Stubbo Solar Farm Biodiversity Management Plan

(Blue Springs Road Upgrade and Site Access)

ACEN Australia

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Template 2.8.1

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Abbreviations

Term	Meaning
BC Act	NSW *Biodiversity Conservation Act 2016*
BCS	NSW Department of Planning and Environment's Biodiversity, Conservation and Science Directorate
BMP	Biodiversity Management Plan
CEEC	Critically Endangered Ecological Community
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DPE	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
ELA	Eco Logical Australia Pty Ltd
EMS	Environmental Management System
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
HBT	Hollow-bearing tree
MWRC	Mid-Western Regional Council
SSD	State Significant Development

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1. Introduction

1.1. Background

The Stubbo Solar Farm and Battery Project (the Project), involves the construction, operation and decommissioning of a 400-megawatt grid-connected photovoltaic solar farm and battery energy storage system, located in the Central West Orana region of NSW. State Significant Development Consent (SSD 10452) under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) was issued for the Project in 2021 to UPC\AC Renewables Australia (now ACEN Australia; the Proponent).

The Project will comprise at least the following stages:

- Stage 1: Upgrading an approximately 4.7 km section of Blue Springs Road and its intersection with Cope Road, and construction of site access to the solar farm site including an access track and intersection with Blue Springs Road
- Stage 2: Construction of the main solar farm, including key infrastructure such as solar panels, power conversion units, onsite substation, transmission infrastructure, a battery energy storage system, ancillary infrastructure and internal access roads.

The approved general layout of road upgrades and site access, in accordance with Appendix 5 of SSD 10452, is shown below in Figure 1. The site access is identified as the “Alternative option for main site access”.

The area associated with the Blue Spring Road upgrade, the upgrade of the intersection with Cope Road, construction of the intersection with the solar farm site access, and construction of site access track is collectively referred to as the “impact area” throughout this BMP.

A full description of the Project is provided with the Environmental Impact Statement (EIS) and subsequent Submissions Report and Amendment Report. This information can be accessed on the Project website: https://stubbosolarfarm.com.au/

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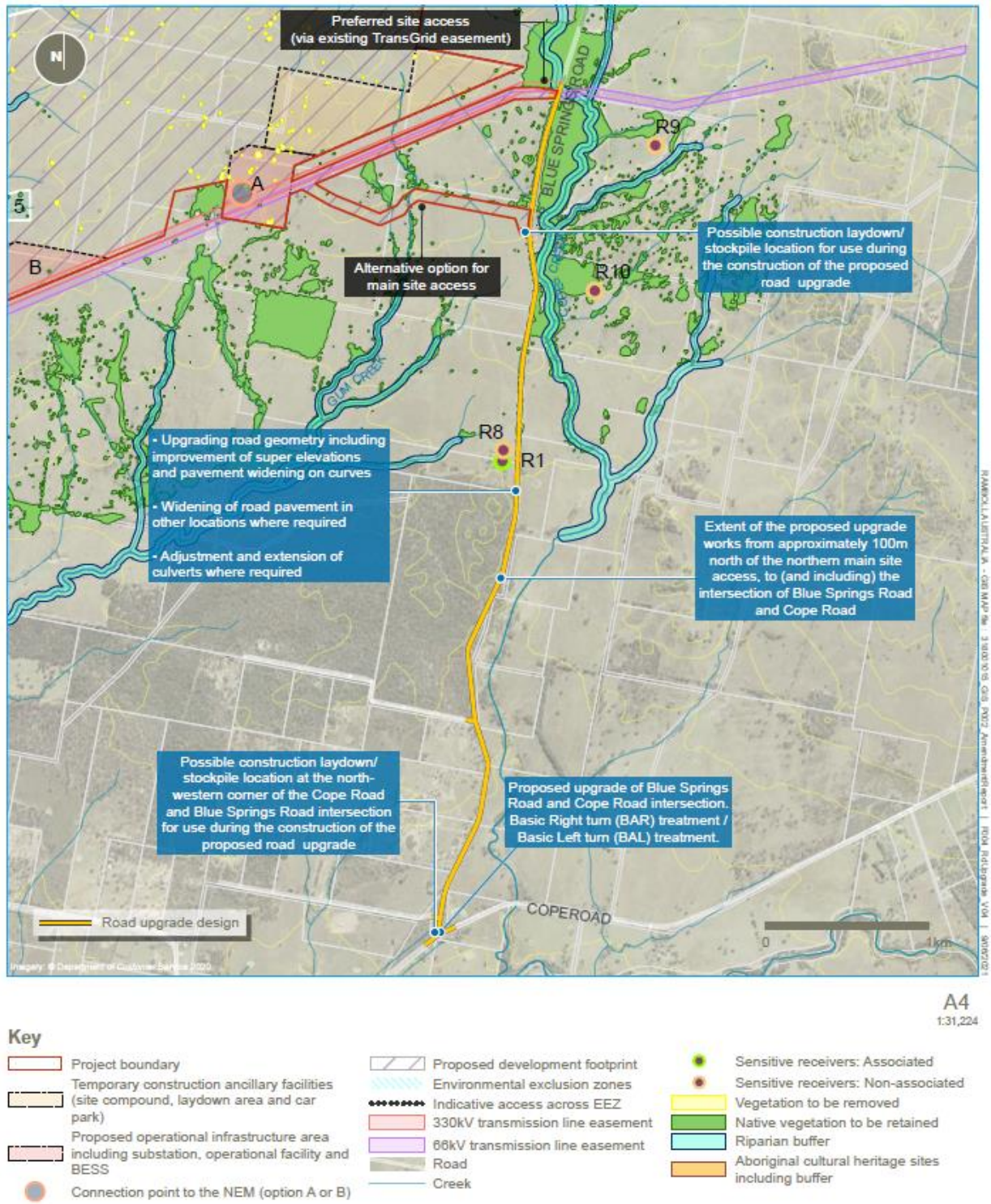

