Parkesbourne Solar Farm

Preliminary Environmental Assessment

August 2018

Delivering Energy, Powering Communities.

Preface

This Preliminary Environmental Assessment (PEA) has been prepared by CWP Renewables Pty Ltd (CWP) on behalf of Parkesbourne Solar Pty Ltd (the Applicant).

CWP are a long-established renewable energy developer, owner and asset manager. The company has over two decades of renewable energy development experience and offices in New South Wales (NSW), Queensland, South Australia and the Australian Capital Territory, with key development activities coordinated from the NSW base in Newcastle.

Wind farm development has been the focus of the company over the past decade, and within Australia this has resulted in over 500 megawatts (MW) of greenfield projects having been developed, financed and either under construction or in full operation since 2013. This includes the award-winning 113 MW Boco Rock wind farm development south of Cooma, NSW, the 270 MW Sapphire wind farm, the largest in size and capacity in NSW, and the 134MW Crudine Ridge wind farm in the NSW Central West region.

CWP's knowledge, awareness and expertise in site selection, development and delivery is now transferring to focus on solar farm development. The cost of utility-scale solar has fallen dramatically over recent years to a point where it is now, alongside wind energy, competitive with traditional fuel sources. Many of the attributes that have driven our success in the wind energy space are transferrable to solar development, most notably our approach of staying with a project from inception through to full operation. This philosophy is somewhat unique in the marketplace and instils genuine levels of engagement from the team with all stakeholders at every stage of the development.

CWP has several solar projects in the planning stage, including the Sapphire Solar Farm in the New England region of NSW.

More information on CWP and our active developments can be found on our website:
www.cwprenewables.com

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Purpose of this Document

The purpose of this document is to outline the proposal including the site and its surroundings, the statutory framework for approval and identification of key potential environmental issues that may be associated with a solar farm development.

This PEA has been prepared to support a request to the New South Wales Department of Planning and Environment (DPE) for Secretary's Environmental Assessment Requirements (SEARs) to be issued, which will guide the preparation of an Environmental Impact Statement (EIS) for the development under Part 4 of the Environmental Planning and Assessment Act (EP&A Act).

Document Control

Project	*Parkesbourne Solar Farm*			
Revision	Date	Prepared by	Reviewed by	Approved by
Draft	*25th June 2018*	*Thomas Behrendt*	*Matthew Flower*	*Ed Mounsey*
Release	*10th August 2018*	*Thomas Behrendt*	*Ed Mounsey*	*Ed Mounsey*

Contents

1 The Proposal

1.1 Proposal description, location and locality

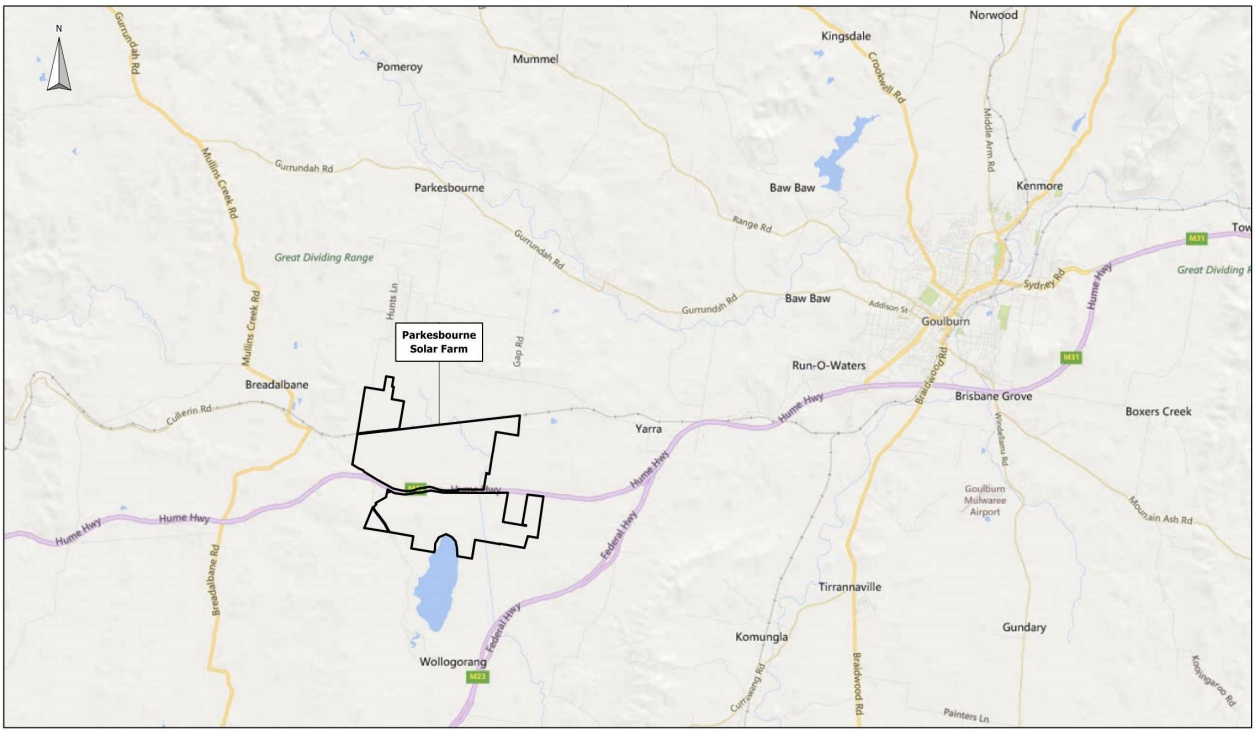
The proposed Parkesbourne Solar (PSF) development is a c. 600 MW utility scale electricity generation works comprised of solar photovoltaic (PV) modules, steel racking and piled supports, electrical transformers and inverters, battery storage, electrical cabling, telecommunications equipment, security fencing, a site office, maintenance building and car park facilities.

The proposal is located on land within the Goulburn Mulwaree Local Government Area (LGA) 16km south west of Goulburn in the Southern Tablelands of NSW (refer to Figure 1). Access to the site is directly from the Hume Highway which runs east-west through the site, Cullerin Road and Wollorogang Roads on the western side of the site north and south of the Hume Highway respectively (refer to Figure 2).

Two TransGrid 330 kV transmission lines directly cross the proposed project area, which will provide the connection to the national electricity grid. The identified land is currently used for grazing and/or cultivation by landholders included in the project.

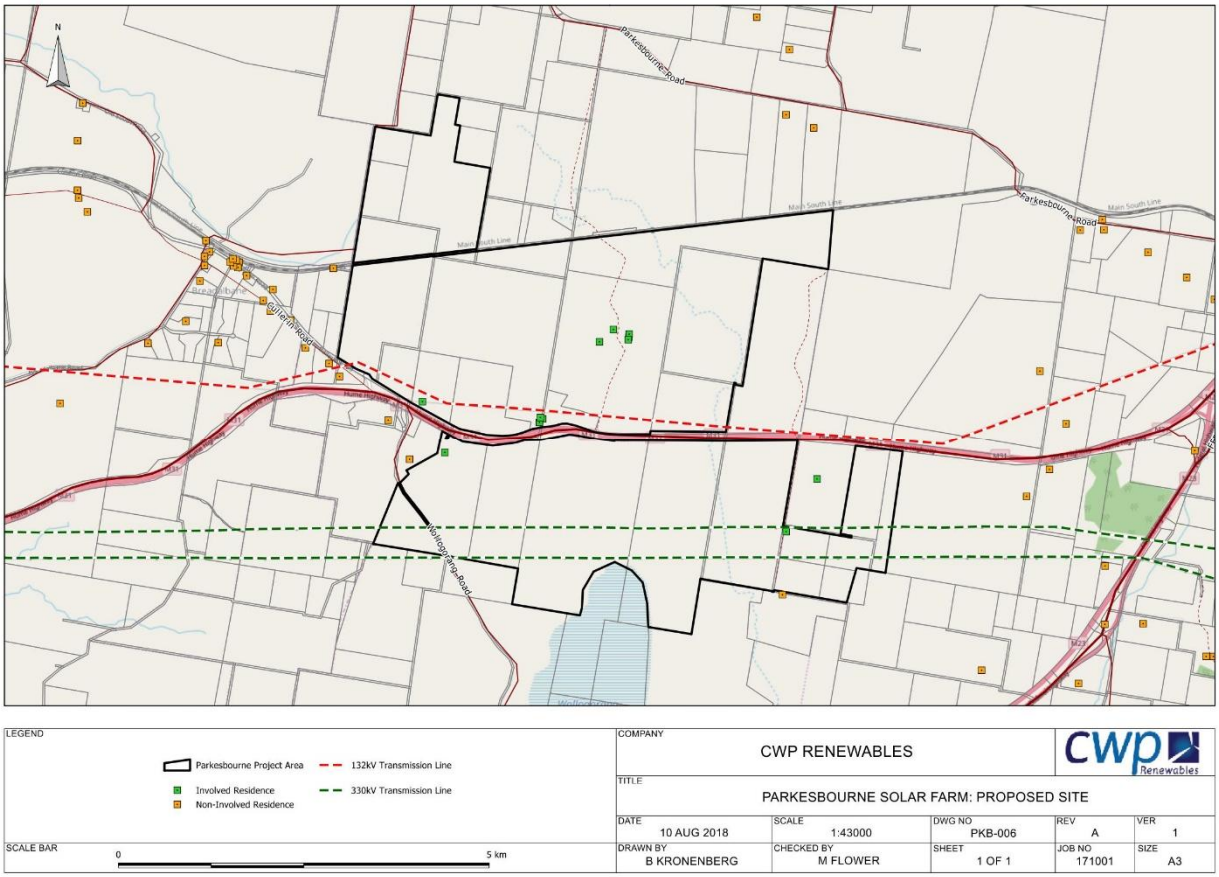
The footprint and scale of PSF will be refined through the development of the project EIS

Figure 1: Parkesbourne Solar Farm: Local Context



LEGEND: Parkesbourne Project Area	COMPANY: CWP RENEWABLES				
	TITLE: PARKESBOURNE SOLAR FARM: LOCAL CONTEXT				
	DATE: 10 AUG 2018	SCALE: 1:130000	DWG NO: PKB-005	REV: A	VER: 1
SCALE BAR: 0 — 10 km	DRAWN BY: B KRONENBERG	CHECKED BY: M FLOWER	SHEET: 1 OF 1	JOB NO: 171001	SIZE: A3

Figure 2: Parkesbourne Solar Farm: Proposed Site



2 Justification

2.1 Need for new renewable energy projects

There has been growing global recognition of the need to mitigate the environmental effects associated with fossil fuel energy generation. Such thoughts have manifested into international, national and state-wide commitments supporting the development of clean and sustainable energy projects.

At the COP21 climate talks in Paris (December 2015), the Australian Government committed to (and has now ratified) an emissions target of a 26-28% reduction by 2030 compared to 2005 levels. Further, the federal government has recently announced its plans for a National Energy Guarantee (NEG) to deliver more affordable and reliable electricity while meeting international commitments. PSF will be designed to deliver on both parts of the NEG by delivering dispatchable power as well as reductions of emissions.

The NSW Government has also recently developed a draft NSW Climate Change Policy Framework in support of the COP21 commitments and to demonstrate action on climate change. While still in its infancy, long term objectives of this Framework include achieving net zero emissions by 2050, and enabling NSW to become more resilient to climate change. This includes taking advantage of opportunities to grow new industries in NSW, such as 'advanced energy', including combined renewables and storage.

PSF will play an important role in contributing to both the increasing local and global need for such renewable projects and in tackling the issues of climate change.

2.2 Alternatives considered

The project area has been selected following a state-wide screening process, and offers a unique opportunity to co-locate a solar and battery project adjacent to existing major electricity transmission infrastructure.

Further decisions around alternatives will be made during detailed design with a view to minimising environmental and social impacts while maintaining the investment viability, however these will occur at the micro scale rather than macro, site selection, level.

Nonetheless, CWP is developing other renewable projects throughout NSW which may be considered as alternatives to PSF; though owing to the need for new renewable energy developments it is our expectation that these will be additive rather than alternative projects. The development application will include a thorough strategic justification of the need for and alternatives to the PSF development.

2.3 Capital investment value

The anticipated capital investment value (CIV) of the development is c. $600 million, however this investment value is subject to further project development and design. In accordance with clause 3 of the Environmental Planning and Assessment Regulation 2000, an estimate of the CIV, performed by a suitably qualified entity, will be provided upon submission of the corresponding development application.

3 Project Components and Associated Impacts

3.1 PV Module and Mountings

Solar PV module technology will be connected via a direct currant (DC) collection system consisting of cables mounted on the module support structure. The racking system will either be fixed-tilt or a single axis tracker (SAT) or a combination of both. Fixed tilt systems hold the modules in a fixed orientation in relation to the sun and have no moving parts. A SAT system tracks the daily movement of the sun and motorised linkages rotate the modules from the east in the morning to the west in the afternoon, constantly aligning towards the sun to maximise energy output performance. The modules are laid out in rows, typically referred to as arrays, approximately 4 to 7 m apart depending on the technology used.

