

# ADVERTISED PLAN

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### Planning Report

#### **290 Cosgrove-Caniambo Road, Cosgrove**

Use and Development of Land for a 5MW Solar Energy Facility, Battery Energy Storage System, Utility Installation and Associated Works

March 2021





**Prepared for**

BE Pro F Pty Ltd

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## Attachments

- A. Title Details
- B. Proposed Development Plans
- C. Landscape Concept Plan
- D. Traffic Impact Assessment
- E. Agricultural Impact Assessment Report
- F. Native Vegetation Assessment Report
- G. Glint and Glare Assessment Report
- H. Noise Impact Assessment Report

# 1 Introduction

This Planning Report has been prepared by Habitat Planning on behalf of BE Pro F Pty Ltd in support of a planning permit application for use and development of Crown Allotment 40A Parish of Pine Lodge in PP3396 for 5MW a solar energy facility, a 5MW/10MWh battery energy storage system (BESS), utility installation and associated works.

The site for the development comprises one parcel within the overall landholding addressed as 290 Cosgrove-Caniambo Road, Cosgrove

The subject site is zoned Farming Zone ("FZ") pursuant to the Greater Shepparton Planning Scheme ("the planning scheme"). The northern portion of the land is affected by a Land Subject to Inundation Overlay (LSIO), however this does not apply to the area to be developed for the solar energy facility or associated works.

A planning permit is sought by this application to:

- use land for a renewable energy facility and battery energy storage system in the FZ pursuant to **Clause 35.07-1**;
- utility installation associated with a renewable energy facility in the FZ pursuant to **Clause 35.07-1**;
- buildings and works associated with a renewable energy facility in the FZ pursuant to **Clause 35.07-4**.

This report and accompanying information is provided in accordance with the requirements of the *Planning and Environment Act 1987* and the planning scheme. It provides a detailed description of the existing site and its context, an assessment against the relevant planning policies and matters for consideration within the planning scheme and other relevant documentation. This report is also accompanied by specialist technical reports as required.

The purpose of this report is to detail the proposed development and consider the proposal against the relevant matters for consideration and demonstrate the proposal is worthy of approval by Council.

## 1.1 Background

Bison Energy intends to deliver additional renewable energy inputs into the local electrical network via a micro scale facility which is responsive to its context, as opposed to a larger utility grade facility that would remove a greater area of land from production.

The development proposes a micro solar farm to enable a more compact development on the land and avoid any substantial impacts on surrounding properties, and/or loss of productive agricultural land. The proposal also utilises the most up to date PV panel technology to generate maximum energy output over a smaller area of land.

The site has excellent solar exposure and is cleared and modified of vegetation to avoid potential sources of shading.

Assessment has also been carried out that determines that the site is not subject to potential cultural heritage sensitivity, is not of significant biodiversity value and has no native vegetation/patches that would be impacted.

The proposed solar facility will only occupy a portion of the subject land, with the landowner proposing to continue to agricultural production on the remaining portion of the site. It is noted that the solar facility will occupy an area of approximately 15.3 hectares or 46% of the subject land, leaving more than half of the land available for agricultural production.

The portion of land containing the solar facility will be available for small scale grazing of sheep, which contributes to the maintenance of the land, as well as ensuring surface grasses are kept low in response to bushfire management.

This development ensures that impacts will be reduced through a number of measures, including:

- Utilising land which allows for direct connection from the land into the adjacent 22kV power line;
- Establishing a micro scale network which occupies a small surface area of land and contributes a reasonable extent of renewable energy into the network;
- Utilising highest performing PV panels to generate greater electricity per panel and reduce the extent of land needed;
- Protection of biodiversity through use only of cleared and modified rural lands and retaining existing native vegetation on the property
- Construct the proposed facility through use of pile driven panel mounts rather than extensive soil disturbance and excavation;
- Enabling the majority of the lot (54%) to continue to be farmed for cropping enterprises by the landowner during the life of the facility;
- Retention of agricultural opportunities within the solar facility by way of grazing for sheep;
- Minimise visual impacts to neighbours by locating the facility within a smaller footprint and with large setbacks to surrounding roads; and
- Implement generous 5 metre wide landscape planting areas along the eastern and southern boundaries to screen the development to sensitive interfaces.

## 1.2 The Applicant

BE Pro F Pty Ltd is a subsidiary of Bison Energy leading international company specialising in renewable energy. The company has many years of experience in developing, building and operating solar power projects in different countries, such as Germany, Italy, Spain, UK, and Japan, and has been operating in Australia since 2017, with regional offices in Albury. The proponent is currently establishing a series of solar farms across NSW and Victoria.

## 1.3 Consultation

A pre-lodgement meeting was held with representatives of DELWP in March 2020 in which the preliminary scheme was presented to Council and initial feedback sought. The key matters discussed at this stage are summarised at Section 4.

- Impacts on agricultural land, and how much land may be lost from production and the associated implications on agricultural production within the LGA.
- Give consideration to amenity impacts from the proposed development on adjoining land.
- Confirmed setback requirements for solar energy facilities are 30 metres from property boundaries and the specific inclusions for measuring setbacks.
- Consider interface treatments to road frontages and any long range views.

- Confirm whether based on the scale of the development that run-off flows and rates won't be significantly altered.
- Connection to the substation also requires planning approval and it is recommended that approval be sought for this connection as well to avoid delays in approvals.
- Glint and glare should be considered, particularly any impacts on road users, surrounding properties and any airports.
- Consider bush fire risks and mitigation measures in the application, however formal management documents can be prepared following planning approval.

During June 2020, the applicant undertook community consultation via distribution of information to surrounding landowners and face-to-face meetings with landowners. A number of discussions were held with landowners following the presentation of information. Ongoing communication has been held with interested landowners following the initial consultation period.

A summary of the consultation with surrounding landowners is provided at Section 4 below.

#### **1.4 Supporting Plans and Documentation**

In addition to the detail within this report, the application is supported by the following:

- A copy of the Certificate of Title
- Proposed Plans of Development
- Landscape Concept Plans
- Traffic Impact Assessment Report
- Agricultural Impact Assessment Report
- Native Vegetation Assessment Report
- Noise Impact Assessment Report
- Glint and Glare Assessment Report

## 2 Site Analysis

### 2.1 Subject Site

The subject site is described as Crown Allotment 40A Parish of Pine Lodge in PP3396 and is part of the property addressed as 290 Cosgrove-Caniambo Road, Cosgrove. The site is located approximately 6.5 kilometres south-west of Dookie, at the corner of Cosgrove-Caniambo Road and Shepparton-Dookie College Road.

The development is proposed to occur on CA 40A, which is held in conjunction with Crown Allotment 40H which continues north along Cosgrove-Caniambo Road, Cosgrove to Kellows Road to form a total holding of approximately 33.5 hectares.

**Figure 1** below indicates the subject site in context to the surrounding area. **Figure 2** shows the full extent of Lot 40A and the portion of the land which is excluded from the proposed development area.

CA 40A is long rectangular shape with dimensions of 603.5 metres along the eastern (Cosgrove-Caniambo Road) and western boundary, and a depth of 270 metres. It is traversed by part of an electricity and telecommunication transmission easement in the north east corner.

### 2.2 Existing Conditions

The site is predominantly undeveloped and contains only rural infrastructure, including water troughs throughout and a stockyard and water supply in the north-east corner.

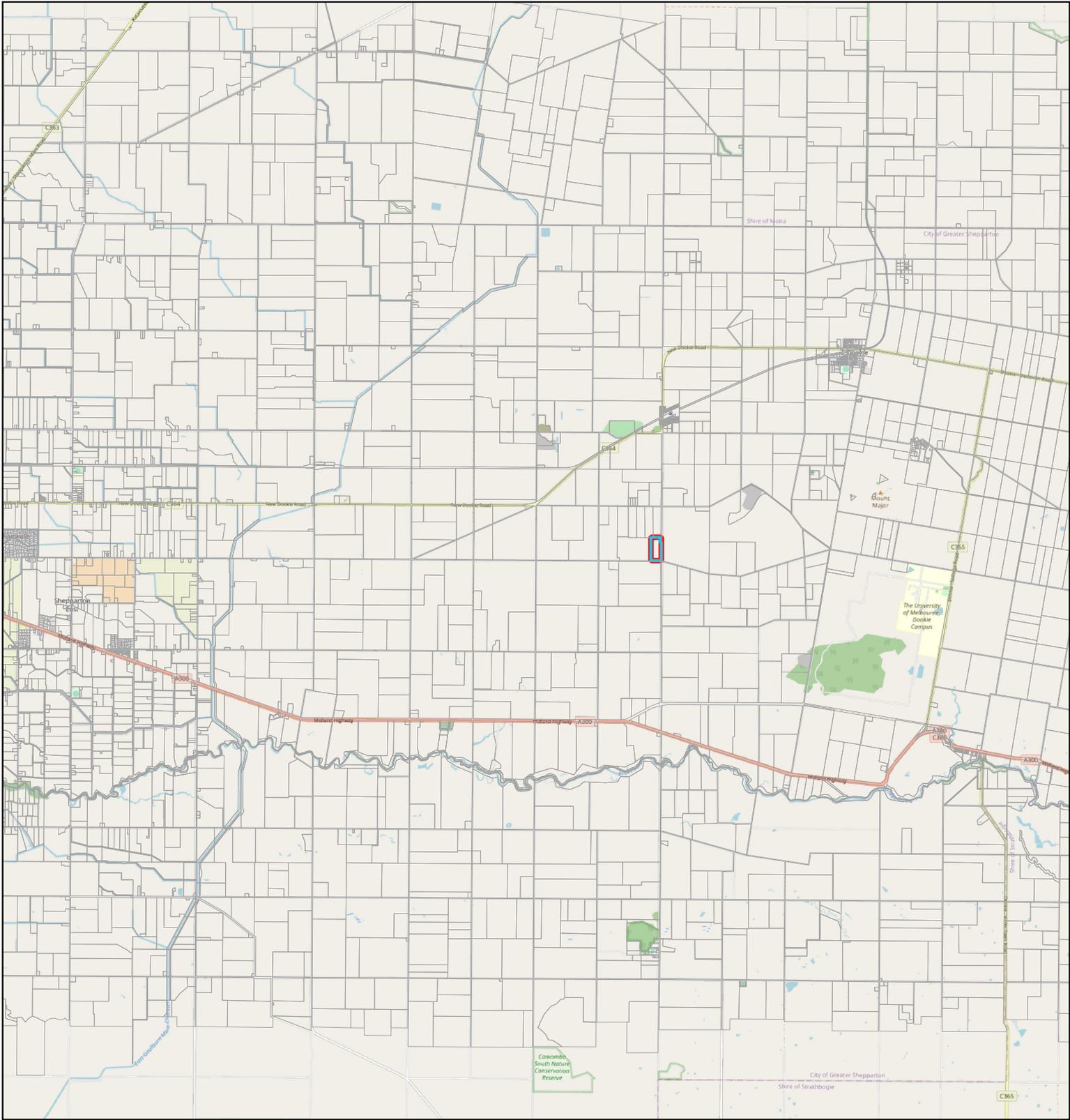
The land is completely cleared gently slopes from east to west and undulates throughout the site due to irrigation cropping that has been ploughed into rows.

Overhead powerlines run through this north-eastern corner, with the nearest transmission towers in the adjacent property opposite Cosgrove-Caniambo Road.

The majority of the land, including the lease area is highly disturbed through cropping and other agricultural activities, as is apparent in the aerial imagery at Error! Reference source not found.. There is also a farm dam at the north-west corner of the site. The topography of the land is generally flat, with little variation of elevation across its profile.

Vegetation throughout the site is limited, however there is a single remnant tree in the southern extent, and a patch of trees to the west of the dam, and inside the fenced area within the portion excluded from the solar development area.

At present, primary access is provided to the lot through a gate at the northeast corner from Cosgrove-Caniambo. The site is on a corner lot and future access maybe extended from other segments of the sites fronting roads.



## Legend

- ▭ Lease Boundary
- Site Boundary
- Parcel

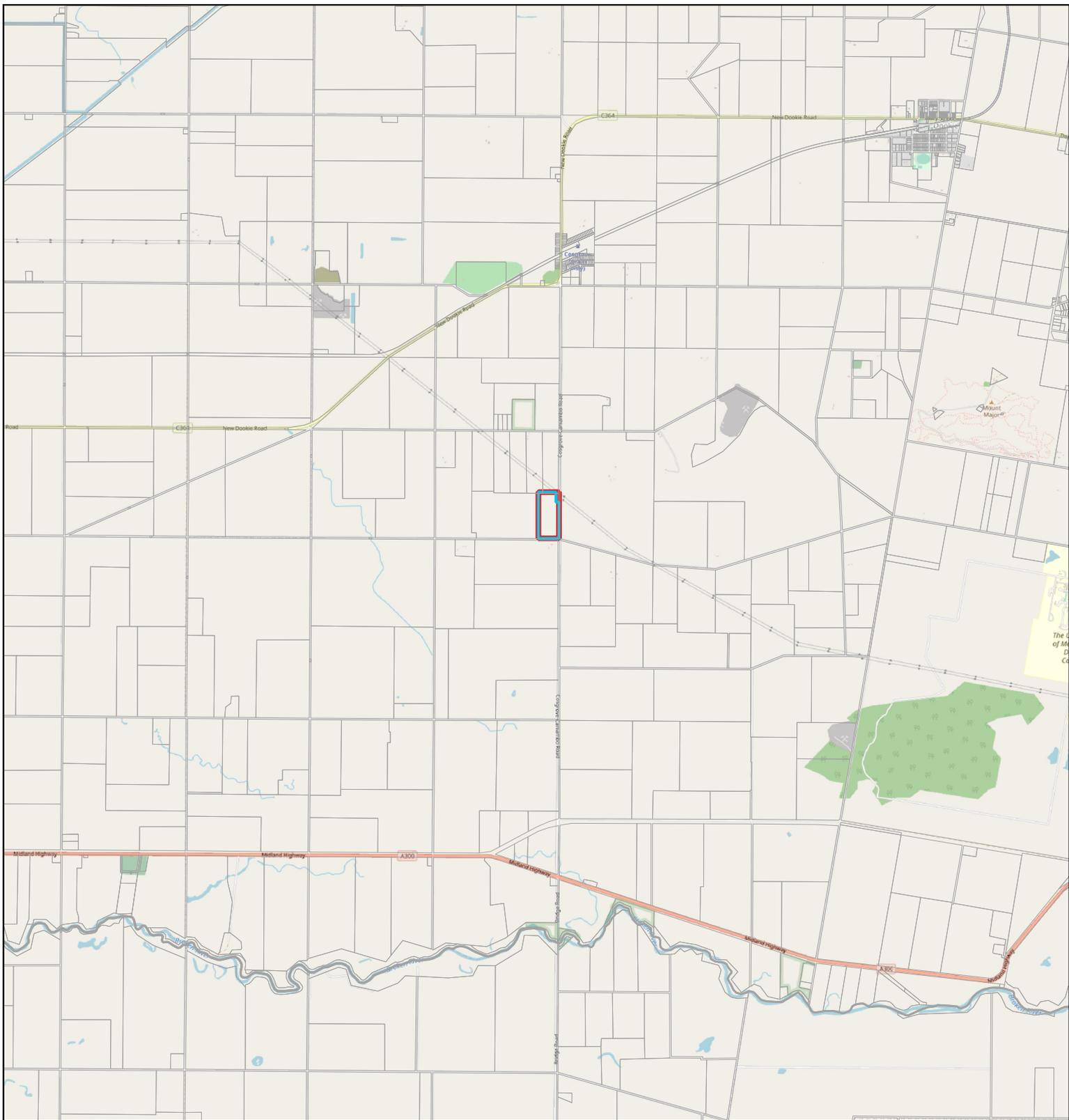
## Cosgrove Solar Facility

Context Map

0 1 2 3 4 km



Cadastre and lease area is subject to survey, however, is approximately to scale.  
 Projection: GDA2020 / Vicgrid  
 Map created by Habitat Planning 2020 ©



## Legend

-  Lease Boundary
-  Site Boundary
-  Parcel

## Cosgrove Solar Facility

Locality Map

0 0.5 1 1.5 2 km



Cadastre and lease area is subject to survey, however, is approximately to scale.  
 Projection: GDA2020 / Vicgrid  
 Map created by Habitat Planning 2020 ©



Figure 3 – View from Cosgrove-Caniambo Road on the eastern boundary of the site looking south west



Figure 4 – View from Cosgrove-Caniambo Road on the eastern boundary of the site looking north west



**Figure 5 – View west from Cosgrove-Caniambo Road along the northern boundary of the development site**



**Figure 6 – Enclosed stock yard and water supply area in the north east corner of the subject land**



**Figure 7 – Existing conditions of the development site.**



**Figure 8 – View north west across the subject land from Cosgrove-Caniambo Road and Shepparton-Dookie College Road.**



**Figure 9 – View along the southern interface of the site at Shepparton-Dookie College Road.**



## Legend

-  Lease Boundary
-  Site Boundary
-  Parcel

## Cosgrove Solar Facility

Site Map

0 25 50 75 100 m



Cadastre and lease area is subject to survey, however, is approximately to scale.  
Projection: GDA2020 / Vicgrid  
Map created by Habitat Planning 2020 ©

### 2.3 Surrounding Context

The subject land is in a farming context and is immediately surrounded by similar farming properties in all directions. An existing dwelling occupies the land immediately to the south of the site,

Land to the south is occupied by a property containing an existing nearby dwelling opposite Shepparton-Dookie College Road and there is another dwelling on a nearby lot along this road to the east. A quarry, referred to as Boral Quarries Cosgrove, exists approximately 1.5 kilometres away. Land is otherwise occupied sparsely by residential development on large farming lots and is otherwise undeveloped.