Figure 1: Approved road upgrade and site access layout

1.2. Purpose of the Biodiversity Management Plan

This Biodiversity Management Plan (BMP) has been prepared by Eco Logical Australia (ELA) for ACEN Australia, for the Blue Springs Road upgrade and construction of site access stage of the Project (Stage 1), to meet the relevant conditions of SSD 10452.

In accordance with Schedule 3 Condition 8 of SSD 10452, prior to commencing construction of the solar farm, the upgrade of Blue Springs Road must be completed, including its intersection with Cope Road and construction of the site access point intersection. In consultation with Mid-Western Regional Council (MWRC), a road upgrade design has been developed with works to be undertaken via contractual arrangement between ACEN Australia and MWRC or other suitably qualified and experienced contractor, herein referred to as the Construction Contractor. The site access will be constructed simultaneously with the road upgrade (comprising Stage 1 of the Project).

A specific Stage 2 BMP will be developed prior to construction of the solar farm.

Following completion of the upgrade works, Blue Springs Road will be maintained by MWRC as a Council controlled road, and managed in accordance with MWRC roadside vegetation management processes and procedures. The constructed site access will be managed by ACEN Australia as part of the solar farm site (Stage 2 of the Project).

1.3. Objectives of the Biodiversity Management Plan

This BMP describes the biodiversity management measures that will be implemented to avoid, minimise, and mitigate impacts associated with the road upgrade, intersection upgrade and construction of the site access. This BMP has been written to complement other management plans for the Project and has been developed as a component of, and should be read in conjunction with, the Project's Environmental Management Strategy (EMS).

It is noted that this BMP does not include any matters relating to securing or managing biodiversity credits to offset the Project, including Biodiversity Stewardship Sites or any other offset mechanism.

1.4. Consultation

Per the requirements of Schedule 3, Condition 15 of SSD 10452, consultation with the NSW Department of Planning and Environment's (DPE) Biodiversity, Conservation and Science Directorate (BCS) has been undertaken during the preparation of this BMP. **Appendix A** provides a consultation log detailing the outcomes of the consultation.

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2. The Project

2.1. Overview

The Project is located approximately 10 km north east of Gulgong in the MWRC Local Government Area (LGA).

The Blue Springs Road upgrade is designed for increasing the safety and load capacity of the existing road to cater for trucks during the construction of Stage 2 of the Project (the solar farm). The Blue Springs Road upgrade will be undertaken in the existing road reserve, extending approximately 4.7 km north from the intersection with Cope Road in the south, to the site access point. The upgrade will involve:

- Intersection treatments
- Upgrading road geometry including improvement of super elevations and pavement widening on curves
- Widening of road pavement in other locations where required
- Adjustment and extension of culverts where required and construction of improved table drains.

Following consultation with MWRC, the design has been developed to avoid and minimise impacts to biodiversity and places the majority of the works within the existing formed road and previously disturbed roadside edge and table drain, with incursion outside the existing road surface generally less than 3 m.

The site access intersection with Blue Springs Road has been located specifically to address road safety and provide adequate sight distance for vehicles exiting the solar farm site.

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3. Legislative context

3.1. State approval

The Project was granted NSW State Significant Development Consent (SSD 10452) under the EP&A Act on 29 June 2021.

3.1.1. Conditions of approval

Table 3-1 details the biodiversity conditions relevant to SSD 10452 and provides a reference to sections of the BMP where the approval condition has been addressed.

Table 3-1: Relevant consent conditions

Condition of Approval	Requirements	Section this is addressed
SSD 10452		
Schedule 2 Condition 2	**TERMS OF CONSENT** The applicant must carry out the development: a. generally in accordance with the EIS; and b. in accordance with the conditions of this consent [SSD 10452]; *Note: The general layout of the development is shown in in Appendix 1* [of SSD 10452].	Figure 1
Schedule 3 Condition 13	**BIODIVERSITY** ***Vegetation Clearance*** The Applicant must not clear any native vegetation or fauna habitat located outside the approved disturbance areas described in the EIS.	5.1.1; 5.2.1
Schedule 3 **Condition 15**	**BIODIVERSITY** ***Biodiversity Management Plan*** Prior to commencing road upgrades, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with BCS, and to the satisfaction of the Planning Secretary. This plan must: a. include a description of the measures and timeframes that would be implemented for: • protecting vegetation and fauna habitat outside the approved disturbance areas; • managing the remnant vegetation and fauna habitat onsite; • minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; • minimising the impacts to fauna on site and implementing fauna management protocols; • avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; • rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area; • maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site; and • controlling weeds, feral pests and pathogens;	5.1.1; 5.2.1 5.1 5.2 5.2 5.2.2 5.4 5.3 5.5

Condition of Approval	Requirements	Section this is addressed
	b. include a program to monitor and report on the effectiveness of mitigation measures; and c. include details of who would be responsible for monitoring, reviewing and implementing the plan. Following the Planning Secretary's approval, the Applicant must implement the Biodiversity Management Plan. *Note: If the biodiversity credits are retired via a Biodiversity Stewardship Agreement, then the Biodiversity Management Plan does not need to include any of the matters that are covered under the Biodiversity Stewardship Agreement*.	6 6

3.2. Commonwealth

The Project was referred to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) on 21 March 2022 for impacts to matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 16 May 2022, DAWE responded to the referral, with the determination that the Project is not a Controlled Action, and therefore, there are no Commonwealth conditions which apply to the Project.

