

REF: 6326BF

Date: 16/2/24



## BUSH FIRE MANAGEMENT & EMERGENCY RESPONSE PLAN

YOOGALI SOLAR FARM

LOT 2 IN DP881219

293 HAWKINS ROAD

YOOGALI NSW 2680

LGA: Griffith City Council

Client: ACEnergy Pty Ltd

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**HARRIS ENVIRONMENTAL CONSULTING****Version Control**

Date Created	01/09/2023			
Version Number	Name	Issue Detail	Date Modified	Status
1.0	BB	BFMERP	16/2/24	Draft
2.0	KH	BFMERP Draft	11/9/23	Submit
3.0	LJ & KH	BFMERP Final <ul style="list-style-type: none"> <li>• Certificate;</li> <li>• Safe Operation Access update to include gate and defensible space details;</li> <li>• Update APZ and SFAZ management;</li> </ul>	5/2/24	Submit
4.0	LJ & KH	BFMERP Final <ul style="list-style-type: none"> <li>• Landscaping detail included Appendix IIII;</li> <li>• Safe Operation Access update to include gate and defensible space details;</li> <li>• APZ and SFAZ update;</li> <li>• Figure 6 updated to show 10m defensible space and 5 m Landscaped Buffer Zone locations.</li> </ul>	12/2/24	Submit
5.0	LJ & KH	BFMERP Final <ul style="list-style-type: none"> <li>• Updated Zones;</li> </ul>	16/2/24	Submit

**DISCLAIMER**

The recommendations provided in the summary of this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report; however, there is no guarantee of human error. The intention of this report is to address the submission requirements for Development Applications on bushfire prone land. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent, and there is no way Harris Environmental Consulting is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent. This bushfire assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event.

## Bushfire Hazard Assessment Certification

<b>Property Address:</b>	293 Hawkins Road Yoogali NSW 2680
<b>Description of Proposal:</b>	Yoogali Solar Farm
<b>Plan Reference:</b>	Yoogali Solar Farm, Site Plan, ACEnergyPTY LTD, Issue: Concept Plan, Project No: 23110 Rev no. A, Drawing Nr: G-1.0-023110, Issue date: 10/05/2023
<b>Bushfire Assessment Reference:</b>	6326bf
<b>Report Date:</b>	5/2/24
<b>Accreditation Scheme/Certification No:</b>	FPAA Australia Bushfire Planning & Design Scheme BPAD L3 26947

I, Katherine Harris, hereby certify the following:

- a) That I am a person who the NSW Rural Fire Service recognises as a suitably qualified consultant in bushfire risk assessment; and
- b. That the proposal of the proposed development contained herein this document conforms to the performance requirements of the document entitled Planning for Bush Fire Protection 2019
- c. Any recommendations or findings of this report are based on an honest appraisal of the constraints that existed at the site at the time of investigation, subject to the scope, resources, and information available. Within the confines of the above statements and to the best of my knowledge, this report does not contain any incomplete or misleading information.

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## 1 INTRODUCTION

ACEnergy Pty Ltd engaged Harris Environmental Consulting to prepare a Bush Fire Management and Emergency Response Plan (the plan) to support the proposed solar farm project located at 293 Hawkins Road, Yoogali NSW 2680 (the subject site).

Griffith Council identifies land within 100 metres of the proposed development as Bush Fire Prone Land (BFPL) in accordance with section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

The plan has been prepared per the requirements of *Planning for Bush Fire Protection 2019* (PBP), the NSW Rural Fire Service (RFS) document: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan*, and Australian Standard AS 3745:2010 *Planning for Emergencies in Facilities*.

The purpose of the plan is to evaluate the bushfire risk profile of the site and identify a package of bushfire management measures and emergency response actions that can be taken to protect human life and minimise impacts on assets from the threat of a bush fire.

## 2 FACILITY DETAILS

The proposed development will involve constructing and operating a solar farm covering roughly 17.0 ha of land. The solar farm will have an approximate output capacity (DC) of 7.2-megawatt peak (MWp) and an AC capacity of 4.95 Megawatts (MWac) and be connected to Essential Energy via 33 kW transition lines.

The development will consist of approximately 11,000 solar panels and a tracking system containing 180-190 solar trackers, an HV switchboard platform, a central inverter, DC coupled energy storage containers, new power poles, property access roads, car parks, property fences, landscaping, and all associated infrastructure. A 1.8m fence is located 10-12 m from the solar panels with a 4 m wide gate on the west of the site.

The proposed development is defined as a regionally significant development under Schedule 6 of the *State Environmental Planning Policy (Planning Systems) 2021*.





### 3 SITE DESCRIPTION

The subject site is located within the suburb of Yoogali, roughly 11km southeast of the main township of Griffith in the Riverina Region of NSW.

The legal title of the property is Lot 2 in DP881219, 293 Hawkins Road, Yoogali NSW 2680.

The site is located within the Griffith City Council Local Government Area (LGA) and is zoned RU1 - Primary Production under the *Griffith Local Environmental Plan 2014*.

**Figure 2 - Site Location**





## 4 LANDSCAPE BUSHFIRE RISK PROFILE

### 4.1 Murrumbidgee Irrigation Area

The subject site is located in the Murrumbidgee Irrigation Area (MIA) of the Riverina Region of NSW. The MIA Bush Fire Management Committee (BFMC) coordinates all bushfire risk management.

