



# Preliminary Environmental Assessment

SEBASTOPOL SOLAR FARM



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## ABBREVIATIONS AND ACRONYMS

ABS	Australian Bureau of Statistics
AHIMS	Aboriginal Heritage Information Management System
CCP	Community Consultation Plan
CEMP	Construction Environmental Management Plan
Cwth	Commonwealth
DPE	Department of Planning and Environment (NSW)
EEC	Endangered Ecological Community (listed under NSW BC Act)
EIS	Environmental Impact Statement
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Cwth)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
ha	hectares
Heritage Act	<i>Heritage Act 1977</i> (NSW)
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i> (NSW)
km	kilometres
kV	kilovolt
LEP	Local Environment Plan
LGA	Local Government Area
m	metres
MNES	Matters of National Environmental Significance under the EPBC Act (c.f.)
MW	megawatts
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
NSW	New South Wales
NV Act	<i>Native Vegetation Act 2003</i> (NSW)
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PCT	Plant community type
RET	Renewable Energy Target
RMS	Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements (issued by DPE)
SEPP	State Environmental Planning Policy (NSW)
SSD	State Significant Development, defined in the ISEPP
TEC	Threatened Ecological Community (listed under Commonwealth EPBC Act)
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)

# 1 INTRODUCTION

## 1.1 PROPOSAL OVERVIEW

Ib vogt GmbH (ib vogt) proposes to develop a solar farm at Sebastopol, approximately 17 km south of the township of Temora, New South Wales (NSW). The solar farm site and transmission line route are on about 400 hectares of rural land currently used for agriculture. The proposal infrastructure includes solar arrays, trackers, modules, invertors, an on-site substation, battery storage and an overhead transmission line to connect to an existing transmission line.

## 1.2 THIS REPORT

Scoping is a key stage in the environmental impact assessment process. It identifies the main issues and information requirements for the assessment, considering the values of the site, the nature and extent of potential impacts, planning and regulatory requirements and the results of early consultations. This allows the assessment to efficiently focus on the most important issues.

This Preliminary Environmental Assessment (PEA):

- Describes the proposal and the site
- Identifies statutory approval requirements
- Identifies key potential environmental issues associated with the proposal.

The Assessment has been prepared to support a request to the Department of Planning and Environment (DPE) for the Secretary's Environmental Assessment Requirements (SEARs). The SEARs would guide the preparation of an Environmental Impact Statement (EIS) for the proposal under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

### 1.2.1 Terms used in this document

**Subject Land** – the land involved in the proposed solar farm.

**Proposal footprint** - the area of land which will potentially experience work related to the proposed solar farm and any additional infrastructure required for the operation of the solar farm (e.g. perimeter fence, solar array design, transmission line footprint, site access).

## 1.3 IB VOGT

Established in 2002, ib vogt specialises in the development, design and engineering, financing, operation and maintenance, and asset management of solar power plants. The company provides high-quality turnkey solar power plant solutions, designed and engineered in Germany, to end investors internationally.

ib vogt is a manufacturer-independent integrated developer, focusing on tailor-made solar power plant solutions that maximise lifecycle performance and investor returns. ib vogt employs over 100 experts in all areas along the solar power plant value chain. The company operates internationally from offices in Germany, the United Kingdom, the USA, Australia, Panama, Eastern Europe, India and Southeast Asia, as well as several joint ventures across Africa.

## 2 SUBJECT LAND DESCRIPTION

### 2.1 LOCATION

The proposed Sebastopol Solar Farm is in the Temora Local Government Area (LGA) approximately 17 kilometres south of the township of Temora, as shown in Figure 2-1. Proposed access to the site is via Eurolee Road, immediately south of the site, which is located within the Junee LGA. The subject land comprises of Lot 1 DP 133994, Lots 4, 18, 62, 88, 90, 91, 92 and 96 of DP 751424 (Figure 2-2). The proposal footprint is contained on Lot 1 DP 133994 and Lots 90, 91 and 92 of DP 751424, with the transmission line on part of lots 62 and 88 of DP 751424. Goldfields Way runs to the west of the subject land, and Sebastopol Road to the north. Transmission lines run to the west of the subject land.

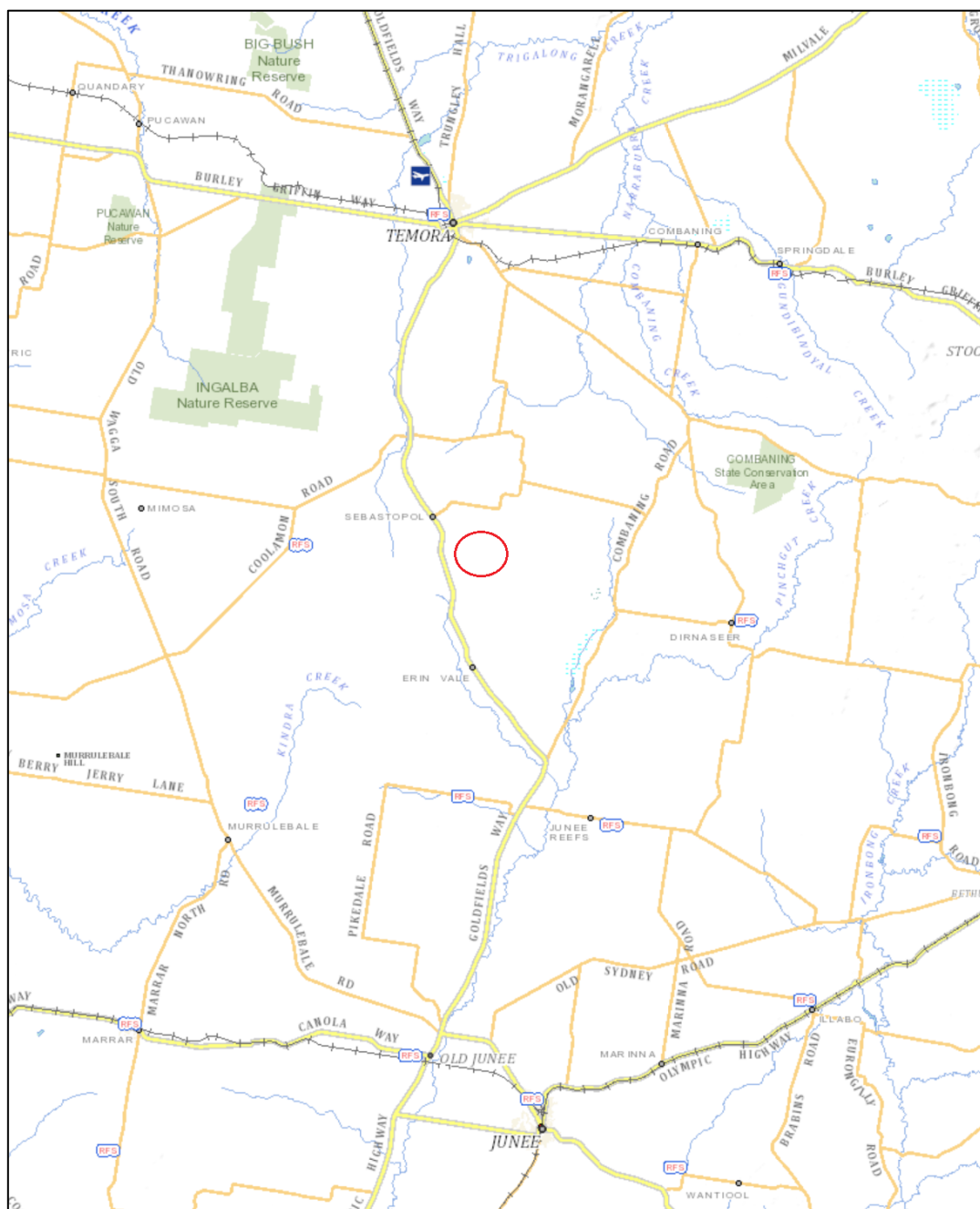


Figure 2-1 Location of Sebastopol Solar Farm (Six Maps)



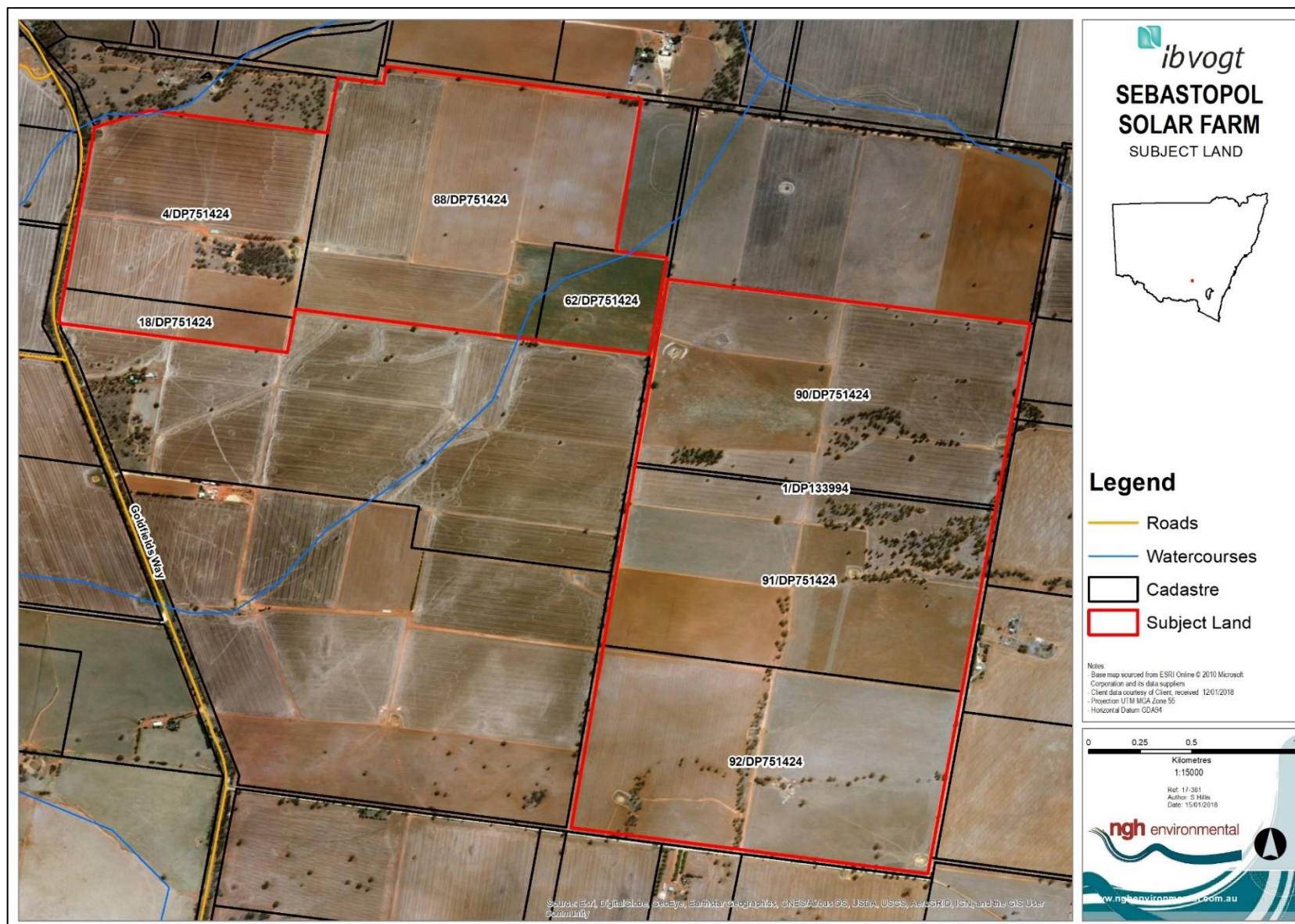


Figure 2-2 Sebastopol Subject Land



The subject land is within the South West Slopes Bioregion of NSW, which is dominated by a sub-humid climate characterised by hot summers and no dry season (OEH 2017). Mean maximum and minimum temperatures and rainfall for the seasons are as follows (Temora 2018):

Season	Max. Temperature	Min. Temperature	Average Rainfall (mm)
Summer	30°C	15°C	127
Autumn	23°C	9°C	128
Winter	14°C	3°C	134
Spring	22°C	5°C	140

## 2.2 THE PROPOSAL AREA

The Sebastopol Solar Farm would occupy approximately 400 hectares of land and include a connection to the existing 66 kV transmission line located to the west of the site. The proposal area comprises several large paddocks which are generally flat, largely cleared and cultivated for pastures and grazing.

The property holds several dams (Figure 2-3) and remnant native vegetation in the form of paddock trees, and five small to moderate-sized stands of remnant native woodlands along fence lines (Figure 2-4 and Figure 2-5). A small unnamed drainage line exists to the north of the property.

There are no residences within the proposal footprint. The subject land and most adjoining land is used for agriculture, including for grazing and cropping.

A 66kV transmission line and associated easement runs east-west across the western part of the proposal area.



Figure 2-3 Typical farm dam



Figure 2-4 Typical remnant native vegetation



Figure 2-5 Typical paddock views



## 3 THE PROPOSAL

### 3.1 SITE SELECTION

The Sebastopol Solar Farm site has been selected for the following reasons:

- Excellent solar exposure
- Excellent access to local and major roads
- Excellent access to the grid transmission network
- Likely low level of environmental impact – the site has been largely cleared and heavily disturbed by cultivation and cropping

The use of the site would be based on a lease agreement between ib vogt and the landowners for the life of the project.

