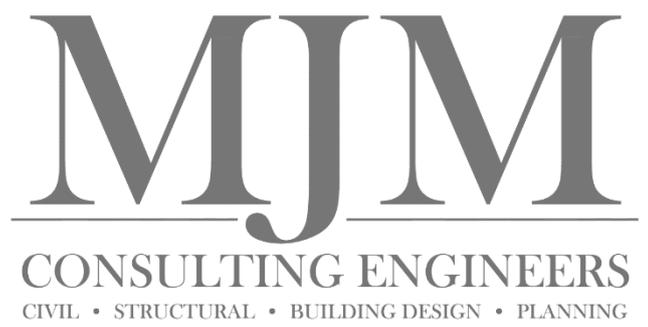


Bushfire Assessment & Emergency Management and Operations Plan

Proposed Micro Solar Farm

1083 Buckingbong Road, Gillenbah, NSW

Prepared for Narrandera Solar Project Pty Ltd



Document Verification Schedule

		<p>Project</p> <p>Bushfire Assessment & Emergency Management and Operations Plan</p> <p>1083 Buckingbong Road, Gillenbah, NSW</p>																													
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1 INTRODUCTION

1.1 OVERVIEW

This assessment has been prepared on behalf of Narrandera Solar Project Pty Ltd (the applicant) to support a Development Application for a micro solar farm to be developed at 1083 Buckingbong Road, Gillenbah, New South Wales (NSW). An aerial image of the site and surrounds is provided in the below figure.



Figure 1 Aerial image of development site and surrounds (Source: NSW Planning Portal)

The micro solar farm model involves the construction of smaller solar farms that integrate into the existing Essential Energy electrical network. As such, the subject site has been chosen due to its abuttal to existing Essential Energy 11KV transmission lines. Due to the existing substation and power lines, the site is immediately proximate to assets that service local population centres and commercial operators which ensures electricity is most efficiently transferred from the source facility.

The site is currently utilised for agricultural purposes and contains dwellings and associated farm structures on lots to the north and north west which include structures of local heritage significance being the Buckingbong Homestead and outbuildings, and Buckingbong Woolshed. The development would be located on a previously cultivated lot within the north eastern portion of the substantial property as identified in the figure on the following page.

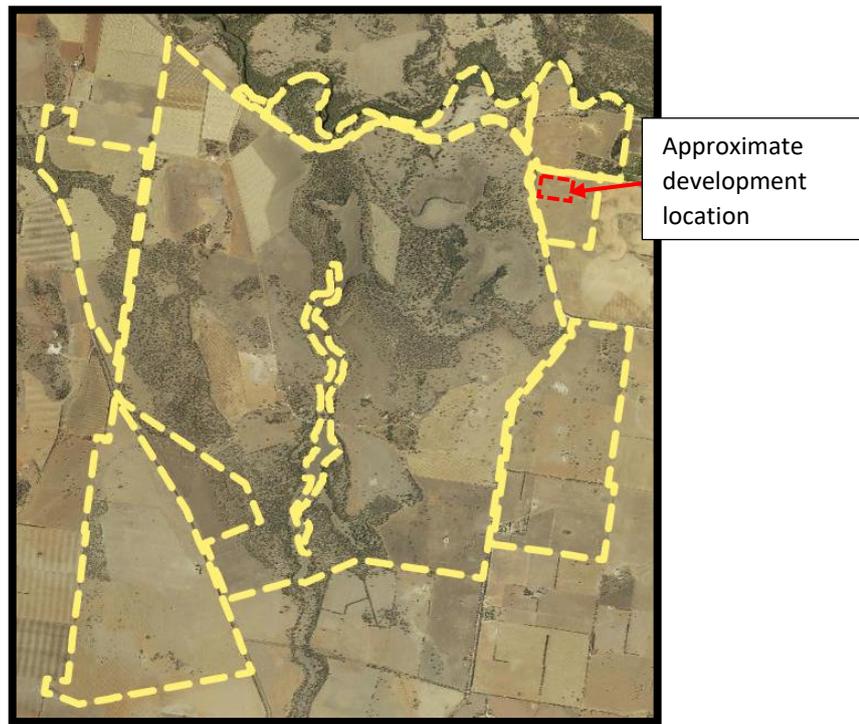


Figure 2 Approximate development proposal area (Source: NSW Planning Portal)

The proposal would include the installation of approximately 16,128 450 watt solar panels which would be mounted on single-axis tracking systems. The solar panels would be supported by ancillary aspects including a power station consisting of an inverter, transformers and switch gear; a HV switchboard consisting of HV switch gear; battery storage; electrical poles; hardstand vehicle areas and site fencing and landscaping.

The solar farm would have a 31 year lifespan from the beginning of construction with the project to be decommissioned and the site rehabilitated at the conclusion of its use which would allow the development footprint area to be re-utilised for agricultural undertakings as appropriate.

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires the Commissioner of the NSW Rural Fire Service (RFS) to designate and map bushfire prone land (BFPL), which is a trigger for various development assessment provisions. The property is mapped as bushfire prone land as shown in the below figure.

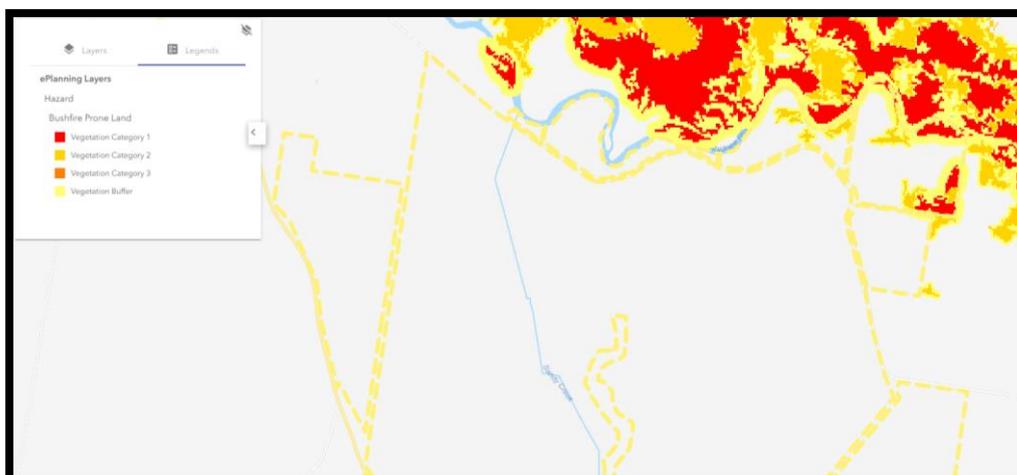


Figure 3 Bushfire prone land map of development site (Source: NSW Planning Portal)

Although the mapped bushfire prone vegetation is located around the boundary of the site and not within the vicinity of the proposal area, it is noted that the vegetation within 140 metres of the proposal area would be classified as 'grassland' hazard.

This report has been prepared in accordance with the Rural Fire Service Planning for Bushfire Guide November 2019 (PBP), *Section 8.3.5 Wind and solar farms*.

2 SITE DESCRIPTION

2.1 DEVELOPMENT SITE

The development site is known as 1083 Buckingbong Road, Gillenbah. It is located approximately 18 km south east of the Narrandera township as shown in the below figure.