The MIA BFMC area covers roughly 1,043,0200ha of land in the southwest of NSW and includes the LGAs of Griffith, Leeton, Murrumbidgee, and Narrandera.

The MIA BFMC area generally experiences hot, dry summers, with an average annual rainfall of 401 mm for the Griffith LGA. The fire season typically commences in early November and continues in late March. Extreme fire danger days usually occur during January and February due to dry north-westerly winds increasing temperatures above 40°C.

The MIA BFMC area has an average of 495 bushfires per year, 10 of which are considered major fires. Half of the MIA BFMC area fires occur within the Griffith LGA. The majority of bushfires in the BFMC area are from natural causes, including lightning strikes and escapes from agricultural burns.

### 4.2 Bushfire Hazard Assessment

The subject site and all surrounding land have been historically cleared to support agricultural activities.

In recognition that crops have the potential to cure and sustain a fire, the Griffith Council has designated land within and surrounding the subject site as Vegetation Category 3 on the Council's BFPL map.

**Vegetation Category 3** is considered to be medium bushfire risk vegetation, and it is higher in bushfire risk than Category 2 (and the excluded areas) but lower than Category 1. It is represented as dark orange on a BFPL map and generally consists of Grasslands, freshwater wetlands, semi-arid woodlands, alpine complexes and arid shrublands.

**Figure 3 – Bushfire Prone Land Map**

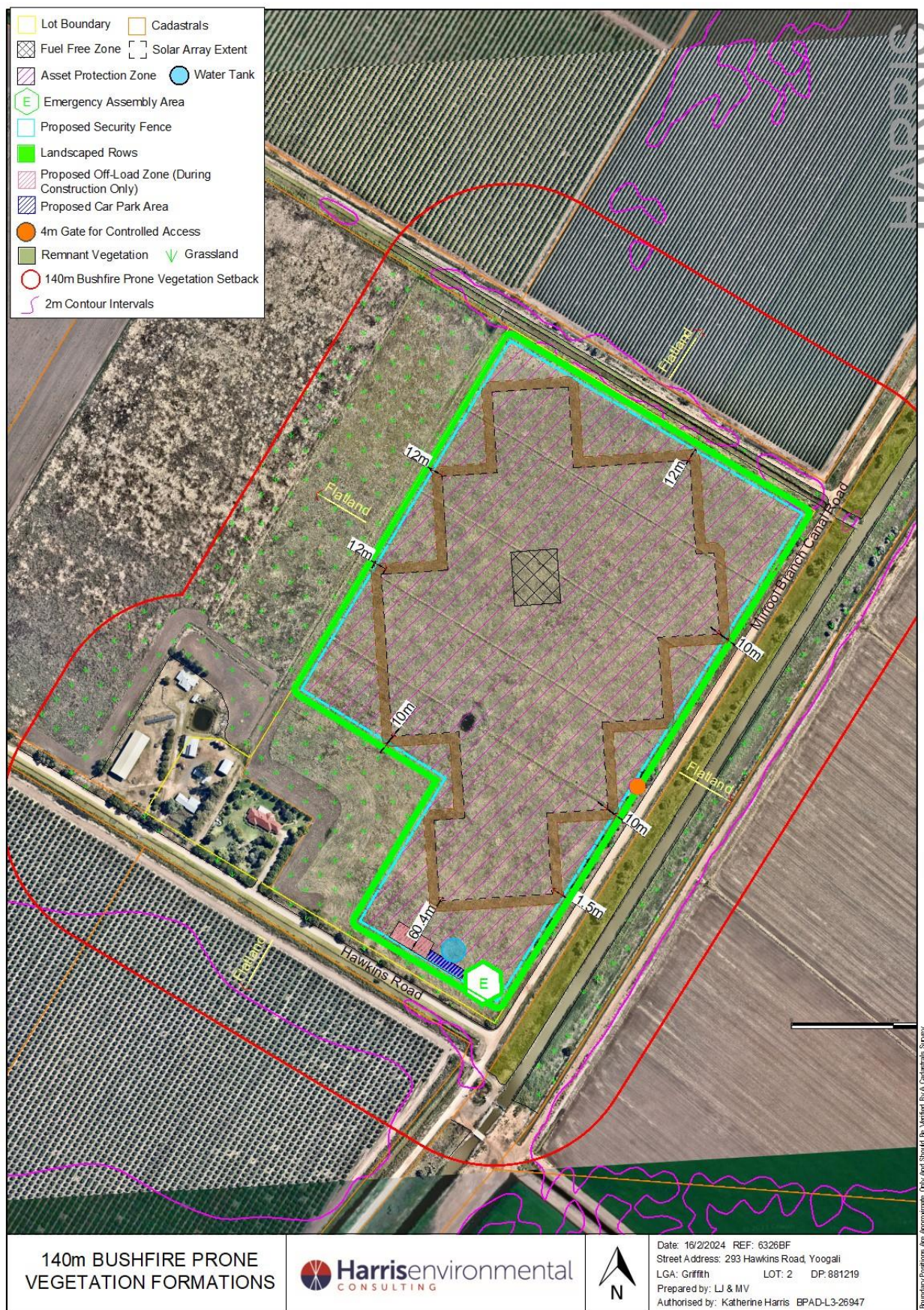
#### 4.2.1 Classified Vegetation

The predominant classified vegetation impacting the subject site has been identified as a narrow strip of Riverine Plain Woodlands within the drainage channel to the southeast and agricultural land that supports crops that have the potential to cure and sustain a fire. The bushfire behaviour of the cured crops is consistent with a grassland hazard.

