensate for non-detections (ie birds that collide with WTGs but are not detected during collision monitoring).

Avian Carcass Management

The proponent should outline the details of how eagle food resources (e.g. carcasses) will be managed across the site, to address the collision risk with WTGs, infrastructure, vehicles etc. This should include monitoring throughout the site, particularly along roadsides, around WTGs, and beneath electrical wires. The assessment should consider the potential implications of changes to land use pre-construction, during and post-construction.

3. Terrestrial Fauna

The MPP highlighted several threatened fauna species listed under the TSPA and/or EPBCA that have potential habitat on the Project land and may be impacted by the Project. Further species-specific survey and mitigation recommendations are included below.

Tasmanian devil and spotted-tailed quoll

The MPP highlights that the Project has the potential to affect the Tasmanian devil and Spotted-tailed quoll. Surveys, assessment and proposed management measures should address the whole extent of potential impacts to the species (as opposed to simply focussing on vegetation removal). Potential impacts include but are not limited to vegetation clearance/ground disturbance, increased habitat fragmentation (e.g., impacts on vegetation corridors for movement across the landscape), impacts on dens, changes to food resources (e.g., through impacts on prey species), roadkill management and changes in land use. Consideration should also be given to these species when designing roads, and how ongoing management of impacts will occur throughout the life of the wind farm.

Monitoring across the Project land to understand the environment use by devils and quolls should be conducted using cameras set in a grid array in habitat deemed suitable for these species. The array should extend into the less suitable habitat that will be used for the WTGs to determine the likelihood of this less suitable habitat still being traversed by devils or quolls. A grid array set up with 2 km squares and a camera set at the intersection of the grid-squares will provide an initial unbiased assessment of use of the environment by these species. It may also indicate the likelihood of any active den sites existing in the ecotone between suitable and unsuitable habitat, and whether further surveys are required to determine whether these species presence on the Project land needs to be further considered and mitigation proposed.

Reptiles

The proposed development site occurs within the potential range of the tussock skink, with the closest previous records near Cradle Mountain. The habitat of the tussock skink is tussock grassland and grassy open woodland. Surveys are recommended for the species in areas where the proposed development is likely to impact on the habitat of the species.

3.1 Traffic Impacts - Roadkill

NRE Tas notes and supports the mitigation strategies to reduce the risk of roadkill during the construction and maintenance phases. However, it is recommended that the proposed roadkill mitigation measures (reduce speed, avoid travel during dusk/dawn, remove roadkill, and maintain road verges) also be implemented throughout the operation phase. It is noted that roads and transmission lines will likely need to intercept forests. In these areas, the risk of roadkill is likely to be higher. Where possible, fragmenting forests with infrastructure should be avoided.

A roadkill assessment should be conducted on all pre-existing access roads, to understand the current levels of roadkill. This monitoring will enable any increase in roadkill to be assessed against a baseline. Assessment involves driving the road at least once a week (preferable and ideal would be every day), stopping at each roadkill carcass, making a note of the date / day / time / species / sex / easting and northing of location and then also entering all of this information in to the [Tasmanian Roadkill Reporter app](#). Once a carcass has been recorded, it should be removed from the road to avoid double-counting. The proponent should be aware that roadkill rates typically have 'seasons' (periods of increased/decreased activity), so at least three months in the winter months and three months in the summer months should be monitored.

4. Aquatic Fauna

Frogs

The Project land occurs within the potential range of the striped marsh frog and there are previous records towards the north of the Project, near Temma. The species is predominantly found in wetlands and lagoons with permanent freshwater and abundant aquatic vegetation. The species breeds during spring and summer and has potential to occur onsite. Surveys are recommended for the striped marsh frog in areas where the development is likely to encroach on its habitat i.e., areas where infrastructure such as cables and roads will cross waterways.

