Mr Zaed Aznam
ITP Development
Project Manager – Planning
PO Box 6127
O'Connor, ACT 2602

By email on 5th February 2021 to zaznam@itpau.com.au

Re: Biodiversity inspection report – Temora 1C 5MW Solar Farm, 197 Moroneys Lane, Temora, NSW, 2666

Dear Zaed,

Thank-you for the opportunity to assist with the project. Please be advised that in this engagement, I am assuming the role of your Ecological Consultant and Biodiversity Assessment Method (BAM) Accredited Assessor. I confirm that I am listed on the Biodiversity Assessment Method (BAM) Accredited Person database.

Desk-top review

Database searches concluded that the likely Plant Community Type (PCT) adjacent to the area is either PCT 435, White Box-White Cypress Pine shrub grass hills woodland in the Brigalow Belt South Bioregion or PCT 544 Rough-barked Apple-White Cypress Pine-Blakely's Red Gum riparian open forest woodland of the Nandewar Bioregion and New England Tableland Bioregion.

Aerial photography confirmed that as at 11/1/2021 the entire site is likely cleared of native shrubs and trees, but native grasses may persist under a likely grazing regime (i.e. nil cropping evident on 75% of the development area). Review of the site plans showed that native vegetation removal has been minimised through detailed design, which avoids all native trees on site.

Consultation with the EPBC Protected Matters Online Search Tool for Temora Shire Council area for threatened ***Flora*** and ***Vegetation Communities*** returned 8 threatened species and 4 threatened communities. Of which there were 3 Vulnerable, 1 Critically Endangered and 8 Endangered species whose habitat may occur within that specified geographic range. **Table 1** considers their likelihood of occurring in the proposed site. Consultation with the same online database for threatened ***Fauna*** in the same geographic range returned 12 Vulnerable, 21 Migratory, 7 Endangered and 8 Critically Endangered species. **Table 2** considers their likelihood of occurring in the proposed site.

Consultation with NSW BioNet (The Atlas of NSW Wildlife) for listed ***Flora*** considered threatened in NSW, returned 1 Vulnerable species recorded within 10km by 10km radius of the site. Spiny Peppercress (Lepidum aschersonii) is commonly found on ridges of *gilgai clays* dominated by Brigalow, Belah, Buloke and Grey Box. In the south has been recorded growing in Bull Mallee where the understorey is often dominated by introduced plants. It was not recorded on site during the inspection period and is considered not present due to a lack of suitable habitat and structure. Consultation with the same online database for threatened ***Fauna*** in the same geographic range returned 9 species records, 8 Vulnerable and 1 Migratory species. **Table 3** considers their likelihood of occurring in the proposed site.

The Biodiversity Offsets Scheme Threshold tool online is a test used to determine when is necessary to engage an accredited assessor to apply the Biodiversity Assessment Method (the BAM) to assess the impacts of a proposal. A search conducted on 5/2/21 revealed that the project site does not intersect any areas mapped as possessing 'Biodiversity Values' (**Attachment 4**).

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Site inspection

Site inspection on 4/2/2021 was conducted mid-morning, conditions were clear and 25°C. The designated 'clear zone' was thoroughly inspected in accordance with *Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011)*. I confirm that the proposed area for development will not see the loss of >1 ha of native grass or any dead or alive remnant trees. The following observations were made at the time of inspection:

1. If any threatened native fauna (birds) are present in the surrounding connected native vegetation (in particular Grey-crowned Babbler & Superb Parrot) they were not recorded during survey on the loss site on 4/2/2021 and the nesting period for these species is closed (both typically breed between June and December) meaning that the possibility of harming a fledgling is unlikely.
2. The site is a highly modified grazing paddock with some native grasses present and an obvious history of pastoralism and or cultivation;
3. The development will not impact on the strip of remnant vegetation to the south of the site which could be defined as part of the Endangered Ecological Community (EEC) - Box-Gum Woodland;
4. The site has had obvious disturbance in the pursuits of pastoralism and or cultivation; and
5. No threatened species, scats or other evidence of the use of this zone or the development site were recorded during the survey effort.