The remnant strip of Riverine Plain Woodlands is highly modified and sufficiently disconnected from larger areas of unmanaged classified vegetation to satisfy the simplified approach for assessing remnant hazards detailed in Appendix A1.11 of PBP 2019. Remnant hazards are considered lower threat hazards; APZ and construction standards are assessed similarly to rainforest hazards.



Figure 4 - Classified Vegetation





### 4.2.2 Effective Slope

Australian Standard AS3959-2018 *Construction of buildings in bushfire-prone areas* and PBP 2019 identify that the slope of the land under the classified vegetation is much more important than the slope between the proposed development and the edge of the classified vegetation.

The effective slopes influencing bushfire behaviour towards the proposed development were assessed using elevation data sourced from Spatial Services NSW, April 2023.

As illustrated in Figure 5, apart from the slight depression into the drainage channel to the southeast, all effective slopes surrounding the proposed development were assessed as flat.

**Figure 5 – Effective slopes influencing bushfire behaviour.**



### 4.2.3 Potential Bush Fire Behaviour

Based on the assessment of land use, classified vegetation and effective slopes within 140 metres of the subject site, the predominate risk to the proposed development is likely to be from grassland fires impacting the site or spreading from the site.

The bushfire risk posed by a grassland hazard differs from fires in other vegetation communities. Fires burning through a grassland hazard generally spread rapidly at higher intensities and have shorter residence time. Ember production is limited, smaller and fewer in number than those produced from forest fires, but can still propagate spot fires ahead of the main fire front.

### **4.3 Bushfire Risk Analysis**

The bushfire risk to people, property (assets), and the environment has been assessed in relation to the likelihood and consequence per the Australian Standard AS ISO 310000 *Risk Management Guidelines*.

The plan identifies assets within the site, protection measures and management zones.

#### **4.3.1 Asset Identification**

Assets are defined as anything valued by the community, which includes agricultural land, forests, livestock, heritage buildings and places, infrastructure, the environment, commercial and industrial buildings and equipment that may be at risk from bushfires.

#### **4.3.2 Risk Categories**

The risk categories associated with the construction and operations of the facility are separated into primary and secondary risks.

##### **4.3.3 Primary risk:**

- The direct or indirect physical and psychological impact on people, property and the environment (assets).

##### **4.3.4 Secondary risk**

- Legal, moral and ethical associated with:
  - Legal action or litigation
  - Breach of legal obligation
  - Damages to reputation
  - Criminal.

### **5.4 Risk Register and Risk Management Matrix**

Refer to Appendix 1

## 4.4 Bushfire Protection Measures

The Bushfire Management Plan has been prepared in accordance with the NSW Rural Fire Service *Model Bushfire Risk Management Plan*. The plan identifies a package of bushfire management and protection measures that can be taken to protect life and minimise impacts on assets from bushfires.

### 4.4.1 Asset Protection Zones

An Asset Protection Zone (APZ) intends to minimise the risk of bushfire attacks by maintaining reduced fuel loads to ensure radiant heat levels at buildings and assets are below critical limits. The APZ provides a safe operational environment for emergency service personnel undertaking operations.

Assets are defined as anything valued by the community, which includes agricultural land, livestock, heritage buildings and places, infrastructure, the environment, commercial and industrial buildings and equipment that may be at risk from bushfires. The APZ is located wholly in grassland that should be kept mown (<100mm in height). A 10-metre-wide APZ around the solar array provides a defensible space and safe operational access to all assets and infrastructure.

A Landscaped Buffer Zone of 5 m is not included in the APZ as it is outside the fenced development area. The Zone is to ensure species selection for the zone meets the overall width of 5m and does not exceed this width at maturation of the species. This zone is managed in accordance with the landscaping detail provided in Appendix IV.

Assets can be divided into the following asset types.

#### Human Settlements:

- Residential areas, including urban bushland interface areas and rural properties, and
- Other human settlement areas, including commercial and industrial areas.

#### Economic:

- Built assets within the site, e.g. solar farm array and supporting infrastructure, roads, outbuildings, landscaping and fences.
- Commercial operations of the facility.

#### Environmental:

- Threatened species, populations and ecological communities.
- Locally important species and ecological communities that are susceptible to fire.

The Fuel Free Zone, APZ and Landscaped Buffer Zone are illustrated in Figure 6 and detailed in Table 1. The landscaping schedule in Appendix IV is provided in order to achieve, record and monitor the land management zones.



