Appendix D Relevant Approvals and Conditions

Containing:

- Approval letter from DES for the SMP, which includes:
  - Attachment 1 - SMP form
    - Kumbarilla Renewable Energy Park – Species Management Program Habitat Assessment (with Appendix A Project Area and Layout, and Appendix B Disclaimer).
    - Kumbarilla Renewable Energy Park – Species Management Program Impact Management Plan (with Appendix A Project Area and Layout, and Appendix B Disclaimer).
  - Attachment 2 - Animal Breeding Place Register Reporting Template
- Decision Notice Approval for Material Change of Use, which includes:
  - Conditions of Approval
  - Site Layout
  - Bushfire Risk Assessment
  - Response to WDRC Information Request
  - SARA Response – Kumbarilla Solar Farm (with Attachment 1, 2, 3, 4 and 5).

Queensland Government

Department of
Environment and Science

8/10/2021

Elecseed Pty Ltd
Attention: Kyu Hong Lee
310 Edwards Street
BRISBANE CITY QLD 4000

Dear Mr Lee

SMP954 - Species Management Program - Kumbarilla Renewable Energy Park.

Thank you for your application for a Species Management Program (SMP) dated 13 September 2021 for tampering with an animal breeding place where there is a high risk of impacts. A SMP is required where an animal breeding place has been identified and activities are proposed that would tamper with the breeding place. This high risk SMP applies to the threatened, near threatened, special least concern and least concern colonial breeders and, other least concern animals, associated with your nominated project **Kumbarilla Renewable Energy Park**.

This letter is to advise that the attached SMP is approved for activities in relation to the project being undertaken on Lot 4 DY457 including easements over Lot C SP107383 and Lot B SP107382, the access corridor within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457, in accordance with the SMP terms and conditions and with supporting documentation, submitted to the department on 13 September 2021.

The **Kumbarilla Renewable Energy Park**, managed by Elecseed Pty Ltd is now registered with the Department of Environment and Science as an approved SMP. This approval remains in effect until midnight on 15 December 2024. Please note that, unless otherwise authorised, you are no longer approved after this date to tamper with an animal breeding place.

Should you have any further enquiries, please contact Isak Schabort, of the Department of Environment and Science by telephone 4302 8522 or email wildlife@des.qld.gov.au (quote ref SMP954).

Yours sincerely

Adam Northam
Manager, Wildlife Assessments
Permissions Management
Department of Environment and Science

GPO Box 2454 Brisbane
Queensland 4001 Australia
Website www.des.qld.gov.au
ABN 46 640 294 485

Attachments:

1. Approved SMP – High Risk-forwarded electronically.
2. Animal breeding place register reporting template - https://environment.des.qld.gov.au/licences-permits/plants-animals/documents/fm-wl-register-animal-breeding-place.xlsx

Attachment 1 - Approved SMP

Species management program (SMP) for tampering with animal breeding places (High risk of impacts)

Note: PDF template requires Adobe Reader DC version

INSERT NAME OF APPLICANT PERSON OR OTHER LEGAL ENTITY Note: Limit to 6 lines

ELECSEED PTY LTD

INSERT ADDRESS, PHONE NUMBER AND OTHER CONTACT DETAILS OF APPLICANT PERSON OR OTHER LEGAL ENTITY Note: Limit to 6 lines

310 Edwards Street, Brisbane City, 4000, QLD Australia

ph. 0422 297 508
email. kyuhong.lee@elecseed.io

NAME OF PROJECT Note: Limit to 6 lines

Kumbarilla Renewable Energy Park

INSERT PROJECT Lot/RP, ADDRESS Note: Limit to 7 lines

Lot 4 DY457 including easements over Lot C SP107383 and Lot B SP107382. The access corridor is located within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457.

Made pursuant to section 335 of the Nature Conservation (Animals) Regulation 2020

ABN 46 640 294 485

CONTENTS

1. SCOPE OF THIS SPECIES MANAGEMENT PROGRAM

Section 335 of the Nature Conservation (Animals) Regulation 2020 (the Animals Regulation) prescribes that a person must not tamper with an animal breeding place unless, amongst other matters, the tampering (including removal of the breeding place but not the animal) is part of an approved species management program (SMP) for animals of the same species.

On its approval by the chief executive, Department of Environment and Science (DES), this document is recognised as an *approved species management program* for the purposes of section 335 of the Animals Regulation. It applies to activities that propose to or are likely to tamper with animal breeding places with respect to:

(a) *Protected animals* prescribed as *extinct, extinct in the wild*, critically enangered, *endangered*, *vulnerable*, *near threatened*, or a *special least concern animal* under the Animals Regulation); or
(b) Least concern animals that are *colonial breeders*; or
(c) Least concern animals where proposed tampering with a breeding place may have impacts on the broader population of the species.

If required, this SMP may be approved to also apply to *least concern animals*.

This Species Management Program incorporates an animal breeding place survey report and an impact management plan per the attached Appendices. It is a requirement of approval of this SMP that the program will be applied in conjunction with those Appendices.

The proposed disturbance of a flying-fox roost (genus *Pteropus*) is dealt with specifically under section 88C of the *Nature Conservation Act 1992* (the Act) and section 61 of the Nature Conservation (Animals) Regulation 2020. **Note that this species management program does not authorise a person to destroy or disturb a flying-fox roost or to drive away or attempt to drive away a flying-fox.** DES should be contacted with respect to any proposed activity relating to flying-foxes and flying-fox roosts.

Where approved tampering with a known breeding place of a protected animal would also *take* another species of protected animal, the approved entity is required to apply for, and be granted, a damage mitigation permit under the Act prior to the take occurring.

It should be noted that, when interpreting this species management program, any words present in italics have specific meaning as indicated in 'key definitions' in section 6.

2. TERMS OF THIS SPECIES MANAGEMENT PROGRAM

2.1 The chief executive's approval of this species management program is granted to

INSERT ENTITY NAME
ELECSEED PTY LTD

and is effective from the date of approval until, 15/12/2024
after which tampering with an animal breeding place is not authorised.

2.2 This SMP does not prevent any reasonable action being taken to safeguard the safety of any person in an emergency situation. In that circumstance and where feasible, the authorised entity should discuss a proposed action with DES. The approved entity will within 48 hours of an action undertaken under this clause notify DES in writing at wildlife@des.qld.gov.au.

2.3 On approval of this SMP, the approved entity is only authorised to tamper with an animal breeding place in a manner that is in strict accordance with the conditions specified in this document. In default, approval of this SMP may be revoked by the chief executive in accordance with the following process:

a) DES will give written notice to the approved entity that condition(s) of this document are alleged to have been contravened, and will invite the approved entity to show cause in writing within 20 business days of the date of the notice why the approval should not be revoked; and

b) if the approved entity does not respond within this period, or after the chief executive considers the response, the chief executive determines that the approval of the SMP should be withdrawn forthwith, DES will give written notice to the approved entity that approval has been withdrawn. Otherwise, the chief executive may require the approved entity to rectify the breach within 20 business days of the date of DES notification; and

c) if the approved entity fails to rectify the breach within 20 business days of the date of notification by DES, the chief executive may withdraw approval of this SMP.

3. CONDITIONS OF APPROVAL OF THIS SPECIES MANAGEMENT PROGRAM

3.1 Approval of this SMP is conditional upon the approved entity maintaining a register of tampering with animal breeding places ("the register") in accordance with this section. Accurate records of animal breeding places known or suspected to have been tampered with (including destroyed) will be recorded by the approved entity at the end of each day that tampering occurs.

3.2 The register will be:

a) made available to DES by the approved entity upon DES request; and

b) provided to DES at wildlife@des.qld.gov.au by the approved entity within 6 months of the interactions with the high risk of impacts SMP species and the complete register within 10 business days after the expiry of this SMP.

3.3 For *construction* projects, prior to commencement of works, the approved entity will undertake an assessment, including a field survey, to determine the presence or absence of animal breeding places. Where breeding places are identified, the approved entity will comply with the actions identified within Table 1 and will record details of the animal breeding place in the register.

3.4 For *maintenance* activities, an assessment for animal breeding places is not required. However, where new or likely animal breeding places are identified, the approved entity will comply with the actions identified within Table 1 and will record details of the animal breeding place in the register.

Table 1: Authorised species management actions with respect to animal breeding places

Type of wildlife	Breeding place status	Action
Least concern animals – special least concern or colonial breeding	All	• Apply for use of SMP – high risk of impact (all protected wildlife, including special least concern animals and colonial breeders). • Animal breeding place survey report and impact management plan required as per Table 1 in Information Sheet^.
Extinct in the wild, endangered, vulnerable and near threatened animals	All	• Animal breeding place survey report and impact management plan required as per Table 1 in Information Sheet^. • Approval for *take* must be authorised under another approval
Other least concern animals (if authorised by this SMP)	Contains young or eggs	• Avoidance of unnecessary disturbance; or suitably qualified and experienced person removes animal breeding place and eggs and/or young rehabilitated by *authorised wildlife carer* *; or • Eggs destroyed by an authorised person under a damage mitigation permit (last resort).
	No eggs or young	• Proceed with caution. Remove breeding place (if applicable).

Table notes:
^ Document titled 'Information Sheet – Requirements for tampering with a protected animal breeding place in Queensland under a Species Management Program.'
* Where rehabilitation of protected wildlife is required, rehabilitation must be undertaken in accordance with the Code of Practice – Care of Sick, Injured or Orphaned Protected Animals in Queensland.

4. KEY DEFINITIONS

animal breeding place means—

A bower, burrow, cave, hollow, nest or other thing that is commonly used by the animal to incubate or rear the animal's offspring'.

approved species management program means—

For a species of animal, a program about managing impacts to the population and habitat of the species of animal that is approved by the chief executive of DES.

colonial breeders means—

A group of animals of the same kind, co-existing in close association for breeding purposes.

construction includes-

Each of the following for the infrastructure, to the extent it involves the development of the infrastructure –

(a) initial construction (including field investigations, relocation of services and surveys);

(b) improvement of its standard;

(c) realignment;

(d) widening; and

(e) extension to infrastructure or associated assets.

endangered wildlife means –

Native wildlife that is prescribed in the Animals Regulation as endangered wildlife.

extinct in the wild means –

Native wildlife that is prescribed in the Animals Regulation as extinct in the wild wildlife.

keep in relation to wildlife includes –

Have in possession, or under control, in any place (whether for the use or benefit of the person in relation to whom the term is used or another person), even though another person has the actual possession or custody.

least concern wildlife means –

Native wildlife that is prescribed in the Animals Regulation as least concern wildlife.

authorised wildlife carer means—

A person qualified to take and keep protected wildlife under a current rehabilitation permit in accordance with the the Animals Regulation .

maintenance includes—

(a) rehabilitation; and

(b) replacement; and

(c) repair; and

(d) recurrent servicing; and

(e) preventative and remedial action; and

(f) removal; and

(g) alteration; and

(h) maintaining systems and services for transport infrastructure.

native wildlife means –

Any taxon or species of wildlife indigenous to Australia

near threatened wildlife means –

Native wildlife prescribed in the Animals Regulation as near threatened wildlife

person includes –

A body of persons, whether incorporated or unincorporated.

protected animal means –

An animal that is prescribed under the Act as threatened, near threatened or least concern wildlife, but does not include a processed product.

protected wildlife means native wildlife prescribed under the Act as—

(a) extinct in the wild wildlife; or

(b) endangered wildlife; or

(c) vulnerable wildlife; or

(d) near threatened wildlife; or

(e) least concern wildlife.

special least concern animal under the Animals Regulation means the following—

(a) the echidna (Tachyglossus aculeatus);
(b) the platypus (Ornithorhynchus anatinus);
(c) a least concern bird to which any of the following apply—
(i) the agreement called 'Agreement Between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment' and signed at Tokyo on 6 February 1974;
(ii) the agreement called 'Agreement Between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment' and signed at Canberra on 20 October 1986;
(iii) the convention called 'Convention on the Conservation of Migratory Species of Wild Animals' and signed at Bonn on 23 June 1979.

species management program (SMP) - low risk of impacts *means –*

An SMP for tampering with breeding places of protected animals prescribed as Least Concern wildlife (**excluding** least concern wildlife that are colonial breeders or that are listed as special least concern) where the impacts are unlikely to affect broader populations.

species management program (SMP)- high risk of impacts *means –*

An SMP for tampering with breeding places of protected animals that are:

- prescribed as extinct in the wild, endangered, vulnerable, near threatened, or special least concern animal under the the Animals Regulation , or
- least concern animals that are colonial breeders, or
- least concern animals where proposed tampering with a breeding place may have impacts on the broader population of that or another species of protected animal.

An SMP (high risk of impacts) may also include other least concern animals if requested.

suitably qualified and experienced person means—

A person with formal qualifications and/or experience in identification of native animals and wildlife ecology. A person is considered to be suitably qualified and experienced if they meet one or more of the following criteria:

- An ecological consultant with experience in conducting surveys for native animal breeding places;
- A person who possesses a degree in natural science or similar with experience in conducting surveys for native animal breeding places;
- A person who is authorised as a *spotter-catcher* under a rehabilitation permit granted under the Act.

spotter-catcher means—

A person authorised under a current rehabilitation permit to take and/or keep a protected animal whose habitat is about to be destroyed by human activity, in accordance with the the Animals Regulation .

tamper means—

damage, destroy, mark, move or dig up an animal breeding place.

take includes—

(a) in relation to an animal -

(i) hunt, shoot, wound, kill, skin, poison, net, snare, spear, trap, catch, dredge for, bring ashore or aboard a boat, pursue, lure, injure or harm the animal; or

(ii) attempt to do an act mentioned in subparagraph (i).

vulnerable wildlife means –

Native wildlife that is that is prescribed in theAnimal Regulation as vulnerable wildlife.

5. DES CONTACTS

All enquiries should be directed to DES at wildlife@des.qld.gov.au. The enquiry will be redirected to the relevant office for response.

To insert a file into this PDF, you need to use the edit object tool located in the comment tab on the right.

APPENDIX 1 – Map or plan of the proposed impact area

Insert a map and/or plan of your proposed impact area, including scale, here.

INSERT DOCUMENT HERE OR REFERENCE TO RELEVANT ATTACHMENT. TO INSERT A FILE INTO THIS PDF, YOU NEED TO USE THE EDIT OBJECT TOOL LOCATED IN THE COMMENT TAB ON THE RIGHT.

Note: Limit to 2 lines

Refer to attached Figure 2

APPENDIX 2 - Animal Breeding Place Survey Report

Attach your animal breeding place survey report here.

INSERT DOCUMENT HERE OR REFERENCE TO RELEVANT ATTACHMENT. TO INSERT A FILE INTO THIS PDF, YOU NEED TO USE THE EDIT OBJECT TOOL LOCATED IN THE COMMENT TAB ON THE RIGHT.

Note: Limit to 2 lines

Refer to the attached report - 1000525_K-REP_RPT_SMP Habitat Assessment_Rev0_03092021

APPENDIX 3 - Impact Management Plan

Attach your impact management plan here.

INSERT DOCUMENT HERE OR REFERENCE TO RELEVANT ATTACHMENT. TO INSERT A FILE INTO THIS PDF, YOU NEED TO USE THE EDIT OBJECT TOOL LOCATED IN THE COMMENT TAB ON THE RIGHT.

Note: Limit to 2 lines

Refer to the attached report - 1000525_K-REP_RPT_SMP Impact Management Plan_Rev0_03092021

6. APPLICANT'S STATEMENT OF INTENT

I

APPLICANT: A PERSON OR OTHER LEGAL ENTITY
Kyu Hong Lee

accept this species management program offered by the Department of Environment and Science under section 335 of the Nature Conservation (Animals) Regulation 2020, without amendment or alteration and agree to abide by the conditions of approval stated within this document.

7. APPLICANT'S DECLARATION

I do solemnly and sincerely declare that the information provided in this document, including any information provided with or in support of this document, is true and correct to the best of my knowledge, and I make this solemn declaration conscientiously believing the same to be true.

I understand that all information supplied in or with this document may be disclosed publicly in accordance with the *Right to Information Act 2009*, *Native Title (Queensland) Act 1993* and the *Evidence Act 1977.*

APPLICANT'S NAME	
Kyu Hong Lee	
IF THE APPLICANT IS A LEGAL ENTITY, PLEASE INDICATE YOUR POSITION IN THAT ENTITY	
Chief Strategy Officer	
APPLICANT'S SIGNATURE Press to sign Kyu Hong Lee	DATE 13/09/2021

Note: The form will be locked on the applicant's signature and no changes will be possible.

Submit form to wildlife@des.qld.gov.au

OFFICE USE ONLY

8. APPROVAL BY DELEGATE

Adam Northam

Delegate Name / Signature

8/10/21

Date

Permissions Management
Department of Environment and Science

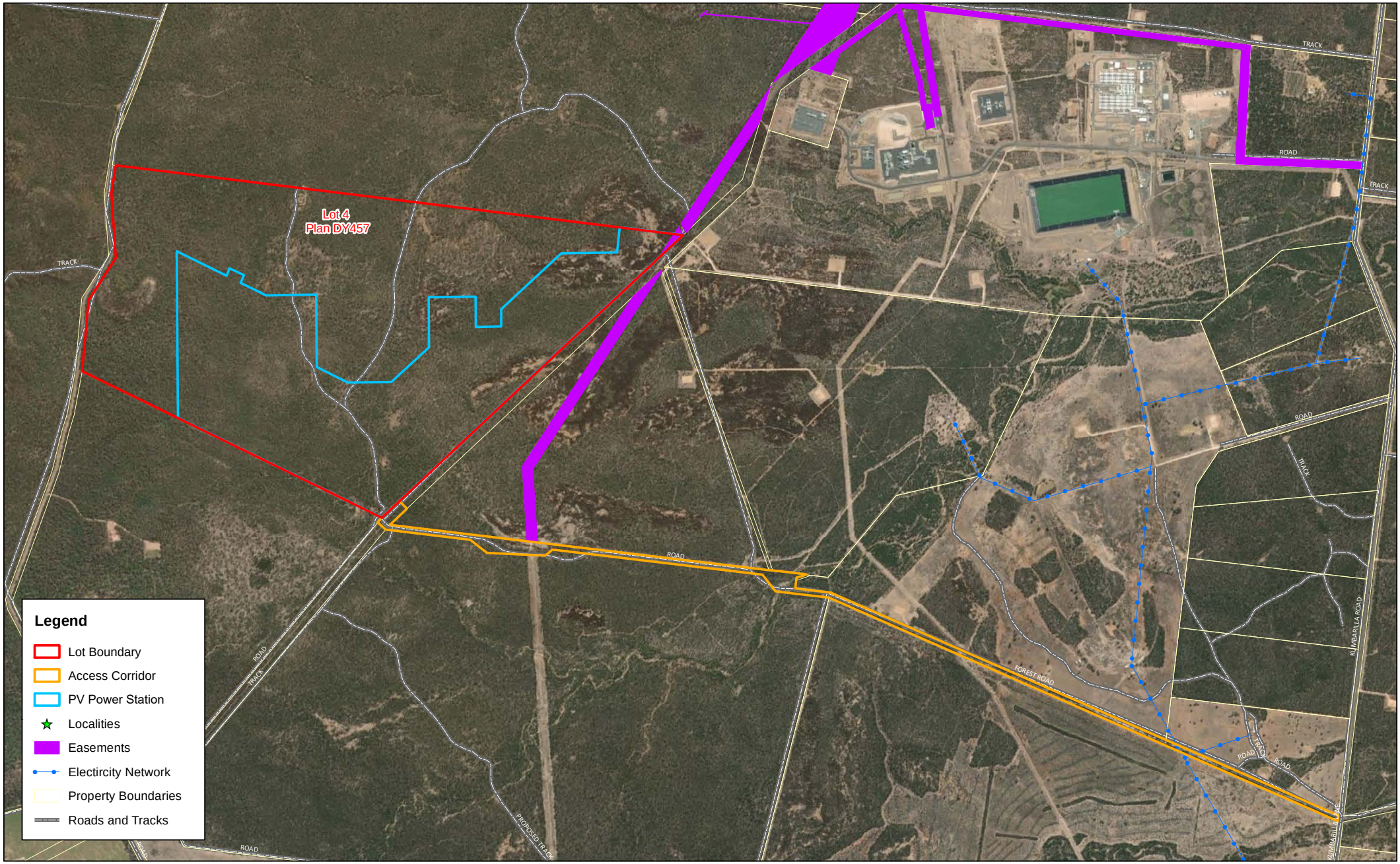
Enquiries:
wildlife@des.qld.gov.au

APPROVED OPERATIONAL DOCUMENTS ATTACHED

Animal Breeding Place Register

https://environment.des.qld.gov.au/licences-permits/plants-animals/documents/fm-wl-register-animal-breeding-place.xlsx

Press for Information Notice - Permit Application



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DESIGNED	SB	CHECKED	SM
DRAWN	SB	CHECKED	SM
APPROVED	SM	DATE	02/08/21

Notes:

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0 220 440 880

Meters

1 cm = 200 meters

GCS GDA 1994 MGA Zone 56

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

DATA SOURCE
QLD Government Open Source Data

DESIGNER
CDM Smith
cdmsmith.com

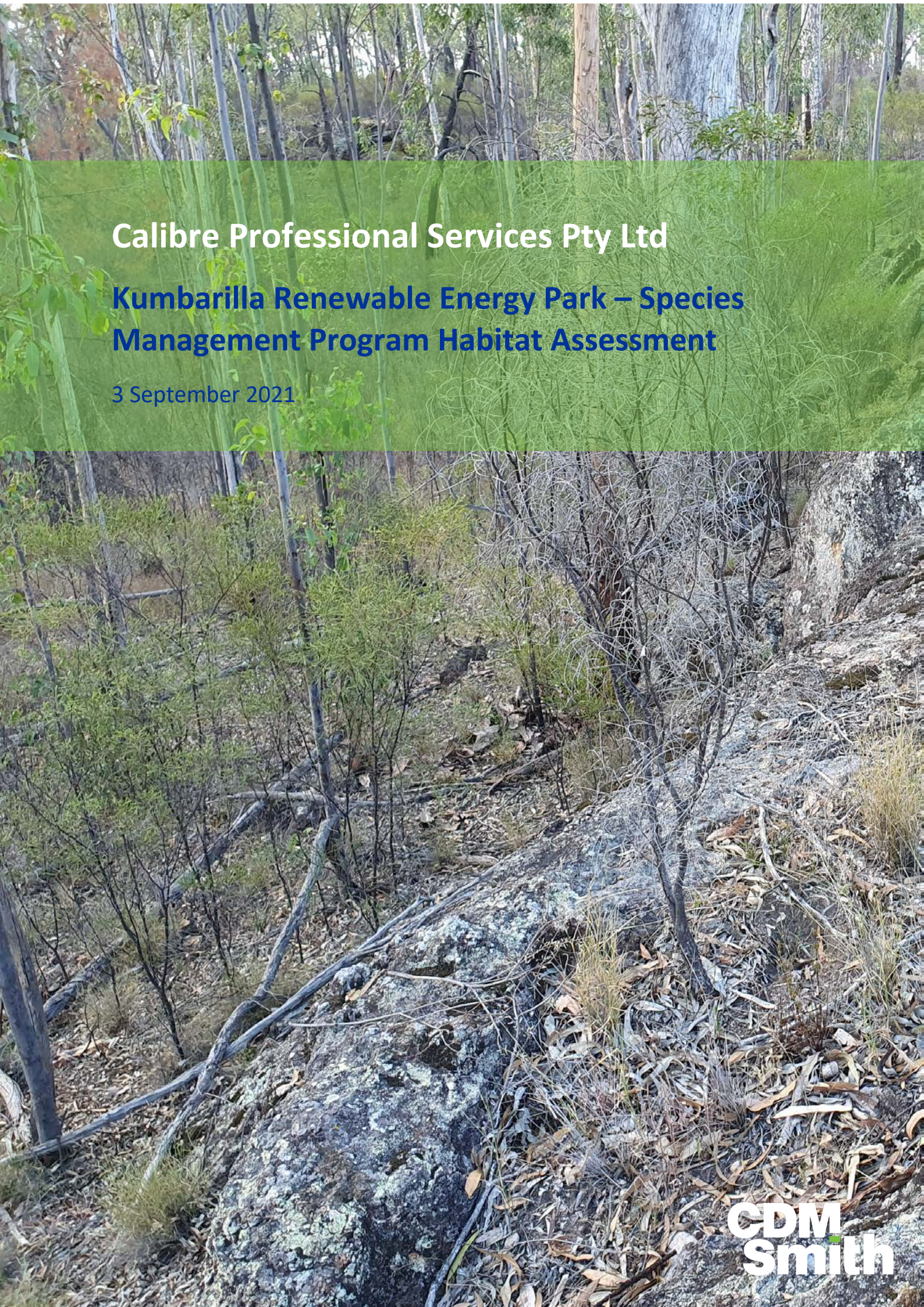
CLIENT
calibre

FIGURE 2

PROJECT AREA

DRG Ref: **Figure 2 Project Area**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 1-2 Project Area.mxd



Calibre Professional Services Pty Ltd

Kumbarilla Renewable Energy Park – Species Management Program Habitat Assessment

3 September 2021

CDM Smith

Table of Contents

Figures

Tables

Appendices

Document history & status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	24/08/2021	J. Herron	S. Mainey	27/08/2021	Draft
0	02/09/2021	S. Mainey	S. Mainey	03/09/2021	Final

Distribution of copies

Version	Date issued	Quantity	Electronic	Issued to
Draft Rev A	27/08/2021	1	PDF and Word	Calibre
Final	03/09/2021	1	PDF	Calibre

Last Saved:	3 September 2021
File Name:	1000525_K-REP_RPT_SMP Habitat Assessment_Rev0_03092021.docx
Author:	Amber Wood
Project Manager:	Scott Mainey
Client:	Calibre Professional Services Pty Ltd
Document Title:	**Kumbarilla Renewable Energy Park – Species Management Program Habitat Assessment**
Document Version:	Rev 0
Project Number:	1000525

Section 1 Introduction

1.1 Project Overview

The Kumbarilla Renewable Energy Park (K-REP) (the Project) is a solar photovoltaic (PV) farm project proposed at Kumbarilla, Queensland. The Project includes two components:

- PV power station – 100-megawatt peak (MWp) (PV) power station wholly located within a 400-hectare (ha) property described as Lot 4 DY457 (Estate in fee Simple/Freehold) including easements over Lot C SP107383 and Lot B SP10738. This component includes the onsite power generation and distribution; and
- Access corridor – The access corridor is located within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457, crossing to the north of Weranga State Forest.

The Project footprint is comprised of 191 ha allocated to the PV power station and the associated 22 ha access road. The Project site is currently vacant and contains mapped remnant and regrowth woody vegetation covering most of the site except for access roads/vehicle tracks and a small, non-referrable dam located to the north-west of the site.

QGC has an existing 132 kilovolt (kV) substation fed by the Powerlink Kumbarilla Park 275/132 kV substation located adjacent the proposed Project. The high voltage transmission line supplies QGC's Gas Compression Facility, at the Ruby site at Kumbarilla Park, west of Dalby. The Powerlink Kumbarilla Park 275/132 kV Substation is the proposed point of connection for the Project.

The proposed system arrangement is to achieve a 100 MWp installation utilising a maximum Ground Cover Ratio (GCR) of 0.5 MW/ha to fit within the physical site constraints and 200 ha negotiated lease arrangement. This shall include all ancillary systems and balance of the plant. Due to the existing topography and undulating nature of the site, horizon shading must be avoided from natural formations as much as reasonably practicable.

Provision has been included for one permanent Project Operations Area. Refer to Appendix A for a detailed layout of the PV power station area. This includes provisions for the following permanent structures:

- Site 33 kV Switch room (2 x 2.2 m container);
- Low voltage, power plant controller and supervisory control and data acquisition control room (6 x 9 m structure);
- Office and control centre (6 x 9 m structure);
- Amenities (6 x 9 m structure);
- Store 1 (6 x 9 m structure);
- Store 2 (6 x 9 m structure);
- Space for 20 car park bays (unsealed); and
- Through road, truck parking bay and turnaround bay.

All structures shall largely be prefabricated off site, delivered and installed on raised structural posts. Surrounding staircases, ramps, pathways, verandas and similar shall be constructed on site to suit the final configuration. The compound shall be fenced and secured with appropriate physical and electronic security measures in place. The compound shall be lightning protected and generally treated as a critical services zone for ongoing operation.

Within the Project Operations Area will be the 33 kV site distribution switch room. This is planned around a prefabricated ABB 'Eco Flex' containerised system including all required self-contained services. A Powerlink compliant 132 kV to 33 kV substation is required to be located on the Project site to provide the PV power stations 33 kV point of connection and coupling. A spatial allowance of 150 m x 100 m has been provisioned for this substation with a 5 m wide perimeter emergency egress and access road.

The Project includes a 5.7 km long access corridor (within a public road reserve known as Forest Road). Forest Road provides the final portion of the approved access road and is a rural access road constructed in a road reserve. Condition 61 of the MCU approval requires the upgrading of Forest Road to provide an all-weather 7 m wide gravel pavement on an 8 m formation. There is no stipulation about upgrading Forest Road in its current formed location or in the dedicated road reserve. An approximate 2.5 km section of the public road reserve for Forest Road occurs adjacent to the Weranga State Forest (Lot 201 on FTY1243). As with many rural roads in Queensland, the actual formed location of the road deviates from the road reserve and enters the State Forest lot at two locations totalling approximately 420 m (Figure 1 and Attachment A). Based on aerial imagery, these deviations are assumed to be associated with on-ground constraints (e.g. drainage lines).

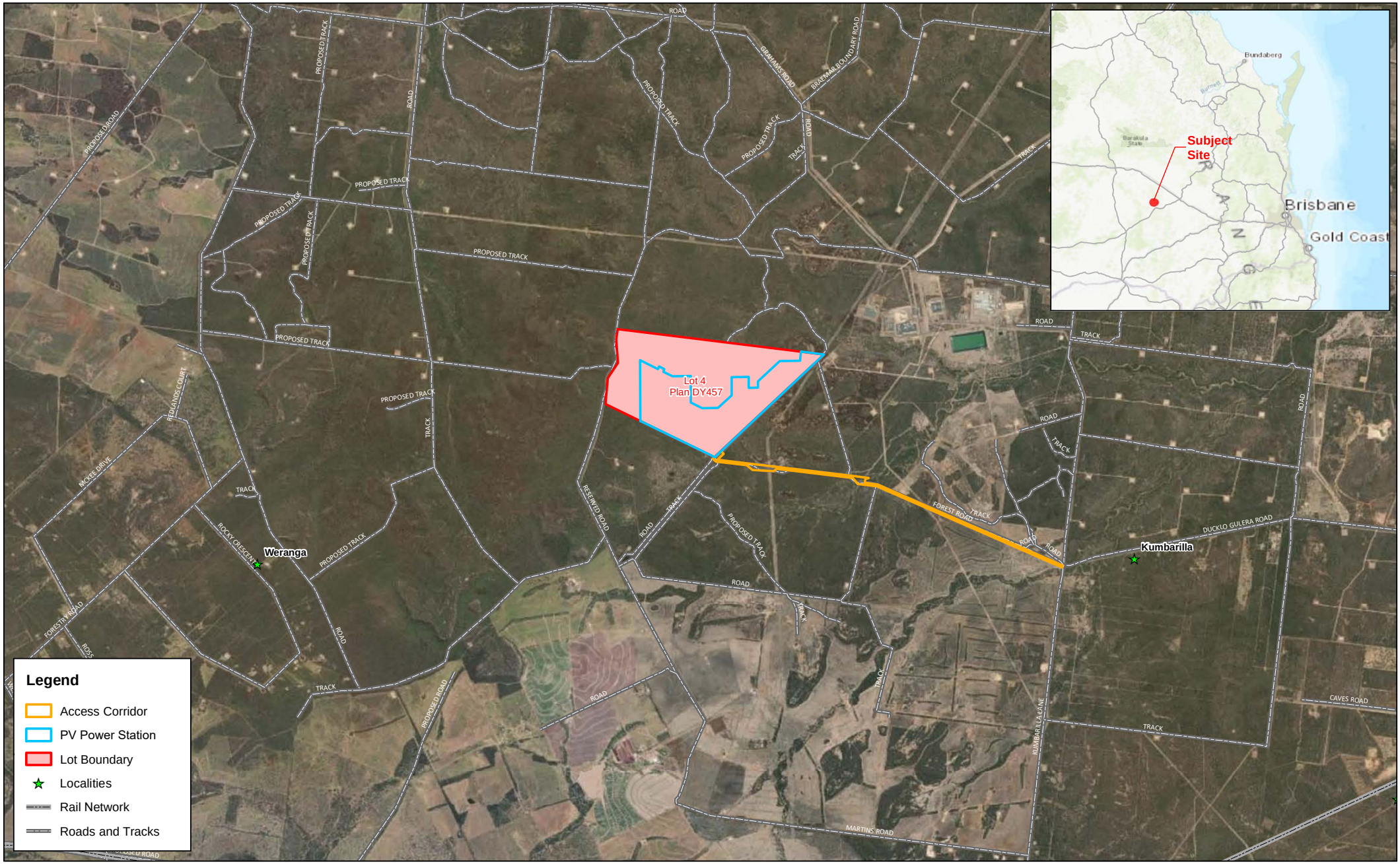
Several studies have been undertaken across the Project area including ecology assessments in 2020 and 2021. These studies found that a number of fauna species listed as Endangered, Vulnerable, Near Threatened (EVNT) , Special Least Concern, Least Concern and Least Concern colonial breeders under the *Nature Conservation Act 1992* (NC Act) have the potential to occur on site. As such, assessment of the likelihood of the presence of potential breeding habitat within the disturbance footprint of the proposed Project, is required to inform the requirement of a Species Management Program.