Land to the north comprises development similar to that located to the north, with some residential development spread throughout farming properties. The Cosgrove Golf Club exists along New Dookie Road, approximately 3 kilometres from the site and another Boral Quarries quarry site is also nearby to the west of this course. The Dookie township is located northeast of the site at approximately 6.5 kilometres away.

Land to the east is immediately occupied by farming lots, with a dwelling located approximately 700 metres from the subject site. This dwelling is at the base of a hill, that is part of a grouping that extends to Mount Major. Another quarry exists to the north of this hill, and Dookie College is further east, approximately 6.5 kilometres from the site.

Land to the west contains more farming lots, with the nearest dwelling approximately 1.3 kilometres from the site. Similar farming lands extend into Shepparton East.



Figure 11 – View south along Cosgrove-Caniambo Road indicating immediately adjoining properties.



Figure 12 – View north along Cosgrove-Caniambo Road indicating immediately adjoining properties



Figure 13 – General conditions of surrounding land to the west.



**Figure 14 – General conditions of surrounding land to the north west.**



**Figure 15 – Entry to dwelling at the southern interface of the subject site.**

## 3 Description of Proposal

### 3.1 Overview

The proposal seeks to use and develop the southern portion of the subject site for solar energy facility with capacity of up to 4.95 Megawatts (“MW”) to generate renewable electricity. The facility is also proposed to include a Battery Energy Storage System with capacity of 5MW/10MWh. It is to be connected into the 22kV electricity network via a new connection point within the Cosgrove-Caniambo Road reserve.

The proposed facility is to be established at the southern portion of the subject site, on an area of approximately 15.8 hectares at the corner of Cosgrove-Caniambo Road and Shepparton-Dookie College Road.

The site is located adjacent to a 22kV transmission line, with good capacity and can be efficiently connected from the proposed on-site substation without requiring any reconfiguration of the power supply network in this area or across adjoining properties. The site also has excellent solar exposure and is cleared other than for one tree on the south east boundary.

Proposed solar panel arrays are to be aligned in a north-south arrangement and will be mounted on single axis trackers which follow the sun throughout the day. Cabling will be installed from the solar arrays to panel inverters connection into the local electricity network via underground trenching.

Access to the facility will be made from Cosgrove-Caniambo Road on the eastern side of the site, with an upgraded site access point adjacent to the proposed substation. Other emergency egress will be provided at the south east corner of the land. Internally, the proposal will include new all-weather access tracks which provide movement area between the site access and the panel arrays and substation.

A dedicated parking area, construction lay-down, waste storage area will be provided in the north east corner of the development with convenient access from Cosgrove-Caniambo Road.

A perimeter fence is to be constructed along the entire boundary of the development in the form of a 2 metre high transparent fence. A 5 metre wide landscaping area is to be provided along Cosgrove-Caniambo Road and Shepparton-Dookie College Road to screen the development to the adjoining dwellings and properties to the east and south. Existing properties to the west and north and located a further distance from the site, and are to be buffered by existing vegetation patches and generally flat topography.

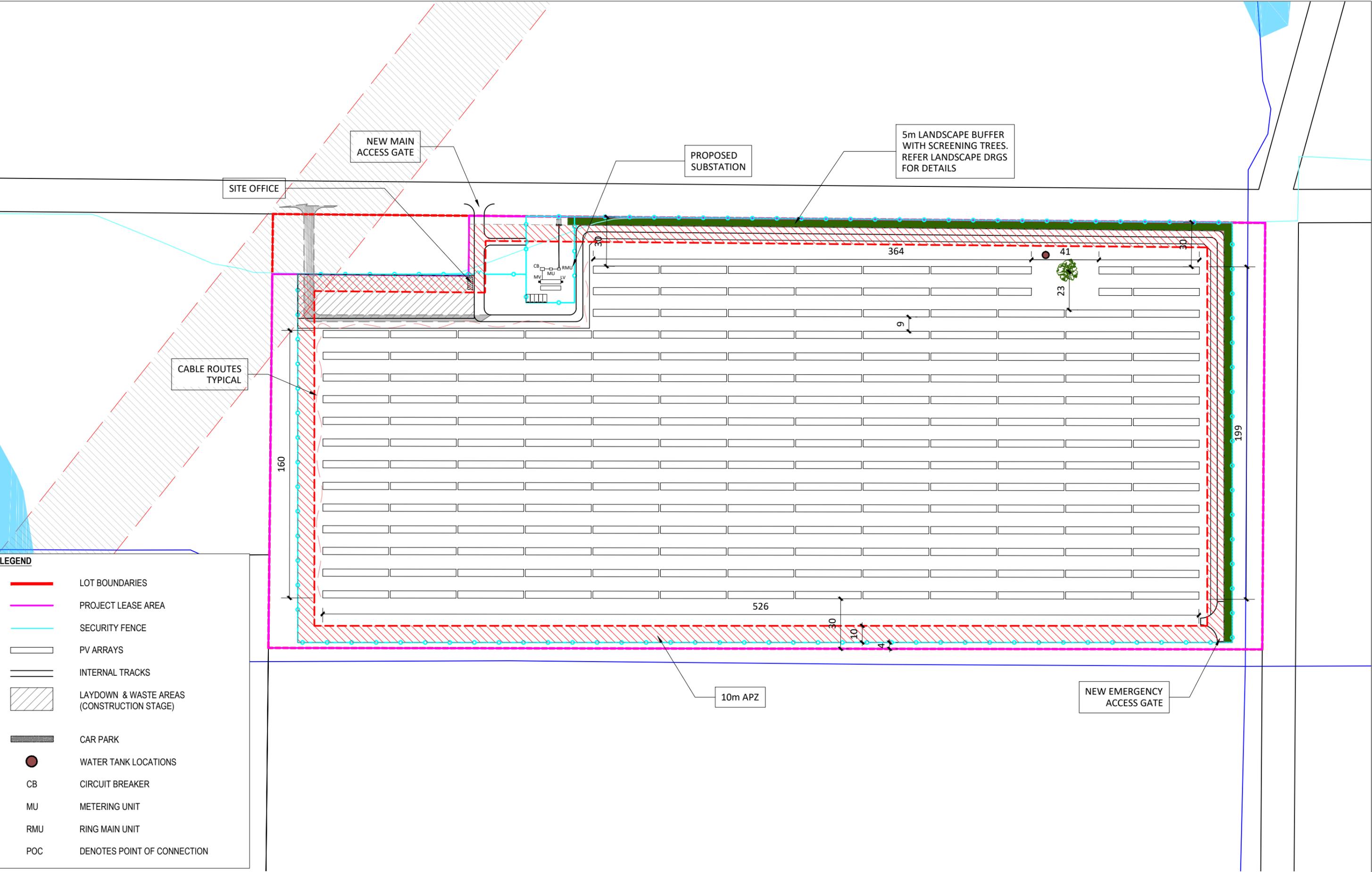
The proposed facility is expected to take approximately 6 months to complete construction. It will operate for a period of up to 30 years, after which it may be subject to further operation subject to further upgrades, or decommissioned.

### 3.2 Project Details

Specifically, the proposal involves the following primary components:

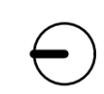
- New rural-type access and associated works from Cosgrove-Caniambo Road at the eastern boundary
- Perimeter security fencing (approx. 2 metre height) comprising steel posts and transparent mesh panels along all side of the proposed facility
- New primary access driveway from Cosgrove-Caniambo Road into the facility
- New internal unsealed rural access track from the proposed primary access point and surrounding the proposed solar facility and access internal infrastructure;
- 3 – 5 metre wide perimeter landscaping (to be generally located between existing rural fence and new security fence
- Installation of solar panels, to be mounted on single axis trackers which are pile driven into the ground
- 1 x internal substation facilities configured in a containerised format incorporating inverters, control room, low voltage and medium voltage switch rooms
- 1 x 5MW/10MWh Battery Energy Storage System (BESS) is a custom configured containerised format adjacent to the Power Station
- Utility installation connection, being provision of a new connection at an existing adjacent pole in Cosgrove-Caniambo Road and a new line to the proposed on-site infrastructure
- Proposed site office
- Aboveground and underground cabling between panel arrays to combiner boxes and inverters
- Above ground and underground cabling and electrical connections between the panel inverters on-site power station
- Unsealed car parking area adjacent to substation
- Internal drainage as required

The proposed site plan of the development is attached and reproduced below.



**LEGEND**

	LOT BOUNDARIES
	PROJECT LEASE AREA
	SECURITY FENCE
	PV ARRAYS
	INTERNAL TRACKS
	LAYDOWN & WASTE AREAS (CONSTRUCTION STAGE)
	CAR PARK
	WATER TANK LOCATIONS
	CIRCUIT BREAKER
	METERING UNIT
	RING MAIN UNIT
	DENOTES POINT OF CONNECTION



### 3.3 Solar Infrastructure

#### 3.3.1 Photovoltaic Panel Arrays

It is proposed to install photovoltaic modules (solar panels) which will have a multicrystalline, monocrystalline, or thin film technology. The panels are to be arranged in groups which are known as arrays. The proposed plan indicates the alignment of the proposed arrays on the property.

The solar panels primary function is to absorb the sunlight received and convert this into electricity so the panels are designed to reflect as little light as possible. The panels also absorb the majority of sunlight received (approximately 80-90%) and only reflect a small amount, resulting in a rate of reflection that is less than other common rural surfaces.

The proposed solar panels are to be installed on a single axis ground mounted tracking system to follow the sun from east to west each day and obtain the maximum solar exposure. The panels are proposed to tilt in a single axis for 60 degrees beyond horizontal in either direction.

The structure will be fixed in place by pile driven posts at spacing of approximately 7 metres. The tracking system to be utilised for this development will enable the placement of two PV panels end to end (refer to **Figure 17** below) known as 'portrait orientation' to achieve greater panel surface area to each array. Each proposed PV panel type used in the facility be approximately 2.1 metres x 1 metre and will be mounted onto the steel tracking structure.

The final height of the structure, including panels, when at full 60 degree tilt and allowing for a ground clearance of 0.5 metres, will be approximately 4 metres from natural ground level. This final height is dependent on the final clearance needed beneath the panels, however this proposal is expected to maintain a consistent minimum clearance of 0.5 metres.

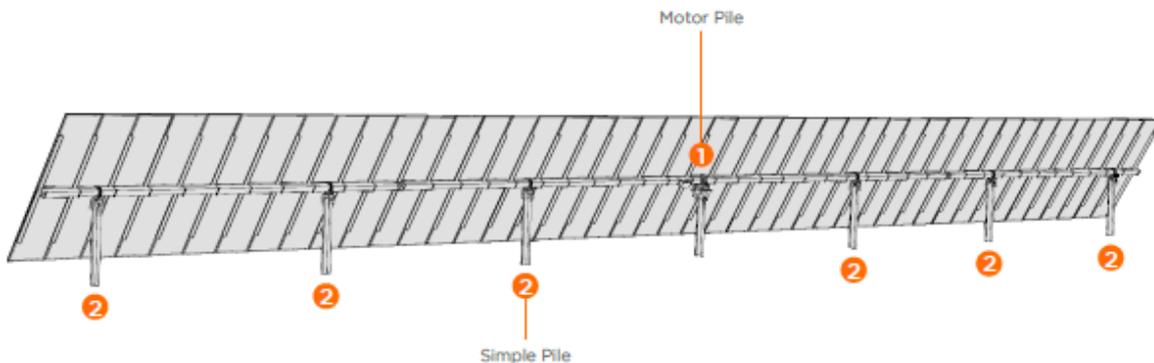


Figure 17 – Proposed single axis tracker system with two PV modules in portrait orientation (Source: Soltec)

### 3.3.2 Power Conversion Unit and Inverters

The proposed development will provide 1 x Power Conversion Units (PCU) within a dedicated substation yard to convert direct current from the modules into alternating current for use in the grid. Each PCU contains two inverter units and a LV/MV transformer in is arranged in a 'container format' for placement on the site. The PCU will measure approximately 12m x 3m x 2.5m and is proposed to comprise a muted natural colour to blend into the surrounding landscape.

The electricity generated by the proposed panel arrays are directed to inverters within the PCU facilities via cabling in strings. These strings will pass through combiner boxes and then to the inverters. The inverters are used to convert the low voltage DC power into low voltage AC power which can then be transformed to higher voltages. This allows for a step up of the voltage from the solar panels and conversion so that it can be connected to the grid.

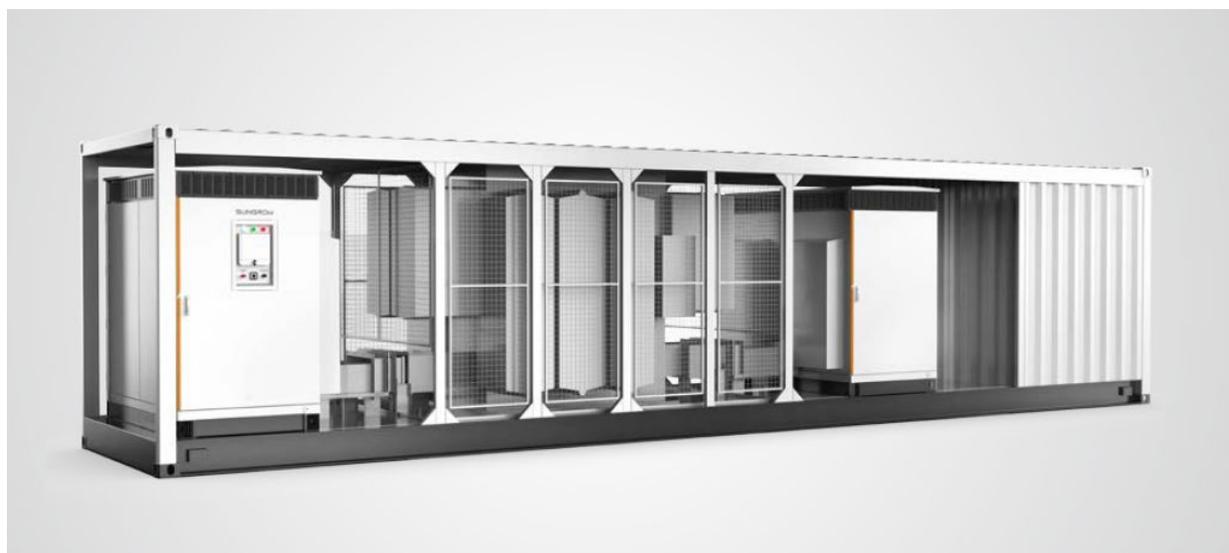


Figure 18 – Typical Power Conversion Unit to be installed on site (SG4950HV-MV (Source: Sungrow)

### **3.3.3 Substation Yard**

A new substation yard is proposed on the north eastern corner of the development area, adjacent to Cosgrove-Caniambo Road. The purpose of the internal substation yard is to contain the PCU, BESS and other infrastructure components associated with converting power from the photovoltaic system to the electrical network. This location will also provide the location for the proposed facility to connect into adjacent 22kV power line in Cosgrove-Caniambo Road

The proposed substation yard is positioned as close as possible to the proposed connection point to enable an efficient connection and avoid installation of new above ground infrastructure. Components installed in this area will comprise containerised power station unit, including inverters, control room and switches; the proposed Battery Energy Storage System in a separate containerised form, along with electrical components provided connection from a new internal 22kV pole to existing pole infrastructure in Cosgrove-Caniambo Road.