Figure 6 - Land Management Zones





**Table 1: Bushfire management zones.**

<b>Fuel Free Zone</b>	
<b>Description</b>	A fuel-free area under and surrounding critical assets.
<b>Purpose</b>	The primary purpose of a fuel-free area is to prevent the spread of fire and inhibit fire propagation from spot fires.
<b>Location</b>	Immediately adjacent critical assets at risk of bushfire. 1-5m
<b>Tactics</b>	<ul style="list-style-type: none"> <li>• Gravel or concrete.</li> <li>• Herbicide application.</li> </ul>
<b>Management Intensity</b>	Managed at a high intensity to minimise available fuel loads.
<b>Asset Protection Zones(APZ):</b>	
<b>Description</b>	A fuel-reduced area surrounding an asset that creates a buffer from the bushfire-prone vegetation and provides a defensible space for firefighting operations.
<b>Purpose/Suppression Objective</b>	The primary purpose of an APZ is to protect human life (including residents, community members and firefighters), property and highly valued public assets (such as human settlement, economic, environmental and cultural items) from the direct impacts of bushfires. In accordance with the Murrumbidgee BFRMP, an APZ is to enable the safe use of Direct Attack suppression strategies within the zone. To minimise bush fire impacts on undefended assets.
<b>Location</b>	APZs are generally implemented within the development site and immediately adjacent assets at risk of bushfire to provide separation from bushfire-prone vegetation. This BMP also includes the 5m Landscaped Buffer Zone. This zone is not within the identified APZ.
<b>Tactics</b>	<ul style="list-style-type: none"> <li>• Slashing and mowing.</li> <li>• Herbicide application.</li> <li>• Grazing.</li> <li>• Implement frequent prescribed burning.</li> <li>• Carry out selective hand clearing.</li> <li>• Grassland within the APZ should be kept mown (as a guide, grass should be kept to no more than 100mm in height).</li> <li>• The APZ should be established before the commencement of works and maintained for the life of the development.</li> </ul>
<b>Management Intensity</b>	Vegetation within the APZ is managed at a high intensity to minimise available fuel loads. As a minimum, APZs are to be treated as required to maintain the specifications of the APZ. APZs should be audited bi-annually
<b>Management Frequency</b>	Fortnightly

#### **4.4.2 Construction Standards**

To ensure the proposed development is afforded a suitable package of bushfire protection measures, all critical assets should be constructed from non-combustible materials designed to mitigate the risk of flame damage, ember attack and radiant heat. External services should be shielded or designed to withstand 40kWm<sup>2</sup> of radiant heat. Where applicable, all critical assets should include ember protection.

Ember protection can be achieved by enclosing all openings or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. This includes subfloor areas, open windows, vents, weep holes and eaves. External doors should be fitted with draft excluders.

#### **4.4.3 Safe Operational Access**

The subject site has direct access to Hawkins Road to the southwest. An emergency access point will also be provided to Mirrool Branch Canal Road via an 4 m wide gate in the proposed development's northern corner. This provides controlled access into the defensible space for both vehicles and pedestrians. This defensible space is a minimum of 10 m as shown in Figure 6. The gate will be locked with a passcode for use by the operational team.

An unobstructed defensible space managed as an asset protection zone will be provided around the outside perimeter of the solar array, within the 1.8 m fence, and all areas of unmanaged vegetation within and adjoining the subject site. The defensible space will be clear of obstruction at all times during solar farm operation.

#### **4.4.4 Provision of Services**

The proposed development will not be connected to reticulated water. A minimum of 20,000l of static water should be located adjoining the internal property access road to ensure adequate water is provided to protect assets during and after the passage of a bushfire.

Above-ground tanks must be manufactured of concrete or metal, and raised tanks must have protected stands. Pipes external to buildings must be metal, including taps, and pumps must be shielded. Underground tanks should have an access hole of 200 mm and a hardened ground surface within 4 metres of the access hole. A suitable connection for firefighting purposes, such as a 65mm Storz outlet and a gate or ball valve, should be provided where required.

All above-ground electrical transmission lines should be managed under specifications issued by the managing authority.

#### **4.4.5 Site Management**

All land management must be undertaken according to license conditions and legislation, whether inside or outside the site.

Under the *Rural Fires Act 1997*, the RFS can direct landholders to undertake hazard reduction activities on their property.

#### 4.4.6 Total Fire Bans

During the construction and operation phase of the facility, the safe work procedures and restrictions associated with a total fire ban, as outlined by the NSW RFS, should be followed. A total fire ban means no fires out in the open. A total fire ban helps limit the potential for fires to develop.

During a total fire ban, you cannot light, maintain or use a fire in the open or carry out any activity in the open that causes or is likely to cause a fire.

Call the local NSW RFS Fire Control Centre or local Council for further advice.



## **5 EMERGENCY RESPONSE**

### **5.1 Emergency Planning Committee**

The persons responsible for managing the site should form an Emergency Planning Committee (EPC). The EPC shall consist of at least two people.