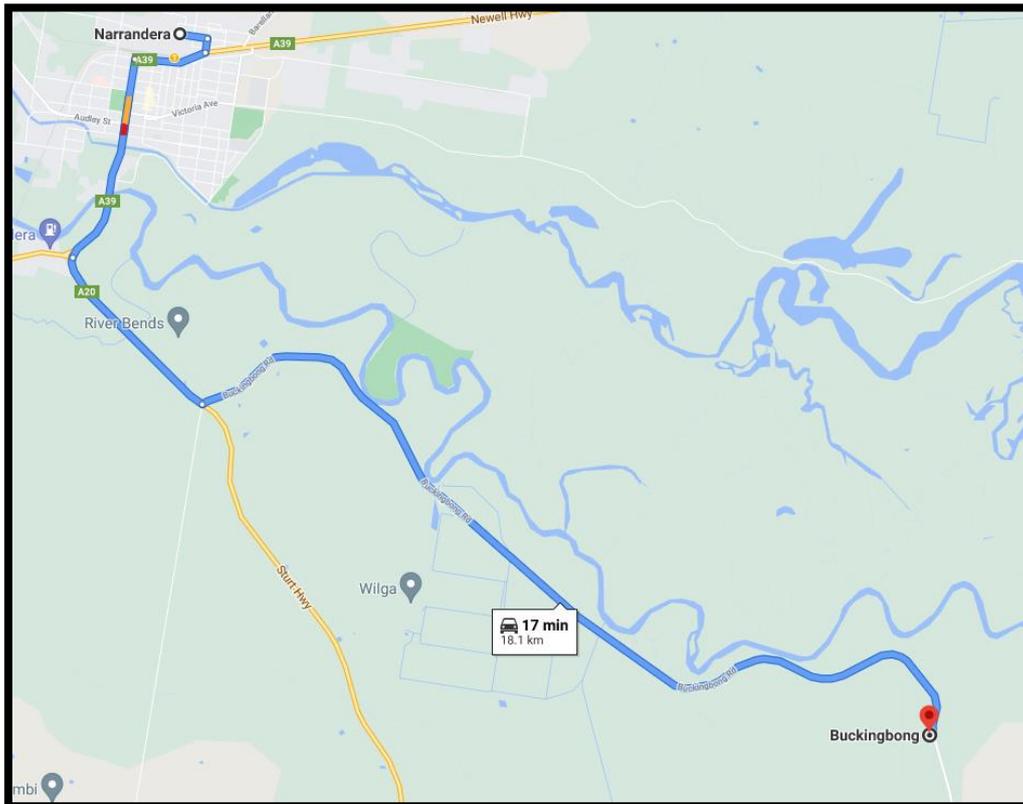


Figure 4 Location of development site from Narrandera township (Source: Google Maps)

It is located on both the eastern and western sides of the Sturt Highway, the northern and southern sides of Buckingbong Road and the southern side of the Murrumbidgee River as shown in the locality plan on the following page.

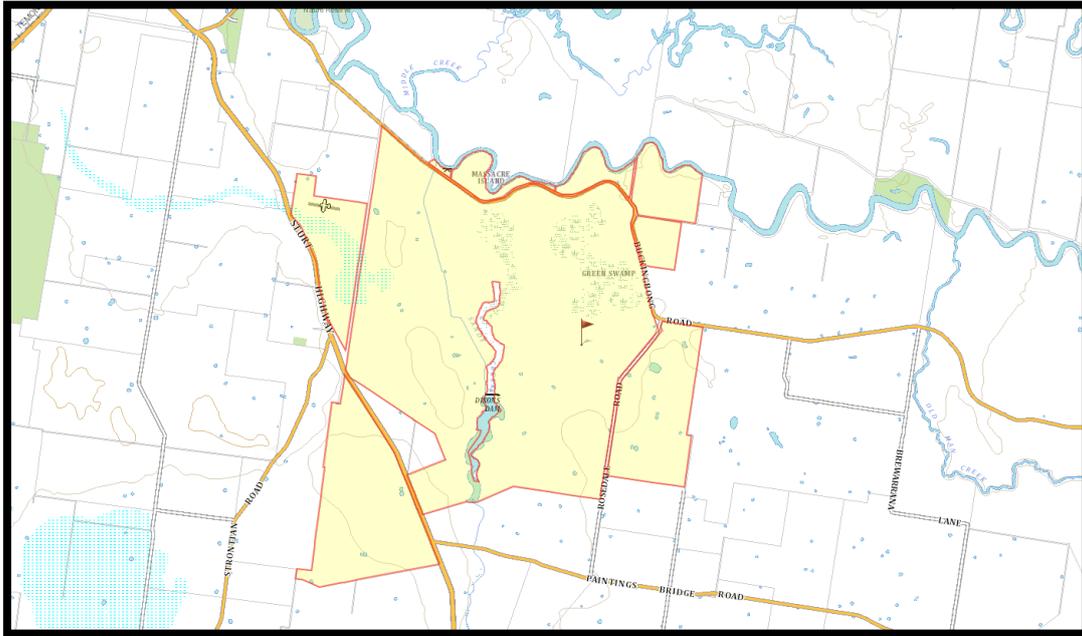


Figure 5 Locality Plan (Source: SixMaps)

The property consists of a number of lots as identified in the below figure.

1/-/DP1251925	1/-/DP134399	1/-/DP134947
1/-/DP134974	1/-/DP721977	1/-/DP754540
10/-/DP134399	10/-/DP134947	11/-/DP134399
11/-/DP134947	113/-/DP754552	114/-/DP754552
115/-/DP754552	116/-/DP754552	117/-/DP754552
118/-/DP754552	119/-/DP754552	12/-/DP134399
12/-/DP134947	120/-/DP754552	129/-/DP754552
13/-/DP134399	13/-/DP754540	130/-/DP754552
14/-/DP134399	15/-/DP134399	16/-/DP134399
17/-/DP754552	18/-/DP754552	19/-/DP754552
2/-/DP1251925	2/-/DP134399	2/-/DP134947
2/-/DP134974	2/-/DP209777	20/-/DP754552
21/-/DP754552	22/-/DP754540	22/-/DP754552
23/-/DP754552	24/-/DP754552	3/-/DP1251925
3/-/DP134399	3/-/DP134947	3/-/DP134974
35/-/DP754540	37/-/DP754552	4/-/DP134399
4/-/DP134947	4/-/DP754552	40/-/DP754552
44/-/DP754540	5/-/DP12202	5/-/DP134399
5/-/DP134947	5/-/DP754552	58/-/DP754540
6/-/DP134399	6/-/DP134947	6/-/DP754552
61/-/DP754552	62/-/DP754552	63/-/DP754552
64/-/DP754552	65/-/DP754552	68/-/DP754552
69/-/DP754552	7/-/DP134399	7/-/DP134947
7/-/DP754552	70/-/DP754552	7005/-/DP102418
71/-/DP754552	72/-/DP754552	7
75/-/DP754552	76/-/DP754552	74/-/DP754552
8/-/DP134399	8/-/DP134947	79/-/DP754540
85/-/DP754552	9/-/DP134399	81/-/DP754552
91/-/DP754552	92/-/DP754552	9/-/DP134947
94/-/DP754552	95/-/DP754552	93/-/DP754552
		B/-/DP101391

Figure 6 Lot & DP property details (Source: NSW Planning Portal)

The site is irregular in shape and approximately 4,980Ha in size. It has frontage to the Sturt Highway of approximately 3km to the west of Lot 37 DP 754552 and 4.3km to the east of Lot 2 DP 209777. It also has frontage of approximately 8.4km to Buckingbong Road to the north and north east of Lot 4 DP 754552 and the north of Lot 3 DP134974 of approximately 830m. Lot 120 DP 754552 also has an eastern

frontage to Rosedale Road of approximately 4km.

