

Appendix B

Biological Survey

18 June 2021

Ecological Assessment for Waroona SF P2 Easement

1.0 Introduction

South Energy is planning to construct a transmission line from the Waroona Solar Farm site (the Project) to Western Power's Landwehr Terminal Station. South Energy required a reconnaissance flora and vegetation survey and a targeted Black Cockatoo survey to be conducted along the linear easement to support the environmental assessment process as clearing will be required along some of the route.

A targeted Black Cockatoo survey and a reconnaissance flora and vegetation survey was conducted by AECOM Australia Pty Ltd (AECOM) on the 4th June 2021. This survey was conducted to assess presence and potential utilisation of the survey area by Black Cockatoo species protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and classify any native vegetation along the route.

South Energy has determined that the approximate impact footprint for clearing required for the transmission line will be 4.16 ha (the Survey Area).

2.0 Desktop Assessment

A review was undertaken by AECOM of publicly available databases and previous reports of the surrounding area prior to completing the field survey.

2.1 Flora, Vegetation and Fauna

A previous ecological assessment completed by AECOM in 2019 identified the following as having the potential to occur:

- Two Threatened Ecological Communities (TECs):
 - Banksia Woodlands of the Swan Coastal Plain (EPBC Act: Endangered)
 - Clay Pans of the Swan Coastal Plain (EPBC Act: Critically Endangered)
- Threatened and Priority species including:
 - 26 listed fauna species (three considered 'likely to occur', seven 'may occur')
 - 39 Threatened and Priority flora species (eight considered 'likely to occur').

Following the site inspection in 2019, the likelihood of occurrence was amended, resulting in the following:

- Fauna:
 - three species are 'likely to occur'
 - seven species 'may occur'
- Flora:
 - one species 'may occur'
- Vegetation: no TECs are considered 'likely to occur' or 'may occur'.

Threatened flora species listed under the EPBC Act and Biodiversity Conservation Act (BC Act) considered 'likely to occur' or 'may occur' within the Survey Area are listed in Table 1. Table 2 documents the ten threatened fauna species that 'may occur' or are 'likely to occur' within the Survey Area.

Table 1 Threatened and Priority flora species that are 'likely to occur' or 'may occur' within the Survey Area

Taxon	State BC Act / DBCA	Federal EPBC Act	Likelihood of Occurrence	Post-2019 Survey Likelihood
<i>Andersonia gracilis</i>	Vulnerable	Endangered	Likely to occur	Unlikely to occur
<i>Diuris micrantha</i>	Vulnerable	Vulnerable	Likely to occur	May occur
<i>Diuris purdiei</i>	Endangered	Endangered	Likely to occur	Unlikely to occur
<i>Drakaea elastica</i>	Critically Endangered	Endangered	Likely to occur	Unlikely to occur
<i>Drakaea micrantha</i>	Endangered	Vulnerable	Likely to occur	Unlikely to occur
<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	Critically Endangered	Critically Endangered	Likely to occur	Unlikely to occur
<i>Synaphea</i> sp. Pinjarra Plain (A.S. George 17182)	Endangered	Endangered	Likely to occur	Unlikely to occur
<i>Synaphea stenoloba</i>	Critically Endangered	Endangered	Likely to occur	Unlikely to occur

Table 2 Conservation significant fauna species considered as 'likely to occur' or 'may occur' within the Survey Area

Species	State BC Act / DBCA	Federal EPBC Act
<i>Calidris ferruginea</i> Curlew Sandpiper	Critically Endangered	Migratory
<i>Calyptorhynchus banksii naso</i> Forest Red-tailed Black Cockatoo	Vulnerable	Vulnerable
<i>Calyptorhynchus baudinii</i> Baudin's Cockatoo	Endangered	Vulnerable
<i>Calyptorhynchus latirostris</i> Carnaby's Cockatoo	Endangered	Endangered
<i>Falco peregrinus</i> Peregrine Falcon	Other specially protected fauna	-
<i>Plegadis falcinellus</i> Glossy Ibis	Migratory	Migratory
<i>Tringa nebularia</i> Common greenshank	Migratory	Migratory
<i>Notamacropus Irma</i> Western Brush Wallaby	Priority 4	-
<i>Phascogale tapoatafa</i> subsp. <i>wambenger</i> South-western Brush-tailed Phascogale	Species of special conservation interest	Vulnerable
<i>Pseudocheirus occidentalis</i> Western Ringtail Possum	Critically Endangered	Critically Endangered