The EPC implements and maintains the emergency plan, emergency response procedures, and related training. The duties of the EPC include the following:

- Ensuring that resources are provided to enable the development and implementation of the emergency plan;
- Ensuring that the emergency plan is readily identifiable and available to the appropriate persons;
- Ensuring those with control of emergencies operate per the emergency plan, that this person/persons are current and readily available, and continue to operate at all times;
- Authorise and implement the emergency plan. The following shall apply to the implementation:
  - awareness of the emergency response procedures,
  - training,
  - testing emergency procedures, and
  - reviewing emergency procedures;
- Ensuring the emergency procedures remain viable and effective by testing and reviewing policies as required;
- Establishing strategies to ensure all onsite personnel are made aware of emergency response procedures;
- Ensuring a permanent record of events for emergencies is compiled and retained;
- Identifying opportunities for improvement in the emergency plan;
- Obtain professional advice on the level of indemnity provided to EPC members and be aware of the level of the indemnity supplied; and
- Shall meet before the inception of the Plan and as required to ensure the Plan is relevant and up to date.

### **5.2 Emergency Control Organisation**

The Emergency Control Organisation (ECO) is responsible for organising and supervising the safe movement of onsite personnel in an emergency. During emergencies, instructions given by the ECO personnel shall take precedence over the normal management structure.

This Plan documents the pre-emergency, emergency and post-emergency duties and responsibilities during a bushfire emergency.

The following roles are recommended to the appropriate staff: Chief Warden, Deputy Chief Warden, Communications Officer, Building Wardens, Safety Officers, and First Aid Officers. A Chief Warden is required as a minimum.

Selection criteria for ECO personnel:

- Be capable of performing their duties;
- Have leadership qualities and the ability to command authority;

- Display practical decision-making skills;
- Demonstrate the capability to remain calm under pressure;
- Be available onsite to undertake their appointed duties
- Possess practical communication skills and
- Be able to undertake relevant training.

### 5.3 Roles and Responsibilities

#### Construction Stage

<b>Chief Warden</b>	
Position:	
Contact Details:	
The Chief Fire Warden shall be identifiable by wearing white (white helmet, cap, hat or vest) with the words "Chief Fire Warden" prominently displayed.	

<b>Deputy Warden</b>	
Position:	
Contact Details:	
The Deputy Warden shall be identifiable by wearing white ( white helmet, cap, hat or vest) with the words "Deputy Warden" prominently displayed.	

#### Operational & Maintenance Stage

For the Operational Stage, emergency personnel's roles and responsibilities and fire emergency protocol are to be in accordance with Appendix I (ACLE Services).

<b>Chief Warden/ HSE Manager</b>	
Position:	
Contact Details:	
The Chief Fire Warden shall be identifiable by wearing white (white helmet, cap, hat or vest) with the words "Chief Fire Warden" prominently displayed.	

<b>Deputy Warden/ O&amp;M Manager</b>	
Position:	
Contact Details:	
The Deputy Warden shall be identifiable by wearing white ( white helmet, cap, hat or vest) with the words "Deputy Warden" prominently displayed.	



### 5.3.1 Pre-emergency Task

#### Chief Warden

- Maintain a current register of ECO members;
- Replace ECO members when a position becomes vacant;
- Conduct regular exercises;
- Ensure the emergency response procedures are kept up to date;
- Attend meetings of the EPC as appropriate;
- Attend training and emergency exercises as required by EPC; and
- Ensure personal ECO identification is available.

#### Deputy Warden

- Ensure personal proficiency in the operation of communication equipment;
- Maintained records and logbooks and make them available for emergency response;
- Ensure that ECO members are proficient in the use of the communication equipment;
- Ensure that emergency communication contact details are up to date;
- Attend training and emergency exercises as required by EPC;
- Confirm sufficient wardens for the area of responsibility;
- Coordinate the completion of Personal Emergency Evacuation Plans (PEEP) documentation;
- Report on the deficiencies of the emergency equipment;
- Ensure that wardens have communicated the emergency response procedures to all occupants within their nominated areas;
- Ensure that occupants are aware of the identity of their wardens;
- Coordinate safety practices by wardens throughout their area of responsibility;
- Ensure that all occupants are aware of the emergency response procedures; and
- Carry out safety practices (e.g. Clear access to emergency equipment).

### 5.3.2 Emergency Task

Refer to the Bushfire Emergency Response Plan for actions.

### 5.3.3 Post-Emergency Task

#### Chief Warden:

- When the emergency incident is rendered safe, or the Emergency Service returns control, notify the ECO members to have occupants return to the site, as appropriate;
- Organise a debrief with ECO members and, where applicable, with any attending Emergency Service; and
- Compile a report for the EPC and management.

#### Deputy Warden:

- Records events and actions during the emergency for debriefing;
- Clean and service used specialised equipment; and
- Replace specialised equipment when necessary.

## 5.4 Fires within the site

Fires starting within the site or impacting the site may be attended to by emergency services. Fires starting within the solar farm site are the responsibility of the operational owner.

To access the site, emergency services will enter via the available access gates. The site provides an access gate on Mirrool Branch Canal Road as a controlled access point into the defensible space. A sign is to be provided on the access gate to direct emergency services entering the site.

## 5.4 Evacuation Considerations

Griffith has two safer places if the site is occupied during a bushfire event, and local emergency services have issued evacuation orders.

- Northwest – Open Space - Jubilee Oval – Groongal Ave, Griffith NSW; and
- Northwest – Open Space - Ted Scobie Sports Oval – Intersection of Clifton Boulevard and Doolan Crescent, Griffith NSW.

As illustrated in Figure 7, the entire road network associated with access and egress from the subject site traverses commercial, agricultural and residential land.