4. Existing environment

4.1. Land use

Land within the Stage 1 works area is predominately zoned RU1 – Primary Production (under Mid-Western Regional LEP 2012), with the southern quarter zoned R5 – Large Lot Residential, characterised by remnant road reserve woodlands, with some disturbed roadside areas and Cope State Forest which is present in the central portion of the Blue Springs Road upgrade.

4.2. Vegetation

The road upgrade area is characterised by the edges of moderate-good condition native roadside vegetation with remnant trees, low condition native roadside vegetation with an absent overstory and areas of highly modified non-native vegetation with no remnant trees. The access track area is characterised by cleared, open farmland with sparse paddock trees occurring variously in small groups or as isolated trees, consistent with the larger solar farm site.

Native vegetation comprises four Plant Community Types (PCT), detailed below in Table 4-1.

Table 4-1: Vegetation zones

PCT	Description	Condition	BC Act	EPBC Act	Area (ha)
81	Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	Moderate-good	*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions*	*Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia*	0.9
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	Moderate-good	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*	*White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*	0.03
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Low / Moderate-good	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*	*White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*	2.07 (Blue Springs Road upgrade) plus additional in site access
1177	Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	Moderate-good	-	-	0.7

Impacts to these vegetation types will be appropriately offset in accordance with the conditions of the NSW Development Consent SSD 10452. Management actions to ensure compliance with the offset limits are detailed below in **Section 5.1**.

4.2.1. Threatened Ecological Communities

Two Threatened Ecological Communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are identified in the impact area.

All areas of PCT 81 conform to the Inland Grey Box Woodland Endangered Ecological Community (EEC) listings under the BC Act and EPBC Act. All areas of PCT 266 and PCT 281 conform to the '*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*' Critically Endangered Ecological Community (CEEC) listings under the BC Act and EPBC Act (Table 4-1). Disturbed roadside remnants are still considered to form part of the community including remnants where the vegetation, either understorey, overstorey or both, would, under appropriate management, respond to assisted natural regeneration, such as where the natural soil and associated seed bank are still at least partially intact (NSW Scientific Committee 2011).

Impacts to the areas of CEEC will be appropriately offset in accordance with the conditions of the NSW Development Consent SSD 10452, through offsetting those vegetation communities aligned with the CEECs. Management actions to ensure compliance with the offset limits are detailed below in Section 5.1.

4.2.2. Threatened flora

The impact area has been subject to comprehensive threatened flora surveys targeting a range of species within the appropriate survey timing. No threatened flora species have been identified within the works area, however, one species, *Acacia ausfeldii* (Ausfeld's Wattle) was recorded adjacent to the impact area.

4.2.3. Weeds

No State and/or regional priority weed listed under the *Central Tablelands Regional Strategic Weed Management Plan 2017 – 2022* have previously been recorded within the impact area, nor have any Weeds of National Significance. The impact area is consistent with the surrounding roadside and agricultural landscape and contains a variety of exotic species which may be considered environmental and / or agricultural weeds, listed below in Table 4-2.

Table 4-2: Environmental and / or agricultural weeds recorded in the impact area

Scientific name	Common name
Austrostipa scabra	Speargrass
Calotis lappulacea	Yellow Burr-daisy
Chloris truncata	Windmill Grass
Desmodium varians	Slender Tick-trefoil
Digitaria brownii	Cotton Panic Grass

Scientific name	Common name
Enneapogon gracilis	Slender Nineawn
Juncus subsecundus	Finger Rush
Lepidium spp.	A Peppercress
Panicum effusum	Hairy Panic
Rumex brownii	Swamp Dock
Senecio spp.	Groundsel, Fireweed
Sporobolus creber	Slender Rat's Tail Grass
Sporobolus mitchellii	Rat's Tail Couch

4.3. Fauna and Habitat

4.3.1. Fauna habitat

Fauna habitat within the impact area includes grassy woodland and forest in varying condition, cleared/highly disturbed non-native roadside vegetation, and ephemeral drainage lines.

4.3.1.1. Woodlands and Forests

Woodland and forest areas vary from low to moderate-good condition within the impact area and contain seasonal flower resources, trees with hollows and fallen timber. In general, woodland and forest of the roadside area has a sparse mid-storey, and the groundcover is moderately degraded with some tussock grasses and other significant habitat features. Scattered throughout are numerous hollow-bearing trees (HBT) containing small-medium (<5-10 cm) hollows. Common woodland birds such as Eastern Rosella (*Platycercus eximius*) and Red-winged Parrot (*Aprosmictus erythropterus*) have been observed using hollows. Several large hollows (>20 cm) occur within higher condition woodland. These areas have more shrubs and a higher diversity of native groundcover species and are limited to wider road reserve areas that adjoin intact continuous habitat.

The impact area represents a linear area of vegetation dissecting several significant areas of woodland and forest in an otherwise highly cleared landscape. As such, the vegetation within the road reserve provides an important habitat corridor within the local area.