The substation yard is to comprise a levelled and compacted area of land for movement of vehicles and personnel between proposed parking areas and the facilities. Dedicated power authority access to the facility will also be provided separate to the main solar facility (containing the PV panels).

### **3.3.4 Battey Energy Storage System**

#### **3.3.5 Cabling**

The proposal will comprise a network of aboveground and underground cabling throughout the development. This will consist of DC cabling extending from the solar arrays to the inverters and AC cabling from the inverters to the substation.

Underground cabling will be installed between 0.5-1.0 metre below the surface and will be provided by trenching, installing cabling and conduit and backfilling. The disturbed area will be compacted to match the adjacent ground level.

Areas of aboveground cabling will be required at the solar panel arrays, with DC cabling being fed along the mounting structures to aboveground combiner boxes, before being fed to underground conduits.

Low noise-emitting electrical infrastructure will be selected as part of the detailed design stage, with noise emissions to be monitored as part of the environmental management component of the project.

### **3.4 Construction**

The proposed solar panels are to be mounted on a steel structure with mounting posts to be driven into the ground using a vibrating pile driver. The piles will be driven approximately 1.5 metres into the ground as per the manufacturers specifications.

The internal site cabling will be installed by trenching up to 1 metre in depth, laying of electrical wiring and conduits and backfilling and compacted to natural ground level.

Combiner boxes, inverters and the proposed substation are to be installed above ground. The inverters and combiner boxes are to be established at the end of panel arrays, with the larger inverters installed on pre-built skids that enable easy placement on the site.

The construction period for the facility will include a temporary construction area within the north western corner of the property. This area will enable heavy vehicle access to the site for set-down of materials for on-site construction works. It will comprise a hardstand surface and suitable dimensions to enable movement of expected heavy vehicles.

### **3.5 Access and Movement**

Primary access to the site for both construction and operational is to be provided from a new direct connection to Cosgrove-Caniambo Road, approximately 600 metres north of Shepparton-Dookie College Road. This access will comprise a new rural entry in accordance with the Council's Infrastructure Design Manual (IDM) standard drawing for a Rural Entrance Drawing No. SD255. The access point will be an all-weather access rural standard crossover, capable of accommodating all construction and post-construction vehicles to the site.

A secondary construction egress for heavy vehicles is proposed immediately north of this main entry, with the intention being to enable heavy vehicles to move through the site in a one-way direction through the construction hardstand area. This access would be decommissioned following completion of construction works.

Internal all-weather access tracks are to be constructed within the site. The primary access track will extend along the eastern and northern sides of the development which will allow suitable access to all areas of the development without substantial disturbance to the site area.

A secondary emergency egress location is proposed at the corner of Cosgrove-Caniambo Road, however is not proposed to be used on a day-to-day basis. This access point will be available for use in the event of emergency as a secondary access location.

### **3.6 Maintenance**

Once operational, the facility will involve daily monitoring of plant and all associated infrastructure. Staff will access the site on a daily basis for monitoring and management of equipment.

Where required, minor repairs and maintenance of components of the facility will be undertaken by either staff or contractors. Other occasional maintenance tasks will include washing panels, controlling grass and weeds on site, maintaining internal access tracks, general waste collection and disposal.

Regular inspections of the site will be carried out to ensure that grassland is managed to reduce the risk of bushfire to surrounding land and to control weeds. Mowing or slashing between rows of PV panels and in the area immediately surrounding the arrays would be carried out as required.

### **3.7 Landscaping**

The proposal includes landscape planting to the eastern and southern boundaries of development. Treatments to these interfaces have been considered in relation to the particular interface, the nature of development beyond the site and screening needs for each interface.

The proposed landscaping outcome is intended to be a long term addition, being that it will contribute to the long term linkages within the area and serve as a useful boundary definition for ongoing agricultural operation. The identification of landscaping on boundaries has also had regard for the long term function of the land, such as need to ensure connection between the full parcel of land after any solar proposal has been decommissioned.

All landscaping is proposed to be 5 metres wide and where possible will incorporate existing tree plantings already established along the perimeter of the site. The proposed landscape response is detailed in the attached Landscape Plans and at **Section 7.7** of this report.

### **3.8 Stormwater and Drainage**

The development will include new internal access tracks with swale drainage able to be provided along one or both sides subject to final design. The extent of these tracks are unlikely to generate significant additional flows, with the final design able to ensure that the internal swales will accommodate enough capacity for the likely runoff and ensuring that it will continue to be directed to natural overland flow paths established on the site.

The runoff from the increased imperviousness of the solar panels is insignificant. As the entire solar array is not a continuous impervious surface, most of this runoff will infiltrate into the soil as per current conditions.

### **3.9 Security**

Security of the solar facility will be critical to operations and ensuring safety of the public. Existing perimeter rural post and wire fencing will be retained to keep a rural interface. New 2 metre high security fencing is to be established inside the subject site and set behind the proposed landscape buffers, to enclose the proposed solar panel arrays.

All proposed access gates will have a consistent height and include keypad controlled locks.

**Figure 19 Typical security fencing elevation**

### **3.10 Decommissioning**

The facility is intended to remain in operation for a period of up to 30 years, and may be continued for a further period of 10 years or more beyond this period subject to landowner and operator agreement. This period of time represents the useable life of a solar facility, after which the infrastructure and components would need to be upgraded to latest technologies for ongoing efficient operation.

If the facility ceases operations at this point, all infrastructure, panels, mounting frames including footings, inverters, cabling and other sub-surface materials would be disassembled and removed from the site to enable the site to be re-cultivated for cropping or grazing purposes.

### 3.11 Construction Summary

The following details the operational matters and components of the proposed facility during the construction stage. The construction phase is expected to comprise a period of up to 6 months, from project approval to energising of the facility.

**Table 1 Summary of construction phase of the project**

Component	
Site establishment	<p>Prepare and implement Construction Traffic Management Plan (CTMP)</p> <p>Prepare and implement Environmental Management Plan (EMP)</p> <p>Establish of temporary construction signage and directional signage.</p> <p>Construction of new internal fencing.</p> <p>Establish new primary property access to the site</p> <p>Establishment of a main site office</p> <p>Internal grading to establish new internal access tracks from the property access to the proposed substation location and the solar panel arrays;</p> <p>Establish new parking area, loading and delivery areas inside the boundary;</p>
Solar infrastructure construction works	<p>Direct pile driving using vibrating pile driver for installation of mounting poles.</p> <p>Open trenching excavation for installation of underground cabling</p> <p>Grading and compaction of areas for placement of inverters on skids</p> <p>Grading and compaction and installation of concrete slab-on-ground (if required) for establishment of new substation</p> <p>Site grading and placement of gravel material for internal tracks between the property access, substation and panel arrays</p> <p>Grading and placement of materials for establishment of perimeter access tracks</p>
Fencing	<p>Construction of perimeter security fencing to the area containing the proposed panel arrays</p>

Component	
Site Office	<p>A construction site office is to be established within the north eastern corner of the site with access from the main site access point.</p> <p>The office will be used for administrative functions and management during construction, including managing access and egress from the property. During operation, the office will remain for occasional administrative functions.</p>
Amenities	<p>Temporary toilet and wash room facilities will be placed on the site during construction within the identified construction zones.</p> <p>Temporary water supply for services will be established by way of a portable tank or cart.</p>
Parking and Drop-off Area	<p>A new construction parking area is to be provided inside the property boundary within the nominated construction zone, enabling parking and drop off for construction personnel. This location is adjacent to the temporary construction site office for suitable control of access to the site. The parking and drop-off area will be able to utilise the one-way movement identified by the proposed plans.</p> <p>Operational parking areas will be established adjacent to the proposed substation yard for use by managers and Powercor personnel as required.</p>
Laydown Area (Construction)	<p>A defined construction laydown area will be established at the north eastern corner of the land. The laydown area will be accessed from the main entry location and vehicles then passing back to Cosgrove-Caniambo Road via the temporary construction access.</p> <p>The laydown area will be used during construction for:</p> <ul style="list-style-type: none"> <li>▪ delivery and set down of construction equipment, machinery and material;</li> <li>▪ dedicated storage areas for equipment;</li> <li>▪ locked and secured area for storage of machinery, fuels, oils and other equipment.</li> </ul>
Hours of work	<p>Monday to Friday, 7am – 6pm</p> <p>Saturday, 8am – 1pm</p>
Workforce	<p>50 in total. Depending on the stage of the project, workforce will average of 20-30 at any one time.</p>

## Component

### Machinery/equipment

Equipment required for the establishment of the solar farm will comprise various heavy machinery and plant, power tools and hand tools, including but not limited to:

- Truck and dog combinations
- Bulldozer
- Grader
- Skid Steer
- Vibrating roller
- Water cart
- Piling rig and associated equipment
- Crane
- Trenchers and boring rig
- Diesel generators
- Power tools
- Hand equipment

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### Traffic

Equipment and materials will be transported to the site in containers on rigid trucks. Delivery of some of the heavier components could be by semi-trailer or B-Double vehicles.

Months 1 to 4 will generate up to 4 light vehicle entries and 1 heavy vehicle entry per day

Months 5 and 6 represent the peak construction phase that is to generate 4 light vehicle and 4 heavy vehicle movements per day

Months 7 to 9 will generate up to 4 light vehicle entries and 1 heavy vehicle entry per day.

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### Noise

Construction noise from machinery and equipment, including excavation, pile driving and movements.

Intermittent traffic and machinery noise as a result of movements to and from the property and maintenance works.

Temporary construction noise from construction personnel and plant/machinery.

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### Vibration

Minor localised impacts, to be contained to within the internal areas of the site, resulting from pile driving works and compaction of roads and construction areas by vibrating rollers.

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## Component

### Waste

Construction works will produce general packaging and construction waste, including plastics, recyclable cardboard, off-cut metals and steel, excess cable and the like.

A dedicated waste collection point is to be established in the south west corner of the site, close to the site access/egress with all necessary receptacles for collection and disposal off-site.

Wastewater from the temporary facilities will be held in tanks within the facilities, which will be regularly removed and replaced on site.

A Waste Management Plan (WMP) to be prepared and endorsed prior to works commencing on site.

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### 3.12 Operational Summary

The operational phase of the facility is expected to be up to 30 years from construction. The following summarises the operational matters of the proposed solar facility during this period.

**Table 2 Summary of operational phase of the project**

Operational Item	
Hours of operation	<p>The facility will generate power during daylight hours, with all infrastructure being operational at all times.</p> <p>Staff will only generally access the site during daytime periods. In emergency events, staff may be required to access the property.</p>
Operations & Management	<p>Daily inspection and monitoring of the facility by full-time employed staff.</p> <p>Maintenance and operational checks daily/weekly/monthly as per on-site operational guidelines</p> <p>Off-site maintenance crews and contractors to be employed as required to undertake repairs.</p>
Workforce	<p>2 persons are to be employed for ongoing operation of the site.</p> <p>Not all personnel will be on-site at any one time.</p>
Traffic	<p>On average, 2 vehicles per day or 14 vehicles per week.</p> <p>The rate of traffic expected would be 1 vehicle per hour in the morning peak period and 1 vehicle per hour in the afternoon peak period.</p> <p>Infrequent deliveries may be necessary to the site by large vehicles delivering parts, plant or equipment.</p> <p>Access will be required from time to time by the power authority to the substation on site, with access to be provided from Cosgrove-Caniambo Road.</p>
Car parking	<p>A parking area is to be established adjacent to the proposed substation and will be accessible from the internal access track and main entry.</p>
Maintenance	<p>Cleaning of PV Panels will be undertaken with water, to be sourced from water trucks brought to site.</p> <p>Any repairs to panels or other equipment or infrastructure will be undertaken on an as needs basis either by employed staff or contractors.</p>
Security	<p>Perimeter security fencing to the area containing the proposed panel arrays</p>

## Operational Item

	<p>The facility may utilise CCTV monitoring of access points and substation areas.</p> <p>Security patrols of the property may also be carried out by private contractors.</p>
Lighting	<p>Directional lighting to be provided to substation and surrounding parking area.</p>
Noise sources	<p>Operation of inverters and infrastructure associated with the facility during daylight hours when electricity is being generated.</p>
Storage	<p>There will be no storage of hazardous or dangerous goods or materials on site during the operation of the Project</p>
Waste	<p>Minimal waste is to be generated during operation and will be limited to:</p> <ul style="list-style-type: none"><li>▪ General waste from site office, including paper, plastic and glass and putrescible waste including food waste, bottles, cans and paper;</li><li>▪ Waste resulting from maintenance work, including packaging, and decommissioned/removed equipment.</li></ul> <p>All waste will be stored in bin or otherwise stockpile areas, which will divide waste into landfill and recycling streams. These waste materials will then be taken to off-site waste management facilities.</p> <p>A detailed Waste Management Plan (WMP) to be prepared and endorsed prior to works commencing on site, which will include management of any waste generated during operation.</p>

## 4 Consultation

### 4.1 Overview

the applicant has undertaken consultation in relation to the proposed development with immediate neighbouring properties and a number of agencies.

The consultation process and outcomes of this phase is summarised below.

### 4.2 Community Consultation

Community consultation has been carried out by the applicant representatives in the form of letter information delivered to landowners within a 3 kilometre radius of the site.

A project information sheet was prepared for the project which included an overview of the development and has been circulated to landowners with an opportunity to provide feedback and identify any issues or concerns.. The information summarised the development location, scale and size, duration and other relevant details.

The applicant met with several of the immediate landowners who were present on site during the site visit by representatives. A number of phone calls and email communication was carried out after these meetings to further discuss any concerns or feedback, including ongoing discussions with immediate landowners.

### 4.3 Authority Consultation

The applicant and project team undertook pre-lodgement consultation with DELWP as the determining planning authority for an application involving solar energy facilities of more than 1MW. The preliminary comments of DELWP have been considered in this planning report.

Project team representatives sought preliminary comments from CFA on the proposed development. A written response was provided by CFA directing the applicant to consider the requirements of the CFA Guidelines for Renewable Energy Installations ("the CFA Guidelines"). CFA advised that these Guidelines are currently being reviewed in response to industry and other stakeholder feedback and will better respond to 'micro' solar farms, 5MW or less. Specifically, it was indicated that Sections 6.4.1, 6.4.2 and 6.4.3 could be excluded for a micro solar farm.

An Operational Environmental Management Plan will be prepared in consultation with DELWP, the CFA and other relevant Authorities post decision.

# 5 Statutory Planning Framework

## 5.1 Planning Policy Framework

This section responds to the relevant components of the Planning Policy Framework (“PPF”). The PPF seeks to develop the objectives for planning in Victoria and sets out the environmental, social and economic factors in the interests of community benefit and sustainable development.

The following clauses from the PPF are relevant to this application:

This section responds to the relevant components of the Planning Policy Framework (“PPF”). The PPF seeks to develop the objectives for planning in Victoria and sets out the environmental, social and economic factors in the interests of community benefit and sustainable development.

The following clauses from the PPF are relevant to this application:

- **Clause 12 (Environmental and Landscape Values)** which refers to the protection of values including biodiversity and any potential impacts the amenity of the landscape. **Clause 12.01-1S** refers to the protection of biodiversity including consideration of any potential impacts regarding fragmentation, and the spreading of pest species and other biological hazards. **Clause 12.01-2S** refers to native vegetation management and seeks to ensure that there is no loss in biodiversity through vegetation removal.

**Clause 12.05-2S** seeks to protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments. This is relevant as the proposed solar facility will modify the rural landscape of Cosgrove.

- **Clause 13 (Environmental Risks and Amenity)** which refers to the any considerations regarding natural hazards, including flooding or bushfire, amenity and other potential safety considerations. The subject land is not considered to be at any significant risk from natural hazards.