During an emergency, the anticipated times have been calculated for evacuation to the designated safer place in Griffith, as shown below in Table 2.

**Table 2: Travel times rounded up to the nearest minute.**

Average Speed Km/h	Travel time to Jubilee Oval – 11.6 km northwest	Travel time to Ted Scobie Sports Oval – 10.7 km northwest
50 km/h	14 minutes	13 minutes
40 km/h	18 minutes	17 minutes
30 km/h	24 minutes	22 minutes
20 km/h	35 minutes	33 minutes
10 km/h	1 hour and 10 minutes	1 hour and 5 minutes
5 km/h	2 hour and 20 minutes	2 hours and 9 minutes

### 5.4.1 Evacuation Centres

In a major bushfire event, evacuation centres will likely be established to meet the needs of those affected by the bushfires. Evacuation centres are generally existing facilities that can often open with little notice to provide immediate assistance. It is advised that the Site Manager monitor evacuation centres established in the area and follow the advice of the emergency service when directed to evacuate. The location of evacuation centres is likely to impact on-road use and expected travel times in the event of an evacuation.



## 5.5 Preparation

The Chief Warden is to prepare ahead of the start of the fire season and potential bushfire events by undertaking the following steps.

### Site:

- Ensure the Plan is up to date;
- Ensure any firefighting equipment is serviceable and available. e.g. Ladders, spades, shovels, mops, buckets, and hoses;
- Ensure areas around the assets are prepared and maintained;
- Ensure all landscaping within the subject site is maintained to an APZ standard;
- Ensure onsite powerlines are maintained, liaise with relevant providers;
- Check and update external emergency contact numbers; and
- Monitoring risks from adjoining private and public land, maintaining communication with adjoining landowners and land managers for any changes in management or increased risks to the site.

### Onsite personnel:

- Have all onsite personnel details easily identifiable to account for all persons on site;
- Have informative signage in key locations in the site (front gate) outlining the emergency management procedures and bushfire protection measures;
- Have a site layout plan that shows the designated assembly areas and evacuation details available for all onsite personnel; and
- Have emergency kits available. Kits may include a whistle, portable battery radio, waterproof torch, spare batteries, first aid kit and manual, waterproof bag for valuables, emergency contact details, duct and masking tape, non-perishable food and water, and pocket knife.

### Planning:

- Evacuation safety is dependent on several factors, such as fire danger rating, temperature, wind strength and direction. The time to evacuate may take more than expected during weekends or school holidays when traffic is heavy;
- When advised to evacuate, the early departure of all onsite personnel before emergency services arrive is recommended.
- Similarly, when advised to evacuate, early evacuation is recommended as it is not appropriate to move people through areas with heaving smoke or where a bushfire may be burning or is predicted to burn through;
- The Chief Warden is to check with emergency services and the Live Traffic NSW website: <https://www.livetraffic.com/>;

## 5.6 Monitoring Bush Fire Treats

### 5.6.1 Information

For up-to-date information on bushfires, call the **Bush Fire Information Line**:

- 1800 NSW RFS (1800 679 737).

The two systems used by the Rural Fire Service which provide triggers for evacuation are:

- **The Fire Danger Ratings**- used **before** a fire has started, and
- **The Bush Fire Alerts**- are used **once** a fire has started.

Both of these warning systems are described below.

### 5.6.2 Fire Danger Rating

Before a fire starts, monitor the **Fire Danger Ratings** daily at [www.rfs.nsw.gov.au/fdr](http://www.rfs.nsw.gov.au/fdr). The higher the fire danger rating, the more dangerous a fire is likely to be.

These ratings are based on predicted conditions such as the temperature, humidity, wind and dryness of the landscape. It indicates how a bushfire may act, what impacts could occur and the consequences of a bushfire in the identified conditions. The table below and the graph are taken from the RFS Bushfire Survival Plan and show how the fire danger gets higher, so does the potential loss of life and property.

FIRE DANGER RATING	WHAT YOU SHOULD DO
<b>CATASTROPHIC</b>	<p><b>For your survival, leave bush fire risk areas.</b></p> <ul style="list-style-type: none"> <li>› These are the most dangerous conditions for a fire.</li> <li>› Your life may depend on the decisions you make, even before there is a fire.</li> <li>› Stay safe by going to a safer location early in the morning or the night before.</li> <li>› Homes cannot withstand fires in these conditions.</li> <li>› You may not be able to leave and help may not be available.</li> </ul>
<b>EXTREME</b>	<p><b>Take action now to protect your life and property.</b></p> <ul style="list-style-type: none"> <li>› These are dangerous fire conditions.</li> <li>› Check your bush fire plan and ensure that your property is fire ready.</li> <li>› If a fire starts, take immediate action.</li> <li>› If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts.</li> <li>› Reconsider travel through bush fire risk areas.</li> </ul>
<b>HIGH</b>	<p><b>Be ready to act.</b></p> <ul style="list-style-type: none"> <li>› There's a heightened risk. Be alert for fires in your area.</li> <li>› Decide what you will do if a fire starts.</li> <li>› If a fire starts, your life and property may be at risk. The safest option is to avoid bush fire risk areas.</li> </ul>
<b>MODERATE</b>	<p><b>Plan and prepare.</b></p> <ul style="list-style-type: none"> <li>› Stay up to date and be ready to act if there is a fire.</li> </ul>




### 5.6.3 Fires Near Me

After a fire has started, the 'Fires Near Me' website and mobile application provide information and warnings about bushfires and other incidents attended by the NSW RFS.