4.3.1.2. Ephemeral drainage lines

Two unnamed ephemeral drainage lines are present along the extent of the Blue Springs Road upgrade, one a third order (across the northern extent) and one a second order (in close proximity to southern extent). These areas present moderate habitat for amphibian and bird species. Habitat quality is moderate owing to low to non-existent flow, and a moderate occurrence of emergent and surrounding vegetation cover.

4.3.1.3. Key Fish Habitat

The Blue Springs Road upgrade area intersects mapped Key Fish Habitat at three locations, however, ground-truthing has confirmed only one location of mapped Key Fish Habitat has a drainage line intersecting in the north the impact area – an ephemeral drainage line with an existing concrete culvert under the road, presenting poor quality habitat for aquatic species.

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4.3.1.4. Cleared/highly disturbed non-native vegetation

Cleared and highly disturbed non-native vegetation dominate the impact area and present limited habitat opportunities, primarily providing foraging habitat for common farmland birds such as Magpie Lark (*Grallina cyanoleuca*), Australian Magpie (C*racticus tibicen*) and Nankeen Kestrel (*Falco cenchroides*).

4.3.2. Threatened and migratory fauna

With potential habitat present for a range of species, comprehensive fauna surveys were undertaken for the Project EIS within the impact area to provide an assessment of the potential presence of threatened species. Threatened fauna species known, or with the potential to occur in the impact area due to the presence of habitat, are listed below in Table 4-3. Habitat constraints are listed to demonstrate the type of habitat use (i.e. where foraging habitat only is present, this excludes breeding habitat for these species).

Table 4-3: Threatened fauna species known or with the potential to occur in the impact area

Species	Common Name	Habitat Constraints	NSW listing status	EPBC listing status	Presence within impact area
Anthochaera phrygia	Regent Honeyeater	(Foraging habitat only)	Critically Endangered	Critically Endangered	Potential
Apus pacificus	Fork-tailed Swift	Migratory species – foraging	Not listed	Migratory	Potential
Artamus cyanopterus cyanopterus	Dusky Woodswallow	n/a	Vulnerable	Not listed	Potential
Callocephalon fimbriatum	Gang-gang Cockatoo	(Foraging habitat only)	Vulnerable	Endangered	Potential
Chthonicola sagittata	Speckled Warbler	n/a	Vulnerable	Not listed	Confirmed
Chalinolobus picatus	Little Pied Bat	n/a	Vulnerable	Not listed	Potential
Circus assimilis	Spotted Harrier	n/a	Vulnerable	Not listed	Potential
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	n/a	Vulnerable	Not listed	Potential
Daphoenositta chrysoptera	Varied Sittella	n/a	Vulnerable	Not listed	Potential
Dasyurus maculatus	Spotted-tailed Quoll	n/a	Vulnerable	Endangered	Potential
Falco subniger	Black Falcon	n/a	Vulnerable	Not listed	Potential
Falsistrellus tasmaniensis	Eastern False Pipistrelle	n/a	Vulnerable	Not listed	Potential
Grantiella picta	Painted Honeyeater	Mistletoes (>5/ha)	Vulnerable	Vulnerable	Potential
Glossopsitta pusilla	Little Lorikeet	n/a	Vulnerable	Not listed	Confirmed
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	n/a	Vulnerable	Not listed	Potential

Species	Common Name	Habitat Constraints	NSW listing status	EPBC listing status	Presence within impact area
Hieraaetus morphnoides	Little Eagle	(Foraging habitat only)	Vulnerable	Not listed	Confirmed
Haliaeetus leucogaster	White-bellied Sea-Eagle	(Foraging habitat only)	Vulnerable	Not listed	Potential
Hirundapus caudacutus	White-throated Needletail	Migratory species – foraging	Not listed	Vulnerable and migratory	Potential
Lathamus discolor	Swift Parrot	(Foraging habitat only)	Endangered	Critically Endangered	Potential
Lophochroa leadbeateri	Major Mitchell's Cockatoo	(Foraging habitat only)	Vulnerable	Not listed	Potential
Lophoictinia isura	Square-tailed Kite	(Foraging habitat only)	Vulnerable	Not listed	Potential
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	n/a	Vulnerable	Not listed	Potential
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	n/a	Vulnerable	Not listed	Potential
Miniopterus orianae oceanensis	Large Bent-winged Bat	(Foraging habitat only)	Vulnerable	Not listed	Potential
Neophema pulchella	Turquoise Parrot	n/a	Vulnerable	Not listed	Potential
Ninox connivens	Barking Owl	Foraging and breeding	Vulnerable	Not listed	Confirmed
Ninox strenua	Powerful Owl	(Foraging habitat only)	Vulnerable	Not listed	Potential
Nyctophilus corbeni	Corben's Long-eared Bat	n/a	Vulnerable	Vulnerable	Potential
Petaurus australis	Yellow-bellied Glider	Hollows >25cm	Vulnerable	Not listed	Potential
Petroica boodang	Scarlet Robin	n/a	Vulnerable	Not listed	Potential
Petroica phoenicea	Flame Robin	n/a	Vulnerable	Not listed	Confirmed
Phascolarctos cinereus	Koala	(Foraging habitat only)	Vulnerable	Endangered	Potential
Polytelis swainsonii	Superb Parrot	(Foraging habitat only)	Vulnerable	Vulnerable	Potential
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	n/a	Vulnerable	Not listed	Confirmed
Pteropus poliocephalus	Grey-headed Flying-fox	(Foraging habitat only)	Vulnerable	Vulnerable	Potential
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	n/a	Vulnerable	Not listed	Potential
Stagonopleura guttata	Diamond Firetail	n/a	Vulnerable	Not listed	Potential

Species	Common Name	Habitat Constraints	NSW listing status	EPBC listing status	Presence within impact area
Tyto novaehollandiae	Masked Owl	(Foraging habitat only)	Vulnerable	Not listed	Potential

Impacts to these species will be appropriately offset in accordance with the conditions of the NSW Development Consent SSD 10452, through offsetting vegetation communities which are considered habitat for these species.