2.2 Heritage

A search of the PMST database and the Aboriginal Heritage Inquiry System returned no results for World, Commonwealth, National or Aboriginal Heritage Places/Properties/Sites within the Survey Area. The Survey Area occurs within or adjacent to the Gnaala Karla Booja Indigenous Land Use Agreement.

3.0 Survey Results

3.1 Vegetation

3.1.1 Threatened and Priority Ecological Communities

No TECs or PECs were recorded in the Survey Area.

The degraded condition of the wetlands within the Survey Area has reduced vegetation to common pasture weeds and some remnant native sedges. The continued eroding processes would consider the area unsuitable for representing the Clay Pans TEC.

3.1.2 Vegetation Communities

Three native vegetation communities were mapped within the Survey Area extending 0.99 ha which represents 23.6% of the total Survey Area (Table 3; Figure 1).

Understorey was predominantly absent in all communities, with common pasture weeds and grasses throughout. All areas of native vegetation were in a Degraded condition.

Table 3 Vegetation communities mapped within the Survey Area

Code	Description	Details
CcJp	<i>Corymbia calophylla</i> and <i>Melaleuca raphiophylla</i> tall open trees over <i>Juncus preissianus</i> low closed mixed sedge and shrubland.	Survey effort: N/A Survey Area: 0.59 ha Condition: Degraded
MrJp	<i>Melaleuca raphiophylla</i> low open woodland with <i>Juncus preissianus</i> and <i>Solanum nigrum</i> low sparse shrubland over <i>*Arctotheca calendula</i> , <i>?Xanthosia huegeli</i> , and <i>Oxalis pes-caprae</i> low closed forbland.	Survey effort: one traverse (Waroona 06). Survey Area: 0.31 ha Condition: Degraded
KgAa	<i>Kunzea glabrescens</i> and <i>Astartea affinis</i> low closed woodland over <i>*Rumex acetosella</i> , <i>*Hypochaeris glabra</i> , and <i>*Cenchrus clandestinus</i> low closed forbland.	Survey effort: one traverse (Waroona 07). Survey Area: 0.09 ha Condition: Degraded
Planted	Introduced mixed <i>Eucalyptus</i> spp. over weeds.	Survey Area: 0.24 ha Condition: Completely Degraded
Cleared	Cleared paddock comprising common pasture weeds. Occasional solitary introduced <i>Eucalyptus</i> spp.	Survey Area: 2.95 ha Condition: Cleared

3.2 Flora

No Threatened or Priority flora were observed during the field survey.

The Threatened flora species identified during desktop assessments are considered unlikely to occur following the field survey due to degraded nature of the remnant native vegetation.

3.3 Fauna

3.4 Conservation Significant Fauna

Potential evidence of the presence of two conservation significant fauna species was observed during the survey. These two species are the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* and Baudin's Cockatoo *Calyptorhynchus baudinii*.

3.4.1 Black Cockatoo Habitat

Breeding

31 potential breeding habitat trees (DBH>500 mm) were recorded within the Survey Area. No potentially suitable hollows were identified within these trees.

The observed trees included 12 Marri *Corymbia calophylla*, 2 stags (deceased, unidentifiable trees) and 17 introduced *Eucalyptus*. The majority of these trees were located in the western portion of the Survey Area (Figure 2)

Foraging

Black Cockatoo foraging habitat within the Survey Area predominantly comprises isolated patches of Marri trees within paddocks.

Three observations of recent potential black cockatoo foraging evidence were recorded in the western portion of the Survey Area. These observations were for the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* and Baudin's Cockatoo *Calyptorhynchus baudinii* and are shown in Plate 1, Plate 2 and Plate 3.