1.2 Project Location

The Project footprint is comprised of an approximately 191 ha area allocated to the PV power station and the associated 22 ha access corridor approximately 40 km west of Dalby, Queensland and located within the Western Downs Regional Council (WDRC) Local Government Area (LGA). The PV power station is to be wholly located within a 400-ha property described as Lot 4 DY457 (Estate in fee Simple/freehold) including easements over Lot C SP107383 and Lot B SP107382. The access corridor is to be located within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457, crossing to the north of Weranga State Forest (refer to Figure 1 and Figure 2).

1.3 Purpose and Scope

This report was prepared to document the findings of a habitat assessment based on ecological surveys undertaken for the Project, to determine the likelihood of the presence of suitable breeding habitat for any EVNT, Special Least Concern or Least Concern colonial breeders within the disturbance footprint of the Project.



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DESIGNED	SB	CHECKED	SM
DRAWN	SB	CHECKED	SM
APPROVED	SM	DATE	02/08/21

Notes:

N

0 600 1,200 2,400

Meters

1 cm = 550 meters

GCS GDA 1994 MGA Zone 56

DISCLAIMER
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DATA SOURCE
QLD Government Open Source Data

DESIGNER
CDM Smith
cdmsmith.com

CLIENT
calibre

FIGURE 1

REGIONAL AREA

DRG Ref: **Figure 1 Regional Location**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 1-1 Regional Area.mxd

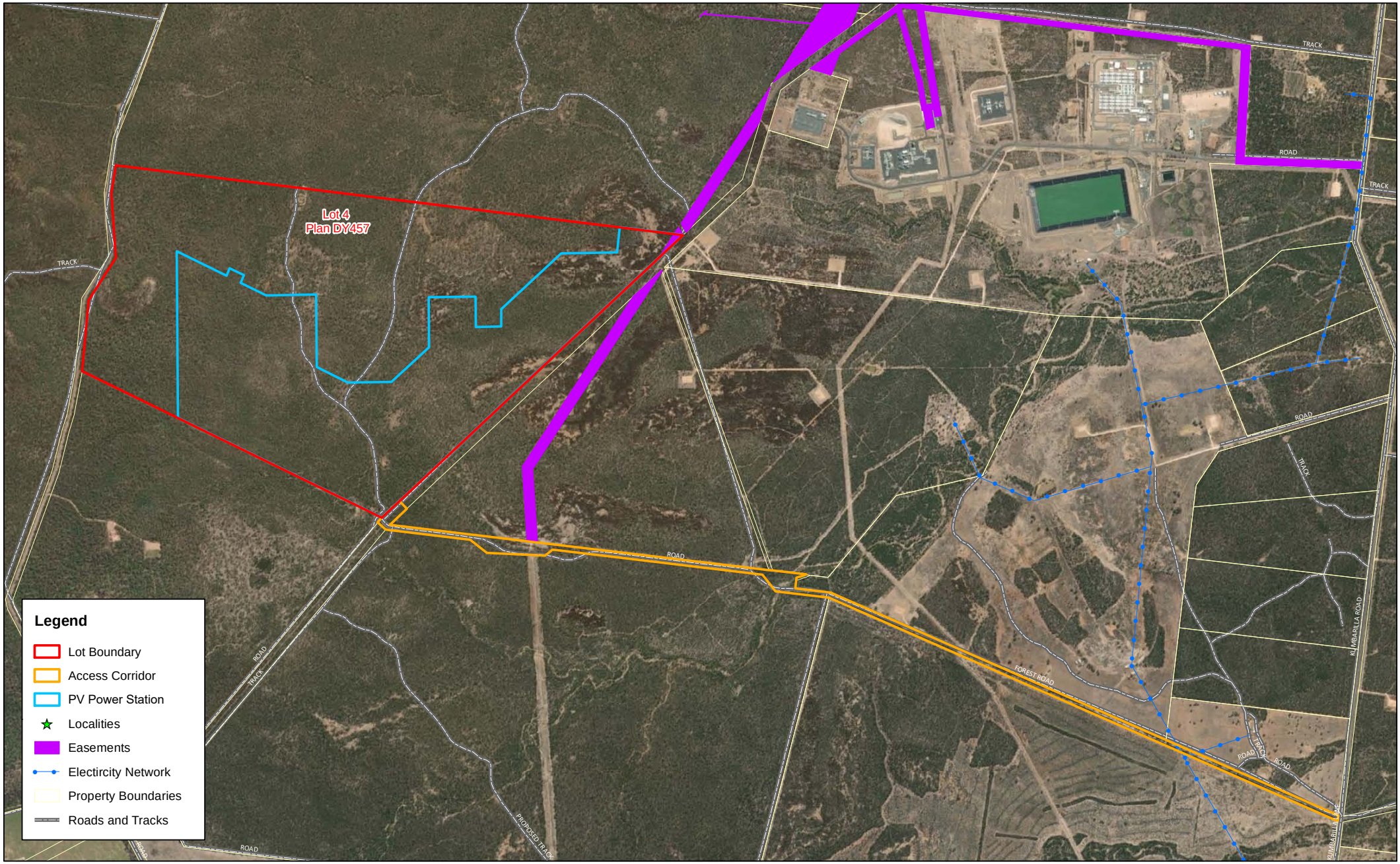

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FIGURE 2

PROJECT AREA

DRG Ref: **Figure 2 Project Area**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 1-2 Project Area.mxd

1.4 Applicant Details

Applicant:	ELECSEED PTY LTD
ABN:	57632472327
Registered Address:	310 Edwards St, Brisbane City, 4000, QLD, Australia
Postal Address:	As above
Person in Charge:	Kyu Hong Lee
Contact Details:	Ph. 0422 297 508 Email. kyuhong.lee@elecseed.io
Approved Agent:	The approved party is the Approved Agent, which is ELECSEED PTY LTD (ELECSEED), and suitably qualified persons engaged or subcontracted by ELECSEED to act on their behalf. Spotter catcher activities will be undertaken by individuals approved under a Department of Environment and Science (DES) Damage Mitigation Permit (DMP), and/or Rehabilitation Permit.
Duration:	15/12/2021 to 15/12/2024

Section 2 Ecological Assessment

The ecological assessment of the Project site included a combination of desktop and field-based assessments:

- A desktop review of relevant Commonwealth, State and local databases, vegetation mapping, published ecological studies and any other relevant literature. The desktop review was used to identify vegetation communities predicted to occur in the Project area, and individual flora and fauna species known, or which have the potential to occur within the Project area;
- Field survey to ground-truth the presence of listed species and/or suitable habitat, and vegetation communities identified during the desktop review;
- Follow-up surveys to identify details of flora and fauna; and
- Review of field vegetation site data and recent aerial imagery to refine existing mapping at the property scale.

2.1 Desktop Assessment

Desktop studies were undertaken prior to field assessments. The desktop review was used to obtain background information relating to the potential presence and distribution of species and ecological communities (including connectivity across the regional landscape), particularly those listed under the *Vegetation Management Act 1999*, *Nature Conservation Act 1992* and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cth). Desktop studies involved database searches and review of:

- Commonwealth EPBC Act Protected Matters Search Tool (PMST) to confirm current legislative status of listed species;
- Currently publicly available Regional Ecosystem (RE) mapping – V12 (Queensland Herbarium 2021);
- DES WildNet (Wildlife Online) database search results;
- Atlas of Living Autralia (ALA) species database; and
- Mapping for the Protected Plants Trigger Survey Map and Matters of State Environmental Significance (MSES).

Database searches were undertaken over a 21 km radius (10 km for the ALA species database) for the Project area. The EPBC Act PMST, whilst based on some species records, primarily relies on modelling of suitable habitats (with mapped boundary constraints accounted for) and is largely a predictive tool with associated caveats.

Wildlife Online database records are based on records of species from a wide variety of observers and although the records are generally accurate in terms of spatial location, not all records have been verified. The ALA records are largely verified and include specimen records from museum collections across Australia.

2.2 Field Surveys and Timing

Various ecological surveys have been completed across the PV power station component of the Project area (and partly outside). The surveys were carried out by Paul Fox (Principal Environmental Scientist – Fox & Co Environmental), Dave Moore (Principal Botanist - Fox & Co Environmental), Bruce McLennan (Principal Ecologist - Arcadian Ecology Pty Ltd) and Ben Nottidge (Principal Ecologist - GreenLeaf Ecology):

- Preliminary Survey - A preliminary ecology survey of the PV power station was undertaken over a 3-day / 2-night period between 6-8 May 2020 (herein referred to as the preliminary survey). This was undertaken to ground-truth desktop information and identify any additional flora and fauna values not identified through the desktop study. Following this preliminary survey, a population of Kogan waxflower (*Philotheca sporadica*), a near threatened (NT) flora species listed under the NC Act and not Listed (delisted recently in December 2020) under the EPBC Act was identified in the south-eastern portion of the site. Refer to additional information below.

The site was fully accessible at the time of the surveys. The ecology survey was conducted over approximately 200 ha. The PV power station was traversed by vehicle and on foot

- Targeted Survey - A subsequent survey was undertaken between 18-22 January 2021 (herein referred to as the targeted survey). This included a targeted protected plant survey, koala (*Phascolarctos cinereus*) habitat survey, quaternary vegetation assessments1 and targeted Corben's long-eared bat (*Nyctophilus corbeni*) surveys.

  Fox & Co Environmental Pty Ltd (Fox & Co) partnered with the specialist Koala Detection Team (KDT) from the University of the Sunshine Coast (USC) to assist with koala surveys for the Project Area. The KDT have provided a stand-alone report outlining the results of the koala field assessment which includes mapping of presence/absence and the survey coverage area (Detection Dogs for Conservation, 2021). Fox & Co have subsequently prepared an assessment of the koala habitat using the Koala Habitat Assessment Tool in accordance with the Matters of National Environmental Significance, Significant Impact Guidelines (1.1), Department of Environment (DoE), 2013 and the EPBC Act Referral Guidelines for the Vulnerable Koala, DoE, 2014 (Department of the Environment, 2013; Department of the Environment, 2014)

  The site was fully accessible at the time of the surveys. The ecology surveys were conducted over approximately 200 ha. The PV power station was traversed by vehicle and on foot.

- BioCondition and Habitat Quality Assessment - A BioCondition survey and habitat quality assessment was undertaken in the PV power station area between 24-27 May 2021 by Bruce McLennan (Principal Ecologist - Arcadian Ecology) (herein referred to as the BioCondition survey). This assessment was to verify RE mapping for the PV power station footprint of the Project area, identify any conservation significant species under the Queensland NC Act and Commonwealth EPBC Act and to identify and conduct BioCondition assessments as prescribed. Ecological values present within the study area were measured through the BioCondition assessment method. The data scores derived provide the baseline for deriving Terrestrial Habitat Quality through the Guide to determining terrestrial habitat quality – Methods for assessing habitat quality under the Queensland Environmental Offsets Policy (DES 2020) as well as forming the basis for any offset calculator scoring of MNES offsets required under the EPBC Act;

- Access Corridor Survey - An additional ecological survey was undertaken between 24-27 May 2021 within the access corridor (herein referred to as the access corridor survey). The survey was conducted by Bruce McLennan (Principal Ecologist - Arcadian Ecology) and Ben Nottidge (Ecologist - Greenleaf Ecology). This was undertaken to ground-truth desktop information and identify any additional flora and fauna values.

  The access corridor (approximately 22 ha) was fully accessible at the time of the surveys and was traversed by vehicle and by foot.

Data was collected using general site notes, photo points with waypoint references. The waypoints correlate to Quaternary Vegetation Assessment, RE assessments, Song Meter™, camera locations and general environmental points. Refer to Figure 3 for quaternary site locations and flora and fauna assessment locations. Survey methods included:

- Quaternary Assessments - Quaternary assessments at sites across the Project area were completed. Vegetation community assessment were undertaken using the quaternary level of assessment as described within the Methodology for survey and mapping of REs and vegetation communities in Queensland (Neldner, et al., 2020);

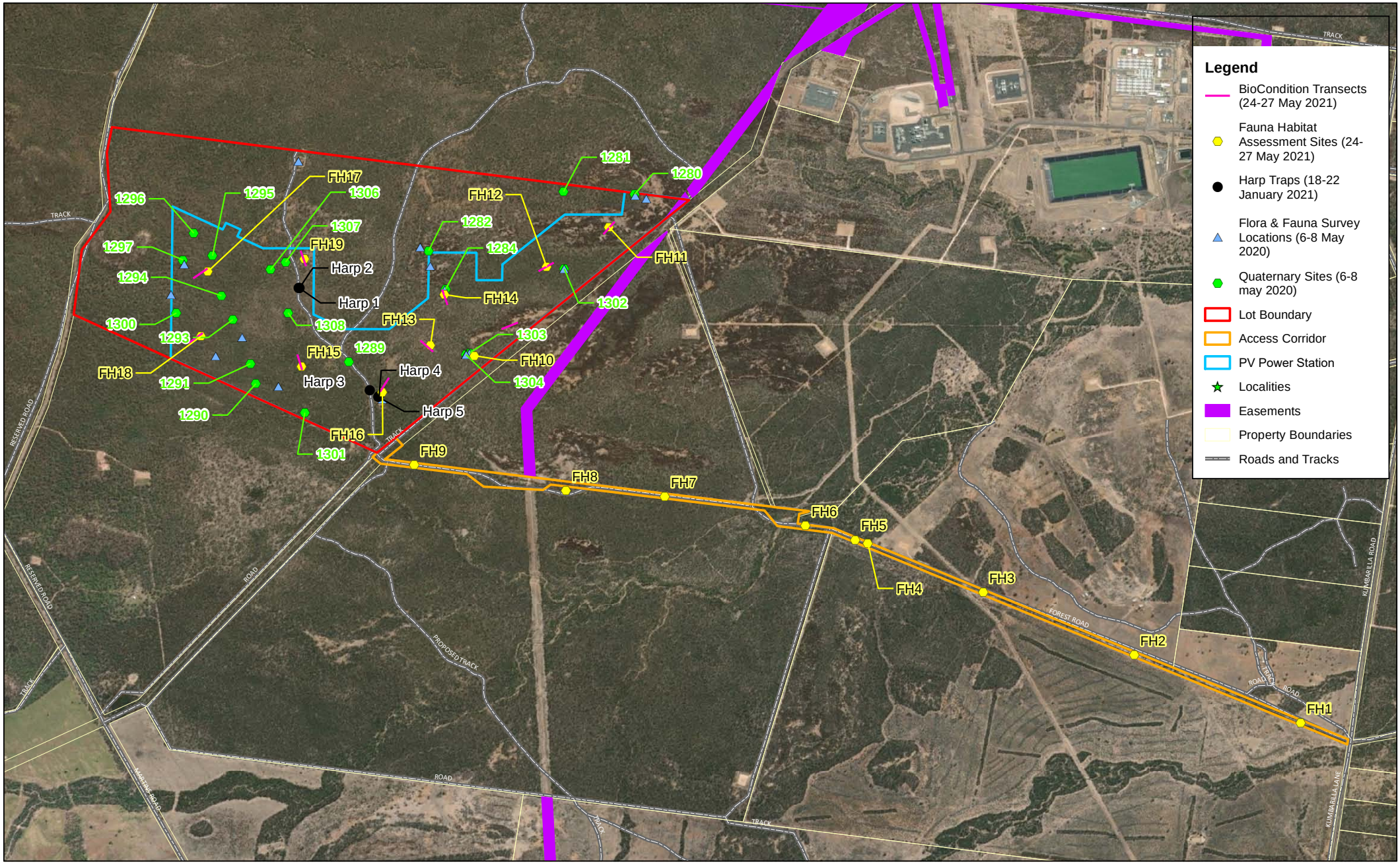
- BioCondition Assessments - Field surveys were undertaken to confirm the identity of REs and correct the mapping, collect BioCondition data and to conduct targeted searches for endangered, vulnerable and near threatened (EVNT) flora species across the proposed impact area. RE boundaries were assessed using the State RE mapping (Version 11, DR 2021), historical imagery from QImagery and the latest available aerial imagery for the area (Queensland Globe 2021) and field assessment results.

  Vegetation communities within 5 assigned assessment units were assessed at a total of 10 sites. A BioCondition and fauna habitat survey was conducted at each site. Further information on method is explained below in the Habitat Quality section.

- Fauna Habitat Assessments - Fauna surveys were undertaken at 12 locations within the PV power station area as part of the BioCondition survey and 9 within the access corridor as part of the access corridor survey. Comprehensive survey sites were 100 m x 50 m. Survey methods were consistent with those recommended in the 'Terrestrial Vertebrate Fauna Survey Guidelines for Queensland' (Eyre et al. 2014).
- Opportunistic Fauna Observations - Opportunistic fauna observations were recorded during all surveys;
- Nocturnal surveys - Completed during the preliminary survey 2 night with 2 people for approximately 12 hrs in total for nocturnal assessment);
- Targeted Species Searches - Targeted searches were undertaken for:
  - Golden-tailed geckos (*Strophurus taenicauda*) and reptiles through nocturnal surveys during the preliminary survey (2 nights/2 people - approximately 12 hrs in total for nocturnal assessments) and turning logs and debris in areas within the mapped Essential Habitat (EH) and outside of these areas.
  - The presence of the NT listed Kogan wax flower which was discovered during the preliminary survey which triggered the targeted survey conducted on 21 February 2021 to assess the extent of the species. The flora surveys were prepared in accordance with the Flora Survey Guidelines – Protected Plants v2.01 (Department of Environment and Science, 2020).;
  - Koala surveys were conducted during the targeted survey with the assistance of Koala detection dogs to find evidence of koala populations within the Project Area;
  - Bat surveys were undertaken over a five-night period during the targeted survey (18-22 January 2021).
  - As part of the access corridor survey, rigorous field searches were undertaken within suitable habitat for evidence of koala, greater glider (*Petauroides volans*), yakka skink (*Egernia rugosa*) and golden-tailed gecko.
- Bird Surveys – Twenty-minute bird census surveys were undertaken over the entire survey period during the preliminary survey including around the onsite water bodies;
- Remote Cameras - three remote cameras were established over a two-night period during the preliminary survey; and
- Song-meters - three song-meters were deployed over a two-night period for microbats during the preliminary survey.

Field assessments were undertaken by suitably qualified and experienced ecological consultants with experience in conducting ecology surveys, habitat assessments and surveys for animal breeding places.

It should be noted that surveys described above were undertaken during different parts of the year and do not necessarily coincide with known breeding seasons for all species. No observed breeding was identified during the surveys, but if the suitable habitat features are present then it was considered likely to be suitable breeding habitat.



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1 cm = 220 meters

GCS GDA 1994 MGA Zone 56

DATA SOURCE
QLD Government Open Source Data

DESIGNER
CDM Smith
cdmsmith.com

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FIGURE 3

FLORA AND FAUNA SURVEY LOCATIONS

DRG Ref: **Figure 3 Flora and Fauna Survey Locations**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 2 Flora and Fauna Survey Locations.mxd

2.3 High Risk of Impacts SMP Species

Desktop and field assessments enabled an evaluation of which EVNT and Special Least Concern species have some potential or are known to occur within the Project area, based on the ground-truthed presence of suitable habitat and historical records in the area. Further consideration as to whether breeding habitat for those species is known or likely to occur within the Project area was given (see Table 2-1). This assessment determined that breeding habitat for the following EVNT and Special Least Concern species is likely or known to occur:

- Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) (Figure **4**);
- Golden-tailed Gecko (*Strophurus taenicauda*) (Figure 5);
- Short Beaked Echidna (*Tachyglossus taenicauda*) (Figure 5); and
- Yakka Skink (*Egernia rugosa*) (Figure 6).

Several Least Concern colonial breeding bat species have been recorded within the Project area for which potential breeding habitat is considered likely to occur (see Table 2-1). These species generally form maternity colonies of varying sizes in tree hollows, man-made cavities such as sheds and barns, and in some cases, caves. Breeding seasons vary between species but generally occur from Spring until Summer. The Project area also has the potential to contain breeding habitat for several colonial breeding bird species. These species may breed in small or large colonies.

Breeding habitat for colonial breeding species has not been mapped within the Project area, however there are a high number of potential hollow-bearing habitat trees present throughout the disturbance footprint. There are no caves on site, however there may be suitable cavities within the rocky outcrops within the Project area.

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Table 2-1 Likelihood of High Risk SMP Species Breeding Habitat on Site

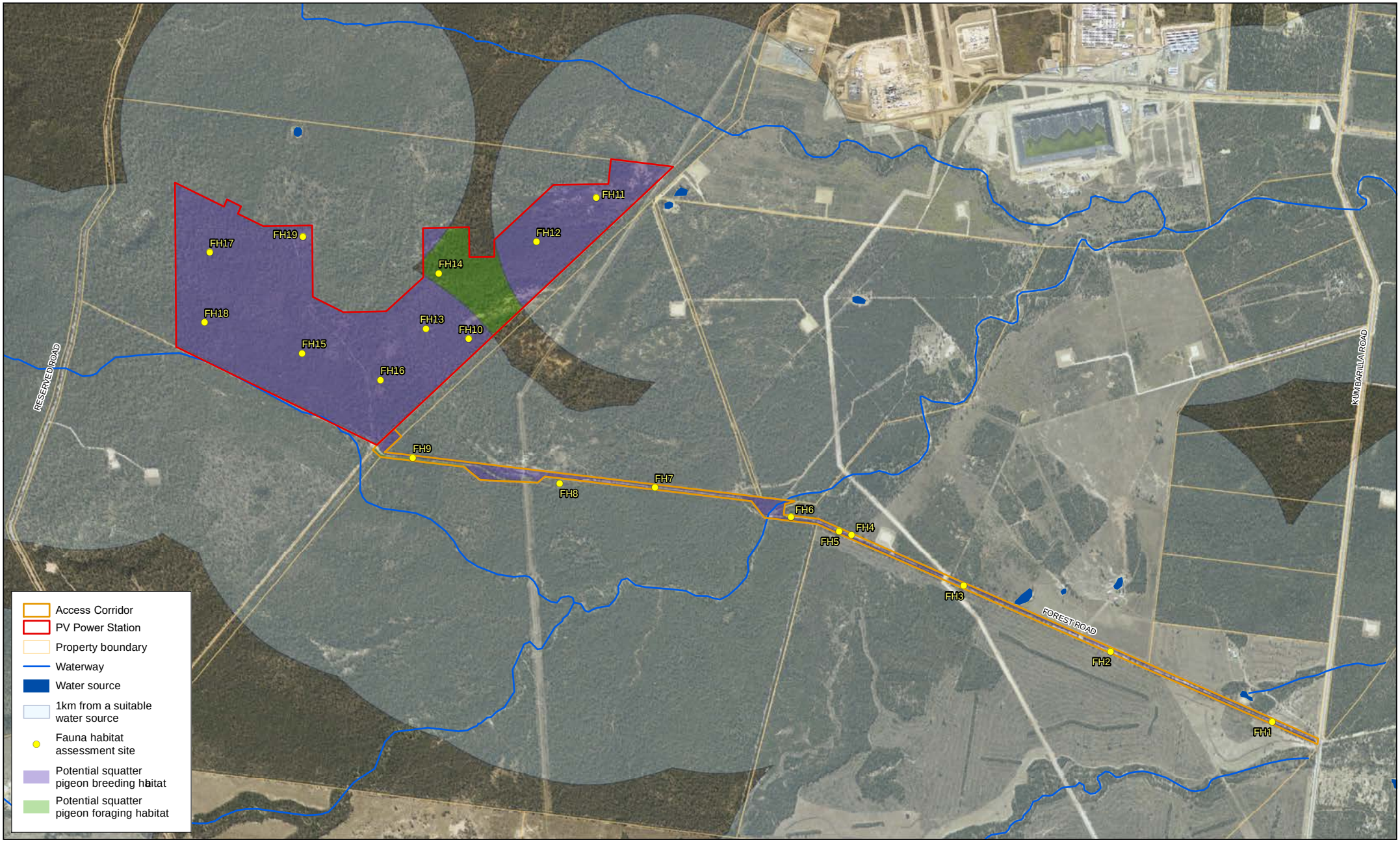
Species	Status (NC Act)	Status (EPBC Act)	Likelihood of Occurrence	Breeding Habitat and Season	Likelihood of Breeding Habitat on Site
EVNT and Special Least Concern					
Glossy Black Cockatoo (eastern) (*Calyptorhynchus lathami lathami*)	Vulnerable	-	Likely. Suitable habitat on site. Not observed during surveys however known to occur in the area.	Habitat - Large old trees (living or dead), usually eucalypts. Hollows usually between 10-20 m above ground, in vertical or near vertical branches, stems and spouts, or in trunk cavities. Same nest used in successive seasons and will often nest near nests of other breeding pairs. Season – March to August.	Possible. Marginal habitat on site. There are some hollow bearing trees scattered throughout the site however due to previous selective logging activity (going back over 100 years) large hollow bearing habitat trees are sparse.
Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*)	Vulnerable	Vulnerable	Possible. No sightings of Squatter Pigeon were made during surveys. Suitable habitat within Project area, although marginal at best.	Habitat - Stony rises occurring on sandy or gravelly soils, within 1 km of a suitable, permanent waterbody. The nest is a simple scrape in the ground lined with dry grass (Frith, 1982; Crome and Shields, 1992) Season – Breeds from March to September in the tropics and from September to November in the southern extent of its range.	**Known.**
Painted Honey-eater (*Grantiella picta*)	Vulnerable	Vulnerable	Possible. Essential habitat mapped however few mistletoes are present, no *Amyema sp.*	Habitat – Most records of breeding come from inland slopes of the Great Dividing Range. Habitats where mistletoe prevalence and parasitism rates are high, particularly of the genus *Amyema*. Season – August to February.	Possible. Strongly associated with *Amyema* mistletoe which is absent from the site.
White Throated Needle-tail (*Hirundapus caudacutus*)	Vulnerable	Vulnerable Migratory	Possible. Aerial. May occur over the Project area in the summer months. The species is known to roost in trees amongst dense foliage in the canopy or in hollows.	Non-breeding in Australia.	No.

Species	Status (NC Act)	Status (EPBC Act)	Likelihood of Occurrence	Breeding Habitat and Season	Likelihood of Breeding Habitat on Site
Golden-tailed Gecko (*Strophurus taenicauda*)	Near Threatened	-	Likely. Suitable habitat is exists within the study area and over 80 records within 20 km of the Project area.	Habitat – Lays eggs in soil cracks and soft soil at the base of large trees. Season – September to February.	**Known**.
Short Beaked Echidna (*Tachyglossus taenicauda*)	Special Least Concern	-	Known - Observed during surveys. Found in forests, woodlands, shrublands and grasslands, rocky outcrops and agricultural lands. Shelters in logs, crevices, burrows and leaf litter.	Habitat – Creates nursery burrows. Season – June to September.	**Known**
Central Greater Glider (*Petauroides armillatus (volans)*)	Vulnerable		Possible – marginal habitat, small number of suitable hollows observed on site. No scat or scratch evidence.	Season – February to May. Habitat - Large hollows in large, older age trees in moister forest types	Possible. There are some hollow bearing trees scattered throughout the site however due to previous selective logging activity (going back over 100 years) large hollow bearing habitat trees are sparse.
Yakka Skink (*Egernia rugos*)	Vulnerable	Vulnerable	Possible – occurs in a variety of dry sclerophyll woodlands largely of the Brigalow Belt.	Season - unknown. Habitat - Live bearing. Live communally in deep burrows under low vegetation, stumps, rocks and logs (e.g. Wilson and Knowles, 1988; Temul, 1996).	**Likely**
Grey Snake (*Hemiaspis dameli*)	Endangered	-	Possible – occurs on floodplains usually with cracking clay soils with deep leaf litter and/or low shrubby vegetation. Frog specialist so tends to occur near watercourse. No ALA records within 10 km	Season – January to March Habitat – Live young, shelter under rocks, logs and other debris, as well as cracks in soil.	Possible. A small patch of marginal habitat located halfway along the access road corridor.
Fork-tailed Swift (*Apus pacificus*)	Special Least Concern	Migratory	Possible - Aerial species. May occur over the Project area in the summer months.	Non-breeding in Australia	No
Satin Flycatcher (*Myiagra cyanoleuca*)	Special Least Concern	Migratory	Possible – Species may occasionally utilise the area during autumn/spring migrations.	Season – October to February. Habitat - Coastal forest, favours wet forest, moist gullies and watercourses in south-eastern Tasmania and Australia.	No

Species	Status (NC Act)	Status (EPBC Act)	Likelihood of Occurrence	Breeding Habitat and Season	Likelihood of Breeding Habitat on Site
Rufous Fantail (*Riphidura rufifrons*)	Special Least Concern	Migratory	Possible - Recorded in dryer sclerophyll and woodlands when on passage.	Season – September to February. Habitat - Rainforest, wet sclerophyll.	No
Least Concern Colonial Breeders					
Bats					
Little Broad-nosed Bat (*Scotorepens greyii*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Roosts in hollows, usually trees but also found inside hollow fence posts and even under metal caps on top of telegraph poles. Roost together in colonies of two to twenty bats (Australian Museum, 2020)	**Known**
Lesser Long-eared Bat (*Nyctophilus geoffroyi*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Form's maternity colonies in Spring. Roosts in dead trees, under tree bark, under rocks, in bird nests and in caves.	**Known**
Gould's Long-eared Bat (*Nyctophilus gouldi*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Maternity colonies are founded in tree hollows, which are more carefully selected than the usual day time roosts (Menkhorst & Knight 2011).	**Known**
Gould's Wattled Bat (*Chalinolobus gouldii*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Tree hollows	**Known**
Little Forest Bat (*Vespadelus vulturnus*)	Least Concern	-	Known – Recorded on site during targeted bat surveys	Tree hollows. Colony sizes range from 1 to 120 (median of 20).	**Known**
Eastern Bent-wing Bat (*Miniopterus arianae oceanensis*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Primarily caves, but also derelict mines, stormwater tunnels and other structures. Breeding colonies can number up to 100.000 individuals	Possible

Species	Status (NC Act)	Status (EPBC Act)	Likelihood of Occurrence	Breeding Habitat and Season	Likelihood of Breeding Habitat on Site
White-striped Free-tailed Bat (*Austronomus australis*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Highly colonial tree-dweller, using large internal hollows.	**Likely**
Northern Free-tailed Bat (*Ozimops lumsdenae*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Roosts in tree hollows and man-made cavities such as sheds and barns.	**Known**
Southern Free-tailed Bat (*Ozimops planiceps*)	Least Concern	-	Known – Recorded on site during targeted bat surveys.	Roosts in tree hollows and man-made cavities such as sheds and barns.	**Known**
Ride's Free-tailed Bat (*Ozimops ridei*)	Least Concern	-	Known – Recorded on site during targeted bat surveys	Roosts in tree hollows and man- made cavities such as sheds and barns.	**Likely**
Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*)	Least Concern	-	Known – Recorded on site during targeted bat surveys	Cavity roosting, generally reliant on old-growth forest hollows. Known to use abandoned animal burrows and human structures.	Possible
Birds					
Variegated Fairy-wren (*Malurus lamberti*)	Least Concern	-	Known – Recorded on site during fauna surveys.	Woodlands, forest and shrub land habitats. Nest is oval shaped dome, constructed of grasses and placed in a low shrub (Birdlife Australia, 2021a).	**Likely**
Varied Sitellas (*Daphoenositta chrysoptera*)	Least Concern	-	Known – Recorded on site during fauna surveys.	The nest is a deep open cup camouflaged to look like the branch it sits in. Breeds cooperatively, with breeding pair having several helpers (Birds in Backyards, 2021).	**Likely**

Species	Status (NC Act)	Status (EPBC Act)	Likelihood of Occurrence	Breeding Habitat and Season	Likelihood of Breeding Habitat on Site
Striated Pardalote (*Pardalotus striatus*)	Least Concern	-	Known – Recorded on site during fauna surveys.	Form pairs or small groups of up to six birds. Nest is constructed close to the ground, usually in a tree hollow or tunnel excavated in an earthen bank (Birds in Backyards, 2021a).	**Likely**
Tree Martin (*Petrochelidon nigricans*)	Least Concern	-	Known – Recorded on site during fauna surveys.	Range of habitats. Nests are either alone or in colonies. Nest is normally a hole in a tree branch, usually horizonal, which is up high. Breeding season is August to January (Birds in Backyards, 2021b).	**Likely**
Eastern Yellow Robin (*Eopsaltria australis*)	Least Concern	-	Known – Recorded on site during fauna surveys.	Breeding takes place in spring and is often communal. Nest is a neat cup made of fine plant material and spider web, usually placed in a fork of a tree (Birdlife Australia 2021b)	**Likely**



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DISCLAIMER
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DATA SOURCE
QLD Government Open Source Data
CDM Smith Modelling Data

DESIGNER
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FIGURE 4

POTENTIAL HABITAT FOR THE SQUATTER PIGEON (*GEOHAPS SCRIPTA SCRIPTA*)

DRG Ref: **FIG 4 Pigeon Habitat**

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FIGURE 5

POTENTIAL HABITAT FOR THE GOLDEN-TAILED GECKO (STROPHURUS TAENICAUDA) and SHORT BEAKED ECHIDNA (TACHYGLOSSUS TAENICAUDA)

DRG Ref: **FIG 5 Gecko and Echidna Habitat**

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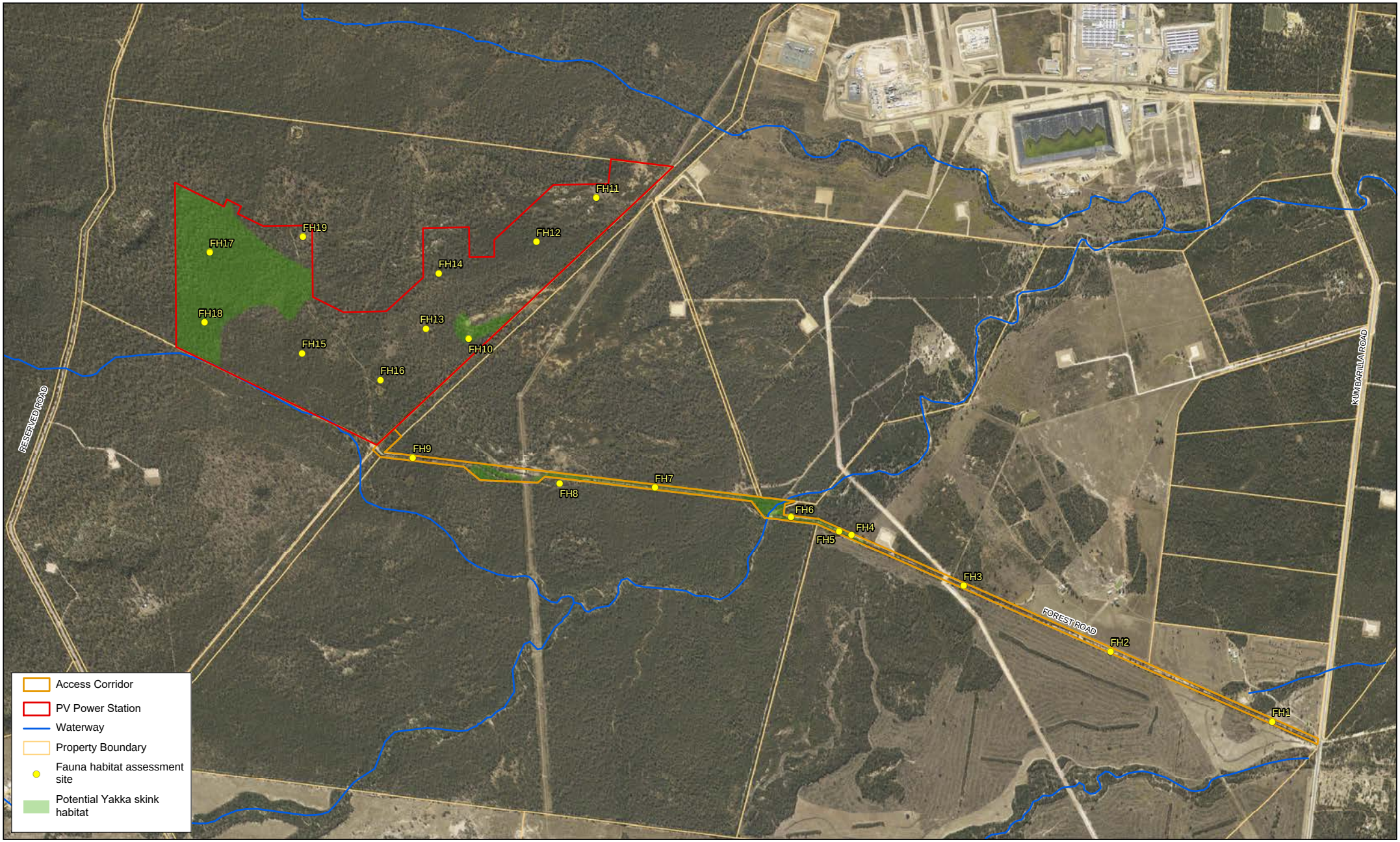

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DISCLAIMER
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DATA SOURCE
QLD Government Open Source Data
CDM Smith Modelling Data

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FIGURE 6

POTENTIAL HABITAT FOR THE YAKKA SKINK (*EGERNIA RUGOSA*)

DRG Ref: **FIG 6 YSkink Habitat**

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2.4 Low Risk of Impact SMP Species

The Project has the potential to impact breeding places for Least Concern fauna and therefore a SMP for tampering with animal breeding places (Low risk of impacts) is also required. The proposed impact area to be covered by the Low Risk SMP is the Project area shown in Figure 2.