Summary of Findings

Red-Gum contends that the project requires <1 ha clearance of native grass and zero remnant native trees. The proposed activities are unlikely to have an adverse effect on the foraging ability or the life cycle of threatened species that may be opportunistically using the site or surrounding areas.

The small amount of native grass that will be impacted by the development will not endanger or have a significant effect on any existing native vegetation, habitats within the site, or fauna species that may be using the site.

The small sections of remnant EEC Box Gum Woodland on the southern boundary of the lot is unlikely to be impacted by the development given that the nearest edge of works is over 100m north. This project will not displace any rare or threatened species, however it is likely that a number of threatened and declining bird species may be using the area to the south and along the heavily wooded road reserve on the western boundary, hence the construction activities may prove to disturb foraging activities for a short period.

The area assessed was largely exotic species and pasture grasses, with many species commonly regarded as 'highly invasive' in more natural woodland settings – like that to the west in the road reserve. While the proposed works are unlikely to introduce noxious weeds, vermin, feral species or genetically modified organisms into an area, the movement of vehicles, plant, equipment and people on and off the subject site/s has the potential to introduce such impacts. Wherever possible, removal of weeds should be undertaken prior to seed developing, which for most species occurs during the warmer months (i.e. summer).

I am of the opinion that the activities as proposed will not have a significant effect on any threatened species and ecological communities and/or their conservation as noted within this assessment.

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Recommendations

By way of a clearing process that minimizes the risk to threatened species that may be opportunistically using the site, I recommend:

I. Construction limits and exclusion zones clearly identified prior to work;

II. A visual inspection is conducted by environmental staff before construction commences to identify any areas of site that might be supporting native fauna;

III. Vehicle movements around the site will be restricted to the construction footprint and away from any existing planted trees and flagging exclusion fencing to be installed.

IV. Soil disturbance by vehicle and pedestrian access is to be kept to a minimum outside the construction footprint.

V. Any weeds removed (particularly those bearing seeds) are to be disposed of appropriately at the nearest waste management facility.

Regards

Mr Damian Wall
Managing Director
BAppSc, MEnvMgt, GradCert CHM, MAACAI

5th February, 2021

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Attachment 1: Database Search Results v Likelihood Tables

[1] Five categories for the 'likelihood of occurrence' of species has been used. The categories are based on recorded sightings listed in credible databases, the presence or absence of suitable habitat, other features of the site, results of the field survey and professional judgement. The 5 categories are:

'Yes' The species/community was or has been observed on the site.
'Likely' A medium to High probability that a species uses the site
'Potential' A suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as 'likely' or 'unlikely' to occur.
'Unlikely' A Very Low to Low probability that a species uses the site.
'No' Habitat on the site and in the vicinity in unsuitable for the species.

Table 1: EPBC Protected Matters Database results - Flora

Species	Preferred Habitat	EPBC Act Status	Likelihood[1]
White Box-Yellow Box Blakely's Red-Gum Grassy Woodland and Derived Native Grassland		Critically Endangered	No
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia		Endangered	No
Weeping Myall Woodlands		Endangered	No
Poplar Box Grassy Woodland on Alluvial Plains		Endangered	No
Prasophyllum petilum - Tarengo Leek Orchid	Grows in open sites within Natural Temperate Grassland	Endangered	No
Swainsona recta - Small Purple-pea	Associated with intact Box Gum Grassy Woodland TEC.	Endangered	No
Austrostipa metatoris – *(A spear grass)*	Sandhills, sandridges, undulating plains and flat open mallee country, with red to red-brown clay-loam to sandy-soils.	Vulnerable	Unlikely
Austrostipa wakoolica – *(A spear grass)*	Mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rises.	Endangered	Unlikely
Caladenia areanaria – Sand-hill Spider orchid	Occurs in woodland with sandy soil, especially that dominated by White Cypress Pine (Callitris glaucophylla).	Endangered	No
Lepidum aschersonii – Spiny Pepper- cress	Found on ridges of gilgai clays dominated by Brigalow, Belah, Buloke and Grey Box.	Vulnerable	No
Swainsona murrayana - Slender Darling-pea, Slender Swainson, Murray swainson-pea	Grows with Maireana species on heavy soils, especially in depressions, while also found on Eucalyptus largiflorens (Black Box) and grassland communities	Vulnerable	No
Tylophora linearis	Grows in dry scrub and open forest.	Endangered	No