The green and gold frog occurs predominantly in the North East and South East of the State, with limited scattered records in the North West, including near Temma. The species breeds in permanent freshwater lagoons and slow-moving waterways, generally with emergent vegetation, during spring and summer. It has potential to occur onsite and should be surveyed for concurrently with the striped marsh frog surveys.

Freshwater snails

There are some inconsistencies in the documentation regarding the number of listed threatened freshwater taxa which may occur within the proposed development footprint. While Table 3 (Nature Advisory Desktop Assessment, pg. 22) lists four threatened mollusc species, there is no justification for the exclusion of two of the species from the 'species with potential to occur within WTG exclusion zones' section (pg. 21 and remainder of the analysis). This is particularly concerning, given that one of the excluded species (Zeehan freshwater snail *Beddomeia zeehanensis*) co-occurs with Little Henty River hydrobiid snail *Phrantela conica* in the tributary of the Little Henty River at Zeehan, and the latter species is included as a species of potential concern. The other included species recognised as being a 'species with potential to occur within WTG exclusion zones' (Heazlewood River hydrobiid snail *Phrantela marginata*), is only found north of the Pieman River and is unlikely to be present within the Project land. The final excluded species (Bowry Creek hydrobiid snail *Beddomeia bowryensis*), has a disjunct distribution which is likely a reflection of limited survey effort, therefore it is unknown if it occurs within the Project land. As such, *Beddomeia bowryensis* should also be considered as potentially present in the Project land.

Despite the construction of WTGs being unlikely to impact these freshwater snail species directly, the construction of roads, culverts and cabling across waterways could have detrimental impacts on populations of one or more of the species through siltation and changes to flow regimes, even if only for a short period. Surveys are recommended for all four freshwater snail species in areas where the development is likely to encroach on their habitat, ie areas where infrastructure such as roads, culverts and cables will cross waterways. Some mitigation measures may be necessary to minimise impacts to the streams.

Fish

There is potential for Australian grayling to be present in one or more of the streams within the Project land. Australian grayling migrate between the marine and freshwater environment, so are only seasonally present in freshwater. Migration upstream is prevented by barriers such as some bridges, weirs and waterfalls. While the species is unlikely to occupy headwater streams, cumulative impacts of sedimentation may affect the species downstream. Where roads are proposed to cross streams, mitigation measures to minimise instream sedimentation should be undertaken. Culverts should be installed which do not prevent fish passage and do not result in hanging culverts on the downstream end. If these mitigation strategies are applied, no surveys for this species are recommended.

5. Geoconservation

There are several geoconservation sites recorded within the Project land, but the existing information regarding the geodiversity values and status of geomorphic process within the Project land is limited to a reconnaissance standard. Field survey/s will be required to provide more detailed description of these aspects of the existing environment before potential impacts can be identified, appropriately assessed and mitigation options developed.

NRE Tas recommends that the proponent undertakes assessment of the extent of the potential impacts to geodiversity values and geomorphic processes within the Project land, using the complete set of methods outlined in Appendix I of the [Guidelines for Terrestrial Natural Values Surveys related to Development Proposals](#). Particular attention should be given to the following project-specific matters:

- Broadscale disturbance to peatland hydrology and therefore ecological function (including carbon storage and on-going sequestration) arising from WTG foundations, cable trenches, roading and other excavations.
- Disturbance to existing geomorphic process (erosion, sedimentation, slope stability, soil) that may arise from widespread excavations or other substantial development activity.
- Development of unanticipated discovery plans for significant geodiversity elements (eg fossils, bedrock structures, rare mineral species) that might be exposed by quarrying or other large-scale excavation.

The MPIS should outline measures to protect the values associated with these sites in the MPIS. Where impacts cannot be avoided, measures should be outlined to mitigate impacts on geodiversity values, including consideration of effectiveness. It is also recommended that the MPIS includes rehabilitation of disturbed areas following the completion of construction activities and decommissioning of the wind farm.

6. Aquatic natural values

The Project land contains several waterways and associated catchments with high conservation value including Foster Creek, Parting Creek and Stanley River.