5. Biodiversity Management Measures

The biodiversity management measures proposed in this BMP relate specifically to the Blue Springs Road upgrade and construction of site access stages of the Project and are designed specifically to address the requirements of Condition 15 of SSD 10452. Biodiversity management measures are detailed in this section.

5.1. Vegetation clearing: Pre-clearing

The maximum area of native vegetation that can be disturbed, or cleared, for the Project is prescribed by the Development Consent and linked directly to the biodiversity offsets required. To ensure compliance with the Project approval, prior to the commencement of the road upgrade works and construction of the site access, and prior to the clearing of any vegetation, a robust pre-clearing procedure is to be implemented by the Construction Contractor to ensure impacts to vegetation are minimised. The pre-clearing procedure will comprise the following key elements:

- Identification of clearance boundaries based on the detailed design
- Pre-clearing survey conducted by a suitably qualified ecologist to identify any sensitive areas which may require further management during clearing.

5.1.1. Identifying clearance boundaries

The detailed design developed by ACEN Australia in consultation with MWRC will define the disturbance boundaries (impact area) required for the road upgrade and construction of the site access. It is intended that the boundaries will be digitally captured and displayed within the Project survey and GIS databases. This data will be made available both digitally and in hard copy map format to inform and guide vegetation clearing, and following completion of the upgrade works / site access construction for any land preparation and rehabilitation requirements.

The construction contractor(s) will be responsible for demarcating vegetation clearing boundaries based on the detailed design and construction requirements. Flagging tape, bunting, temporary fencing or similar will be used to visually identify vegetation clearing boundaries based on the detailed design and site survey.

5.1.2. Pre-clearing survey

A survey of the identified impact area is to be undertaken by a suitably qualified ecologist prior to the commencement of the upgrade works / construction and prior to any vegetation clearing, to determine:

- The area of native vegetation to be cleared, including mapped CEEC.
- The location of Hollow-bearing trees (HBTs) is to be recorded using GPS. In addition:
    - HBTs to be cleared will be marked with flagging tape and an “H” spray painted onto two or three sides of the tree trunk with fluorescent paint.
    - HBTs immediately adjacent to and / or within the impact area that will be retained will be marked, for the establishment of an exclusion zone and protection from impacts. Note that the HBTs to be retained will be differentiated (marked differently (i.e. colour)) to those HBTs that are to be removed.

- Resident fauna or habitat features that may require active management prior to or during disturbance will be recorded using GPS (see active management protocols below). This may include:
    - actively nesting birds or mammals
    - habitat features including tree hollows or fallen logs that may contain roosts; nests, dreys or dens
    - suspected active microbat roosts.
- the presence of any previously unrecorded threatened flora or fauna species requiring management under the 'Unexpected finds' procedure detailed below.

Features identified in the pre-clearing survey will be recorded using handheld GPS. The use of a differential GPS unit will be considered where sensitive vegetation or features are identified to provide greater accuracy of the location.

Data collected in the pre-clearing inspection will be collated and reported by the construction contractor and provided to ACEN Australia.

5.2. Vegetation clearing procedure

The Construction Contractor will be responsible for ensuring the clearing of vegetation is undertaken in accordance with the following key processes, detailed further in the sections below:

- The pre-clearing procedures detailed in Section 5.1.1 are completed prior to commencement of the upgrade works / construction and prior any vegetation clearing.
- Clearing of trees will be avoided wherever possible.
- Removal of HBTs is to be avoided during spring, to avoid the main breeding period for hollow-dependent fauna.
- Pruning of vegetation (in lieu of vegetation removal) should be considered wherever possible to reduce the area of vegetation to be cleared.
- Surface disturbance is to be minimised and no vegetation clearing is to occur outside the approved impact area footprint (further detailed below).
- Where a requirement for active fauna management is required from the pre-clearing inspections, for example, resident fauna including actively nesting birds or mammals, tree hollows that may contain roosts, nests or dens, or suspected active microbat roosts, a qualified ecologist/licenced wildlife handler is to supervise clearing activities and manage any impacts to fauna (Section 5.2.2).
- Where vegetation is cleared, large fallen logs and woody debris will be salvaged where it is considered appropriate for use in revegetation or habitat enhancement activities. For example, HBTs requiring removal and cleared larger woody debris will be relocated adjacent to the upgrade works / construction impact area (subject to landowner agreement) into adjacent habitat or placed on rehabilitation disturbance areas.

Following the construction phase, Blue Springs Road will be maintained by MWRC as a Council controlled road, and managed in accordance with MWRC roadside vegetation management processes and procedures. The constructed site access will be managed as part of the solar farm site (Stage 2 of the Project). A specific Stage 2 BMP will be developed prior to construction of the solar farm which will include measures to avoid and minimise vegetation clearing during the operational phase of the project.