The site is zoned a combination of RU1 Primary Production and RU4 Primary Production Small Lots, consistent with all adjoining land as shown in the below figure.

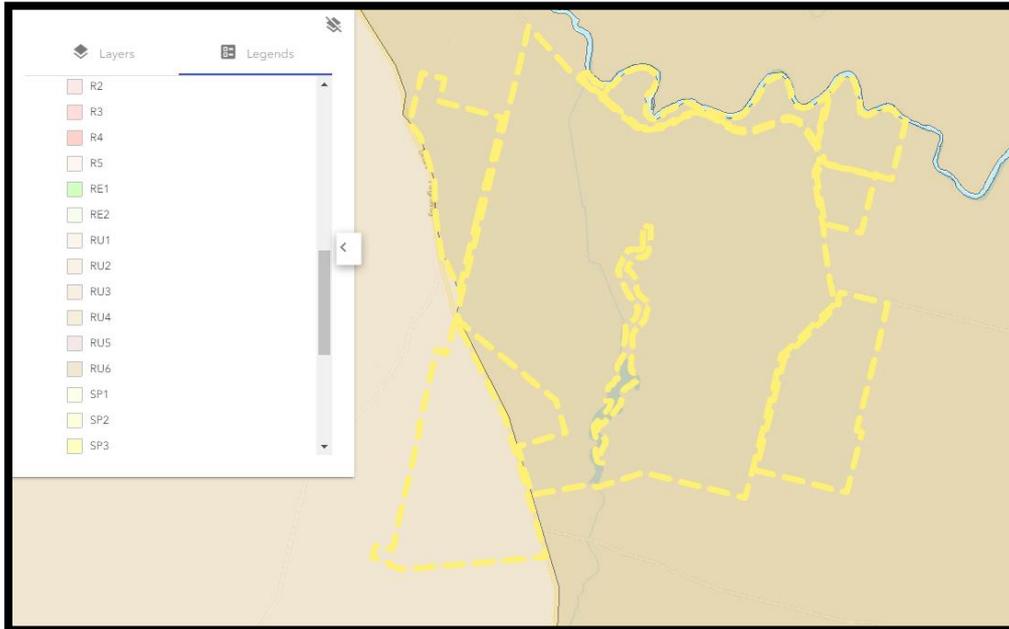


Figure 7 Narrandera Local Environmental Plan 2013 Zoning Plan of subject site and surrounds (Source: NSW Planning Portal)

The topography of the property varies over its expansive area however there are no sizeable changes in topography which would inhibit the proposed development as shown in the below figure.

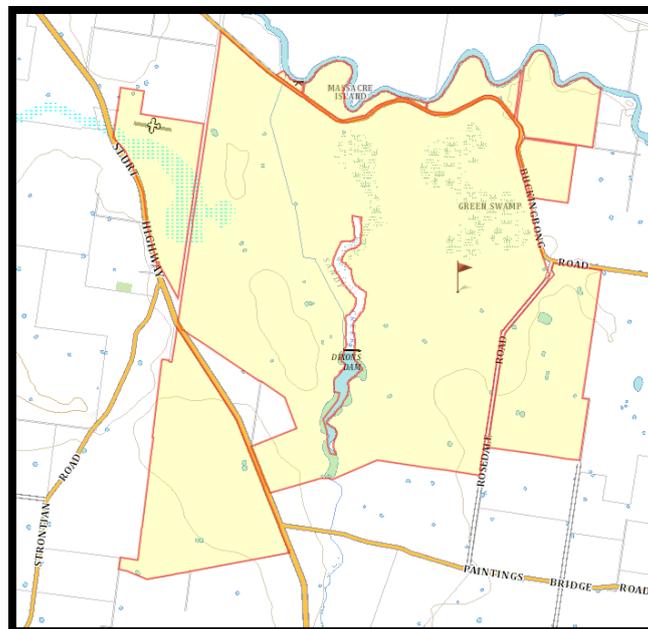


Figure 8 Site topography (Source: SixMaps)

The site is currently utilised for agricultural purposes in the form of grazing and arable cultivation. Due to the past agricultural use the proposal area has been cleared and had only recently been prepared again for a new crop prior to negotiations between the landowner and developer for the project. A portion of the site towards the north and north eastern extent is identified as being bushfire prone land as shown in the figure on the following page.

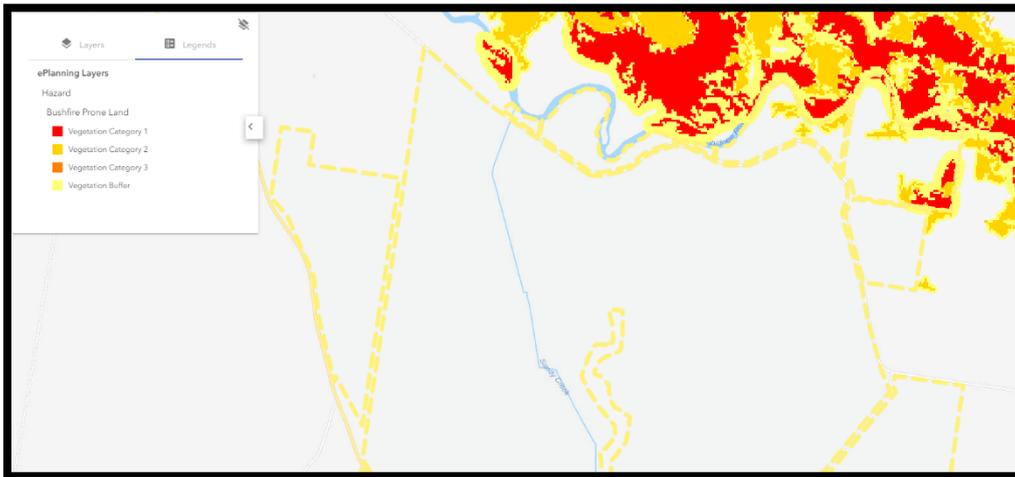


Figure 9 Bushfire prone land map of development site (Source: NSW Planning Portal)

Although the mapped bushfire prone vegetation is located around the boundary of the site and not within the vicinity of the proposal area, it is noted that the vegetation within 140 metres of the proposal area would be classified as 'grassland' as discussed in the accompanying Bushfire Assessment and Bushfire Emergency Management and Operations Plan.

2.2 SUBJECT LOT

The proposed development would be located on Lot 22 DP 754540 (subject lot), with overhead powerpoles and powerlines also traversing Lot 1 DP754540 to the north as shown in the below figures and accompanying development plans.