**Clause 13.02-1S** refers to bushfire planning and applies to the subject land as it is in a bushfire prone area. The proposal has been designed with regard to bushfire protection and consideration of the CFA’s Guidelines for Renewable Energy Facilities elsewhere within this planning report. It is also expected that appropriate bushfire management protocols will be enforced for the site through subsequent planning permit conditions.

**Clause 13.04-2S** refers to erosion and landslip and is an applicable consideration given the potential of the proposed earthworks for the internal roads and array installation. The subject land is not considered to be at any significant risk from erosion or landslip. The proposed works will enable the preservation of the natural ground surface and will not significantly alter drainage.

**Clause 13.05-1S** refers to noise and is considered as the construction works and operation of the facility. The proposal is a passive facility that generates very minimal noise, with the main potential noise source being the power station and inverters, which are placed in areas which can avoid direct interfaces with dwellings.

**Clause 13.06-1S** refers to air quality management and is relevant given the potential for the proposed facility to generate dust. **Clause 13.07-1S** refers to land use compatibility and seeks to ensure development is sited appropriately in consideration of safety and amenity. In relation to both components, the development responds well by locating the facility in an area which minimises potential land use conflicts and potential amenity issues.

- **Clause 14 (Natural Resource Management)** which refers to the management of natural resources, including agricultural land. **Clause 14.01-1S** refers to protection of agricultural land and aims to preserve productive farmland, which is relevant to the proposal as the facility will take a portion of existing agricultural land. An Agricultural Impact Statement has been prepared in support of this proposal and is attached, and finds that the use of the land for renewable energy will remove a negligible portion of land from production, but will not impact on the longer term potential of the land for continued agricultural land. It also finds that the proposal will not detrimentally impact adjoining productive rural land.

Most significantly, the subject site is not located within a designated irrigation district (namely the G-MW Shepparton Irrigation Area) and the soils and landform are classed as plains without leveed channels. The topography of land to the east of the subject site changes from hills to low-hills and could be subject to erosion management. Given these observed conditions and the lack of any significant scale of the particular lot, it is considered that the site itself is not strategic agricultural land.

- **Clause 14.01-2S** refers to sustainable agricultural land use. The installation of solar farms on rural properties can also assist in diversifying sources of income for the agricultural sector, allowing financial resilience for farmers and communities. The northern portion of the landholding will be retained for continued agricultural production, while the southern area (containing the proposal solar facility) will also comprise strategic grazing of sheep to manage pasture and reduce the fuel load which would generate some agricultural activity and additional economic return from the subject site.
- **Clause 19 (Infrastructure)** refers to new infrastructure and **Clause 19.01-2S** refers specifically to renewable energy. This clause aims to promote the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met.

## 5.2 Local Planning Policy Framework

This section of the application report responds to the relevant components of the Local Planning Policy Framework.

The MSS sets out future direction for the municipality and provides a vision and framework for the municipality. The intention is to further the objectives of planning in Victoria to the extent that the State Planning Policy Framework is applicable to the municipality and local issues, including a broad range of matters such as land use, social, economic and environmental sustainability and major infrastructure requirements. Local Planning Policies provide more detailed direction to inform the assessment of new land use and development. There are no Local Policies that apply to the proposed development.

The following sections of the MSS are relevant to the proposed development.

- **Clause 21.03 (Environment and Natural Resources).** The subject site is identified as bushfire prone and the provisions of **Clause 21.03-3** for environmental risks apply. **Objective 1** of this clause seeks to ensure development is only permitted where risks to life, property and community infrastructure from bushfire and flood is low. It is considered that the proposal does not increase the bushfire risk and adherence to appropriate bushfire protection measures will further ensure this risk is minimised.
- **Clause 21.05 (Infrastructure and Transport).** The proposal includes the development of a solar facility and certain considerations regarding infrastructure, specifically **Clause 21.05-1**, therefore apply. This clause aims to ensure the *efficient delivery of infrastructure is a fundamental element in providing affordable and diverse housing, generating economic growth and tourism and ultimately in managing the municipality in a sustainable manner.* **Objective 4** of **Clause 21.05-1** is to support the establishment of renewable energy industries. As the proposal is for a renewable solar facility, this objective is directly achieved.

### 5.3 Farming Zone

The subject site is located wholly within the Farming Zone (“FZ”) of the Greater Shepparton Planning Scheme. Schedule 1 to the FZ is also applicable to the subject land.

The relevant purpose of the FZ is:

- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.
- To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

The proposed solar facility is not for traditional agricultural purposes, however is to be established for renewable energy facilities which is a permitted use in the FZ. Renewable energy is commonly undertaken in rural areas given the larger areas and availability of land, and planning policy recognises that such uses can be appropriately accommodated in rural areas. In particular, it is noted that ‘agricultural production’ as defined by the planning scheme includes *“Any form of primary production of renewable commodities.”*

The proposal seeks to ensure that surrounding agricultural uses are not compromised by the proposed development. The remainder of the property, which is 17.3 hectares or 54% of the total lot area, will continue to be farmed from cropping production as it presently has been. Through leasing a portion of the lot, the landowner will be able to diversify their farm income and provide assurance to the landowner of continued viability of operations.

The development will not include any substantial permanent works on the land to enable the site to have limited direct impact on the physical state of the site and ensure that decommissioning and transition of the site to agricultural land can be achieved efficiently after decommissioning of the site.

Once operational, the site is a passive development, in that it will not generate high levels of traffic, will not generate any significant noise and is intended to be as recessive as possible in the landscape.

The proposed use for the site is for a solar renewable energy facility, battery energy storage system and utility installation. A renewable energy facility (other than a wind energy facility) is listed as a Section 2 use for uses requiring a permit under clause 35.03-1 provided that it meets the requirements of Clause 53.13. Clause 53.13 is addressed in this report at **Section 5.5.3**.

A permit is also required to construct a building or construct or carry out works on land in the Farming Zone for a Section 2 use. The proposed structures and works do not qualify under any exemptions listed at 35.03-4, and a planning permit is required.

#### Decision Guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate the decision guidelines of the FZ. The decision guidelines considered against this proposal in **Table 3** below.

**Table 3 Decision guidelines for FZ**

Decision Guidelines	Response
<b>General</b>	
<ul style="list-style-type: none"> <li>The Municipal Planning Strategy and the Planning Policy Framework</li> </ul>	Addressed in <b>Sections 5.1 &amp; 5.2</b>
<ul style="list-style-type: none"> <li>Any Regional Catchment Strategy and associated plan applying to the land</li> </ul>	The <i>Goulburn Broken Regional Catchment Strategy 2013-2019</i> applies to the region, including the subject land. The proposal is not inconsistent with the strategy.
<ul style="list-style-type: none"> <li>The capability of the land to accommodate the proposed use or development, including the disposal of effluent.</li> </ul>	<p>The land is suitable to accommodate the proposed development as it has excellent site access for both construction and operational traffic, is flat is generally cleared and connections can easily be extended to the substation in the adjacent road reserve.</p> <p>No effluent disposal is required as the facility will be unmanned.</p>
<ul style="list-style-type: none"> <li>How the use or development relates to sustainable land management.</li> </ul>	<p>The use of the land in this instance is for an activity that will provide a sustainable renewable energy source. The earthworks required to establish the facility are not extensive and will involve only the driving of mounting piles and the establishment of the unsealed internal road.</p> <p>The use itself allows for transition to rural land in the future, and will also ensure that surrounding land is not impacted, and may still continue to be farmed. After the decommissioning of the land, the land can return to its former agricultural function.</p>
<ul style="list-style-type: none"> <li>Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.</li> </ul>	<p>This Planning Report and the submitted technical assessments demonstrate that the land is suitable for development of a solar facility, particularly when considered against the siting and design requirements of the Solar Facility Design Guidelines.</p> <p>Residential dwellings are noted in the surrounding area, however can be appropriately buffered from the development utilising landscaping.</p> <p>The site is also located on land directly adjacent to existing power authority infrastructure that will provide for efficient distribution of generated electricity. The facility can be connected into the electrical network surrounding the site without requiring access via any adjoining properties.</p> <p>The site also ensures simplified connection and avoids new overhead powerline infrastructure being created over productive land.</p>
<ul style="list-style-type: none"> <li>How the use and development makes use of existing infrastructure and services.</li> </ul>	<p>The proposal will not have any significant load on existing services in the area, and will be appropriately connected into the electricity network in accordance with Powercor's requirements.</p> <p>The proposal has a positive benefit in that it will deliver additional renewable energy input into the local electricity system.</p>
<b>Agricultural issues and the impacts from non-agricultural uses</b>	

Decision Guidelines	Response
<ul style="list-style-type: none"> <li>Whether the use or development will support and enhance agricultural production.</li> </ul>	<p>The proposed use is for a renewable energy facility, however has been carefully considered and designed to be integrated into the agricultural context without significant impacts. The land will not be significantly compromised give the nature of construction works, and can be decommission and returned to an agricultural function at the end of its life.</p> <p>'Agricultural production' as defined by the planning scheme includes <i>"Any form of primary production of renewable commodities."</i> This recognises that establishing land for renewable energy can be done in a manner which is sustainable o the agricultural conditions of rural properties.</p>
<ul style="list-style-type: none"> <li>Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production.</li> </ul>	<p>Earthworks for the development are minimal, as described above, and will not include significant disturbance of the site conditions.</p> <p>Topography and other physical conditions will be generally unchanged.</p>
<ul style="list-style-type: none"> <li>The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.</li> </ul>	<p>The development does not include any processes that will impact surrounding agricultural uses or expansion.</p> <p>The landowners will still operate approximately 50% of the lot for productive agricultural. There is still possibilities that the land could be added to larger holdings in the longer term, regardless of the use of the land for renewable energy.</p>
<ul style="list-style-type: none"> <li>The capacity of the site to sustain the agricultural use.</li> </ul>	<p>The remainder of the property, being 17.3 hectares or 54% of the total lot area, will continued to be farmed from cropping production as it presently has been. Through leasing a portion of the lot, the landowner will be able to diversify their farm income and provide assurance to the landowner of continued viability of operations.</p> <p>The 15.3 hectares of the land to be used for solar energy production will include small scale grazing purposes which represent ongoing low impact agricultural functions of the land to be developed.</p>

Decision Guidelines	Response
<ul style="list-style-type: none"> <li>The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure.</li> </ul>	<p>Topographically, the site is low lying with very minor elevation change (&lt;3m) from south to north with a drainage line along the western boundary and therefore the proposal would avoid the need for unnecessary or excessive earthworks and not result in a change to the natural landscape.</p> <p>The Northern Riverine Plain is an extensive and complex alluvial plain associated with the River Murray and its tributaries which developed following the retreat of the Neogene (Pliocene) sea from the Murray Basin. The Riverine plain consists essentially of two geological formations. The most extensive and older is the older alluvial plains (GMU 4.2) which represents 63% of the Greater Shepparton LGA. These older alluvial plains are not normally subject to flooding and the soils on these plains are collectively known as the Shepparton Formation. Majority of land use across the LGA can be classed as plains with leveed channels (GMU 4.2.1) and are formed on sediments derived from earlier prior streams associated with the former courses of the Murray and Goulburn Rivers and these landforms are largely irrigated, with lighter textured soils supporting high value horticultural crops.</p> <p>While the site is located on the edge of 'strategically significant agricultural land mapping of the Hume Regional Growth Plan, the subject site is not located within a designated irrigation district and the soils and landform are classed as plains without leveed channels. Given the conditions, it is considered unlikely to be classified as strategic agricultural land.</p>
<ul style="list-style-type: none"> <li>Any integrated land management plan prepared for the site.</li> </ul>	<p>Not applicable.</p>
<p><b>Environmental issues</b></p>	

Decision Guidelines	Response
<ul style="list-style-type: none"> <li>The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality.</li> </ul>	<p>The proposal will not have any adverse impact on the natural qualities of the subject land. A Native Vegetation Assessment has been undertaken and identified nine plant species were recorded. Of these, four (44%) were indigenous and five (56%) were introduced or non-indigenous native in origin.</p> <p>Four patches of Plains Woodland (EVC 803) were identified in the subject site and along the eastern and southern boundaries, totalling an area of 0.03 hectares with no large trees. The Assessment also identified 1 large River Red Gum tree within the south eastern corner of the site and two (2) small River Red Gums (&lt; 70 centimetres DBH) trees along the eastern boundary</p> <p>All of the identified native vegetation and patches are to be retained by the proposed development. Access points to the land have also been selected to avoid needing to create crossings within the sensitive south eastern and southern portions of the land.</p> <p>The proposed works do not involve significant earthworks or physical changes to landform or topography, meaning that the land will retain its general physical condition. The intention is to ensure that the land can retain its patterns of runoff, ground conditions and the like during operation and may also be returned to its previous agricultural form when decommissioned.</p>
<ul style="list-style-type: none"> <li>The impact of the use or development on the flora and fauna on the site and its surrounds</li> </ul>	<p>As above, a Native Vegetation Assessment has been undertaken and identified the location of a number of native species and patches. All of the identified vegetation is to be retained by the development.</p>
<ul style="list-style-type: none"> <li>The need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area</li> </ul>	<p>The proposal will have a generally positive outcome on biodiversity by utilising a site which does not contain any significant overstorey or understorey conditions and will not remove any native vegetation.</p>
<ul style="list-style-type: none"> <li>The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.</li> </ul>	<p>There is no on-site effluent disposal required part of the proposal.</p>
<p><b>Design and siting issues</b></p>	
<ul style="list-style-type: none"> <li>The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.</li> </ul>	<p>The layout of all structures is distributed evenly across the development area, while incorporating generous setbacks and perimeter landscaping.</p> <p>As discussed throughout, the placement of panels also allows generally minimal impact on the landscape and avoids large scale landform changes.</p>

Decision Guidelines	Response
<ul style="list-style-type: none"> <li>The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.</li> </ul>	<p>The subject site is generally contained on flat land, although adjoining land to the east rises up above the subject site creating potential long range views. Land to the south, west and north is generally very flat rural land with dwellings located at larger distances from the subject site.</p> <p>These impacts have been considered in terms of general visual impact and glare impacts, with the landscaping and siting design response provided accordingly. Landscape buffers are proposed to the east and south which represent the more sensitive interfaces for residential receptors. This is also intended to assist with minimising potential for glare.</p>
<ul style="list-style-type: none"> <li>The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance</li> </ul>	<p>The design of the facility to incorporate only a small area of the site, with generous setbacks and landscaping and utilise generally non-reflective components means that the facility should remain fairly passive in the landscape.</p>
<ul style="list-style-type: none"> <li>The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities</li> </ul>	<p>The site is provided with public road access to the east and south, with the eastern frontage to be used as the primary access. No access is to be provided from the southern interface.</p> <p>The proposed use will require connections to electrical infrastructure and other essential services as required</p>
<ul style="list-style-type: none"> <li>Whether the use and development will require traffic management measures.</li> </ul>	<p>A Traffic Impact Assessment has been completed and is attached to this application.</p> <p>This assessment did not anticipate a significant increase in traffic beyond the capacity of the road network, however recommends the construction of a new rural access driveway that can facilitate heavy vehicle movements.</p>

#### 5.4 Land Subject to Inundation Overlay

The Land Subject to Inundation Overlay (“LSIO”) applies to land which is identified as a ‘floodplain’ or has smaller levels of inundation from a main flood area. The northern portion of the subject site, and the area to the immediate south west of the land are identified within the LSIO, which appears to be as a result of potential inundation from the surrounding channels.

It is noted that the area comprising the proposed solar facility does not fall within the LSIO. It is also not necessary for any vehicle access to cross any LSIO defined area.

The purpose of the LSIO is:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To identify land in a flood storage or flood fringe area affected by the 1 in 100 year flood or any other area determined by the floodplain management authority.
- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

- To reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.
- To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).
- To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

The LSIO is identified along the fringes of the FO, in order to recognise the additional extents of potential flooding and to identify the relevant flood storages of the area. The proposal is considered to be consistent with the purposes of the LSIO as it will not impact any portion of the land identified as LSIO

A permit is required to construct a building or to construct or carry out works in the LSIO. In this instance, the proposal does not involve any buildings or works in the LSIO mapped area. Consequently no permit is required under this part.

## **5.5 Particular Provisions**

### **5.5.1 Car Parking**

Clause 52.06 sets out specific matters relating to car parking and seeks to ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities of the land and the nature of the locality, as well as ensuring that car parking does not adversely affect the amenity of the locality and is designed to a high standard.