The Survey Area contains Carnaby's Cockatoo (*Calyptorhynchus latirostris*) foraging habitat (Figure 2), comprising:

- 0.83 ha of High Quality foraging habitat

No Carnaby's Cockatoo foraging evidence was recorded in the Survey Area.

The Survey Area contains Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) foraging habitat (Figure 2), comprising:

- 0.83 ha of Quality foraging habitat

The Survey Area contains Baudin's Cockatoo (*Calyptorhynchus baudinii*) foraging habitat (Figure 2), comprising:

- 0.83 ha of High Quality foraging habitat



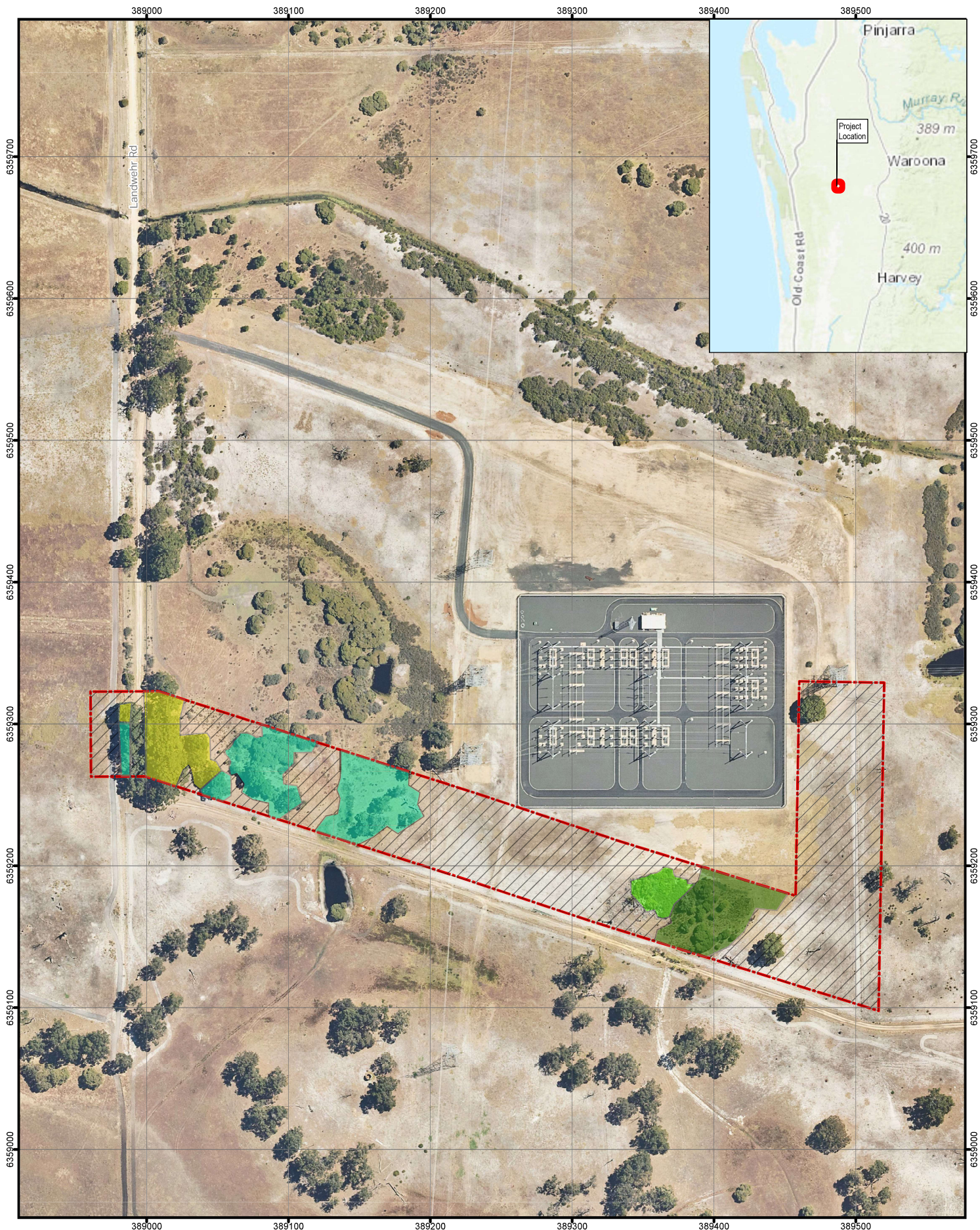
Plate 1 Foraging evidence for the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*