**Website:** <https://www.rfs.nsw.gov.au/fire-information/fires-near-me>

**Use the FIRES NEAR ME mobile application** to help you stay up to date on bushfires in your area

The following alert levels are provided to give you an indication of the level of threat from a fire:

	<p><b>Advice</b></p> <p>A fire has started. There is no immediate danger. Stay up to date in case the situation changes.</p>
	<p><b>Watch And Act</b></p> <p>There is a heightened level of threat. Conditions are changing and you need to start taking action now to protect you and your family.</p>
	<p><b>Emergency Warning</b></p> <p>An Emergency Warning is the highest level of Bush Fire Alert. You may be in danger and need to take action immediately. Any delay now puts your life at risk.</p>

#### 5.6.4 Radio Updates

In an emergency, ABC Radio can provide up-to-date information. The local stations for Griffith LGA include:

- ABC Radio – **100.5 FM** Murrumbidgee Irrigation Area;
- ABC RN – **98.9 FM** Murrumbidgee Irrigation Area; and
- ABC NEWS on the radio – **98.1 FM** Murrumbidgee Irrigation Area

#### 5.6.5 Road Closures

The unpredictable nature of bushfires may result in roads being closed without warning. Where emergency services have issued evacuation orders, leaving early is always the safest option. Information on road closures can be obtained from emergency services and found on the Live Traffic NSW website: <https://www.livetraffic.com/>

#### 5.6.6 Early Evacuation

In a bushfire emergency, emergency services may issue evacuation orders. If off-site evacuation is required, Evacuation Centres will often be set up to accommodate those evacuating. The evacuation direction will depend highly on the existing fire conditions, and advice should be sought from emergency services concerning suitable evacuation routes to the designated Evacuation Centres.

### 5.7 Emergency

Refer to the Bushfire Emergency Response Plan for actions.

#### 5.8 Post-Emergency Task

- The Chief Warden should seek advice from emergency services before returning to the site;
- A record of the emergency response and evacuation should be taken, and the Emergency Plan updated where applicable.



BUSH FIRE EMERGENCY EVACUATION PLAN		
Facility	Solar Farm	
Facility type	Commercial - Utilities	
Location	Lot 2 in DP881219, 293 Hawkins Road, Yoogali NSW 2680	
Estimated occupancy	During Construction: During Operation:	
Travel arrangements from the site	Private vehicles.	
Chief Warden		
Deputy Warden		
EMERGENCY CONTACTS		
<p style="text-align: center;">In an emergency, call <b>000</b></p>		
Organisation	Location	Contact
NSW RFS - MIA District	200 Wakaden St, Griffith NSW 2680	<a href="tel:(02)69667800">(02) 6966 7800</a>
Fire and Rescue NSW	11 Jondaryan Ave, Griffith NSW 2680	<a href="tel:(02)69295711">(02) 6929 5711</a>
NSW Police	41/47 Railway St, Griffith NSW 2680	<a href="tel:(02)69694299">(02) 6969 4299</a> - 000
NSW Ambulance	127 Banna Ave, Griffith NSW 2680, Australia	(02) 6964-4305 - 000
Griffith City Council	1 Benerembah St, Griffith NSW 2680	<a href="tel:1300176077">1300 176 077</a>

**SITE CLOSURES AND EARLY EVACUATION PROCEDURES** – This plan recommends non-occupation on extreme or catastrophic fire weather days and leaving early in all circumstances.

**Early evacuation procedure:**

The site should be closed on forecasted severe or catastrophic fire weather days. If personnel are present in a bush fire event, relocate all onsite personnel to the emergency assembly area and follow the advice of local emergency services. If evacuation orders are issued, evacuate to the designated safer place, evacuation centre or emergency care facility as directed.

**Emergency Assembly Area: Front Gate**

**Early Evacuation Locations:**

- **Northwest – Open Space** - Jubilee Oval – Groongal Ave, Griffith NSW.
- **Northwest – Open Space** - Ted Scobie Sports Oval – Intersection of Clifton Boulevard and Doolan Crescent, Griffith NSW.

TRIGGER TO EVACUATE	ACTIONS
<p><b>A catastrophic fire danger rating is forecast for the next day.</b></p> <p>OR</p> <p><b>Fire 'Advice' Warning is likely to impact the site.</b></p>	<ul style="list-style-type: none"> <li>• The Chief Warden should consult the NSW RFS, check the NSW RFS website, call 1800 NSW RFS, or use smartphone applications and local firefighting resources for fire situations and updates;</li> <li>• The Chief Warden is to take control of the bushfire situation: Remain calm and explain to onsite personnel what is happening and the fire situation;</li> <li>• The Chief Warden is to advise the local emergency service that the site is being evacuated as directed by the emergency services (including how many people and where they are going).</li> <li>• Ensure the Wardens and Site Manager have mobiles and are contactable.</li> <li>• Make arrangements for private transportation for evacuation.</li> </ul>