5.2.1. Protection outside the approved disturbance area

The construction contractor(s) will be responsible for ensuring the following mitigation measures are implemented to protect native vegetation and key fauna habitat outside of the approved disturbance area:

- Ensure clearing of vegetation is restricted to the impact area identified in the pre-clearing procedure detailed above in Section 5.1.1.
- Project vehicles and machinery are to remain within the impact area wherever practicable.
- Laydown or temporary disturbance areas will be sited within the impact area, or in adjacent areas which are already disturbed (for example, driveways or stopping bays).
- Procedures to avoid the spread of weeds to adjacent areas will be implemented in accordance with Section 5.5.
- During clearing, care will be taken to prevent damage to adjacent tree roots that are not going to be impacted:
    - trenches will be dug at least 15 m away from the base of trees to minimise root interference, and outside of drip lines for vegetation to avoid unintended pruning.
    - Where possible, a minimum trench distance from the base of the tree should be achieved in accordance with the Tree Protection Zone formula (TPZ Australian Standard 4970-2009). The TPZ is calculated by multiplying the diameter at breast height (DBH – 130 cm above the ground) by twelve.

5.2.2. Fauna active management

Where a need for active fauna management has been determined from the pre-clearing inspections, a qualified ecologist/licenced wildlife handler is to be present during vegetation clearing activities.

In any area to be cleared, non-habitat vegetation should be cleared first. Any fauna habitat (or resident fauna including actively nesting birds) demarcated during the pre-clearing procedure is then to be left standing overnight as a minimum (ideally longer up to three days) to encourage the self-relocation of fauna that may be using the available habitat feature.

Hollow-bearing trees

HBTs may contain roosts, nests or dens for a range of species including mammals, birds and microbats. HBTs may include live trees and stags (dead standing trees with hollows). Clearing of HBTs should be avoided during spring wherever possible to avoid impacts to fauna. The following robust HBT clearing procedure is to be followed at all times:

- Removal of HBTs is to be avoided during spring, to avoid the main breeding period for hollow-dependent fauna.
- The pre-clearing procedure detailed in Section 5.1.2 is to be implemented and reviewed prior to the commencement of clearing to determine the location of HBTs and ensure all have been recorded and marked appropriately.
- Vegetation surrounding the HBT is to be cleared first, with the HBT left standing overnight (ideally longer up to three days) to encourage self-relocation of any fauna that may be using the hollow.

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- Prior to clearing, HBTs should be shaken with machinery to encourage resident fauna to vacate the hollow and move to an alternative site. Relocation may be assisted by the supervising ecologist / fauna handler.
- HBTs should be soft pushed to the ground in order to reduce the impact to any remaining resident fauna.
    - Where fauna is known to remain within the hollow, an alternative method that may be considered is to lower cut sections of the tree using an arborist and crane.
- Preferentially, felled HBTs should be positioned on the ground so the entrance to the hollow faces upwards allowing any remaining resident fauna to exit.
- Felled HBTs are to be inspected by the supervising ecologist / fauna handler to confirm whether fauna have exited the tree.
- Felled HBTs are to be left overnight before mulching or relocating, to allow any remaining fauna time to exit, which will be confirmed by reinspection on the following day.

Arboreal mammals

In addition to HBTs, trees which provide habitat to arboreal mammals, may be considered habitat trees. Where the presence of arboreal mammals is suspected or known, clearing of these habitat trees will be managed by:

- clearing adjacent vegetation to allow time for the animal to self-relocate of its own accord
- where the animal remains in the tree, the supervising ecologist / fauna handler will be responsible for determining the appropriate method:
    - For species such as koala or other threatened species:
        - ensuring sufficient time is allowed for the animal to relocate
        - capture and relocation may be considered
    - Shaking the tree with machinery to be used during clearing activities to encourage the animal to move to an alternative location
- soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/animal present
- inspection of the felled tree to confirm that the mammal has relocated.
- where the mammal is still present, leave the felled tree overnight to encourage the animal to relocate, which will be confirmed by reinspection on the following day.

Nesting birds

Trees should be inspected for nests immediately prior to clearing to ensure that the nest is not active. If the nest is not active, the tree can be cleared.

Where a nest is active, the birds present (generally fledglings) will be collected where safe and taken to a wildlife carer to be cared for, prior to later release. The nest will be removed from the tree and an inspection undertaken to confirm the nesting activity hasn't recommenced. If nesting has recommenced, then the nest will be removed again before any nest can be established and the tree then cleared.

5.2.3. General fauna management

Not specific to any type of habitat feature, fauna species or group, construction procedures will include measures to further minimise direct and indirect impacts to fauna including:

- Preparation (by the Construction Contractor) of a fauna rescue protocol that includes notification of local wildlife carers and a veterinarian should they be required during clearing.
- Temporary construction features such as trenches, and pits should be fenced/covered overnight and when not in use for construction. Open trenches will be checked twice daily by the Construction Contractor.
- All external lighting associated with the development uses best management practice for bat deterrence.
- Vehicle speed limits within the upgrade works / construction areas should be reduced to minimise fauna strike risk.
- Vehicle use will be restricted to the impact area and to areas which are to be used for access tracks or infrastructure.

5.2.4. Unexpected threatened species finds

If previously unrecorded threatened flora or fauna are identified during pre-clearing surveys or clearing activities, a qualified ecologist will be engaged to determine the significance of impacts and provide advice on approval requirements.