Section 3 Conclusion

CDM Smith has approached the predicted occurrence of breeding habitat for species listed as EVNT, Special Least Concern and Least Concern colonial breeders using a conservative approach. Based on presence of suitable habitat and previous sighting records near the Project area, and where suitable habitat within the site does possess the attributes which constitute potential breeding habitat, it is considered present. It should be noted that all mapped breeding habitat is potential habitat, and has not been confirmed as breeding habitat.

It is considered that as the Project has the potential to impact the potential breeding habitat of four fauna species listed under the NC Act as EVNT, one Special Least Concern and several Least Concern colonial breeders, a High Risk SMP is required. The Project also has the potential to impact Least Concern fauna species. In accordance with the NC Act and Section 335 of the Nature Conservation (Animals) Regulation 2020, a Low Risk of Impact SMP is therefore also required.

3.1 Statement of Qualification to Undertake Habitat Assessment and Reporting

The ecological surveys which form the basis of this habitat assessment, were carried out by:

- Paul Fox (Principal Environmental Scientist – Fox & Co Environmental;
  - Bachelor of Applied Science (Ecology) (Honours)
  - Over 18 years of experience working in professional environmental consulting undertaking environmental and ecological assessments.
- Dave Moore (Principal Botanist – Fox & Co Environmental;
  - Bachelor of Applied Science (Ecology & Environmental Science).
  - Dave has over 14 years of experience in ecology, environmental impact assessment and management.
- Bruce McLennan (Principal Ecologist - Arcadian Ecology Pty Ltd);
  - Bachelor of Business (Rural Management)
  - Master of Sustainability Science.
  - Bruce has over 13 years of experience in ecology, environmental impact assessment, environmental offsets and project management.
- Ben Nottidge (Principal Ecologist - GreenLeaf Ecology)
  - Bachelor of Applied Science, Animal Studies (Hon 1).
  - Over 15 years research and field survey experience.

Reporting was undertaken by:

- Amber Wood (Senior Environmental Scientist – CDM Smith).
  - Bachelor of Applied Science (Marine Science and Management).
  - Amber is an Environmental Scientist with over seven years' of profession experience in consulting. Amber has experience with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* referral, assessment and approvals process, Queensland *Environmental Protection Act 1994* environmental impact statement approvals process, coordination of marine ecological studies for coastal developments, desktop reviews on marine and terrestrial ecosystems and undertaking ecological surveys. Amber has experience in field sampling in both aquatic and terrestrial environments, for both flora and fauna and has a good understanding of coastal and terrestrial ecology in addition to her marine focus.

- During her four year's working with CDM Smith, Amber has undertaken a range of ecology based projects including work for Brisbane City Council, Australia Pacific LNG, Aurizon, Central Coal and the Department of State Development. Prior to joining CDM Smith, Amber was a restoration ecologist for Ecosure in Brisbane, and prior to that works as an Environmental Scientist for Landserv in Melbourne.

Technical review was undertaken by:

- John Herron (Principal Environmental Scientist – CDM Smith):
  - Bachelor of Applied Science (Biology).
  - John has long-standing experience in ecological assessments across a variety of infrastructure projects located in areas of high ecological sensitivity. This experience has been acquired through working on some of the most challenging, culturally and environmentally sensitive projects in Australia. John has previously undertaken ecological surveys for Australia Pacific LNG, Energex, Queensland Rail, Brisbane City Council, Inland Rail, Department of Transport and Main Roads and the Australian Defence Force. In 2012, John was approved by the Commonwealth Department of Environment as a suitably qualified person to undertake terrestrial and aquatic flora and fauna surveys and undertake reporting and development of management plans for the purposes of addressing survey and impact assessments under the EPBC Act.

Section 4 References

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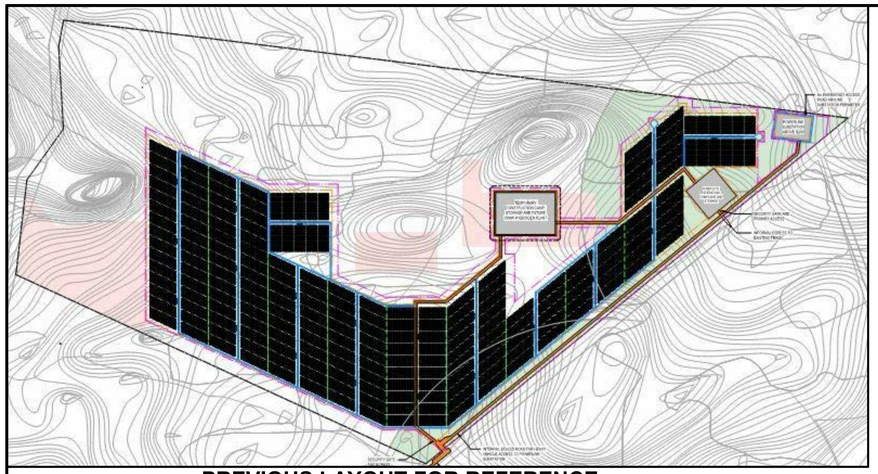
Appendix A Project Area and Layout



PREVIOUS LAYOUT FOR REFERENCE

SCALE: NTS

DRAINAGE BASIN

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CONSTRUCTION LAYDOWN AREA

K-REP SUBSTATION ABOVE Q200

K-REP SITE OPERATION COMPOUND AND STORAGE

CLEARANCE

CLEARANCE

5m EMERGENCY ACCESS ROAD AROUND SUBSTATION PERIMETER

CLEARANCE FOR POWERLINK LANDING BEAM AND GROUND WORKS

SECURITY GATE AND PRIMARY ACCESS

INFORMAL EGRESS TO EXISTING TRACK

INTERNAL SEALED ROAD FOR HEAVY VEHICLE ACCESS TO SUBSTATION

SECURITY GATE AND EGRESS

EXTERNAL PUBLIC ROAD CONSTRUCTION FROM RESERVE ROAD FOR POWERLINK AND CONSTRUCTION HEAVY VEHICLE ACCESS

SHADING KEY

- PV EXCLUSION ZONE DUE TO HORIZON SHADING
- MSES ESSENTIAL HABITAT ZONE FOR INVESTIGATION

ROADWAY KEY

- MAJOR ROAD - SEALED
- MINOR ROAD - UNSEALED
- INFORMAL ROAD - NATURAL LANDSCAPE

ELEMENTS KEY

- FENCE/SECURITY LINE EXTENT
- LAND CLEARING EXTENT
- INDICATIVE LOCATION OF DRAINAGE BASIN (REFER DRAINAGE REPORT FOR LOCATION AND VOLUME)

N

REVISION	DATE	ISSUE DETAILS	DESIGN	DRAWN	CHECK
A	26.08.19	CONCEPT LAYOUT	JW	JC	
B	10.10.19	FS SUBMISSION	JW	JC	
C	01.07.20	MODIFIED TO CONSOLIDATE INTERNAL AREAS	JW	JW	
D	03.07.20	MODIFIED FOR DRAINAGE	JW	JW	

STATUS

INFORMATION ONLY

NOT FOR CONSTRUCTION

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SCALE: 1:5000

CLIENT

KOMIPO KOREA MIDLAND POWER CO.,LTD.

elecsee

PROJECT

KUMBARILLA RENEWABLE ENERGY PARK (K-REP)

KUMBARILLA, QLD 4405

DRAWING TITLE

SITE LAYOUT - GENERAL

PROJECT No.	DRAWING No.	REVISION
19-000691	BR-E5251	D

A1

Appendix B Disclaimer and Limitations

Disclaimer and Limitations

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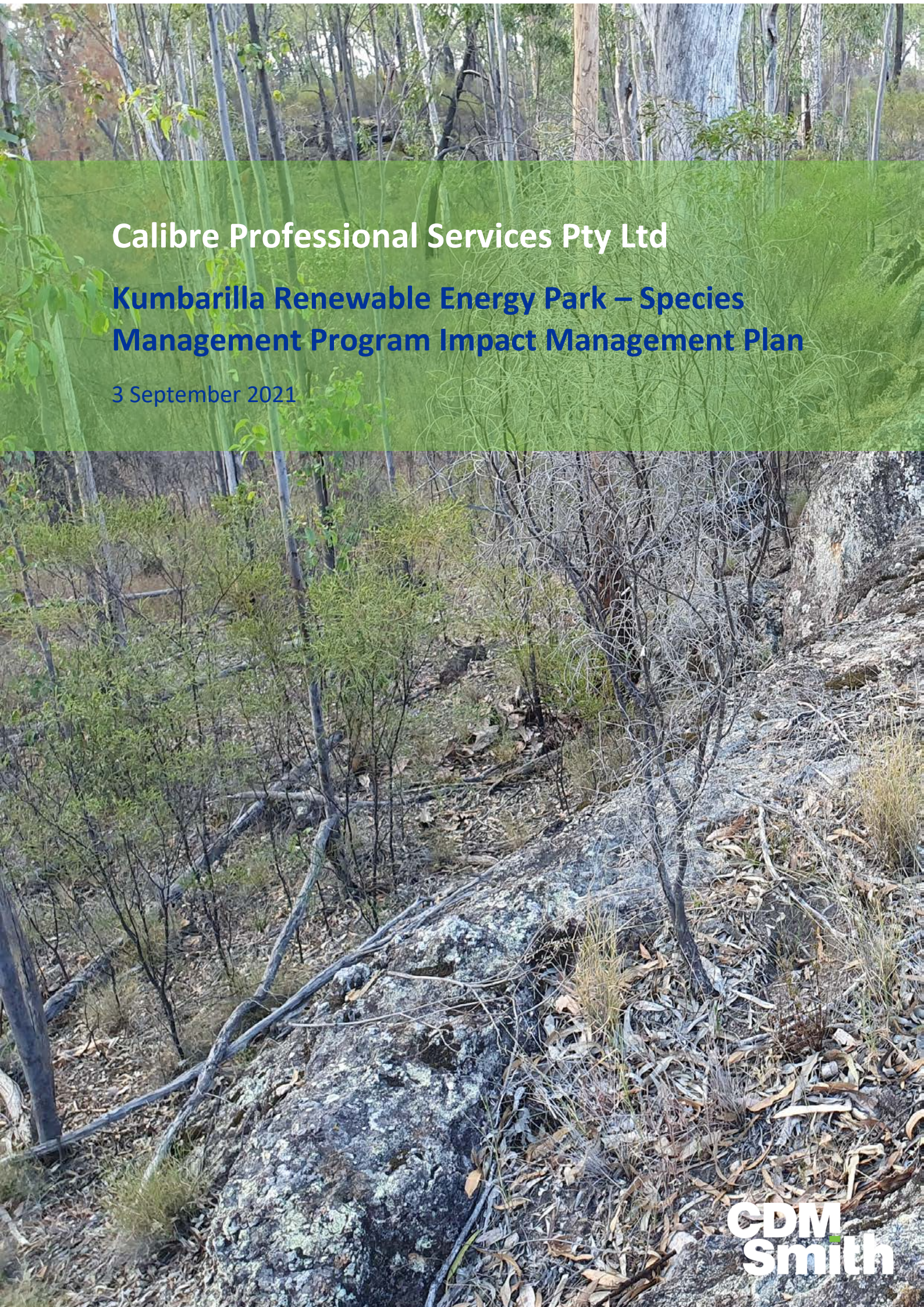

Calibre Professional Services Pty Ltd

Kumbarilla Renewable Energy Park – Species Management Program Impact Management Plan

3 September 2021

CDM Smith

Table of Contents

Figures

Tables

Appendices

Document history & status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	24/08/2021	J. Herron	S. Mainey	27/08/2021	Draft
0	02/09/2021	S. Mainey	S. Mainey	03/09/2021	Final

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Draft Rev A	27/08/2021	1	PDF and Word	Calibre
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Last Saved:	3 September 2021
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Author:	Amber Wood
Project Manager:	Scott Mainey
Client:	Calibre Professional Services Pty Ltd
Document Title:	**Kumbarilla Renewable Energy Park – Species Management Program Impact Management Plan**
Document Version:	Rev 0
Project Number:	1000525

Section 1 Introduction

1.1 Project Overview

The Kumbarilla Renewable Energy Park (K-REP) (the Project) is a solar photovoltaic (PV) farm project proposed at Kumbarilla, Queensland. The Project includes two components:

- PV power station – 100-megawatt peak (MWp) (PV) power station wholly located within a 400-hectare (ha) property described as Lot 4 DY457 (Estate in fee Simple/Freehold) including easements over Lot C SP107383 and Lot B SP10738. This component includes the onsite power generation and distribution; and
- Access corridor – The access corridor is located within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457, crossing to the north of Weranga State Forest.

The Project footprint is comprised of 191 ha allocated to the PV power station and the associated 22 ha access road. The Project site is currently vacant and contains mapped remnant and regrowth woody vegetation covering most of the site except for access roads/vehicle tracks and a small, non-referrable dam located to the north-west of the site.

QGC has an existing 132 kilovolt (kV) substation fed by the Powerlink Kumbarilla Park 275/132 kV substation located adjacent the proposed Project. The high voltage transmission line supplies QGC's Gas Compression Facility, at the Ruby site at Kumbarilla Park, west of Dalby. The Powerlink Kumbarilla Park 275/132 kV Substation is the proposed point of connection for the Project.

The proposed system arrangement is to achieve a 100 MWp installation utilising a maximum Ground Cover Ratio (GCR) of 0.5 MW/ha to fit within the physical site constraints and 200 ha negotiated lease arrangement. This shall include all ancillary systems and balance of the plant. Due to the existing topography and undulating nature of the site, horizon shading must be avoided from natural formations as much as reasonably practicable.

Provision has been included for one permanent Project Operations Area. Refer to Appendix A for a detailed layout of the PV power station area. This includes provisions for the following permanent structures:

- Site 33 kV Switch room (2 x 2.2 m container);
- Low voltage, power plant controller and supervisory control and data acquisition control room (6 x 9 m structure);
- Office and control centre (6 x 9 m structure);
- Amenities (6 x 9 m structure);
- Store 1 (6 x 9 m structure);
- Store 2 (6 x 9 m structure);
- Space for 20 car park bays (unsealed); and
- Through road, truck parking bay and turnaround bay.

All structures shall largely be prefabricated off site, delivered and installed on raised structural posts. Surrounding staircases, ramps, pathways, verandas and similar shall be constructed on site to suit the final configuration. The compound shall be fenced and secured with appropriate physical and electronic security measures in place. The compound shall be lightning protected and generally treated as a critical services zone for ongoing operation.

Within the Project Operations Area will be the 33 kV site distribution switch room. This is planned around a prefabricated ABB 'Eco Flex' containerised system including all required self-contained services. A Powerlink compliant 132 kV to 33 kV substation is required to be located on the Project site to provide the PV power stations 33 kV point of connection and coupling. A spatial allowance of 150 m x 100 m has been provisioned for this substation with a 5 m wide perimeter emergency egress and access road.

The Project includes a 5.7 km long access corridor (within a public road reserve known as Forest Road). Forest Road provides the final portion of the approved access road and is a rural access road constructed in a road reserve. Condition 61 of the MCU approval requires the upgrading of Forest Road to provide an all-weather 7 m wide gravel pavement on an 8 m formation. There is no stipulation about upgrading Forest Road in its current formed location or in the dedicated road reserve. An approximate 2.5 km section of the public road reserve for Forest Road occurs adjacent to the Weranga State Forest (Lot 201 on FTY1243). As with many rural roads in Queensland, the actual formed location of the road deviates from the road reserve and enters the State Forest lot at two locations totalling approximately 420 m (Figure 1 and Attachment A). Based on aerial imagery, these deviations are assumed to be associated with on-ground constraints (e.g. drainage lines).

Several studies have been undertaken across the Project area including ecology assessments in 2020 and 2021. These studies found that the Project has the potential to impact the potential breeding habitat for four species listed as Endangered, Vulnerable, Near Threatened (EVNT) or Special Least Concern under the *Nature Conservation Act 1992* (NC Act), and several colonial breeding species. In accordance with the NC Act and Section 335 of the Nature Conservation (Animals) Regulation 2020, a High-Risk Species Management Program (SMP) is required.

1.2 Project Location

The Project footprint is comprised of an approximately 191 ha area allocated to the PV power station and the associated 22 ha access corridor approximately 40 km west of Dalby, Queensland and located within the Western Downs Regional Council (WDRC) Local Government Area (LGA). The PV power station is to be wholly located within a 400-ha property described as Lot 4 DY457 (Estate in fee Simple/freehold) including easements over Lot C SP107383 and Lot B SP107382. The access corridor is to be located within a gazetted corridor (crown land) that is the named road, Forest Road, and an unnamed track leading to Lot 4 DY457, crossing to the north of Weranga State Forest (refer to Figure 1 and Figure 2).

1.3 Objectives

The objective of the Impact Management Plan (IMP) is to establish appropriate management strategies and controls to reduce the risk of potential impacts to the identified EVNT, Special Least Concern and colonial breeding species and associated breeding habitat in support of a High Risk SMP.

1.4 Scope

This IMP provides a complete management framework for the proposed works, which includes:

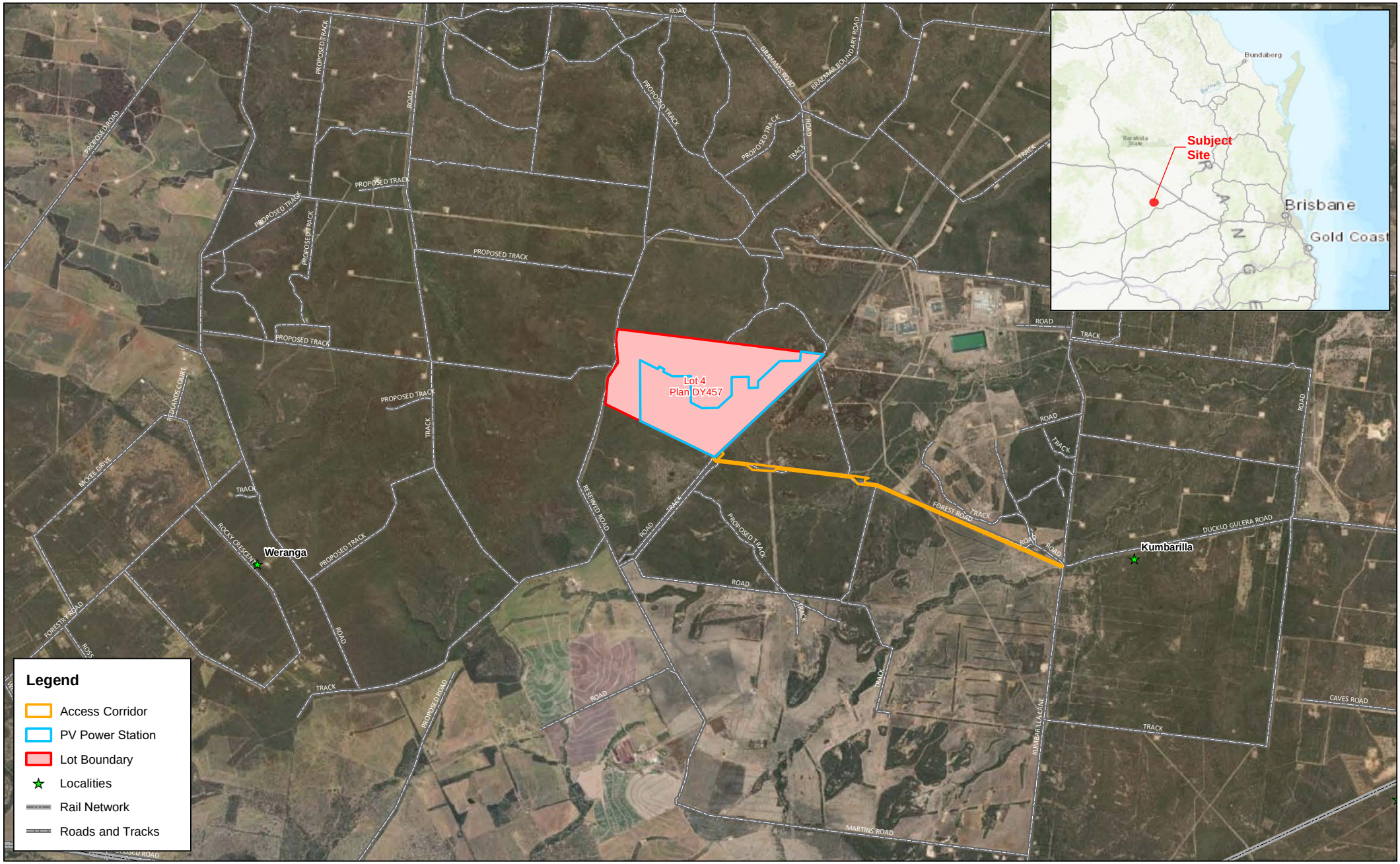
- A description of the activities and footprint associated with the proposed works;
- Identification of key stressors and potential impacts;
- Development of management measures to protect High Risk of Impacts SMP species and associated breeding habitat;
- Identification of roles and responsibilities; and
- Identification of monitoring, auditing, and reporting procedures.

1.5 Applicable Species

Species applicable to this SMP are included in Table 1-1 below. These are discussed further in subsequent sections of this report.

Table 1-1 Species Applicable to the SMP

Species	*Nature Conservation Act 1992* Status
Endangered, Vulnerable, Near Threatened Species	
Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*)	Vulnerable
Golden-tailed Gecko (*Strophurus taenicauda*)	Near Threatened
Short Beaked Echidna (*Tachyglossus taenicauda*)	Special Least Concern
Yakka Skink (*Egernia rugos)*	Vulnerable
Colonial Breeders	
Little Broad-nosed Bat (*Scotorepens greyii*)	Least Concern
Lesser Long-eared Bat (*Nyctophilus geoffroyi*)	Least Concern
Gould's Long-eared Bat (*Nyctophilus gouldi*)	Least Concern
Gould's Wattled Bat (*Chalinolobus gouldii*)	Least Concern
Little Forest Bat (*Vespadelus vulturnus*)	Least Concern
Eastern Bent-wing Bat (*Miniopterus arianae oceanensis*)	Least Concern
White-striped Free-tailed Bat (*Austronomus australis*)	Least Concern
Northern Free-tailed Bat (*Ozimops lumsdenae*)	Least Concern
Southern Free-tailed Bat (*Ozimops planiceps*)	Least Concern
Ride's Free-tailed Bat (*Ozimops ridei*)	Least Concern
Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*)	Least Concern
Variegated Fairy-wren (*Malurus lamberti*)	Least Concern
Varied Sitellas (*Daphoenositta chrysoptera*)	Least Concern
Striated Pardalote (*Pardalotus striatus*)	Least Concern
Tree Martin (*Petrochelidon nigricans*)	Least Concern
Eastern Yellow Robin (*Eopsaltria australis*)	Least Concern



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Meters

1 cm = 550 meters

GCS GDA 1994 MGA Zone 56

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FIGURE 1

REGIONAL AREA

DRG Ref: **Figure 1 Regional Location**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 1-1 Regional Area.mxd

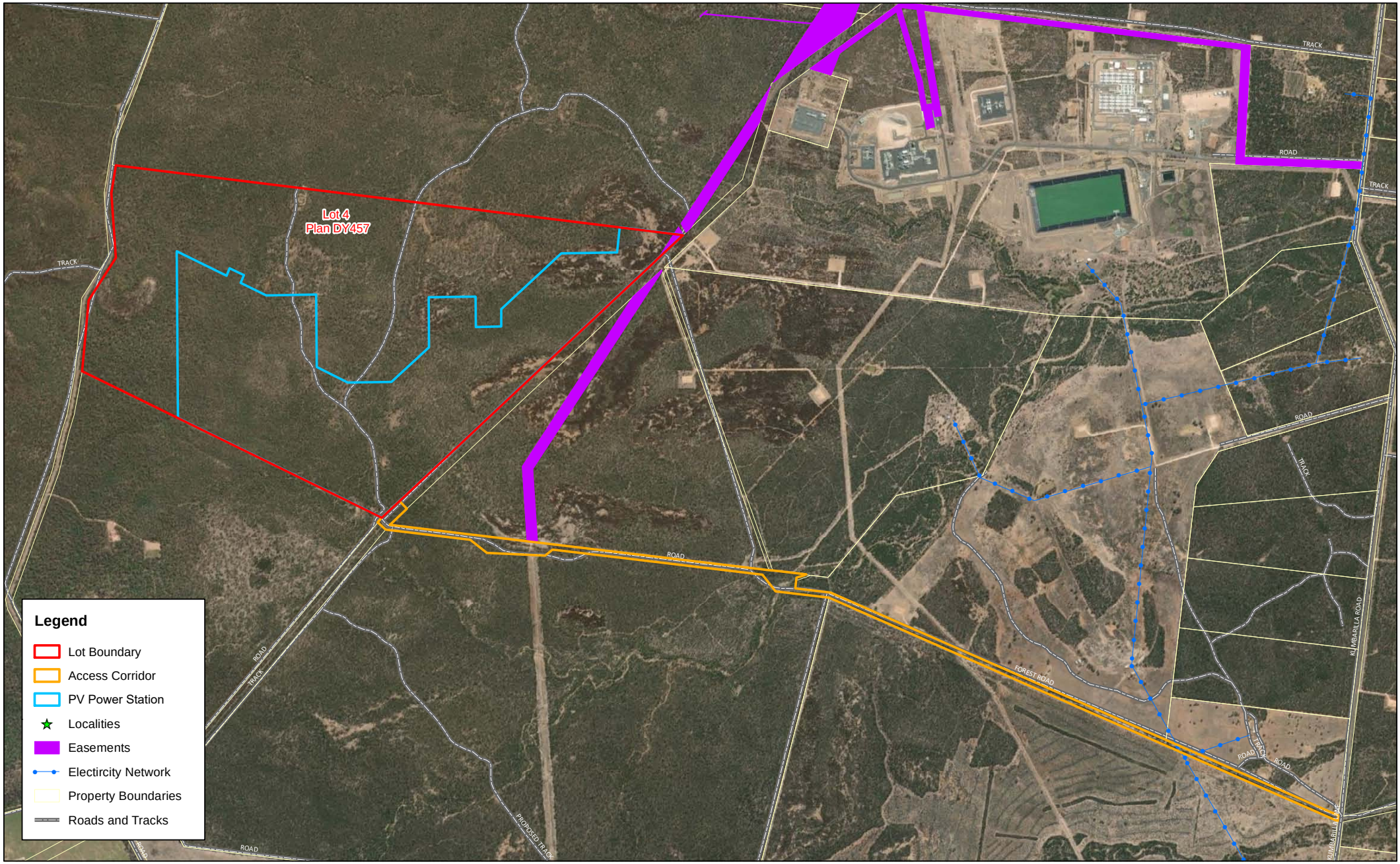

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FIGURE 2

PROJECT AREA

DRG Ref: **Figure 2 Project Area**

P:\Project\1000525 - Dalby Solar Farm\02 MXD\July 2021\Figure 1-2 Project Area.mxd

Section 2 High Risk of Impacts SMP Species

Desktop and field assessments enabled an evaluation of which EVNT and Special Least Concern species have some potential or are known to occur within the Project area, based on the ground-truthed presence of suitable habitat and historical records in the area. Further consideration as to whether breeding habitat for those species is known or likely to occur within the Project area was given. This assessment determined that potential breeding habitat for the following EVNT and Special Least Concern species is likely or known to occur:

- Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*);
- Golden-tailed Gecko (*Strophurus taenicauda*);
- Short Beaked Echidna (*Tachyglossus taenicauda*); and
- Yakka Skink (*Egernia rugosa*).

The breeding habitat for several colonial breeding species which have been recorded on site, is also considered likely to occur within the Project area. These species consist of cave and/or tree dwelling bats and some bird species. These species are discussed in Section 2.5.

2.1 Squatter Pigeon

The squatter pigeon (southern) occurs on the inland slopes of the Great Dividing Range (TSSC 2015). It has a large distribution extending from the Burdekin-Lyn divide in Central Queensland, west to Charleville and Longreach, east to the coastline between Proserpine and Port Curtis and south to several scattered sites throughout south-eastern Queensland and New South Wales. The total population size of the Squatter Pigeon (southern) was estimated at 40,000 breeding birds in 2000.

A ground dwelling bird, the squatter pigeon occurs in grassy woodlands and is known to prefer sandy soils in areas close to water but can also occur in cleared areas, sometimes found on tracks and roadsides (Higgins & Davies, 1996; Garnett & Crowley 2000, Morecombe, 2000). The species nests on the ground, usually laying two eggs among or under vegetation. Known to occur in the wider region, suitable habitat is present (broken down in to foraging and breeding habitat), although marginal at best. No sightings of Squatter Pigeon were made during field surveys. A maximum area of 188.7 ha of breeding habitat occurs in the Project area (Figure **3**).

According to the Conservation Advice (TSSC, 2015) current threats include:

- Vegetation clearing and fragmentation;
- Overgrazing of habitat by livestock and feral herbivores;
- Introduction of weeds;
- Inappropriate fire regimes;
- Thickening of understorey vegetation;
- Predation by feral cats and foxes;
- Trampling of nests by livestock; and
- Illegal shooting.

2.2 Short-beaked Echidna

Echidnas are found throughout Australia. Five subspecies of short-beaked echidna are found in different regions of Australia. *Tachyglossus aculeatus aculeatus* occurs throughout most of Queensland, New South Wales, South Australia and Victoria. The species inhabit a wide range of terrestrial habitats wherever there are enough ants or termites. No population estimates exist for the echidna (WPSoQ, 2019) however the overall population trend is considered stable (Alpin *et al.* 2016).