### 3.2 PROPOSED WORKS

#### 3.2.1 *Proposed infrastructure*

The solar farm would have a total installed capacity of up to 160 MW (DC), and would include:

- Single axis tracker photovoltaic (PV) solar panels, mounted on steel frames over most of the site (up to approximately 480,000 PV solar panels)
- Battery storage to store energy on-site, allowing energy to be stored during periods of low demand and released to the network during periods of higher demand
- Electrical conduits and transformers
- On site substation
- Site office, parking access tracks and perimeter fencing
- Electrical transmission infrastructure to connect the proposal to the existing 66 kV transmission line located to the west of the site.

The existing 66kv transmission line is part of the electricity distribution network that originates at Essential Energy's Junee Substation. An additional substation would be required at the point where the proposal connects to the transmission line.

The site would be accessed from Eurolee Road which runs along the southern boundary of the site, connecting to Goldfields Way to the west. Goldfields Way provides access to the region's transport network.

The proposed infrastructure footprint is shown in Figure 3-1. This includes all land likely to be directly impacted by the construction, operation and decommissioning of the proposal, including auxiliary construction facilities (site compound, laydown, stockpiling etc.) and all considered options. It is important to note that the proposed footprint is indicative only, and will be refined as part of the EIS process (considering environmental constraints and engineering studies), with project infrastructure layout to be detailed in the EIS.

#### 3.2.2 *Construction, operation and decommissioning*

The Sebastopol Solar Farm is expected to operate for around 30 years. The construction phase of the proposal is expected to take 12 to 18 months. After the initial operating period, the solar farm would either

be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or upgraded with new PV equipment.

### **3.2.3 Capital investment**

The Sebastopol Solar Farm proposal would have an estimated capital investment of \$160 million. A quantity surveyor's report would be prepared during the EIS process as part of the proposal which would confirm the capital investment cost.

### **3.2.4 Subdivision**

The proposal footprint area will be leased from the landowner. Subdivision or creation of easements may be required for:

- The solar farm
- The substation
- The transmission line easement.

When land is leased from a landowner and the lease affects part of a lot or lots in a current plan, a subdivision under *s.7A Conveyancing Act 1919* (formerly *s.327AA Local Government Act 1919* now repealed) is required when the total of the original term of the lease, together with any option of renewal, is more than five years. When the lease affects the whole lot in a current plan, the body of the lease identifies the area by lot and DP number with a subdivision not required.

Similarly, experience on recent similar projects suggests that substations owned/operated by a third party (eg Essential Energy) may require its own lot. This could potentially require the subdivision of land.

It is possible that any subdivision may result in a residual lot being below the minimum lot size for dwellings on rural land. This would be identified in the EIS process and consultation with Council would occur.

An easement may be created by means of an appropriate dealing registered in NSW LRS or by the inclusion in a Section 88B instrument lodged with a new deposited plan.



Figure 3-1 Proposed footprint and associated infrastructure



## 4 JUSTIFICATION AND ALTERNATIVES

### 4.1 STRATEGIC JUSTIFICATION

#### 4.1.1 Technical feasibility

The proposal would employ proven and mature solar technology. The solar resource at the site is highly suited to efficient, high-output generation.

The site is flat and predominantly clear of native vegetation, making it an ideal location for a utility scale solar project.

An Essential Energy easement passes over the western part of the property and it has been proposed to connect directly to the existing transmission lines. The proponent has commenced discussions with Essential Energy to establish that there is sufficient capacity in the network and at the substation to receive the proposed generation output. The project has been sized for the available network capacity.

It is worth noting that the electricity grid in New South Wales can present challenges in terms of having the capacity to connect utility scale renewable energy projects. The Sebastopol project benefits from having good connection options located on and directly adjacent to the site with, moreover, sufficient spare capacity in the transmission network to allow power generated at Sebastopol to be exported into the wider NSW grid.

#### 4.1.2 Climate change

The Sebastopol Solar Farm would contribute to the New South Wales Renewable Energy Action Plan (NSW Government 2013), which supports the national target of 20% renewable energy by 2020. The proposal will also further the three goals of the Action Plan:

1. Attract renewable energy investment and projects
2. Build community support for renewable energy
3. Attract and grow expertise in renewable energy

The NSW 2021: A plan to Make NSW Number One (NSW Government 2011) has the following goal:

- *Contribute to the national renewable energy target ... by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources.*

The proposal would also contribute to the Commonwealth Government's objective to achieve an additional 33GW of electricity from renewable sources by 2020 under the Renewable Energy Target or RET.

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C, chiefly by reducing greenhouse gas emissions. The Sebastopol Solar Farm would form part of the Australian effort to help meet this target.

#### 4.1.3 Electricity supply

AEMO (2016) forecasts that grid-supplied electricity consumption will remain flat for the next 20 years, despite projected 30% growth in population. Although not required to meet projected electricity demand, the proposal would benefit the network by shifting electricity production closer to local consumption. The

electricity network was designed to deal with a small number of very large power generating stations. The localisation of power generation helps the grid to cope with supply from diversified renewable energy projects.

#### **4.1.4 Socio-economic benefits**

##### **Employment**

The proposal will generate around 150 direct jobs during construction plus indirect supply chain jobs. In addition, it will employ approximately two to three full time staff and up to six service contractors during the operation and maintenance phase (expected to be approximately 30 years).

The employment benefits extend through the local supply chains to fuel supply, vehicle servicing, uniform suppliers, hotels/motels, B&B's, cafés, pubs, catering and cleaning companies, tradespersons, tool and equipment suppliers and many other businesses. In 2015/16, 11,150 Australians were directly employed in the renewable energy sector with an additional 3,725 jobs expected to be created in the 2017/18 financial year (CEC 2016).

##### **Economic Diversification**

The proposal would diversify the use of land in the area. The predominant land use in the area is agriculture. The proposal would add to that and provide both local land holders and business in the broader area with an additional source of income and economic activity.

#### **4.1.5 Land Use**

It is important to note that solar farms do not preclude the use of land for agriculture. Some agricultural activity is still possible whilst a solar farm is operating (e.g. grazing). Additionally, the degree of permanent land disturbance in the construction and operation of solar farms is small, and it's highly likely that agricultural activities which were occurring before the solar farm was constructed would be able to be continued once the solar farm is decommissioned and removed.

## **4.2 ALTERNATIVES TO THE PROPOSAL**

### **4.2.1 Alternative sites**

ib vogt has reviewed the solar generation potential of many areas in NSW using a combination of computer modelling and analysis, on the ground surveying and observation and experience of the proponent. The site was selected because it provides the optimal combination of:

- Low environmental constraints (predominantly cleared cropping land)
- Level terrain for cost effective construction
- High quality solar resource
- Compatible land use zoning of the land
- Low flood risk
- Road access
- On-site or good access to the transmission network
- High levels of available capacity on the grid transmission system

- Land availability

The proposal area is of a scale that allows for flexibility in the design, allowing ecological and other constraints to be avoided. These would be identified and the factors that determine the final design would be detailed in the EIS.

#### **4.2.2 Alternative technologies**

Photovoltaic solar technology was chosen because it is cost-effective, low profile, durable and flexible regarding layout and siting. It is a proven and mature technology which is readily available for broad scale deployment at the site.

Battery technology was selected over mechanical or physical storage methods because it enables modular installation without major infrastructure or specialised landform features. Batteries also generally have lower weight and physical volume and better scalability compared to other technologies.

#### **4.2.3 The 'Do Nothing' Option**

Not proceeding with the proposal would forgo the benefits of the proposal, resulting in:

- The loss of a source of renewable energy that would assist the Australian and NSW Governments reach their targets
- The loss of cleaner energy and reduced greenhouse gas emission
- The loss of additional electricity generation and supply into the grid
- Loss of social and economic benefit through the provision of direct and indirect employment

The 'do nothing' option may avoid any potential impact; however, the likelihood of significant negative impacts is low. It is considered the benefit of the proposed solar farm outweighs any potential impact whilst contributing to ecologically sustainable development.

## 5 PLANNING CONTEXT

### 5.1 NSW LEGISLATION

#### 5.1.1 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations and instruments set the framework for development assessment in NSW. The Sebastopol Solar Farm proposal would be assessed under Part 4 of the EP&A Act.

#### 5.1.2 *State Environmental Planning Policy (State and Regional Development) 2011*

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* defines 'State Significant Development' as including:

Development for electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that has a:

- (a) capital investment value of more than \$30 million, or
- (b) capital investment value of more than \$10 million and is in an environmentally sensitive area of State significance.'

The Sebastopol Solar Farm would have an estimated capital investment cost greater than \$30 million. The proposal is therefore classified as 'State Significant Development' under Part 4 of the EP&A Act.

State Significant Developments (SSD) are major projects which require approval from the Minister for Planning and Environment. While the Minister for Planning and Environment is the consent authority for SSD, the Minister may delegate the consent authority function to the Planning Assessment Commission (PAC), the Secretary or to any other public authority.

An Environment Impact Statement (EIS) is prepared in accordance with environmental assessment requirements issued by the Secretary of the Department of Planning and Environment (SEARs). In determining the SEARs, the Secretary must consult with relevant public authorities and would have regard to the need to assess key issues raised by those public authorities. A scoping study is required to be submitted with the request for the SEARs.

#### 5.1.3 *State Environmental Planning Policy (Infrastructure) 2007*

Clause 34(7) of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) provides that development for a 'solar energy system' may be carried out by any person with consent on any land (except land in a prescribed residential zone). The Sebastopol proposal is located within a rural zone and is permissible with consent under the ISEPP.

#### 5.1.4 *State Environmental Planning Policy (Rural Lands) 2008*

The aims of the *State Environmental Planning Policy (Rural Lands) 2008* (Rural Lands SEPP) are:

- (a) to facilitate the orderly and economic use and development of rural lands for rural and related purposes,

- (b) *to identify the Rural Planning Principles and the Rural Subdivision Principles to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State,*
- (c) *to implement measures designed to reduce land use conflicts,*
- (d) *to identify State significant agricultural land for ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,*
- (e) *to amend provisions of other environmental planning instruments relating to concessional lots in rural subdivisions.*

The Rural Lands SEPP rural planning principles, listed under clause 7, are:

- (a) *the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas,*
- (b) *recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State,*
- (c) *recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development,*
- (d) *in planning for rural lands, to balance the social, economic and environmental interests of the community,*
- (e) *the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land,*
- (f) *the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities,*
- (g) *the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing,*
- (h) *ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.*

It is considered that the proposal is consistent with the aims and planning principles of the Rural Lands SEPP. Part 4 of the Rural Lands SEPP relates to state significant agricultural land. Given the proposal area is not identified in schedule 2, it is not identified as state significant agricultural land and Part 4 does not apply.

#### **5.1.5 Roads Act 1993**

The *Roads Act 1993* (Roads Act) provides for the classification of roads and for the declaration of the Roads and Maritime Services (RMS) and other public authorities as roads authorities for both classified and unclassified roads. It also regulates the carrying out of various activities in, on and over public roads. The need for upgrade works on local roads would be considered as part of the traffic assessment to be conducted for the proposal. If required, approval from the roads authority (RMS and/or Council) would be sought under section 138 of the Roads Act. Temora and Junee Shire Councils, and RMS if required, would be consulted during the design and preparation of the EIS.

#### **5.1.6 Biodiversity Conservation Act 2016**

The NSW government introduced new biodiversity legislation for the consideration and assessment of biodiversity impacts. The *Biodiversity Conservation Act 2016* (BC Act) and *Local Land Services Act 2013* (LLS Act) commenced on the 25<sup>th</sup> August 2017 and has replaced the *Threatened Species Conservation Act 1995*.



The proposal would require assessment under Section 7.9 of the BC Act. A preliminary assessment of potential impacts has been conducted in section 7 of this report.

#### **5.1.7 National Parks and Wildlife Act 1974**

Under the *National Parks and Wildlife Act 1974*, the Director-General of the National Parks and Wildlife Service is responsible for the care, control and management of all national parks, historic sites, nature reserves, Aboriginal areas and state game reserves. The Director-General is also responsible under this legislation for the protection and care of native fauna and flora, and Aboriginal places and objects throughout NSW. Under Section 89J of the EP&A Act, an Aboriginal Heritage Impact Permit under Section 90 of the *National Parks and Wildlife Act 1974* would not be required for a State Significant Development. The potential impacts to Aboriginal heritage and native fauna and flora are discussed in section 7 of this report.

#### **5.1.8 Heritage Act 1977**

This Act aims to conserve heritage values. The Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts listed in the Local or State Heritage Significance. Heritage items are listed in the environmental heritage schedule of the local Council's Local Environmental Plan or listed on the State Heritage Register, a register of places and items of importance to the people of NSW. Under Section 89J of the EP&A Act, an approval under Part 4 or a permit under Section 139 of the *Heritage Act 1977* would not be required for a State Significant Development. The proposal is unlikely to directly or indirectly affect any items of heritage significance (refer to section 7).

#### **5.1.9 Crown Lands Act 1989**

The objects of this Act are to ensure that Crown land is managed for the benefit of the people of New South Wales. Under Part 3 of the Act, the Minister for Lands must be satisfied that the land has been assessed prior to any allocation action, i.e. reservation, dedication, sale, lease, licence or permit. The purpose of a land assessment is to ensure decisions made in relation to Crown land are in accordance with the principles of Crown land management by (amongst other matters) including an assessment of the capabilities of Crown land and the identification of suitable land uses.