The provisions of clause 52.06 apply in this instance as the proposal is for a new use. Clause 52.06-2 requires that before a new use commences, the number of car parking spaces required under Clause 52.06-5 (or in a schedule to the Parking Overlay) must be provided to the satisfaction of the responsible authority. Table 1 of clause 52.06-5 specifies parking requirements for particular land uses.

The provisions of Clause 52.06 do not prescribe a car parking requirement for renewable energy facilities and therefore, pursuant to Clause 52.06-6, car parking must be provided to the satisfaction of the responsible authority.

The greatest demand for parking is expected at construction phase. During construction, the development will generate approximately 2 light vehicles and 2 minibuses on average. Assuming all vehicles will be at the site at the same time, there will be a car parking demand of 4 spaces during the construction phase.

The car parking demand for the site post construction is one space which can easily be accommodated on site.

There is not considered to be a requirement for bicycle parking at this remote location.

The provision of the proposed on-site parking area shown by the plans far exceeds the minimum expected requirements for both construction and operational phases.

### **5.5.2 Native Vegetation**

Clause 52.17 of the planning scheme refers to native vegetation and has the purpose to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. The requirements of the clause is supported by the three step approach in accordance with *Guidelines*

for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017) (“the Guidelines”)

A planning permit is required pursuant to clause 52.17-1 to remove, destroy or lop native vegetation, including dead native vegetation, unless an exemption is otherwise specified.

The Native Vegetation Assessment prepared for the development identified 4 patches of native vegetation in the roadside, totalling 0.03 hectares; and 3 scattered trees (namely 1 large scattered tree in the property and 2 small scattered trees in the road reserve). The vegetation was found to be within Location Category 2.

The location of the majority of the identified vegetation was within the perimeter of the site, with one scattered tree in the south east corner of the land. The Assessment recommended retaining the large tree towards the south east corner of the property and to design access tracks to and from the site to avoid impacting on mapped native vegetation. The final design has incorporated these recommendations, and therefore avoids any loss or removal of native vegetation.

No matters listed under the EPBC Act were recorded during the assessment and none are considered to have the potential to occur, due to the highly modified and degraded nature of the site.

Having regard to the above, no permit is required under clause 52.17.

### 5.5.3 Renewable Energy Facility

Clause 53.13 applies a renewable energy facility, other than a wind energy facility, and the considerations of this clause therefore apply to the proposal. The purpose of this clause is to provide the framework for facility design and site determination.

It is also noted that the Department of Environment, Land, Water and Planning (DELWP) has released the *Solar Energy Facilities Design & Development Guidelines* (August 2019), which outlines the key considerations for the use and development of solar facilities across Victoria. The guidelines include siting and design guidance along with recommendations for community consultation, design, consideration of off-site impacts, construction, operation and decommissioning. The relevant considerations of the Guidelines are discussed in the section below as well as the planning considerations at Section 6.

In accordance with Clause 53.13-2, an application must be accompanied by the information reproduced in the following table, as relevant.

**Table 4 Application requirements for the development of a renewable energy facility (other than wind energy facility)**

Requirement	Response
<b>A site and context analysis, including:</b>	
<ul style="list-style-type: none"> <li>A site plan, photographs or other techniques to accurately describe the site and the surrounding area.</li> </ul>	The subject site is described at <b>Section 2</b> of this report, and site plans are included attached.
<ul style="list-style-type: none"> <li>A location plan showing the full site area, local electricity grid, access roads to the site and direction and distance to nearby accommodation, hospital or education centre.</li> </ul>	As above.

Requirement	Response
<b>A design response, including:</b>	
<ul style="list-style-type: none"> <li>▪ Detailed plans of the proposed development including, the layout and height of the facility and associated building and works, materials, reflectivity, colour, lighting, landscaping, the electricity distribution starting point (where the electricity will enter the distribution system), access roads and parking areas.</li> </ul>	<p>The proposed development plan indicates the dimensions of the development, proposed alignments, landscaping and materials to be used in the development.</p> <p>The facility will incorporate non-reflective and muted materials and colours to avoid impacts on the surrounding area.</p> <p>The facility is intended to connect directly to adjacent electrical infrastructure including the 22kV overhead power lines which adjoin the subject site.</p>
<ul style="list-style-type: none"> <li>▪ Accurate visual simulations illustrating the development in the context of the surrounding area and from key public view points.</li> </ul>	<p>A site and context analysis of the development and the surrounding area has been prepared and is attached within the planning report. Given the scale of the development as a micro-scale solar facility, fully prepared visual simulations have not been determined necessary.</p>
<ul style="list-style-type: none"> <li>▪ The extent of vegetation removal and a rehabilitation plan for the site.</li> </ul>	<p>The subject site contains 4 patches of native vegetation in the roadside, totalling 0.03 hectares; and 3 scattered trees (namely 1 large scattered tree in the property and 2 small scattered trees in the road reserve). All of the vegetation is to be retained, with the roadside vegetation to be incorporated into the perimeter landscaping.</p>

Requirement	Response
<ul style="list-style-type: none"> <li>▪ Written report and assessment, including: <ul style="list-style-type: none"> <li>▪ An explanation of how the proposed design derives from and responds to the site analysis.</li> <li>▪ A description of the proposal, including the types of process to be utilised, materials to be stored and the treatment of waste.</li> <li>▪ Whether a Works Approval or Licence is required from the Environment Protection Authority.</li> <li>▪ the potential amenity impacts such as noise, glint, light spill, emissions to air, land or water, vibration, smell and electromagnetic interference.</li> <li>▪ the effect of traffic to be generated on roads.</li> <li>▪ the impact upon Aboriginal or non-Aboriginal cultural heritage.</li> <li>▪ the impact of the proposal on any species listed under the Flora and Fauna Guarantee Act 1988 or Environment Protection and Biodiversity Conservation Act 1999.</li> <li>▪ A statement of why the site is suitable for a renewable energy facility including, a calculation of the greenhouse benefits.</li> <li>▪ An environmental management plan including, a construction management plan, any rehabilitation and monitoring.</li> </ul> </li> </ul>	<p>Assessment of these items have been completed and incorporated into this report, as relevant. Generally, these matters have been assessed within Section 3 and 6 of the planning report and where relevant within the submitted technical documents.</p> <p>The proposed development site has been sited with a suitable separation distance from any nearby viewpoints and will sit within a low point on the landscape.</p> <p>The proposed facility will be a passive facility and will not include any significant noise or light transfer to surrounding properties or major access roads. Panels are designed to be non-reflective and will be screened from surrounding properties by landscaping.</p> <p>An Environmental Management Plan would be expected as a permit condition, and is intended to be prepared prior to construction commencing on-site.</p>

## Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate the decision guidelines of clause 53.13-3 for the development of a renewable energy facility. The decision guidelines considered against this proposal in the following table.

**Table 5 Decision guidelines for the development of a renewable energy facility (other than wind energy facility).**

Decision guideline	Response
<ul style="list-style-type: none"> <li>The Municipal Planning Strategy and the Planning Policy Framework.</li> </ul>	<p>Addressed in <b>Section 5</b>.</p>
<ul style="list-style-type: none"> <li>The effect of the proposal on the surrounding area in terms of noise, glint, light spill, vibration, smell and electromagnetic interference.</li> </ul>	<p>The subject site has considered the impact of the development on the surrounding landscape and sensitive receptors from a visual, noise, glint and glare perspective, with the mitigation measures within this report setting out the manner in which the site is to be treated to mitigate these impacts. The general operation of the facility is not anticipated to generate substantial noise, light spill, or vibration.</p> <p>A Glint and Glare Assessment is attached and considers the potential impact of the development on surrounding properties.</p> <p>A Noise Impact Assessment Report is attached to consider the impact of noise on adjoining properties.</p>
<ul style="list-style-type: none"> <li>The impact of the proposal on significant views, including visual corridors and sightlines.</li> </ul>	<p>The subject site is not located along any ridgelines, valleys or other important sightlines. Long range views to the facility from the surrounding area have been considered and addressed within this report.</p>
<ul style="list-style-type: none"> <li>The impact of the proposal on strategically important agricultural land, particularly within declared irrigation districts.</li> </ul>	<p>An Agricultural Impact Assessment has been completed in support of the proposal and is attached. This assessment found that the project site represents 0.01% of all agricultural related land uses and generates 0.000007% of the total value of agricultural production within the Greater Shepparton LGA.</p> <p>It was noted that the Hume Region Growth Plan indicates a large area of Strategically Important Land surrounding Shepparton, however that the land is on the fringe of this area. More detailed assessment by the consultants has determine that given the changes in soils and land use adjacent to the subject site, and not being within a designated irrigation district means that it is unlikely to be classified as strategic agricultural land.</p>
<ul style="list-style-type: none"> <li>The impact of the proposal on the natural environment and natural systems</li> </ul>	<p>As discussed within the assessment of impacts within this report and the attached technical documents, the proposal is designed to minimise impacts on the physical conditions of the site, by avoiding substantial landform changes and/or hardstand areas that may alter the site conditions.</p> <p>Existing native vegetation and vegetation patches are to be retained in full and incorporated into the design of the facility and the landscaping of the site.</p>

Decision guideline	Response
<ul style="list-style-type: none"> <li>▪ The impact of the proposal on the road network.</li> </ul>	<p>A Traffic Impact Assessment is attached.</p> <p>The proposal is not anticipated to significantly increase the traffic of the surrounding roads beyond their design capacity. The TIA recommends improvements to site access to enable heavy vehicles to safely enter and exit the site during construction without impact on the road network.</p>
<ul style="list-style-type: none"> <li>▪ <i>Solar Energy Facilities Design and Development Guideline</i> (Department of Environment, Land, Water and Planning, August 2019).</li> </ul>	<p>The relevant matters of the <i>Solar Energy Facilities Design and Development Guideline</i> have been addressed within this report and the attached technical documents</p>

## 5.6 General Provisions

### 5.6.1 Decision guidelines (Clause 65)

Before deciding on an application or approval of a plan, the responsible authority must consider a number of decision guidelines. **Table 6** below provides an assessment of the proposal against the relevant general decision guidelines at clause 65.01 - Approval of an application or plan.

**Table 6 Response to decision guidelines at clause 65.01**

Decision Guideline	Response
The matters set out in Section 60 of the Act	Refer to <b>Section 5.1</b>
The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.	Refer to <b>Sections 5.1</b> and <b>Section 5.2</b>
The purpose of the zone, overlay or other provision.	Refer to <b>Section 5.3</b> and <b>Section 5.4</b>
Any matter required to be considered in the zone, overlay or other provision.	Refer to <b>Section 5.5</b> and <b>Section 5.6</b>
The orderly planning of the area.	<p>The proposal involves the establishment of a small scale solar facility on rural lot. The site is generally cleared, does not represent significant agricultural value and is generally flat.</p> <p>The development itself is proportional to the site and can provide for adequate circulation and spacing of buildings, allowing provision of other necessary components of the development such as drainage, landscaping, parking areas and the like.</p>
The effect on the amenity of the area.	<p>The subject site is located within a rural area and there are no significant visual impacts considered likely from the operation of the facility. Generally, the surrounding area contains very limited sensitive receptors (i.e. dwellings), with proposed treatments able to offer excellent screening of the site.</p> <p>The proposed facility will be passive in that there are no processes that are carried out other than the unmanned collection and conversion of solar energy to electricity. Access and attendance at site will be very limited, and occurs only for maintenance purposes.</p>
The proximity of the land to any public land.	There is no nearby public land in regard to the subject site.

Decision Guideline	Response
Factors likely to cause or contribute to land degradation, salinity or reduce water quality.	<p>The development will comprise relatively minor disturbance of the site as the panels will be installed on racks rather than more substantial footings. Some trenching and road construction is required, however is designed to minimise impact on the surface conditions.</p> <p>Future drainage design will ensure that rate of flow is not increased to the adjoining rural properties which may impact upon their operations. Water quality is not expected to be impacted.</p>
Whether the proposed development is designed to maintain or improve the quality of stormwater within and exiting the site.	<p>The proposal will improve drainage and water quality from the site, by introducing formal controlled drainage infrastructure. Specifically, runoff from the developed part of the site will be collected by new internal drainage infrastructure and conveyed to the drainage connection point in the rear of the land. The conveyed stormwater will be treated via an oil and grease separator to remove any contaminants.</p> <p>The VGF classifies the site as plains without leveed channels (GMU 4.2.2) and are not the landforms that are subjected to routine irrigation (GMU 4.2.1). The land further to the east is subject to erosion and salinity management and the subject site is not on land subject to inundation. Therefore, it is unlikely that the solar panels on the site would be subject to sheet erosion.</p>
The extent and character of native vegetation and the likelihood of its destruction.	<p>The site contains 3 scattered native trees, with 2 being in the road reserve and 1 being in the subject site. There are also four (4) patches of native vegetation along the southern and eastern site boundaries. These areas are discussed in detail within the Native Vegetation Assessment.</p>
Whether native vegetation is to be or can be protected, planted or allowed to regenerate.	<p>All identified native vegetation is to be retained and protected as part of the development, as demonstrated by the submitted plans</p>
The degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.	<p>The portion of the subject land for development is not identified as having any risk from flooding, although part of the northern extent of land is within the LSIO.</p> <p>The land is not affected by the Bushfire Management Overlay however is mapped as Bushfire Prone Land. In response, the development incorporates design features as per the CFA Solar Facility Guidelines, including a minimum 10 metre wide perimeter fire break, internal access roads and emergency egress locations and onsite water supply in the form a tank.</p>

# 7 Planning Considerations

## 7.1 Design

The design and layout of the facility has been considered with a view to maximise energy production while having minimal impact on the site conditions. The solar energy facility will be operational for a period of at least 30 years, after which it is likely to be decommissioned and returned to agricultural production.

The proposal aims to retain as much of the overall property for agricultural production by only using the area necessary to generate the 5MW output. The proposal also utilises the most up to date panel technology to obtain higher energy outputs using less panel infrastructure. The ongoing maintenance of facility will ensure that any adverse impacts on nearby agricultural land are avoided.

The design has also been informed by the considerations of bushfire, observing the design, alignment and setback recommendations of the Solar Energy Facilities Design & Development Guidelines in August 2019. It has been designed to minimise potential impacts on the surrounding land uses ensuring that productive agriculture is not unreasonably impeded.

The most impacts are likely to be possible during the construction and decommissioning phases of the solar energy facility's life. The construction period will be undertaken over a relatively short period of time (weather dependent) and will be entirely contained within the subject site to avoid impacts on adjoining properties.

The proposal does not include any permanent concrete areas or works on the land as part the construction process to ensure that decommissioning and recovery of the agricultural land can be a relatively simple transition. Any decommissioning will be undertaken as per the Guidelines for Solar Energy Facilities

Once operational, the facility will be operated as a passive development, with no significant off-site impacts in terms of noise, light or glare expected to be generated. The proposed facility will have a setback from the nearest dwelling of approximately 100 metres.

During operation, there will be limited staff required on site. Staff will only generally access the site during daytime periods, however in emergency events, staff may be required to access the property. Two persons are to be employed for ongoing operation of the site. Not all personnel will be on-site at any one time.

## 7.2 Agricultural Impacts

The majority of renewable solar energy development is undertaken on rural land, and the planning scheme and DELWP guidelines set out various considerations when proposing such uses on rural land. This development is to be undertaken on rural land within a non-irrigated area of the Greater Shepparton LGA. It is also not located within proximity to any nearby irrigation infrastructure.

An Agricultural Impact Statement has been prepared in support of this proposal and is attached. The Assessment uses a variety of information sources including current land use, Victorian geomorphology framework, gross value of agricultural production and employment statistics to consider the impact of removal of this parcel of land.



**Figure 20 Agricultural land use of the immediately surrounding area (Source: GHD)**

Having regard to the information available, including the general knowledge of agriculture in the area it is estimated that the project site represents 0.01% of all agricultural related land uses and generates 0.000007% of the total value of agricultural production within the Greater Shepparton LGA. Removal of

the land from agricultural production is considered to have minimal impact on relevant industries and employment within the region.

The Assessment determines gross margin for the subject site to be an estimated \$4,000 (based on \$253 x 15.4 hectares and using the gross value of agricultural production in the LGA of \$596 million represents 0.000007% of the total value of agriculture. It is noted that this based on long-term seasonal conditions and assuming that the project site is being run as a commercial agricultural entity with full efficiencies of production.