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Table 2: EPBC Protected Matters Database results - Fauna

Species	Preferred Habitat	EPBC Act Status	Likelihood[1]
Birds			
Anthochaera hrygia – Regent Honeyeater	Dry open forest and woodlands on inland slopes and valleys particularly Box Woodlands.	Critically Endangered	No
Hirundapus caudacutus - White-throated Needletail	Feed, drink and rest on the wing in large groups. May rest at night in forested country.	Vulnerable	No
Falco hypoleucos Grey Falcon	Usually restricted to shrubland, grassland and wooded watercourses of arid regions	Vulnerable	No
Lathamus discolor – Swift Parrot	Forests and woodlands dominated by winter flowering eucalypts	Critically Endangered	Unlikely
Rostratula australis - Australian Painted Snipe	Margins of densely vegetated swamps and wetlands	Endangered	No
Botaurus poiciloptilus – Australasian Bittern	Found in wetlands with tall, dense vegetation, favours permanent freshwater habitats.	Endangered	No
Calidris ferruginea – Curlew Sandpiper	Occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons	Critically Endangered	No
Numenius madagascariensis – Eastern Curlew	Found in Austraila in August (Migratory bird) to feed on crabs and molluscs in intertidal mudflats.	Critically Endangered	No
Polytelis swainsonii – Superb Parrot	Mainly inhabits forests and woodlands dominated by eucalypts.	Vulnerable	Unlikely
Leipoa ocellata – Malleefowl	Predominantly inhabit mallee communities, with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey.	Vulnerable	No
Grantiella picta – Painted Honeyeater	Inhabits Boree/ Weeping Myall (Acacia pendula), Brigalow and Box-Gum Woodlands	Vulnerable	No
Fish			
Maccullochella macquariensis - Trout Cod	Main habitats were the larger upland rivers and creeks of NSW.	Endangered	No
Maccullochella peelii peelii – Murray Cod	Slow flowing turbid rivers and billabongs.	Vulnerable	No
Macquaria australasica – Macquarie Perch	Widespread through the cooler upper reaches of the southern tributaries of the Murray-Darling river system in Victoria and New South Wales.	Endangered	No
Mammals			
Dasyurus maculatus – Spot-tailed Quoll	Mature wet forest habitat in areas with rainfall 600 mm/year	Endangered	No
Nyctophilus corbeni – Corben's Long-eared Bat	Mallee, bulloke Allocasuarina and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine.	Vulnerable	No
Pteropus poliocephalus – Grey-headed Flying-fox	Requires foraging resources and roosting sites.	Vulnerable	No
Phascolarctos cinereus – Koala	Temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by Eucalyptus species	Vulnerable	No
Reptiles			
Aprasia parapulchella – Pink-tailed Worm-lizard,	Small rocks (15–60 cm basal area) shallowly embedded in the soil.	Vulnerable	No
Migratory Marine Birds			
Apus pacificus – Fork-tailed Swift	Spend most their life airborne. Build their nests on cliffs.	Migratory	No
Migratory Terrestrial Birds			
Hirundapus caudacutus – White-throated Needletail	Feed, drink and rest on the wing in large groups. May rest at night in forested country.	Vulnerable	No
Motacilla flava – Yellow Wagtail	Found in short grass, bare ground, swamp margins, sewage ponds and town lawns.	Migratory	No