Preliminary searches do not indicate Crown land to be present within the proposed solar farm site. This would be further investigated in the EIS and the Department of Industries (Lands) would be consulted during the assessment process.

#### **5.1.10 Conveyancing Act 1919**

The purpose of the *Conveyancing Act* is to amend and consolidate the law of property and to simplify and improve the practice of conveyancing; and for such purposes to amend certain Acts relating thereto.

Subdivision or creation of an easement may be required for the purpose of the transmission line and substation infrastructure.

## 5.2 LOCAL GOVERNMENT

### 5.2.1 Temora Local Environmental Plan 2010 and Junee Local Environmental Plan 2012

The proposal site is in the Temora LGA with Eurolee Road being in the Junee LGA. The proposal is subject to the *Temora Local Environmental Plan 2010* (Temora LEP) and the *Junee Local Environmental Plan 2012* (Junee LEP).

The proposal area is zoned RU1 - Primary Production under the Temora LEP, as shown in Figure 5-1. Electrical generation is not listed among developments that are prohibited within the zone. Notwithstanding this, the ISEPP takes precedence over an LEP and permits solar energy systems with consent in the RU1 zone.

#### Land Use Zone Objectives

The Temora and Junee LEPs state that the consent authority must have regard to the objectives for development in a zone when determining a development application.

The objectives of the RU1 zone in the Temora LEP are to:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource lands
- To minimise conflict between land uses within this zone and land uses within adjoining zones
- To minimise the degradation of natural scenery and rural landscapes
- To encourage the conservation and efficient use and of water
- To protect, enhance and conserve the natural environment, including native vegetation, wetlands and other natural features that provide wildlife habitat, protect flora and fauna, provide scenic amenity and that may prevent or mitigate land degradation
- To encourage the provision of tourist accommodation in association with agricultural activities

The objectives of the RU 1 zone in the Junee LEP are to:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource lands
- To minimise conflict between land uses within this zone and land uses within adjoining zones
- To allow the development of processing, service and value adding industries related to primary production
- To encourage tourist and visitor accommodation that does not have an adverse impact on agricultural activities
- To allow for the development of non-agricultural land uses that are compatible with the character of the zone



Figure 5-1 Zoning in vicinity of proposal area

## 5.3 COMMONWEALTH LEGISLATION

### 5.3.1 *Environmental Protection and Biodiversity Conservation Act 1999*

The EPBC Act provides an assessment and approval process for actions likely to cause a significant impact on Matters of National Environmental Significance (MNES). These include:

- World Heritage properties
- National Heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Nuclear actions (including uranium mines)
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- A water resource, in relation to coal seam gas development and large coal mining development.

Approval by the Commonwealth Environment Minister is required if an action is likely to have a significant impact on a MNES. Assessments of significance based on criteria listed in Significant Impact Guidelines 1.1 issued by the Commonwealth (Commonwealth of Australia 2013) are used to determine whether the proposed action is likely to have a significant impact (i.e. is likely to be considered a 'controlled action').

A search of the Commonwealth EPBC Act Protected Matters Search Tool (10-kilometre buffer, undertaken on 21 November 2017) indicated three threatened ecological communities, 18 threatened species and 10 migratory species within the search area. Surveys to determine the presence and likelihood of impact to these entities would be undertaken during the preparation of the EIS. The search also indicated 4 wetlands of international importance, all located greater than 400 metres upstream.

A summary of the EPBC Act search report is provided in Table 7-1.

### 5.3.2 *Native Title Act 1993*

The *Native Title Act 1993* provides a legislative framework for the recognition and protection of common law native title rights. Native title is the recognition by Australian law that Indigenous people had a system of law and ownership of their lands before European settlement. Where that traditional connection to land and waters has been maintained and where government acts have not removed it, the law recognises this as native title.

People who hold native title have a right to consult or continue to practise their law and customs over traditional lands and waters while respecting other Australian laws. This could include visiting to protect important places, making decisions about the future use of the land or waters, hunting, gathering and collecting bush medicines. Further, when a native title claimant application is registered by the National Native Title Tribunal, the people seeking native title recognition gain a right to consult or negotiate with anyone who wants to undertake a project on the area claimed.

Where native title does exist in relation to the proposal area, the proponent would comply with the provisions of the *Native Title Act 1993*.

## 6 CONSULTATION

Community and stakeholder consultation will be integral to the proposal. A Community Consultation Plan (CCP) has been prepared to provide a framework to engage with the community and stakeholders about the proposal and ensure opportunities to provide input into the assessment and development process are understood. Stakeholders were identified as those potentially being impacted by the solar farm proposal or having an interest in the proposal:

Stakeholder group	Defining characteristics
1. Adjacent neighbours	Neighbours adjacent to the project and those who may be directly affected, for example: those with a view of infrastructure, noise or vibration from haulage route or construction activities.
2. Near Neighbours	Neighbours located near to the project and those who may be directly affected, for example: those with a view of infrastructure, noise or vibration from haulage route or construction activities.
3. Adjacent Businesses	The proposal is surrounded by farming business.  There are no non-farming businesses within the immediate vicinity of the site, with the closest major township being Temora 17 km north. Businesses are unlikely to be impacted by construction or operation of the solar farm.
4. Local Businesses	Being close to the townships of Temora and Junee, a large number of businesses are located within 30km of the site. These are unlikely to experience any negative impact.
5. Representative bodies	Representatives of groups such as: <ul style="list-style-type: none"> <li>• Temora Visitors Information Centre</li> <li>• Temora Shire Council</li> <li>• Junee Shire Council</li> <li>• Local state and national Members of Parliament</li> <li>• Chamber of Commerce</li> </ul>
6. Media	Outlets to ensure a clear message is delivered, like local radio, television, newspapers (e.g. The Temora Independent, The Daily Advertiser), newsletters, project website.
7. Broader community	The project is likely to be of interest to the broader local and regional community.
8. Temora and Junee Shires	While direct impacts are unlikely, the project would be a large new development for the broader community.
9. Aboriginal Stakeholders	The project is likely to be of interest to Registered Aboriginal Parties within the region. See Section 7.2.2 for further details



The CCP has set out consultation requirements with interested parties including adjacent neighbours, near neighbours, local businesses, any special interest groups and representative bodies. The plan also includes strategies for consultation for the local community and the broader community within the region. This includes:

- Face to face meetings with neighbours, local business, interested stakeholders etc.
- Community participation
- Phone calls
- Feedback forms
- An avenue to receive information and provide specific feedback
- Newsletter and/or factsheet drops
- Key milestones communicated through a dedicated website, links to other projects and accreditations.

The CCP aims to ensure that there is effective, ongoing liaison with the community. Measures to reduce adverse impacts and promote positive impacts would be identified in the EIS and appropriate management plans developed for the proposal.

Agency consultation would also be undertaken in accordance with any requirements of the SEARs.

### **Consultation to date**

Figure 6.1 identifies involved and uninvolved neighbours within 5km of the proposal area.

A summary of the formal and informal consultation carried out by ib vogt to date includes:

- Immediate neighbours to the proposal area were contacted by phone during mid-late January 2018 to advise of the proposal. Contact numbers were not available for all neighbours.
- During late January 2018 ib vogt staff met with the residents at Receiver 12 and visited all the near neighbours (none of which were home). A letter drop with information about the proposal was left at these residences.
- ib vogt staff met with Temora Shire Council on 24 January 2018 to provide information about the proposal. A note about the proposal will be added to Council's February Narraburra Newsletter, which is sent to all addresses in the Temora LGA.
- ib vogt staff met with the Temora Business Group President on 24 January 2018 to provide information about the proposal.
- ib vogt staff met with Junee Shire Council on 24 January 2018 to provide information about the proposal. A note about the proposal will be added to the Junee Shire Council Newsletter during February.
- The Project website went live on 2 February 2018.
- A letter and fact sheet was sent to all addresses in the Sebastopol locality and northern part of the Erin Vale locality, including a feedback form and reply-paid envelope (Appendix A).

A Community Open Day will be held in Temora on 9 March and advertised locally. A second Community Open Day will be held in Temora in mid-2018.

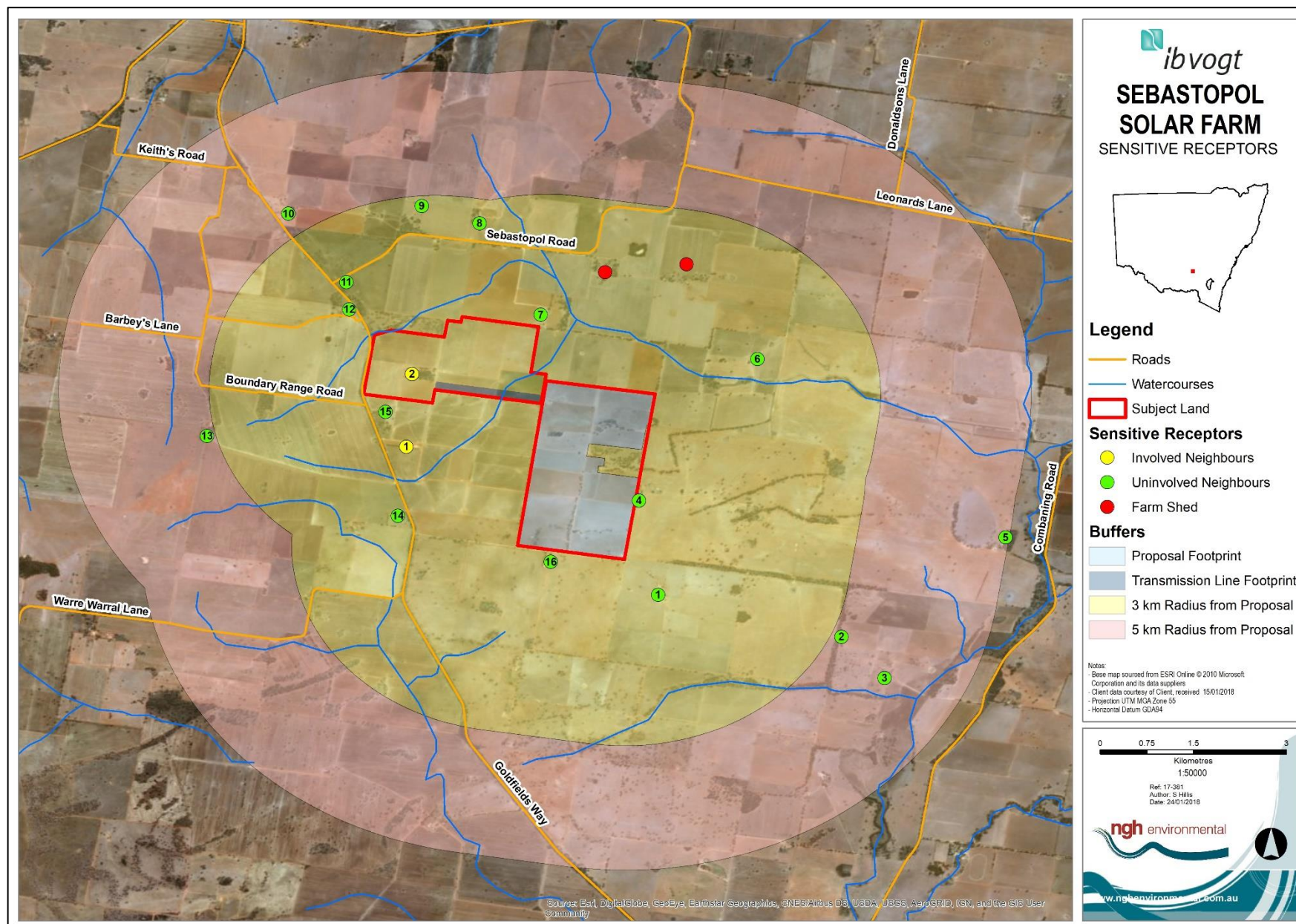


Figure 6-1 Sensitive Receptors

## 7 PRELIMINARY ENVIRONMENTAL ASSESSMENT

### 7.1 METHODOLOGY

A preliminary environmental risk assessment has been conducted to assist in the identification of key environmental matters that would require detailed assessment within the EIS. Risks were identified for both the construction and operation phase of the proposal and analysed in relation to their possible consequence and likelihood of occurrence. From this analysis, some environmental matters were deemed to be key issues on the basis that they had the potential to have a significant impact on the environment.

The assessment is based on a desktop review and preliminary site inspection (involving flora and fauna surveys) undertaken on 23 November 2017 to identify potential high-level constraints and major risks to the proposal. A preliminary constraints map is provided in Figure 7-1. This will be used to guide further detailed investigations and ultimately the site infrastructure layout. Constraints mapping will also be refined based on these investigations, prior to submission of the EIS.

A summary of the key environmental issues is provided in Section 7.2. The intent of the discussion is to demonstrate an understanding of the issues that require further environmental assessment and likely mitigation measures for these key issues. The potential impacts and management of other (less significant) issues are discussed in Section 7.3.

The following environmental risks are considered to be key aspects:

- Biodiversity
- Aboriginal heritage
- Noise
- Land use and resources
- Visual amenity and landscape character

The potential impacts of other (less significant) aspects are considered to be:

- Soils and contamination
- Watercourses and hydrology
- Traffic and access
- Social and economic impacts
- Air quality
- Hazards and risks – Electromagnetic fields
- Bushfires
- Aviation
- Cumulative impacts
- Waste management

## 7.2 ASSESSMENT OF KEY ENVIRONMENTAL MATTERS

### 7.2.1 Biodiversity

#### Methodology

NGH Environmental has undertaken a preliminary constraints assessment of the proposal to identify potential high-level constraints and major risks to the proposal.