Works in these areas, where potential impacts to threatened species are identified, will not be undertaken until authorisation to proceed is provided by the relevant authority.

5.3. Salvage of resources

During disturbance activities, including vegetation clearing and earthworks, salvage of resources may be undertaken to enhance habitat in adjacent areas, or to be re-used in rehabilitation activities on the solar farm site (Stage 2). This may include felled HBTs, large fallen logs and woody debris, as well as topsoil and mulch. For example, HBTs requiring removal and cleared larger woody debris will be relocated adjacent to the upgrade works / construction impact area (subject to landowner agreement) into adjacent habitat or placed on rehabilitated disturbance areas.

Vegetation that has been cleared that does not contain habitat features may be placed in areas of exotic vegetation, mulched, or removed from the impact area (pending negotiation with the relevant landowner).

Where soil is cleared for excavations or cuttings, it may be used for fill or rehabilitation and revegetation on the solar farm site (Stage 2 of the Project). Dust suppression measures such as the use of water carts/sprays will be used to mitigate dust impacts to adjacent vegetated areas.

5.4. Rehabilitation and revegetation

Rehabilitation and / or revegetation is unlikely to be required for the Blue Springs Road upgrade and construction of the site access (Stage 1 of the Project), as disturbance areas will be permanent and maintained for the continued use of the road. Temporary laydown areas will be located in already disturbed areas such as driveways, stopping bays or adjacent cleared farm land.

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5.5. Control of weeds and feral pests

Control of weeds and feral pests during the upgrade works / construction phase will be the responsibility of the Construction Contractor. Following completion of the upgrade works, Blue Springs Road will be maintained by MWRC as a Council controlled road and managed in accordance with MWRC weed and pest management processes and procedures. The constructed site access will be managed by ACEN Australia as part of the solar farm site (Stage 2 of the Project).

5.5.1. Weeds

Environmental and / or agricultural weeds previously recorded within the impact area are detailed above in Section 4.2.3. Disturbance activities may result in the spread of weed species present within the impact area, resulting in potential impacts to surrounding agriculture and remnant native vegetation. Weeds will be proactively managed in the impact area to avoid the spread of existing weeds and to manage any incursions which arise throughout construction and operation of the Project.

Weed management measures will include:

- Prior to disturbance activities, a weed survey and assessment is to be undertaken in each work area by a person suitably qualified to identify weed species (e.g. ecologist, agronomist or Council weed officer).
- Weeds of National Significance and/or State and/or Priority weeds listed under the listed under the *Central Tablelands Regional Strategic Weed Management Plan 2017 – 2022* which were previously unrecorded in the impact area must be notified and managed accordingly.
- Ensure all equipment, machinery and vehicles are free of weed seeds, mud, soil and organic matter before entering and exiting the works area.
- Imported materials including road base, gravel etc is to be sourced from reputable suppliers and certified free from weed species wherever possible.
- Regular inspections of work areas, material stockpiles, laydown areas and adjacent areas should be undertaken to monitor weed presence and identify any weed infestations which may require management.
- Control and management of weeds identified in work areas should be undertaken in accordance with the Central Tablelands Weed Management Plan 2017-2022[1] (Local Land Services, 2017) and the NSW *Pesticides Act 1999*.
- Any weed management activities undertaken will be documented by the Construction Contractor, with the following information being recorded:
    - The date, time and location of areas that have undergone weed control activities.
    - Methods used, including the names/brands of any chemicals used;
    - Issues encountered; and
    - Recommended frequency and methods for follow-up weed control.
- Where identified that weed control activities have not been effective, the method of control implemented will be reviewed prior to further management.

[1] Central Tablelands Regional Strategic Weed Management Plan 2017-2022 (nsw.gov.au)

5.5.2. Feral animals

A number of introduced vertebrate pest species (such as foxes, pigs, hares and rabbits) are common to the region and have the potential to both compete with native species and cause considerable damage to land and vegetation. Contamination and waste management will be managed in accordance with the Project EMS. This will identify the waste management measures to be implemented to reduce opportunities for scavenging for animals such as foxes, wild dogs and feral cats.

The Project will cooperate with landowners to facilitate existing and ongoing vertebrate pest control programs being undertaken on freehold land in the Project Site. Any vertebrate pest control activities undertaken will be done in accordance with the requirements of the Local Land Services.

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6. Monitoring and reporting

Monitoring and reporting during the Blue Springs Road upgrade and site access construction phase (Stage 1 of the Project) is required to measure the efficacy of the management measures detailed in this BMP, and to provide a record of compliance with the Development Consent. The minimum monitoring and reporting requirements for implementation of the BMP are summarised below in Table 6-1**.**

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Table 6-1: Monitoring and reporting