The MPIS should identify all catchments and waterways affected by the proposal, their attributed Conservation of Freshwater Ecosystem Values (CFEV), and document any activities that may disturb the CFEV, including any measures to mitigate impacts on those values. Potential disturbances to be assessed and measured are:

- changes to ground water dependant systems such as karst, springs or similar,
- changes to water quality from disturbance to riparian areas,
- sedimentation of waterways caused by erosion and sediment loss from vegetation clearing, roads, benching and other activities,
- use of pesticides for weed control that may impact on water quality,
- risks from hazardous material spills, and
- temporary and permanent wastewater and stormwater discharge arrangements.

The MPIS should also detail how all discharges from the Major Project will be appropriately managed within the boundary of the identified Project Land.

7. Crown land including Reserve land

The Major Project covers extensive areas of Crown land, including land reserved under the NCA (reserve land) and Crown land under the *Crown Lands Act 1976* (CLA) and Crown Lands Regulations 2021 including:

- the Meredith Range Regional Reserve
- the Mount Heemskirk Regional Reserve
- the Parting Creek Regional Reserve
- Future Potential Production Forest Land
- Unallocated Crown land

Reserved and Crown land is managed by PWS under the *National Parks and Reserves Management Act 2002* (NPRMA) and the CLA.

PWS Approval Processes and Instruments

The proponent will need an authority (such as a licence and/or lease) for the use of reserved or Crown land, whether that be temporary or on a more permanent basis, and a works authority. Approval to access and/or occupy reserved and Crown land would include conditions relating to the length of tenure, fees, rehabilitation requirements, and any other conditions determined through a PWS RAA process. Any RAA process outcome would include a determination on whether the proposal would be consistent with the management objectives of the reserve including the informal public reserve. The inclusion of consideration of these matters within the MPIS would avoid the necessity for a duplicate RAA process.

The PWS would require an Environment Management Plan (EMP) as part of the assessment and a proponent commitment to implement the commitments in the EMP throughout the life of the project. The EMP would feature as a requirement of any PWS authority as a risk mitigation measure for works on reserved and Crown land and may contain similar information and requirements to that covered in the Major Project approval.

The PWS would seek to minimise duplication of assessment effort with the Major Project process consistent with the incorporation of PWS information requirements in the assessment criteria for the MPIS.

There are a number of existing rights that should be identified and assessed for compatibility of use. PWS may be contacted for further information on existing authority holders in the area that may be affected by the proposal.

The following natural, cultural and social values should be considered for inclusion in the assessment criteria for reserved and Crown land within the Project Land.

7.1 Reserve management objectives

- **Criteria to demonstrate the project is consistent with the purpose of a Regional Reserve (Schedule 1(7), NCA)**

The three regional reserves in the Project area were proclaimed under Statutory Rule #241 of 2000, following the passing of the *Regional Forest Agreement (Land Classification) Act 1998*. The reserves were classed as Regional Reserves under the NCA when it came into effect in 2002. Schedule 1(7) of the NCA outlines the purpose of a Regional Reserve as:

‘Mineral exploration and the development of mineral deposits in the area of land, and the controlled use of other natural resources of that area of land, including special species timber harvesting, while protecting and maintaining the natural and cultural values of that area of land.’

The NCA is a project specific act for major project, under s60(b) of LUPAA. The project area includes 21,232 hectares of Regional Reserves.

An analysis of how the proposal may coexist with mineral exploration and development, for each individual reserve and for the life of the project, is required to determine if it is consistent with the purpose of a regional reserve.

- **Criteria to demonstrate the project is consistent with the management objectives for a Regional Reserve (Schedule 1(7), NPRMA).**

Regional reserves are managed in accordance with the management objectives outlined in Schedule 1(7) of the *National Parks and Reserves Management Act 2002* (NPRMA). There are 13 management objectives for a Regional Reserve, commensurate with the multiple uses and activities that can occur in this reserve class.