Short-beaked echidnas are solitary except in breeding season, when they form a train, males following a female in a single file, nose to tail. A single egg is deposited in the female's pouch where it is incubated for around 10 days. The puggle is carried in the pouch for around 55 days or until spines start to develop. The female then leaves the puggle in a nursery burrow, which they then leave at six to eight months (WPSoQ, 2019).

Short-beaked echidna are known to occur in the Project area and one individual was recorded during field surveys. No active breeding places were identified however suitable breeding habitat does occur throughout the site (Figure 4). A maximum area of approximately 213 ha of potential breeding habitat occurs in the Project area.

There are no major threats to Echinda (Alpin *et al.* 2016) however, they are subject to predation by cats and dingos, and collision with vehicles.

2.3 Golden-tailed Gecko

The golden-tailed gecko (*Strophurus taenicauda*) is listed as Near Threatened under the NC Act. It is not listed under the EPBC Act.

The golden-tailed gecko is strikingly coloured with a network of black against pale grey to cream, a bright orange blaze along the top of the tail, bright red eyes and dark blue mouth lining (Wilson 2005). Predominantly arboreal, the golden-tailed gecko is rarely seen as they hide during the day on tree trunks under shedding bark. They can sometimes be observed on the ground amongst leaf-litter or ground debris and have also been found in a cryptic 'stretched out' posture on relatively exposed branches of shrubs by day (Pavey *et al.* 2016). Nocturnal, they come out at night in search of insects. The general breeding season is from September to February. Golden-tailed geckos lay their eggs in soil cracks and soft soil at the base of large trees (Kidadl, 2020).

The species is endemic to the southern Brigalow Belt bioregion, in dry sclerophyll forests featuring a mix of ironbark eucalypts, cypress pine and brigalow (Wilson 2005).

A portion of the Project area is mapped as Essential Habitat (EH) for golden-tailed gecko. Suitable habitat for this species was confirmed throughout the site during field surveys, albeit marginal in some locations (Figure 4). No golden-tailed gecko were recorded within the Project area and no active breeding places were identified.

The major threat to golden-tailed gecko is habitat degradation and loss, usually associated with agricultural expansion (Sanderson *et al.* 2018). Other threats include:

- Habitat loss from land clearing;
- Habitat degradation by introduced species such as cattle and rabbits;
- Death on roads;
- Feral predators such as dogs, cats, pigs and foxes;
- The introduced cane toad; and
- Habitat modification caused by global climate change.

2.4 Yakka Skink

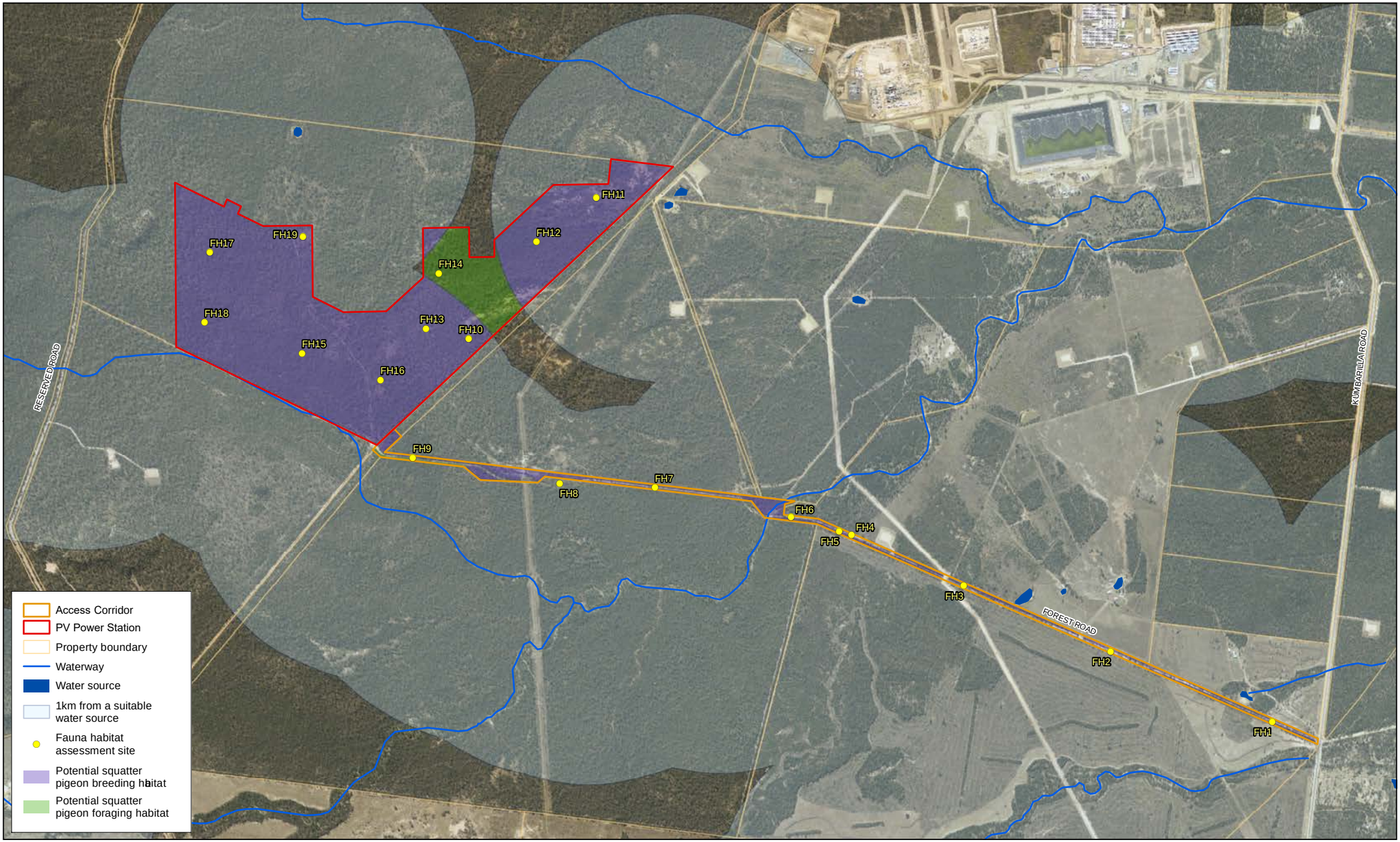
The Yakka Skink is listed as Vulnerable under both the EPBC Act and the NC Act. The core of the yakka skink's distribution is within the Mulga Lands and Brigalow Belt South bioregions. Other populations are scattered throughout the Brigalow Belt North (east to the Rockhampton area) and Einasleigh Uplands bioregions, extending northwards to southern Cape York peninsula. Populations have recently been recorded along the Queensland/New South Wales border (TSN, 2008).

Yakka skinks occur in a wide variety of vegetation types including poplar box, ironbark, brigalow, white cypress pine, mulga bendee and lancewood woodlands and open forests. They are hard to detect, hiding under rocks, in hollow logs or ground vegetation. Substrates include rock, sand, clay and loamy red earth. They can also exist in cleared areas where shelter sites such as tunnel erosion, rabbit warrens and log piles exist (TSN, 2008).

Populations occur primarily as colonies or aggregations, groups consisting of both adults and juveniles (DAWE, 2011). A colony of yakka skinks may use several sites during the year with the occupied burrow identified by scat piles near shelter sites and outside burrow entrances (Ehmann, 1992).

A total maximum of 56.1 ha of suitable habitat is present within the Project area (Figure 5). Inspection of potential habitat found no presence of this species however, extensive rock cavities in RE 11.7.4/11.7.5 community suggests potential impact is possible. Suitable habitat, a rocky jump up (RE 11.7.5), was noted within the western end of the access corridor. The current track avoids this area. Other sections of the Project area provide suitable microhabitat for the species.

The main threat to yakka skink is habitat reduction and degradation through agricultural and urban development. Other threats include removal of microhabitat such as logs, rocks dense leaf litter and fallen bark along with predation by feral species such as foxes and cats (DAWE 2011).



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CDM Smith Modelling Data

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FIGURE 3

POTENTIAL HABITAT FOR THE SQUATTER PIGEON (*GEOHAPS SCRIPTA SCRIPTA*)

DRG Ref: **FIG 4 Pigeon Habitat**

C:\Users\DeannaBayliss\OneDrive - EcoGIS\Documents\EcoGIS\02_Projects\Arcadian_Ecology\098_Dalby_Solar_Farm\05_Data_GIS\02_Maps\EPBC Referral\FIG X-XX Pigeon Habitat.mxd

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FIGURE 4

POTENTIAL HABITAT FOR THE GOLDEN-TAILED GECKO (STROPHURUS TAENICAUDA) and SHORT BEAKED ECHIDNA (TACHYGLOSSUS TAENICAUDA)

DRG Ref: **FIG 5 Gecko and Echidna Habitat**

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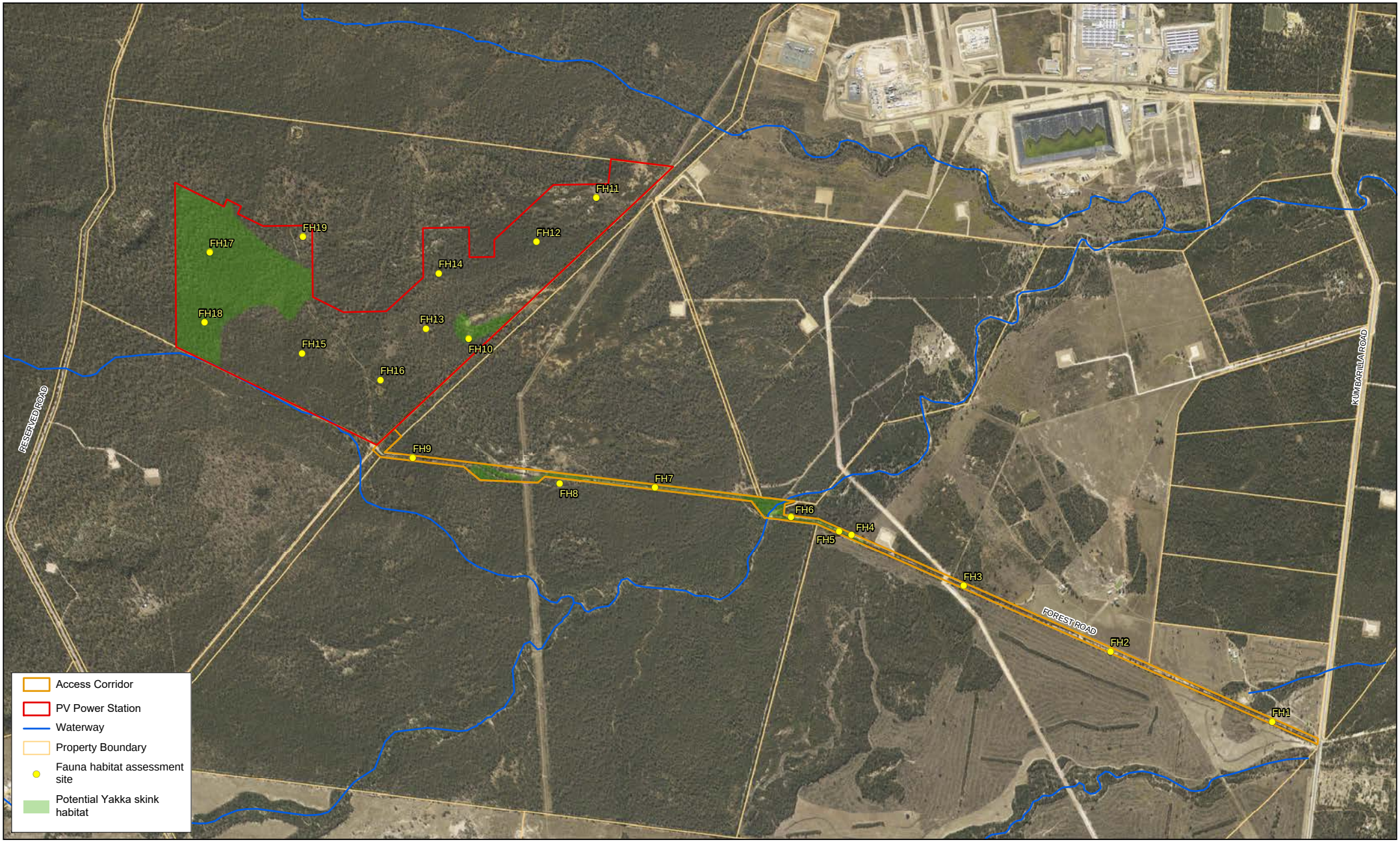

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DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

DATA SOURCE
QLD Government Open Source Data
CDM Smith Modelling Data

DESIGNER
CDM Smith
cdmsmith.com

CLIENT
calibre

FIGURE 5

POTENTIAL HABITAT FOR THE YAKKA SKINK (*EGERNIA RUGOSA*)

DRG Ref: **FIG 6 YSkink Habitat**

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2.5 Colonial Breeding Species

Colonial breeding species are a group of animals of the same kind co-existing in close association for breeding purposes. Several colonial breeding bat species have been recorded within the Project area for which potential breeding habitat is considered likely to occur (Table 2-1). These species generally form maternity colonies of varying sizes in tree hollows, man-made cavities such as sheds and barns, and in some cases, caves. Breeding seasons vary between species but generally occur from Spring until Summer. The Project area also has the potential to contain breeding habitat for several colonial breeding bird species. These species may breed in small or large colonies (see Table 2-1).

Breeding habitat for colonial breeding species has not been mapped within the Project area, however there are a high number of potential hollow-bearing habitat trees present throughout the Project area. There are no caves on site, however there may be suitable cavities within the rocky outcrops within the Project area.

The Project is not considered to have any significant long-term impact on fauna utilising the area, due to the presence of similar habitat surrounding the Project area, however vegetation clearing, and earthworks do have the potential to impact on individuals and potential breeding habitat. Noise may scare away individuals to other areas, but they will likely return when the noise is gone.

Table 2-1 Colonial Breeding Species

Species	Breeding Habitat	Threats
Bats		
Little Broad-nosed Bat (*Scotorepens greyii*)	Roosts in hollows, usually trees but also found inside hollow fence posts and even under metal caps on top of telegraph poles. Roost together in colonies of two to twenty bats (Australian Museum, 2020)	Major threats to microbats include the loss of roosting and foraging habitat through vegetation clearing (particularly removal of old growth vegetation), physical disturbance of roosts by people, predation and inappropriate fire regimes. Other threats include the use of pesticides and insecticides which reduce food availability and result in accumulation of poisons from eating sprayed insects. Some species may also be impacted by artificial lighting.
Lesser Long-eared Bat (*Nyctophilus geoffroyi*)	Form's maternity colonies in Spring. Roosts in dead trees, under tree bark, under rocks, in bird nests and in caves.	
Gould's Long-eared Bat (*Nyctophilus gouldi*)	Maternity colonies are founded in tree hollows, which are more carefully selected than the usual day time roosts (Menkhorst & Knight 2011).	
Gould's Wattled Bat (*Chalinolobus gouldii*)	Tree hollows. Colonies range from a few to 50 individuals.	
Little Forest Bat (*Vespadelus vulturnus*)	Tree hollows. Colony sizes range from 1 to 120 (median of 20).	
Eastern Bent-wing Bat (*Miniopterus arianae oceanensis*)	Primarily caves, but also derelict mines, stormwater tunnels and other structures. Breeding colonies can number up to 100.000 individuals.	
White-striped Free-tailed Bat (*Austronomus australis*)	Highly colonial tree-dweller, using large internal hollows.	
Northern Free-tailed Bat (*Ozimops lumsdenae*)	Roosts in tree hollows and man-made cavities such as sheds and barns.	
Southern Free-tailed Bat (*Ozimops planiceps*)	Roosts in tree hollows and man-made cavities such as sheds and barns.	
Ride's Free-tailed Bat (*Ozimops ridei*)	Roosts in tree hollows and man- made cavities such as sheds and barns.	
Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*)	Cavity roosting, generally reliant on old-growth forest hollows. Known to use abandoned animal burrows and human structures.	

Species	Breeding Habitat	Threats
Birds		
Variegated Fairy-wren (*Malurus lamberti*)	Woodlands, forest and shrub land habitats. Nest is oval shaped dome, constructed of grasses and placed in a low shrub (Birdlife Australia, 2021a).	Major threats to colonial breeding bird species include the loss, fragmentation and degradation of foraging and nesting habitat, loss of hollow bearing trees and predation.
Varied Sitellas (*Daphoenositta chrysoptera*)	The nest is a deep open cup camouflaged to look like the branch it sits in. Breeds cooperatively, with breeding pair having several helpers (Birds in Backyards, 2021).	
Striated Pardalote (*Pardalotus striatus*)	Form pairs or small groups of up to six birds. Nest is constructed close to the ground, usually in a tree hollow or tunnel excavated in an earthen bank (Birds in Backyards, 2021).	
Tree Martin (*Petrochelidon nigricans*)	Range of habitats. Nests are either alone or in colonies. Nest is normally a hole in a tree branch, usually horizonal, which is up high. Breeding season is August to January (Birds in Backyards, 2021b).	
Eastern Yellow Robin (*Eopsaltria australis*)	Breeding takes place in spring and is often communal. Nest is a neat cup made of fine plant material and spider web, usually placed in a fork of a tree (Birdlife Australia 2021b)	

2.6 Low Risk of Impact SMP Species

The Project has the potential to impact breeding places for Least Concern fauna and therefore a SMP for tampering with animal breeding places (Low risk of impacts) is also required. The proposed impact area to be covered by the Low Risk SMP is the Project area shown in Figure 2.

2.7 Potential Impacts

The Project construction is proposed to commence in June 2022 and is expected to be completed within 12 months. Works will initially involve site preparation, where the site will be surveyed and marked out. The Project site will then be predominantly cleared where required for the construction of solar panels and other associated infrastructure.

Site grading and minimal earthworks will occur for the construction of access tracks, solar module areas, temporary facilities, the substation, trenches for electrical cabling and site drainage features. As per the earthworks plan included in Appendix A, earthworks are described as follows:

- Main – earthworks associated with the construction of road formation, stormwater basins and building pads; and
- Minor – clearing and grade over the surface to remove surface rills, mounds and vegetation for minor roads and solar panels.

Topsoil that is left over will remain on site and will be used for restoration following the construction activities. Erosion and sediment control measures will be installed as required. The site road network will be developed with internal access tracks and a perimeter road.

Clearing will progress along internal roads to locations of sediment basins and pad areas to enable basins to be formed before the balance of the site is cleared.

Mechanical, structural, and electrical works will involve the installation of solar panels and substation.

The Project will require the excavation and removal of in-situ material and placement of material and grounding to allow the construction of electrical equipment and the substation. To secure the solar panel arrays, piles will be driven or screwed into the ground using an excavator or piling rig. Solar panel piles will be driven or screwed to a depth of approximately 1.5 m to 2 m depending on the undulation of the land.

Electrical cabling from the modules to the substation will generally be trenched (using a trenching machine) but may be routed over ground in cable trays or conduit. Once the piles and structural support system for the solar panels are in place, the solar panels will be fitted to the support structure. Trenches will be to depths between 0.9 m to 1.2 m

Following completion of site works, all construction equipment will be demobilised.

Operation and maintenance requirements are expected to be minimal, and generally automated. When problems arise, most faults will be electrical in nature and will require specialist technical personnel and equipment to resolve. When operational, the Project will be manned during the daytime, with an ongoing anticipated maximum workforce of five full time equivalent staff.

Potential risks associated with the proposed works include:

- Loss of habitat;
- Physical disturbance of fauna and eggs or young (if works are scheduled during the collective breeding season of June to February) which may be present in nests, hollows, burrows, or other breeding habitat features on site;
- Removal of features such as vegetation, stones, rocks and logs etc, which provide potential breeding habitat;
- Entrapment of fauna within excavations;
- Noise disturbance;
- Vehicle strike; and
- Introduction of weeds and feral animals.

2.7.1 Loss of Habitat

The area of suitable habitat within the Project area and estimated disturbance area for each of the identified high risk of impacts SMP species is provided in Table 2-2. Despite the areas of habitat listed, it is not expected clearing to these maximum values will be undertaken, as an example, clearing in the access corridor is not expected to be completed to the full extent of the road reserve. In addition, while habitat for the Squatter Pigeon (southern) has been split into breeding and foraging, for the other species, the extent of potential breeding habitat within the suitable habitat may be less than the values given in the table.

Table 2-2 Disturbance Area for High Risk of Impacts SMP Species

Species	EPBC Act status	NC Act Status	Potential Suitable Habitat (ha)		
			PV Power Station	Access Corridor	Total (Project Area)
Yakka Skink *Egernia rugosa*	Vulnerable	Vulnerable	48.9	7.2	56.1
Squatter Pigeon (southern) - breeding *Geophaps scripta scripta*	Vulnerable	Vulnerable	173.4	15.3	188.7
Squatter Pigeon (southern) - foraging *Geophaps scripta scripta*	Vulnerable	Vulnerable	0.6	17.6	18.2

Species	EPBC Act status	NC Act Status	Potential Suitable Habitat (ha)		
			PV Power Station	Access Corridor	Total (Project Area)
Short-beaked Echidna *Tachyglossus aculeatus*	-	Special Least Concern	190.92	21.66	212.58
Golden-tailed Gecko *Strophurus taenicauda*	-	Near Threatened	190.92	21.66	212.58

2.7.2 Physical Disturbance

Physical disturbance may occur when existing vegetation and other habitat features such as rocks, logs and earth is removed, potentially exposing or disturbing fauna and causing stress and/or physical harm. Prior to any disturbance, a trained ecologist or other qualified environmental specialist (i.e. fauna spotter/catcher) is to be onsite to inspect and remove any fauna or eggs (if required). Note that the person must hold an appropriate Department of Environment and Science (DES) Damage Mitigation Permit (DMP), and/or Rehabilitation Permit for the purposes of removal and relocation of wildlife. In the event of injury to wildlife, contact the nearest veterinarian, RSPCA Australia on 1300 264 625, or Wildcare Australia on 07 5527 2444. Construction plant will be restricted to clearly marked, dedicated work areas to minimise the area of disturbance.

2.7.3 Removal of Habitat Features

The removal of vegetation, logs, rocks, and other habitat features has the potential to displace fauna. Habitat features should be reinstated, and vegetation re-established in areas to be rehabilitated, as soon as possible after construction works are completed.

2.7.4 Entrapment

There is potential for fauna to become entrapped within open excavations required for the Project construction. This may lead to flooding and subsequent drowning of fauna (depending on weather conditions), or smothering and direct mortality because of interactions with earthmoving equipment. All excavations will be inspected each morning and cleared and trapped fauna recorded by a suitably trained person prior to work continuing. Clearing and recording will be repeated at the end of each day.

2.7.5 Noise Disturbance

Understanding of the impacts of noise on fauna is limited. There are no current government policies or guidelines that recommend thresholds or limits in relation to fauna. Noise may adversely affect wildlife by interfering with communication, masking the sound of predators and prey, causing stress or avoidance reactions, and in some cases may lead to changes in reproductive or nesting behaviour.

Currently, the Project area would experience noise levels typical of undeveloped rural areas with natural noises such as bird calls generating most noise. Noise and vibration levels will be elevated during the construction period, returning to normal levels once construction is complete. Road traffic associated with operational staff movements will be minimal and unlikely to cause significant noise impacts. Noise disturbance impacts will be short term and temporary.

2.7.6 Pests and Weeds

Pests and weeds pose a threat to fauna and breeding habitat values within and surrounding the Project area, including degradation of habitat and predation.

The transport and operation of construction vehicles and equipment has the potential to introduce pests and weeds into the Project area. Vegetation clearance and ground disturbance has the potential to promote growth of weed species. Waste has the potential to impact fauna, attracting pests and vermin through the supply of artificial food sources. This may impact on natural behaviour and natural species assemblages. A range of waste minimisation strategies will be in place to reduce waste streams generated. As such, it is not anticipated that waste generated as part of the Project will have a significant impact. All waste produced because of the Project will be stored and disposed of appropriately, as per the relevant legislation.

Weed and pest management will be an important and integral part of proposed site management activities and will be detailed in specific weed and pest management protocols to be developed for the site.

2.8 Management Measures

Management measures have been developed to mitigate potential impacts on fauna during construction. Measures specific to the various species are outlined in Table 2-3 and are incorporated into Section 4. In addition, a Project Construction Environmental Management Plan (CEMP) will be developed prior to construction which will include measures outlined in this SMP.

Table 2-3 Species Specific Management Measures

Species	Management Measure
Micro chiropteran Bats	• Fauna spotter to be vaccinated against lyssavirus. • Outside of breeding season, individuals can be removed by fauna spotter catcher and stored in calico bags until they can be released at dusk. • If a maternity site is identified near project boundary, where possible, breeding cycle should be allowed to complete. A buffer zone should be flagged with tape to remain in place until the hollow has been vacated. • If clearing the roost is unavoidable, utilise soft-felling technique for relocation of roost feature. This involves removing the top branches first and working down the tree, removing it in sections, carefully lowering sections to the ground. The felled limb with the roost feature should be relocated into adjacent habitat at a similar height. • If bats are encountered during clearing operations, all activities should stop immediately, and bats caught and stored in calico bags until dusk or given to wildlife carer. • Inactive breeding places should be relocated where feasible into adjacent habitat and placed at a similar height.
Birds	• If an occupied nest is identified near the Project boundary, where possible, breeding cycle should be allowed to complete. A buffer zone should be flagged with tape to remain in place until the hollow has been vacated. • If clearing the roost is unavoidable, the tree should be removed in sections, carefully lowering them to the ground. The felled limb with the roost feature should be relocated into adjacent habitat at a similar height. • Where an active breeding place is unable to be avoided, young should be removed and given to a wildlife carer.
Echidna	• If a maternity burrow is identified near the Project boundary, where possible, breeding cycle should be allowed to complete. A buffer zone should be flagged with tape to remain in place until the hollow has been vacated. • Where an active breeding place is unable to be avoided, young should be removed and given to a wildlife carer.

Species	Management Measure
Reptiles	• Where possible, the access road upgrade should follow the current route (except in the instance where it runs outside the road corridor) rather than impact likely reptile habitat which is potentially breeding habitat for Yakka Skink. • If clearing of vegetation is essential, preferentially conserve patches of trees that contain a high proportion of white cypress. • If a maternity burrow is identified near the Project boundary, where possible, breeding cycle should be allowed to complete. A buffer zone should be flagged with tape to remain in place until the hollow has been vacated. • Where an active breeding place is unable to be avoided, young should be removed and given to a wildlife carer.

Section 3 Impact Management Plan

Table 3-1 Impact Management Measures

Objectives		
• Reduce the likelihood and impact of physical disturbance of identified species which may be present in the existing vegetation or debris on site; and • To minimise the removal of breeding habitat features including trees, hollows, rocks, logs, dense leave litter and fallen bark.		
Management Measures		
No.	**Action**	**Responsibility**
Design Phase		
1	Where possible, works should be scheduled outside of breeding periods: • Squatter Pigeon (southern) – September to November; • Golden-tailed Gecko – September to February; • Short-beaked Echidna – June to September; • Yakka Skink – Likely to be September and October during times of high activity which may be associated with breeding.; • Microbats -Breeding generally during warmer months when resources are plentiful.	Project Manager
2	Works are to be designed to avoid breeding habitat where possible (e.g. the access road upgrade to avoid potential Yakka Skink breeding habitat).	Project Manager / Environmental Engineer
3	Design and construction of fencing/infrastructure to direct fauna towards culverts providing safe passage.	Environmental Representative / Environmental Engineer
Construction Phase		
Pre-clearing		
4	Communication and training via the site induction process to ensure all site personnel are aware of environmentally sensitive features of the site.	Environmental Representative
5	Preclearance surveys must be conducted by a qualified fauna spotter/ecologist prior to any disturbance on site.	Environmental Representative
6	Any nests, burrows, hollows or other breeding habitat feature must be inspected.	Environmental Representative / Fauna Spotter / Ecologist
7	If identified as potentially suitable for EVNT, special least concern or colonial breeding species, places to be clearly marked on site and on site drawings.	Environmental Representative / Fauna Spotter / Ecologist
8	Where possible, identified active breeding places will be avoided and breeding cycle allowed to complete. A buffer zone to be flagged with tape to remain in place until the breeding place has been vacated.	Environmental Representative / Contractor
9	Where this is not possible, breeding structures will be replaced or relocated to into adjacent undisturbed habitat at a similar height and monitored to determine a return by breeding individuals.	Environmental Representative / Contractor
10	Nest/roost bearing trees will be 'soft felled' and nest/roost feature relocated into adjacent habitat at a similar height.	Environmental Representative / Fauna Spotter / Ecologist
11	If required, young or eggs are to be removed and placed into care of a wildlife carer. Individuals to be released within proximity of their original point of capture.	Environmental Representative / Fauna Spotter / Ecologist
12	Any significant inactive breeding places (with evidence of recent occupation) will be relocated to a suitable place within adjacent undisturbed habitat.	Environmental Representative / Contractor

Objectives		
13	Handling of fauna should be limited to a suitably qualified and experienced fauna handler that holds a DMP for the removal and relocation of wildlife. Any animals encountered will be recorded on a dedicated register held by the Environmental Representative.	Environmental Representative / Fauna Spotter / Ecologist
Clearing		
14	Fauna spotter/ecologist to be present during clearing activities for all fauna handling and to provide guidance to Environmental Representative.	Environmental Representative
15	Any fauna encountered will only be handled by the fauna spotter/ecologist	Environmental Representative / Fauna Spotter / Ecologist
16	Vegetation clearing will be done in a sequential manner to ensure wildlife is directed towards adjacent habitat and not into areas of threat (road or earthworks).	Environmental Representative / Contractor
17	Construction areas that pose a risk to fauna to be fenced off where practicable.	Environmental Representative / Contractor
18	Where possible, any active breeding places identified will be avoided.	Environmental Representative / Contractor
19	Where this is not possible, the nest is to be relocated to adjacent undisturbed habitat and monitor the active nest to determine a return by breeding individuals.	Environmental Representative / Fauna Spotter / Ecologist
20	If required, young or eggs will be removed and placed into care of a wildlife carer. Individuals to be released within proximity of their original point of capture.	Environmental Representative / Fauna Spotter / Ecologist
21	Any injured animals must be taken to the nearest wildlife facility or vet.	Fauna Spotter / Ecologist
General		
22	Any excavations to be inspected twice daily and any entrapped fauna to be released prior to works commencing.	Environmental Representative / Contractor
23	The works area is to be appropriately marked to avoid unnecessary clearing, disturbance or damage beyond that detailed during the design phase.	Environmental Representative
24	Construction plant will be restricted to dedicated work areas.	Environmental Representative / Contractor
25	Document measures within the Project Construction Environmental Management Plan (EMP) to ensure clearing limits are adhered to.	Environmental Representative
26	The pre-construction environment (logs, rocks and other habitat features) should be reinstated where possible, and vegetation re-established as soon as practicable after construction works are completed.	Environmental Representative / Contractors
27	Earthworks, landscaping and drainage to be in accordance with relevant Australian Standards	Project Manager / Environmental Representative
28	Disturbance areas to be minimised to only the extent required.	Environmental Representative
Contingency Planning		
29	Stop Work – In the event of unexpected direct or indirect impacts beyond the proposed disturbance footprint. Appropriate remedial actions will be discussed and agreed between the Proponent and the Environmental Representative.	Environmental Representative / Contractors.
30	Stop Work – In the event of unexpected direct impacts to fauna.	Environment Representative.

Objectives		
31	If repeated incidents of multiple fauna mortality occur through Project activities, contact the Environmental Advisor and Environmental Manager to discuss further contingency measures including double-checks, reviewing spotter catcher methods during disturbance and/or reinforcing site personnel through toolbox talks or prestarts. If the species is ENVT or MNES, Proponent will be notified, and advice sought on improved measures to minimise incidents in relation to species of conservation significance and possible remediation actions.	Environmental Representative / Contractors

3.1 Expectations and Limitations

The process to be followed in the event of unexpected impacts is described in the Contingency Planning section of Table 3-1. Given the comprehensive natural and detail of the proposed impact management measures described more broadly in Table 3-1 it is anticipated the impact management measure are likely to be successful in minimising impact the breeding habitat for the nominated species. During construction there may be temporary dispersal of individual fauna to areas of adjacent suitable habitat outside the Project area. The intent of the Proponent is to reinstate habitat features in rehabilitated areas once construction is completed.

3.2 Project Roles and Responsibilities

All personnel involved in the Project including staff, contractors and sub-contractors are required to undertake work in accordance with this IMP. Key roles and responsibilities are included in Table 3-2.

Table 3-2 Project Roles and Responsibilities

Position	Responsibilities
Project Manager	• Ensure employees and contractors understand their obligations under this IMP; • Monitoring compliance; • Maintenance and inspections; • Reporting; and • Ensure that all the onsite safeguards and controls are in place.
Environmental Representative	• Monitor compliance; and • Reporting (if required).
Fauna Spotter/catcher	• Possession of appropriate DES permits (i.e. DMP, rehabilitation permit as required; • Pre-clearance surveys; and • Wildlife handling.
Engineering Representative	• Design advice.
All Staff and Contractors	• Understand and comply with the requirements of this IMP; • Undergo inductions where necessary; and • Be aware of emergency procedures and responses.

3.3 Training, Awareness and Competence

Effective implementation of this IMP will require all staff and contractors to receive appropriate training. The competency needs of all personnel performing activities affecting the environment during construction shall be identified and documented. All Project personnel will undergo a site induction covering the key environmental issues and measures relating to the Project. All records of training and competencies will be kept and maintained.

3.4 Communication

The Construction Contractor will develop communication processes to provide site personnel with information on environmental matters for the proposed works in relation to breeding habitat for the identified high risk of impacts SMP species. These processes will facilitate communication to all staff regarding the IMP requirements, identified impacts, incidents and other environmental issues. These communication processes will include as a minimum:

- Site environmental inductions; and
- Daily pre-start meetings.