The choice of fixed-tilt or SAT will determine the arrangement of the racking system: east-west (fixed-tilt) or north-south (SAT). The racking system will be supported by steel piles, typically comprised of hollow section or I-section component which are driven into the ground or otherwise placed in bored holes and concreted in place.

3.2 Collector Systems

A typical collector system will include DC reticulation cabling run along each solar array and then below ground to the inverter stations. Inverters will convert the DC to alternating current (AC) with Medium Voltage (MV) and/or High Voltage (HV) transformers increasing the voltage for export to the grid.

Contingent on procurement, approximately one inverter and transformer assemblies are required for every 5 MW (AC) of installed capacity. These assemblies will be positioned within or adjacent to each block of modules. Inverter and transformer assemblies can be mounted on a steel platform (skid) or slab at ground level and will typically occupy an area of 0.003 ha - equal to a 40ft shipping container (12m x 2.4m).

Collector cables will be of sufficient length to minimise wherever possible the use of cable joints between inverter/transformer assemblies. In-ground natural earth loop joint pits will be utilised to ensure recovery of joints for repairs if joints are required. Single mode fibre and the radial earth conductor (where required) will be laid in parallel to other cables in a common trench.

Cables will be buried and covered to a depth that meets Australian standards and where cables are buried in the same trench, a minimum calculated separation to ensure thermal constraints are complied with will be maintained.

3.3 Battery Storage

The project will include an energy storage system which will consist of enclosed batteries. Battery storage can add significant benefits to solar generation because it allows for the dispatch of energy in accordance with market demand and overcomes potential issues associated with intermittency of output.

The battery assemblies would be mounted on pad foundations and include bunded containment. overhead or underground cables would connect the battery assemblies to the substation equipment. The number and location of batteries to be used will be evaluated through the EIS process, along with the battery technology

type which could include lithium iron, lead acid, sodium sulphur, sodium or nickel hydride, electrochemical or mechanical technology. Accepted industry practice will be observed for handling the respective battery components during installation, maintenance, replacement and recycling.

3.4 Roads

Formed gravel roads, approximately 4 m in width, will be constructed for permanent access throughout the project. The final design will be developed through the EIS process.

3.5 Grid Connection

The 330 kV TransGrid transmission line which passes through the proposed project area will provide the connection point into the NEM. A new substation connecting PSF to this line will be constructed in cooperation with TransGrid.

3.6 Ancillary Infrastructure

An operations and maintenance facility will be required to meet the ongoing operational needs at the solar farm.

A construction compound will be established within the project boundaries near the PV arrays when the solar farm construction works commence. A project office will be established consisting of a temporary building fitted out with all necessary office and communication facilities and messing facilities.

4 On-ground Impacts

While a solar PV project can occupy a large area of land, the on-ground impacts are relatively minor by comparison. This aspect is relevant when evaluating biodiversity impacts through the lens of permanent versus temporary disturbance.

4.1 Permanent impacts

A typical 5 MW (AC) rectangular block of modules on a SAT system would occupy an area of approximately 11 ha. Within this area the following materials would typically be installed:

Item	Quantity	Notes	Permanent on-ground impact (ha)
Tracker row	196	*(Above ground)*	*n/a*
5 MW inverter	1	12m x 2.4m (40ft shipping container)	0.003
Access track	290	4m wide	0.116
PV module	16,464	*(Above ground)*	*n/a*
Tracker DC cable	196	*(Above ground)*	*n/a*
Combiner box	26	*(Above ground)*	*n/a*
MV trench to substation	290	4m wide	0.116
Motors	196	*(Above ground)*	*n/a*
Piers	2,352	Includes 196 motor piers and 2,156 standard piers (0.25m^2 pier)	0.015
TOTAL			0.25 ha

The materials list above shows that of the 11 ha of land used to install 5 MW (AC) of solar PV, only 0.25 ha or 2.3% of the total land area would be permanently impacted over the life of the project. At 600 MW as is the proposed PSF capacity, this would result in an area of 30 ha of permanently impacted land.

Detailed design will refine this example 5 MW (AC) estimation to project-specific circumstances, and moreover include other associated permanent impacts such as the operations facility building, battery storage and the new substation.

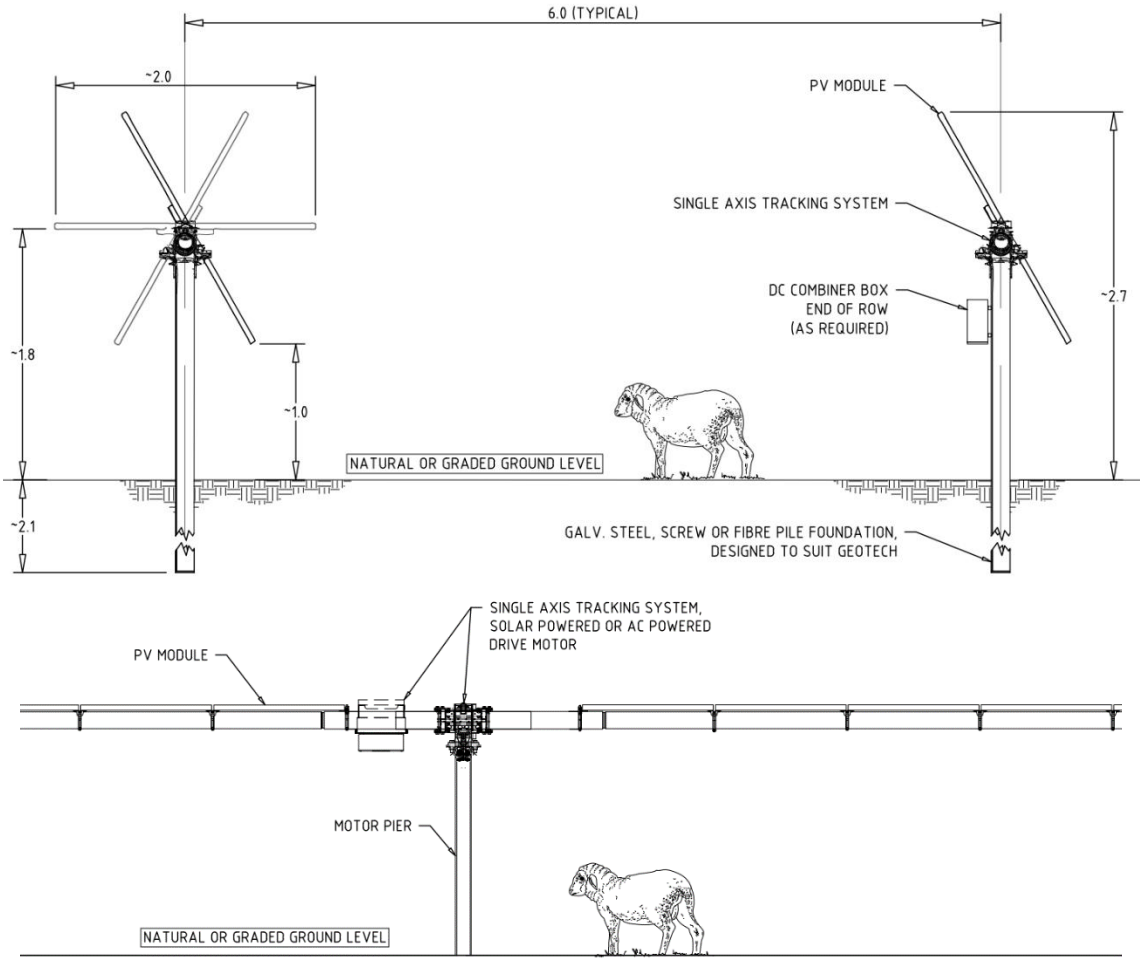
4.2 Temporary impacts

Temporary impacts that will occur through construction include the stripping and storage of top-soil for construction of roads and trenches, laydown areas for components adjacent to each work front, and the construction compound and amenities buildings facility.

4.3 Agricultural Use

Post construction, it is proposed that the balance of land that is not occupied by solar farm infrastructure would continue to be used for agricultural purposes such as sheep grazing, resulting in only minor net change to the existing land-use situation (Section 9).

Figure 3: Parkesbourne Solar Farm: Generic Tracking System Single Axis Tracker Elevation View*



**Images courtesy of Zenviron*

5 Typical Works Program

Construction will include all pre-operation activities associated with the project other than survey, acquisitions, fencing, investigative drilling or excavation, or other preparatory activities that have minimal environmental impact such as site mobilisation, minor adjustments to services/utilities, establishing temporary construction sites or minor clearing. Construction would typically comprise of the activities described in the following sections.

5.1 Site Preparation

The site will require minimal preparation in advance of installing the PV modules as it is generally flat or of consistent slope, and largely clear of trees and dense vegetation. Site entrances will be opened, and site gates secured in position. Fencing will be upgraded or installed around the site perimeter. The site will be cleared of internal fences, timber or rock debris as required. Trees within the development footprint where clearing has been approved will be removed.

Site facilities and construction laydown areas will be established within the development footprint and construction vehicles and equipment will be mobilised to the site. Site access tracks will be staked and established through scraping, grading and compacting. Some tracks may require road base to create an all-weather (unsealed) surface, however extensive track construction is not planned. Tracks will be treated to create a durable, dust-minimising surface.

Typically, construction of the site substation will also commence at this phase. TransGrid as the electricity grid operator will be closely involved in planning for those works.

Site preparation and substation construction phase will require the use of plant such as bulldozers, water trucks, graders, flatbed trucks, skid steers, front end loaders, roller compactors, trenchers, backhoes, gravel trucks, cranes and aerial lifts.

5.2 Installation

Following site preparation, the supporting structures and the solar modules will be installed. The site will be surveyed and locations of all the equipment will be pegged. Top soil will be left intact wherever possible. The circular hollow sections or flanged sectioned steel piles which support the racking system will be driven into the ground pneumatically or alternatively holes will be bored and the piles will be grouted in position.

Piles may be cut off to height and the steel racking assembly will be attached in accordance with the manufacturers proprietary system. Solar PV modules are then installed on the racking and secured in position to withstand wind loading. Once the modules have been installed the DC collection cables are laid on the structure and terminated to the modules. If a tracking system is being used, the rotating mechanism and servo motors will be installed on the support structure.

This phase will require the use of equipment including pile drivers, augers, forklifts, welders, oxy acetylene, trenchers, excavators, pickup trucks, water trucks, flatbed trucks and cranes.

5.3 Inverter and Transformer Assemblies, and Electrical Collection System

Once the PV modules have been installed cable trenches will be excavated and AC and DC cables will be laid. Trenches will be backfilled with excavated material and cables will be terminated to the modules. Foundations for the inverter assemblies will be constructed as either concrete slabs on the ground or piles. The inverter and transformer assemblies will be placed on the foundations and the cables will be terminated to them. Testing and quality assurance will be carried out as connections are made.

5.4 Commissioning

Once all the inverter assemblies and electrical collection system has been installed, commissioning of equipment can commence. Commissioning will include terminations, testing, calibration and troubleshooting. The inverters, transformers, collection system, solar PV array, substation and storage system (if any) will be tested prior to commencement of commercial operations to ensure any system issues are rectified. Commissioning will involve site crews and TransGrid personnel. Upon completion of successful testing, the solar farm can be connected to the TransGrid network and it will be ready to export electricity.

This phase of the construction process will require skid steers, pile drivers, trenchers, backhoes, cranes, aerial lifts, flatbed trucks and concrete trucks on site.

5.5 Restoration

During construction, additional infrastructure will be established including site offices and amenities, vehicle parking and turning areas, equipment laydown and storage areas, safety fencing, and temporary power. This infrastructure will be removed at completion of commissioning and disturbed ground made good through re-topsoiling, re-profiling and establishing a groundcover.

5.6 Operation

The solar farm will operate independently, and no permanent employees will be stationed on-site. The farm will be monitored remotely from an off-site location and apart from a routine maintenance program, operators will only visit the farm when responding to any performance issues (i.e. where actual output measured by the monitoring system deviates from generation forecasts and other key performance metrics).

Activities at the solar farm that will be part of a routine maintenance program will generally be limited to:

- Equipment, cabling, substation and communications system inspection and maintenance;
- Fence, access road and control room management;
- Vegetation (fuel load), weed and pest management;
- Possible solar PV module washing on an as-needed basis (see below);
- Security monitoring; and,
- Communicating with customers, transmission and distribution network operators, Australian Energy Market Operator (AEMO), Council, neighbours and other stakeholders.