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Species	Preferred Habitat	EPBC Act Status	Likelihood[1]
Myiagra cyanoleuca – Satin Flycatcher	Tall wet eucalypt forests of SE Australia.	Migratory	No
Migratory Wetland Birds			
Numenius madagascariensis – Eastern Curlew	Found in Austraila in August (Migratory bird) to feed on crabs and molluscs in intertidal mudflats.	Critically Endangered	No
Calidris ferruginea – Curlew Sandpiper	Occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons	Critically Endangered	No
Gallinago hardwickii – Latham's Snipe	Freshwater swamps and marshes as well as salt marshes and mud flats	Migratory	No
Tringa nebularia – Common Greenshank	Found in a wide variety of inland wetlands.	Migratory	No
Actitis hypoleucos – Common Sandpiper	Found in coastal or inland wetlands, both saline or fresh.	Migratory	No
Calidris acuminata - Sharp-tailed Sandpiper	Prefers the grassy edges of shallow inland freshwater wetlands.	Migratory	No
Calidris melanotos – Pectoral Sandpiper	Prefers the grassy edges of shallow inland freshwater wetlands.	Migratory	No
Listed Marine Birds			
Apus pacificus – Fork-tailed Swift	Spend most their life airborne. Build their nests on cliffs.	Migratory	No
Ardea ibis – Cattle Egret	Shallow water and open dry grassy habitats	Migratory	No
Ardea alba – Great Egret	Wetland habitats, inland and coastal, freshwater and saline, permanent and ephemeral water.	Migratory	No
Rostratula benghalensis (sensu lato) – Painted Snipe	Generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands	Endangered	No
Tringa nebularia – Common Greenshank	Found in a wide variety of inland wetlands.	Migratory	No
Hirundapus caudacutus – White-throated Needletail	Feed, drink and rest on the wing in large groups. May rest at night in forested country.	Vulnerable	No
Motacilla flava – Yellow Wagtail	Found in short grass, bare ground, swamp margins, sewage ponds and town lawns.	Migratory	No
Myiagra cyanoleuca – Satin Flycatcher	Tall wet eucalypt forests of SE Australia.	Migratory	No
Calidris ferruginea - Curlew Sandpiper	Occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons	Critically Endangered	No
Gallinago hardwickii - Latham's Snipe	Freshwater swamps and marshes as well as salt marshes and mud flats	Migratory	No
Haliaeetus leucogaster - White-bellied Sea-Eagle	Surface waters along coasts, islands, inlets also along larger inland rivers and lakes.	Migratory	No
Merops ornatus - Rainbow Bee-eater	Occurs in open woodlands, shrublands, grasslands and forests including riparian areas.	Migratory	Unlikely
Lathamus discolor - Swift Parrot	Forests and woodlands dominated by winter flowering eucalypts	Endangered	Unlikely
Numenius madagascariensis - Eastern Curlew	Found in Austraila in August (Migratory bird) to feed on crabs and molluscs in intertidal mudflats.	Critically Endangered	No
Actitis hypoleucos - Common Sandpiper	Found in coastal or inland wetlands, both saline or fresh.	Migratory	No
Calidris acuminata - Sharp-tailed Sandpiper	Grassy edges of shallow inland freshwater wetlands.	Migratory	No
Calidris melanotos – Pectoral Sandpiper	Prefers shallow fresh to saline wetlands.	Migratory	No
Chrysococcyx osculans - Black-eared Cuckoo	Found in drier country where species such as mulga and mallee form open woodlands	Migratory	Unlikely