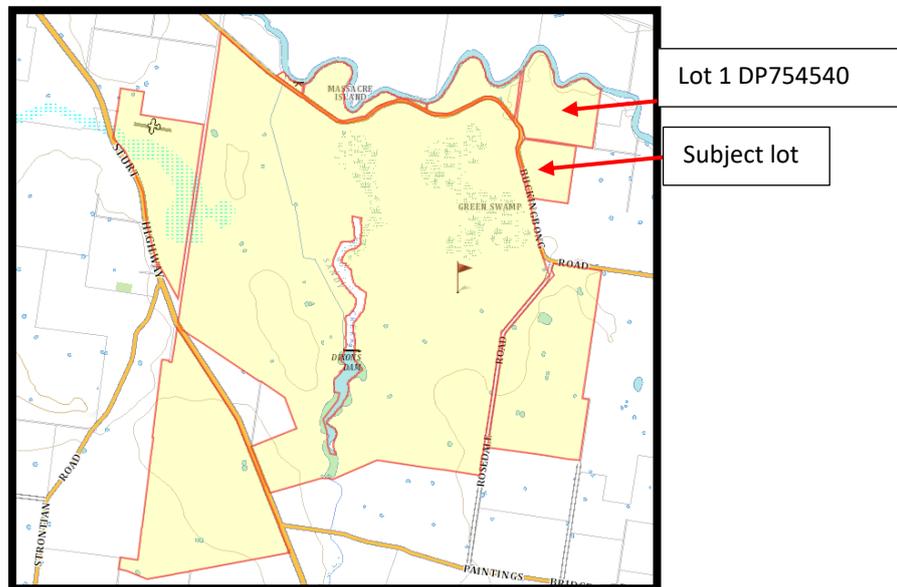


Figure 10 Subject lot (Source: SixMaps)

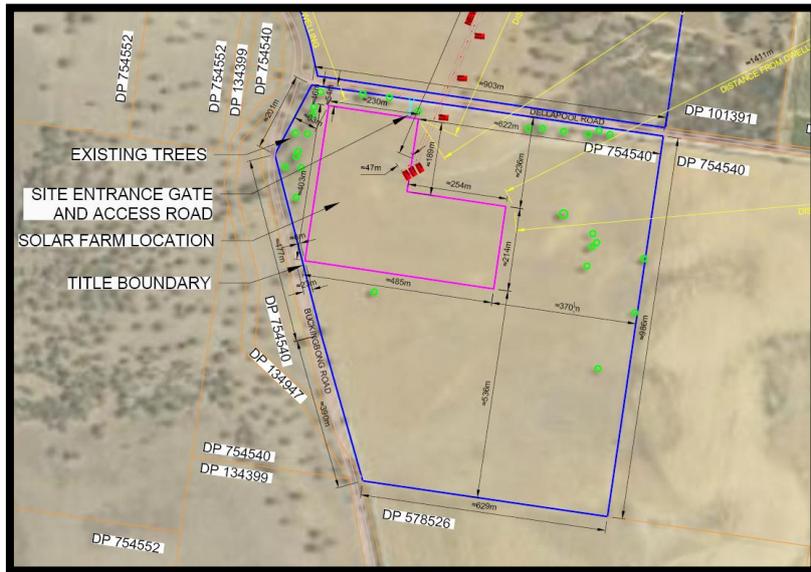


Figure 11 Extract from Location Diagram (Source: ACnergy)

The subject lot does not contain any structures. The nearest dwellings are located on the property on separate lots to the north and north west being 952 metres and 818 metres respectively from the proposal area. There are also three additional dwellings located on neighbouring properties located to the north east as shown in the below figure.

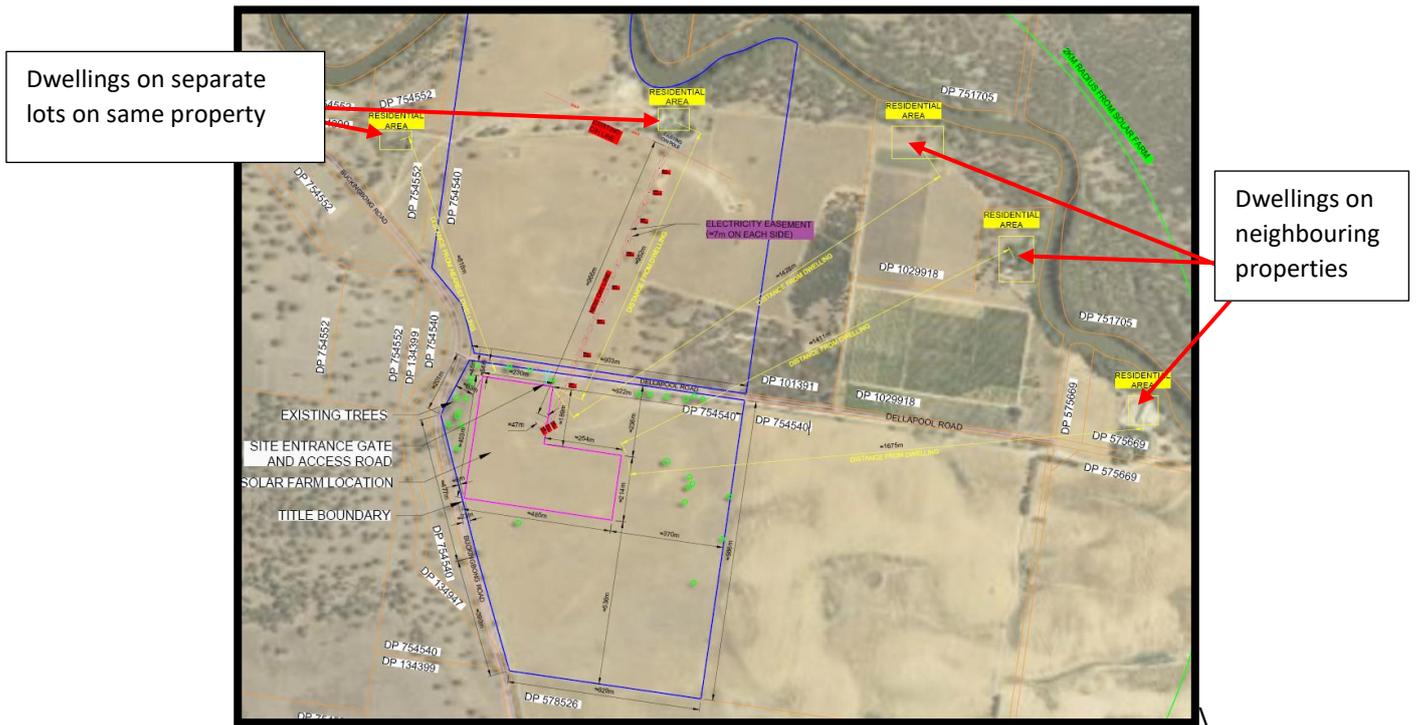


Figure 12 Surrounding dwelling locations (Source: SixMaps)

As shown in the below annotated extract from the site survey the subject lot is undulating with the lowest area being located to the east of the development footprint.



Figure 13 Annotated site survey extract (Source: PHL Surveyors)

No trees would be required to be removed to facilitate the proposal.

It is noted that there are two areas identified as bushfire prone land within the subject lot being along the north eastern property boundary and the south eastern property boundary as shown in the below figure.



Figure 14 Bushfire prone land mapping of subject lot (Source: NSW Planning Portal)

Although the mapped vegetation is located over 200 metres from the proposal area it is noted that the vegetation within 140m of the proposal area is identified as 'grassland' and as such this hazard is considered in this Bushfire Assessment and Bushfire Emergency Management and Operations Plan.