5.7 Maintenance

The solar PV modules may be periodically washed to remove excess dirt, dust or other matter (i.e. bird droppings) which can prevent sunlight from effectively reaching the solar cells and subsequently reducing the electricity production output. The frequency of any washing will depend on monitoring the actual performance of the farm.

If required washing will be carried out manually or mechanically. Clean water would be transported to site by water trucks that would then be driven down the rows between the strings of modules and personnel or mechanical devices would use spray equipment to clean the surface of modules.

5.8 Upgrading, Repowering and/or Decommissioning

Upgrading or repowering of the PV modules and ancillary equipment maybe required throughout the operational life of the project. This will be a commercial decision based on the relative economics of solar PV generation compared to alternatives at the time.

Upgrading and repowering would involve removal of any obsolete equipment such as modules and inverters and disposing of these off-site in accordance with good practice, including recycling wherever possible. The technology available at that time would be installed using the existing structures and infrastructure to the extent possible and the farm would be recommissioned.

If the decision at the time is to decommission the farm the procedure would be to initially disconnect the solar farm from the TransGrid network. The interconnecting cable and substation equipment would be removed and disposed of off-site, reusing and recycling wherever possible. Foundations would be broken up and removed off site. The substation compound fencing would be removed and area would be graded and seeded.

Modules and the racking system would be removed and it could be expected that a significant amount of the support structure could be reused or recycled off-site. Piles will be lifted out of the ground and recycled wherever possible. In general, cables are likely to be worth removing and recycling. However underground cables which are more than 300 mm below ground level may be left buried to avoid excessive ground disturbance. The site control room and facilities would be lifted off their foundations and transported off site on flatbed trucks. Finally, the surface of the site would be ripped and returned to agricultural use.

5.9 Environmental Impact Assessment

A full description of the development, including details of construction, operation, upgrading and decommissioning, plus a detailed site plan showing all infrastructure and facilities (including site access points, routes, site compounds, laydown areas, the substation, carpark facilities and other ancillary infrastructure) will be provided for in the Environmental Impact Statement (EIS).

6 Legislative Requirements

The development of solar farms in NSW is subject to various Commonwealth and state environmental legislation, State Environmental Planning Policies (SEPPs), and Local Environmental Plans. The following section provides details of the legislative context for this proposal.

6.1 Commonwealth Legislation

6.1.1 Environmental Protection and Biodiversity Conservation Act 1999

Under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), a referral to the Australian Government is required for proposed actions that have the potential to significantly and adversely impact on matters of national environmental significance (MNES) or on Commonwealth land.

The EPBC Act identifies the following nine MNES:

- World heritage properties;
- National heritage properties;
- Ramsar wetlands of international significance;
- Threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- Nuclear actions; and
- Water resources.

PSF is not located on Commonwealth land. Should significant impacts to MNES be identified, a referral to the Department of Energy and the Environment (DoEE) will be prepared.

6.1.2 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 native 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.

In relation to land where native title has not been extinguished, the Native Title Act 1993 sets out procedures which must be complied with in relation to a 'future act', being an 'act' which affects native title rights and interests.

6.1.3 Hazardous Waste (Regulation of Exports and Imports) Act 1989

This legislation regulates the imports and exports of hazardous waste into and out of Australia, and is relevant in managing spent batteries should they require exporting (there are presently few facilities to recycle lithium ion batteries within Australia). Those wastes would be subject to export permit requirements for recycling.

6.2 New South Wales Legislation

6.2.1 Environmental Planning and Assessment Act 1979

Development in NSW is subject to the requirements of the EP&A Act and its associated regulations. Environmental planning instruments prepared pursuant to the Act set the framework for approvals under the Act. The PSF proposal would be assessed under Part 4 of the EP&A Act.

6.2.2 State Environmental Planning Policy (State and Regional Development) 2011

Clause 20 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 states that the following is considered state significant development:

Development for the purpose of 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:

(a) has a capital investment value of more than $30 million, or

(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.

PSF will have a capital investment value in excess of $30million, therefore the proposal is classified as 'State Significant Development', or SSD, under Part 4 of the EP&A Act. Under this classification, the approval authority rests with the NSW Minister for Planning or a delegated authority.

6.2.3 State Environmental Planning Policy (Infrastructure) 2007

The State Environmental Planning Policy (SEPP) (Infrastructure) 2007 was developed to improve the efficiency of the existing planning system in delivering essential public infrastructure and services, by repealing 20 existing environmental planning instruments.

The SEPP Infrastructure outlines the planning processes for infrastructure projects under Part 4, Part 5 and exempt development. Clause 34(1) permits electricity generating works to be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. The prescribed zones include RU1 Zone, and accordingly electricity generating works are permitted on the land.

6.2.4 Biodiversity Conservation Act 2016

The purpose of the Biodiversity Conservation (BC) Act 2016 is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The Act applies to the terrestrial environment (i.e. not aquatic or marine) and legally protects threatened plant and animal species, areas of outstanding biodiversity value, sets out a biodiversity offsets scheme, and directs biodiversity assessments required for gaining development approvals. Consistent with the BC Act (section 7.14) an application for SSD must be accompanied by a Biodiversity Development Assessment Report (BDAR).

Under section 4.13(2A) of the EP&A Act, concurrence under section 4.13 (including concurrence under the BC Act) would not be required for a SSD project. In accordance with section 7.14 of the BC Act an application for SSD is to be determined by the Minister for Planning, with consideration of the assessment requirements of the BC Act.

6.2.5 Fisheries Management Act 1994

Relevant to SSD, this Act protects threatened aquatic and marine species. An impact assessment consistent with the Act must be undertaken for approvals, separate from the processes under the BC Act.

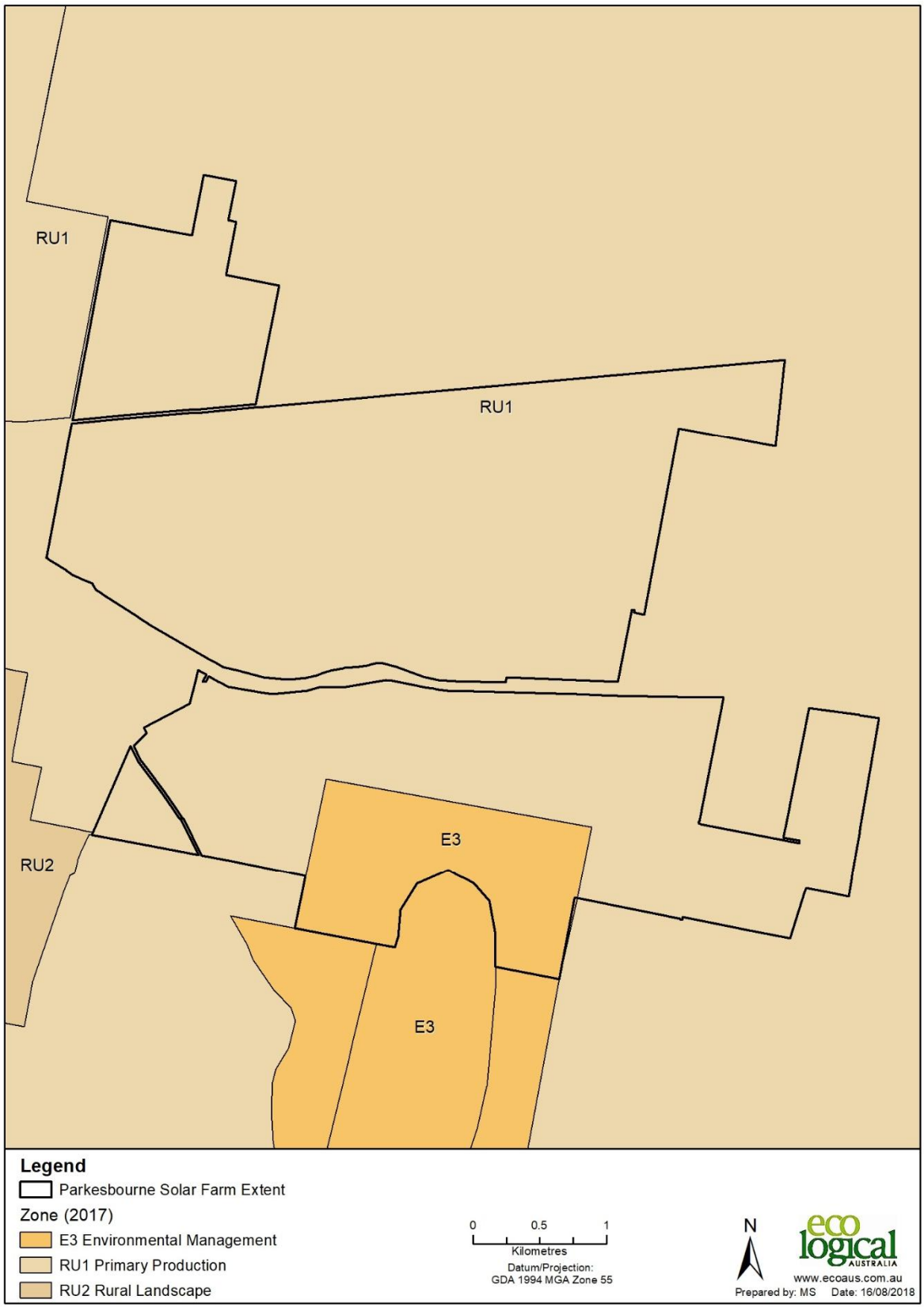
6.2.6 Goulburn Mulwaree Local Environmental Plan 2009

The proposal is located within the Goulburn Mulwaree Local Government Area (LGA) and is therefore subject to the provisions of the Goulburn Mulwaree Local Environmental Plan 2009 (LEP). In accordance with the LEP, the land proposed for the development is predominantly zoned RU1 Primary Production (refer to Figure 4). A small section in the south of the proposed development area lies within E3 (Environmental Management) zoning.

The LEP does not reference solar farms or electricity generating works within the Land Use: Zone RU1 Primary Production classification nor for E3 Environmental Management classification. Electricity generating works are permitted with consent within the RU1 Zone under SEPP (Infrastructure) 2007.

The LEP (part 7.1) also includes mapping of Flood Planning Land in the LGA. The project area does not include any Flood Planning Land.

Figure 4: Parkesbourne Solar Farm: Land Zoning



6.2.7 Roads Act 1993

The Roads Act 1993 addresses authorities, functions and regulation of activities relating to the use and type of roads. Consultation with the Roads and Maritime Services (RMS) and Inverell Shire Council will be undertaken to determine access and necessary upgrading of access points to the proposed project.

Approval under section 138 of the Roads Act is required to impact or carry out work on or over a public road. Section 4.42 of the EP&A Act provides that an approval under section 138 of the Roads Act cannot be refused if it is necessary for carrying out State significant development that is authorised by a development consent.

6.2.8 National Parks and Wildlife Act 1974

The Chief Executive of the Office of Environment and Heritage is responsible for the care, control and management of all national parks, historic sites, nature reserves, Aboriginal areas and state game reserves.

Under section 4.41 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 SSD project.

6.2.9 Heritage Act 1977

The purpose of the Heritage Act 1977 is to promote understanding and encourage conservation and protection of the State's Heritage. The Heritage Act does this through the identification and registration of items of State Heritage significance and Interim Heritage Orders.

Under section 4.41 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 SSD projects.

6.2.10 Crown Lands Act 1989

The Crown Lands Act 1989 provides for the administration and management of Crown lands.

The proposal has been sited to avoid Crown land. Where it is necessary to impact Crown roads, those areas affected will either be sought to be closed and transferred to the relevant landholder, an approval under section 138 of the Roads Act, or other licence will be sought.

6.2.11 Contaminated Land Management Act 1997

Section 60 of the Contaminated Land Management Act 1997 imposes a duty on landowners and polluters to notify the Environment Protection Authority (EPA), and potentially investigate and remediate land if contamination is above levels set by the EPA). State Environmental Planning Policy no 55 – Remediation of Land is also relevant to the grant of development consent. The potential for contamination at the site is discussed in Section 9 of this PEA.

6.2.12 Water Management Act 2000

Pursuant to Section 4.41 of the EP&A Act, water use approval, water management work approval and activity approvals under Sections 89, 90 and 91 of the Water Management Act 2000 are not required for SSD projects. The potential to impact water resources is discussed in Section 9 of this PEA.

6.2.13 Protection of the Environment Operations Act 1997

The Protection of the Environment Operations Act 1997 (POEO Act) is the key piece of legislation for environmental protection in NSW. The POEO Act creates pollution offences relating to land, water, air and noise pollution and imposes a duty on polluters and occupiers to report pollution incidents to the EPA and other government agencies. Solar energy generation does not fall within the definition of electricity generation under Schedule 1 of the POEO Act and therefore does not require an Environment Protection Licence (EPL).