Having regard to this, the loss of this portion of the land from agricultural production for a period of up to 30 years is considered unlikely to have any impact on the agricultural economy or productivity of the LGA.

The Hume Regional Growth Plan outlines areas that have been defined as strategic agricultural areas because they have versatility in production, are of significant scale, are located in proximity to value-adding processing and have access to secure water supplies. Strategically important and highly productive agricultural land are terms also outlined in the DELWP Guideline, however the determination relies on a variety of considerations including soils, landscape conditions, property configuration, water availability, rainfall and topography.

The subject site is not located within a designated irrigation district (namely the G-MW Shepparton Irrigation Area) and the soils and landform are classed as plains without leveed channels. The topography of land to the east of the subject site changes from hills to low-hills and could be subject to erosion management. Given these observed conditions and the lack of any significant scale of the particular lot, it is considered that the site is not strategic agricultural land.

The development envisages a lifespan of 30 years, after which it would be returned to the original stage and used for agricultural functions. As such, the proposal is designed to be 'low impact' allowing the site to be easily returned to its original state. This includes maintaining dams on the site, retaining fences, strategically planting landscaping to defined paddock areas that will assist in longer term agricultural use.

The installation of solar farms on rural properties can also assist in diversifying sources of income for the agricultural sector, allowing financial resilience for farmers and communities. The majority of the site will also be retained for continued agricultural production, while the southern area containing the proposal solar panels will also comprise strategic grazing of sheep to manage pasture and reduce the fuel load which would generate some agricultural activity and additional economic return from the subject site.

Overall, while being located in a rural context, the proposal is considered appropriate as it is not strategically important and highly productive agricultural land that would be lost from production and the development will generally have a low impact on the site and its existing conditions. The design enables the site to be returned to its agricultural function at the end of its life for a solar facility.

### **7.3 Bushfire**

The development of solar facilities should be informed by the CFA's Guidelines for Renewable Energy Installations February 2019 (the CFA Guidelines). Under these guidelines, the proposal represents a 'micro solar' facility and a number of components of the CFA Guidelines do not need to be considered for smaller scale facilities. The applicant has sought input from the CFA on the proposed development, with advice and direction provided that the facility should have regard to the CFA Guidelines.

The subject land is not mapped as Bushfire Management Overlay, but is recognised as Bushfire Prone under the building regulations. Having regard to this, and the policy directions of clause 13.02-1S, it is appropriate that the facility be designed with regard to bushfire risks.

The proposed facility is considered to be fully compliant with the relevant provisions of the CFA Guidelines, which are discussed below.

#### Risk and Emergency Management

- A risk management process that meets occupational health and safety requirements for eliminating or reducing risk so far as is reasonably practicable provides the foundation for effective emergency and fire management planning, as per 2.1.1 to 2.1.4 of CFA Guidelines.
- The provision of an Emergency Information Container at site entrances, as per CFA's Guidelines for Renewable Energy Installations 2018 of an Emergency Information Book.
- familiarisation and explanation of emergency service procedures to CFA and other emergency services. Information in relation to the specific hazards and fire suppression requirements of the site should be provided to CFA during this visit.
- Appropriate training for staff operating and/or working in this facility

It is expected that appropriate management conditions will be imposed on any determination to require the preparation and maintenance of these procedures.

#### Access

- 3.1.2 Roads are to be of all-weather construction and capable of accommodating a vehicle of 15 tonnes.
- 3.1.3 Constructed roads should be a minimum of four (4) metres in trafficable width with a four (4) metre vertical clearance for the width of the formed road surface.
- 3.1.4 The average grade should be no more than 1 in 7 (14.4% or 8.1°) with a maximum of no more than 1 in 5 (20% or 11.3°) for no more than 50 metres.
- 3.1.5 Dips in the road should have no more than a 1 in 8 (12.5% or 7.1°) entry and exit angle.
- 3.1.7 Road networks must enable responding emergency services to access all areas of the facility.
- 3.1.8 The provision of at least two (2) but preferably more access points to the site, to ensure safe and efficient access to and egress from areas that may be impacted or involved in fire. The number of access points should be informed through a risk management process.

All internal roads are designed to be an all-weather standard and will maintain appropriate grades and widths as required. Given the proposal is for a micro solar facility, no perimeter roads are necessary for the facility, however appropriate internal roads are identified to ensure safe access throughout.

#### Water Supply

- 3.2.1 The static water storage tank shall be of not less than 45,000 litres effective capacity. The static water storage tank(s) must be an above-ground water tank constructed of concrete or steel. The location and number of tanks should be determined as part of the site's risk management process and in consultation with a CFA delegated officer.
- 3.2.2 The static storage tanks shall be capable of being completely refilled automatically or manually within 24 hours.

- 3.2.3 The hard-suction point shall be provided, with a 150mm full bore isolation valve (Figure 1) equipped with a Storz connection, sized to comply with the required suction hydraulic performance. Adapters that may be required to match the connection are 125mm, 100mm, 90mm, 75mm, 65mm Storz tree adapters (Figure 2) with a matching blank end cap to be provided.
- 3.2.4 The hard-suction point shall be positioned within 4m to a hardstand area and provide clear access for fire personnel.
- 3.2.5 An all-weather road access and hardstand shall be provided to the hard-suction point. The hardstand shall be maintained to a minimum of 15 tonne GVM, 8m long and 6m wide or to the satisfaction of the relevant fire authority.
- 3.2.6 The road access and hardstand shall be kept clear at all times.
- 3.2.7 The hard-suction point shall be protected from mechanical damage (i.e. bollards) where necessary.
- 3.2.8 Where the access road has one entrance, a 10m radius-turning circle shall be provided at the tank.
- 3.2.9 An external water level indicator is to be provided to the tank and be visible from the hardstand area.
- 3.2.10 Signage shall be fixed to each tank.
- 3.2.11 Signage shall be provided at the front entrance to the site, indicating the direction to the static water tank and being to the satisfaction of a CFA delegated officer.

The proposed facility is capable of complying with all above requirements pertaining to water supply and vehicle turning. The proposed plan anticipates the location of a water supply tank within appropriate locations of the site, however it is also expected that the CFA may impose conditions or requirements in relation to water supply size and position.

#### Dangerous Goods Storage and Handling

- 3.3.1 The requirements of the relevant Australian Standards must be complied with, e.g. (DR) Australian Standard 5139: Electrical installations – Safety of battery systems for use with power conversion equipment; Australian Standard 3780: The storage and handling of corrosive substances; and Australian Standard 1940: The storage and handling of flammable and combustible liquids.
- 3.3.2 Signage and labelling compliant with the Dangerous Goods (Storage and Handling) Regulations 2012, and the relevant Australian Standards is to be provided.
- 3.3.3 All dangerous goods stored on-site must have a current safety data sheet (SDS). Safety data sheets must be contained in the site's emergency information book, in the emergency information container.
- 3.3.4 Appropriate material (including absorbent, neutralisers, equipment and personal protective equipment) for the clean-up of spills is to be provided and available on-site.

All electrical infrastructure is to be suitable contained inside purpose built container storage or other enclosed devices to avoid it being exposed. All components will be compliant with any regulations relation dangerous goods storage as required.

#### Vegetation Management

- 4.2.1 Grass is to be maintained at below 100mm in height during the declared Fire Danger Period.

- 4.2.2 A fire break area of ten (10) metres width is to be maintained around the perimeter of the facilities, electricity compounds and substations. This area is to be of non-combustible mulch or mineral earth.
  - The fire break area must commence from the boundary of the facility or from the vegetation screening (landscape buffer) inside the property boundary.
  - The fire break must be constructed using either mineral earth or non-combustible mulch such as crushed rock.
  - The fire break must be vegetation free at all times.
  - No obstructions are to be within fire break area (e.g. no stored materials of any kind).
- 4.2.3 Adhere to restrictions and guidance during the Fire Danger Period, days of high fire danger and Total Fire Ban days (refer to [www.cfa.vic.gov.au](http://www.cfa.vic.gov.au)).
- 4.2.4 All plant and heavy equipment is to carry at least a 9-litre water stored-pressure fire extinguisher with a minimum rating of 3A, or firefighting equipment as a minimum when on-site during the Fire Danger Period.
- 4.2.5 There is to be no long grass or deep leaf litter in areas where plant and heavy equipment will be working.
- 6.3.1 Solar arrays are to have grass vegetation maintained to 100mm under the array installation or mineral earth or non-combustible mulch such as stone.
- 6.3.2 Where practicable, solar energy installations can be sited on grazed paddocks. In this case, vegetation is to be managed as per the requirements of this guideline, or as informed through a risk management process.

The facility incorporates a 10 metre wide firebreak to the full perimeter of the development area. This includes around all panel array areas and the proposed substation.

It is expected that appropriate management conditions will be imposed on any determination. The applicant intends to maintain the site as per the CFA requirements by having stock grazing within the site and beneath the panel areas.

#### Operation and Maintenance of Solar Facilities

- 6.2.1 Solar farm operators must provide specifications for safe operating conditions for temperature and the safety issues related to electricity generation, including isolation and shut-down procedures, if solar panels are involved in fire. This information must be provided within the content of the emergency information book.

The proposal is for a small scale facility and it does not have the same temperature and other operational risks that may be present on larger scale facilities. It is considered that the arrangement and placement of facilities on the land is suitable to minimise potential bushfire risks.

## **7.4 Biodiversity**

A Native Vegetation Assessment has been undertaken and is provided attached to this application.

The Assessment of the site recorded a total of four (4) patches of native vegetation in the roadside, totalling 0.03 hectares and 3 scattered trees, with 1 large scattered tree in the property and 2 small scattered trees in the road reserve. The site was also identified within the Location Category 2 under the Guidelines.



**Figure 21 Mapped Native Vegetation within the subject site and interfaces (Source: Nature Advisory)**

The Assessment determined that the removal of vegetation would constitute an intermediate pathway application and would need to have consideration of the impact of native vegetation losses. The report recommends:

- *Retain the large tree towards the south east corner of the property. Given it is the only large tree in the local vicinity, it provides a refuge for a range of fauna moving throughout the landscape. The tree did not appear to be hollow bearing but it is at an age and significant size (106 cm DBH) that it will likely develop key nesting and roosting sites for fauna in the future.*
- *Design access tracks to and from the site to avoid impacting on mapped native vegetation (Figure 1). It is recommended that the current access to the site is utilised. Native vegetation of the greatest significance in the roadsides would be Habitat Zone D which consisted of mature Lightwoods adjoining neighbouring roadside vegetation.*

All of the identified native vegetation and patches are to be retained by the proposed development. Access points to the land have also been selected to avoid needing to create crossings within the sensitive south eastern and southern portions of the land.

The proposed works do not involve significant earthworks or physical changes to landform or topography, meaning that the land will retain its general physical condition. The intention is to ensure that the land can retain its patterns of runoff, ground conditions and the like during operation and may also be returned to its previous agricultural form when decommissioned.

No planning permit under Clause 52.17 of the Planning Scheme is required as the proposal will not result in the loss or removal of native vegetation.

The assessment also determined that no matters listed under the EPBC Act were recorded during the assessment and none are considered to have the potential to occur, due to the highly modified and degraded nature of the site.

## **7.5 Traffic**

A Traffic Impact Assessment has been prepared for the development and is attached to this application.

Cosgrove-Caniambo Road is a local road managed by Greater Shepparton City Council and classified a rural access road adjacent to the subject site. It is generally aligned in a north to south direction and provides connection between two state arterial roads: New Dookie Road to the north and the Midland Highway to the south. Cosgrove-Caniambo is a two-way, two-lane sealed road with a 5.0 m seal and 1.0 m wide unsealed shoulders.

Traffic volumes are estimated to be approximately 4,500 vehicles per day (vpd) along the Midland Highway near the intersection of Cosgrove-Caniambo Road, split evenly in each direction, with heavy vehicles accounting for 15% of the daily traffic volume. Cosgrove-Caniambo Road has been estimated by the consultants as having a daily two-way flow of 100 vpd based on the road classification, in accordance with the IDM, and on observations of traffic during the site inspection. The existing peak hour traffic volumes are assumed to be 10% of the daily traffic volumes.

New primary vehicular access to the subject site is proposed to be provided via a new direct connection to Cosgrove-Caniambo Road, approximately 600 m north of Shepparton-Dookie College Road. An existing gate is located at this location, however will be relocated under a redesigned access arrangement.

The TIA indicates that existing traffic plus construction traffic turning into the site access during the AM peak hour during the peak construction period requires the provision of a basic Type BAL left turn treatment and a basic Type BAR right turn treatment in Cosgrove-Caniambo Road, however this is considered onerous given the short period of the construction program and low rate of traffic in operational phase. It is anticipated that turning traffic would not impede through vehicles on Cosgrove-Caniambo Road and therefore there is no need for turn lanes at the site access from a safety or operational perspective.

Construction traffic will include vehicles providing access for the employed workforce and delivery of materials. Most equipment and materials will be transported to the site via light rigid trucks. The rate of traffic will fluctuate over the construction stages, with months 1 to 4 generating up to 4 light vehicle entries and 1 heavy vehicle entry per day, months 5 and 6 generating up to 4 light vehicle and 4 heavy vehicle entries per day and months 7 to 9 involving up to 4 light vehicle entries and 1 heavy vehicle entry per day.

The applicant intends to employ a predominantly local workforce, and established shared transport options to bring workers to site. A large proportion of the workforce is expected to be accommodated either at Shepparton or in Benalla and bused to the site each day. The majority of heavy vehicle traffic will approach from the south, being the most direct route for the delivery of components from Melbourne via Shepparton. Trips are expected to be spread throughout the day, with one arrival during the morning peak hour.

During the operational phase, the proposed facility is expected to generate one visit (or two vehicle movements) per day for maintenance and monitoring purposes, only on an irregular basis (i.e. not daily). This access is also to be via the proposed new driveway.

## 7.6 Noise

A Noise Impact Assessment Report has been prepared by Harwood Acoustics for the proposed development.

It is expected that some noise will be generated from the facility during construction, primarily relating to the construction processes and use of machinery. These periods of noise generation will be intermittent and generally short, as the proposal moves through its various stages of construction. It is expected that appropriate conditions would be imposed on any permit that would control the operations to suitable periods.

During operation the facility will function in a passive manner generating very minimal noise. The primary area for potential noise is at the power station and inverters, which is situated in the north east corner in an area which can avoid direct interfaces with dwellings.

The proposal has placed the PCU, BESS and other infrastructure components in the north east corner of the development in a location which enables the greater possible buffer distances to surrounding dwellings. Particular attention has given to maximising setback from the southern boundary which contains a dwelling in close proximity. The location of the power station/inverters provides a distance of approximately 550 metres to the nearest dwelling to the south and 750 metres to 1 kilometre to other surrounding dwellings. The panel tracking systems move at a very slow speeds throughout the day while tracking the sun. If the panels are reset into various positions manually there will not be any significant noise generated beyond the subject site.