The potential ecological constraints within the study area have been identified based on the following information sources:

- Threatened species and community listings under the BC Act and EPBC Act
- Commonwealth EPBC Act Protected Matters Search Tool, using a 10-kilometre search radius
- Threatened species and communities' records in the Bionet Database (OEH), using a 10-kilometre search radius
- Areas of outstanding biodiversity value declared under the BC Act 2016
- Office of Environment and Heritage (OEH) Vegetation Information System (VIS) Mapping
- A preliminary field survey undertaken in November 2017

The field survey included a general assessment of the site surveyed using the 'random meander' method as documented by Cropper (1993). Floristic surveys were also undertaken to determine the vegetation communities present including an assessment of the vegetation condition and composition.

#### Overview

The proposal area has been selected on the basis that it supports very little native vegetation and is relatively flat, and is therefore ideal for a solar farm. The land has a long history of cultivation and has been intensively farmed through cropping and grazing practices. It supports very limited flora and fauna features of significance.

The primary constraint is associated with biodiversity of the proposal area. About 15.6 ha of remnant vegetation occur within the proposal footprint. Several options are being investigated including avoidance of existing vegetation.

#### EPBC Act Database Search Results

The EPBC Act Protected Matters search undertaken on 21 November 2017 indicated four Wetlands of International Importance, three Endangered Ecological Communities, two threatened flora species and sixteen threatened fauna species that have the potential to occur within the proposal area. A summary of the search results is provided in Table 7-1.





Figure 7-1 Biodiversity Features on the subject land



Table 7-1 Summary of EPBC Act Protected Matters Report search results

Protected Matter	Entities within the search area
World Heritage Properties	0
National Heritage	0
Wetlands of International Significance (Ramsar)	4
Threatened Ecological Communities	3
Threatened Species	18
Migratory Species	10
Listed Marine Species	16
Commonwealth land	0
Commonwealth Heritage places	0
Critical habitats	0
Commonwealth reserves (terrestrial)	0
State and territory reserves	0
Regional Forest Agreements	0
Invasive species	22
Nationally Important Wetlands	0
Key Ecological Features (marine)	0

### Threatened Species Database Search Results

A search of the OEH Threatened Species Database occurring within the NSW South Western Slopes – Lower Slopes IBRA Subregion identified five Endangered Ecological Communities, 22 threatened flora species and 67 threatened fauna species comprising of, 2 amphibians, 41 bird species, 1 reptile, 6 marsupial species and 10 mammal species. No threatened species have been recorded within the proposal footprint. Within 10 kilometres of the proposal area the Superb Parrot (*Polytelis swainsonii*) has been recorded in 4 locations. The closest record occurs about 2km north east of the proposal footprint.

### Vegetation Mapping Database Search Results

An assessment was undertaken of existing vegetation mapping for the proposal area. No areas of Outstanding Biodiversity Value (OBV) under the BC Act occur within the proposal area.

OEH VIS mapping for the locality shows the proposal area mapped as non-native vegetation and patches of remnant grassy woodland vegetation. The Plant Community Types (PCTs) mapped through the OEH database include:

- PCT 267: White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion
- PCT 277: Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
- PCT 266: White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion
- PCT 76: Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions

## Results of the Field Surveys

A field survey was undertaken on the 23rd November 2017. The results of the field survey are provided in Figure 7-1.

The majority of the proposal area has been cleared for agriculture and is currently used for cropping and grazing. The paddocks have been deep ripped and cultivated in past management practices. Exotic vegetation within the proposal area is comprised of a mixture of cereal and pulse crops including canola, wheat and lupins. Exotic dominated pastures are heavily grazed by livestock and native groundcover has been entirely lost.

The native vegetation communities remaining in the proposal area occur as linear patches of open grassy woodlands along fence lines and internal roads. The native understorey and groundcover of the majority of these communities has been entirely lost or is heavily degraded. A large patch of woodland through the centre of the proposal area has retained its native understorey. This area of woodland has not been cleared or cultivated in the past enabling native groundcover to persist. A small number of scattered remnant trees of Grey Box (*Eucalyptus microcarpa*) and Yellow Box (*Eucalyptus melliodora*) are present within the exotic dominated paddocks.

Seven farm dams occur within the proposal footprint. These are the only hydrological features within the proposal area. Despite the poor quality of aquatic habitat present within the dams, this habitat has been identified as potential Sloane's Froglet (*Crinia sloanei*) habitat.

Threatened species that have potential to occur on the proposal site as indicated from the database searches and field surveys have been included in a table in Appendix B. Preliminary Biodiversity Assessment Methodology (BAM) results detailing presence of habitat, likelihood and potential for impact has been included in a table in Appendix C.

## Plant Community Types and Endangered Ecological Communities

Based on the existing OEH VIS vegetation mapping and the initial site inspection, vegetation within the proposal area was assigned to PCTs in accordance with the VIS Classification Database. PCTs were determined based on the presence of diagnostic species identified within the site survey. PCTs identified within the proposal area are:

Table 2 PCT Description and Area

PCT	Common Name	Area (ha)
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils of the NSW South Western Slopes and Riverina Bioregion	8.38
266	White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	0.69
267	White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	23.55
277	Blakely's Red Gum -Yellow Box tall grassy woodland of the NSW South Western Slopes	10.37

The extent and location of PCTs identified during the preliminary survey are provided in Figure 7-1. Detailed surveys as part of the EIS will be undertaken in accordance with the *Biodiversity Assessment Methodology* (BAM) to verify the condition and determine whether the PCTs are EECs.

Subject to further assessment, the vegetation communities may be consistent with the following threatened ecological communities:

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (BC Act, Endangered);
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (EPBC Act, Endangered);
- White Box – Yellow Box – Blakely’s Red Gum Woodland (BC Act, Endangered)
- White Box – Yellow Box– Blakely’s Rd Gum Grassy Woodland and Derived native grassland (EPBC Act, Endangered)

The isolated paddock trees within the proposal area are likely to be derived from PCT76 *Western Grey Box tall grassy woodland* or PCT 277 *Blakely’s Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion*. Paddock trees and Hollow bearing trees (HBTs) identified during the preliminary survey are provided in Figure 7 1.

The proposal footprint will avoid potential threatened communities and marge stands of vegetation, with only isolated paddock trees proposed to be cleared.

### Preliminary Constraints

Remnant Grassy Box Woodland PCTs and paddock trees are considered to be a high biodiversity constraint. While disturbed, these areas are potentially derived from a threatened ecological community and could also provide habitat for threatened species.

Farm dams within the site could provide habitat for the threatened Sloane’s Froglet. Surveys would be required for these species to determine if they are present. As it is not known if this species is present, these areas are considered to be of moderate biodiversity constraint.

A number of fallen timber piles exist within the proposal area, these habitat features were not considered a constraint to the project due to their poor suitability as threatened species habitat.

Areas of low constraint include the cropped paddocks where no native vegetation occurs. Minimal impacts are anticipated in these areas. These areas are most suitable for development.

### Potential impacts

The proposal would have the following potential impacts to biodiversity:

- Clearing, removal and disturbance of isolated paddock trees;
- Clearing of habitat (including disturbance to potential foraging, sheltering and breeding habitat);
- Loss of connectivity and nesting sites;
- Introduction and spread of invasive species and weeds;
- Increase risk of competition with regenerating native plants;
- Disturbance or displacement of fauna;
- Microclimate impacts due to shading, water availability, temperature etc.; and
- Movement barrier and collision hazard by perimeter fencing.

### Further assessment

As part of the EIS, detailed ecological surveys and further investigations will be undertaken in the format of the Biodiversity Development Assessment Report (BDAR). A full floristic Biometric survey is required to determine the floristic composition, condition and EEC status of native vegetation within the proposal area.

Targeted fauna surveys and habitat assessments are also required to determine the potential for the presence of threatened fauna species and habitat features. These surveys and assessments would be undertaken as part of the EIS and in accordance with the BAM. This will include the calculation of any biodiversity offset required for the project.

The proposed footprint mapped in Figure 3-1 and Figure 7-1 is preliminary only, and includes avoidance of known higher quality vegetation. Further investigation into the likelihood and consequence of the impact of the proposal on biodiversity would be considered after a full floristic plot survey under the BAM for the EIS, and the solar farm layout designed around identified constraints.

### 7.2.2 Aboriginal heritage

A search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 21 November 2017. No Aboriginal sites or places have been declared or recorded within 10km of the proposal area.

Landforms, vegetation and soils over much of the proposal area have been heavily disturbed by paddock levelling, cultivation, track formation and clearing for agriculture. This is likely to reduce the potential for Aboriginal heritage sites of significance in the affected areas. Conversely, unmodified areas with remnant woodlands are likely to have a higher potential for significance. It is noted that field assessment is required to confirm this and that any Aboriginal heritage sites/items/etc. identified would be a moderate to high constraint, requiring impact mitigation.

#### Aboriginal consultation

Consultation with Aboriginal stakeholders will be undertaken in accordance with clause 80C of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* following the consultation steps outlined in the (ACHCRP) guide provided by OEH.

A brief summary of the consultation process includes:

1. Registration and initial consultation and registration of Aboriginal community members
2. Review of survey methodology by Registered Aboriginal Parties (RAPs)
3. Completion of field work and reporting
4. Review of report by RAPs
5. Report finalisation.

Advertisement and registration for the Aboriginal Cultural Heritage Assessment process commenced in late January 2018.

#### Potential impacts

The following impacts upon Aboriginal heritage have been considered as having potential to occur during the construction of the proposal:

- Uncovering an unexpected or unidentified Aboriginal heritage item

#### Further assessment

An Aboriginal heritage assessment of the subject land and stakeholder consultation process would be completed as part of the EIS. The significance of any Aboriginal heritage sites that may be impacted by the proposal would be determined in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011).

### 7.2.3 Noise

Two sensitive receptors (4 and 16) are located within the immediate vicinity of the proposal footprint (within 200m), with an additional 11 receptors within 3km (Figure 6-1). All of these receptors are residences.

Noise impacts would, for the most part, only occur during construction (generated by construction vehicles and machinery), with minimal noise likely to be generated during operation. ib Vogt Pty Ltd would adopt best practice mitigation measures during construction, such as standard working hours and regular vehicle and machinery maintenance to reduce the risk of adverse noise impacts.

During the operation of the solar farm, noise would potentially be produced by the solar tracking system (an optional feature which would operate for around half an hour per day), the substation and switchgear and any maintenance works undertaken at the site. Noise impacts during the operation of the solar farm are expected to be very low.

#### Further assessment

A construction noise assessment will be undertaken as part of the EIS to assess potential noise impacts. The assessment will be undertaken in accordance with the *Interim Construction Noise Guideline* (DECC 2009).

### 7.2.4 Land use and resources

The rural land in the surrounding landscape is used primarily for agriculture including cropping and grazing. The subject land comprises several large paddocks which have been deep ripped and largely cleared for cropping. Land and agricultural activities similar to the proposal area are widespread in the region.

One mineral title (EL8465) owned by Lachlan Resources Pty Ltd is applicable to the entire proposal footprint as indicated in the MinView database (DPE 2017) (Figure 7-2).

The proposal area is not mapped as Biophysical Strategic Agricultural Land (BSAL) under the Strategic Regional Land Use Policy (DPE, 2017b) and the *Mining, Petroleum, Production and Extractive Industries (The Mining SEPP) State Environmental Planning Policy 2007*.

The land is classified as Class 3 under the Land and Soil Capability Assessment Scheme (OEH 2012), and is described as sloping land capable of sustaining cultivation on a rotational basis. This class of land is readily used for a range of crops including cereals, oilseed and pulses. This class of land is not considered Prime Agricultural Land (Emery (undated)).

The proposal area is currently being used as a mixed farm enterprise including a grazing and cropping rotation. Paddocks of improved pastures and crops including wheat, canola and lupins occupy the land.