The Regional Reserves in the project area are zoned Environmental Management Zone (EMZ) under the Tasmanian Planning Scheme - State Planning Provisions (SPPs) and the proposal must satisfy the Zone Purpose (23.1.2):

To allow for compatible use or development where it is consistent with:

(a) the protection, conservation and management of the values of the land; and

(b) applicable reserved land management objectives and objectives of reserve management plans.

The assessment criteria should address each management objective for each individual reserve.

7.2 Use of public land

The MPIS should provide a detailed justification for locating the WTG, transmission line, and other associated infrastructure, on reserve and crown land, and a discussion of all alternatives considered.

The objectives of the resource management and planning system of Tasmania are in the NRMA (Schedule 2) and the CLA (Schedule 3). The MPIS should address how the proposal is sustainable development of the West Coast landscape, and how it is a fair and orderly development of public land.

The proposal will likely result in a reduced Reserve Estate through the use of natural landscape currently on reserve tenure. The MPIS should detail the use of this reserve estate and demonstrate how the proposal would compensate or offset affected areas.

7.3 Landform and rehabilitation

The proposal broadly outlines the proposed WTG locations will largely preference buttongrass moorlands (by excluding forested, riparian areas and steep terrain). Machinery impacts on this vegetation community typically are very slow to rehabilitate with actively managed rehabilitation taking over 10 years to satisfactorily establish.

The assessment criteria and MPIS should address any changes in landform, along with the proposed methods to rehabilitate disturbed areas, materials that will be used, follow-up maintenance and any requirements for ongoing management beyond the life of the project that the land manager may inherit.

7.4 Weeds, Diseases and Pathogens

There is a high risk of introducing and spreading a range of invasive organisms into and throughout the Project land. Surveys should be undertaken at the proposed locations of infrastructure, rather than relying on NVA records. Any areas found to be contaminated/infested with priority invasive organisms or showing symptoms (e.g. *Phytophthora cinnamomi* dieback) should be avoided where possible. The MPIS should detail how biosecurity risks will be mitigated including consideration of vectors for weeds, and diseases such as frog chytrid, wombat mange and *Phytophthora cinnamomi* during both the construction and operation phases of the wind farm. A hierarchy of control approach should be taken to managing biosecurity risks (i.e., avoid sensitive areas entirely, if that isn't possible, visit least infected sites first etc).

7.5 Fire management

The MPIS should also consider the potential for proposed infrastructure to inhibit or limit the feasibility for implementing fuel-reduction (or ecological/cultural) burning on reserved land. The siting of WTGs (or other fire-sensitive infrastructure) should consider the impact on implementing a suitable fire regime in the adjacent surrounding areas.

A large portion of the proposal area is subject to regular strategic burning to prevent serious bushfires from developing, to maintain significant vegetation communities, and to protect high value, conservation significant vegetation communities to the east of the Project area. The presence of a windfarm within this landscape would likely result in access restrictions, additional infrastructure requiring consideration and protection, plus differing priorities and increased complexity in undertaking planned burns.

The MPIS should provide an analysis of the impacts the proposal would have on the fire management regimes for this landscape, and how the proposal can ensure the objectives of the land manager can be maintained.

7.6 Viewshed – visual impacts

The MPIS should include a comprehensive visual analysis to identify the full extent of the viewshed where the WTGs will be visible and assess the potential social, recreational and economic offsite impacts associated with a permanently altered viewshed. The MPIS should provide justification for the WTG height proposed and any ameliorating design strategies.

8. Crown land including FPPF land

8.1 Potential impacts on Tasmania's Regional Forest Agreement (RFA) obligations

Various Tasmanian Government entities are responsible for managing environmental conservation values under the Tasmanian RFA including management and protection of Matters of National Environmental Significance and maintaining an appropriate forest extent. The RFA also requires forests to be managed for economic values and agreed production levels.