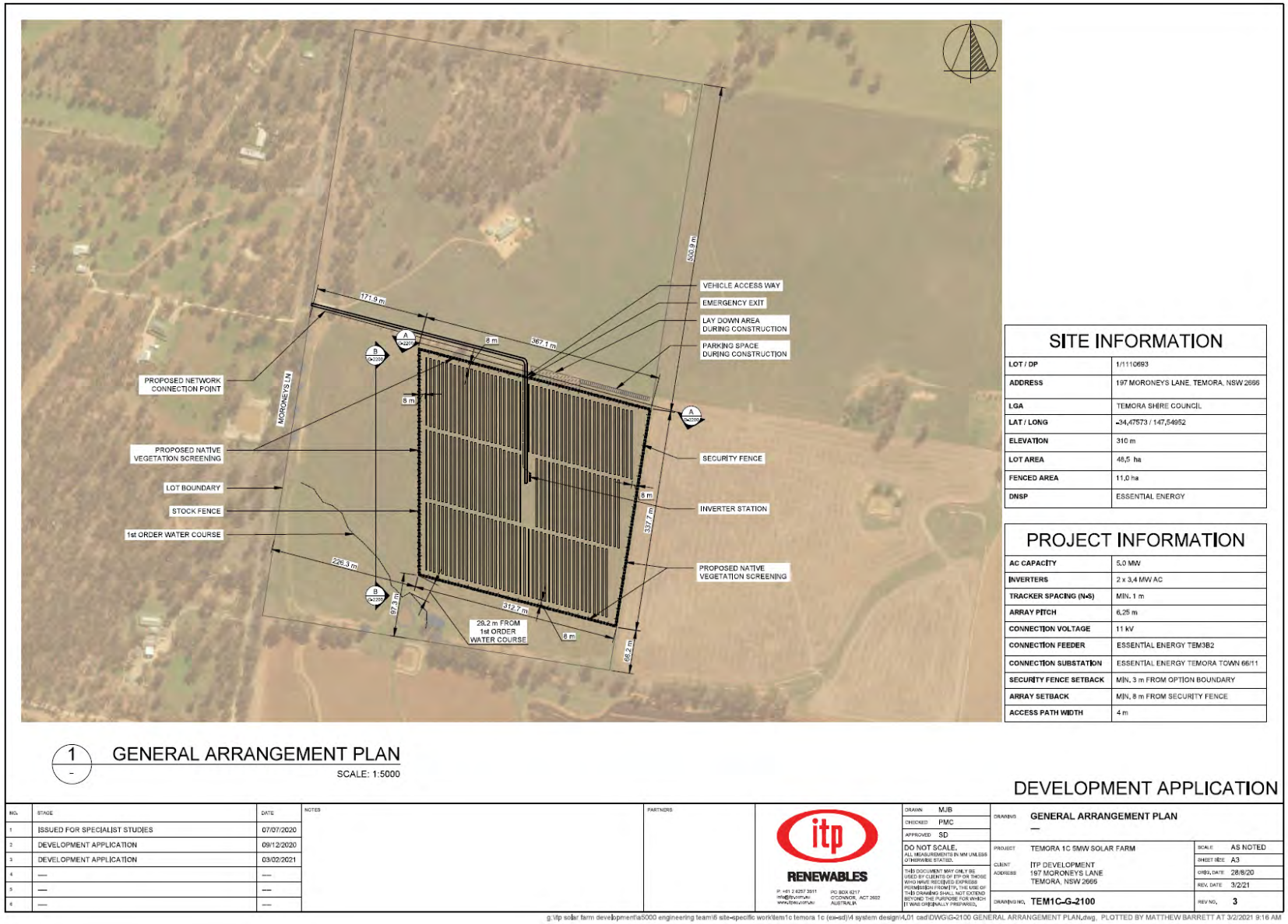
0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Table 3: BioNet Atlas of NSW Wildlife – Fauna

Species	Preferred Habitat	BC Act Status	Likelihood[1]
Pomatostomus temporalis temporalis Grey-crowned Babbler (eastern subspecies)	Inhabits open Box-Cypress-pine and open Box Woodlands on alluvial plains. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low branches of large eucalypts.	Vulnerable	Unlikely
Hieraaetus morphnoides Little Eagle	Occupies open eucalypt forest, woodland or open woodland. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Vulnerable	No
Melanodryas cucullata cucullata Hooded Robin (south-eastern form)	Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Vulnerable	Unlikely
Latham's Snipe – *Gallinago hardwickii*	Freshwater swamps and marshes as well as salt marshes and mud flats.	Migratory (protected)	No
Suburb parrot Polytelis swaimsonii	Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. Nest in the hollows of large trees. Feed in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants	Vulnerable	Unlikely
Barking Owl *Ninox connivens*	Open forest and woodlands, near water courses and foothills.	Vulnerable	No
Brown Treecreeper (eastern subspecies) *Climacteris picumnus victoriae*	Inhabits dry eucalypt woodland and adjoining vegetation, though absent from degraded woodlands and steep rocky hills	Vulnerable	Unlikely
Dusky Woodswallow *Artamus cyanopterus cyanopterus*	Open forests and woodlands, and may be seen along roadsides and on golf courses.	Vulnerable	Unlikely
Diamond Firetail *Stagonopleura guttata*	Found in open grassy woodland, heath and farmland or grassland with scattered trees.	Vulnerable	Unlikely