6.2.14 Waste Avoidance and Resource Recovery Act 2001

The Waste Avoidance and Resource Recovery Act 2001 (WARR Act) introduces a scheme to promote extended producer responsibility for the life-cycle of a product. The WARR Act outlines the resource management hierarchy principles of priority as:

- Avoidance of unnecessary resource consumption;
- Resource recovery (including reuse, reprocessing, recycling and energy recovery); and,
- Disposal.

Resource and waste management is discussed in Section 9 of this PEA.

7 Land Tenure

7.1 Land tenure and consent

The project is proposed to occur on the following land (refer to Figure 5). Figure 5 also shows the involved and non-involved residences in proximity to the project area.

Landowner	Lot	DP	Land use
Landowner 1	169	750006	▪ Grazing ▪ Cultivation
Landowner 2	10	732520	▪ Grazing ▪ Cultivation ▪ Residence
Landowner 3	10	1120472	▪ Grazing ▪ Cultivation ▪ Residence
	13	732520	
Landowner 4	2	1158433	▪ Grazing ▪ Cultivation ▪ Residence
	173	45193	
	1	264489	
	22	262682	
	552	1176232	
Landowner 5	1	34836	▪ Grazing ▪ Cultivation ▪ Residence
	3	264489	
	1	34938	
	2	34938	
	34	750057	
	37	750057	
	2	264489	
Landowner 6	9	703717	▪ Grazing ▪ Cultivation
	1	221792	
	86	750006	
	87	750006	
Landowner 7	21	262682	▪ Grazing ▪ Cultivation ▪ Residence
	1	1158433	
	23	750006	
	1	527016	

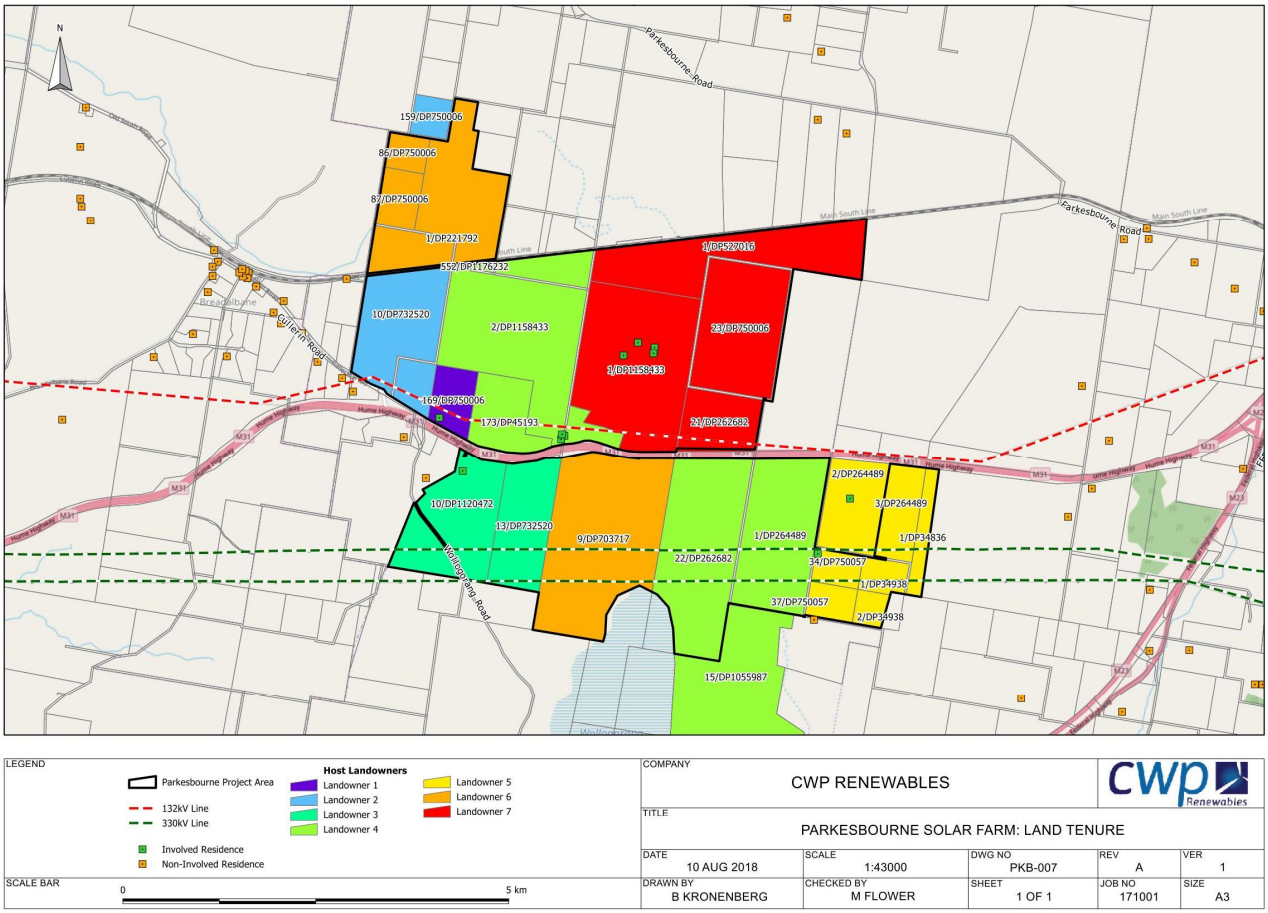
[1] *Note, the study area is indicative of where solar PV modules may be located and subject to further assessment through the EIS process. Facilities such as the operations building, construction compound and substation lay outside of this area, and the location of battery storage containers is yet to be defined.*

7.2 Subdivision

It is acknowledged that if the subject land is to be leased for the purposes of developing the project, and that such a lease may extend for a term of greater than five years, then this is deemed to be the 'subdivision' of land pursuant to section 6.2(1)(b) of the *Environmental Planning and Assessment Act 1979*. While it is noted that this is not an actual subdivision of the land which creates a new allotment and deposited plan, it does

require approval the under same legislation. Therefore, to avoid any doubt, this deemed 'subdivision' forms part of the proposal and subsequent project application. The land to be leased, for which approval will be sought, will be identified in the project development application (i.e. the EIS).

Figure 5: Parkesbourne Solar Farm: Land Tenure



8 Consultation

Consultation relating to the proposed PSF project commenced in early 2018. Key activities to date have included:

- February 2018 onwards – conversations with potential PSF host landowners and neighbours;
- March 2018 – liaison with TransGrid regarding connection options;
- May 2018 onwards – conversations and face-to-face meetings with immediate neighbours and those further afield;
- July 2018 onwards – liaison with Goulburn-Mulwaree Council regarding (among other things) roads, water, quarries and local economic benefits;
- July 2018 – liaison with local member for the electoral district of Goulburn, the Hon Pru Goward MP;
- August 2018 – further conversations and face-to-face meetings with immediate neighbours and those further afield (more detail provided below); and,
- August 2018 – NSW Government Agency liaison, including with Roads and Maritime Services (RMS).

Early engagement with RMS has been undertaken with discussion of suitability of site access and traffic management from the Hume Highway and smaller roads. Liaison with RMS will continue throughout the process of this EIS.

During August 2018, prior to the submission of this PEA, consultation was undertaken with neighbours and residents in the local area to the project. This was conducted by face to face meetings and door knocking to:

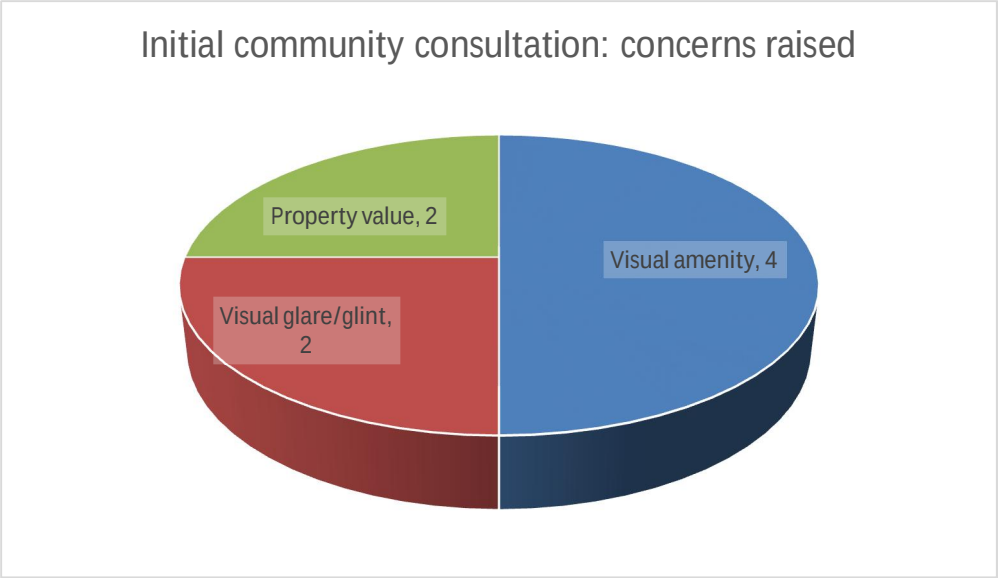
- introduce our company and the project,
- Understand residents' initial thoughts,
- Identify the position of the project relative to their land,
- The current position on the environmental assessment and consultation timeline, and
- To open an ongoing line of communication back to our company regarding the project.

A newsletter was distributed by hand directly to residents that we met or left at the property in a prominent place. In all, 21 residents were consulted with face to face, and 50 newsletters were distributed to 42 residences. This included all properties within 2 km of the project area.

A project website was also launched in August inviting people to sign up to newsletters, email thoughts or questions, and to register interest in employment opportunities.

The feedback received during consultation was, and will continue to be, themed by topic and attributed to the residence. This feedback will be used to both direct some considerations of the EIS, as well as to shape the project. The initial feedback from the 21 face to face discussions was generally positive, and the breakdown of feedback by topic mentioned is provided in the chart below. Of the 21 meetings, 15 residents said that they had no concerns at this early stage, thus their feedback could not be included in the chart. The comments were themed by topic if they were mentioned by the resident, without attributing the sentiment qualitatively. This will be explored with those residents through the EIS process.

Figure 6: Feedback Received by Topic Theme



The chart in Figure 6 above demonstrates that the most commonly mentioned theme was visual impact, followed by concerns regarding glint and glare as well as property value. Analysis of the impacts mentioned during the consultation will be included in the EIS, among the other studies required in the EIS.

Through the submission of this preliminary environmental assessment and project development application, further consultation will be stimulated with a range of stakeholders. Owing to our recent development experience in other parts of NSW, CWP are well positioned to adopt existing consultation processes and Community Engagement Plans and apply this knowledge to the proposed PSF.

In preparing the development application, consultation with relevant local, State and/or Commonwealth authorities, infrastructure providers, community groups and affected landowners will continue to be undertaken. The issues raised, and resolutions found through this process will be documented in the EIS.

9 Preliminary Environmental Assessment

The Secretary's Environmental Assessment Requirements (SEARs), to be issued under EP&A Act, will detail key issues to be addressed that have the potential to create environmental or human impacts. For each key issue, an assessment of the likely impacts of the development on the environment will be undertaken, including:

- A description of the existing environment likely to be affected by the development;
- An assessment of the likely impacts of all stages of the development, with consideration of appropriate legislation, instruments, guidelines, etc.;
- An assessment of cumulative environmental impacts in the context of existing developments and future developments to ensure that any potential environmental impacts are not considered in isolation;
- A description of measures that either have or are proposed to be implemented to avoid, mitigate and/or offset the impacts of the development; and
- A description of the measures that would be implemented to monitor and report on environmental performance of the development.

The key environmental issues relating to solar farm developments are well defined, and for the proposed development anticipated aspects are outlined below. Hydrology and biodiversity site investigations have been undertaken early in the project development stage to allow for the early identification of important environmental values, as a way to include avoidance and minimisation of impacts early in the design process.

9.1 Biodiversity and Land-Use

9.1.1 Biodiversity

An assessment of the likely biodiversity impacts resulting from the development will be prepared in the EIS. This will include desktop and site survey assessment with a focus on native vegetation, Threatened Ecological Communities (TEC) and isolated trees.

Preliminary studies indicate that the majority of the land is significantly altered from its native state, with extensive agricultural modifications. Figure 7 shows the preliminary vegetation mapping. The land is mostly non-native agricultural grassland. Very few patches of native vegetation are present, occurring mostly along the public road verges, and around the periphery of the land.

The preliminary vegetation mapping will form the basis of further detailed and targeted surveys and will be refined throughout the EIS process. The detailed and targeted surveys and refined vegetation mapping will be used to guide detailed design within the land available. The focus will be to avoid or minimise impacts to known TECs and large stands of native woodland where possible. The preliminary design and vegetation mapping indicates very little clearance of native vegetation under the preliminary layout for PSF, which through further assessment and design, associated impacts will be mitigated.