3.5 Monitoring and Inspections

Site environmental inspections must be undertaken daily during construction, with the primary purpose of confirming that site activities (including contractor activities) remain in compliance with the environmental requirements for the construction works.

Specific areas / activities to be inspected include:

- Adherence to marked work areas / exclusion zones;
- Relocated active nests/roosts; and
- Open excavations (twice daily).

Contractors are expected to inspect their work areas at least once a day. The Environmental Representative shall periodically verify this is being done by reviewing the contractor's environmental records. The inspection checklist will include details of observations, the responsible party and if mitigation is required.

3.6 Environmental Incident Management

Management strategies for avoiding and responding to environmental incidents and minimising the potential cause of environmental harm are provided in the IMP.

Environmental incidents relevant to the proposed works include, but are not limited to:

- Fauna strike or death;
- Habitat demolition outside of works footprint; and
- Accidental fuel, oil or chemical spill.

3.7 Notification and Reporting

The Construction Contractor must take reasonable and practicable measures to avoid and reduce the likelihood of the activity causing environmental harm. If environmental harm results from the construction activity the Construction Contractor must notify the DES within 24 hours of becoming aware of any incident or event.

Following notification an incident report must be prepared by the Construction Contractor that includes details of the incident, response, corrective action, responsibility and timing.

The Fauna Spotter Catcher must keep an accurate record of all animal captures, incidents and any disposals. An electronic register concerning tampering with animal breeding places must be kept while operating under an approved SMP. The completed electronic register must be submitted to DES within six months of the interactions with the high risk of impacts SMP species at wildlife@des.qld.gov.au. The register for tampering with low risk of impacts species must be submitted to DES annually from the date of approval. The complete registers must also be supplied to DES upon expiry of the approved SMP.

3.8 Records Management

Records of all environmental documentation (i.e. inspections, site assessments, photographs/drawings, incident reports, chemical use for weed control) shall be maintained by the Environmental Representative.

Section 4 References

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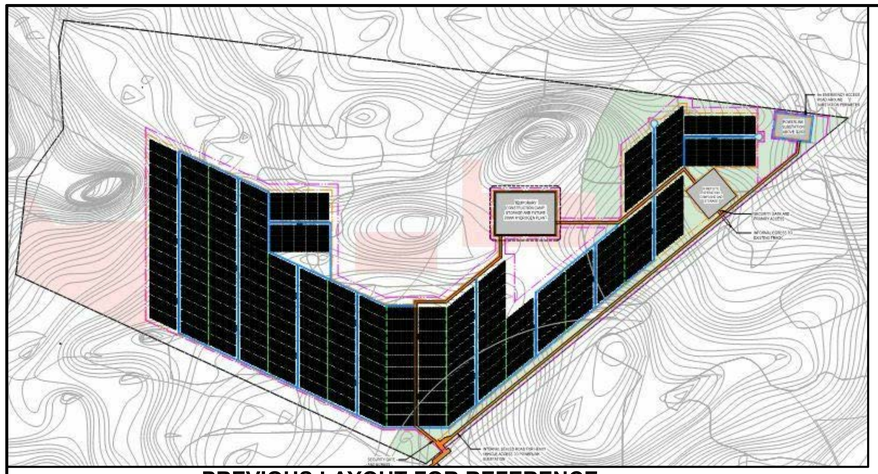
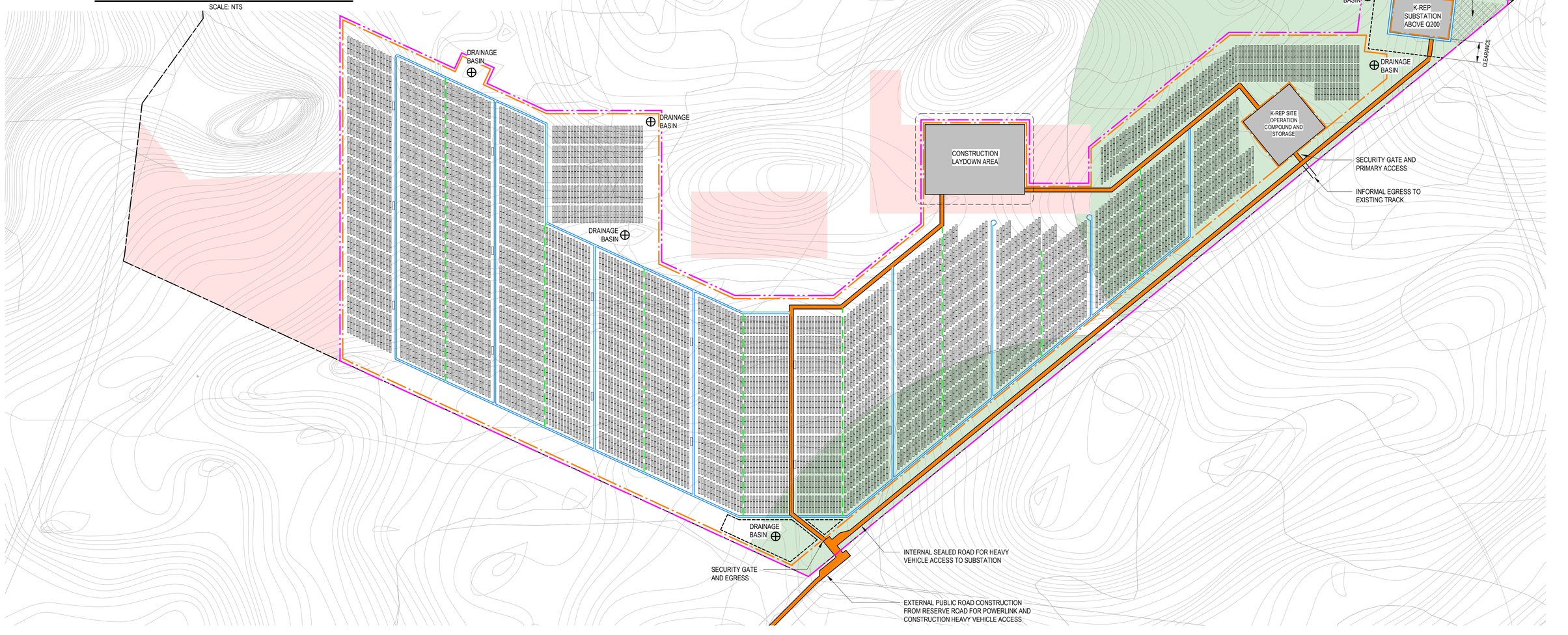
Appendix A Project Area and Layout



PREVIOUS LAYOUT FOR REFERENCE

SCALE: NTS



SHADING KEY

- PV EXCLUSION ZONE DUE TO HORIZON SHADING
- MSES ESSENTIAL HABITAT ZONE FOR INVESTIGATION

ROADWAY KEY

- MAJOR ROAD - SEALED
- MINOR ROAD - UNSEALED
- INFORMAL ROAD - NATURAL LANDSCAPE

ELEMENTS KEY

- FENCE/SECURITY LINE EXTENT
- LAND CLEARING EXTENT
- ⊕ INDICATIVE LOCATION OF DRAINAGE BASIN (REFER DRAINAGE REPORT FOR LOCATION AND VOLUME)

N

REVISION	DATE	ISSUE DETAILS	DESIGN	DRAWN	CHECK
A	26.08.19	CONCEPT LAYOUT	JW	JC	
B	10.10.19	FS SUBMISSION	JW	JC	
C	01.07.20	MODIFIED TO CONSOLIDATE INTERNAL AREAS	JW	JW	
D	03.07.20	MODIFIED FOR DRAINAGE	JW	JW	

STATUS

INFORMATION ONLY

NOT FOR CONSTRUCTION

SCALE

0 100000 200000 300000 400000

SCALE: 1:5000

CLIENT

KOMIPO KOREA MIDLAND POWER CO.,LTD.

elecsee

PROJECT

KUMBARILLA RENEWABLE ENERGY PARK (K-REP)

KUMBARILLA, QLD 4405

DRAWING TITLE

SITE LAYOUT - GENERAL

PROJECT No.	DRAWING No.	REVISION
19-000691	BR-E5251	D

A1

Appendix B Disclaimer and Limitations

Disclaimer and Limitations

This report has been prepared by CDM Smith Australia Pty Ltd (CDM Smith) for the sole benefit of Calibre Professional Services Pty Ltd and Elecseed Pty Ltd for the sole purpose of a Species Management Program for the Kumbarilla Renewable Energy Park.

This report should not be used or relied upon for any other purpose without CDM Smith's prior written consent. Neither CDM Smith, nor any officer or employee of CDM Smith, accepts responsibility or liability in any way whatsoever for the use of or reliance on this report for any purpose other than that for which it has been prepared.

Except with CDM Smith's prior written consent, this report may not be:

a. released to any other party, whether in whole or in part (other than to officers, employees and advisers of Calibre Professional Services Pty Ltd);

b. used or relied upon by any other party; or

c. filed with any Governmental agency or other person or quoted or referred to in any public document.

Neither CDM Smith, nor any officer or employee of CDM Smith, accepts responsibility or liability for or in respect of any use or reliance upon this report by any third party.

The information on which this report is based has been provided by Calibre Professional Services Pty Ltd and third parties. CDM Smith (including its officers and employees):

a. has relied upon and presumed the accuracy of this information;

b. has not verified the accuracy or reliability of this information (other than as expressly stated in this report);

c. has not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this report to Calibre Professional Services Pty Ltd; and

d. makes no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

In recognition of the limited use to be made by Calibre Professional Services Pty Ltd of this report, Calibre Professional Services Pty Ltd agrees that, to the maximum extent permitted by law, CDM Smith (including its officers and employees) shall not be liable for any losses, claims, costs, expenses, damages (whether in statute, in contract or tort for negligence or otherwise) suffered or incurred by Calibre Professional Services Pty Ltd or any third party as a result of or in connection with the information, findings, opinions, estimates, recommendations and conclusions provided in the course of this report.

If further information becomes available, or additional assumptions need to be made, CDM Smith reserves its right to amend this report.

Attachment 2 - Animal Breeding Place Register Reporting Template

Department of Environment and Science

Animal breeding place register

Wildlife management

Authority holder's name: include Person in Charge where relevant		**ACTIONS Codes** (mark column with 'X') - **Legend:**				EHP contacts - Wildlife Assessment Team wildlife@des.qld.gov.au
Authority number or description: e.g. SMP project title etc		**R1** = release, no further action	**R2** = Release with first aid - Note **V** or **C** in column (V = Vet / C = Carer)	**D** = Death	**I =** Investigation	**Low Risk SMP Email protocol:** annually from the registered date and upon expiry of the SMP.
Approval date/s: e.g. valid from *x* -to *x* / approved on *x* for *x* years						**High Risk SMP Email protocol:** within 6 months of interaction with high risk of impact SMP species and upon expiry of the SMP.

Running report to be completed for all animal breeding places tampered with - all columns must be completed, with form emailed to the department upon expiry of approval and, for high risk SMP within 6 months of each interaction.

DATE (dd/mm/yyyy)	**TIME** (24 hrs)	**SPECIES** (Scientific name)	**SPECIES** (Common name)	**LOCATION of animal breeding place**				**Relocated animal breeding place location details (if applicable)**					**ACTIONS**				**COMMENTS / OUTCOME/AUTHORITY HOLDER** (e.g. of investigation - further management practices put in place etc. Permit references for DMP - removal and relocation or rehabilitation permit).
				Location Description	Lot on Plan	**Latitude** - Decimal Degrees	**Longitude** - Decimal Degrees	**Date** (dd/mm/yyyy)	**Location Description / Lot Plan**	**Latitude** - Decimal Degrees	**Longitude** - Decimal Degrees	**Count**	**R1**	**R2**	**D**	**I**	

Note: To insert extra lines in Windows 7 select 'Home' tab then click the 'Cells' tab and select 'insert sheet rows' otherwise go to the ' Insert' menu and click 'Rows'.

Queensland

Customer Contact
1300 COUNCIL (1300 268 624)
07 4679 4000

www.**wdrc.qld.gov.au**

OUR COMMUNITIES | **OUR FUTURE**

Address all correspondence
to the Chief Executive Officer
PO Box 551, DALBY, QLD 4405

info@wdrc.qld.gov.au

DECISION NOTICE - APPROVAL

Given under Section 282 of the Planning Act 2016 for a Decision Notice (Approval) under Section 63(2) of the Planning Act 2016

Approval Number:	030.2020.120.001
File References:	A41987 and LG7.6.1 JKM:JKM
Council Contact:	[redacted] PLANNING OFFICER DEVELOPMENT ASSESSMENT
Officer's Contact Details:	Ph: (07) [redacted] Email: [redacted]@wdrc.qld.gov.au
Date of Decision Notice:	1 October 2020
Applicant's Name:	Elecseed Pty Ltd
Applicant's Postal Address:	C/- Calibre Professional Services Pty Ltd ATTENTION: [redacted] Level 2 50 St Georges Terrace PERTH WA 6000
Applicant's Email Address:	[redacted]@calibregroup.com

Dear Madam

RE: DEVELOPMENT APPLICATION FOR MATERIAL CHANGE OF USE TO ESTABLISH A RENEWABLE ENERGY FACILITY (SOLAR FARM) ON LAND DESCRIBED AS LOT 4 ON DY457 AND EASEMENT B ON SP107382 AND SITUATED AT KUMBARILLA LANE, KUMBARILLA

I advise that on 29 September 2020 it was decided to issue a Development Permit for the above Development Application.

This application was approved in full, with conditions (refer to the conditions attached).

1. Further Development Permits

The following Development Permits are required to be obtained before the development can be carried out:

- Development Permit for Operational Work
- Development Permit for Building Work Assessable Against the Planning Scheme

2. Referral Agencies for the Application

The Referral Agencies for this application are:

For an application involving	Name of Agency	Status	Contact Details
INFRASTRUCTURE DESIGNATION			
Development application for development on premises that is the subject of a designation made by the Minister, if - (a) the development is assessable development under a local categorising instrument; and (b) the infrastructure the subject of the designation is to be supplied by a public sector entity; and (c) the premises is not owned by or for the State; and (d) the development is for a purpose other than the designated purpose; and (e) the development will not be carried out by or for the State. Schedule 10, Part 9, Division 1, Table 1, Item 1	State Assessment and Referral Agency	Concurrence Agency	Ph: (07) 4616 7307 Email: toowoombasara@dsdmip.qld.gov.au Post: Queensland Treasury PO Box 825 **TOOWOOMBA QLD 4350**
CLEARING NATIVE VEGETATION			
Development application for a Material Change of Use that is assessable development under a local categorising instrument and relates to a lot that is 5ha or larger, if - (a) the application - (i) is for a preliminary approval that includes a variation request; and (ii) relates to a lot that contains native vegetation shown on the regulated vegetation management map as a Category A Area or Category B Area; and (iii) is for a Material Change of Use, other than a non-referrable Material Change of Use. (b) the application is not stated in paragraph (a) and all of the following apply - (i) the Material Change of Use does not involve prescribed clearing; (ii) accepted Operational Work may be carried out because of the Material Change of Use, or the Material Change of Use involves Operational Work that is assessable development under Section 5;	State Assessment and Referral Agency	Concurrence Agency	Ph: (07) 4616 7307 Email: toowoombasara@dsdmip.qld.gov.au Post: Queensland Treasury PO Box 825 **TOOWOOMBA QLD 4350**

For an application involving	Name of Agency	Status	Contact Details
(iii) the accepted Operational Work or assessable Operational Work includes development other than the clearing of regulated regrowth vegetation on freehold land, indigenous land, land the subject of an occupation licence under the *Land Act*, or land the subject of a lease given under the *Land Act* for agricultural or grazing purposes. Schedule 10, Part 3, Division 4, Table 3			
ELECTRICITY INFRASTRUCTURE			
Material Change of Use if - (a) all or part of the premises is within 100m of a substation site; or (b) both of the following apply - (i) all of part of the premises is subject to an easement for the benefit of a distribution entity, or transmission entity, under the *Electricity Act*; (ii) the easement is for a transmission grid or supply network. Schedule 10, Part 9, Division 2, Table 2, Item 1	The Chief Executive of the distribution entity or transmission entity	Advice Agency	Ph: (07) 3860 2111 Email: property@powerlink.com.au Post: Property Services Advisor Powerlink Queensland Community and Delivery Service PO Box 1193 **VIRGINIA QLD 4014**

3. Approved Plans and Documents

The following Approved Plans and Documents for this development approval are attached:

Plan or Document No./Reference	Title and Details	Dated
BR-E5251, Revision D	Site Layout - General, prepared by Calibre	03.07.20
J000284 - Version 0.1	Bushfire Risk Assessment, prepared by Blackash Bushfire Consulting	8 June 2020
Issue 0	Response to WDRC Information Request Item 12 Stormwater and Drainage Report, prepared by Calibre	04/06/2020

4. Currency Period for the Approval (Section 85)

This development approval will lapse at the end of the period set out in Section 85 of the *Planning Act 2016:*

- For Material Change of Use -

  This approval lapses if the first change of use does not happen **within six (6) years** of the date of this Notice.

5. Appeal Rights

The rights of an applicant to appeal to a tribunal or the Planning and Environment Court against a decision about a development application are set out in Chapter 6, Part 1 of the *Planning Act 2016*.

For particular applications, there may also be a right to make an application for a declaration by a tribunal (refer Chapter 6, Part 2 of the *Planning Act 2016*).

The Appeal Rights are attached to this Decision Notice.

Should you have any queries regarding this matter, please contact Council's Planning Officer Development Assessment, [redacted] via email [redacted]@wdrc.qld.gov.au or telephone (07) [redacted]

Yours faithfully

[redacted]

PRINCIPAL PLANNER

Encls

C/c Queensland Treasury
PO Box 825
TOOWOOMBA QLD 4350

Copy forwarded for your information and records as Referral Agency to the application. (Your Ref: 2007-18034 SRA)

C/c Property Services Advisor
Powerlink Queensland
Community and Delivery Service
PO Box 1193
VIRGINIA QLD 4014

Copy forwarded for your information and records as Advice Agency to the application. (Your Ref: DA3783)

SCHEDULE OF CONDITIONS

APPROVED PLAN AND DOCUMENTS

1. The development shall be carried out generally in accordance with the Approved Plan and Documents listed below, subject to and modified by the conditions of this approval:

Plan or Document No./Reference	Title and Details	Dated
BR-E5251, Revision D	Site Layout - General, prepared by Calibre	03.07.20
J000284 - Version 0.1	Bushfire Risk Assessment, prepared by Blackash Bushfire Consulting	8 June 2020
Issue 0	Response to WDRC Information Request Item 12 Stormwater and Drainage Report, prepared by Calibre	04/06/2020

2. Where there is any conflict between the conditions of this development approval and the details shown on the Approved Plan and Documents, the conditions of this development approval must prevail.

3. The Approved Plan is to be amended in accordance with the conditions of this approval and as outlined below:

   3.1 Provide details on all proposed buildings to be located on-site for the life of the project within the K-REP Site Operation Compound and Storage area and/or other applicable area/s. Building floor plans and elevations must also be provided.

   Note: Infrastructure charges will be levied for the gross floor area of all administration and control buildings including storage sheds and site offices. Once detailed plans are provided, an Infrastructure Charges Notice will be issued.

4. All recommendations contained within the Approved Bushfire Risk Assessment J000284 - Version 0.1 prepared by Blackash Bushfire Consulting and dated 8 June 2020 shall be implemented.

5. The following further Development Permits must be obtained prior to commencement of any work associated with the process:

   5.1 Operational Work; and

   5.2 Building Works.

APPROVED DEVELOPMENT

6. The approved development is Material Change of Use for a Renewable Energy Facility (100MW Solar Farm) as shown on the Approved Plan and Documents.

TERM OF APPROVAL

7. The use of the land for the purpose of a Renewable Energy Facility (100MW Solar Farm) is approved for a period of thirty (30) years only, from commencement of the use.

COMPLIANCE, TIMING AND COSTS

8. All conditions of the approval shall be complied with prior to commencement of the use and whilst the use continues, unless otherwise noted within these conditions.

9. All costs associated with compliance with these conditions shall be the responsibility of the developer unless otherwise noted.

MAINTENANCE

10. The development (including landscaping, parking, driveways and other external spaces) shall be maintained in accordance with the Approved Plan subject to and modified by any conditions of this approval.

FEES AND CHARGES

11. All fees, rates, interest and other charges levied on the property, shall be paid in full, in accordance with the rate at the time of payment.

LANDSCAPING – MISCELLANEOUS

12. Apart from declared weeds and pests, trees, shrubs and landscaped areas currently existing on the subject land must be retained where possible and action taken to minimise disturbance during construction work.

13. Landscaped areas must be maintained, and the site must remain in a clean and tidy state at all times.

REHABILITATION AND EXIT PLAN

14. One (1) year prior to decommissioning, the Operator must submit to Council for endorsement, a Rehabilitation and Exit Plan prepared by a qualified person that, at a minimum:

    14.1 demonstrates that the site will be restored to a standard capable of the level of productivity that was available prior to the Material Change of Use upon decommissioning of the Solar Farm;

    14.2 identifies possible land use (eg grazing, cropping) following cessation of the approved use;

    14.3 clearly establishes the objectives of the Plan;

    14.4 shows adopted performance criteria for rehabilitation efforts;

    14.5 includes an Action Plan, with timing for remedial work such as structure removal, removal of imported materials such as gravel, any soil erosion, drainage, and vegetation cover work, along with weed and pest animal control activities required to meet the adopted rehabilitation performance criteria;

    14.6 outlines a program for monitoring rehabilitation success using appropriate indicators;

    14.7 post-operational rehabilitation of the site is to be carried out generally in accordance with the strategies identified in the Approved Rehabilitation and Exit Plan; and

    14.8 rehabilitation work must commence immediately upon cessation of the approved use and be carried out in accordance with the endorsed Rehabilitation and Exit Plan for the length of time included in the Action Plan.

ACOUSTIC AMENITY – NOISE LIMITS

15. Noise from activity associated with the use of the site must not exceed the Acoustic Quality Objectives listed in the *Environment Protection (Noise) Policy 2008* when measured at any sensitive place or commercial place.

ACOUSTIC AMENITY – MECHANICAL PLANT

16. All regulated devices as defined by the *Environmental Protection Act 1994* must be installed, operated and maintained to comply with the noise limits as specified within the *Environmental Protection Act 1994*.

AIR QUALITY AND AMENITY – AIR RELEASE LIMITS

17. Odours or airborne contaminants that are noxious or offensive to public amenity or safety, likely to cause environmental harm or environmental nuisance or exceed the Air Quality Objectives listed in the *Environmental Protection (Air) Policy 2008* as measured at any sensitive place or commercial place, must not be released into the atmosphere.

OUTDOOR LIGHTING IMPACT MITIGATION

18. Outdoor lighting associated with the use must be designed, sited, installed and tested to comply with Tables 2.1 and 2.2 of Australian Standard 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting Using a Control Level of 1.

19. All lighting must be of a type that gives no upward component of light when mounted horizontally (ie a full cut-off luminaire).

VISUAL AND GENERAL AMENITY

20. Any graffiti on the buildings or structures must be immediately removed.

21. The buildings and the site must be maintained in a clean and tidy manner at all times.

WASTE MANAGEMENT

22. All waste generated from construction of the premises must be effectively controlled on-site before disposal. All waste must be disposed of in accordance with the *Waste Reduction and Recycling Act 2011*.

23. All waste generated on-site must be managed in accordance with the waste management hierarchy as detailed in the *Waste Reduction and Recycling Act 2011*.

OPERATING HOURS DURING CONSTRUCTION

24. Construction work shall occur only between the hours of 6:00am and 6:00pm Monday to Saturday.

25. Work on Sundays and Public Holidays shall be limited to safety inspections, testing, checks and environmental work involving a maximum of 10 workers on-site (unless approved otherwise by Council).

SETBACKS

26. All buildings and structures, including solar panels, must have a minimum setback of 20 metres from the primary road frontage.

27. All buildings and structures, including solar panels, must have a minimum side and rear boundary clearance of 15 metres.

REGIONAL INFRASTRUCTURE CORRIDOR - STOCK ROUTE

28. Any new access from a road servicing a Stock Route (Kumbarilla Lane) must include a gate or grid to prevent stock entry to premises.

29 Boundary fencing shall be maintained to the road boundary adjoining the Stock Route (Kumbarilla Lane).

ENGINEERING WORKS

30. Submit to Council, an Operational Work application for all civil works including earthworks, stormwater, roadworks, and access.

31. Undertake Engineering designs and construction in accordance with Council's Planning Scheme, Development Manual and Standard Drawings, and relevant Australian Standards and design manuals.

32. Be responsible for the full cost of any alterations necessary, to easements and/or other public utility installations in connection with the development.

MAINTENANCE

33. Maintain all work that will become Council infrastructure for a period of 24 months (maintenance period) from the date of on-maintenance. Any defective work must be rectified within the maintenance period.

34. Provide Council with a maintenance bond in an acceptable form equal to 5% of the value of Council's infrastructure prior to commencement of the maintenance period.

LOCATION, PROTECTION AND REPAIR OF DAMAGE TO COUNCIL AND PUBLIC UTILITY SERVICES INFRASTRUCTURE AND ASSETS

35. Be responsible for the location and protection of any Council and public utility services infrastructure and assets that may be impacted on during construction of the development.

36. Repair all damage incurred to Council and public utility services infrastructure and assets, as a result of the proposed development immediately should hazards exist for public health and safety or vehicular safety. Otherwise, repair all damage immediately upon completion of work associated with the development.

STORMWATER MANAGEMENT

37. Provide stormwater management generally in accordance with the Approved Stormwater and Drainage Report prepared by Calibre, Rev 0, dated 4 June 2020, subject to detailed design and except as altered by conditions of this development approval.

38. Design and construct stormwater drainage to ensure that there is no nuisance or interference to the current use or potential future use of all downstream properties including road reserves and the like, for design storms of ARI2, ARI5, ARI10, ARI20 and ARI50.

39. Provide overland flow paths that do not alter the characteristics of existing overland flows or create an increase in flood damage on other properties.

40. Ensure that adjoining properties and roadways are protected from ponding as a result of any site works undertaken.

WATER SUPPLY

41. Provide adequate on-site water storage for the development with a capacity suitable to meet the requirements of the development.

WATER SUPPLY - FIRE FIGHTING SUPPLY

42. Fire fighting equipment and materials for electrical and electronic equipment fires must be installed at appropriate locations.

43. The development shall be provided with a suitable permanent on-site water supply for fire fighting purposes, separate from any potable water supply.

44. Any water tank for fire fighting supply must be provided with a supply outlet with a 50mm male camlock fitting for fire fighting connection.

ON-SITE SEWERAGE

45. Connect the development to an on-site effluent disposal system, in accordance with AS1547:2012 and the Queensland Plumbing and Waste Water Code 2019.

46. Obtain a Development Permit for Plumbing Work for the on-site sewerage treatment system.

Note: Any on-site effluent disposal system servicing more than 21 Equivalent Persons (EP) requires an Environmentally Relevant Activity (ERA) 63 which, depending on the treatment and discharge method, will require a separate Material Change of Use approval. Alternatively, Council will consider a storage and pump-out solution for the construction phase only, with collection and disposal of wastewater by a licensed contractor.

PARKING AND ACCESS - GENERAL

47. Access to the site shall be via Forest Road only, as shown on the Approved Plan, unless otherwise approved by Council.

48. Provide a minimum of 160 on-site car parking spaces during the construction phase.

49. Provide 20 car parking spaces, including a minimum of one (1) person with disability (PWD) car parking space, and 1 parking space for a service vehicle during the operational phase.

50. Lay and maintain gravel in all access roads, parking and equipment storage areas and make provision for dust management.

51. Ensure access to car parking spaces, vehicle loading and manoeuvring areas and access roads remain unobstructed and available for their intended purpose during the hours of operation.

52. Ensure loading and unloading operations are conducted wholly within the site and vehicles enter and exit the site in a forward direction.

53. Provide signage that indicates the location of parking areas and the flow of traffic through the site.

PARKING AND ACCESS - SERVICING

54. Ensure loading and unloading operations are conducted wholly within the site and vehicles enter and exit the site in a forward direction.

VEHICLE ACCESS - TURNOUT

55. Design and construct a vehicle turnout in accordance with Council's Standard Drawing No. R-007, and designed to accommodate the largest expected vehicle.

APPROVED TRANSPORT ROUTE

Heavy Vehicle Access Route

56. The approved heavy vehicle route is from Dalby-Kogan Road, south along Kumbarilla Road, then right into Forest Road to the site access point, and vice versa.

57. No access is permitted to any other Council road for heavy vehicles unless approved in writing from Council.

Access Routes - General

58. The approved route for all other vehicles is Dalby-Kogan Road or Moonie Highway, Kumbarilla Road, then Forest Road to the site access point, and vice versa.

59. Access to the site is to be via approved transport routes only.

ROADWORKS

60. Upgrade the intersection of the Kumbarilla Lane/Forest 201 Road/Ducklo-Gulera Road intersection to include:

- a Basic Right Turn Treatment (BAR) for the right turn movement into Forest 201 Road; and
- formalisation of the 4-way intersection layout, including road alignment of Forest 201 Road and Ducklo-Gulera Road as required.

61. Construct Forest 201 Road to provide an all-weather 7 metre wide gravel pavement on an 8 metre formation (Rural Access 2), with a minimum gravel depth of 125mm, generally in accordance with Council's Standard Drawing R-002, Rev F.

62. Formalise the intersection at the western end of Forest 201 Road, with a T-intersection to the existing service road, and incorporate a suitable location for the site access.

63. Upon completion of the construction phase of the Solar Farm, the approved transport route (sealed and unsealed sections) shall be left in the same condition as the pre-construction standard, with a minimum gravel thickness of 125mm required on the Forest 201 Road section of the approved transport route.

64. The applicant is responsible for the carrying out, and cost of maintenance of the approved transport routes for the duration of the construction phase of the project.

65. A roadworks bond/bank guarantee of $200,000 for the maintenance of the unsealed section of the approved transport route shall be payable to Western Downs Regional Council prior to commencement of construction. In the event that road maintenance works are not carried out in accordance with Council's standards, Council reserves the right to use part or all of the bond money to carry out the necessary maintenance work.

66. The applicant is responsible for the carrying out and cost of maintenance, including dust suppression of unsealed sections of approved transport routes for the duration of the construction phase of the Solar Farm.

67. All road maintenance work must be conducted with prior approval from Council.

B-DOUBLE ROUTE

68. Kumbarilla Lane and Forest 201 Road are not currently approved B-Double Routes. Obtain an approval for these roads (if required) to be used by multi-combination vehicles, from the National Heavy Vehicle Regulator prior to allowing access for multi-combination vehicles via the above road section. Please refer to the following link for more information:
https://www.nhvr.gov.au/road-access/access-management/applications-and-forms

ELECTRICITY AND TELECOMMUNICATIONS

69. Connect the development to electricity and telecommunication services.

EARTHWORKS - GENERAL

70. Earthworks per site involving greater than 500m^3 of material requires an Operational Work application.

71. Undertake earthworks in accordance with the provisions of AS3798 Guidelines on Earthworks for Commercial and Residential Developments.

EARTHWORKS - RETAINING STRUCTURES AND BATTERS

72. Ensure any batters do not exceed a maximum slope of 25% (1 in 4).

73. Contain any batters wholly within the proposed development site. Fill cannot be placed on adjacent properties without providing Council with written permission from the respective property owner(s).

EROSION AND SEDIMENT CONTROL - GENERAL

74. Undertake erosion and sediment control during construction work in accordance with Council's Standard Drawing No's D-005 (Rev A), D-006 (Rev A) and D-007 (Rev A) as applicable.

75. Ensure that all reasonable action is taken to prevent sediment or sediment laden water from being transported to adjoining properties, roads and/or stormwater drainage systems.

76. Remove and clean-up sediment or other pollutants in the event that sediment or other pollutants are tracked/released onto adjoining streets or stormwater systems, at no cost to Council.

ENVIRONMENTAL HEALTH

77. Undertake operations and construction work associated with this development to the requirements of Council, including the following:

    77.1 do not cause nuisance to adjoining residents by the way of smoke, dust, stormwater discharge or siltation of drains, at any time, including non-working hours; and

    77.2 remove immediately, any material spilled or carried onto existing roads to avoid dust nuisance and ensure traffic safety.

78. Do not release contaminants or contaminated water directly or indirectly from the land subject to this approval, or to the ground or groundwater at the land subject to this approval, except for:

    78.1 uncontaminated overland stormwater flow; and

    78.2 uncontaminated stormwater to the stormwater system.

ADVISORY NOTES

NOTE 1 - Relevant Period

*"A part of a development approval lapses at the end of the following period (the **currency period**)—*

(a) for any part of the development approval relating to a material change of use—if the first change of use does not happen within—

(i) the period stated for that part of the approval; or
(ii) if no period is stated—6 years after the approval starts to have effect."

NOTE 2 - Aboriginal Cultural Heritage

It is advised that under Section 23 of the *Aboriginal Cultural Heritage Act 2003*, a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the "cultural heritage duty of care"). Maximum penalties for breaching the duty of care are listed in the Aboriginal cultural heritage legislation. The information on Aboriginal cultural heritage is available on the Department of Aboriginal and Torres Strait Islander and Partnerships' website www.datsip.qld.gov.au.

NOTE 3 - General Environmental Duty

General environmental duty under the *Environmental Protection Act 1994* prohibits unlawful environmental nuisance caused by noise, aerosols, particles, dust, ash, fumes, light, odour or smoke beyond the boundaries of the development site during all stages of the development including earthworks, construction and operation.