2.3 LOCALITY

Surrounding land is rural in nature being zoned either RU1 Primary Production or RU4 Primary Production Small lots as shown previously in **Error! Reference source not found.** of this report. Six (6) neighbouring dwellings are located within a two kilometre radius of the proposal area, with two of these being located on the same overall property as the solar farm on a different allotment as shown in the figure below.

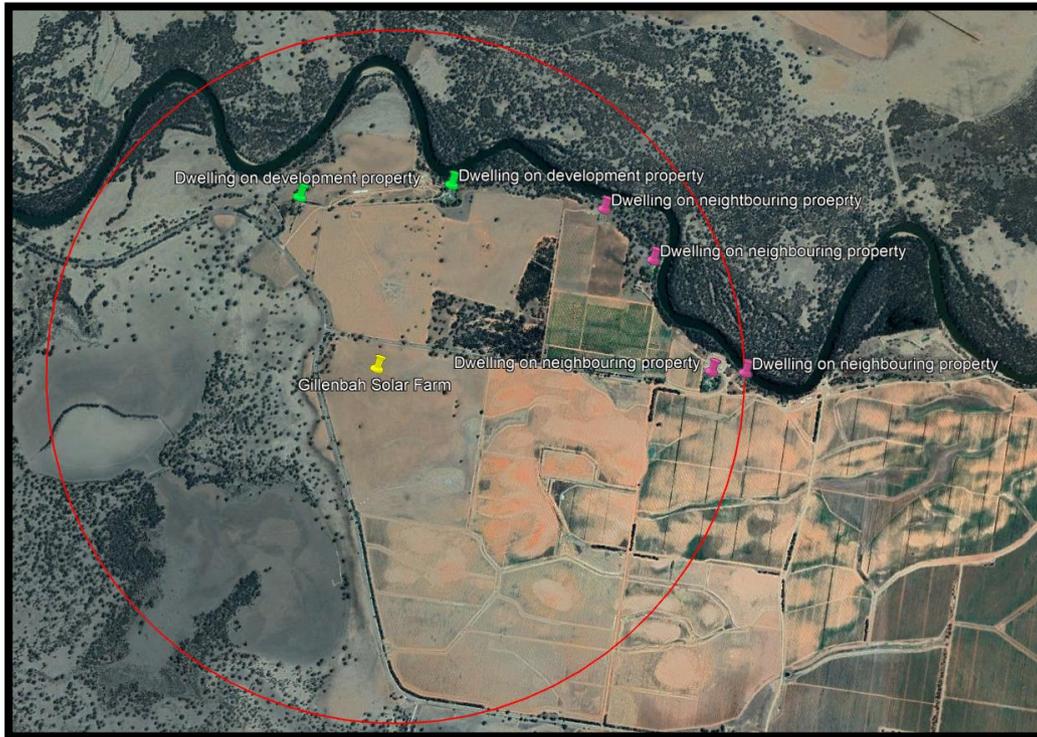


Figure 15 Approximate 2km Radius from development location (Source: Google Earth Pro)

The surrounding land is mostly cleared for agricultural uses with scattered vegetation throughout and the Murrumbidgee River located to the north. Buckingbong Homestead & Outbuildings and Buckingbong Woolshed, both of which are identified as locally significant heritage items, are located on the development property on a separate lot to the north. Wetlands, in the form of Green Swamp, are located west of the proposal area within a separate lot of the overall development property. There are no other significant land uses within the vicinity of the subject lot.

3 PROPOSED DEVELOPMENT

3.1 DEVELOPMENT OBJECTIVE

The objective of the development is to provide renewable energy to regional Australia, where it is most needed, at a scale which is responsive to the surrounding environment including nearby agricultural and other sensitive land uses. The intention is to functionally generate the equivalent output of larger conventional farms through a network of smaller facilities that can be rolled out in a site-sensitive manner and deliver renewable energy to different regions of New South Wales. These micro sites can be located on rural land without requiring extensive works to be undertaken on the landform and therefore can avoid the most productive agricultural land.

3.2 DEVELOPMENT DESCRIPTION

The development proposal is for a micro solar farm and associated infrastructure including photovoltaic panels and a power station consisting of inverter, transformer and switchgears. The power station would act as the primary conduit for electricity from the facility prior to it being transferred via overhead powerlines to the nearby Essential Energy transformer.

A 'micro' solar farm differs from a conventional solar farm in that it occupies less land area and has a maximum output of less than 5 megawatts. The project would include the installation of a total of approximately 16,128 PV panels with the entire development having a footprint of approximately 14.7 hectares. It is noted that the entire property has an area of approximately 4,980Ha in size and as such the proposal will still allow agricultural land uses to continue to be undertaken on other areas of the property. The footprint of the solar farm will also be able to be utilised for grazing purposes throughout the life of the development as the compound will be established with ground cover in the form of permanent pasture.

Further to this, the solar farm would have a life span of 31 years from construction, after which it would be decommissioned and all assets removed from the site. The site would then be rehabilitated as required and the development area could easily be returned to agricultural use should this be desired by the landowner.

The solar farm area would be surrounded by a fully secured 1.8-metre-high steel wire fence with a landscaped vegetation buffer located on the interior of the fencing. The landscape buffer would take the form of two rows of plantings, row one being offset approximately 3.5 metres from the site fence, and row two being offset approximately 1.5 metres from the site fence. The buffer would have an expected combined width at maturity of approximately 5 metres. The vegetation would include shrubs with a mature height of approximately 3 metres, and understorey plantings with a mature height of approximately 1.5 metres which would assist in lessening visual impacts of the proposal on the nearby residences.

The solar farm would be remotely monitored allowing for constant surveillance without the requirement of ongoing staff, however a maximum of two contractors would attend the site a maximum of three times per month for general inspections and maintenance of equipment or landscaping or for security inspection purposes.

3.2.1 EQUIPMENT

3.2.1.1 TRACKERS AND SOLAR PANELS

A total of approximately 16,128 non-reflective solar panels, with approximate dimensions of 2100mm by 1050mm and a depth of 40mm, would be mounted to array tracking systems. A typical array would comprise approximately 80 – 90 individual solar panels.

The tracking system utilises small electric motors to tilt the arrays to ensure maximum solar radiation is received at all times throughout the day. The solar arrays will be mounted with the central axis being approximately 1.4m from ground level. The array and tilted panel would have a maximum height of approximately 2.5m when tilted to its sharpest angle as shown in the below figure.

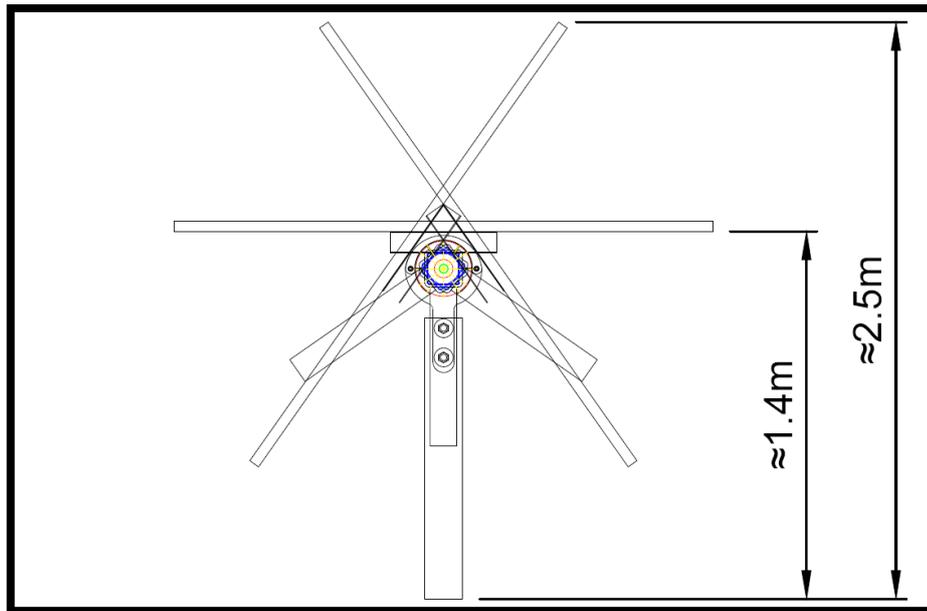


Figure 16 Typical tracker layout (Source: ACEnergy)

A typical solar tracking system including solar panels and arrays is shown in the below figure.