Further site surveys will be undertaken during the EIS phase upon which informed decisions about the layout will be determined. Where residual impacts may occur as a result of the final design selection, an evaluation

of the appropriate mitigation and/or offset measures will be developed in consultation with the appropriate stakeholders.

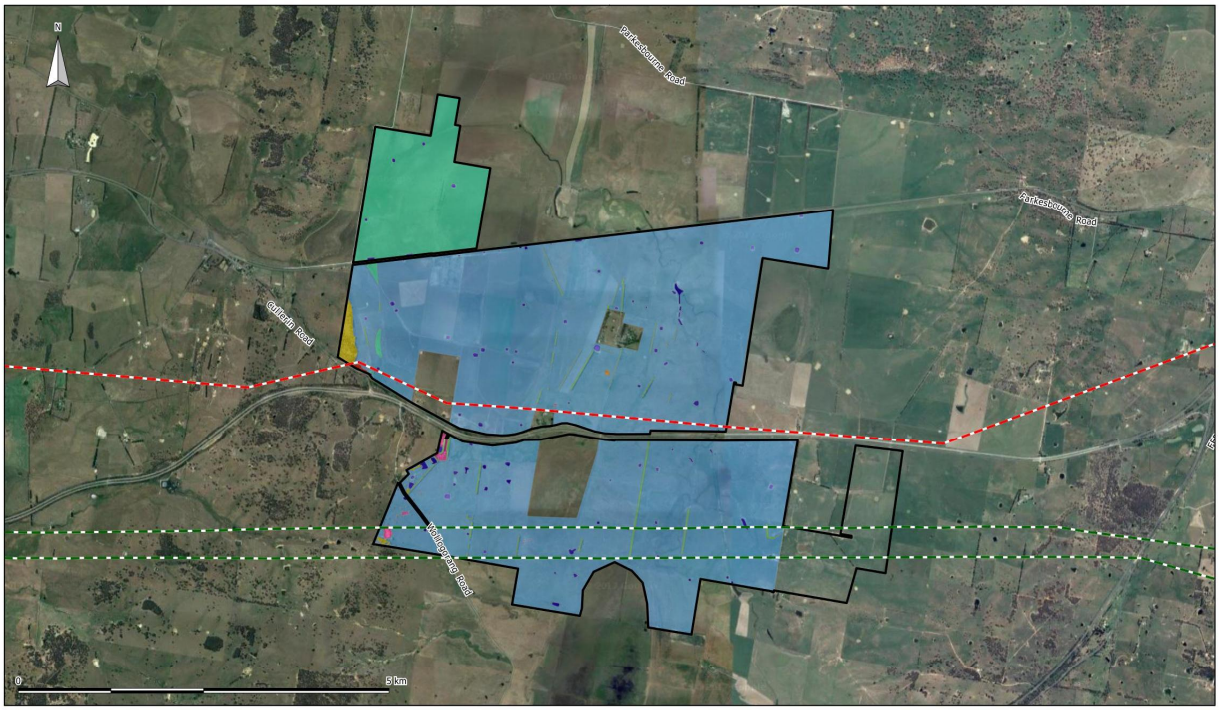
9.1.2 Other Land Characteristics and Use

Other land characteristics and use which have been considered include agricultural use and mining interests.

There are no mining leases over the project area. No areas within the project footprint have been marked as biophysical strategic agricultural land (BSAL). The land is currently used for grazing and/or cultivation (refer to Figure 8 showing NSW Land Use Mapping (OEH 2017)). Following construction of the project it is anticipated that most of this land will continue to be used for grazing during the operation phase of PSF.

Acknowledging the significance of agricultural land for Australia, and the Southern Tablelands region, a decommissioning and revegetation framework will be developed within the EIS, with consideration of the factors outlines in Section 5, in order to restore land to its original use should it no longer be used for electricity generation.

Figure 7: Parkesbourne Solar Farm: Biodiversity



LEGEND

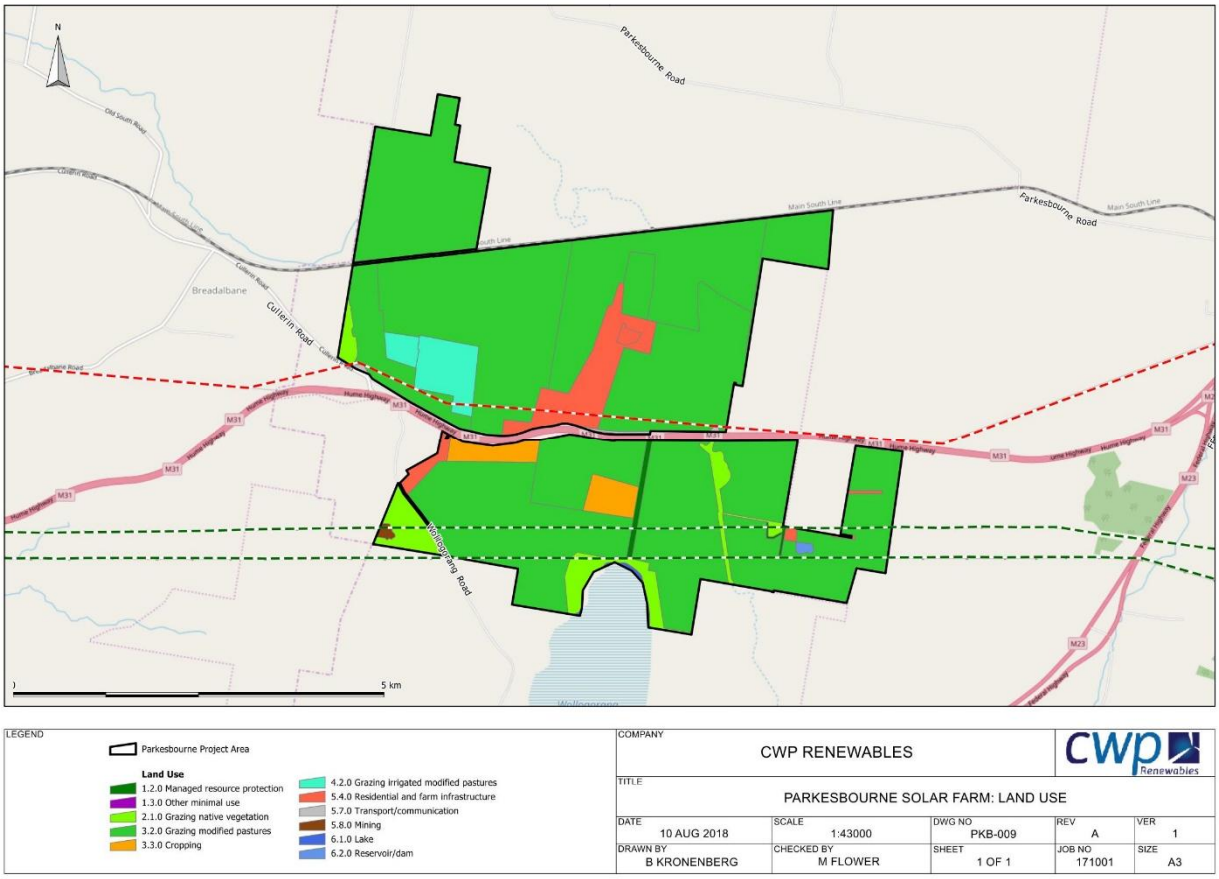
- Parkesbourne Project Area
- 132kV Line
- 330kV Line

PCT Vegetation

- Cleared
- Dam
- Exotic Pasture or Cropping
- Planted Vegetation
- Scattered Paddock Trees
- Mixed Pasture Grassland
- 1093: Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion
- 1330: Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

COMPANY	CWP RENEWABLES			
TITLE	PARKESBOURNE SOLAR FARM: PRELIMINARY BIODIVERSITY			
DATE: 10 AUG 2018	SCALE: 1:43000	DWG NO: PKB-008	REV: A	VER: 1
DRAWN BY: B KRONENBERG	CHECKED BY: M FLOWER	SHEET: 1 OF 1	JOB NO: 171001	SIZE: A3

Figure 8: Parkesbourne Solar Farm: Land Use



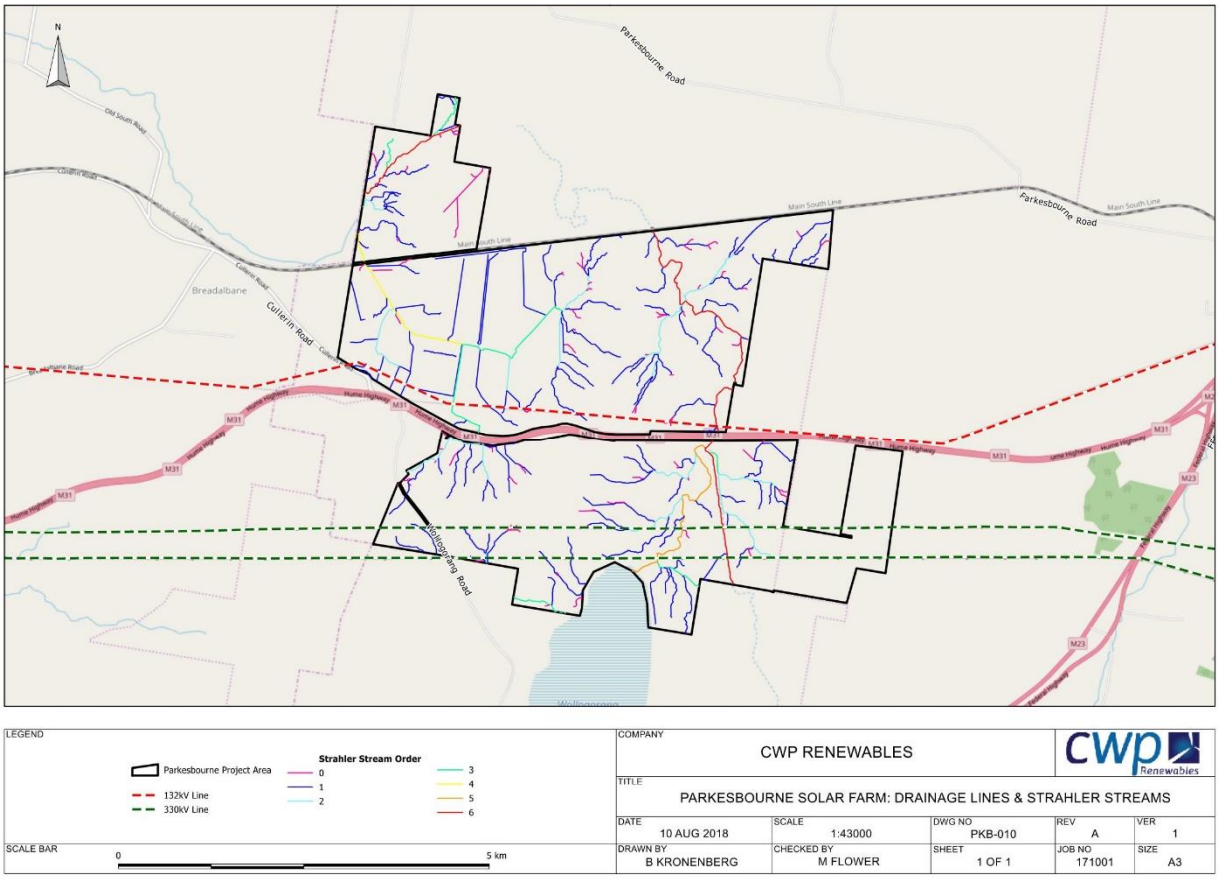
9.2 Water

A preliminary hydrology assessment has been undertaken to identify drainage lines and assign Strahler stream ordering. The results are shown in Figure 9. The drainage patterns on the land are significantly modified due to agricultural land development. Many drainage lines have been channelised, changing drainage patterns substantially. Consequently, and consistent with this level of modification, there is limited riparian vegetation along many of the channels.

The EIS will include flood modelling in both the existing environment, and then post-construction, identifying key inputs regarding onsite and downstream impacts and mitigation measures. It will also discuss the landscape function and riparian values of the drainage lines, identifying potential impacts caused by the project, suitable buffer areas for design, and mitigation measures for potential impacts caused by proposed crossings.

The EIS will also discuss the water requirements during construction, operation and decommissioning, alongside potential sources.