Monitoring factor	Section	Frequency	Reporting	Responsibility
Vegetation clearing				
Implementation of pre-clearing procedures	5.1	• Prior to commencement of vegetation clearing • As required for the duration of clearing	• Records to be collated weekly: ○ Detailed design and demarcation of clearing boundary ○ Area surveyed • All records to be collated at the completion of vegetation clearing.	Construction Contractor in consultation with qualified ecologist
Adherence with vegetation clearing limits/biodiversity offsets calculated for the Project	5.2	• On completion of detailed design • Area cleared to be progressively recalculated as clearing progresses. • On completion of clearing to calculate total area cleared	• Records to be collated weekly: ○ Detailed design and demarcation of clearing boundary ○ Area cleared • All records to be collated at the completion of vegetation clearing.	Construction Contractor
Hollow-bearing trees	5.2.2	• Prior to commencement of vegetation clearing • As required for the duration of clearing, which may include daily monitoring where active fauna management is required.	• Records to be collated weekly: ○ The GPS location of all HBTs cleared ○ Any HBTs retained • All records to be collated at the completion of vegetation clearing.	Construction Contractor in consultation with qualified ecologist
Implementation of fauna active management protocols	5.2.2	As required for the duration of clearing, which may include daily monitoring where active fauna management is required.	• Records to be collated weekly: ○ The GPS location of all fauna or habitat features ○ Actions undertaken • All records to be collated at the completion of vegetation clearing.	Qualified ecologist / licenced fauna handler
Implementation of fauna rescue protocol	5.2.3	As required for the duration of clearing, which may include daily monitoring where active fauna management is required.	• Records to be collated weekly: ○ The GPS location of all fauna managed ○ Actions undertaken All records to be collated at the completion of vegetation clearing.	Qualified ecologist / licenced fauna handler

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Monitoring factor	Section	Frequency	Reporting	Responsibility
Unexpected threatened species finds	5.2.4	As required	• The location of the find • The species and threatened status • Confirmation of stop work • Outcomes of assessment of significance • Outcome of regulatory agency consultation	Construction Contractor in consultation with qualified ecologist and the Proponent
Inspection of open trenches for trapped fauna	5.2.3	Twice daily	If fauna is identified	Construction Contractor in consultation with qualified ecologist
Vehicles remain within the impact area and where possible only use designated and formed roads	5.2.1	Daily / weekly	In the event of a nonconformance	Construction Contractor
Placing laydown and temporary disturbance areas in already disturbed areas	5.2.1; 5.4	Daily / weekly	In the event of a nonconformance	Construction Contractor
No vegetation clearing is undertaken outside the impact area or areas marked as exclusion zones / no clearing	5.1.1; 5.2.1	Daily / weekly	In the event of a nonconformance	Construction Contractor in consultation with the Proponent
Weed infestations and management	5.5.1	At least monthly or more frequently where weed infestations / management actions are required.	Monthly	Construction Contractor in consultation with the Proponent
Incident and nonconformance with BMP and / or Project Development Consent		Daily / weekly / monthly	In the event of a nonconformance or incident	Construction Contractor in consultation with the Proponent
BMP Review		At the completion of the upgrade works / site access construction, in response to a required change to measures documented in the BMP, or, annually at a minimum.	As required, including in accordance with the consultation process detailed in the consent condition.	The Proponent in consultation with the Construction Contractor

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Appendix A Consultation log

Date	Stakeholder	Format	Summary of outcomes
28 April 2022	Biodiversity, Conservation and Science Directorate (BCS) Department of Planning and Environment (DPE)	Email	BCS advised their preferred format of consultation is to review the draft BMP and provide comment.
10 May 2022	Mid-Western Regional Council (MWRC)	Meeting	Reviewed and agreed on the vegetation clearing provisions proposed in the BMP.
6 June 2022	BCS	Phone call	BCS made enquiries regarding new/revised BMP to be provided for the Solar Farm at a later date.
8 June 2022	BCS	Email letter (attached below)	BCS approval response to review of draft BMP.
12 July 2022	MWRC	Email letter (attached below)	MWRC approval response to review of draft BMP.

Department of Planning and Environment

Our ref: DOC22/447769
Your ref: 600-22MUD1955

Kalya Abbey
Senior Environmental Consultant
Eco Logical Australia
KalyaA@ecoaus.com.au

Dear Kalya

Biodiversity Management Plan for Stubbo Solar Farm (SSD 10452) – Blue Springs Road upgrade and site access

Thank you for your e-mail dated 17 May 2022 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning and Environment inviting comments on the Biodiversity Management Plan (BMP) for Stage 1, the Blue Springs Road upgrade and site access portion, of the Stubbo Solar Farm (SSD 10452).

BCS has reviewed this BMP in the context of the requirements of Condition 15 in Schedule 3 of SSD 10452. The BMP provides an adequate framework to manage the predicted impacts to biodiversity associated with Stage 1 of the development.

BCS note that a BMP will be prepared to address impacts associated with Stage 2 of the proposal, including construction and operation of the Stubbo Solar Farm, prior to commencement of that work.

If you require any further information regarding this matter, please contact Rowan Murphy, Senior Conservation Planning Officer, via rowan.murphy@environment.nsw.gov.au or 0400 337 662.

Yours sincerely

Samantha Wynn

Samantha Wynn
Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

8 June 2022

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MID-WESTERN REGIONAL COUNCIL
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T 1300 765 002 or 02 6378 2850 | F 02 6378 2815
E council@midwestern.nsw.gov.au

RK| LAN900112

12 July 2022

Mr. Cedric Berge – Project Development Manager
ACEN Australia
3rd Floor Customs House
31 Alfred Street
SYDNEY NSW 2000

Dear Cedric,

SUBJECT: SSD 10452 STUBBO SOLAR FARM – SCHEDULE 3 CONDITION 15 BIODIVERSITY MANAGEMENT PLAN

The Biodiversity Management Strategy Stubbo Solar Farm Blue Springs Road Upgrade and Site Access Construction 17 May 2022 has been developed in consultation with Mid-Western Regional Council. Mid-Western Regional Council confirms this Management Plan can be implemented for construction.

Regards,

RAY KEARNS

MANAGER INFRASTRUCTURE PLANNING

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