Figure 17 Typical solar tracking system (Source: Google)

3.2.1.2 CENTRAL POWER STATION AND CONNECTIONS

The facility contains a central power station consisting of an inverter, transformer and switchgears similar to that shown in the below figure.

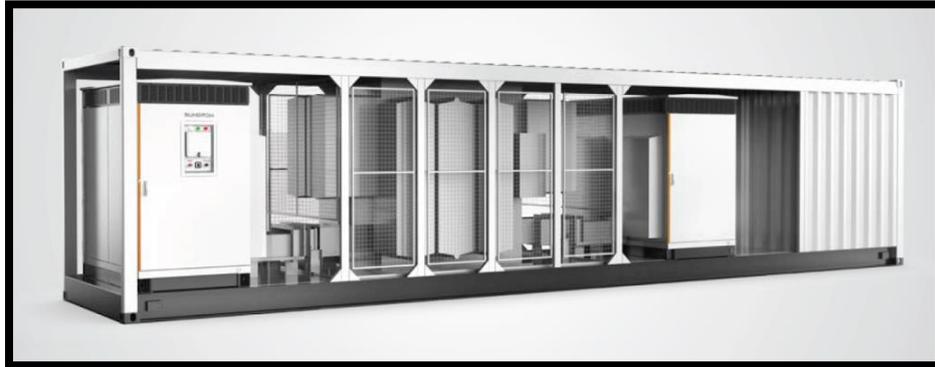


Figure 18 Typical inverter, transformer and switchgears (Source: ACEnergy)

The power station will be prefabricated off-site and have dimensions of approximately 13m long, 3m wide and 3m high. It will be located within the compound, as identified in the accompanying ACEnergy development plans, and will be utilised as the primary conduit for electricity generated from the solar panels to a HV switch board.

The HV switchboard, which would house the HV switch gear and associated safety features, would receive electricity from the power station via underground cables. The HV switchboard platform would measure approximately 5m wide, 5m long and 4m high. The switchboard would be fixed on the platform beams and the platform would be placed on footings as identified in the accompanying ACEnergy plans. The below figure depicts a typical HV switchboard and associated platform.



Figure 19 Typical HV switchboard and platform (Source: ACEnergy)

The HV switchboard would connect via underground cables to one of the two new power poles erected within the compound which would then transfer the electrical load via overhead powerlines to the nearby Essential Energy substation.

As described above, one underground/overhead power pole and an overhead power pole are

planned to be installed within the compound, with two (2) additional overhead poles being installed to the north of the compound within the subject lot, and seven (7) additional poles within the lot to the north to support the installation of approximately 960 metres of overhead powerlines which would connect the facility to the existing Essential Energy network infrastructure to the north. Each pole will measure approximately 10 metres in height above ground.

The accompanying development plans prepared by ACEnergy provide additional details of the proposed power station including typical elevations, footings and connection details.

3.2.1.3 ENERGY STORAGE CONTAINERS

Five (5) DC-coupled energy storage containers (ESC) would also be included in the development and would be installed on concrete footings as depicted in the accompanying plans prepared by ACEnergy. They would physically resemble a mounted shipping container measuring approximately 13m long, 3m wide and 3m high and will have a powder-coated grey finish similar to that depicted in the figure below.



Figure 20 Typical DC coupled energy storage container (Source: ACEnergy)

The energy storage containers would allow generated energy to be stored as required and utilised during times of high demand. They can also perform grid management functions such as frequency and voltage control.

3.2.2 FENCING AND LANDSCAPING

Although the subject lot is fenced by typical rural post and wire fencing, the development area would also be enclosed by a 1.8-metre-high chain mesh fence. A landscape buffer would be included inside the site fencing. The buffer would take the form of two rows of plantings, row one being offset approximately 3.5 metres from the site fence, and row two being offset approximately 1.5 metres from the site fence. The buffer would have an expected combined width at maturity of approximately 5 metres. The vegetation would include shrubs with a mature height of approximately 3 metres, and understorey plantings with a mature height of

approximately 1.5 metres which would assist in lessening visual impacts of the proposal on nearby residences.

The proposed landscaping is considered appropriate due to the rural location of the development site and the distance to nearby visual receptors which ranges from approximately 818 metres to over 1.5km. Further to this the site is located over 6km east of the Sturt Highway and would therefore have no impact on traffic utilising this roadway.

The landscape buffer will be maintained for the duration of operation of the facility as necessary.

3.2.3 SITE ACCESS

Access to the solar farm would be via a security gate with a width of approximately 8 metres on the northern side of the compound. An all-weather internal access track, with a width of approximately 4 metres, would connect the development area to the proposed new Dellapool Road property access to the north.

A desktop analysis confirms the access is likely to conform to safe sight distance requirements for vehicles leaving the site however this would be able to be confirmed at Construction Certificate application stage.

3.2.3.1 LABOUR

Construction is likely to occur over an approximate six (6) month period. Civil earthworks and fencing would begin first, with material delivery, installation, testing, commissioning, and site clean up, landscaping and demobilisation to occur in turn.

During the construction period the amount of workers on the site would depend on the stage of works however a maximum of 50 workers would be on site at any one time. Positions would include Project Manager, Construction Manager, Health and Safety Manager, electrical contractors, plant operators, fencing contractors, heavy vehicle drivers, general labourers and the like.

3.2.4 OPERATION

As described previously in this report, once operational the solar farm would be remotely monitored allowing for constant surveillance without the requirement of ongoing staff. A maximum of two contractors would attend the site a maximum of three times per month for general inspections and maintenance of equipment or landscaping or for security inspection purposes.

It is noted that the majority of technical issues which could arise during operation are able to be solved remotely by engineers who oversee the remote monitoring of the site. Any aspects which require on site attention would be attended by a local contractor who would also undertake the regular maintenance described above.

3.2.5 DECOMMISSIONING

Decommissioning of the facility would occur at the end of the useful life of the infrastructure, anticipated to be approximately 31 years from commencement of construction. At the end of the project lifecycle the facility will be decommissioned in a manner to ensure the land is left in a suitable state for a return to primary production purposes based on the current zoning.

It would be proposed that not later than 12 months prior to the proposed cessation of operation a decommissioning plan be prepared and provided to Council for review and approval. The objective of such a plan would be to restore the land to its pre-existing state suitable for agricultural use. It would include, but not be limited to, the following details:

- Expected timeline for rehabilitation completion;
- Decommissioning of all solar panels, above and below the ground infrastructure, inverter stations, fencing and any other structures or infrastructure relating to the approved development; and
- Programme of site restoration to return the land back to a suitable state for agricultural production.