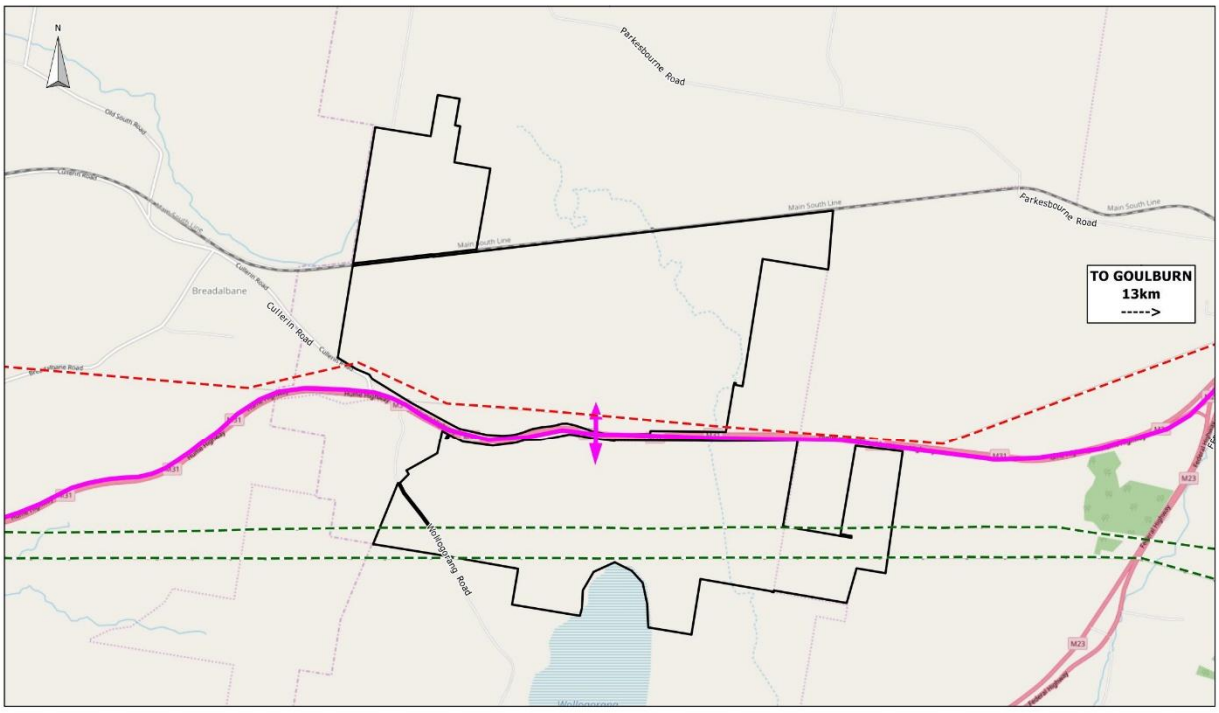
Figure 9: Parkesbourne Solar Farm: Drainage Lines and Strahler Stream Order



9.3 Transport

Transport routes will be determined during the development period; however, it is likely the site will be accessed from the Hume Highway and via the public roads: Cullerin Road and Wollogorang Road, although alternatives will be explored during the development phase (refer to Figure 10). The development phase will consider the feasibility of the access routes including the design and construction requirements and the current road network characteristics. Appropriate intersection and / or road upgrades will be discussed with RMS and Goulburn Mulwaree Council during the development of the EIS. Transport type and volumes will be calculated in accordance with those outlined in Section 5.

Figure 10: Parkesbourne Solar Farm: Transport



9.4 Other Environmental Issues

Other environmental issues that are relevant to the development, but are not considered key issues are described below. These considerations would also be subject to further assessment as part of the EIS, and would be managed through appropriate mitigation and management measures.

9.4.1 Visual Impact

The project area represents a landscape that is typical of other landscape types found in surrounding areas, as well as landscapes within the wider regional context of the Southern Tablelands Region. The landscape is relatively flat with minor undulations, with patches of remnant vegetation along roadsides. The land is situated between ridges to the south, east and west and is therefore largely naturally screened from views further afield.

Further visual impact assessment of the proposed development will be undertaken to address the likely impacts on surrounding residences, and where applicable, scenic or significant vistas, air traffic and public roads. Consultation with affected residents will provide context to this assessment and guide the necessity, or otherwise, for perimeter planting or residential screening.

9.4.2 Cultural Heritage

A characterisation of the heritage values of the land will be undertaken through a specialist study including desktop research, fieldwork and consultation. An assessment of likely Aboriginal and non-Aboriginal heritage impacts of the development will be undertaken in accordance with the relevant guidelines, including consultation with the local Aboriginal community. Given the area has been subject to significant modification for agriculture, it is unlikely that there are significant heritage artefacts present, although a heritage assessment will be undertaken according to the relevant guidelines.

9.4.3 Noise and Vibration

Noise impacts will be limited to construction and decommissioning, with little audible noise generated during operation. During construction, the main source of noise is expected to be from traffic movements and piling of posts required to host the panel racking system. Once in operation, it is not anticipated that PSF would generate noise emissions significant enough to be audible at neighbouring properties.

However, the noise impact will be managed carefully and avoided where possible, while it is anticipated that noise impacts associated with the construction of the proposed development, properly managed, will be acceptable.

A noise and vibration impact assessment would be conducted as part of the EIS to determine the likely noise impacts to surrounding land uses and to identify any required mitigation measures.

9.4.4 Soils and Geology

An assessment of the existing soils and land capability to accommodate the project will be undertaken for the development application and EIS. This will typically take the form of a desktop assessment, plus knowledge of

the area from extensive assessments undertaken in the locality for other renewable energy and quarrying projects.

The majority of potential impacts will occur during construction and will therefore be limited to the timeframe of construction activity at the project site. These impacts could include soil compaction, erosion and contamination. The degree of these impacts will be determined by the characteristics of the soil found across the site.

9.4.5 Contamination

The risk for contamination will be assessed in the EIS. Given the previous land use as primarily agricultural land the risk for contamination is expected to be low. Should contamination be encountered at the site during construction, works in the area would cease and management undertaken in accordance with relevant guidelines and management plans.

There would be minimal storage of chemicals or other contaminants at the site during construction and therefore the risk of contamination as a result of this development is low. Where equipment that could pose a risk is integrated into the project (for instance battery storage) appropriately bunded facilities would be employed to prevent contamination of the site or neighbouring land.

A management process for contaminated land or introduced materials would be specified in the appropriate construction and operation management documents.

9.4.6 Air Quality

The site is in a rural setting and therefore ambient air quality is expected to be good. During construction, traffic movements and minor vegetation removal may result in minor increases in emissions and dust. There is not expected to be any emissions during operation of PSF. Air quality impacts would be further considered in the EIS with mitigation measures would be specified in the appropriate construction and operation management documents.

9.4.7 Waste

During construction of a solar farm there are a variety of wastes produced, including cleared vegetation, packing materials, building material, domestic wastes, on-site toilets, and chemical. Waste management would be further considered in the EIS with procedures and mitigation measures specified in the appropriate construction and operation management documents.

9.4.8 Bushfire Risk

The proposed development is not expected to increase the bushfire risk in the area. Bushfire risk at the site will be further considered in the EIS with procedures and mitigation measures specified in the appropriate construction and operation management documents. It is expected that improved accessibility as a result of project construction will result in lower risk for significant bushfires on site.

9.5 Cumulative Effects

The development of PSF is a result of favourable location factors including strong solar resources and proximity to major transmission infrastructure.

Within the PSF EIS process, environmental impacts will be examined in context of the region's renewable energy projects, and other major projects. It is understood that a significant reduction in greenhouse gas and other emissions will be achieved as a result of the current projects, while the impacts to the surrounding environment have to be considered thoroughly.

10 Summary and Next steps

This PEA has described the proposed PSF and established the planning context of the project.

Design of PSF will be developed in order to minimise environmental, cultural, business and community impacts while maximising electricity output to help achieve the strategic goals set by the Australian and NSW governments around carbon emissions, renewable energy and climate change.

The development will be assessed under Part 4 of the EP&A Act and classed as State Significant Development under State Environmental Planning Policy (State Regional Development) 2011. Potential environmental impacts have been categorised, and this PEA provides an indicative scope for the preparation of an EIS.

In preparing the EIS, the following structural elements will be addressed:

- Provision of a detailed map identifying the key environmental and other land use constraints that have informed the final design of the development;
- Provision of a consolidated summary of all proposed environmental management and monitoring measures, capturing commitments from the EIS; and
- Reasons why the development should be approved having regard to the biophysical, economic and social costs and benefits of the development.

Following consideration of this PEA and consultation with other agencies, it is requested that the DPE provide the Applicant with SEARs in order to proceed with project development.

Figures

Figure 1: Parkesbourne Solar Farm: Local Context

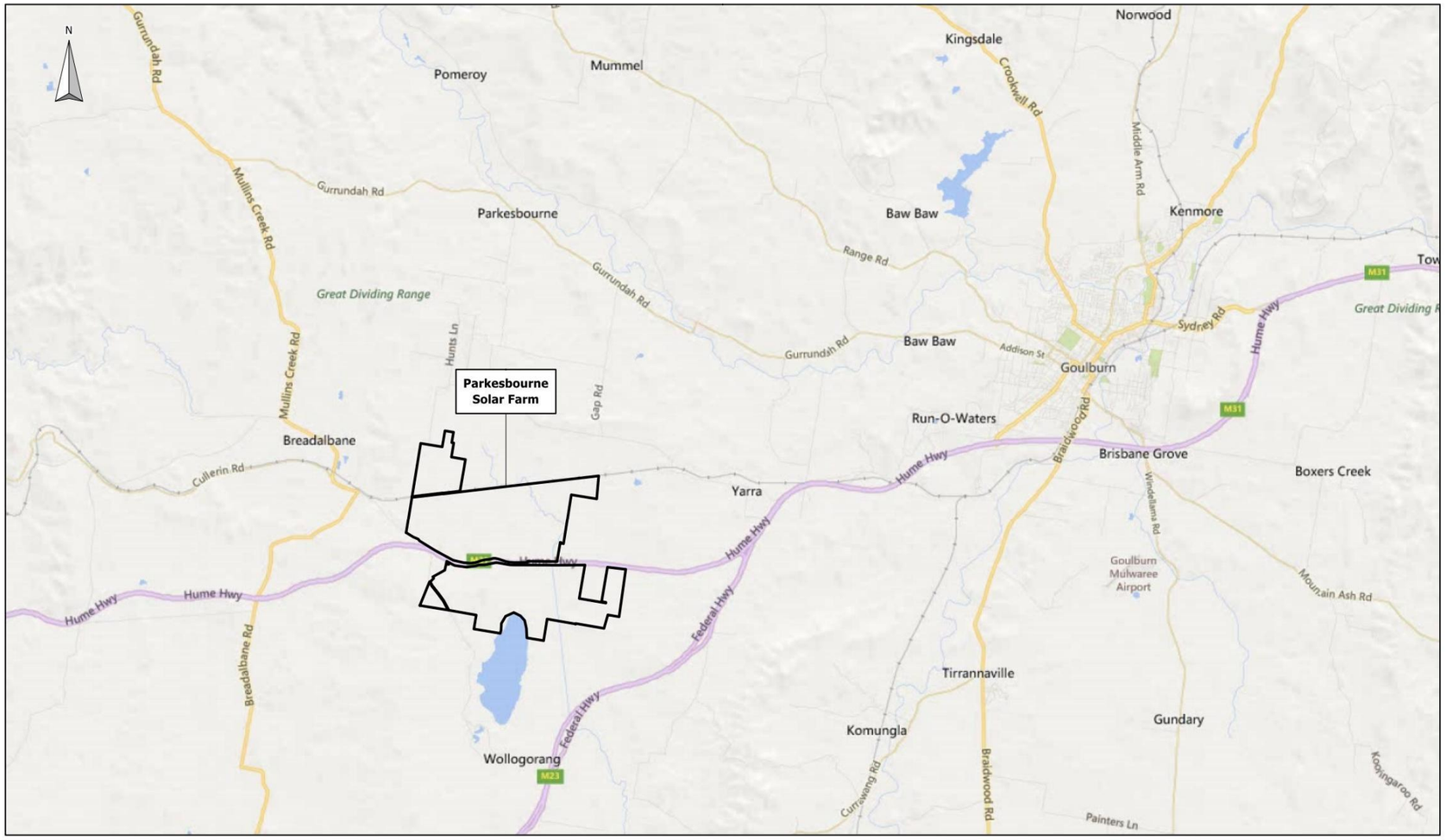
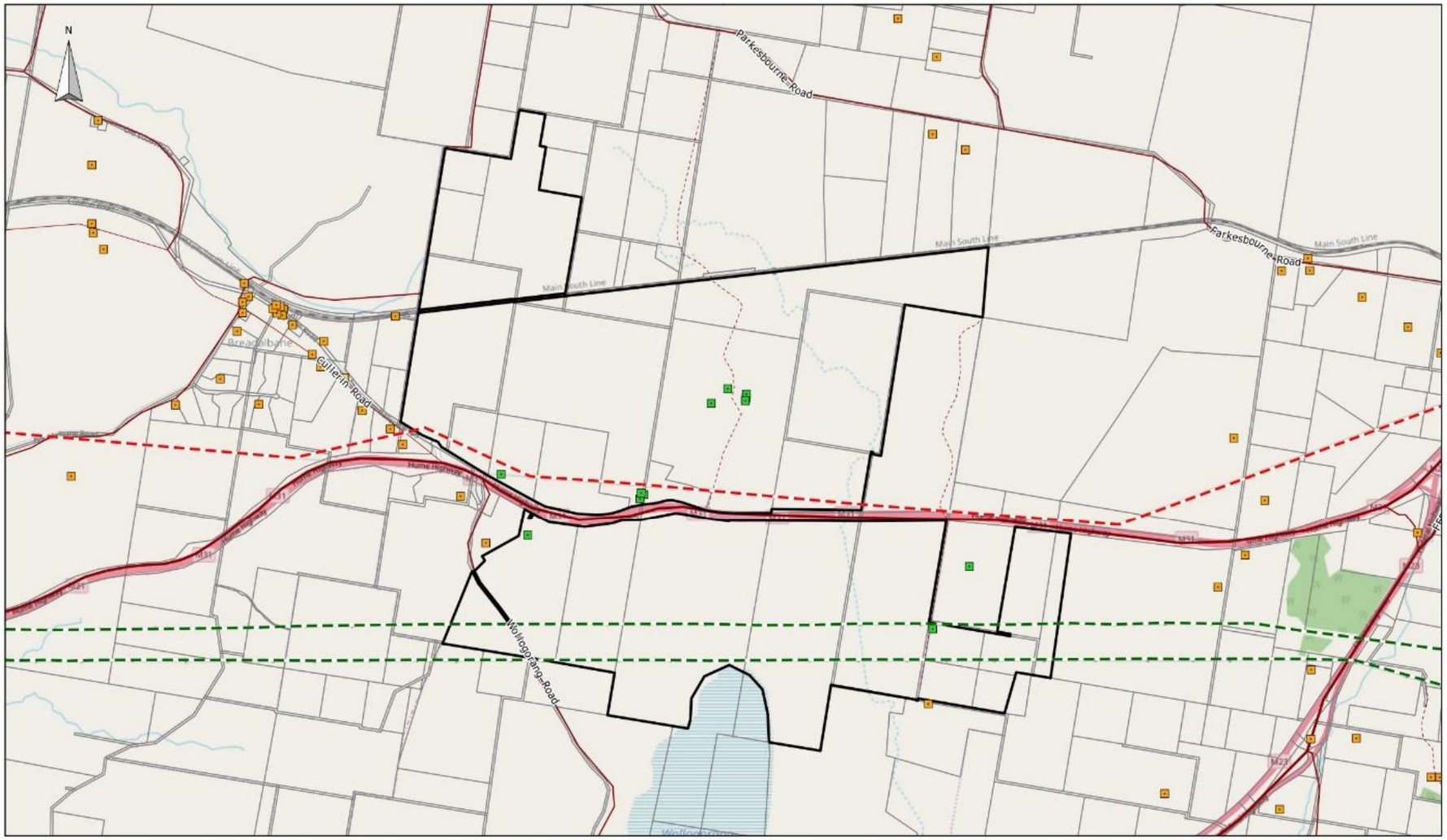