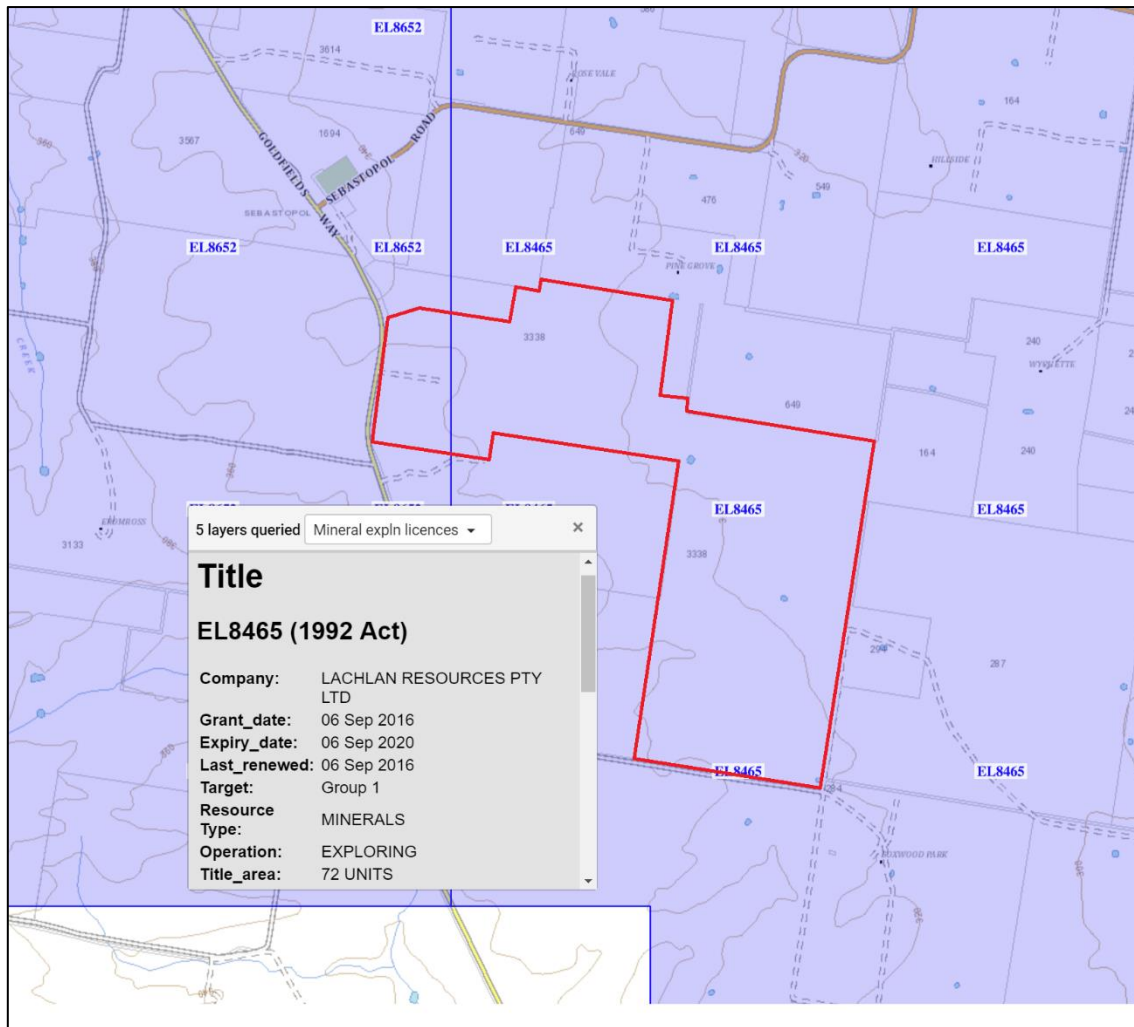


Figure 7-2 Exploration Licence, Sebastopol

The proposal has the potential to impact on agricultural use of the proposal area during construction and operation. However, the relatively small loss of productive land at a regional scale is not considered likely to have a significant impact on the overall agricultural productivity of the region. This would be further explored and quantified at the EIS stage.

For the construction period (12-18 months), there will be a complete reduction in agricultural activities within the proposed land. During the operational phase, not all agricultural activities will be precluded and it is highly likely that limited production, such as grazing, could continue. It can be expected that the nature of the agricultural activities may change from cropping to occasional grazing within the proposal area. This would be further explored during the EIA. Following decommissioning, it is expected that the land will be readily returned to its prior primary production uses, as solar farms typically do not have significant permanent impacts to soils and landform.

Overall, the adverse impacts related to alienation of resources are expected to be low and restricted only to the period of operation.

### Further assessment

The impact on agricultural production in the locality and region would be assessed in detail in the EIS. This would include consideration of the loss of agricultural land and the cumulative impact of the proposal and other solar farm proposals in the area.



### 7.2.5 Visual amenity and landscape

The proposal has potential to result in visual impacts to neighbouring residents and road users along Eurolee Road. The proposal area is located within a rural area dominated by large scale agricultural production. Residences in the area are sparsely distributed. Three uninvolved residences occur within 200m of the proposed proposal footprint, with the closest occurring 50m east of the proposal footprint.

The proposal area occurs in a relatively flat landscape and is located about 1.3km east of the main road of Goldfields Way (B85). Roadside vegetation along Goldfields Way would provide some screening for road users travelling between Temora and Wagga Wagga. Motorists travelling along Goldfields Way are unlikely to experience expansive views of the solar farm. However, vegetation is very limited immediately surrounding the proposal area and neighbouring residents are likely to experience views of solar farm.

Receiver 16 and 4 occur within 200m and 50m of the proposal area (Figure 6-1). The landscape is relatively flat in these locations and existing vegetation occurs in the house yards. However, these receivers are likely to experience views of the solar farm due to their close proximity.

The visual impacts to sensitive receivers, including glare and reflections from solar farm infrastructure would be investigated as part of the EIS. It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light and are generally not considered likely to result in glare or reflections that would affect traffic or nearby receivers.

#### Further assessment

A visual impact assessment, including view shed analysis and community consultation, would be prepared as part of the EIS to investigate visual impacts and mitigation options.

## 7.3 OTHER ENVIRONMENTAL MATTERS

There are a range of potential environmental matters associated with the proposal which are not considered to be key matters. These are considered secondary matters for investigation, given the characteristics of the proposal and the availability of appropriate safeguards for mitigation. These matters are outlined in Table 7-3. The impacts and any required mitigation relating to these matters would be addressed at an appropriate level of detail in the EIS:

- Soils and contamination
- Watercourses and hydrology
- Traffic and access
- Social and economic impacts
- Air quality
- Hazards and risks – Electromagnetic fields and Battery Storage
- Bushfires
- Aviation
- Cumulative impacts
- Waste management

Table 7-3 Other environmental matters

Existing environment	Potential impacts	Management and mitigation
<b>Soils and contamination</b>		
The proposal area lies on an alluvial plain with alluvium, clay and sand lithology. Local relief is generally very low. Drainage is imperfect, and erosion hazard is generally moderate. These soils have a moderate agricultural potential.	Construction activities would include minor excavations and vegetation removal which have the potential to cause soil erosion and sedimentation and dust issues.	The design would provide all weather access at the proposal area during construction and operation to avoid erosion/sedimentation impacts and tracking of soil, in particular after rain events.  The EIS would provide thorough consideration of soil impacts and proposed mitigation measures during construction and operation.
There are no contaminated sites for the Temora LGA within 7.5 kilometres in the EPA contaminated land register (EPA 2017). Contamination associated with agricultural activities (e.g. pesticides, petrochemicals) or asbestos construction or insulation materials may still be present on the site.	There is potential that contaminants may be uncovered during excavation activities within the proposal area.	Risk associated with contamination at the proposal area are considered low and therefore no detailed investigation is likely to be required within the EIS.  The mitigation measures would require a CEMP be prepared to manage any contamination identified during construction.
<b>Water courses and hydrology</b>		
The closest waterway is Wattle Fall Creek which occurs 1.6km south west of the proposal area. There are no watercourses within the proposal footprint.  A prescribed stream was identified in the north-western section of the proposal area through desk top survey. However, the site survey suggests that previous land management has altered the original hydrology of the site. There was no evidence of any drainage lines or watercourses present.  There are 6 dams located within the proposal footprint.	Impacts to hydrology as a result of the proposal are considered low. There is potential that accidental spills may impact groundwater and some existing dams may require filling.  Potential sources of water for construction would be identified in the EIS. Sources could	The EIS would assess the impacts to waterways during construction and operation and include appropriate mitigation measures as required. It would quantify the volume of water needed during construction and


Existing environment	Potential impacts	Management and mitigation
The proposal area is not identified as flood prone land under the Temora LEP.	include local (e.g. dams and bores) or town water supply (e.g. Junee or Temora townships)	operation and identify potential sources of water.
<b>Traffic and access</b>		
<p>Access to the site from Goldfields Way (nearest major transport route) is via Eurolee Road (which runs along the southern boundary of the site). Goldfields Way creates a basic T-intersection with Eurolee Road, which remains unsealed right up to the verge of Goldfields Way. Dedicated turning or slip lanes are not present, with right of way given to motorists on Goldfields Way. There is a widened unsealed shoulder for southbound vehicles entering Eurolee Road from Goldfields Way (Figure 7-3). Site distances to the south are available for 1km with no major bends or rises. Site distance to the north are limited to 200m, with a sweeping bend to the west.</p> 	<p>Construction traffic may impact traffic along local roads.</p> <p>Maintenance access tracks during operation would also be required across the proposal area and along the easement of the proposed transmission line connection.</p>	<p>Construction traffic impacts would be considered in the EIS and take into consideration existing traffic volumes and any requirements from RMS. Consultation would be undertaken before construction with RMS, the local council and road users regarding the works that may affect roads or traffic.</p> <p>The design would also consider any requirements from RMS and other relevant stakeholders on access arrangements to the proposal area.</p> <p>A Traffic Management Plan would be developed as part of the CEMP.</p>

Figure 7-3 Eurolee Road Intersection

Existing environment	Potential impacts	Management and mitigation
The level of service associated with both intersections would be subject to further assessment as part of the EIS.		
<b>Historic heritage</b>		
A search of the NSW Heritage Register and the Department of Planning Portal on 21 November 2017 for the suburb of Sebastopol identified 2 items under the Temora LEP. The closest listed heritage items are the Sebastopol Village Precinct and the POW Hut located more than two kilometres north-west of the proposal area. The site inspection did not identify any structures or items of potential historic significance.	There is considered to be a low risk of impact to heritage items.	The heritage status of the proposal area would be assessed during fieldwork undertaken as part of the archaeological assessment. Appropriate management measures would be implemented if required.
<b>Air quality</b>		
The air quality in the study area is expected to be good and typical of rural settings in NSW with low population density and few industrial pollution sources. Existing sources of air pollution are expected to include vehicle emissions, dust from agricultural practices and smoke from seasonal stubble burning. During colder months, solid fuel heating may result in a localised reduction in air quality, particularly if temperature inversions operate overnight.	The construction of the proposal is not anticipated to have a significant impact on air quality, and would mostly be related to dust during dry periods and vegetation removal. Impacts to air quality during operation would be negligible.	The mitigation measures would require a CEMP be prepared to manage air quality impacts during the construction phase. There is an opportunity to improve local air quality by maintaining ground cover vegetation under the panels.
<b>Hazard and risk – electric and magnetic fields (EMF)</b>		
Existing powerlines produce EMF at the site. Additional infrastructure to facilitate the connection to the existing powerlines would produce additional electromagnetic emissions.	The substation and network connection would be located within the proposal area. The powerlines constructed as part of the proposal would not pass through any neighbouring properties. The EMF that would be generated by the proposed powerlines and substation is expected to be below the guideline for public exposure and would not be expected to have an adverse impact on human health.	The EMF levels of the proposed powerlines and substation would be assessed as part of the EIS.

Existing environment	Potential impacts	Management and mitigation
Battery storage is currently not utilised on-site	Batteries pose a potential fire or contamination risk to the site.	An assessment of hazard and risk would be assessed in the EIS
<b>Hazard and risk - bushfire</b>		
The proposal area has been predominantly cleared for agriculture and is not identified as bushfire prone land under the NSW RSF (RFS 2017) or Temora LEP.	The proposal is unlikely to be affected by bushfire, or pose a significant bushfire risk.	Bushfire impacts and risk would be assessed in the EIS.
<b>Hazard and risk - Aviation</b>		
The small rural airfield is located about 8.7km south west of the proposal area.	It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light they receive and are not considered likely to result in glare or reflections that would affect air traffic.	The EIS would investigate the potential for glare impacts related to aviation.
<b>Social and economic impacts</b>		
The proposal area is located within the Temora and Junee LGAs. In 2016 the resident population for Temora LGA was 6110, and Junee LGA was 6295. The small village community of Sebastopol has a population of 359 in 2011. The diversity and strength of agriculture is the foundation of the local economy.	The proposal would reduce the availability of agricultural land but would generate economic benefits during construction and operation, including local employment opportunities. Other socio-economic impacts would include traffic and access, noise, air quality and visual impacts. Solar farms also pay higher local Council rates than farm land, providing an additional economic benefit.	The EIS would assess potential social and economic impacts of the proposal.
Workforce accommodation would be required for potentially 150 staff members during peak construction periods. A large majority of these may already reside locally. For visiting workers, accommodation can be sought from within a 100km radius including Temora, Junee, Wagga Wagga, Coolamon, Ardlethan, Arian Park, West Wyalong etc.	The proposal would generate economic benefits during construction, bringing business to hotel and motels for long-term accommodation.	The EIS would assess potential social and economic impacts of the proposal.

Existing environment	Potential impacts	Management and mitigation
	Accommodation demand may however displace tourism for the region. This however is relatively short-term.	
<b>Cumulative impacts</b>		
The proposed Sebastopol Solar Farm will contribute to overall infrastructure development in the region. A review of the State Significant Development register for the Temora LGA and surrounding LGAs of Junee, Coolamon and Cootamundra Shires (within 50km of the subject land) was conducted on 24/01/2018, and no relevant developments were found. All listed developments were either approved, withdrawn, or no further action or construction was carried out before 2013.	During construction and operation, key cumulative impacts may include additional stress on the grid, community complaints such as visual amenity impacts, stress on local business for supply and demand (in particular staff accommodation), noise impacts, air quality, waste management, traffic etc.	Early consultation with the community regarding cumulative impacts should be conducted. Further assessment/investigation of cumulative impacts will be required, and the EIS would assess potential impact and risk
<b>Waste management</b>		
The proposal would generate several waste streams and utilise a variety of materials during the construction phase.	During construction, excavated material and green waste would be generated as waste. Packaging from panels and other components would require disposal. Limited operational waste would be associated with the proposal.	A Waste Management Plan would be incorporated into the CEMP, applying the principles to avoid, re-use and recycle to minimise wastes. Cleared trees would be recycled as fauna habitat where practicable.