4 VEGETATION FORMATION

The vegetation formations for each aspect within 140 metres of the development boundary includes vegetation both within and external to the site boundaries in accordance with Keith (2005). Within the area of assessment, the dominant vegetation formation in all directions would be classified as **grasslands (Western Slopes Grasslands)** as defined in accordance with Figure A1.2 of the PBP. An aerial image of the approximate development location and 140 metres in each direction (white outline) is provided in the below figure.



Figure 21 Vegetation within 140 metres of development area (Source: Google Earth Pro)

5 SECTION 8.3.5 OF THE PBP

Section 8.3.5 of the PBP refers specifically to wind and solar farms. It specifies that a minimum 10m APZ must be provided for the structures and associated buildings/infrastructure associated with such developments. The APZ must be maintained to the standard of an Inner Protection Zone IPA for the life of the development as specified under A4.1.1 of the PBP. It is noted that road access to the site and other services to the site and associated fencing is not classified as infrastructure which requires an APZ to be provided.

Section 8.3.5 also states that essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush.

A Bush Fire Emergency Management and Operations Plan should identify all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm. This should include:

- detailed measures to prevent or mitigate fires igniting;
- work that should not be carried out during total fire bans;
- availability of fire-suppression equipment, access and water;
- storage and maintenance of fuels and other flammable materials;
- notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and
- appropriate bush fire emergency management planning.

It is important to be aware of operations that may be carried out on days of Total Fire Ban and any prohibited activities or exemptions that are notified by the Commissioner of the NSW RFS under the RF Act s.99.

As shown in the accompanying development plans, a 10 metres APZ has been provided within the boundary of the development area between the landscape vegetation buffer/fencing and the development assets. A Bush Fire Emergency Management and Operations Plan is included in the following section of this assessment.

6 BUSHFIRE EMERGENCY MANAGEMENT AND OPERATIONS PLAN

6.1 INTRODUCTION

Section 8.3.5 of the Planning for Bushfire 2019 guide advises that a Bushfire emergency management and operations plan should be prepared for wind and solar farms to identify all relevant risks and mitigation measures associated with the construction and operation of the facility.

The subject development takes the form of a micro solar farm to be located at 1083 Buckingbong Road, Gillenbah, NSW. This Bush Fire Emergency Management and Operations Plan outlines the management of hazard reduction and ignition management and prevention strategies to enable adequate preparation and emergency management response before and during a grass fire event.

This plan has been prepared in accordance with:

- AS3745:2010 Planning for emergencies in facilities.
- NSW RFS Development Planning – A guide to developing a Bush fire Emergency Management and Evacuation Plan.
- NSW Rural Fire Service, Planning for Bushfire Protection 2019 (PBP 2019).

The risk of bushfire impacting the site was assessed in previous sections of this report, noting the rural location and surrounding grassland hazard.

A copy of this plan should be available for staff and visitors of the site during construction, operation and decommissioning stages. A copy shall be provided to the Emergency Services to assist in their pre-incident planning. Individuals identified in this plan have the responsibility to annually review and maintain the plans relevance to the site characteristics as change occurs.

6.2 PLAN OBJECTIVES

This plan has been developed to meet the bushfire planning requirements NSW Rural Fire Service (RFS) Planning for Bushfire Protection 2019 (PBP). As such it will:

- detail measures to prevent or mitigate fires igniting;
- identify strategies to suppress unplanned fires;
- identify activities which should not be undertaken during certain fire danger ratings;
- identify strategies to minimise the potential spread of bushfires;
- identify bushfire mitigation treatments;
- identify bushfire emergency management procedures; and
- identify general emergency procedures.

6.2.1 STRATEGIES TO PREVENT IGNITION

All Employees of ACLE Services and Contractors are responsible for reporting and monitoring fire hazards and for the prevention of fires.

The key to minimising fire ignition is to increase the awareness of the risks of ignition. The main sources of ignition in the area are:

- Harvesting operations and farm machinery.
- Lightning.
- Escape from legal and illegal burning operations.
- Accidental.

The below table identifies potential ignition risks and associated actions should fires ignite.

Table 1 Ignition risk and actions

IGNITION RISK	ACTIONS
Deliberate / arson	Promoting cooperative surveillance programs with fire agencies and community. Promoting staff, community education and awareness programs. Limiting public access during severe and catastrophic fire weather conditions. Cooperatively assist NSW Police and the Rural Fire Service to investigate all fires believed to have been deliberately lit.
Camp fires	Promoting staff, community education and awareness programs.
Debris burning	Ensure neighbours obtain appropriate permits to implement Debris burns.
Machinery use	Maintain high level of employee awareness (e.g. toolbox talks). Ensure adequate buffer zone between activities and fuel source. All hot work activities to have a spotter and a fire extinguisher within work zone when required. Hot works to be avoided during total fire bans or on FDR days of Very High or greater. Do not undertake mechanical clearing works on Extreme and Catastrophic fire danger days Removal of some visual rocks before slashing. Avoid driving on/through long grass (vehicle exhaust systems are known to igniting grass fires)
Electrical lightning and	Liaise with electricity providers to ensure maintenance of powerlines.

6.2.2 STRATEGIES TO SUPPRESS UNPLANNED FIRES

Fire suppression actions start from the time the fire is detected until it is extinguished. The solar farm facilities priorities in bush fire suppression operations are:

- The safety of all staff and visitors;
- The effective protection of human life, facility and community assets; and
- The reduction of ignition potential on site to acceptable levels.

All staff should **be prepared for ignition** by monitoring Fire Danger Indexes and synoptic conditions on a continuous basis daily throughout the fire season. They should be aware of pre-emptive incident management and be aware of response procedures.

All staff should be able to **respond to ignition** by identifying triggers and implementing appropriate actions.

The below table identifies activities which should not be undertaken during certain fire danger ratings.

Table 2 Activities and fire danger ratings

ELEMENT	LOW/MODERATE	HIGH	VERY HIGH	SEVERE	EXTREME	CATASTROPHIC
Minimise hot works through appropriate work scheduling	No requirements	If deemed appropriate. Hot works should be accompanied by a spotter and a fire extinguisher.	If deemed appropriate. Hot works should be accompanied by a spotter and a fire extinguisher.	If deemed appropriate. Hot works should be accompanied by a spotter and a fire extinguisher.	No hot works	No hot works
Minimise vegetation maintenance activities through appropriate work scheduling	No requirements	No requirements	No requirements	If deemed appropriate. Vegetation management should be accompanied by a spotter and a fire extinguisher.	If deemed appropriate. Vegetation management should be accompanied by a spotter and a fire extinguisher.	No vegetation maintenance activities
Bushfire PPE and firefighting equipment	No requirements	No requirements	Ensure equipment is functional and readily available	Ensure equipment is functional and readily available	Ensure equipment is functional and readily available	Ensure equipment is functional and readily available

On 'Total Fire Ban' days no vegetation management or hot works will be undertaken unless notification and approved through s99 by NSW RFS is obtained. Only general maintenance works that do not require mechanical machinery that can create an ignition source will be permitted during 'Total Fire Ban' days.