Plate 2 Potential foraging evidence for the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* and Baudin's Cockatoo *Calyptorhynchus baudinii*



Plate 3 Potential foraging evidence for the Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* and Baudin's Cockatoo *Calyptorhynchus baudinii*



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Datum: GDA 1994 MGA Zone 50
 1:3,500
 (when printed at A4)
 Data sources:
 Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2021), Geoscience Australia, Streetpro

LEGEND

- Survey Area
- Vegetation Community**
- CcJp
- KgAa
- MrJp
- Planted
- Cleared

Vegetation Communities

SOUTH ENERGY

WAROONA ECOLOGICAL SURVEY 2021

Figure 1

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1:2,500 (when printed at A3)
 Datum GDA 1994 MGA Zone 50

0 20 40 60 80 metres

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- LEGEND**
- ◆ Fauna Observation
 - Potential Black Cockatoo Breeding Tree
 - Marri (*Corymbia calophylla*)
 - Stag (old dead tree, unknown species)
 - Introduced
 - Survey Area
 - Vegetation Community Quality
 - Carnaby's Black Cockatoo and Baudin's Black Cockatoo
 - High Quality
 - Vegetation Community Quality
 - Forest Red-Tailed Black Cockatoo
 - Quality

Black Cockatoo Foraging Habitat and Potential Breeding Trees

SOUTH ENERGY
 WAROONA ECOLOGICAL SURVEY 2021

Figure
2

4.0 Discussion and Conclusion

An ecological assessment was undertaken for the Waroona Solar Farm Project by an AECOM Ecologist. The ecological survey identified the following environmental values:

- No significant flora species were found within the Survey Area. These species are considered as 'unlikely to occur' following the site inspection as no suitable habitat was present.
- A total of 0.99 ha of remnant native vegetation was mapped, in Degraded condition. None of this vegetation represented a TEC or PEC.
- 31 potential breeding trees were identified within the Survey Area (with a suitable DBH and no potentially suitable hollows).
- A total of 0.83 ha of High Quality foraging habitat for Carnaby's Cockatoo and Baudin's Cockatoo, and a total of 0.83 ha of Quality foraging habitat for the Forest Red-tailed Black Cockatoo.
- The potential presence of seven other threatened fauna species (apart from the three Black Cockatoo species), though habitat for these species is generally limited, of poor quality and highly modified.

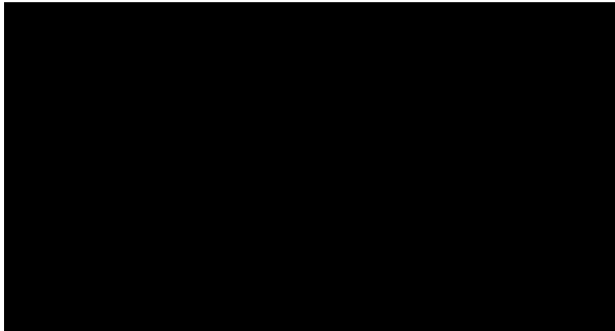
The survey effort for the Project is considered suitable for assessing the environmental values of the Survey Area.

4.1 Recommendations

Under the *EPBC Act referral guidelines for three threatened black cockatoo species*, referral is unlikely to be required for an area of foraging habitat less than 1 ha in size which does not contain any known breeding trees or potential breeding trees with suitable hollows.

A clearing permit will be required for clearing up to 0.99 ha of native vegetation within the easement.

Kind regards



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