NOTE 4 - General Safety of Public During Construction

The *Work Health and Safety Act 2011* and *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

NOTE 5 - Property Note (Audit of Conditions)

An inspection of the property to ascertain compliance with conditions will be undertaken three (3) months after the approval takes effect. If the works are completed prior to this time, please contact Council for an earlier inspection. A property note to this effect will be placed on Council's records.

NOTE 6 - Duty to Notify of Environmental Harm

If a person becomes aware that serious or material environmental harm is caused or threatened by an activity or an associated activity, that person has a duty to notify Western Downs Regional Council.

APPEAL RIGHTS

"Chapter 6 Dispute Resolution

Part 1 Appeal Rights

229 Appeals to Tribunal or P&E Court

(1) Schedule 1 states -

(a) matters that may be appealed to -

(i) either a tribunal or the P&E Court; or
(ii) only a tribunal; or
(iii) only the P&E Court; and

(b) the person -

*(i) who may appeal a matter (the **appellant**); and*
(ii) who is a respondent in an appeal of the matter; and
(iii) who is a co-respondent in an appeal of the matter; and
(iv) who may elect to be a co-respondent in an appeal of the matter.

(2) An appellant may start an appeal within the appeal period.

*(3) The **appeal period** is -*

(a) for an appeal by a building advisory agency - 10 business days after a Decision Notice for the decision is given to the Agency; or

(b) for an appeal against a deemed refusal - at any time after the deemed refusal happens; or

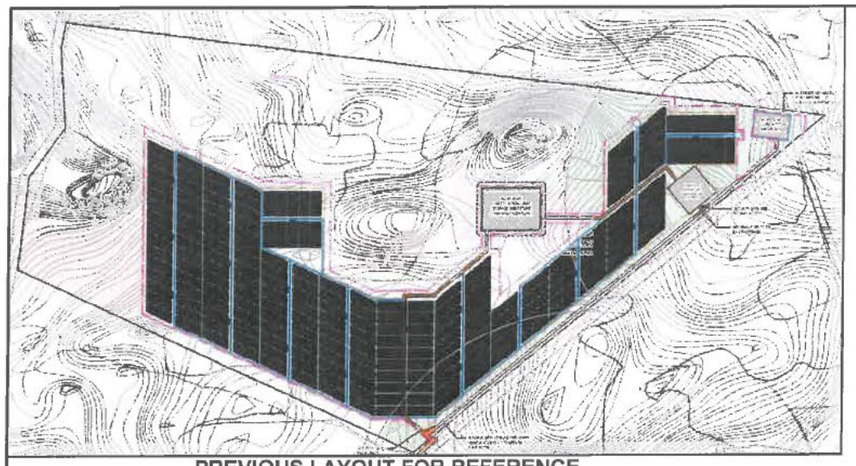
(c) for an appeal against a decision of the Minister, under Chapter 7, Part 4, to register premises or to renew the registration of premises - 20 business days after a Notice is published under Section 269(3)(a) or (4); or

(d) for an appeal against an Infrastructure Charges Notice - 20 business days after the Infrastructure Charges Notice is given to the person; or

(e) for an appeal about a deemed approval of a development application for which a Decision Notice has not been given - 30 business days after the applicant gives the Deemed Approval Notice to the Assessment Manager; or

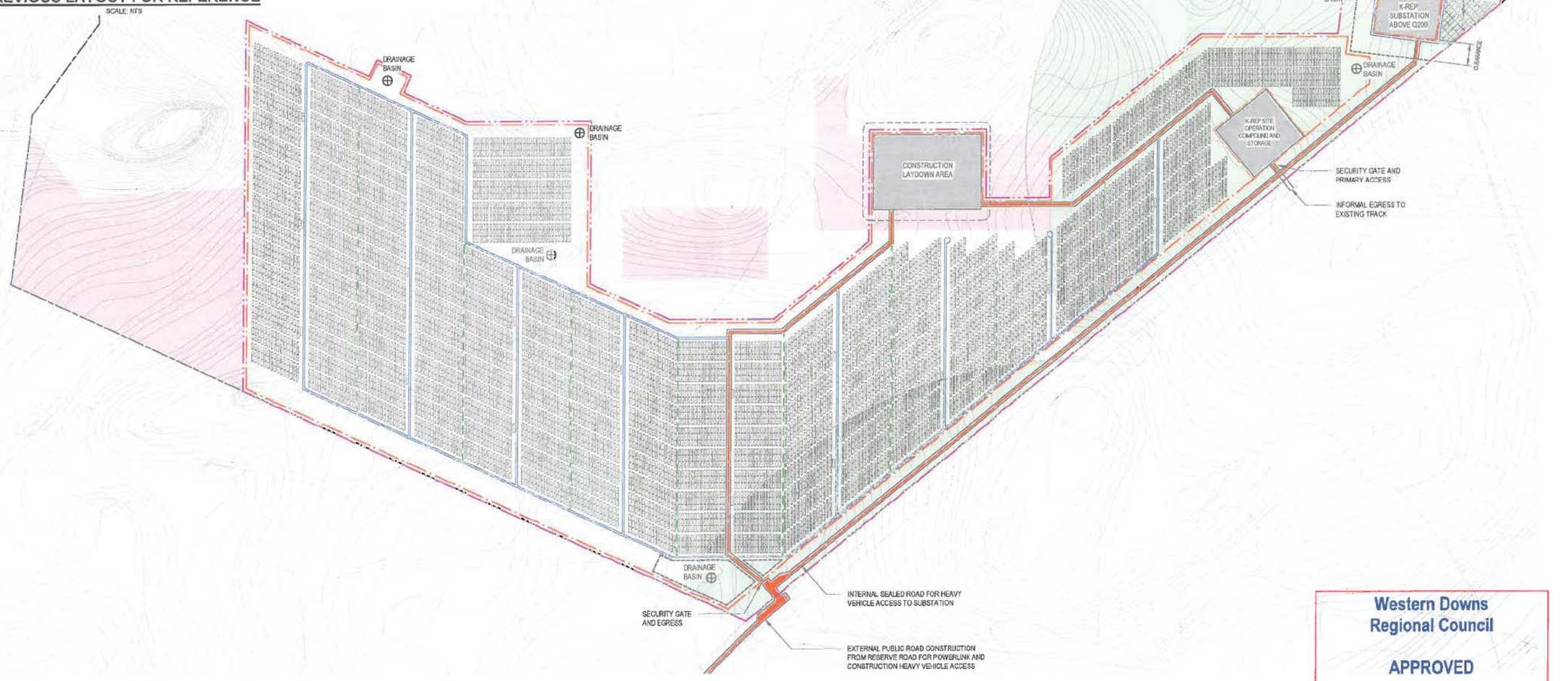
(f) for any other appeal - 20 business days after a Notice of the decision for the matter, including an Enforcement Notice, is given to the person.

Note - See the P&E Court Act for the Court's power to extend the appeal period."



PREVIOUS LAYOUT FOR REFERENCE

SCALE: NTS



SHADING KEY

- PV EXCLUSION ZONE DUE TO HORIZON SHADING
- MSES ESSENTIAL HABITAT ZONE FOR INVESTIGATION

ROADWAY KEY

- MAJOR ROAD - SEALED
- MINOR ROAD - UNSEALED
- INFORMAL ROAD - NATURAL LANDSCAPE

ELEMENTS KEY

- FENCE/SECURITY LINE EXTENT
- LAND CLEARING EXTENT
- ⊕ INDICATIVE LOCATION OF DRAINAGE BASIN (REFER DRAINAGE REPORT FOR LOCATION AND VOLUME)

Western Downs Regional Council

APPROVED
29/09/2020

Kate Swepson
PRINCIPAL PLANNER

REVISION	DATE	ISSUE DETAILS	DESIGN	DRAWN	CHECK
A	26.08.19	CONCEPT LAYOUT	JW	JC	
B	10.10.19	FS SUBMISSION	JW	JC	
C	01.07.20	MODIFIED TO CONSOLIDATE INTERNAL AREAS	JW	JW	
D	03.07.20	MODIFIED FOR DRAINAGE	JW	JW	

STATUS: **INFORMATION ONLY** NOT FOR CONSTRUCTION

SCALE: 0 100000 200000 300000 400000 SCALE: 1:5000

CLIENT: KOMIPO KOREA MIDLAND POWER CO.,LTD. elecsee

calibre calibregroup.com

PROJECT: KUMBARILLA RENEWABLE ENERGY PARK (K-REP)
KUMBARILLA, QLD 4405

DRAWING TITLE: SITE LAYOUT - GENERAL

PROJECT No	DRAWING No.	REVISION
19-000691	BR-E5251	D

A1

BLACKASH
BUSHFIRE CONSULTING

Bushfire Risk Assessment

Kumbarilla Renewable Energy Park

Lot 4 Plan DY457

Western Downs
Regional Council

APPROVED
29/09/2020

Kate Swepson
PRINCIPAL PLANNER

Prepared for

Calibre Group

BPAD
Bushfire
Planning & Design
Accredited Practitioner
Level 3

Project Name:	**J000284 - Kumbarilla Renewable Energy Park**
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Version	Primary Author(s)	Description	Date Completed
0.1	Dan Pedersen	Draft for issue	10 March 2020
0.1	Dan Pedersen	FINAL	8 June 2020

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BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Contents

Executive Summary

Blackash have prepared this Bushfire Risk Assessment to inform the proponent (Calibre Group) the bushfire risk and mitigation considerations for a proposed ~200 ha photovoltaic (PV) solar farm on Lot 4 DY457 (freehold), approximately 40 km directly west of Dalby, in the rural zone of the Western Downs Regional Council local government area, Queensland.

Under the Western Downs Planning Scheme 2017 a solar farm would be defined as a 'Renewable Energy Facility' to be assessed under a Standard 'Code Assessable' application with Western Downs Regional Council.

The 400 ha property is wholly vegetated with forest (various State and local mapping overlays, including the Bushfire Hazard Overlay OM-003 Bushfire), and an assessment of bushfire risk is required to satisfy Council approval process. The bushfire risk assessment has been prepared consistent with the QRFS Bushfire resilient communities technical document and State Planning Policy July 2017 (SPP) and associated State Planning Policy state interest guidance material –Natural hazards, risk and resilience – Bushfire.

The development is in an isolated location, and recommendation are focused on provision of managed setbacks from the hazard for the relatively resilient infrastructure type and safety during construction and into operation (emergency management provisions and accessibility). The proposed Kumbarilla Renewable Energy Park solar farm would apply bushfire mitigation measures and emergency planning provisions, such that the location and design would support an acceptable level of risk to life and property. The recommendations inherently serve to protect the surrounding environment from potential bushfire ignition and spread arising from the proposed development.

Table 1 is a summary of compliance with relevant documents and approaches to limit bushfire attack and meet the requirements of the Queensland planning framework for development in Bushfire Prone Areas.

Table 1 Summary

Proposed Development	Kumbarilla Renewable Energy Park 200 ha solar farm
Local Government Area	Western Downs Regional Council
Location	Lot 4 Plan DY457
Relevant Legislation or Scheme	Western Downs Planning Scheme 2017 • Renewable Energy Facility • Rural Zone Code • Standard 'Code Assessable' application
A development application is required to be submitted and approved by Council.	Identified as Assessable development - code assessment in Part 5.5 Categories of development and assessment - Material change of use.
Bushfire Hazard Overlay	Site located in predominantly Medium Bushfire Hazard and small areas of High Bushfire Hazard area
Bushfire mitigation and planning provisions	• Asset protection zones and landscaping • Access and fire trails • Emergency Management and Evacuation Planning • Water supplies
Does this development comply with the assessment methods and performance requirements SPP -Natural hazards, risk and resilience - Bushfire	YES

1. Introduction

The proponent Calibre Group has engaged Blackash Bushfire Consulting to complete a Bushfire Risk Assessment Report for a proposed ~200 ha photovoltaic (PV) solar farm on the rural property Lot 4 DY457 (freehold), approximately 40 km directly west of Dalby, Queensland (**Figure 1**).

The landholding is in the rural zone of the Western Downs Regional Council local government area. Under the planning scheme a solar farm would be defined as a 'Renewable Energy Facility', which is consistent development in the rural zone.

This assessment demonstrates how the proposed solar farm meets the development criteria for bushfire protection, specifically for the protection of life and safety, infrastructure and environmental values associated with the site.

1.1. Site Context

The locality around the proposed solar farm has existing and developing energy resource infrastructure. The north-eastern corner of the lot is traversed by a high-voltage electrical transmission easement and it is in proximity to the QGC Rugby Jo gas compression station (approx. 1 km east). Gas extraction pads and access roads directly to the east and state forests to the south and west.

The total property is approximately 400ha in area and is considered as bushfire prone area (**Figure 2**). The site proposed for development is wholly vegetated (**Figure 3**). The solar farm would occupy approximately half of the landholding. The development approval requires an assessment of the bushfire risk.

A preliminary layout for the proposed solar farm is shown in **Figure 4**. The preliminary layout shows panels and infrastructure predominately on the eastern and south-eastern portions of the property.

Figure 1 Site Location

BLACKASH
BUSHFIRE CONSULTING

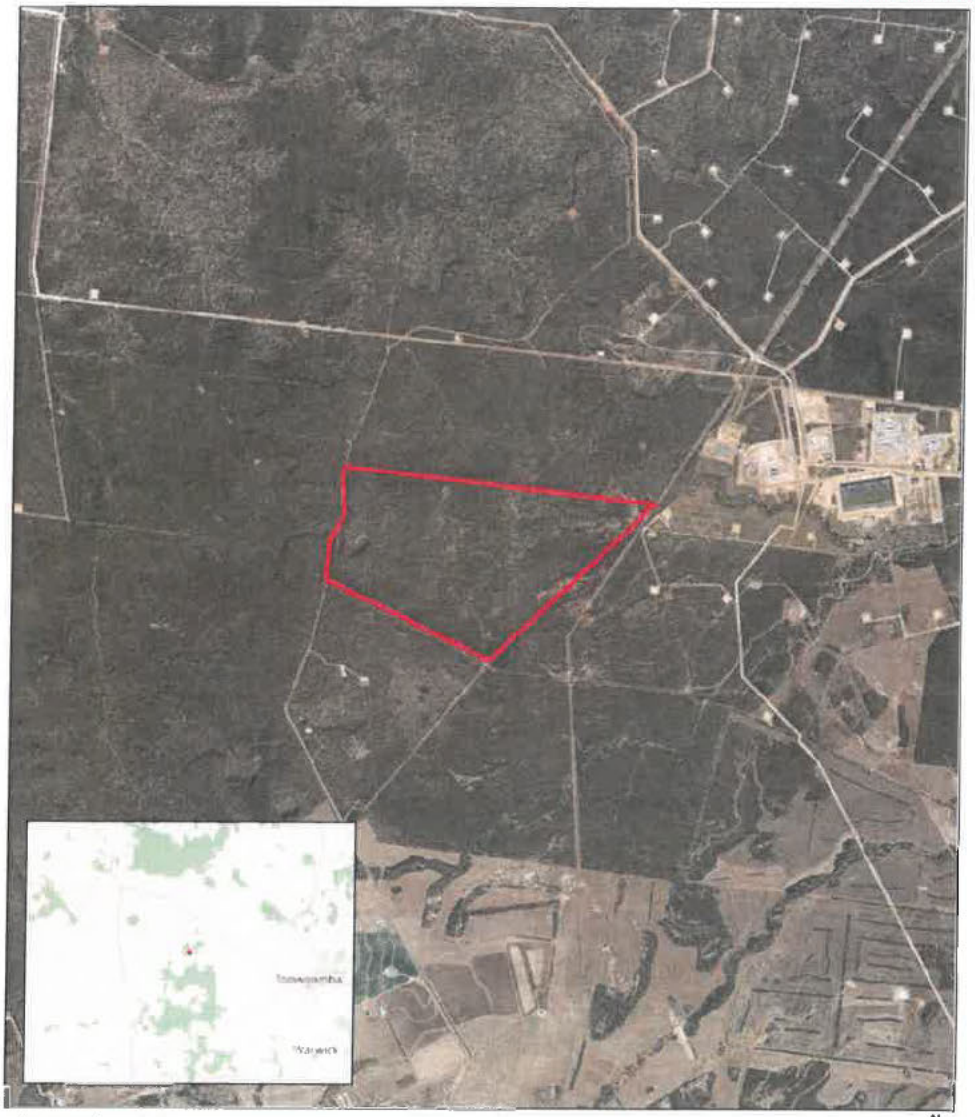


Figure 2 Bushfire Overlay Map

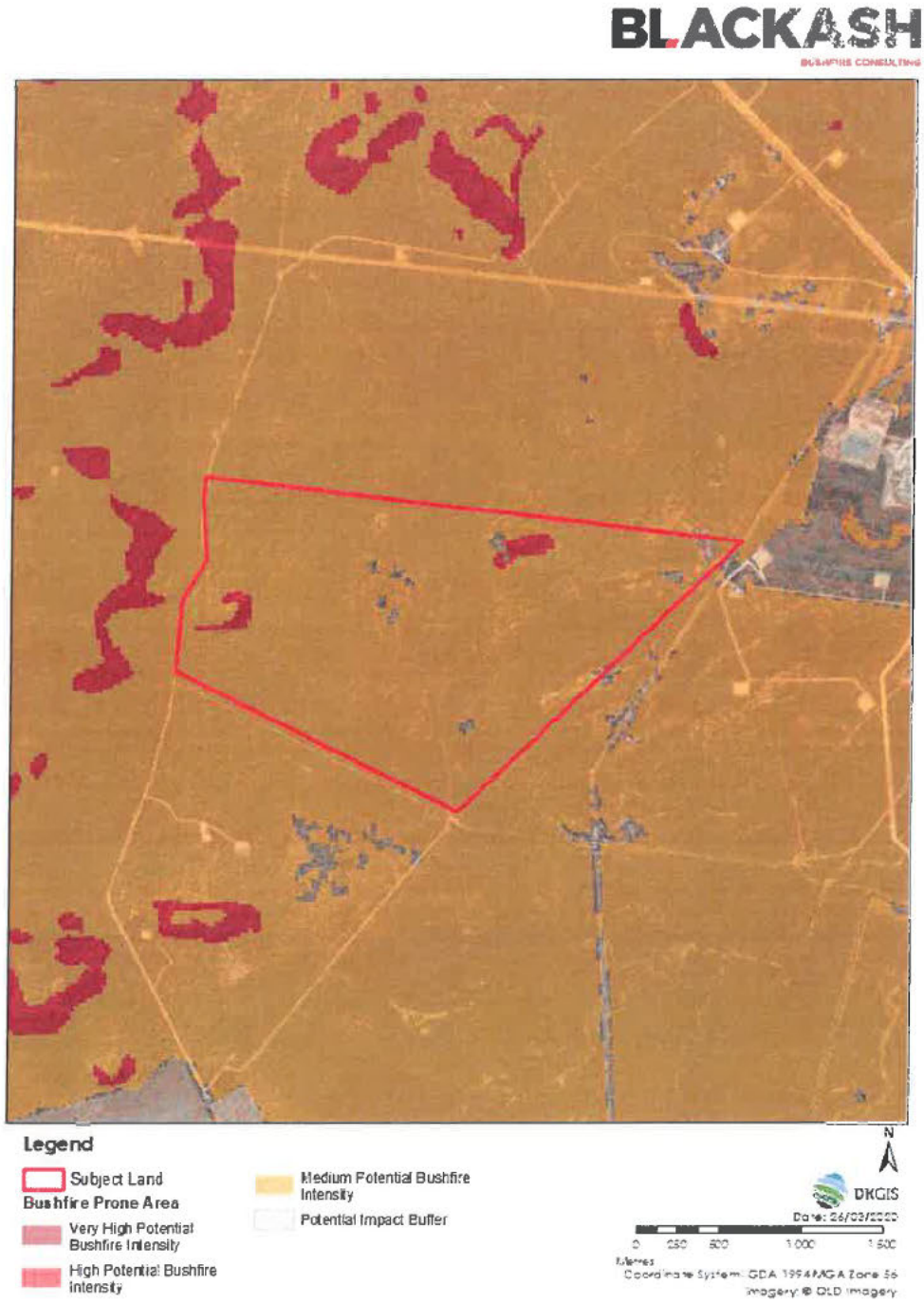
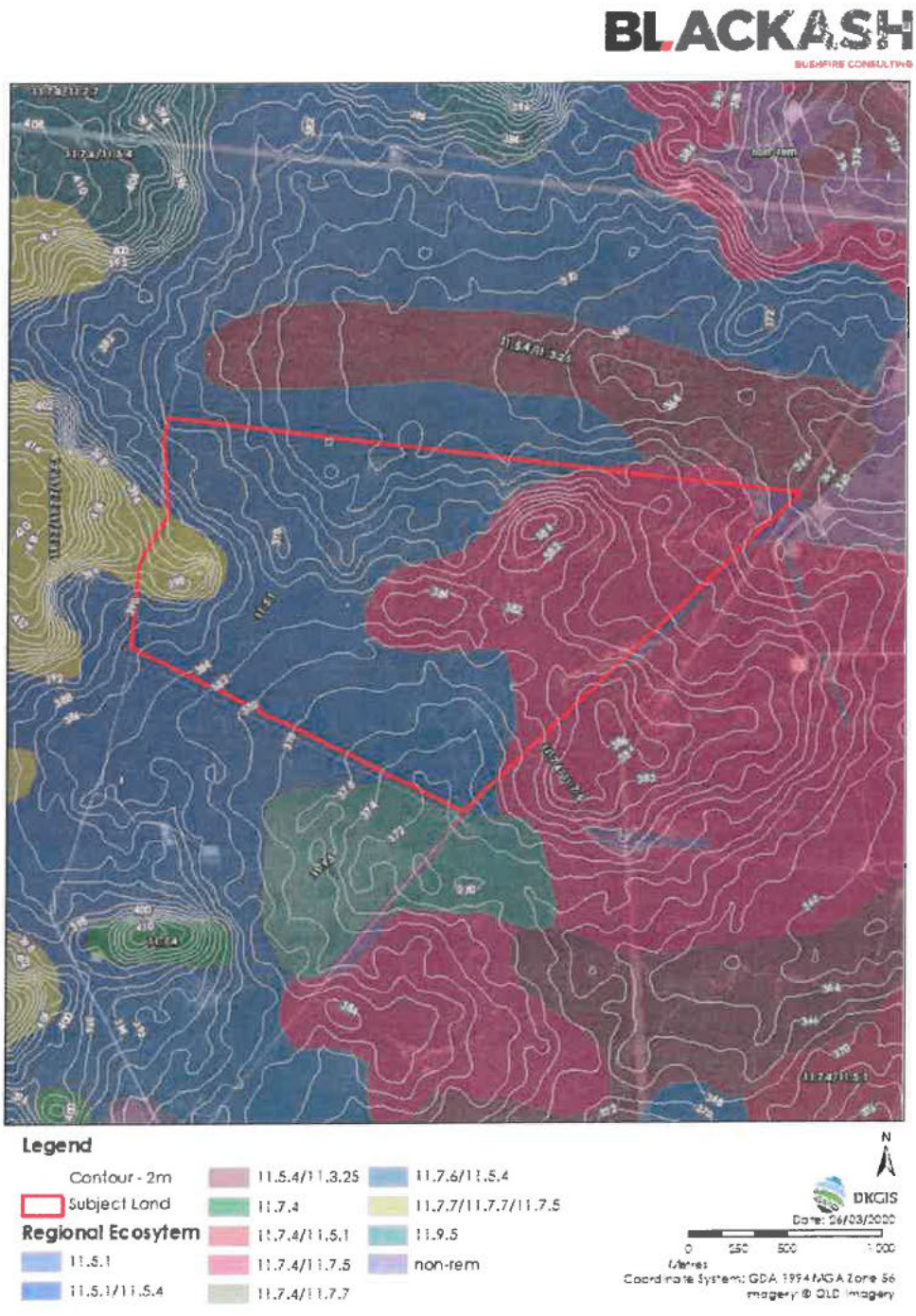


Figure 3 Vegetation type and contours



2. Legislative Framework

The Planning Regulation 2017 provides the terms that must be included in local government planning schemes. These use terms apply to the extent of any inconsistency with the planning scheme. Solar farm fall under the use term renewable energy facility', being:

a) the use of premises for the generation of electricity or energy from a renewable energy source, including, for example, sources of bioenergy, geothermal energy, hydropower, ocean energy, solar energy or wind energy; but
b) does not include the use of premises to generate electricity or energy to be used mainly on the premises.

The Western Downs Planning Scheme 2017 applies to all properties in the Western Downs region. It sets out the preferred land use for each property and identifies what areas should be protected.

The proposed solar farm is an industrial development on rural zones and the Rural Zone Code applies. The proposed land use (solar farm) will be a 'renewable energy facility', consistent with the rural zone.

In accord with the Rural Zone code table of assessment in the Western Downs Planning Scheme, the 'Renewable Energy Facility' application in is to be assessed under the standard code assessable development (i.e. not fast tracked).

3. Assessment Methodology

The assessment method to determine the bushfire risk to the proposed development has been derived from the Australian Standard AS 3959—2018: Construction of buildings in bushfire-prone areas (Simplified 1).

This method would identify the relevant fire danger index, slope and vegetation classification and determine specific setback (in metres) from the hazard to attain an acceptable bushfire attack level (BAL).

4. Bushfire Overlay Code

Code assessable development is to be assessed against all the bushfire planning assessment benchmarks identified in Planning Scheme Part 8.2.3 (Bushfire Hazard Overlay Code). This code applies to assessing material change of use development applications for development within the

High Bushfire Hazard Area or Medium Bushfire Hazard Area as shown on the Bushfire hazard overlay maps (OM-003). The purpose of the code is to manage development that is in bushfire hazard areas so as to ensure that the risk to life, property, community and the environment during bushfire events is minimised and to ensure that development does not increase the potential for bushfire damage.

The property is predominantly a Medium Bushfire Hazard Area (**Figure 2**).

5. Bushfire Hazard

The vegetation formations (bushfire fuels) and the topography (effective slope) combine to create the bushfire threat that may affect bushfire behaviour at the site and which determine the planning response. An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as setbacks from the hazard.

5.1. Fire Weather

The fire weather assumes a credible worst-case scenario and an absence of any other mitigating factors relating to aspect or prevailing winds.

Queensland has a designated Fire Danger Index (**FDI**) of **FDI 40** (as per Table 2.1 AS3959:2018).

5.2. Vegetation Structure

The vegetation on the site is classified as (**Figure 3**):

- RE 11.5.1: *Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces
- RE 11.7.4/11.7.5: *Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust

The property is predominantly a **woodland vegetation structure**.

5.3. Slopes Influencing Bushfire Behavior

The 'effective slope' influencing fire behaviour approaching the sites has been assessed in accordance with the methodology specified within AS3959:2018. This is conducted by measuring the

worst-case scenario slope where the vegetation occurs over a 100 m transect measured outwards from the development boundary or the existing/ proposed buildings.

The slope within the site are generally flat with low hills grading between **0-5 degrees**.

5.4. Setbacks from Hazard and Bushfire Attack Levels

The Bushfire Attack Level **(BAL)** is a means of measuring the severity of a building's or sites potential exposure to ember attack, radiant heat and direct flame contact. The BAL is used as the basis for establishing the requirements for separation and construction to improve protection of infrastructure elements.

The proposed solar farm development has inherent bushfire resilience in its structure and materials. Solar farms should be provided with adequate clearances to combustible vegetation and in this design should avoid modelled flame contact.

Woodland vegetation on 0-5 degree slopes require a minimum 6-8m to avoid flame contact (AS3959:2018, Table 2.7). The proposed development **will provide a minimum 10m setback** (protection zone) from the adjacent woodland hazard. This protection zone will be provided through the construction pad as a minimum mineral earth (e.g. gravel) clear of vegetation and will serve as construction and maintenance access for the life of the development.

6. Access

Design of access roads enables safe access and egress for people attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.

The road design is capable of providing access for firefighting and other emergency vehicles, in accordance with SC6.2 – Western Downs Planning Scheme Policy 1 – Design and Construction Standards.

6.1. Public Road Access

Kumbarilla Road is the nearest public through road, east from the development site.

The proposed solar farm will provide access from the public road system. Forest Road in the southeast links through to Kumbarilla Road (east) and is considered the main access. This route is of significant

length (5.8km) and through bushfire prone areas associated with Weranga State Forest and requires a crossing over Moramby Creek. The road will be constructed to provide suitable access for heavy vehicles and subsequently will be suitable for emergency operations.

The main access road specifications will be:

- Minimum access road corridor width of 10 metres, in which all trees and shrubs are removed and any remaining ground level vegetation is maintained at a height of < 100mm;
- Minimum formed width of 6 metres (allows for passing opportunity);
- Minimum 40t vehicle capacity, including the Moramby Creek crossing;
- Constructed and maintained to prevent erosion and provide continuous access;
- Constructed with a stabilised gravel surface or sealed, have a gradient no greater than 10 degrees and cross-fall no greater than 10 degrees;
- Signs at each entrance and intersection.

The single access route is a significant risk associated with the isolation of the solar farm development site and surrounding bushfire prone vegetation. Subsequently am alternate route to public roads needs to be planned (in the event the main access is blocked).

It is recommended that the following alternate (emergency) access provisions are assessed (**Figure 4**), and at least one alternate access be planned and approved for the solar farm:

- an arrangement for an emergency egress road be provided to the northeast, into the Rugby Jo compressor facility and out to Kumbarilla Road (requires approvals from QGC); and/or
- Provision of emergency egress road be to the west (reserved road) and south to Martins Road.

Based on approval, the alternate egress road will meet the design specifications as per property access (Section 6.2).

6.2. Property Access

Best practice road design for developments within or adjacent to bushfire prone areas involves the construction of a perimeter road separating built structures from the adjacent hazard. The proposed solar farm would provide a perimeter road for both construction and maintenance.

The perimeter road will be designed and constructed to meet the following design standards:

- Minimum cleared width of 10 metres (i.e. 10m protection zone), in which all trees and shrubs are removed, and any remaining ground level vegetation is maintained at a height of < 100mm;
- Minimum formed width of 6 metres (allows for passing opportunity);
- Constructed and maintained to prevent erosion and provide continuous access for 4WD vehicles;
- Constructed with a stabilised gravel surface, have a gradient no greater than 10 degrees;
- Cross-fall no greater than 10 degrees;
- Signs at each entrance and intersection.

7. Water Storage Supply and Utilities

Adequate services of water are recommended for the protection of infrastructure during and after the passage of a bush fire. The proposed solar farm should have an independent water supply specific for this purpose.

At a minimum, it is recommended that a 50,000L water supply dedicated to fire protection be constructed on site, dedicated either via tanks or dam storage. The dedicated water supply should be positioned in a location that is protected from direct bushfire threat (allowing emergency personnel to draught water in a safe environment) and have open and clear vehicle access suitable for a fire tanker to approach, turn around and fill from the water source.

Alternate water supply arrangements can be assessed on merit as the design develops, such as multiple storage and potentially a reticulated system.

The electricity supply and turn and reticulated system that provides water for emergency operations

8. Emergency Management

The proposed development initially involves clearing and construction of the site, and then ongoing production and maintenance works. Throughout these stages, the development will consider the safety of staff and contractors, and any attending emergency service workers in the event that a bushfire impacts the site.