## 8 CONCLUSION

This Preliminary Environmental Assessment has outlined the proposed Sebastopol Solar Farm and established the environmental and planning context of the proposal. The proposal would be assessed under Part 4 of the EP&A Act and classed as State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011*.

The report has been prepared to assist the development of Secretary's Environmental Assessment Requirements (SEARs) for the proposal, which will guide the preparation of the Environmental Impact Statement (EIS).

The report identifies the following key environmental aspects associated with the proposal, based on preliminary investigations:

- Biodiversity
- Aboriginal heritage
- Noise
- Land use and resources
- Visual amenity and landscape character

These matters will be assessed in detail in the EIS. It is likely that other matters such as soil and water values, traffic impacts and natural hazards can be readily addressed by appropriate standard mitigation and management measures. The relevance and importance of matters would be reviewed throughout the EIS process.

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## APPENDIX A IB VOGT LETTER AND FACT SHEET

31 January 2018

## **Sebastopol Solar Farm proposal**

Dear Madam/ Sir,

ib vogt proposes to develop a commercial-scale solar farm located to the east of Goldfields Way, between Sebastopol and Erin Vale.

We are making contact with neighbours near to the site to let you know about our plans.

### **The proposal**

The Sebastopol Solar Farm would occupy approximately 360 hectares of rural land currently used for stock grazing and cultivation. The solar farm would have a capacity of approximately 160 MW (DC) and would connect to the existing 66 kv transmission line which runs west of the site.

The attached map illustrates the broader site available for development [red boundary] with the shaded area under consideration for the solar farm, subject to detailed environmental investigations. The yellow line illustrates the proposed transmission line route to the existing 66 kv transmission line [black].

The solar farm would include:

- Single axis tracker photovoltaic solar panels, mounted on steel frames over most of the site.
- Battery storage.
- Electrical conduits and transformers.
- Site office, access tracks and perimeter fencing.
- Electrical connection works to connect to the existing 66 kv power line located to the west of the site.

The site would be accessed from either Eurolee Road on the southern boundary of the site, or a new access track connection to Goldfields Way to the west.

### **Community consultation**

During March we will hold a Community Open Day in Temora to display the proposed solar farm layout and to gain feedback from members of the local community. 9<sup>th</sup> March is the tentative date for the Open Day - we will advertise in the local press once confirmed.

Please find enclosed a community feedback form for the solar farm proposal. If you would like to complete the form, a stamped, addressed envelope is also provided.

### Assessment timeline

Preliminary environmental assessments were begun in late 2017. The estimated assessment and project timeline is:

- Detailed environmental assessment: February 2017 – July 2018
- Sebastopol Solar Farm Community Open Day: March 2018
- Submit full Development Application: July 2018
- Receive Development Approval: late 2018 (approximate)
- Commence construction of solar farm: mid 2019 (approximate and dependent on development approval)

We will likely hold a second Community Open Day in mid-2018 to provide updated layout plans and the results of environmental assessments.

### ib vogt GmbH

Ib vogt is a German engineering company headquartered in Berlin. We have been active in the large scale solar industry since 2002 and in Australia since 2016. We also operate in Africa, Europe and Asia building over 900 MW of energy projects to date. For more information, please see our website: <http://www.ibvogt.com>.

Our first project in Australia was the Williamsdale project near Canberra which is an 11MW energy plant. We have a pipeline of several projects across Australia and our aim is to develop, build, own and operate a portfolio of clean energy generation plants over the medium term.

### Contact

If you would like to discuss or have any concerns regarding the solar farm I can be contacted on 0406 908 995, or you can speak to Andrew Wilkinson on 0409 508 144.

Your sincerely,

Jenny Walsh  
Planning Manager  
ib vogt

Phone: 0406 908 995  
Email: [jenny.walsh@ibvogt.com](mailto:jenny.walsh@ibvogt.com)





## APPENDIX B NSW THREATENED SPECIES LIST LOWER SLOPES IBRA REGION

Common Name	Scientific Name	Status
<b>Flora</b>		
<i>Tylophora linearis</i>	<i>Tylophora linearis</i>	TSC-V, EPBC-E
Austral Pillwort	<i>Pilularia novae-hollandiae</i>	TSC-E
A spear-grass	<i>Austrostipa metatoris</i>	TSC-V, EPBC-V
A spear-grass	<i>Austrostipa wakoolica</i>	TSC-E, EPBC-E
Claypan Daisy	<i>Brachyscome muelleroides</i>	TSC-V, EPBC-V
Floating Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	TSC-V, EPBC-V
Lanky Buttons	<i>Leptorhynchus orientalis</i>	TSC-E
Mossgiel Daisy	<i>Brachyscome papillosa</i>	TSC-V, EPBC-V
Silky Swainson-pea	<i>Swainsona sericea</i>	TSC-V
Slender Darling Pea	<i>Swainsona murrayana</i>	TSC-V, EPBC-V
Small Purple-pea	<i>Swainsona recta</i>	TSC-E, EPBC-E
Small Scurf-pea	<i>Cullen parvum</i>	TSC-E
Spike-Rush	<i>Eleocharis obicis</i>	TSC-V, EPBC-V
Spiny Peppercross	<i>Lepidium aschersonii</i>	TSC-V, EPBC-V
Winged Peppercross	<i>Lepidium monoplacoides</i>	TSC-E, EPBC-E
Woolly Ragwort	<i>Senecio garlandii</i>	TSC-V, EPBC-V
Crimson Spider Orchid	<i>Caladenia concolor</i>	TSC-E, EPBC-V
Oaklands Diuris	<i>Diuris</i> sp. (Oaklands, D.L. Jones 5380)	TSC-E
Pine Donkey Orchid	<i>Diuris tricolor</i>	TSC-V
Sand-hill Spider Orchid	<i>Caladenia arenaria</i>	TSC-E, EPBC-E
Small Snake Orchid	<i>Diuris pedunculate</i>	TSC-E, EPBC-E
<i>Philotheca angustifolia</i> subsp. <i>Angustifolia</i>	<i>Philotheca angustifolia</i> subsp. <i>Angustifolia</i>	TSC-Locally extinct
Ausfeld's Wattle	<i>Acacia ausfeldii</i>	TSC-V
Fleshy Minuria	<i>Kippistia suaedifolia</i>	TSC-E
Holly-leaf Grevillea	<i>Grevillea ilicifolia</i> subsp. <i>Illicifolia</i>	TSC-CE
<b>Endangered Ecological Community</b>		
Fuzzy Box Woodland on alluvial Soils of the South-western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions		TSC-EEC
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepplain, Nandewar and Brigalow Belt South Bioregions		TSC-EEC EPBC-E
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Penepplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions		TSC-EEC EPBC-E

Common Name	Scientific Name	Status
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions		TSC-EEC
White Box Yellow Box Blakely's Red Gum Woodland		TSC-EEC EPBC-CEEC
<b>Amphibians</b>		
Sloane's Froglet	<i>Crinia sloanei</i>	TSC-V
Southern Bell Frog	<i>Litoria raniformis</i>	TSC-E, EPBC-V
<b>Bats</b>		
Corben's Long-eared Bat	<i>Nyctophilus corbeni</i>	TSC-V, EPBC-V
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	TSC-V
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	TSC-V
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	TSC-V
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	TSC-V, EPBC-V
Inland Forest Bat	<i>Vespadelus baverstocki</i>	TSC-V
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	TSC-V, EPBC-V
Little Pied Bat	<i>Chalinolobus picatus</i>	TSC-V
Southern Myotis	<i>Myotis Macropus</i>	TSC-V
Yellow-bellied Sheathtail-bat	<i>Saccolaimus flaviventris</i>	TSC-V
<b>Birds</b>		
Australasian Bittern	<i>Botaurus poiciloptilus</i>	TSC-E, EPBC-E
Australian Painted Snipe	<i>Rostratula australis</i>	TSC- E, EPBC-V, Marine, Migratory
Barking Owl	<i>Ninox connivens</i>	TSC-V
Black Falcon	<i>Falco subniger</i>	TSC-V
Black-breasted Buzzard	<i>Hamirostra melanosternon</i>	TSC-V
Black-chinned Honeyeater (eastern subspecies)	<i>Melithreptus gularis gularis</i>	TSC-V
Black-tailed Godwit	<i>Limosa limosa</i>	TSC-V, EPBC- Marine, Migratory
Blue-billed Duck	<i>Oxyura australis</i>	TSC-V
Brolga	<i>Grus rubicunda</i>	TSC-V
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	TSC-V
Bush Stone-curlew	<i>Burhinus grallarius</i>	TSC-E
Chestnut Quail-thrush	<i>Cinclosoma castanotum</i>	TSC-V
Curlew Sandpiper	<i>Calidris ferruginea</i>	EPBC-Marine, Migratory

Common Name	Scientific Name	Status
Diamond Firetail	<i>Stagonopleura guttata</i>	TSC-V
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	TSC-V
Flame Robin	<i>Petroica phoenicea</i>	TSC-V
Freckled Duck	<i>Stictonetta naevosa</i>	TSC-V
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	TSC-V
Gilbert's Whistler	<i>Pachycephala inornata</i>	TSC-V
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	TSC-V
Grey Falcon	<i>Falco hypoleucos</i>	TSC-E
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	TSC-V
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	TSC-V
Little Eagle	<i>Hieraaetus morphnoides</i>	TSC-V
Little Lorikeet	<i>Glossopsitta pusilla</i>	TSC-V
Magpie Goose	<i>Anseranas semipalmata</i>	TSC-V
Major Mitchell's Cockatoo	<i>Lophochroa leadbeateri</i>	TSC-V
Malleefowl	<i>Leipoa ocellate</i>	TSC-E, EPBC-V
Masked Owl	<i>Tyto novaehollandiae</i>	TSC-V
Painted Honeyeater	<i>Grantiella picta</i>	TSC-V
Pied Honeyeater	<i>Certhionyx variegatus</i>	TSC-V
Plains-wanderer	<i>Pedionomus torquatus</i>	TSC-E, EPBC-V
Purple-crowned Lorikeet	<i>Glossopsitta porphyrocephala</i>	TSC-V
Regent Honeyeater	<i>Anthochaera Phrygia</i>	TSC-CE, EPBC-E, Migratory
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Migratory
Scarlet Robin	<i>Petroica boodang</i>	TSC-V
Shy Heathwren	<i>Hylacola cautus</i>	TSC-V
Southern Scrub-robin	<i>Drymodes brunneopygia</i>	TSC-V
Speckled Warbler	<i>Chthonicola sagittate</i>	TSC-V
Spotted Harrier	<i>Circus assimilis</i>	TSC-V
Square-tailed Kite	<i>Lophoictinia isura</i>	TSC-V
Superb Parrot	<i>Polytelis swainsonii</i>	TSC-V, EPBC-V
Swift Parrot	<i>Lathamus discolor</i>	TSC-E, EPBC-E
Turquoise Parrot	<i>Neophema pulchella</i>	TSC-V
Varied Sittella	<i>Daphoenositta chrysoptera</i>	TSC-V
White-browed Treecreeper	<i>Climacteris affinis</i>	TSC-E
White-fronted Chat	<i>Epthianura albifrons</i>	TSC-V
<b>Marsupials</b>		
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	TSC-V



Common Name	Scientific Name	Status
Koala	<i>Phascolarctos cinereus</i>	TSC-V
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	TSC-V, EPBC-E
Squirrel Glider	<i>Petaurus norfolcensis</i>	TSC-V
Stripe-faced Dunnart	<i>Sminthopsis macroura</i>	TSC-V
<b>Reptiles</b>		
Pink-tailed Legless Lizard	<i>Aprasia parapulchella</i>	TSC-V, EPBC-V

## APPENDIX C HABITAT TABLE

The tables in this appendix present the habitat evaluation for threatened species, ecological communities and endangered populations listed in the from the preliminary Biometric Assessment Methodology (BAM).

The likelihood of occurrence is based on presence of habitat, proximity of nearest records and mobility of the species (where relevant). The assessment of potential impact is based on the nature of the proposal, the ecology of the species and its likelihood of occurrence. The following classifications are used:

**Presence of habitat:**

- Present: Potential or known habitat is present within the study area
- Absent: No potential or known habitat is present within the study area

**Likelihood of occurrence**

- Unlikely: Species known or predicted within the locality but unlikely to occur in the study area
- Possible: Species could occur in the study area
- Present: Species was recorded during the field investigations

**Possible to be impacted**

- No: The proposal would not impact this species or its habitats. No further assessment would be necessary at this stage of the project.
- Yes: The proposal could impact this species or its habitats. Further investigation into the likelihood and consequence of the impact of the proposal on these species would be considered under the BAM for the EIS.