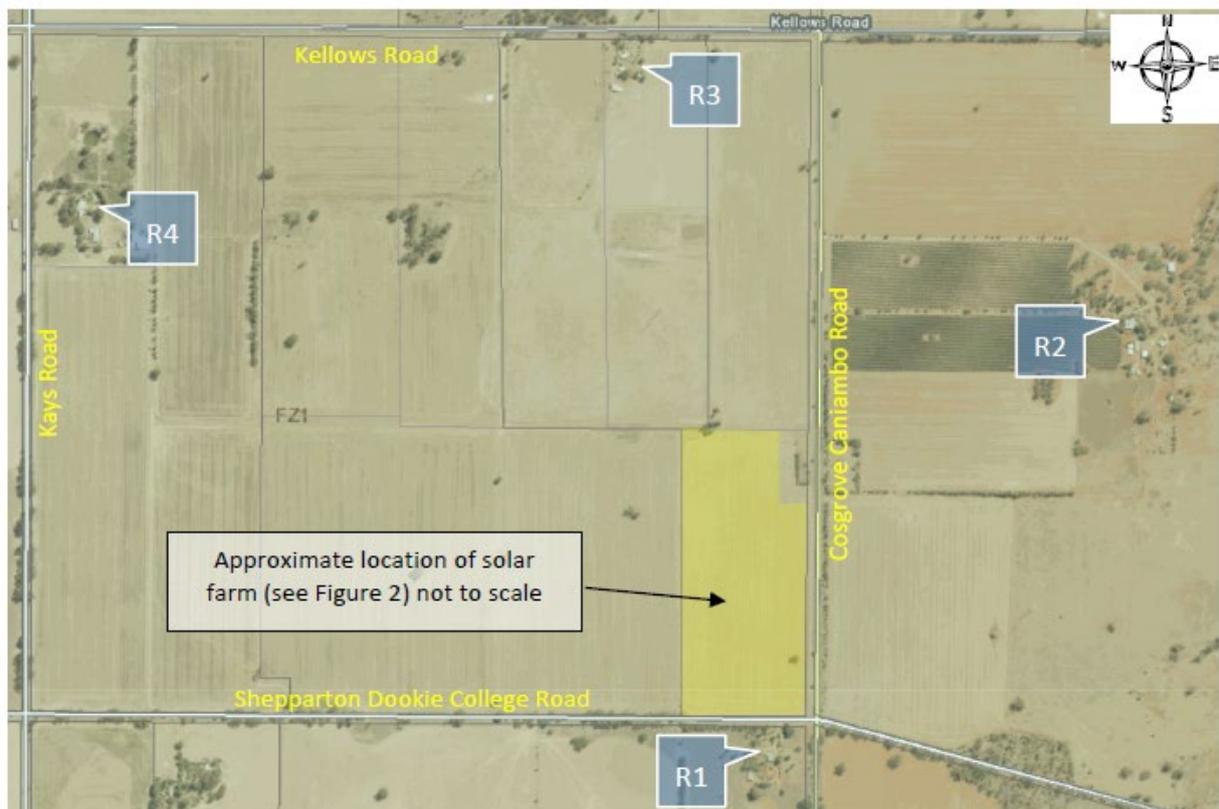


Figure 22 - Location of sensitive receivers within a surrounding 1 kilometre radius of the site

Background noise level measurements were taken at the northern end of the property at the corner of Cosgrove Caniambo Road and Kellows Road near receptor R3. The lowest background noise levels measured in the absence of strong winds were found to be below 36 dBA and up to 41 dBA when affected by strong winds. The area is not considered to be a background affected area as defined by the NIRV Guidelines.

The Noise Impact Assessment Report has carried out assessment of noise emissions from the property based on noise data has been supplied by the manufacturers. Calculations within the assessment determine that the level of noise emission from the ongoing operation of the facility will meet the Victorian EPA's maximum recommended noise levels derived from its Noise from Industry in Regional Victoria 2011 Guidelines.

Having regard to the potential for noise from this site, the applicant proposes general mitigation measures to address potential for construction and operational noise emissions.

A construction noise management protocol will be established for the project to minimise noise emissions and document procedures for responding to potential concerns from the community. In locations containing machinery and plant which will be active during construction (i.e. laydown, parking etc), the applicant will look to install mobile screens to act as barriers to nearby sensitive receivers.

Operation of machinery will also seek to minimise noise through encouraging responsible operation such as no over-revving, shut down of machinery when not in use, parking equipment away from sensitive interfaces, avoidance of simultaneous noisy equipment, use alternative reverse alarm with lower frequency/tone. Signage will also be established throughout the site to alert construction operators to the fact that there are dwellings in the surrounding area and to minimise noise during operation.

## **7.7 Landscaping**

The proposal includes the establishment of landscape buffers along the site boundaries to the east and south, which represent the more sensitive interfaces to residential uses. Dwellings are located to the north east of the site (750 metres) and south (80 metres). In other directions, there are no dwellings within 800 metres of the site.

The landscape concept intends to create a natural condition along the site perimeter to firstly enable a screening of the facility, but also provide a long term benefit to the natural conditions of the area. In particular, the landscape buffers are proposed to incorporate the mapped native vegetation patches and contribute to the regeneration of these corridors.

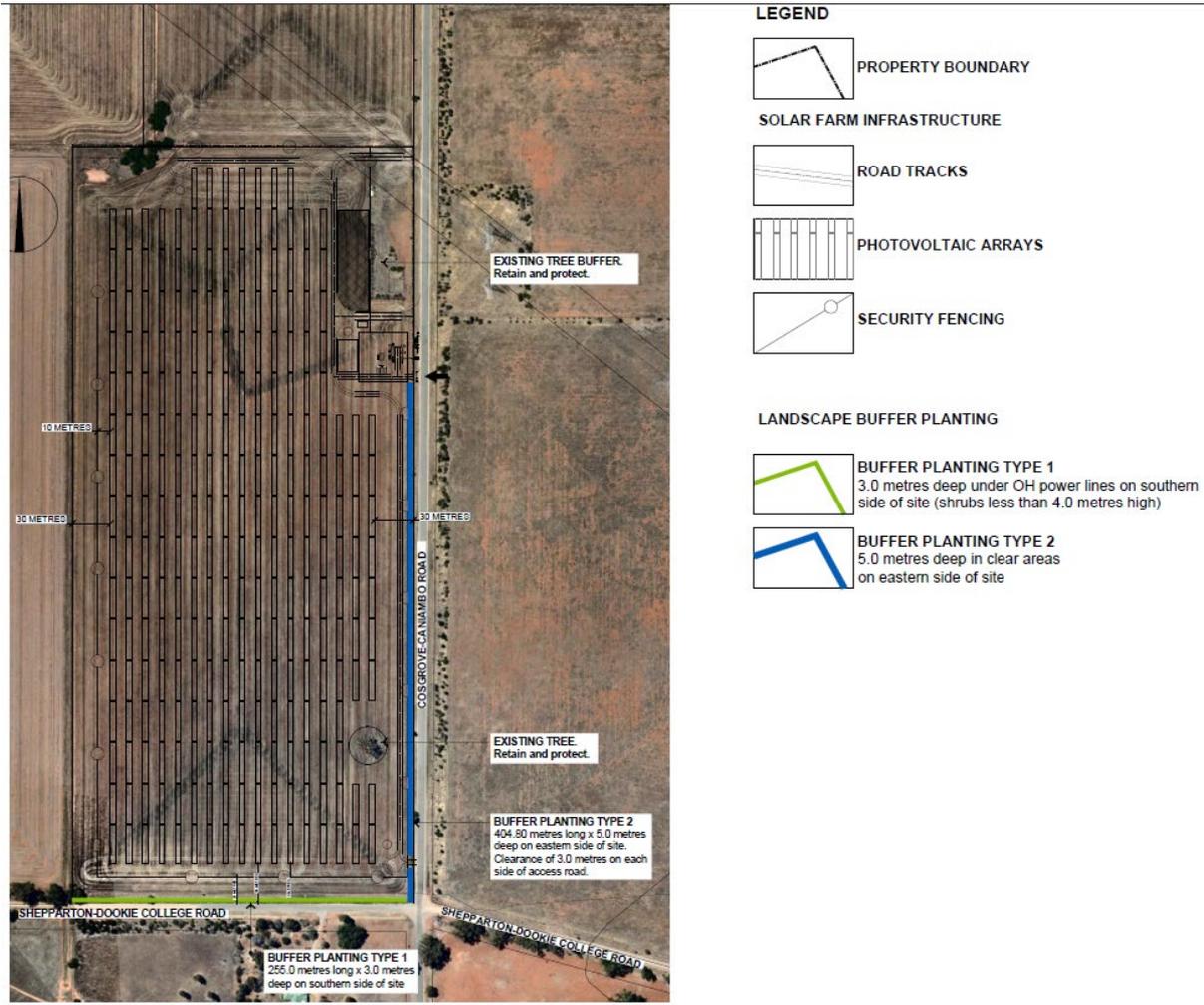
The proposed Landscape Plan sets out particular landscape treatments to each frontage, as discussed in detail below.

Landscape type 1 comprises a 3 metre wide shrub planting landscape zone which is to be provided along the central area of the eastern boundary. It will a mix of 80 shrubs to each 50 metre length.

Landscape type 2 is a 5 metre wide landscape zone to be applied to the south eastern boundary incorporating canopy trees, small trees and shrubs. This landscape zone will also include two scattered trees identified for retention and patch of native vegetation. It is proposed that this zone will contain 7 canopy trees, 17 small trees and 77 shrubs per 50 metre section.

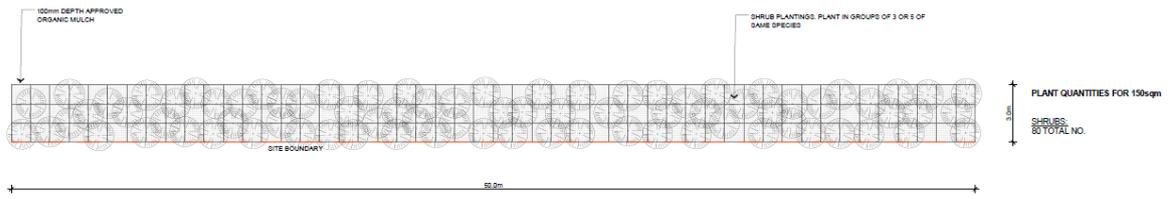
Landscape type 3 is a 5 metre wide landscape zone to be applied to the southern boundary incorporating small trees and shrubs. This is an important interface to provide screening to the dwelling on the southern side of the site, however also requires only low height planting due to overhead power lines at this frontage. This zone will also incorporate three native vegetation patches, with the intention

to improve the conditions of this roadside vegetation corridor. It is proposed that this zone will contain 11 small trees and 55 shrubs per 50 metre section.



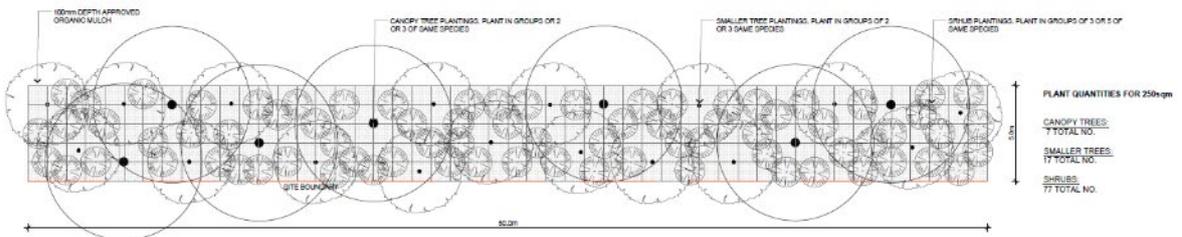
2 LANDSCAPE PLAN

Figure 23 Proposed Landscape Concept Plan



1 TYPICAL PLANTING PLAN - 50m TRANSECT  
BUFFER PLANTING TYPE 1 1:100@A1

Figure 24 Landscape Type 1 Detail



2 TYPICAL PLANTING PLAN - 50m TRANSECT  
BUFFER PLANTING TYPE 2 AT EXISTING TREES 1:100@A1

Figure 25 Landscape Type 2 Detail

## 7.8 Visual Impacts

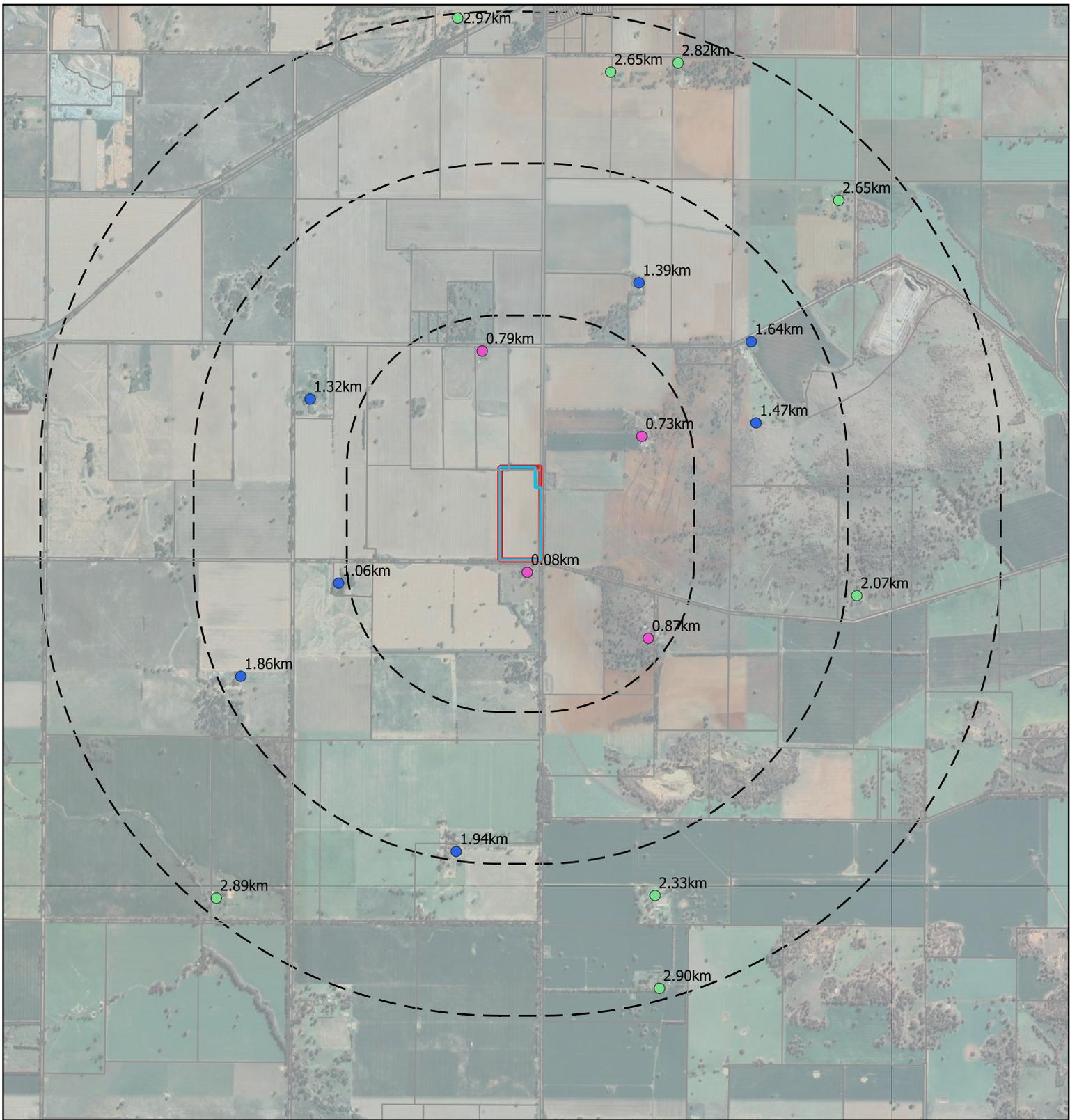
The visual impact of solar farms depends on the scale and type of infrastructure, the prominence and topography of the site relative to the surrounding environment; vegetation; and any proposed screening measures to reduce visibility of the site. In this instance, the proposal represents a smaller scale facility and has been sited within an area of the site that maintains appropriate separation distances from the main road frontage and neighbouring dwellings.

The development will result in the placement of new solar panels and other aboveground infrastructure within a generally open landscape and presents risks to visual amenity. The surrounding area is also noted as having a very low distribution of dwellings within close proximity of the land.

The character of the landscape is in two distinct parts. The land is effectively at the base of a ridgeline, with land to the south, west and north being very flat rural plains containing modified landscapes and very sporadic dwelling locations. Land to the east rises upwards from the site to the ridgeline and contains a variety of vegetation and two dwellings within 750m to 800 metre radius of the land.

Within the flatter plains surrounding the site, there are view corridors however the distance and scale of the proposed development means that the development is not prominent to main view lines. There are elevated viewpoints to east of the site, however dwellings in this direction benefit from existing and proposed landscaping, horticulture planting and larger setback distances.

As such, the proposed design of the facility, including landscaping treatments has considered the long range view points and sought to avoid significant views to the facility. The proposed landscaping will be supported by existing windrow plantings throughout the landscape that screen the site from those areas. An overview of the surrounding dwellings and viewpoints is provided below. These can be read in conjunction with the proposed landscape screening discussed above.