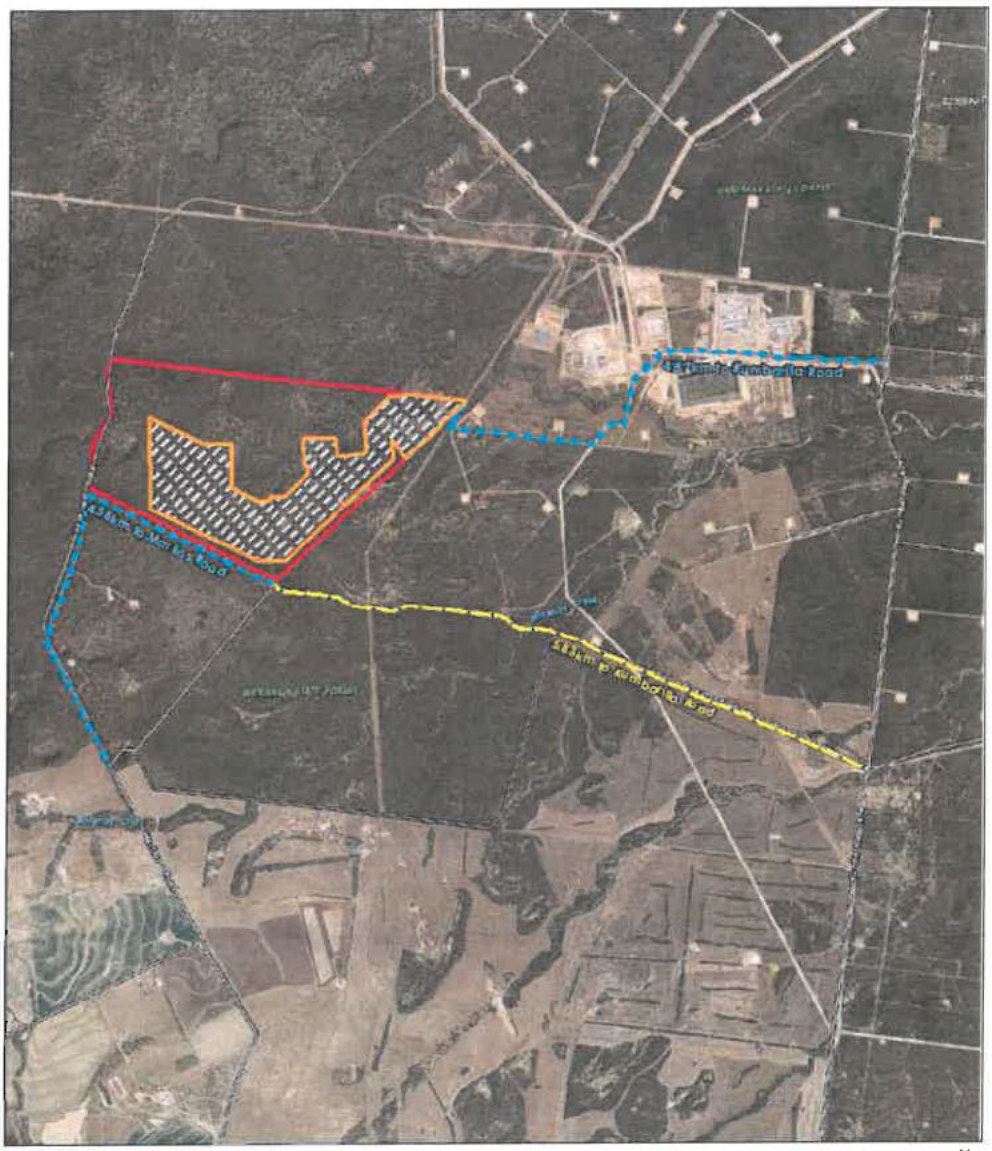
A Bushfire Emergency Response Plan should be prepared for the solar farm that provides the following:

- addresses foreseeable on-site and off-site fire events
- confirmation of acceptable access and emergency access provisions

- evacuation triggers and protocols (evacuate or shelter in place)
- confirmation of water supplies and accessibility and any other response/protection measures
- suppression response strategies and tactics, including aerial suppression options/management
- clearly state work health safety risks and procedures to be followed by fire-fighters, including
    - personal protective clothing
    - minimum level of respiratory protection
    - minimum evacuation zone distances
    - a safe method of shutting down and isolating the PV system (or noting if this is not possible for safe internal access)
    - any other risk control measures required to be followed by fire-fighters
- Identify stakeholders (emergency response agencies, contractors, neighbours)

Contact should be made by the site operator with the Local Emergency Management Committee to establish emergency management procedures with relevant authorities for the safety hazards presented by the site. The operator of the solar farm should brief the local volunteer fire brigades and neighbouring farmers at appropriate intervals, for example, at annual pre-season fire meetings, on safety issues and procedures.

Figure 4 Site Plan and Bushfire Mitigation Recommendations


Legend
Asset Protection Zone - 10m
Alternate Access
Primary Access
Proposed Solar Array
Subject Land
N
DKGIS
Date: 3/04/2020
0 0.5 1 2 3
Kilometers
Coordinate System: GDA 1994/MGA Zone 56
Imagery: © QLD Imagery

9. Assessment Against the Bushfire Hazard Overlay Code Assessment Benchmarks

Bushfire Hazard Overlay Code Assessment benchmarks criteria for accepted and assessable development have been taken from Table 8.2.3.1 - Bushfire hazard overlay code. The proposed development meets the following performance outcomes:

Performance Outcome #1

Development does not increase the number of persons living or working on land subject to High Bushfire Hazard identified on **Bushfire hazard overlay maps (OM-003)** unless it is demonstrated that:

1. the subject land is a Medium Bushfire Hazard (or lesser); or
2. development is for community infrastructure and facilities are located and designed to minimise susceptibility to bushfire events; and
3. a Bushfire Emergency Management Plan is prepared by suitably qualified person(s) and appropriately mitigates risks to life and property.

This development is supported by an assessment of the bushfire impact and recommended mitigation actions as prepared by suitably qualified person (including the Bushfire Emergency Management Plan) that would minimise susceptibility to bushfire event.

Performance Outcome #2

In Medium Bushfire Hazard Areas as identified on **Bushfire hazard overlay maps (OM-003)**, vehicular access is designed to mitigate against bushfire hazard by:

1. ensuring adequate access for firefighting and other emergency vehicles;
2. ensuring adequate access for the evacuation of residents and emergency personnel in an emergency situation, including alternative safe access routes (should access in one direction be blocked in the event of a fire);
3. providing for the separation of developed areas and adjacent bushland.

This development design provides for alternate access provisions for firefighting and other emergency vehicles: ensuring adequate access for the evacuation of residents and emergency personnel in an emergency situation, including alternative safe access routes (should access in one direction be blocked in the event of a fire): and provides for the acceptable separation of developed areas and adjacent bushland.

10. Recommendations and Design Summary

The following recommendations are made for the proposed solar farm development application:

1. **Setback from vegetation**: At the commencement of construction works, the development site will be afforded a 10m bushfire separation distance between any infrastructure (other than perimeter roads and dams etc) and the woodland vegetation. This 10m separation will be managed and maintained as fuel free zone, being mineral earth/gravel foundation. The resulting bushfire attack level at 10m separation will ensure no flame contact and radiant heat will not exceed 40kW/m² (BAL40), being less than 29kW/m² (BAL29) for the majority of the interface development;
2. **Access:** Public road access will provide more than 1 access route (i.e. provide for an alternate access route for emergency events). Property access will provide for a perimeter road around the solar farm development site. The access specifications detailed in Section 6.1 and 6.2 is capable of providing access for firefighting and other emergency vehicles, in accordance with SC6.2 – Planning Scheme Policy 1 – Design and Construction Standards.
3. **Water**: At a minimum, it is recommended that a 50,000L water supply dedicated to fire protection be constructed on site, dedicated either via tanks or dam storage. The dedicated water supply should be positioned in a location that is protected from direct bushfire threat (allowing emergency personnel to draught water in a safe environment) and have open and clear vehicle access suitable for a fire tanker to approach, turn around and fill from the water source.
4. **Emergency Management Planning**: A Bushfire Emergency Response Plan should be prepared for the solar farm prior to clearing and construction stages and will continue in perpetuity through the solar farm operations and maintenance stage.

In summary, the proposed solar farm development can achieve the performance outcomes for bushfire protection. The development provides for the protection of:

A. Life and safety of staff, contractors and emergency services

B. Property and infrastructure, including through construction stage and in to operational and maintenance stages

C. Environment, minimising clearing requirements and providing inherent risk mitigation of construction and operations igniting and spreading into the surrounding vegetation areas.

Appendix 1 References

CDM Smith, 2019. Memorandum letter Statutory Approvals Review for Proposed Dalby Solar Farm, dated 30/08/2019

Councils of Standards Australia AS3959 (2018) – Australian Standard Construction of buildings in bushfire-prone areas

NSW Department of Planning and Environment, December 2018. Large-Scale Solar Energy Guideline for State Significant Development.

NSW Rural Fire Service (RFS). 2019. Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners. Australian Government Publishing Service, Canberra

QRFS Bushfire resilient communities technical document State of Queensland, October 2019. Published by Queensland Fire and Emergency Services.

Queensland planning framework for development in Bushfire Prone Areas.

Queensland State Planning Policy July 2017 (SPP)

Western Downs Planning Scheme 2017 https://www.wdrc.qld.gov.au/doing-business/western-downs-planning-scheme/

State of Queensland, December 2019. Natural hazards, risk and resilience – Bushfire. State Planning Policy – state interest guidance material December 2019. Published by the Department of State Development, Manufacturing, Infrastructure and Planning, 1 William Street, Brisbane Qld 4000, Australia.

Response to WDRC Information Request Item 12 Stormwater and Drainage Report

20-005_Response to 030.2020.120.001 Information Request

Revision 0

4 June 2020

Western Downs
Regional Council

APPROVED
29/09/2020

Kate Swepson
PRINCIPAL PLANNER

ISSUE	DATE	ISSUE DETAILS	AUTHOR	CHECKED	APPROVED
0	04/06/2020	Tech Note Response to 030.2020.120.001 Item 12	N Adams	R Pizzino	N Adams

Contents

Tables

Figures

Appendices

1. Introduction

1.1 Purpose

This response has been prepared in response to the request for further information from Western Downs Regional Council (refer Appendix A). The department has advised that it requires the following information to determine if the proposed development and the additional hard surface (the solar panels, access tracks and buildings) impacts on the land.

1.2 Scope

The information requested is to provide a stormwater and drainage report on the impact thereof due to additional hard surface (the solar panels, access tracks and buildings) on the land

2. Response

Stormwater management for a ground-mounted solar farm will be affected by the following major site characteristics:

- Topography;
- Existing Site Conditions (native vegetation, agricultural etc) ;
- Proximity to watercourses, wetlands and seasonal flood levels;
- Soil type and depth to bedrock.

The existing site conditions for the proposed site have been discussed in Section 3.1 above.

Solar farm construction can significantly transform the volumes and flow rates of stormwater generated. Where clearing of large areas of existing vegetation is required, additional stormwater management during construction and until the site is revegetated may be required.

The construction process can significantly increase the post-development run-off rates. The following should be limited during the construction phase:

- Compaction of soils – may decrease infiltration, increase run-off and sediment transport
- Removal of topsoil – Bare sub-soil will be more susceptible to erosion and runoff, and be less nutrient rich, increasing time required for revegetation
- Vegetation removal – Phasing of construction should be considered to avoid removing vegetation from too large an area at once. Erosion and sediment control should be provided during construction phases.
- Revegetation should be undertaken as soon as is reasonably possible post construction.

2.1 Calculation Methodology

Flood modelling has been undertaken in consideration of the post-development site layout. The aims for stormwater management as presented below have been selected in consideration of advice for following with the following aims:

- Demonstrate appropriate management of the 10% AEP event; and
- Ensure no sheet-flow off site.

The Rational Method, as outlined in Section 1.5.5 of Australian Rainfall & Runoff 2003, for flood estimation has been used to estimate peak discharge values across the proposed site:

$$Q = CxAxI/360$$

Where Q = Peak Discharge (m^3/s)

C = Rational Method Runoff Coefficient (unitless)

A = Catchment Area (ha)

I = Rainfall Intensity (mm/hr)

The Intensity Frequency Duration table for Kumbarilla Lane Dalby, has been considered for rainfall intensity and is shown below.

Table 2.1 Bureau of Meteorology - Intensity Frequency Duration for Kumbarilla Lane, Dalby

	Annual Exceedance Probability (AEP) (mm/hr)						
Duration	63.20%	50%#	20%*	10%	5%	2%	1%
1 min	141	162	228	273	317	376	422
2 min	122	139	197	238	278	334	378
3 min	113	129	183	220	256	307	347
4 min	106	122	172	206	240	287	323
5 min	101	116	163	195	227	270	303
10 min	80.4	92.4	130	155	180	213	238
15 min	67.4	77.4	109	130	151	178	199
20 min	58.3	66.9	94.1	113	131	155	173
25 min	51.5	59.1	83.2	99.6	116	137	154
30 min	46.2	53.1	74.7	89.5	104	123	138
45 min	35.7	41	57.6	69.2	80.6	96.1	108
1 hour	29.3	33.6	47.3	56.9	66.4	79.4	89.6
1.5 hour	21.9	25.1	35.3	42.4	49.7	59.7	67.6
2 hour	17.7	20.2	28.4	34.2	40.1	48.3	54.8
3 hour	13	14.8	20.8	25.1	29.4	35.5	40.4
4.5 hour	9.56	10.9	15.2	18.3	21.5	26	29.6
6 hour	7.69	8.73	12.2	14.7	17.2	20.8	23.7
9 hour	5.67	6.43	8.95	10.8	12.6	15.2	17.3
12 hour	4.58	5.19	7.22	8.68	10.2	12.2	13.9
18 hour	3.4	3.86	5.36	6.44	7.55	9.05	10.2
24 hour	2.76	3.13	4.36	5.23	6.12	7.32	8.29
30 hour	2.35	2.67	3.71	4.45	5.2	6.22	7.03
36 hour	2.05	2.34	3.25	3.9	4.56	5.45	6.16
48 hour	1.66	1.89	2.64	3.16	3.69	4.41	4.98
72 hour	1.21	1.39	1.94	2.32	2.71	3.24	3.66
96 hour	0.962	1.1	1.53	1.84	2.14	2.57	2.91
120 hour	0.798	0.907	1.26	1.51	1.77	2.12	2.4
144 hour	0.676	0.769	1.07	1.28	1.49	1.79	2.03
168 hour	0.585	0.664	0.918	1.1	1.28	1.54	1.75

Values developed using the Rational Method are then utilised in Time-Area Method using Boyd's Formula to compute the on-site storage requirements.

$$Smax = V1(1 - \frac{Qp}{Ip})$$

Where Smax = Maximum volume of storage (m^3)

V1 = Volume of inflow flood (m^3)

Qp = Peak discharge of outflow hydrograph (m^3/s)

Ip = Peak discharge of outflow hydrograph (m^3/s)

2.2 Stormwater Collection and Management

Stormwater runoff will be conveyed via a series of open channels and culverts where required. Open channels shall be either V-Drains or Trapezoidal Drains, depending on flow rates, as outlined in Table 2.2 below. Open Channels shall include rock riffles at regular centres, to be determined by slope to detain flows and provide additional storage.

Table 2.2 Open Channel Type

Open Channel	Description
Type A	V - Drain
Type B1	Trap - Base Width 1200mm
Type B2	Trap - Base Width 2000mm
Type B3	Trap - Base Width 3000mm
Type B4	Trap - Base Width 5000mm

The open channel and pipe network will divert stormwater to central stormwater detention basins at 6 locations across the proposed site. Basin storage will be sized to maintain outflows at pre-development flow rates and will be sized to accommodate the 10% AEP event. Outflows from the basin will be via infiltration, evaporation and outflow at pre-development flow rates.

2.3 Soil Permeability and Infiltration Rates

There are several factors that affect a soil's infiltration rate, including the type of soil, which is determined by the portions of sand, silt and clay in a soil. As documented in the previous sections, clay, sand and sandy loam soils are expected to be encountered on this site.

Clay soils tend to have a high potential for runoff and a very slow rate of infiltration when thoroughly wetted. Typical values for the basic infiltration rate for clay are in the order of 1 to 5 millimeters per hour.

Sandy and sandy loam soils can experience a variety of infiltration speeds and will often be influenced by other conditions. Infiltration rate may be in the order of 12 to 25 millimeters per hour, however could be as high as 200 millimeters per hour.

It should be noted that without undertaking specific field testing the above values should be adopted with caution.

Other factors that have the potential to influence the infiltration rates include whether soils have a crust with sealed pores that restrict water entry; compacted soils will have lower infiltration; soils with strong aggregates (with granular or blocky structures) have a higher infiltration rate than soils with weak structures; and infiltration rates are usually higher when soil is dry and decrease with wetter soil. There is the possibility that permeability and drainage conditions may be reduced during earthworks due to compaction of in-situ and sands and that over compaction during earthworks can reduce soil permeability. Permeability testing will need to be carried out prior to earthworks to confirm parameters used during drainage design.

No insitu permeability tests have been undertaken during this phase of works. The anticipated soil profile indicates that poor drainage characteristics are likely to be able to be encountered at the site, with limited scope to remediate to increase permeability. As such, infiltration rates in line with hard clays have been adopted pending future investigation. However, the preliminary indication is that evaporation will exceed infiltration rates.

2.4 Evaporation

The average daily evaporation for Dalby is 6.2mm/day. This has been considered in the basin volume calculations. Given the very low infiltration rates that are likely to be encountered at the proposed site losses via evaporation are likely to exceed losses via infiltration.

2.5 Subsurface Water

It is not anticipated that the groundwater levels will need to be managed and no allowance has been made for any subsoil drainage system.

2.6 Drainage Basins

Locations for drainage basins have been proposed as shown in Appendix B.

The proposed drainage basins will need to have the drainage characteristics confirmed during insitu investigations. These basins have been sized to contain the anticipated 10% AEP rainfall. The basins are expected to be open, accessible and integrated into the landscape, with the sides of the basins graded at a maximum of 1 in 6 for unfenced basins. The sides may be steepened for fenced basins. An infiltration rate of 0.12m/day, and an evaporation rate of 6.2mm/day have been assumed in the storage calculations.

Groundwater is currently captured in an existing manually-excavated dam (see below):

Figure 1: Existing On site Dam

2.7 Anticipated Stormwater Flows

Basin requirements and calculations are shown in the tables below:

Table 2.3 Basin Summary

Basin Summary	Volume
Basin - BA01-A	28,128
Basin - BA01-B	1,055
Basin - BA02-A	2,323
Basin - BA02-B	1,001
Basin - BA03-A	6,456
Basin - BA03-B	494

Table 2.4 BA01-A Calculations

Basin - BA01-A

Catchment Area (A)	124.37	ha
Runoff Coeff (C10)	0.56	
Effective Catchment Area (EA)	69.79	ha
Basin Base Area	19872.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.02760	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00143	m^3/s
Pre-Dev Outflow	2.96000	m^3/s
Length of Swales	11386.04	m
Swale Storage	1138.60	m^3

Storm Duration	10% AEP	Ip	Qp	V1	Smax
(min/hr)	mm/hr	m^3/s	m^3/s	m^3	m^3
5	195	37.83	2.99	10202.15	9396.12031
10	155	30.07	2.99	16890.29	15211.4833
20	113	21.92	2.99	25148.69	21719.96315
30	89.5	17.36	2.99	30092.10	24912.14856
60	56.9	11.04	2.99	38571.50	28127.8926
120	34.2	6.64	2.99	46597.26	25606.39153
180	25.1	4.87	2.99	51412.72	19855.91579
360	14.7	2.85	2.99	60415.54	-2902.50634
720	8.68	1.68	2.99	71553.91	-55447.8752
1440	5.23	1.01	2.99	86460.90	-168230.479
2880	3.16	0.61	2.99	104717.78	-405821.911
4320	2.32	0.45	2.99	115437.41	-651137.795
	Required Basin Volume			28128	m^3

Table 2.5 BA01-B Calculations

Basin - BA01-B

Catchment Area (A)	3.54	ha
Runoff Coeff (C10)	0.70	
Effective Catchment Area (EA)	2.48	ha
Basin Base Area	720.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.00100	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00005	m^3/s
Pre-Dev Outflow	0.09000	m^3/s
Length of Swales	349.72	m
Swale Storage	34.97	m^3

Storm Duration (min/hr)	10% AEP mm/hr	Ip m^3/s	Qp m^3/s	V1 m^3	Smax m^3
5	195	1.34	0.09	367.56	342.642545
10	155	1.07	0.09	604.96	553.354409
20	113	0.78	0.09	898.09	793.005353
30	89.5	0.62	0.09	1073.55	914.957282
60	56.9	0.39	0.09	1374.53	1055.1291
120	34.2	0.24	0.09	1659.40	1017.87128
180	25.1	0.17	0.09	1830.32	866.17245
360	14.7	0.10	0.09	2149.87	216.186201
720	8.68	0.06	0.09	2545.23	-1331.7887
1440	5.23	0.04	0.09	3074.35	-4697.8165
2880	3.16	0.02	0.09	3722.37	-11852.454
4320	2.32	0.02	0.09	4102.86	-19279.559

Required Basin Volume	1055	m^3

Table 2.6 BA02-A Calculations

Basin - BA02-A

Catchment Area (A)	9.52	ha
Runoff Coeff (C10)	0.60	
Effective Catchment Area (EA)	5.73	ha
Basin Base Area	1638.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.00228	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00012	m^3/s
Pre-Dev Outflow	0.23000	m^3/s
Length of Swales	1347.22	m
Swale Storage	134.72	m^3

Storm Duration	10% AEP	Ip	Qp	V1	Smax
(min/hr)	mm/hr	m^3/s	m^3/s	m^3	m^3
5	195	3.11	0.23	796.14	736.563693
10	155	2.47	0.23	1345.12	1218.47533
20	113	1.80	0.23	2022.98	1761.7265
30	89.5	1.43	0.23	2428.74	2032.73247
60	56.9	0.91	0.23	3124.74	2323.34642
120	34.2	0.54	0.23	3783.51	2169.10166
180	25.1	0.40	0.23	4178.77	1749.25821
360	14.7	0.23	0.23	4917.73	35.8033868
720	8.68	0.14	0.23	5831.98	-3972.8543
1440	5.23	0.08	0.23	7055.57	-12631.191
2880	3.16	0.05	0.23	8554.12	-30949.064
4320	2.32	0.04	0.23	9434.00	-49906.586

Required Basin Volume	2323	m^3

Table 2.7 BA02-B Calculations

Basin - BA02-B

Catchment Area (A)	3.41	ha
Runoff Coeff (C10)	0.70	
Effective Catchment Area (EA)	2.39	ha
Basin Base Area	684.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.00095	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00005	m^3/s
Pre-Dev Outflow	0.09000	m^3/s
Length of Swales	413.48	m
Swale Storage	41.35	m^3

Storm Duration	10% AEP	Ip	Qp	V1	Smax
(min/hr)	mm/hr	m^3/s	m^3/s	m^3	m^3
5	195	1.30	0.09	347.06	322.688192
10	155	1.03	0.09	576.12	525.222064
20	113	0.75	0.09	858.97	754.866357
30	89.5	0.59	0.09	1028.27	870.933293
60	56.9	0.38	0.09	1318.69	1001.30201
120	34.2	0.23	0.09	1593.56	955.447406
180	25.1	0.17	0.09	1758.48	799.040245
360	14.7	0.10	0.09	2066.82	141.334306
720	8.68	0.06	0.09	2448.30	-1414.4804
1440	5.23	0.03	0.09	2958.85	-4788.9147
2880	3.16	0.02	0.09	3584.13	-11948.747
4320	2.32	0.02	0.09	3951.27	-19372.765

Required Basin Volume	1001	m^3

Table 2.8 BA03-A Calculations

Basin - BA03-A

Catchment Area (A)	47.89	ha
Runoff Coeff (C10)	0.40	
Effective Catchment Area (EA)	18.95	ha
Basin Base Area	5400.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.00750	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00039	m^3/s
Pre-Dev Outflow	1.14000	m^3/s
Length of Swales	3192.09	m
Swale Storage	319.21	m^3

Storm Duration	10% AEP	Ip	Qp	V1	Smax
(min/hr)	mm/hr	m^3/s	m^3/s	m^3	m^3
5	195	10.27	1.15	2760.03	2451.60593
10	155	8.17	1.15	4575.99	3932.67941
20	113	5.95	1.15	6818.30	5503.49169
30	89.5	4.71	1.15	8160.53	6173.70289
60	56.9	3.00	1.15	10462.85	6456.00438
120	34.2	1.80	1.15	12642.00	4587.20226
180	25.1	1.32	1.15	13949.49	1839.33744
360	14.7	0.77	1.15	16393.93	-7907.4419
720	8.68	0.46	1.15	19418.22	-29329.54
1440	5.23	0.28	1.15	23465.75	-74302.492
2880	3.16	0.17	1.15	28422.85	-167572.39
4320	2.32	0.12	1.15	31333.44	-262963.03

Required Basin Volume	6456	m^3

Table 2.9 BA03-B Calculations

Basin - BA03-B

Catchment Area (A)	3.97	ha
Runoff Coeff (C10)	0.39	
Effective Catchment Area (EA)	1.57	ha
Basin Base Area	450.00	m^2 Assumed
Infiltration	0.12	m/day
Outflow (Infiltration)	0.00063	m^3/s
Evaporation	0.0062	m/day
Outflow (Evaporation)	0.00003	m^3/s
Pre-Dev Outflow	0.10000	m^3/s
Length of Swales	615.81	m
Swale Storage	61.58	m^3

Storm Duration	10% AEP	Ip	Qp	V1	Smax
(min/hr)	mm/hr	m^3/s	m^3/s	m^3	m^3
5	195	0.85	0.10	193.39	170.503674
10	155	0.68	0.10	343.76	292.578504
20	113	0.49	0.10	529.43	421.31088
30	89.5	0.39	0.10	640.57	475.407798
60	56.9	0.25	0.10	831.21	494.105941
120	34.2	0.15	0.10	1011.65	329.046816
180	25.1	0.11	0.10	1119.91	90.2991208
360	14.7	0.06	0.10	1322.32	-753.46843
720	8.68	0.04	0.10	1572.74	-2608.4618
1440	5.23	0.02	0.10	1907.89	-6510.2352
2880	3.16	0.01	0.10	2318.35	-14611.621
4320	2.32	0.01	0.10	2559.36	-22897.629

Required Basin Volume	494	m^3

3. Conclusion

The conclusion of this report's findings is that is no adverse impact due to additional hard surface (the solar panels, access tracks and buildings) on the land.

Appendix A WDRC 030.2020.120.01 Information Request Email 27th May 2020

[redacted]

From: [redacted] <[redacted]@wdrc.qld.gov.au>
Sent: Wednesday, 27 May 2020 7:39 AM
To: [redacted]
Subject: Kumbarilla Lane Solar Farm 030.2020.120.001 Information Request

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted]

I refer to the development application for a Renewable Energy Facility (Solar Farm) at Lot 4 on DY457 located at Kumbarilla Lane, Kumbarilla.

It has been determined that additional information is required to assess the application. To assist with the timing of the assessment and to allow you to get prepared with compiling the additional information, please note the below items which will be included on an Information Request. Note that this is provided for information purposes only and does not prevent Council from issuing a formal Information Request requesting further information during the statutory Information Request process.

(1) Please provide details of the scale of the proposed Solar Farm (i.e how many megawatts of power will the area of solar panels equate to).

(2) Please provide an overview of how the proposed Solar Farm will be connected to the nearby substation and the various options open in terms of easements.

(3) Demonstrate how the development complies with the Western Downs Planning Scheme incorporating Amendment 1. This should include statements about how the development complies with the applicable Acceptable Outcomes of the following Codes:
- Rural Zone Code
- Biodiversity Areas Overlay Code
- Bushfire Hazard Overlay Code
- Infrastructure Overlay Code
- Regional Infrastructure Corridor – Stock Route Overlay Code
- Scenic Amenity Overlay Code
- Transport Access and Parking Code
- Infrastructure Services Overlay Code

(4) The proposed Site Plan includes a Temporary Construction Camp. Please provide details of the proposed Temporary Construction Camp.

Council does not support the establishment of temporary construction camps. The definition of a Renewable Energy Facility in the Western Downs Planning Scheme incorporating Amendment 1 does not allow for ancillary construction camps. The establishment of a temporary construction camp would require a separate approval for a Material Change of Use for a Non-Resident Workforce Accommodation which would require Impact Assessment.

(5) Please provide a Traffic Impact Assessment of the proposed haul route for all roads between the State Controlled road network and the site access. The report shall include, but not be limited to, information pertaining to:
- Expected number of vehicles, vehicle types, loadings for both the construction and operational phases of the project;
- Any upgrading or ongoing maintenance requirements during the construction period. For example a pre and post condition assessment must be carried out, and information provided as to how the road will be maintained during construction by the applicant, and how the road will be left after construction.

(6) Please provide a summary of your community consultation process, the issues neighbouring land-owners and community identified, and how you will address these.

As advised during pre-lodgement discussions, Council encourages all Renewable Energy Facility applicants to have informal information sessions / community meetings with the local communities, and neighbours prior to lodging an application.

(7) Please provide a desktop cultural assessment including possible impact on traditional artefacts and places.

(8) Please provide a short desktop analysis of how you will deal with potential glare from the panels and noise from the inverters (note, the solution can include landscaping).

(9) Please provide a desktop analysis of the vegetation on the land, details on how this will be retained or extent of clearing.

(10) Please provide a desktop analysis on the agricultural value of the land (if any) and how the Solar Farm will impact on this.

(11) Please provide a desktop analysis on the bushfire risk. It is acknowledged that the development is not a habitable project.

(12) Please provide a stormwater and drainage report on the impact thereof due to additional hard surface (the solar panels, access tracks and buildings) on the land.

Please contact me should you have any queries.

Regards

[redacted]
Planning Officer Development Assessment

WESTERN DOWNS REGIONAL COUNCIL
PO Box 551, Dalby, Qld 4405

Phone 07 [redacted] Fax 07 4679 4099
[redacted]**@wdrc.qld.gov.au**

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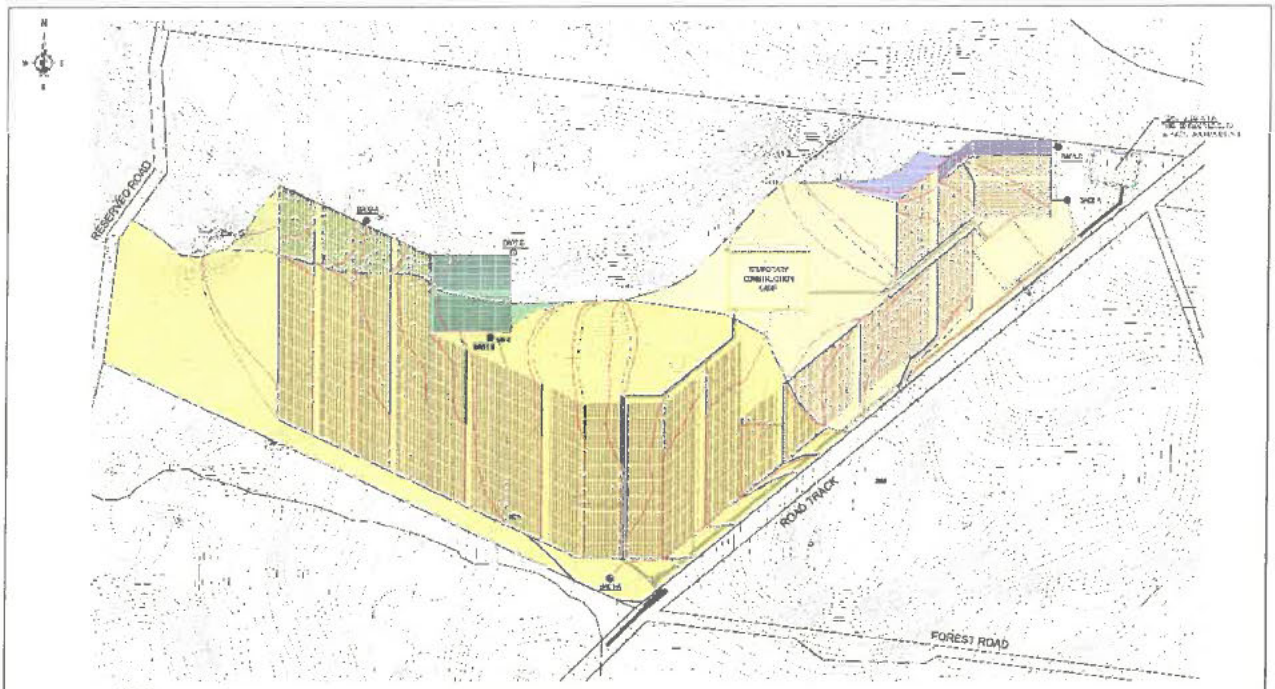
Appendix B Drainage Layout Plan



NOTES

LEGEND

PRELIMINARY
NOT FOR CONSTRUCTION

KOMIPO

elecseed

calibre

Queensland Government

Queensland Treasury

SARA reference: 2007-18034 SRA
Council reference: 030.2020.120.001

16 September 2020

[redacted]
Chief Executive Officer
Western Downs Regional Council
PO Box 551
DALBY QLD 4405
Email: info@wdrc.qld.gov.au

Dear [redacted]

SARA response—Kumbarilla Solar Farm

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency on 6 August 2020.

Response

Outcome:	Referral agency response – with conditions.
Date of response:	16 September 2020
Conditions:	The conditions in **Attachment 1** must be attached to any development approval.
Advice:	Advice to the applicant is in **Attachment 2**.
Reasons:	The reasons for the referral agency response are in **Attachment 3**.