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<b>Flora</b>				
A spear-grass <i>Austrostipa wakoolica</i> <b>TSC-E, EPBC-E</b>	A densely-tufted, perennial spear-grass, growing to 1 m tall. Confined to the floodplains of the Murray River tributaries of central-western and south-western NSW, with localities including Manna State Forest, Matong, Lake Tooim, Merran Creek, Tulla, Cunninyeuk and Mairjimmy State Forest. Grows on floodplains of the Murray River tributaries, in open woodland on grey, silty clay or sandy loam soils; habitats include the edges of a lignum swamp with box and mallee; creek banks in grey, silty clay; mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rise. Associated species include <i>Callitris glaucophylla</i> , <i>Eucalyptus microcarpa</i> , <i>E. populnea</i> , <i>Austrostipa eremophila</i> , <i>A. drummondii</i> , <i>Austrodanthonia eriantha</i> and <i>Einadia nutans</i> . Recorded as common in the Mairjimmy State Forest population.	<b>Present</b> Preferred habitat and associated species includes open White Cypress pine forests on sandy ranges and Grey Box	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Ausfeld's Wattle <i>Acacia ausfeldii</i> <b>TSC-V</b>	<i>Acacia ausfeldii</i> is an erect or spreading shrub 2 - 4 m high with branchlets angled or flattened, resinous and smooth. Found to the east of Dubbo in the Mudgee, Ulan - Gulgong area of the NSW South Western Slopes bioregion, with some records in the adjoining Brigalow Belt South, South Eastern Highlands and the Sydney Basin bioregions. Populations are recorded from Yarrobil National Park, Goodiman State Conservation Area and there is a 1963 record from Munghorn Gap Nature Reserve. A large population is also known from Tuckland State Forest to the northwest of Gulgong. Established plants are likely to be killed by fire, as mature and juvenile plants have a single-stemmed growth form. Associated species include <i>Eucalyptus albens</i> , <i>E. blakelyi</i> and <i>Callitris</i> spp., with an understorey dominated by <i>Cassinia</i> spp. and grasses.	<b>Present</b> Associated species includes Cypress species, White Box and Blakely's Red Gum	<b>Unlikely</b> Preferred habitat for this species is present in the proposal area. However, distribution range does not include the area	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>

<sup>1</sup> Information sourced from species profiles on NSW OEH's threatened species database or the Australian Government's Species Profiles and Threats database (SPRAT) unless otherwise stated.

OEH threatened species database: <http://www.threatenedspecies.environment.nsw.gov.au/index.aspx>

SPRAT: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Mossgiel Daisy</p> <p><i>Brachyscome papillosa</i></p> <p>TSC-V, EPBC-V</p>	<p>The Mossgiel Daisy is a multi-stemmed, perennial herb that grows to 40 centimetres tall. Occurs chiefly from Mossgiel to Urana, in south-western NSW, with sites in the Jerilderie area, the Hay Plain, Willandra Lakes district and north to Ivanhoe. A north-western outlier is at Byrnedale Station, north of Menindee. The only known site on South Western Slopes is Ganmain Reserve. The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities: Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions, and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Recorded primarily in clay soils on Bladder Saltbush (<i>Atriplex vesicaria</i>) and <i>Maireana aphylla</i> plains, but also in grassland and in Grey Box (<i>Eucalyptus microcarpa</i>) - Cypress Pine (<i>Callitris</i> spp.) woodland. Flowers from June to December. Recorded as locally occasional to common in populations.</p>	<p><b>Present</b></p> <p>Known to occur in grassland and in Grey Box Cypress Pine Woodlands</p>	<p><b>Possible</b></p> <p>Habitat for this species is present in the proposal area.</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>
<p>Pine Donkey Orchid</p> <p><i>Diuris tricolor</i></p> <p>TSC-V</p>	<p>The Pine Donkey Orchid (formerly known as <i>Diuris sheaffiana</i>) is a terrestrial species that has a flower stalk 20-40 cm high. It is sporadically distributed on the western slopes of NSW, extending from south of Narrandera all the way to the far north of NSW. Localities include the Condobolin-Nymagee road, Wattamondara towards Cowra, Cooyal, Adelong, Red Hill north of Narrandera, Coolamon, near Darlington Point, Eugowra, Girilambone, Dubbo, Muswellbrook, and several sites west of Wagga Wagga. Disturbance regimes are not known, although the species is usually recorded from disturbed habitats. Associated species include <i>Callitris glaucophylla</i>, <i>Eucalyptus populnea</i>, <i>Eucalyptus intertexta</i>, Ironbark and <i>Acacia</i> shrubland. The understorey is often grassy with herbaceous plants such as <i>Bulbine</i> species. It is found in sandy soils, either on flats or small rises. Also recorded from a red earth soil in a Bimble Box community in western NSW. Usually recorded as common and locally frequent in populations, however only one or two plants have also been observed at sites. The species has been noted as growing in large colonies.</p>	<p><b>Present</b></p> <p>Associated species include White Cypress and sandy soils from disturbed habitats</p>	<p><b>Possible</b></p> <p>Habitat for this species is present in the proposal area.</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>



Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
Sand-hill Spider Orchid <i>Caladenia arenaria</i> TSC-E, EPBC-E	Sand-hill Spider Orchid is from a group of orchids characterised by five long, spreading petals and sepals around a broad down-curved labellum ('lip'). Found mostly on the south west plains and western south west slopes. The original description is of a plant from Nangus, west of Gundagai (1865) and there is a report of the species from Adelong near Tumut. A record near Cootamundra needs verifying. In 1996 the species was found on private property near Urana, and survey in 1998, 1999 and 2000 has revealed three other populations on State Forest in the Riverina (Lonesome Pine SF, Buckingbong SF, Yattanjerry SF). The Sand-hill Spider Orchid is currently only known to occur in the Riverina between Urana and Narranderra. Occurs in woodland with sandy soil, especially that's dominated by White Cypress Pine ( <i>Callitris glaucophylla</i> ). Many of the associated species in the understorey are different at each of the populations, or are species that are widespread and occur in a range of habitats. It is apparent that <i>C. arenaria</i> has fairly broad habitat tolerances, occurring in <i>Callitris glaucophylla</i> - <i>Eucalyptus melliodora</i> (Yellow Box) woodlands, <i>Callitris glaucophylla</i> - <i>Allocasuarina luehmannii</i> woodlands and woodlands dominated by a mixture of <i>Callitris glaucophylla</i> , <i>E. dwyeri</i> (Dwyer's Redgum) and <i>Acacia doratoxylon</i> (Currawang). Soils vary from skeletal soils over sandstone to clay loams. Flowering occurs from late August until early October.	<b>Present</b> Habitat includes sandy soils dominated by White Cypress Pine	<b>Unlikely</b> Habitat for this species is present in the proposal area. However, distribution range does not include the area	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Silky Swainson-pea <i>Swainsona sericea</i> TSC-V	A prostrate or erect perennial, growing to 10 cm tall. Silky Swainson-pea has been recorded from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains. There is one isolated record from the far north-west of NSW. Its stronghold is on the Monaro. Also found in South Australia, Victoria and Queensland. Found in Natural Temperate Grassland and Snow Gum <i>Eucalyptus pauciflora</i> Woodland on the Monaro. Found in Box-Gum Woodland in the Southern Tablelands and South West Slopes. Sometimes found in association with cypress-pines <i>Callitris</i> spp. Habitat on plains is unknown. Regenerates from seed after fire. Flowers spring to summer.	<b>Present</b> Preferred habitat includes Box-gum Woodlands and associated with White Cypress	<b>Possible</b> Habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Small Purple-pea <i>Swainsona recta</i> TSC-E, EPBC-E	A slender, erect perennial plant with few stems 20 - 30 cm high. The range of <i>S. recta</i> has contracted to two disjunct clusters in NSW, one between Wellington and Mudgee, and the other from Canberra and Queanbeyan south to Williamsdale. The largest known population has about 3,400 plants, scattered along 22 km of narrow railway easement in NSW from Tralee (south of Queanbeyan) to south of Williamsdale. Occurs in grassland and open woodland, often on stony hillsides, dominated by one or more of the following: <i>Callitris endichleri</i> , <i>C. glaucophylla</i> , <i>Eucalyptus blakelyi</i> , <i>E. bridgesiana</i> , <i>E. dives</i> , <i>E. melliodora</i> , <i>E. microcarpa</i> , <i>E. nortonii</i> and <i>E. polyanthemus</i> . Requires a forb-rich grassy groundlayer dominated by <i>Themeda triandra</i> , <i>Poa sieberiana</i> var. <i>sieberiana</i> or <i>Austrostipa</i> spp. Resprouts in autumn and winter from a woody root.	<b>Present</b> Preferred habitat includes grassland and woodlands dominated by White Cypress, Grey Box, Yellow Box and Blakely's Red Gum	<b>Unlikely</b> Habitat for this species is present in the proposal area. However, distribution range does not include the area and groundcover is not forb-rich	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
Small Scurf-pea <i>Cullen parvum</i> TSC-E	The Small Scurf-pea is a small perennial pea that may either trail or stand erect. Known in NSW from only two herbarium collections; one from Wagga Wagga in 1884 and the other from Jindera (near Albury) in 1967. A small population was recently reported from near Jerilderie (although it has not been relocated). In recent years, two populations have been recorded in travelling stock reserves south-west of Wagga Wagga, and a population reputedly exists on a roadside near Galong. Large populations have been recorded in grassy gaps in the Red Gum Woodlands of Barmah State Park, just across the border in Victoria. Extensive suitable habitat probably occurs across the border in NSW. In known populations in Victoria and NSW, plants are found in grassland, River Red Gum ( <i>Eucalyptus camaldulensis</i> ) Woodland and even grazing country and table drains, in areas with rainfall of between 450 and 700 mm. Plants often occur near watercourses.	Absent	Unlikely Preferred habitat for this species is not present in the proposal area.	An impact is unlikely and specialist surveys for this species is not considered necessary. Further investigations would be undertaken during the preparation of the EIS.
Spike-Rush <i>Eleocharis obicis</i> TSC-V, EPBC-V	This small sedge is a tufted perennial with very short underground stem. Found near Condobolin and Hay, as well as being known from an old collection from the Barrier Range near Broken Hill. The later collection was made on the Lachlan River floodplain at Micabil, near Condobolin. Grows in ephemeral wet situations such as roadside mitre drains and depressions, usually in low-lying grasslands. Sites include depressions with heavy clay soils on the Lachlan River floodplain, with <i>Eragrostis australasica</i> , <i>Atriplex vesicaria</i> and <i>A. nummularia</i> shrublands, low-lying claypans near an irrigation channel, and a shallow open ditch on a low ridge with <i>Eucalyptus populnea</i> in red sandy soil over clay. Recorded as flowering in November. Found to be locally frequent to abundant in western NSW populations. The distribution of this species overlaps with the "Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions" EPBC Act-listed threatened ecological community.	Absent	Unlikely Preferred habitat for this species is not present in the proposal area.	An impact is unlikely and specialist surveys for this species is not considered necessary. Further investigations would be undertaken during the preparation of the EIS.
Spiny Peppergrass <i>Lepidium aschersonii</i> TSC-V, EPBC-V	An erect perennial herb to 30 cm high. Not widespread, occurring in the marginal central-western slopes and north-western plains regions of NSW (and potentially the south-western plains). A recent survey has located several populations at Narrabri, from where the species had last been recorded in 1899. Also known from the West Wyalong, Barmedman and Temora areas, although most records are old. Approximately 50% of the total <i>Lepidium aschersonii</i> recorded for Australia occurs in NSW. Found on ridges of gilgai clays dominated by Brigalow ( <i>Acacia harpophylla</i> ), with <i>Austrodanthonia</i> and/or <i>Austrostipa</i> species in the understorey. The species grows as a component of the ground flora, in grey loamy clays. Vegetation structure varies from open to dense Brigalow, with sparse grassy understorey and occasional heavy litter. The species is often described as a "weed" where it dominates paddocks.	Absent	Unlikely Preferred habitat for this species is not present in the proposal area.	An impact is unlikely and specialist surveys for this species is not considered necessary. Further investigations would be undertaken during the preparation of the EIS.