A desktop analysis indicates that the proposed site is largely undeveloped forest dominated by buttongrass plateaus classified as moorland, sedgeland and rushland. The MPIS should define the actual construction and ongoing operational footprint of the project to confirm the status of the PTPZ land and FPPF land that may be impacted by the project in order to determine the level of impact on Tasmania's forest estate that may result from the project.

Once the footprint is known the extent of impacts to the conservation values in these forested areas will be able to be determined and if any offsets or contingency plans are required. Inappropriate mitigation of impacts to conservation values would adversely impact on Tasmania's ability to meet its obligations under the RFA.

8.2 Comprehensive, Adequate and Representative (CAR) Reserve System

The CAR Reserve System is a fundamental component of Tasmania's RFA with the Australian Government. Within the RFA (consolidated version 2017) the CAR Reserve System is described and includes various classes of formal and informal reserves.

Native forest communities are protected under the CAR Reserve System, rather than land parcels. CAR Reserves are based on nationally agreed criteria known as JANIS¹ criteria. The RFA (through its various iterations) lists the reservation levels of forest communities in formal and informal reserves on public land.

Clearing native forest communities without consideration of the CAR Reserve system could have implications for delivery of Tasmania's commitments under the RFA. This would affect the conservation status of Tasmania's native forest communities, particularly those listed as threatened under the NCA.

8.3 Maintaining a Permanent Native Forest Estate Policy (PNFEP)

The RFA commitments and CAR Reserves system is further supported by the Tasmanian Government Policy for Maintaining a Permanent Native Forest Estate, which aims to maintain the total forested area at 95% of the area that was reliably reported in 1996. The previous iteration of the policy prescribed areas for native forest to be retained statewide and within each bioregion.

The current PNFEP 2017 no longer references forest communities, and also provides for broad scale clearing of native forest for electrical infrastructure, as well as other major infrastructure and agricultural developments.

Exemptions would only be considered for the purposes of large-scale clearance for this proposal, if appropriate offsets and other mitigations are committed to. The MPIS should address this issue.

¹ [Janis.PDF \(agriculture.gov.au\)](http://janis.pdf.agriculture.gov.au)

8.4 Alignment with management objectives for FPPF land

A large component of the proposal's footprint appears to be designated as FPPF. The Management Objectives in Schedule 3 of the *Forestry (Rebuilding the Forest Industry) Act 2014* as they relate to FPPF land does allow for private, commercial and industrial uses, however the other eleven management objectives of FPPF land are concerned with preserving, protecting, conserving, education and research consistent with the land's natural values.

There appears to have been minimal human derived disturbances in the proposed proposal area to date. The risk of bringing in introduced species, pests and disease to the area and dramatically altering the ecological dynamics should also be considered when looking at the project holistically and strategies to mitigate these impacts should be applied.

As outlined above there are risks that this project could impact Tasmania's responsibilities for managing its native forest estate – namely, the RFA, CAR Reserve System and the PNFEF. These are core elements of the regulatory regime that native forestry in Tasmania operates within, ensuring its compliance with environmental regulation and its adherence to the principle of Ecologically Sustainable Forest Management. Any detrimental impacts on these elements will need to be addressed by the MPIS.

The RFA status of native forest communities and any resultant obligations that arise for the State Government need to be considered in the MPIS.

It is recommended that the MPIS defines the proposal area and includes the appropriate vegetation, flora and fauna surveys to determine any impacts the proposal may have on vegetation communities or habitat for threatened species. Once these impacts are known appropriate mitigation strategies should be applied to determine if there are any residual impacts as a result of the projects construction and ongoing operation.

Detrimental impacts could be mitigated by offsetting newly reserved areas of forest against any clearance required for project delivery, potentially including new plantings or rehabilitation of existing poor quality forested areas. This pathway would require close engagement with Tasmanian and Australian government agencies to ensure that appropriate regulatory requirements are met and conservation values maintained.

Alternatively, redesign of the proposal to minimise impacts on conservation values and management of FPPF land could be considered.