Development details

Description:	Development permit	Material change of use for Renewable Energy Facility (Solar Farm)
SARA role:	Referral Agency.	
SARA trigger:	Schedule 10, Part 3, Division 4, Table 3, Item 1 (Planning Regulation 2017) Material change of use that involves native vegetation clearing Schedule 10, Part 9, Division 1, Table 1, Item 1 (Planning Regulation 2017 Development on premises the subject of a designation made by the Minister	

DA Advisory Team (DAAT)
Level 13, 1 William Street, Brisbane
GPO Box 611, Brisbane QLD 4001

SARA reference:	2007-18034 SRA
Assessment Manager:	Western Downs Regional Council
Street address:	Daandine Kumbarilla Road, Kumbarilla
Real property description:	4DY457
Applicant name:	Elecseed Pty Ltd
Applicant contact details:	Level 2, 50 St Georges Terrace Perth WA 6000 [redacted]@calibregroup.com

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules) Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact [redacted] Principal Planner, on 34527180 or via email DAAT@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely

[redacted]

[redacted]
State Planner

cc Elecseed Pty Ltd, [redacted]@calibregroup.com

enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 – Change representations provisions
Attachment 5 - Approved plan and specifications

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the plans and specifications referenced below are found at Attachment 5)

No.	Conditions	Condition timing
Material change of use		
Schedule 10, Part 3, Division 4, Table 3, Item 1, Material change of use that involves native vegetation clearing —The chief executive administering the *Planning Act 2016* nominates the Director-General of the Department of Natural Resources, Mines and Energy to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following conditions:		
1.	Clearing a maximum of 128.65 hectares of native vegetation under this development approval is limited to the area identified as Area A (Part A^1- A^3) as shown on Technical Agency Response Plan, reference: TARP 2007-18034 SRA, Sheet 1 of 1, Date: 10/09/2020.	At all times
2.	Enter into an agreed delivery arrangement to deliver an environmental offset in accordance with the *Environmental Offsets Act 2014* to counterbalance the significant residual impacts on the matters of state environmental significance being: • 45.26 hectares of regional ecosystem 11.7.4 and 11.7.5 (essential habitat) • 1.56 hectares of regional ecosystem 11.5.1 (essential habitat).	Prior to commencing any works that impact on the essential habitat
3.	(a) Prepare a Salinity Management Plan (SMP) for Area A (Part A^1- A^3) as shown on the Technical Agency Response Plan, reference: TARP 2007-18034 SRA, Sheet 1 of 1, Date: 10/09/2020. The SMP is to be prepared by an appropriately qualified professional and address potential salinity impacts caused by clearing. (b) The SMP is to be informed by targeted soil sampling within Area A (Part A^1- A^3) as shown on the Technical Agency Response Plan, reference: TARP 2007-18034 SRA, Sheet 1 of 1, Date: 10/09/2020. The soil sampling is to include: i. a description of soils in accordance with the *Australian Soil and Land Survey Field Handbook (NCST 2009)* ii. mapping of Area A (Part A^1- A^3) in accordance with the *Guidelines for Surveying Soil and land Resources (McKenzie et al. 2009)* iii. an analysis of soil samples that complies with Australian Standard (AS) *AS ISO/IEC 17025-2005: General requirements for the competence of testing and calibration laboratories.* (c) The SMP is to recommend salinity management measures to ensure: i. salinity levels of the soil and surface or ground as a result of the changes in hydrology of the subject land are minimised ii. no increase in the incidence of waterlogging. (d) Submit a copy of the SMP mentioned at part (a) of this condition to:	(a) - (d) Prior to clearing commencing (e) Prior to clearing commencing and to be maintained

	Natural Resource Assessment Department of Natural Resources, Mines and Energy Email: vegetation@dnrme.qld.gov.au (e) Implement the salinity management measures identified within the SMP mentioned at part (a) of this condition. Note: Appropriately qualified professional means a person or persons who has professional qualifications, training, skills and experience relevant to soil chemistry or salinity management and can give authoritative assessment, advice and analysis in relation salinity management using the relevant protocols, standards, methods or literature. Note: Accreditation of the soil sampling analysis provided by the National Association of Testing Authorities (NATA) can provide evidence that compliance with *AS ISO/IEC 17025-2005* is achieved.	
4.	(a) Prepare an Erosion and Sediment Control Plan (ESCP) for Area A (Part A^1- A^3) as shown on the Technical Agency Response Plan, reference: TARP 2007-18034 SRA, Sheet 1 of 1, Date: 10/09/2020. The ESCP is to be prepared by an appropriately qualified professional and address potential impacts caused by clearing on the site. (b) The ESCP is to be informed by targeted soil sampling within Area A (Part A^1- A^3) as shown on the Technical Agency Response Plan, reference: TARP 2007-18034 SRA, Sheet 1 of 1, Date: 10/09/2020. The soil sampling is to include: i. a description of soils in accordance with the *Australian Soil and Land Survey Field Handbook (NCST 2009)* ii. mapping of Area A (Part A^1- A^3) in accordance with the *Guidelines for Surveying Soil and land Resources (McKenzie et al. 2009)* iii. an analysis of soil samples that complies with Australian Standard (AS) *AS ISO/IEC 17025-2005: General requirements for the competence of testing and calibration laboratories*. (c) The ESCP must be prepared in accordance with the *Best Practice Erosion and Sediment Control (BPESC) guidelines for Australia (International Erosion Control Association)*. (d) The ESCP is to recommend measures to: i. prevent accelerated soil erosion ii. where prevention is not possible, minimise accelerated soil erosion. (e) Submit a copy of the ESCP mentioned in part (a) of this condition to: Natural Resource Assessment Department of Natural Resources, Mines and Energy Email: vegetation@dnrme.qld.gov.au. (f) Implement the erosion and sediment control measures identified within the ESCP as mentioned at part (a) of this condition. Note: Appropriately qualified professional means a person or persons who has professional qualifications, training, skills and	(a) - (e) Prior to clearing commencing (f) Prior to clearing commencing and to be maintained

	experience relevant to erosion control, soil chemistry and/or salinity management chemistry and can give authoritative assessment, advice and analysis in relation erosion and sediment control using the relevant protocols, standards, methods or literature. Note: Accreditation of the soil sampling analysis provided by the National Association of Testing Authorities (NATA) can provide evidence that compliance with *AS ISO/IEC 17025-2005* is achieved.	

Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the *Planning Act 2016* its regulation or the State Development Assessment Provisions (SDAP) [v2.6]. If a word remains undefined it has its ordinary meaning.
2.	Clearing vegetation to the extent the clearing is within an area mapped as a category C area or category R area on the regulated vegetation management map is not a relevant purpose under the *Vegetation Management Act 1999*. Accordingly, clearing of vegetation in these areas cannot be approved under a development approval. The clearing within an area mapped as a category C area or category R area can only be undertaken if it is exempt clearing work or in accordance with an Accepted Development Vegetation Clearing Code (ADVCC). Clearing vegetation in any category C area or category R area that is not exempt or in accordance with an ADVCC is prohibited development. Information on exempt clearing work or ADVCCs is available online at www.qld.gov.au (search 'exempt clearing work' or 'accepted development vegetation clearing codes').

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for the department's decision are:

- The development complies with the State Development Assessment Provisions, version 2.6 and the following State code:
  - State code 16: Native vegetation clearing
- The impacts of native vegetation clearing on salinity and erosion are mitigated by conditions.
- The significant residual impact on the matter of state environmental significance is counterbalanced with the requirement to enter into an environment offset for removed essential habitat.

Material used in the assessment of the application:

- The development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- The *State Development Assessment Provisions* (version [2.6]), as published by the department
- The Development Assessment Rules
- SARA DA Mapping system.

Attachment 4—Change representation provisions

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Attachment 5—Approved plan and specifications

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Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules[1] regarding **representations about a referral agency response**

Part 6: Changes to the application and referral agency responses

28 Concurrence agency changes its response or gives a late response

28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.

28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—

(a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or

(b) the Minister has given the concurrence agency a direction under section 99 of the Act; or

(c) the applicant has given written agreement to the change to the referral agency response.[2]

28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.

28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—

(a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and

(b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant

---

1 Pursuant to Section 68 of the *Planning Act 2016*

2 In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

Part 7: Miscellaneous

30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.[3]

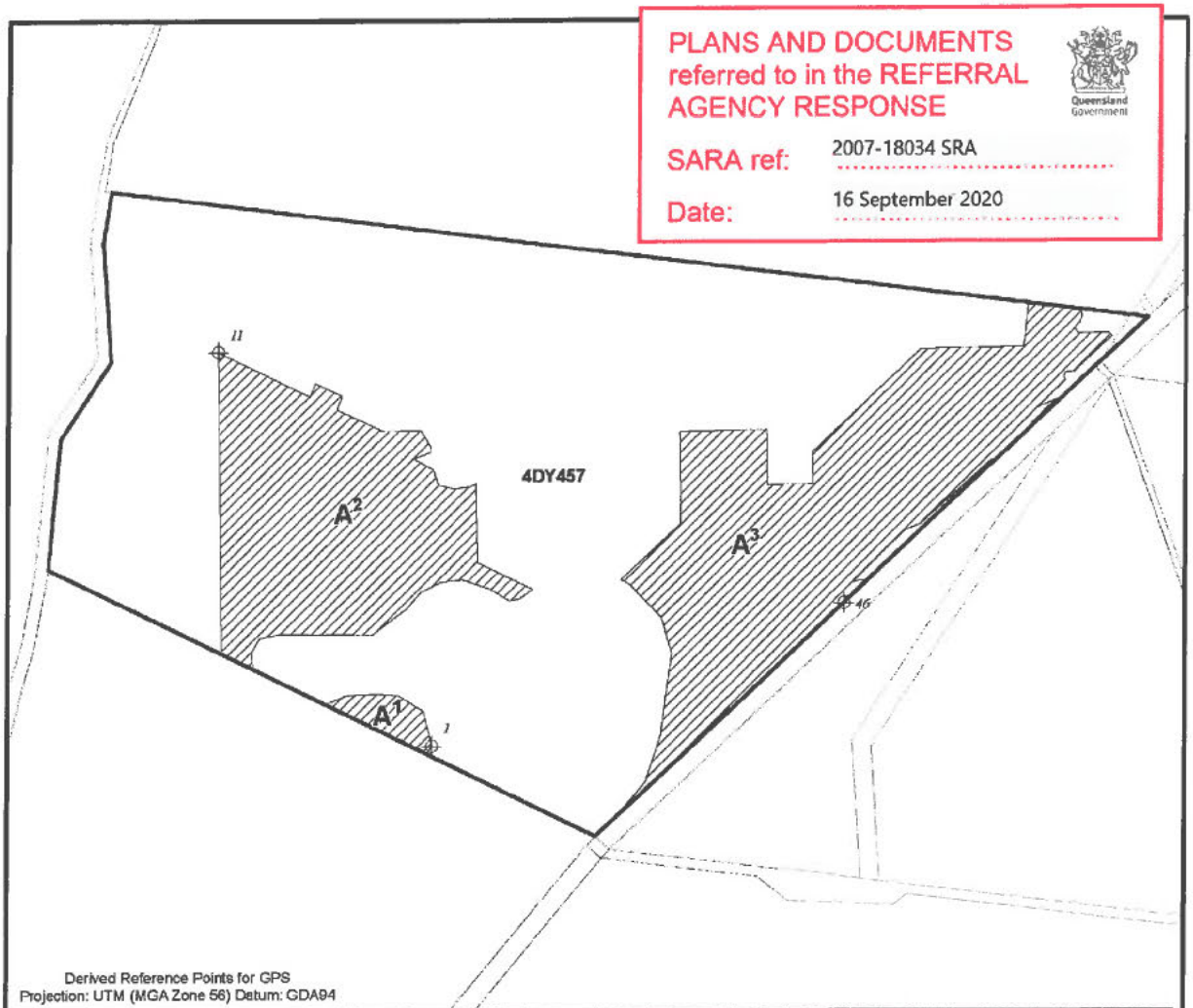
[3] An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.

PLANS AND DOCUMENTS referred to in the REFERRAL AGENCY RESPONSE

Queensland Government

SARA ref: 2007-18034 SRA

Date: 16 September 2020



Derived Reference Points for GPS
Projection: UTM (MGA Zone 56) Datum: GDA94

Point	Easting	Northing	Point	Easting	Northing	Point	Easting	Northing	Point	Easting	Northing	Point	Easting	Northing	Point	Easting	Northing
1	284310	6984263	21	284251	6985152	41	283750	6984554	61	285346	6985239	81	286356	6985534	101	285615	6984764
2	284296	6984237	22	284254	6985151	42	283750	6984552	62	285348	6985067	82	286365	6985534	102	285636	6984771
3	283980	6984392	23	284312	6985118	43	283756	6984501	63	285414	6985068	83	286406	6985535	103	285656	6984771
4	284031	6984413	24	284326	6985080	44	283657	6984550	64	285461	6985068	84	286418	6985525	104	285663	6984771
5	284046	6984420	25	284329	6985070	45	283648	6985493	65	285492	6985069	85	286403	6985511	105	285600	6984712
6	284140	6984423	26	284377	6985059	46	285588	6984701	66	285489	6985167	86	286379	6985488	106	285588	6984701
7	284204	6984420	27	284428	6985065	47	285533	6984649	67	285827	6985487	87	286302	6985416			
8	284284	6984370	28	284446	6985074	48	284893	6984049	68	286144	6985464	88	286302	6985416			
9	284307	6984277	29	284451	6984830	49	284975	6984150	69	286158	6985629	89	286302	6985416			
10	284310	6984263	30	284625	6984746	50	284979	6984162	70	286310	6985610	90	286271	6985412			
11	283644	6985483	31	284582	6984717	51	285021	6984295	71	286316	6985605	91	286271	6985395			
12	283917	6985345	32	284552	6984711	52	285038	6984434	72	286322	6985602	92	286274	6985389			
13	283945	6985386	33	284493	6984746	53	285054	6984542	73	286323	6985597	93	286188	6985305			
14	284027	6985347	34	284404	6984777	54	285054	6984545	74	286325	6985593	94	286262	6985337			
15	284012	6985305	35	284338	6984769	55	285043	6984584	75	286324	6985583	95	286274	6985345			
16	284155	6985237	36	284274	6984738	56	285022	6984659	76	286319	6985568	96	286053	6985138			
17	284273	6985239	37	284230	6984687	57	284921	6984763	77	286304	6985555	97	286047	6985144			
18	284305	6985189	38	284123	6984607	58	284897	6984775	78	286304	6985546	98	285830	6984946			
19	284303	6985171	39	283838	6984611	59	285081	6984949	79	296313	6985533	99	285790	6984930			
20	284253	6985153	40	283774	6984596	60	285078	6985233	80	296330	6985533	100	285780	6984926			

1:13,000 @ A3 size

0 200 400 600 800 1,000 1,200 m

Projection: UTM (MGA Zone 56) Datum: GDA94

Note: Derived Reference Points are provided to assist in the location of area boundaries. Responsibility for locating these boundaries lies solely with the landholder and delegated contractor(s).

The property boundaries shown on this plan are APPROXIMATE ONLY. They are NOT an accurate representation of the legal boundaries.

Legend

- Derived Reference Start Points
- Property Boundary
- Area A (Part A^1- A^3) - Clearing permitted

Technical Agency Response Plan

N

Queensland Government

Date: 10/09/2020

reference: TARP 2007-18034 SRA

Sheet 1 of 1

10 September 2020 (reissue)

Our Ref: DA3783

Western Downs Regional Council
PO Box 551
DALBY QLD 4405

Attention: [redacted]
Email: [redacted]@wdrc.qld.gov.au
Application: 030.2020.120.001

Elecseed Pty Ltd
C/- Calibre Professional Services Pty Ltd
Level 2, 50 Geroges Terrace
PERTH WA 6000

Attention: [redacted]
Email: [redacted]@calibregroup.com

Dear Sir/Madam,

Referral Agency Response (Advice)
(Given under section 9.2 of the Development Assessment Rules)

Transmission Infrastructure Impacted	
Transmission Corridor	Queensland – New South Wales Interconnector (330kv) Corridor
Easement ID	Easement B on SP107382 (Dealing No. 703051105)
Location Details	
Street address	Kumbarilla Lane, Kumbarilla
Real property description	Lot 4 on DY457
Local government area	Western Downs Regional Council
Application Details	
Proposed development:	Material Change of Use Renewable Energy Facility (Solar Farm)
Approval sought	Development Permit

We refer to the above referenced development application which has been referred to Powerlink Queensland in accordance with Section 54 *of the Planning Act 2016.*

In accordance with its jurisdiction under Schedule 10 Part 9 Division 2 of the *Planning Regulation 2016,* Powerlink Queensland is a **Referral Agency (Advice)** for the above development application.

Specifically, the application has been triggered for assessment by Powerlink Queensland because:

1. For **material change of use** – all or part of the premises are subject to a transmission entity easement which is part of the transmission supply network (Table 2 1b)

PLANS AND REPORTS ASSESSED

The following plans and reports have been reviewed by Powerlink Queensland and form the basis of our assessment. Any variation to these plans and reports may require amendment of our advice.

33 Harold Street, Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100
www.powerlink.com.au

Table 1: Plans and Reports upon which the assessment is based

Drawing / Report Title	Prepared by	Dated	Reference No.	Version / Issue
Kumbarilla Renewable Energy Park Site Layout – General	Calibre Group	3/07/2020	BR-E5251	D

Powerlink Queensland, acting as a Referral Agency (Advice) under the Planning Regulation 2017 provides its response to the application as attached **(Attachment 1)**.

Please treat this response as a properly made submission for the purposes of Powerlink being an eligible advice agency in accordance with the *Planning Act 2016*.

For further information please contact our Property Services Team via email property@powerlink.com.au who will be pleased to assist.

Yours sincerely

[redacted]

for [redacted]

MANAGER PROPERTY

ATTACHMENT 1 – REFERRAL AGENCY (ADVICE) RESPONSE

Powerlink Queensland **supports** this application subject to the inclusion of the following conditions in the Assessment Manager's Decision Notice.

No.	Condition	Timing	Reason
1	The development must be carried out generally in accordance with the reviewed plans detailed in Table 1.	At all times.	To ensure that the development is carried out generally in accordance with the plans of development submitted with the application.
2	The statutory clearances set out in the *Electrical Safety Regulation 2013* must be maintained during construction and operation. No encroachment within the statutory clearances is permitted.	At all times.	To ensure that the purpose of the *Electrical Safety Act 2002* is achieved and electrical safety requirements are met.
3	Compliance with the terms and conditions of the easement dealing no. shown in the heading of this letter.	At all times.	To ensure that the existing rights contained in the registered easement dealings are maintained.
4	Compliance with the generic requirements in respect to proposed works in the vicinity of Powerlink Queensland infrastructure as detailed in the enclosed Annexure "A".	At all times.	To ensure that the purpose of *the Electrical Safety Act 2002* is achieved and electrical safety requirements are met. To ensure the integrity of the easement is maintained.

Advice to Council and the Applicant

1. **Powerlink and Elecseed Pty Ltd are currently negotiating network connection of the solar farm to the transmission grid via a new transmission line from the site to Kumbarilla substation. This correspondence does not constitute approval for connection which remains the subject of ongoing technical assessment and commercial negotiations.**
2. This response does not constitute an approval to commence any works within the easement. Prior written approval is required from Powerlink Queensland before any work is undertaken within the easement areas. All works on easement (including but not limited to earthworks, drainage and detention basins; road construction; underground and overhead service installation) require detailed submissions, assessments and consent (or otherwise) by Powerlink.
3. In order for Powerlink to maintain and operate a safe and reliable supply of electricity, we require unrestricted 24-hour access to our corridors and infrastructure.

   We will require practical access (typically by 4WD vehicle – but to standard no less than existing) to the Powerlink structures.

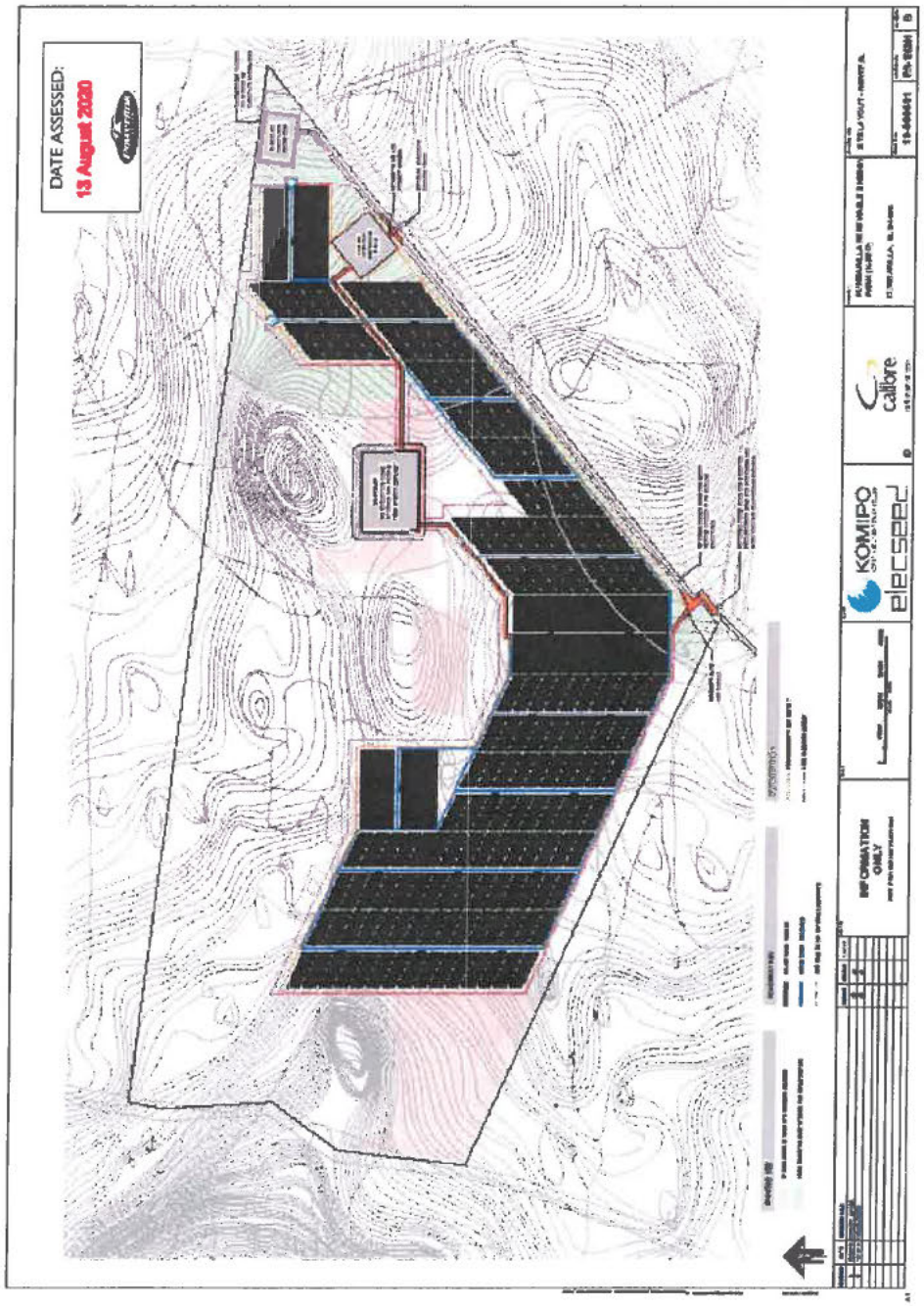
   If it is envisaged that there will be any interference or alteration to our current access arrangements prior, during or after the completion of your works, we require that the applicant contacts our Senior Easement Officer ([redacted]) to formalise unrestricted 24-hour access arrangements.

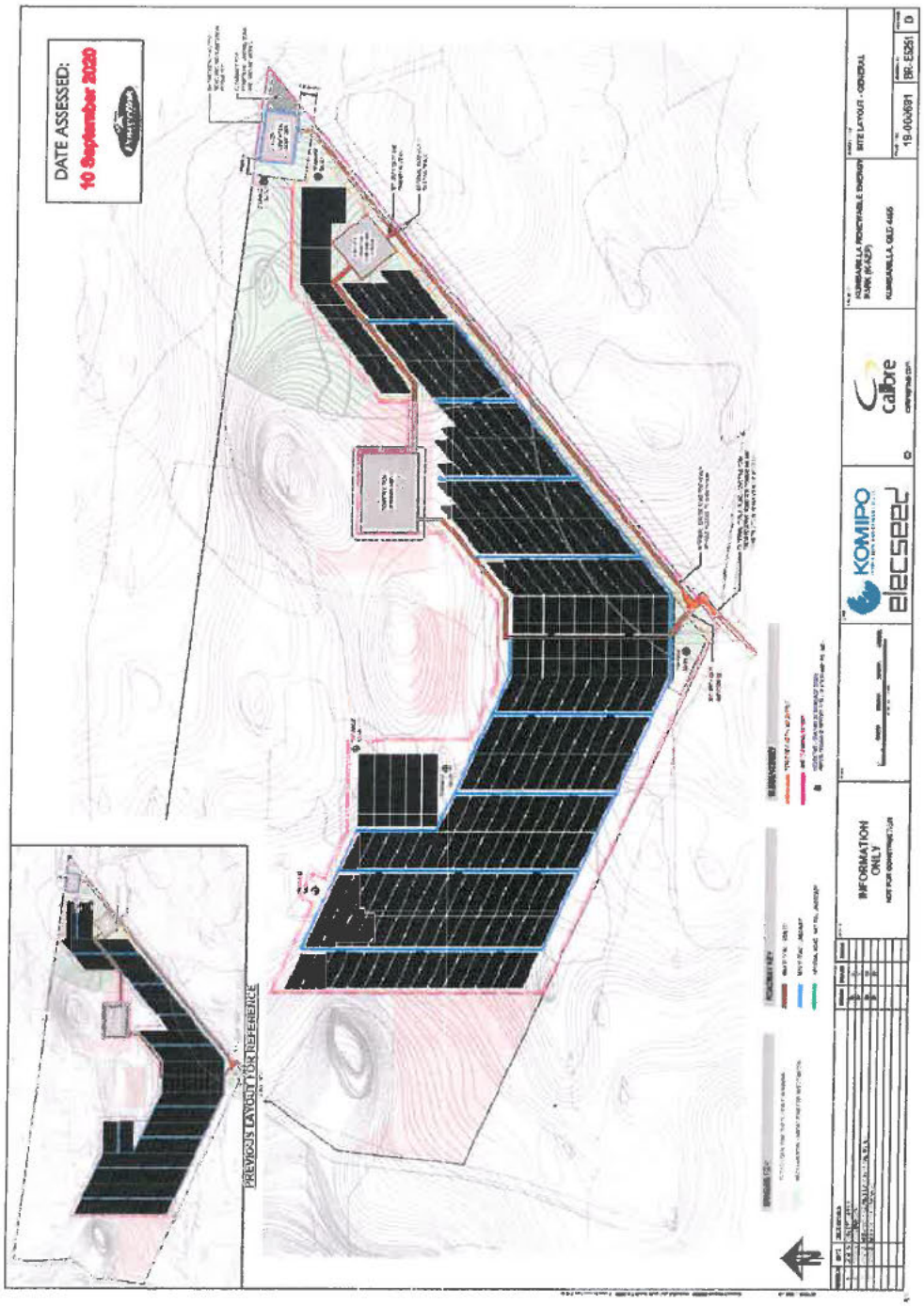
4. We draw your attention to the obligations and requirements of the Electrical Safety Act 2002 ("the Act") including any Code of Practice under the Act and the Electrical Safety Regulation 2013 ("the Regulation") including any safety exclusion zones defined in the Regulation.

   In respect to this application the exclusion zone for untrained persons and for operating plant operated by untrained persons is **six (6) metres** from the **330,000-volt** wires and exposed electrical parts.

   Should any doubt exist in maintaining the prescribed clearance to the conductors and electrical infrastructure, then the applicant is obliged under the Act to seek advice from Powerlink.

ATTACHMENT 2 – ASSESSED PLANS




DATE ASSESSED:
10 September 2020
PREVIOUS LAYOUT FOR REFERENCE
INFORMATION ONLY
NOT FOR CONSTRUCTION
KOMIPO
elecseed
Calibre
KURRAWALLA RENEWABLE ENERGY PARK (K-REP)
KURRAWALLA QLD 4455
SITE LAYOUT - GENERAL
19.0003691
DR: EB251
D

ANNEXURE A – GENERIC REQUIREMENTS

The conditions contained in this Annexure have been compiled to assist persons (the applicant) intending to undertake work within the vicinity of high-voltage electrical installations and infrastructure owned or operated by Powerlink. The conditions are supplementary to the provisions of the Electrical Safety Act 2002, Electrical Safety Regulation 2013 and the Terms and Conditions of Registered Easements and other forms of Occupational Agreements hereinafter collectively referred to as the "Easement". Where any inconsistency exists between this Annexure and the Easement, the Easement shall take precedence.

1. **POWERLINK INFRASTRUCTURE**
   You may not do any act or thing which jeopardises the foundations, ground anchorages, supports, towers or poles, including (without limitation) inundate or place, excavate or remove any soil, sand or gravel within a distance of twenty (20) metres surrounding the base of any tower, pole, foundation, ground anchorage or support.

2. **STRUCTURES**
   No structures should be placed within twenty (20) metres of any part of a tower or structure foundation or within 5m of the conductor shadow area. Any structures on the easement require prior written consent from Powerlink.

3. **EXCLUSION ZONES**
   Exclusion zones for operating plant are defined in Schedule 2 of the Electrical Safety Regulation 2013 for Untrained Persons. All Powerlink infrastructure should be regarded as "electrically live" and therefore potentially dangerous at all times.

   In particular your attention is drawn to Schedule 2 of the Electrical Safety Regulation 2013 which defines exclusion zones for untrained persons in charge of operating plant or equipment in the vicinity of electrical facilities. If any doubt exists in meeting the prescribed clearance distances from the conductors, the applicant is obliged under this Act to seek advice from Powerlink.

4. **ACCESS AND EGRESS**
   Powerlink shall at all times retain the right to unobstructed access to and egress from its infrastructure. Typically, access shall be by 4WD vehicle.

5. **APPROVALS (ADDITIONAL)**
   Powerlink's consent to the proposal does not relieve the applicant from obtaining statutory, landowner or shire/local authority approvals.

6. **MACHINERY**
   All mechanical equipment proposed for use within the easement must not infringe the exclusion zones prescribed in Schedule 2 of the Electrical Safety Regulation 2013. All operators of machinery, plant or equipment within the easement must be made aware of the presence of live high-voltage overhead wires. It is recommended that all persons entering the Easement be advised of the presence of the conductors as part of on site workplace safety inductions. The use of warning signs is also recommended.

7. EASEMENTS

All terms and conditions of the easement are to be observed. Note that the easement takes precedence over all subsequent registered easement documents. Copies of the easement together with the plan of the Easement can be purchased from the Department of Environment & Resource Management.

8. EXPENDITURE AND COST RECOVERY

Should Powerlink incur costs as a result of the applicant's proposal, all costs shall be recovered from the applicant.

Where Powerlink expects such costs to be in excess of $10 000.00, advanced payments may be requested.

9. EXPLOSIVES

Blasting within the vicinity (500 metres) of Powerlink infrastructure must comply with AS 2187. Proposed blasting within 100 metres of Powerlink infrastructure must be referred to Powerlink for a detailed assessment.

10. BURNING OFF OR THE LIGHTING OF FIRES

We strongly recommend that fires not be lit or permitted to burn within the transmission line corridor and in the vicinity of any electrical infrastructure placed on the land. Due to safety risks Powerlink's written approval should be sort.

11. GROUND LEVEL VARIATIONS

Overhead Conductors

Changes in ground level must not reduce statutory ground to conductor clearance distances as prescribed by the Electrical Safety Act 2002 and the Electrical Safety Regulation 2013.

Underground Cables

Any change to the ground level above installed underground cable is not permitted without express written agreement of Powerlink.

12. VEGETATION

Vegetation planted within an easement must not exceed 3.5 metres in height when fully matured. Powerlink reserves the right to remove vegetation to ensure the safe operation of the transmission line and, where necessary, to maintain access to infrastructure.

13. INDEMNITY

Any use of the Easement by the applicant in a way which is not permitted under the easement and which is not strictly in accordance with Powerlink's prior written approval is an unauthorised use. Powerlink is not liable for personal injury or death or for property loss or damage resulting from unauthorized use. If other parties make damage claims against Powerlink as a result of unauthorized use then Powerlink reserves the right to recover those damages from the applicant.

14. INTERFERENCE

The applicant's attention is drawn to s.230 of the Electricity Act 1994 (the "Act"), which provides that a person must not wilfully, and unlawfully interfere with an electricity entity's works. "Works" are defined in s.12 (1) of the Act. The maximum penalty for breach of s.230 of the Act is a fine equal to 40 penalty units or up to 6 months imprisonment.

15. REMEDIAL ACTION

Should remedial action be necessary by Powerlink as a result of the proposal, the applicant will be liable for all costs incurred.

16. OWNERS USE OF LAND

The owner may use the easement land for any lawful purpose consistent with the terms of the registered easement; the conditions contained herein, the Electrical Safety Act 2002 and the Electrical Safety Regulation 2013.

17. ELECTRIC AND MAGNETIC FIELDS

Electric and Magnetic Fields (EMF) occur everywhere electricity is used (e.g. in homes and offices) as well as where electricity is transported (electricity networks).

Powerlink recognises that there is community interest about Electric and Magnetic Fields. We rely on expert advice on this matter from recognised health authorities in Australia and around the world. In Australia, the Federal Government agency charged with responsibility for regulation of EMFs is the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA's *Fact Sheet – Magnetic and Electric Fields from Power Lines*, concludes:

"On balance, the scientific evidence does not indicate that exposure to 50Hz EMF's found around the home, the office or near powerlines is a hazard to human health."

Whilst there is no scientifically proven causal link between EMF and human health, Powerlink nevertheless follows an approach of "*prudent avoidance*" in the design and siting of new powerlines. This includes seeking to locate new powerline easements away from houses, schools and other buildings, where it is practical to do so and the added cost is modest.

The level of EMF decreases rapidly with distance from the source. EMF readings at the edge of a typical Powerlink easement are generally similar to those encountered by people in their daily activities at home or at work. And in the case of most Powerlink lines, at about 100 metres from the line, the EMF level is so small that it cannot be measured.

Powerlink is a member of the ENA's EMF Committee that monitors and compiles up-to-date information about EMF on behalf of all electricity network businesses in Australia. This includes subscribing to an international monitoring service that keeps the industry informed about any new developments regarding EMF such as new research studies, literature and research reviews, publications, and conferences.

We encourage community members with an interest in EMF to visit ARPANSA's website: www.arpansa.gov.au Information on EMF is also available on the ENA's website: www.ena.asn.au

Customer Contact 1300 COUNCIL (1300 268 624)
07 4679 4000
www.wdrc.qld.gov.au
info@wdrc.qld.gov.au

WESTERN DOWNS REGIONAL COUNCIL

NOTICE OF INTENTION TO COMMENCE USE

Planning Approval	030.2020.120.001
Date of Approval	29 September 2020
Approved Development	Material Change of Use to establish a Renewable Energy Facility (Solar Farm)
Location	Kumbarilla Lane, Kumbarilla
Real Property Description	Lot 4 on DY457 and Easement B on SP107382

I am hereby notifying you of my intention to commence the approved use on

_____ (insert date)

I have read the conditions of the above Decision Notice and believe that all the applicable conditions have been complied with.

Applicant: _____

Address: _____

_____

_____

_____

Contact Details: _____

_____

SIGNATURE OF APPLICANT

Date: _____