Figure 2: Parkesbourne Solar Farm: Proposed Site



LEGEND	COMPANY				
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	TITLE				
	PARKESBOURNE SOLAR FARM: PROPOSED SITE				
	DATE	SCALE	DWG NO	REV	VER
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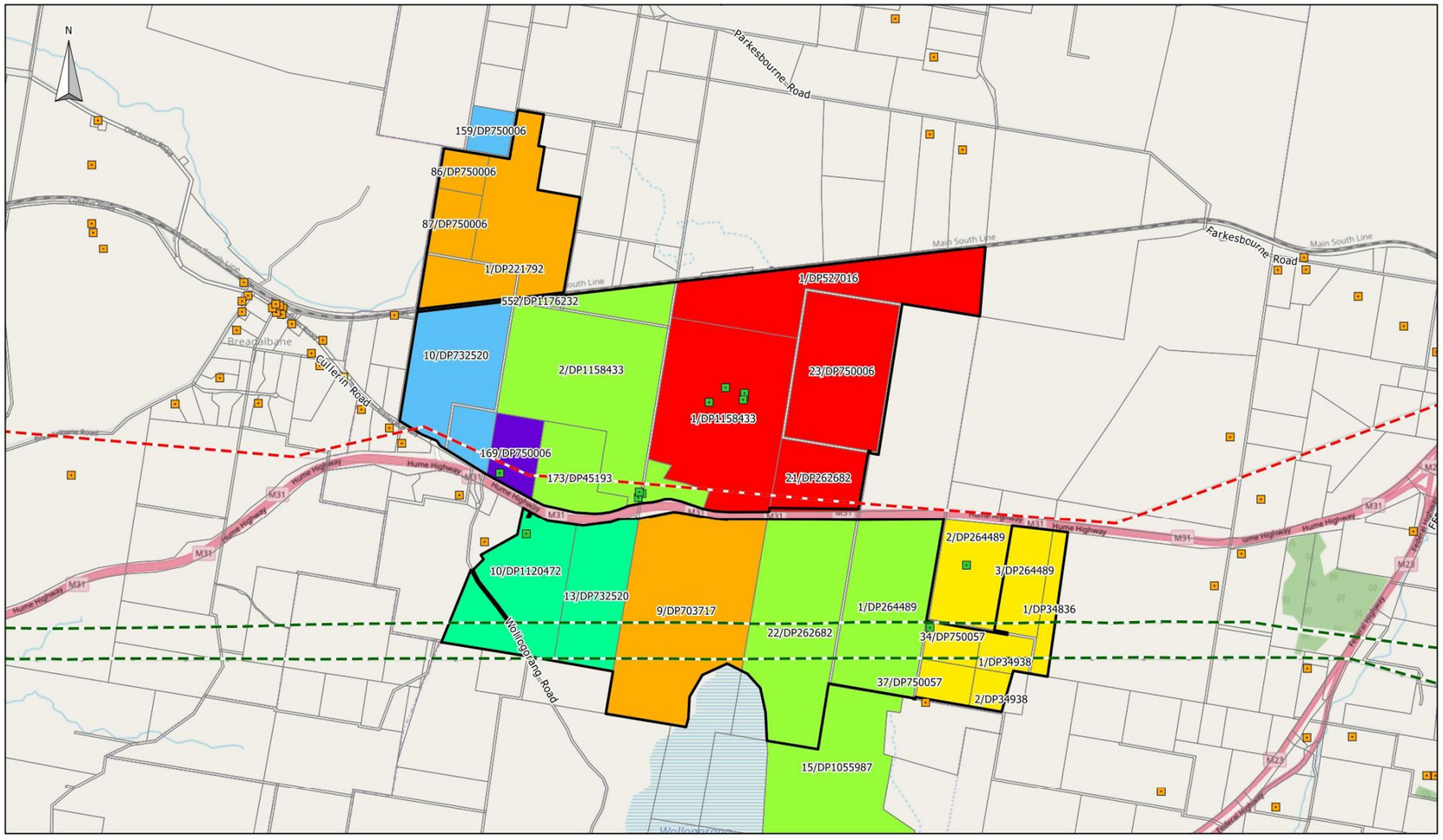
SCALE BAR 0 — 5 km	DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE
	B KRONENBERG	M FLOWER	1 OF 1	171001	A3

Figure 4: Parkesbourne Solar Farm: Land Zoning

Figure 5: Parkesbourne Solar Farm: Land Tenure



LEGEND

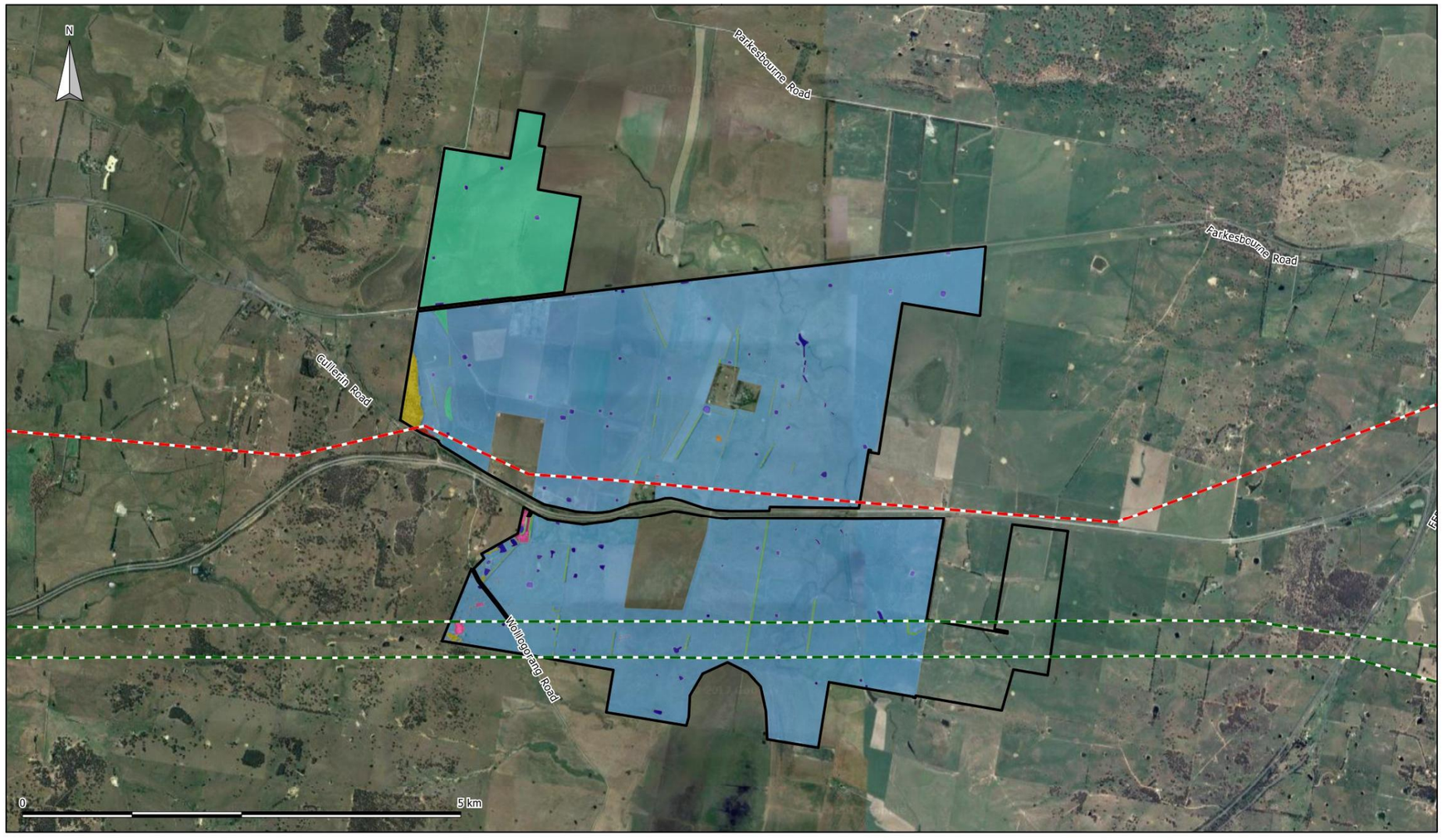
Parkesbourne Project Area
132kV Line
330kV Line
Involved Residence
Non-Involved Residence

Host Landowners
Landowner 1
Landowner 2
Landowner 3
Landowner 4
Landowner 5
Landowner 6
Landowner 7

SCALE BAR 0 5 km

COMPANY: CWP RENEWABLES				
TITLE: PARKESBOURNE SOLAR FARM: LAND TENURE				
DATE: 10 AUG 2018	SCALE: 1:43000	DWG NO: PKB-007	REV: A	VER: 1
DRAWN BY: B KRONENBERG	CHECKED BY: M FLOWER	SHEET: 1 OF 1	JOB NO: 171001	SIZE: A3