6.2.3 STRATEGIES TO MINIMISE POTENTIAL SPREAD OF BUSHFIRES

ACLE Services will ensure the solar farm facility is maintained to minimise the potential for the spread of fires from or into the compound. In general they will:

- Prioritise the maintenance of the Asset Protection Zone;
- Maintain the Asset Protection Zone to standards in accordance with PBP2019; and
- Ensure water availability; and
- Site and facility access is maintained.

Water availability will take the form of a non-combustible minimum 20,000 litre dedicated water tank with Storz fitting and other fire-fighting equipment in compliance with Australian Standards. This tank should be specifically for fire tanker refilling/on site fire-fighting. A petrol, diesel or solar powered fire-fighting pump and 30m hose reel with steel nozzle is recommended and can be mounted on a 4WD with water tank. This can be used for grass fire/ember attack fighting by the proponent in a bushfire event.

6.2.4 BUSHFIRE MITIGATION TREATMENTS

Bushfire mitigation treatments are strategic in nature as they prioritise protection of life and property. The principle elements of the bushfire mitigation treatments are:

- Establishing and maintain landscape maintenance schedules;
- Implementation of this Plan; and
- Establishing a staff and visitors education program.
- The below table identifies bushfire mitigation measures based on the specific bushfire period being either before, during or after a bushfire event.

Table 3 Bushfire action statement

PERIOD	TRIGGER	ISSUE	ACTION	RESPONSIBILITY
Preparation	Planning requirement	Risk assessment	Review Maintenance schedules for landscaping and ground maintenance Review site 'fire hygiene' and treat as required	Facility Manager
Preparation	Planning requirement	Response capacity	Contact local rural fire brigades and NSW Fire and Rescue and undertake familiarisation of the facility	Facility Manager
Preparation	Planning requirement	Response capacity	Maintain inspection of APZ and aesthetic tree row adjacent to APZ	Facility Manager
Preparation	Planning requirement	Risk assessment	Undertake annual review of this Plan and hold fire scenario training and simulation as required for new staff.	Facility Manager
Preparation	Planning requirement	Evacuation	Prepare emergency evacuation plan in	Facility Manager

			liaison with RFS prior to construction beginning on site	
Response	Severe – extreme – catastrophic fire danger index	Evacuation response triggered	Unlock access gate for emergency service access.	Facility Manager
Response	Confirmed bushfire event	Hazardous materials	Ensure all hazardous materials are protected and secured.	Facility Manager
Recovery	Following passage of fire	Site safety	Contact utility providers to re-establish services.	Facility Manager
Recovery	Following passage of fire	Facility safety	Contact RFS to establish notification to re-enter site to undertake access and tree safety assessments. Engineers to undertake assessment of solar panel infrastructure	Facility Manager

6.2.5 BUSHFIRE EMERGENCY MANAGEMENT PROCEDURES

Procedures for both sheltering and evacuation should be developed, with one identified as the Primary Action to be followed during a bushfire. In this case, shelter-on-site is not a feasible emergency management option due to the lack of appropriately designed structure. Furthermore, the site will not be occupied, and people present on-site will be only for maintenance and operational requirements.

Emergency services may decide to evacuate areas for public safety. For this reason, procedures to evacuate are required to ensure the necessary planning and coordination arrangements are in place.

An important factor when planning for emergency procedures is that under intense conditions it is common for people to behave irrationally and this may increase the time taken to move people.

Pre-emptive closure

The lead time for a planned closure varies depending on weather patterns, but every attempt is made to give the facility and attending staff as much notice as possible to prepare and respond.

Once the decision is made that the facility is to undertake pre-emptive closure, information needs to be disseminated quickly and expectations of staff need to be clearly identified.

Potentially, between declaration of the closure and the day of closure, weather conditions may improve sufficiently to remove the need to close and the facility can therefore stand down its pre-emptive closure plans. Triggers for these decisions need to be clear and concise.

Due to the location of the site, pre-emptive closure for the facility is possible.

Staff attending the site to undertake maintenance and operational management should only attend when a bushfire will not impede evacuation from the site.

Evacuation from the site is via Dellapool Road, which is surrounded by grassland vegetation, then west on to Buckingbong Road which is surrounded in part by both grassland and woodland vegetation. The travel distance to the Sturt Highway is approximately 11.5km whether travelling north along Buckingbong Road, or south via Buckingbong Road and then west along Painting Bridge Road both of which enables crews to depart the site and arrive at safe refuge within approximately 10 minutes. This ability to quickly relocate enables staff to attend the site on day of severe fire danger days.

Pre-emptive site closure should occur on extreme and catastrophic fire danger days.

Shelter

Facilities with sheltering as their Primary Action will have evacuation procedures in case they can no longer shelter, or emergency services call for a pre-emptive evacuation due to catastrophic or extreme bush fire conditions. Shelter-on-site is not possible for this facility as no built structure is provided for shelter purposes.

Evacuation

Facilities with evacuation as their Primary Action that have no shelter-on-site mechanisms will have clear and concise decision triggers for staff to follow. Pre-emptive site closures become more critical in these situations ensuring staff are not placed in any danger when they are required to consider evacuation as an emergency response option.

Safe access arrangements for people to evacuate an area whilst emergency service personnel are accessing the same area to suppress a bushfire are essential. Alternative access/way out routes will also assist if part of the road system is cut by bushfire or bush fire related activities, such as fallen tree or firefighting appliances.

Evacuation can be by foot or vehicle, or both depending on the availability and location.

The principle Primary Action for this facility is Evacuation.

Once staff are satisfied that all people have evacuated the site, an assessment should be performed to establish an off-site meeting point that is considered safe in terms of air quality (smoke), ember attack and further ignition potential. Notification of this off-site meeting point should be relayed to management.

Three options for consideration depend on the dominate weather and fire direction. Evacuating vehicles can travel north and south on the Sturt Highway or relocate to the Highway service centre just south of the Narrandera township.

Relocating to the Highway service centre offers protection, although hazardous materials (fuels) also present further ignition sources. Relocation to this site should consider the safest location away from other hazard and ignitable materials.

Decision triggers

Developing a clear set of triggers will increase the ability to react quickly and make decisions when a bush fire event occurs. The table on the following page provides the triggers and actions to be implemented prior and during a bush fire event.

Awareness of trigger events are initially determined by knowledge of Daily Fire Danger Categories and the predominant weather (specifically wind) conditions. It is essential that staff maintain daily awareness of these categories to ensure they are informed and aware of trigger requirements.

Table 4 Emergency Management Decision Triggers

CATEGORY	FDI	WIND DIRECTION	CONFIRMED IGNITION (<5KM)	ACTION	BUSHFIRE SPECIFIC ARRANGEMENTS	RESPONSIBILITY
Extreme & catastrophic	>74	All directions	No	Monitor Fire Near Me, undertake preliminary preparations	Consider pre-emptive closure, delay management works to following days with lower FDIs	ACLE Services
			Yes	Implement emergency management arrangements.	Notify fire authorities and ACLE Services management Evacuate site Leave access gates unlocked Program to return to site (following day) to re-establish access controls (lock gates)	ACLE Services
Low to severe	<74	All directions	No	Monitor Fire Near Me Undertake preliminary preparations	Normal operations	ACLE Services
			Yes	Determine if maintenance work can be safely completed prior to leaving site. If fire I within 1km of site implement emergency management arrangements and evacuate site.	Notify fire authorities and ACLE Services management Evacuate site Leave access gates unlocked Program to return to site (following day) to re-establish access controls (lock gates)	ACLE Services