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Attachment 2: Proposed Design and Impacts. Source: ITP Development, 2021



SITE INFORMATION

LOT / DP	1/1110693
ADDRESS	197 MORONEYS LANE, TEMORA, NSW 2666
LGA	TEMORA SHIRE COUNCIL
LAT / LONG	-34,47573 / 147,54952
ELEVATION	310 m
LOT AREA	48,5 ha
FENCED AREA	11,0 ha
DNSP	ESSENTIAL ENERGY

PROJECT INFORMATION

AC CAPACITY	5,0 MW
INVERTERS	2 x 3,4 MW AC
TRACKER SPACING (N-S)	MIN. 1 m
ARRAY PITCH	6,25 m
CONNECTION VOLTAGE	11 kV
CONNECTION FEEDER	ESSENTIAL ENERGY TEM3B2
CONNECTION SUBSTATION	ESSENTIAL ENERGY TEMORA TOWN 66/11
SECURITY FENCE SETBACK	MIN. 3 m FROM OPTION BOUNDARY
ARRAY SETBACK	MIN. 8 m FROM SECURITY FENCE
ACCESS PATH WIDTH	4 m

1 GENERAL ARRANGEMENT PLAN
SCALE: 1:5000

DEVELOPMENT APPLICATION

NO.	STAGE	DATE
1	ISSUED FOR SPECIALIST STUDIES	07/07/2020
2	DEVELOPMENT APPLICATION	09/12/2020
3	DEVELOPMENT APPLICATION	03/02/2021
4	---	---
5	---	---
6	---	---

NOTES

PARTNERS

itp RENEWABLES
P: +61 2 6257 3911
info@itpau.com.au
www.itpau.com.au
PO BOX 6217
O'CONNOR, ACT 2602
AUSTRALIA

DRAWN: MJB
CHECKED: PMC
APPROVED: SD

DO NOT SCALE.
ALL MEASUREMENTS IN MM UNLESS OTHERWISE STATED.

THIS DOCUMENT MAY ONLY BE USED BY CLIENTS OF ITP OR THOSE WHO HAVE RECEIVED EXPRESS PERMISSION FROM ITP. THE USE OF THIS DRAWING SHALL NOT EXTEND BEYOND THE PURPOSE FOR WHICH IT WAS ORIGINALLY PREPARED.

DRAWING: GENERAL ARRANGEMENT PLAN
—

PROJECT: TEMORA 1C 5MW SOLAR FARM
CLIENT: ITP DEVELOPMENT
ADDRESS: 197 MORONEYS LANE TEMORA, NSW 2666

SCALE: AS NOTED
SHEET SIZE: A3
ORIG. DATE: 28/8/20
REV. DATE: 3/2/21

DRAWING NO.: TEM1C-G-2100
REV NO.: 3

g:\itp solar farm development\a5000 engineering team\6 site-specific work\tem1c temora 1c (ex-ad)\4 system design\4.01 cad\DWG\G-2100 GENERAL ARRANGEMENT PLAN.dwg, PLOTTED BY MATTHEW BARRETT AT 3/2/2021 9:16 AM

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Attachment 3: Photos from the Site Inspection

Photo 1: Potential EEC along Moroneys road. D. Wall 2021

Photo 2: Patch of remnant large trees south of the development site but within the affected lot. D. Wall 2021

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Photo 3: Exotic dominated pasture, south of site, north orientation. D. Wall 2021