Figure 7: Parkesbourne Solar Farm: Biodiversity



LEGEND

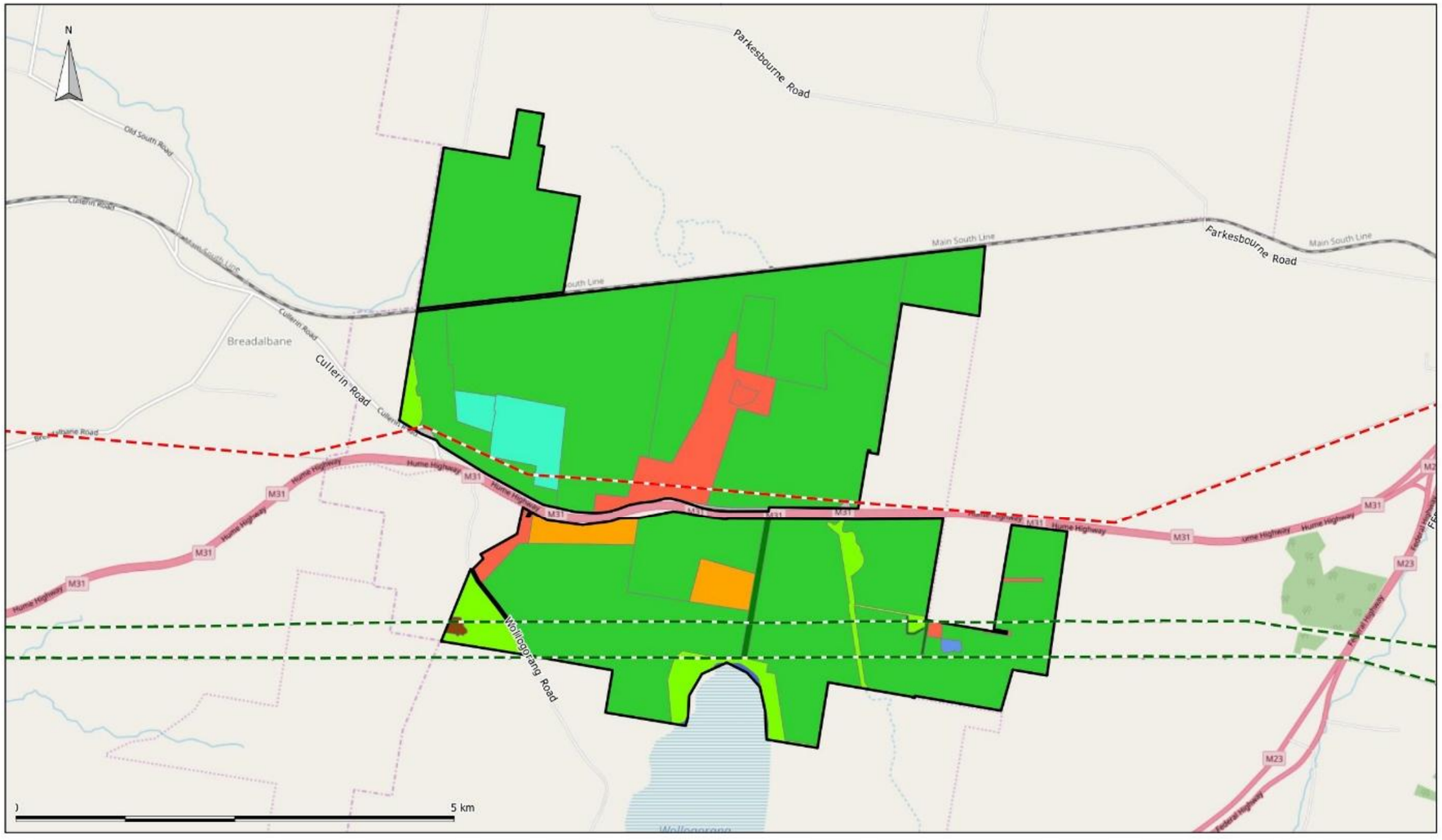
- Parkesbourne Project Area
- 132kV Line
- 330kV Line

PCT Vegetation

- Cleared
- Dam
- Exotic Pasture or Cropping
- Planted Vegetation
- Scattered Paddock Trees
- Mixed Pasture Grassland
- 1093: Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion
- 1330: Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

COMPANY	CWP RENEWABLES			
TITLE	PARKESBOURNE SOLAR FARM: PRELIMINARY BIODIVERSITY			
DATE	SCALE	DWG NO	REV	VER
10 AUG 2018	1:43000	PKB-008	A	1
DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE
B KRONENBERG	M FLOWER	1 OF 1	171001	A3

Figure 8: Parkesbourne Solar Farm: Land Use



LEGEND

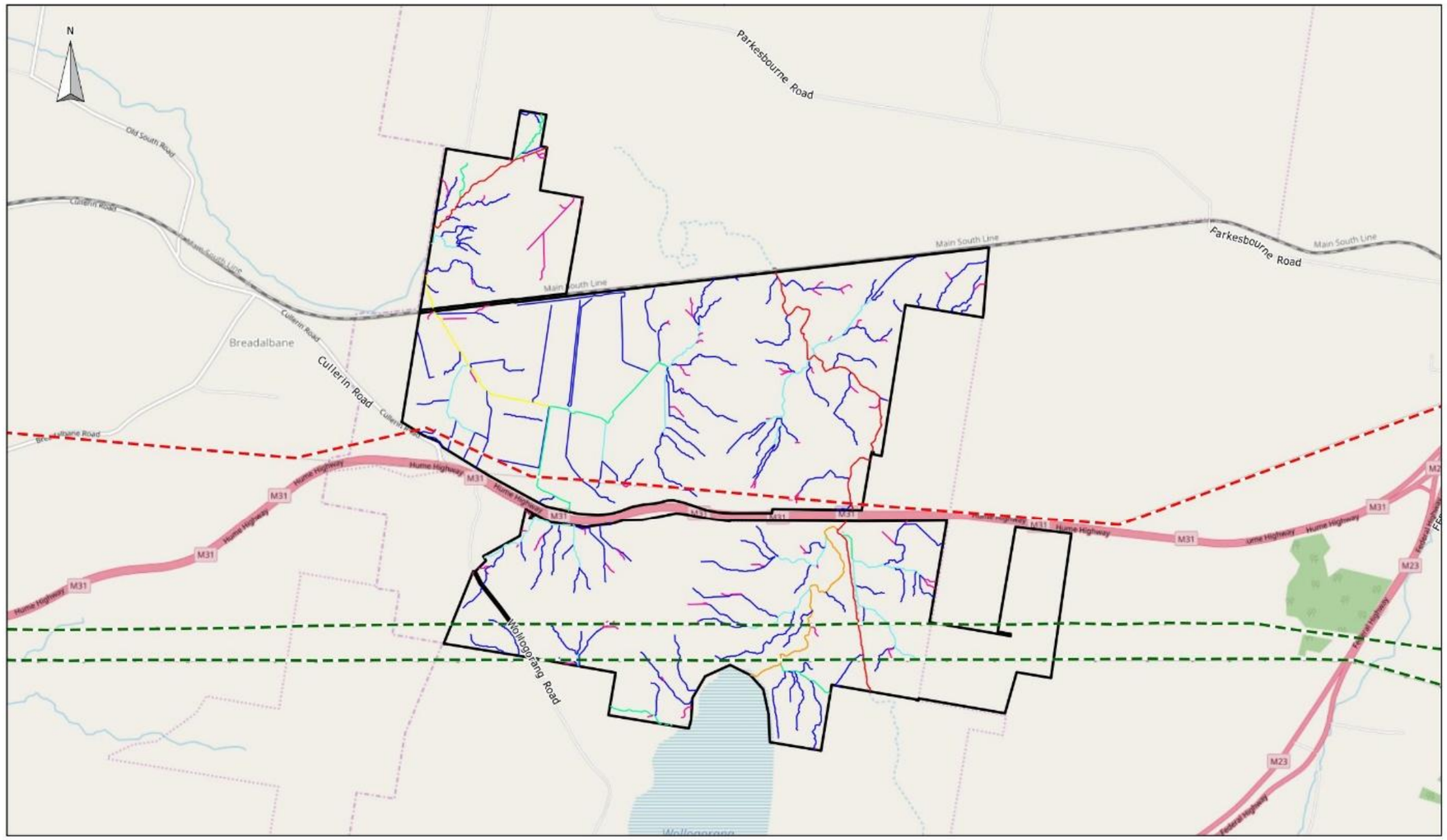
Parkesbourne Project Area

Land Use

- 1.2.0 Managed resource protection
- 1.3.0 Other minimal use
- 2.1.0 Grazing native vegetation
- 3.2.0 Grazing modified pastures
- 3.3.0 Cropping
- 4.2.0 Grazing irrigated modified pastures
- 5.4.0 Residential and farm infrastructure
- 5.7.0 Transport/communication
- 5.8.0 Mining
- 6.1.0 Lake
- 6.2.0 Reservoir/dam

COMPANY: CWP RENEWABLES				
TITLE: PARKESBOURNE SOLAR FARM: LAND USE				
DATE: 10 AUG 2018	SCALE: 1:43000	DWG NO: PKB-009	REV: A	VER: 1
DRAWN BY: B KRONENBERG	CHECKED BY: M FLOWER	SHEET: 1 OF 1	JOB NO: 171001	SIZE: A3

Figure 9: Parkesbourne Solar Farm: Drainage Lines and Strahler Stream Order



LEGEND			COMPANY				
Parkesbourne Project Area 132kV Line 330kV Line	Strahler Stream Order 0 1 2 3 4 5 6		CWP RENEWABLES				
			TITLE				
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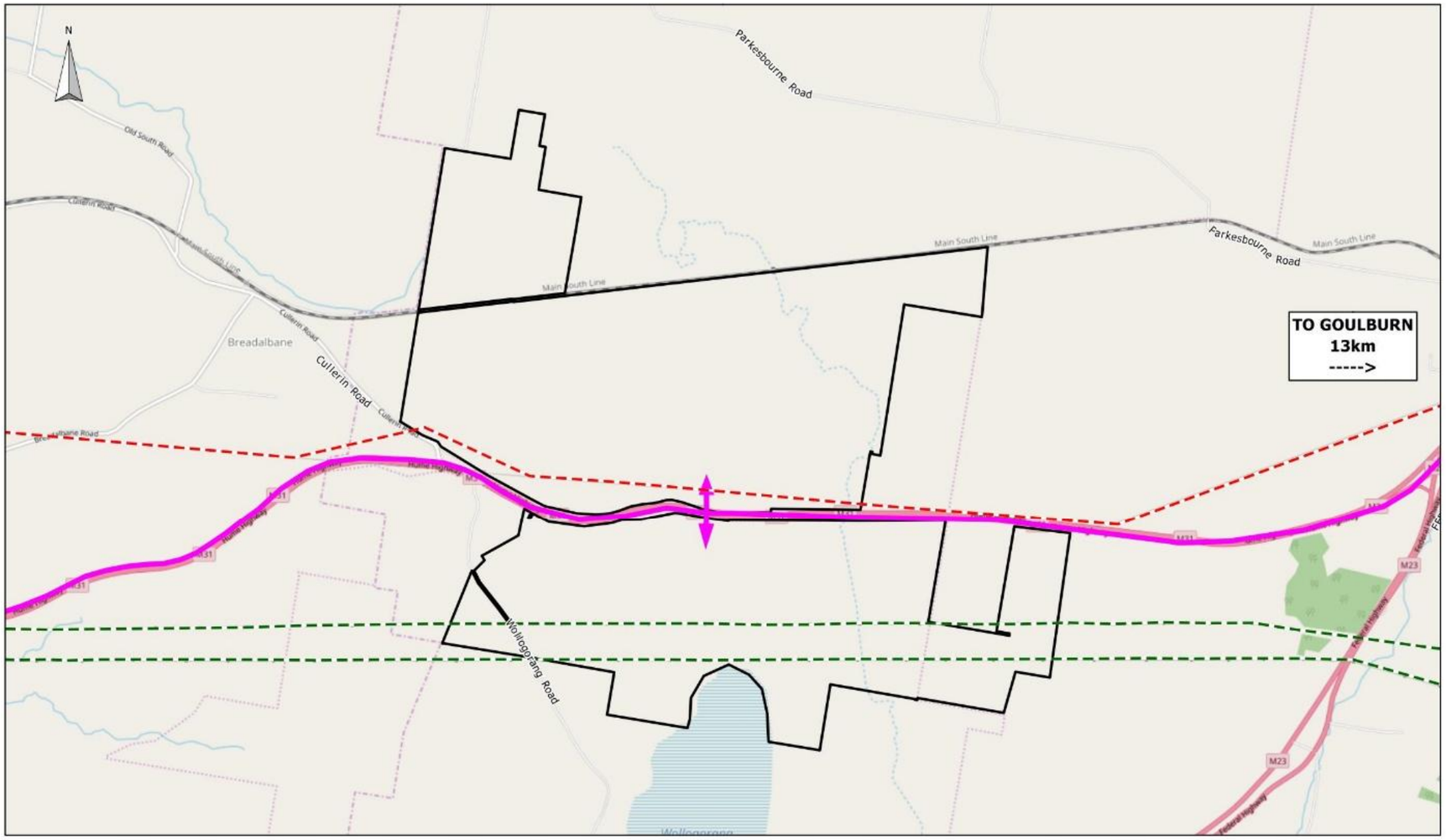
Figure 10: Parkesbourne Solar Farm: Transport



LEGEND						
Parkesbourne Project Area; 132kV Line; Likely Access Route; 330kV Line	COMPANY	CWP RENEWABLES				
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