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<b>Amphibians</b>				
Sloane's Froglet <i>Crinia sloanei</i> TSC-V	A small ground-dwelling frog. Sloane's Froglet has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in New South Wales. It has not been recorded recently in the northern part of its range and has only been recorded infrequently in the southern part of its range in NSW. It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats. Typically breeds in ephemeral wetlands, or periodically inundated areas of permanent wetlands, in grasslands, woodlands, and disturbed environments. Shelters in any vegetation, ground debris, or cracks in the soil that would provide suitable refuge. Best detected in winter after 60mm of rain.	<b>Present</b> Associated with temporarily inundated areas and disturbed environments.	<b>Unlikely</b> Dams on the proposal site provide marginal habitat at best for this species given the lack of fringing vegetation.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
<b>Birds</b>				
Barking Owl <i>Ninox connivens</i> TSC-V	Inhabits eucalypt woodland, open forest, swamp woodlands and, especially in inland areas, timber along watercourses. Denser vegetation is used occasionally for roosting. During the day they roost along creek lines, usually in tall understorey trees with dense foliage such as <i>Acacia</i> and <i>Casuarina</i> species, or the dense clumps of canopy leaves in large <i>Eucalypts</i> . Feeds on a variety of prey, with invertebrates predominant for most of the year, and birds and mammals such as smaller gliders, possums, rodents and rabbits becoming important during breeding. Live alone or in pairs. Territories range from 30 to 200 hectares and birds are present all year. Three eggs are laid in nests in hollows of large, old eucalypts including River Red Gum ( <i>Eucalyptus camaldulensis</i> ), White Box ( <i>Eucalyptus albens</i> ), (Red Box) <i>Eucalyptus polyanthemos</i> and Blakely's Red Gum ( <i>Eucalyptus blakelyi</i> ). Breeding occurs during late winter and early spring.	<b>Present</b> Roosting habitat of White Box and Blakely's Red Gum present	<b>Possible</b> Roosting habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Bush Stone-curlew <i>Burhinus grallarius</i> TSC-E	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer.	<b>Likely</b> Inhabits open forests with sparse grassy ground cover	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Gang-gang Cockatoo <i>Callocephalon fimbriatum</i> (Breeding)</p> <p>TSC-V</p>	<p>The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. May also occur in sub-alpine Snow Gum <i>Eucalyptus pauciflora</i> woodland and occasionally in temperate rainforests. Move to lower altitudes in winter, preferring more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. Favours old growth attributes for nesting and roosting.</p>	<p><b>Present</b></p> <p>Inhabits open eucalypt forests and woodlands</p>	<p><b>Possible</b></p> <p>Preferred habitat for this species is present in the proposal area.</p>	<p>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</p>
<p>Glossy Black-cockatoo <i>Calyptorhynchus lathami</i> (Breeding)</p> <p>TSC-V</p>	<p>The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Dependent on large hollow-bearing eucalypts for nest sites. One or two eggs are laid between March and August. Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (<i>Allocasuarina littoralis</i>), Forest She-oak (<i>A. torulosa</i>) or Drooping She-oak (<i>A. verticillata</i>) occur. In the Riverina area, inhabits open woodlands dominated by Belah (<i>Casuarina cristata</i>). Feeds almost exclusively on the seeds of several species of she-oak (<i>Casuarina</i> and <i>Allocasuarina</i> species), shredding the cones with the massive bill.</p>	<p><b>Present</b></p> <p>Inhabits open woodlands</p>	<p><b>Possible</b></p> <p>Preferred habitat for this species is present in the proposal area.</p>	<p>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</p>
<p>Glossy Black-cockatoo <i>Calyptorhynchus lathami</i> (Riverina population)</p> <p>TSC-V</p>				<p>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</p>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
Little Eagle <i>Hieraaetus morphnoides</i> <b>TSC-V</b>	The Little Eagle is a medium-sized bird of prey that is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	<b>Present</b> Inhabits open eucalyptus forest, woodlands or open woodlands	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Major Mitchell's Cockatoo <i>Lophochroa leadbeateri</i> <b>TSC-V</b>	Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east of about Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres.	<b>Present</b> Occupies a wide range of habitats with a large home range.	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>
Masked Owl <i>Tyto novaehollandiae</i> <b>TSC-V</b>	Extends from the coast where it is most abundant to the western plains. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. Habitat for this species is also widespread throughout the dry eucalypt forests of the tablelands, western slopes and the undulating wet-dry forests of the coast. Optimal habitat includes an open understorey and a mosaic of sparse (grassy) and dense (shrubby) ground cover on gentle terrain. Roosts in hollows in live or occasionally dead eucalypts; dense foliage in gullies; and caves. Nest in old hollow eucalypts, live or dead, in a variety of topographic positions, with hollows greater than 40 cm wide and greater than 100 cm deep. Hollow entrances are at least 3 m above ground, in trees of at least 90 cm diameter at breast height. A specialist predator of terrestrial mammals, particularly native rodents. Home range has been estimated as 400-1000 ha according to habitat productivity.	<b>Present</b> Occupies a wide range of habitats with a large home range.	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	<b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b>



Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Regent Honeyeater <i>Anthochaera Phrygia</i> (Breeding)</p> <p><b>TSC-CE, EPBC-E, Migratory</b></p>	<p>The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years non-breeding flocks converge on flowering coastal woodlands and forests. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River She-oak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast. The Regent Honeyeater is a generalist forager, which mainly feeds on the nectar from a wide range of eucalypts and mistletoes. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. Also utilises <i>E. microcarpa</i>, <i>E. punctata</i>, <i>E. polyanthemos</i>, <i>E. mollucana</i>, <i>Corymbia robusta</i>, <i>E. crebra</i>, <i>E. caleyi</i>, <i>Corymbia maculata</i>, <i>E. mckieana</i>, <i>E. macrorhyncha</i>, <i>E. laevopinea</i>, and <i>Angophora floribunda</i>. Nectar and fruit from the mistletoes <i>A. miquelii</i>, <i>A. pendula</i> and <i>A. cambagei</i> are also eaten during the breeding season. When nectar is scarce lerp and honeydew comprise a large proportion of the diet. A shrubby understorey is an important source of insects and nesting material. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest dominated by River Sheoak. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria.</p>	<p><b>Present</b></p> <p>Preferred habitat includes dry open forest and woodland with key eucalypt species of Grey Box, Yellow Box and Blakely's Red Gum</p>	<p><b>Possible</b></p> <p>Habitat for this species is present in the proposal area.</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>
<p>Square-tailed Kite <i>Lophoictinia isura</i></p> <p><b>TSC-V</b></p>	<p>The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland. Is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage. Appears to occupy large hunting ranges of more than 100km<sup>2</sup>. Breeding is from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs.</p>	<p><b>Present</b></p> <p>Preferred habitat includes dry woodlands and open forests</p>	<p><b>Unlikely</b></p> <p>Habitat for this species is present, however preference for timbered watercourses is not</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Superb Parrot</p> <p><i>Polytelis swainsonii</i></p> <p>TSC-V, EPBC-V</p>	<p>The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. It is estimated that there are less than 5000 breeding pairs left in the wild. Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. Because the Superb Parrots often use different habitats for different activities, the timing of their occurrence in each habitat may vary with the time of year. Between mid-January and early April, Superb Parrots do not use the River Red Gum breeding habitats on the Edward and Murrumbidgee Rivers, and their whereabouts at this time is unknown. Between April and August, they inhabit forests and woodlands dominated by River Red Gum, box-gum, White Cypress Pine (<i>Callitris glaucophylla</i>) and Boree. Nest in small colonies, often with more than one nest in a single tree. Breed between September and January. May forage up to 10 km from nesting sites, primarily in grassy box woodland. Feed in trees and understorey shrubs and on the ground and their diet consists mainly of grass seeds and herbaceous plants. Also eaten are fruits, berries, nectar, buds, flowers, insects and grain. When foraging on the ground, Superb Parrots often eat the seeds of plants such as the native Ringed Wallaby-grass (<i>Danthonia caespitosa</i>), barley-grasses (<i>Critesion</i>), as well as cereal crops including wheat, oats and canola (<i>Brassica napus</i>); and spilt grain. They also eat the seed-pods of many understorey species of wattles such as Gold-dust Wattle (<i>Acacia acinacea</i>), Silver Wattle (<i>A. dealbata</i>) and Deane's Wattle (<i>A. deanei</i>) and cultivated Cootamundra Wattle (<i>A. baileyana</i>). When foraging in the forest canopy, Superb Parrots eat the flowers and fruits of eucalypts, especially in spring and summer, the berries of mistletoe, such as Box Mistletoe (<i>Amyema miquelii</i>) and Grey Mistletoe (<i>A. quandang</i>), and, in winter, lerps from the foliage of eucalypts.</p>	<p><b>Present</b></p> <p>Known to occur on the South West Slopes in forests dominated by White Cypress Pine foraging on Wallaby Grass, Barley Grass and cereal crops.</p>	<p><b>Present</b></p> <p>The Superb Parrot has been recorded within 10km of the site previously</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
Swift Parrot <i>Lathamus discolor</i> TSC-E, EPBC-E	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> and Blackbutt <i>E. pilularis</i> . Return to home foraging sites on a cyclic basis depending on food availability.	<b>Present</b> Known to occur in the South West Slopes, with feed trees present in the area	<b>Possible</b> Preferred habitat for this species is present in the area	The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.
White-bellied Sea-eagle <i>Haliaeetus leucogaster</i> Migratory	White-bellied Sea-Eagles are a common sight in coastal and near coastal areas of Australia. Birds form permanent pairs that inhabit territories throughout the year. Their loud "goose-like" honking call is a familiar sound, particularly during the breeding season. Birds are normally seen, perched high in a tree, or soaring over waterways and adjacent land. In addition to Australia, the species is found in New Guinea, Indonesia, China, south-east Asia and India. The White-bellied Sea-Eagle feeds mainly off aquatic animals, such as fish, turtles and sea snakes, but it takes birds and mammals as well. It is a skilled hunter, and will attack prey up to the size of a swan. Sea-Eagles also feed on carrion (dead prey) such as sheep and fish along the waterline. They harass smaller birds, forcing them to drop any food that they are carrying. Sea-Eagles feed alone, in pairs or in family groups. White-bellied Sea-Eagles build a large stick nest, which is used for many seasons in succession. The nest can be located in a tree up to 30m above the ground, but may be also be placed on the ground or on rocks, where there are no suitable trees.	<b>Absent</b>	<b>Unlikely</b> Preferred habitat for this species is not present in the proposal area.	An impact is unlikely and specialist surveys for this species is not considered necessary. Further investigations would be undertaken during the preparation of the EIS.
<b>Bats</b>				
Grey-headed Flying-fox <i>Pteropus poliocephalus</i> TSC-V, EPBC-V	Grey-headed Flying-foxes are found within 200 km of the eastern coast of Australia, from Bundaberg in Queensland to Melbourne in Victoria. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source, often in stands of riparian rainforest, Paperbark or Casuarina forest, and are commonly found in gullies, close to water, or in vegetation with a dense canopy. Forage on the nectar and pollen of native trees, in particular <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Banksia</i> , and fruits of rainforest trees and vines. Travel up to 50 km to forage. Annual mating commences in January and a single young is born each October or November. Site fidelity to camps is high with some camps being used for over a century.	<b>Present</b> Occupies a wide range of habitats with a large home range.	<b>Possible</b> Preferred habitat for this species is present in the proposal area.	The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Large-eared Pied Bat <i>Chalinolobus dwyeri</i> TSC-V, EPBC-V</p>	<p>Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Hirundo ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves. Found in well-timbered areas containing gullies. This species probably forages for small, flying insects below the forest canopy. Likely to hibernate through the coolest months. It is uncertain whether mating occurs early in winter or in spring.</p>	Absent	<p>Unlikely</p> <p>Preferred habitat for this species is not present in the proposal area.</p>	<p>An impact is unlikely and specialist surveys for this species is not considered necessary. Further investigations would be undertaken during the preparation of the EIS.</p>
<b>Mammals</b>				
<p>Eastern Pygmy-possum <i>Cercartetus nanus</i> TSC-V</p>	<p>Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable. Also feeds on insects throughout the year; this feed source may be more important in habitats where flowers are less abundant such as wet forests. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (<i>Pseudocheirus peregrinus</i>) dreys or thickets of vegetation, (eg. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks.</p>	<p>Present</p> <p>Known to occur in woodlands</p>	<p>Possible</p> <p>Habitat for this species is present in the proposal area.</p>	<p>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</p>
<p>Koala <i>Phascolarctos cinereus</i> TSC-V</p>	<p>Occurs in eastern Australia, from north-eastern Queensland to south-eastern South Australia and to the west of the Great Dividing Range. In NSW it mainly occurs on the central and north coasts with some populations in the western region. It was historically abundant on the south coast of NSW, but now occurs in sparse and possibly disjunct populations. The koala inhabits a range of eucalypt forest and woodland communities, including coastal forests, the woodlands of the tablelands and western slopes, and the riparian communities of the western plains. Examples of important shelter trees are cypress pine and brush box. The quality of forest and woodland communities as habitat for koalas is influenced by a range of factors, such as; species and size of trees present; structural diversity of the vegetation; soil nutrients; climate and rainfall; size and disturbance history of the habitat patch.</p>	<p>Present</p> <p>Inhabits a wide range of eucalypt woodlands.</p>	<p>Possible</p> <p>Preferred habitat for this species is present in the proposal area.</p>	<p>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</p>

Species	Description of habitat <sup>1</sup>	Presence of habitat	Likelihood of occurrence	Possible impact?
<p>Squirrel Glider</p> <p><i>Petaurus norfolcensis</i></p> <p><b>TSC-V</b></p>	<p>The Squirrel Glider is sparsely distributed along the east coast and immediate inland districts from western Victoria to north Queensland. The species is found inland as far as the Grampians in Victoria and the Pilliga and the Coonabarabran areas of NSW. Inhabits dry sclerophyll forest and woodland and is generally absent from rainforest and closed forest. In NSW, potential habitat includes Box-Ironbark forests and woodlands in the west, the River Red Gum forests of the Murray Valley and the eucalypt forests of the northeast. Requires abundant hollow-bearing trees and a mix of eucalypts, acacias and banksias. Nightly movements are estimated at between 300 and 500m. Home-ranges have been estimated at between 0.65 and 8.55ha. Smooth-barked eucalypts are preferred as these eucalypts form hollows more readily than rough-barked and support a greater diversity of invertebrates. Squirrel Glider's forage in the upper and lower forest canopies and in the shrub understorey.</p>	<p><b>Present</b></p> <p>Occupies a wide range of woodlands.</p>	<p><b>Possible</b></p> <p>Preferred habitat for this species is present in the proposal area.</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>
<b>Reptiles</b>				
<p>Pink-tailed Legless Lizard</p> <p><i>Aprasia parapulchella</i></p> <p><b>TSC-V, EPBC-V</b></p>	<p>Only known from the Central and Southern Tablelands, and the South-Western Slopes. There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites. Feeds on the larvae and eggs of the ants with which it shares its burrows. It is thought that this species lays 2 eggs inside the ant nests during summer; the young first appear in March. Best detected from September to February.</p>	<p><b>Present</b></p> <p>Preferred habitat includes open woodlands with native grassy groundcover.</p>	<p><b>Possible</b></p> <p>Preferred habitat for this species is present in the proposal area.</p>	<p><b>The possibility of impact on this species as a result of the proposal would be further investigated during the preparation of the EIS.</b></p>