Photo 4: Mid site, cropped area, east orientation. D. Wall 2021

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

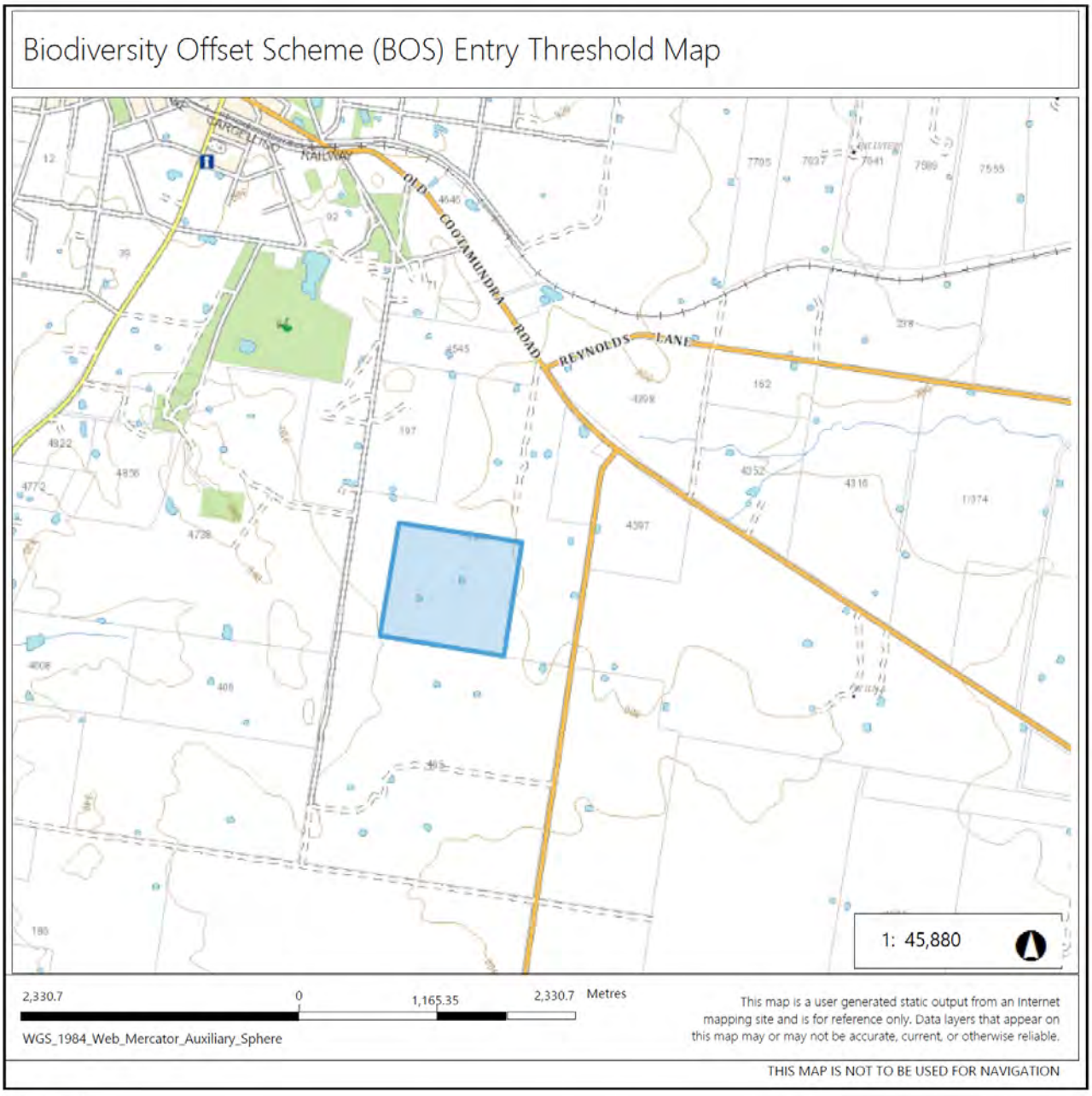
Photo 5: Planted vegetation on the northern access, east orientation. D. Wall 2021

Photo 6: Potential EEC on the southern boundary of the lot. Unaffected by the works. Photo: D.Wall 2021

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749

Attachment 4: BOSET Report Results

NSW GOVERNMENT



Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days

Notes

0402 344 574 damian.wall@red-gum.com.au www.red-gum.com.au 94 Kirby Flat Rd, Yackandandah, VIC 3749