## Legend

-  Lease Boundary
-  Site Boundary
-  Parcel

## Surrounding Dwellings

-  <1km
-  <2km
-  <3km

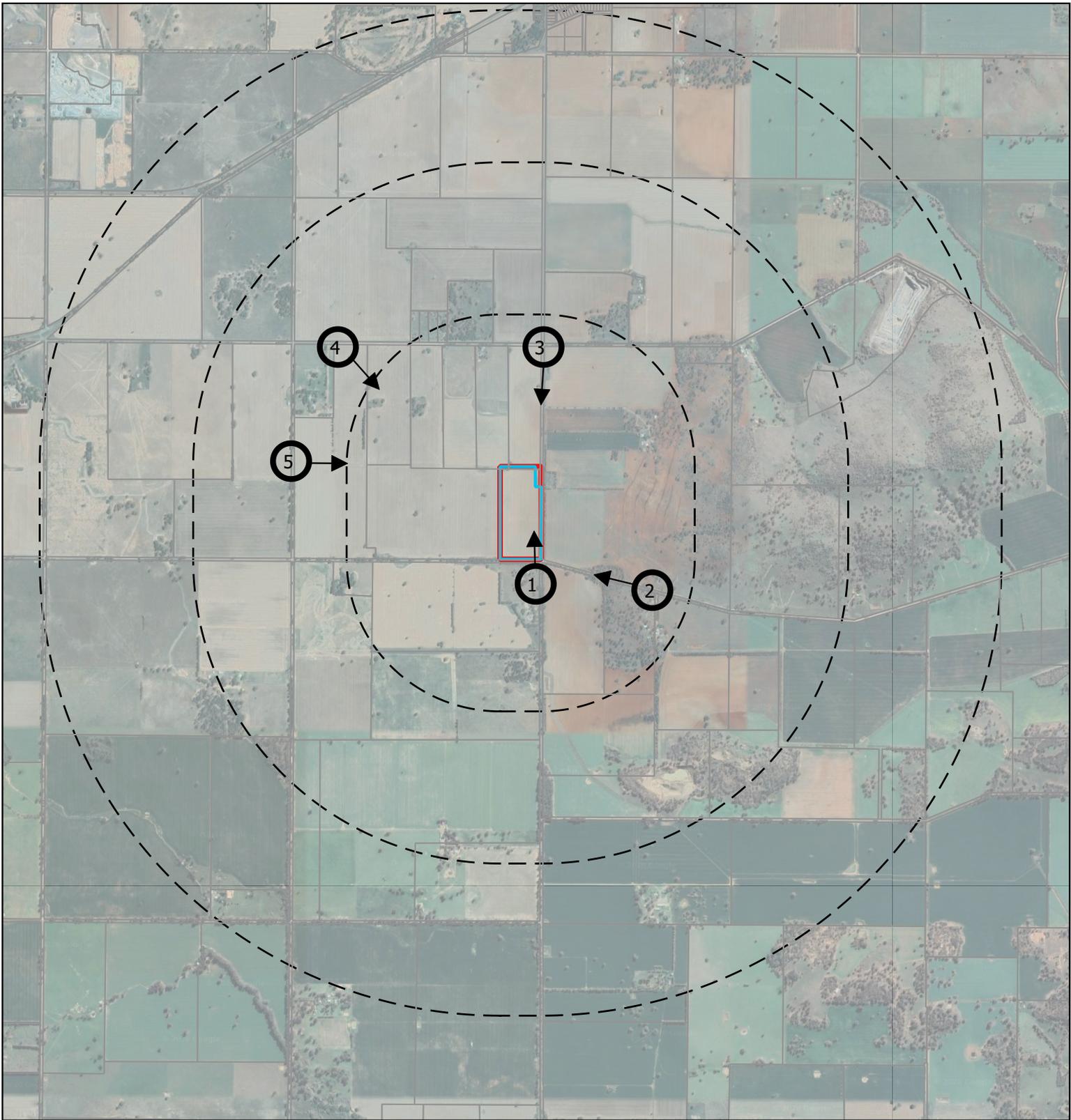
## Cosgrove Solar Facility

Dwelling Map

0 250 500 750 1,000 m



Cadastre and lease area is subject to survey, however, is approximately to scale.  
 Projection: GDA2020 / Vicgrid  
 Map created by Habitat Planning 2020 ©



## Legend

-  Lease Boundary
-  Site Boundary
-  Parcel

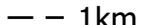
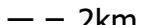
- Buffer
-  1km
  -  2km
  -  3km

 Photo point

## Cosgrove Solar Facility

Visual Assessment Plan

0 250 500 750 1,000 m



Cadastre and lease area is subject to survey, however, is approximately to scale.  
 Projection: GDA2020 / Vicgrid  
 Map created by Habitat Planning 2020 ©



**Figure 28 Viewpoint 1 (corner Cosgrove Caniambo Road and Shepparton-Dookie College Road), looking north. Red line indicates the approximate visible boundary of the solar facility.**

Viewpoint Summary: View from the south eastern corner of the site looking into the development site. There is potential for impact to motorists and landowner to the south from this location.

Mitigation: Given the potential for impacts, proposed panels are to be setback 30 metres from both frontages and 3–5 metre wide landscape screening is to be applied along both frontages. The existing roadside vegetation and the internal scattered tree will be retained to further soften the impact of development



**Figure 29 Viewpoint 2 (690 Shepparton-Dookie College Road) frontage, looking north west. Red line indicates the approximate visible boundary of the solar facility.**

Viewpoint Summary: View west from the approximate frontage of 690 Shepparton-Dookie College Road towards the subject site. This location is elevated above the site, with roadside vegetation along both sides that provide some land range view screening. There is potential for view impacts for west bound traffic along the road at the approach of Cosgrove-Caniambo Road, however is primarily limited to the southern portion of the land.

Mitigation: Given the potential for impacts, proposed panels are setback 30 metres from both frontages and a 5 metre wide landscape screening is to be applied to Cosgrove-Caniambo Road with a mixture of shrub and tree plantings that will mitigate against elevated long range views from this direction.



**Figure 30 Viewpoint 3 (frontage of 290 Kellows Road), looking south east to the site. Red line indicates the approximate visible boundary of the solar facility.**

Viewpoint Summary: View south east from adjoining dwelling location (frontage) towards the development site. The view location is approximately 850 metres and generally flat elevation between the two points. There will be a long range view to the corner of the facility, with the remainder screened by planted trees. the approximate frontage of 690 Shepparton-Dookie College Road towards the subject site. This location is elevated above the site, with roadside vegetation along both sides that provide some land range view screening. There is potential for view impacts for west bound traffic along the road at the approach of Cosgrove-Caniambo Road, however is primarily limited to the southern portion of the land.

Mitigation: Given the potential for lower impacts, the proposal includes 30 metre setback distances from the boundaries and retention of existing tree plantings in this interface to assist with mitigating view corridors. There is also vegetation to the rear of the site which will further obscure long range views.



**Figure 31 Viewpoint 4 (Kellows Road & Kay Road), looking south east.**

Viewpoint Summary: View is taken within close proximity to the Kellows Road and Kay Road intersection looking towards the site. This distance of this view is approximately 1.5 kilometres and is along a very flat elevation plane between the two locations. There are established vegetation patches within this view line that completely screen the site over this distance.

Mitigation: Maintain existing plantings to prevent long range views to the site.



**Figure 32 Viewpoint 5 (Kay Road) looking east towards the site.**

Viewpoint Summary: View is taken approximately midway along Kay Road looking towards the site for a distance of approximately 1.5 kilometres. The viewpoint maintains a consistent elevation to the site and there are patches of vegetation that break up the view.

Mitigation: There is some potential for views in this direction, however it is not considered to be a sensitive location as there are no dwellings in this viewpoint location. The distance of 1.5 kilometres also reduces the potential appearance of the structures in the landscape, which will be softened by surrounding landscape and partly obscured by scattered trees throughout the long range viewing distance.

## 7.9 Glint and Glare

Glint refers to the momentary flash of bright light that can be caused by the reflectivity of solar panel installations. Glare is similar, however refers to the continuous source of light and is generally associated with stationary objects. Glint and glare (referred collectively as glare from this point on) can have potential safety or amenity implications and is associated with this proposal as reflections from PV panels may impair observers through inducing an after image.

Generally, solar panels will not create significant glare compared with other commonly existing surfaces. Likewise, photovoltaic solar panels are generally less reflective than other naturally occurring elements such as soils and crops.

The potential impacts associated with glare were assessed in relation to the proposed solar array and surrounding routes and observation points. The Forge Solar Glare Analysis tool was used to model the potential for glare on surrounding routes and the observation points (in this case, surrounding dwellings) and consider potential impacts at those locations. This tool determines the type of glint or glare hazard based off the likelihood to produce a potential after-image.

The modelling utilised the input data of the proposed PV panels and the proposed angle of tilt for the panels. The following chart is used by the Forge Solar tool to plot the likelihood and severity of glare for each receptor. In summary, red glare refers to potential for permanent eye damage from the observation location, yellow glare indicates the potential for after image effects and green glare refers to low potential for after image impacts.

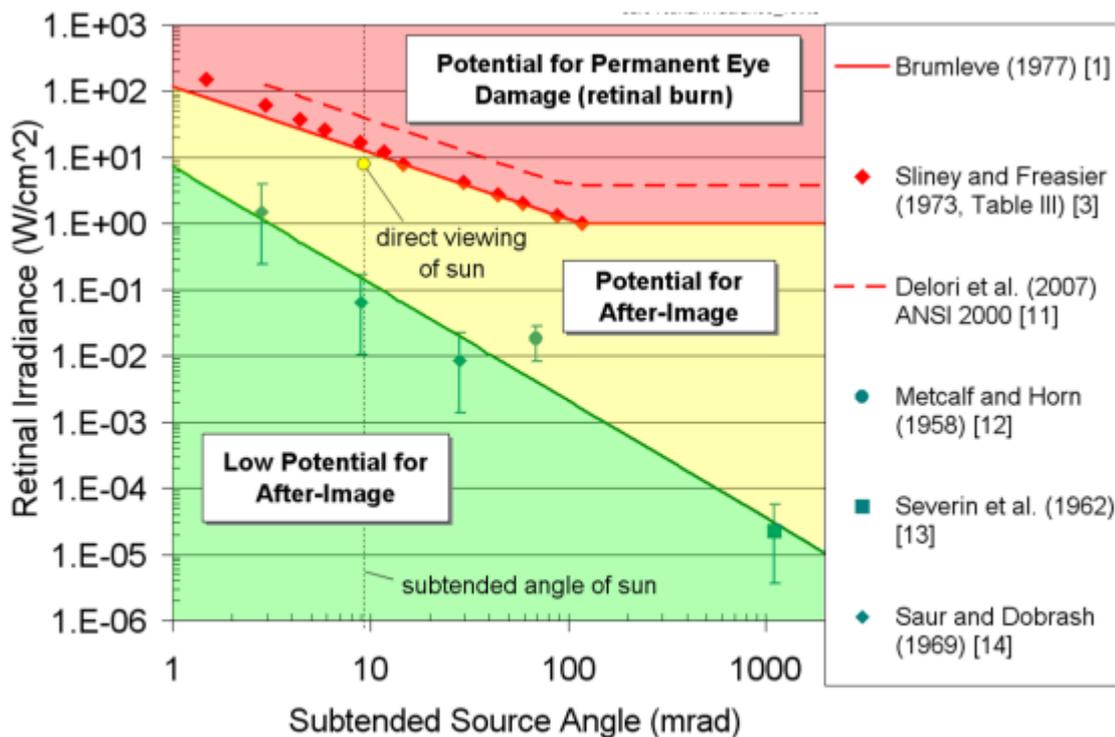


Figure 33 Summary of potential glare impact.

The assessment has identified a range of road alignments and observation points for glare impact from the development. There are no airports or flight paths within proximity to the development site that require assessment. The figures below summarise the location of identified route and observation points within proximity to the site which may have potential impact from glare.



**Figure 34 Observation points (dwellings) and routes tested for potential glint and glare**

Of the 11 dwellings assessed, 6 were calculated to receive ‘yellow glare’, for being subject to potential after image. OP 9, which was located on a hillside to the east, recorded the highest yellow glare exposure with 4058 minutes of exposure anticipated. Three other observation points, OP no. 2, 3 and 6, recorded between 1100 and 1700 minutes of glare. OP 10 had 8 minutes, OP 7 had 246 minutes of glare and OP 5 had 841, while the remaining points did not record any yellow glare. Five of the houses recorded exposure to ‘green glare’, referring to glare with a low potential for after image.

Of the assessed roads, two routes had anticipated exposure to yellow glare. Cosgrove-Caniambo Road and a total anticipated exposure to yellow glare of 4058 minutes, and Shepparton-Dookie College Road had 5019 minutes of anticipated glare. No glare was anticipate from any of the remaining routes.

The assessment determines that the glare generated by the proposal is acceptable and can be adequately mitigated. The amount of glare calculated by this assessment was considered minimal, however any glare exposure can be mitigated through screening provided by landscaping. The existing landscaping in the affected properties will provide a layer of screening further reducing the glare impacts. Additionally, there will be landscaping within the works areas described in Section 7.7 of this report, to provide an added level of screening to both the surrounding dwellings and routes.

## **7.10 Heritage**

There is no mapped risk of cultural heritage within the subject site and no items that have been identified in previous studies. In the unlikely event there should be any artefacts discovered at any stage, the applicant will act in accordance with their legal obligations under the Aboriginal Heritage Act.

## **7.11 Heat Island Effect**

Heat island effect occurs where ambient temperatures around developments are higher than those of surrounding areas. In the context of a PV installation, this relates to the transfer of heat from the infrastructure to the surrounding areas.

Studies relating to heat island effect have identified that heat dissipation from solar infrastructure, on a larger scale facility, can increase ambient air temperatures within the perimeter by 3 to 4 degrees Celsius. However, it is also found that heat that was generated dissipated rapidly over a short distance, with ambient temperature generally indistinguishable at distance of 30 metres from the solar PV array

On a micro scale level, such as proposed by this development, it is considered any impact would be highly unlikely. The facility establishes minimum 80 metre setbacks (including road reserves) from the nearest dwelling to the south, with all other dwellings setback by more than 750 metres. In addition, there will be extensive landscaping and separation to surrounding agricultural lands, minimising potential for impact on production from changes in ambient temperature.

The establishment of generous landscaping also assists with the potential mitigation of any ambient heat changes. The proposal therefore achieves this offset to any external site boundaries.

## 8 Conclusion

In conclusion, the proposal for the development of land described as Lot 40A in PP3396 and is part of the property addressed as 290 Cosgrove-Caniambo Road, Cosgrove for a 5MW renewable energy facility deserves the support of Council because:

- it complies with the standards and objectives outlined within the Planning Scheme;
- it represents orderly planning of a large farming lot in an area that minimises impacts on more sensitive land;
- it proposes a site responsive design which integrates with the existing topography and ensures the development does not significantly impact the amenity of the area;
- it will minimise visual impacts to neighbours by locating the facility within a smaller footprint and with large setbacks to surrounding roads; and
- it is located adjacent to a 22kV transmission line, with good capacity and can be efficiently connected from the proposed on-site substation without requiring any reconfiguration of the supply network;
- it will establish a micro scale network which occupies a small surface area of land and contributes a reasonable extent of renewable energy into the network;
- it proposed treatments to minimise conflicts with adjoining sensitive interfaces;
- it will protect and enhance biodiversity through retention of existing native vegetation on the property;
- access can be easily obtained through connections to the surrounding road network and
- existing infrastructure connections, including to a conveniently located substation, can be easily extended with minimal works required;
- it will enable 54% of the current lot to continue to be farmed for cropping enterprises by the landowner during the life of the facility, while also allowing strategic grazing of the solar facility land;
- it contributes to the sustainability of the shire through provided an alternative renewable energy source; and
- it will have a positive economic effect through providing work and contracting opportunities to local businesses, and through indirect effects such as accommodation or food premises’;

In light of the above considerations, it is our opinion that the proposal is appropriate and orderly planning and is in the public interest. The proposed development warrants support by Council.

## Attachment A

Certificate of Title

## Attachment B

### Proposed Development Plans

# Attachment C

Landscape Concept Plans

## Attachment D

### Traffic Impact Assessment

## Attachment E

Agricultural Impact Assessment

## Attachment F

### Native Vegetation Assessment

## Attachment G

### Glint and Glare Assessment

## Attachment H

### Noise Impact Assessment Report