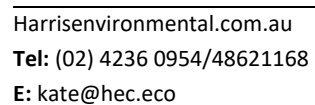
<p>OR</p> <p><b>Fire' Watch and Act' Warning is likely to impact the site.</b></p> <p>OR</p> <p><b>When directed to do so by NSW Police or the NSW Rural Fire Service (RFS)</b></p>	<p><b>Off-site Evacuation</b></p> <ul style="list-style-type: none"> <li>• Arrange for onsite personnel to make their way to the designated Emergency Assembly Area;</li> <li>• Confirm all onsite personnel have been notified;</li> <li>• Make sure all onsite personnel have transportation for evacuation;</li> <li>• Arrange for suitable transportation to meet at the emergency assembly area for persons without transport, persons with compromised mobility and persons who require medical assistance;</li> <li>• Advise all onsite personnel with access to private transportation and do not require medical assistance to make their way to the <b>designated Safer Place</b> or <b>Evacuation Centre</b> as directed by the local emergency services.</li> <li>• Monitor the progress of the evacuation;</li> <li>• The Chief Warden is to advise the relevant emergency service that provided the evacuation orders when all persons have been evacuated;</li> <li>• Should the fire services arrive, the Chief Warden will hand control over to the officer in charge and provide an operational brief listing injured or vulnerable persons needing assistance.</li> <li>• Maintain situational awareness through radio, the NSW RFS website, 1800 NSW RFS, smartphone applications and local firefighting resources.</li> </ul>
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**THIS PLAN DOES NOT SUPPORT SHELTERING ONSITE**  
**Site closure on days of forecasted extreme or catastrophic fire weather and leaving early in all circumstances.**

DAILY ACTIONS					
ACTION	BUSH FIRE DANGER RATINGS				
	No Rating	MODERATE	HIGH	EXTREME	CATASTROPHIC
Chief Warden to Monitor NSW RFS' Fires Near Me' site or app.		By 1 pm	Minimum 1 pm and 3 pm	Monitor conditions every hour.  The site is closed.	Monitor conditions every hour.  The site is closed.
Fire is predicted to impact the site.	Monitor conditions every hour.  Gather all onsite personnel at the Emergency Assembly Area.  Prepare for off-site evacuation.  The site is closed.	Monitor conditions every hour.  Gather all onsite personnel at the Emergency Assembly Area.  Prepare for off-site evacuation.  The site is closed.	Monitor conditions every hour.  Gather all onsite personnel at the Emergency Assembly Area.  Prepare for off-site evacuation.  The site is closed.	Monitor conditions every hour.  The site is closed.	Monitor conditions every hour.  The site is closed.
The time to fire impact is less than the time required to evacuate.	Gather all onsite personnel at the Emergency Assembly Area.	Gather all onsite personnel at the Emergency Assembly Area.	Gather all onsite personnel at the Emergency Assembly Area.	Gather all onsite personnel at the Emergency Assembly Area.	Gather all onsite personnel at the Emergency Assembly Area.

	Follow the advice from emergency services.  Site is closed.	Follow the advice from emergency services.  Site is closed.	Follow the advice from emergency services.  Site is closed.	Follow the advice from emergency services.  Site is closed.	Follow the advice from emergency services.  Site is closed.
<b>After the bush fire event:</b>  The Chief Warden is to confirm with emergency services that the site is safe (utilities and buildings) and coordinate all clean-up, repair and maintenance as required to allow the site to return to normality. Where applicable, personnel affected by the event should be identified and provided with appropriate medical treatment, counselling and support.					







## Appendix i - ACLE Services Protocol

**Table 1** outlines the roles and responsibilities of key personnel involved in a fire emergency during the solar farm operation.

All personnel shall follow the Fire Emergency Protocols in **Table 2** below during or after a bushfire incident.

**Table 1 – Roles and Responsibilities**

<b>Roles</b>	<b>Responsibility</b>
<b>O&amp;M Manager (Office based)</b>	<ul style="list-style-type: none"> <li>Respond to emergency calls</li> <li>Respond to the HSE Officer's request for any required assistance</li> <li>Report the incident to the Asset Owner</li> <li>Review and update relevant emergency procedures</li> </ul>
<b>HSE Officer (Site based)</b>	<ul style="list-style-type: none"> <li>Respond to emergency calls</li> <li>Ascertain the nature of the emergency</li> <li>Initiate the corresponding emergency protocol</li> <li>Arrange first responders to attend to the fire</li> <li>Notify Emergency Services and First Responders</li> <li>Notify the O&amp;M Manager of any required assistance</li> <li>Control and guide the emergency response process</li> </ul>
<b>Trained First Aiders (Site based)</b>	<ul style="list-style-type: none"> <li>Treat injured individuals in coordination with the HSE Officer</li> </ul>
<b>First Responders</b>	<ul style="list-style-type: none"> <li>Assist in the emergency response process and provide adequate resources to the HSE Officer</li> </ul>
<b>Employees (Site based)</b>	<ul style="list-style-type: none"> <li>Raise the alarm</li> <li>Notify HSE Officer</li> <li>Follow the emergency procedure with instructions from O&amp;M Manager and HSE Officer</li> </ul>

**Table 2 – Fire Emergency Protocol**

<b>Fire</b>	
<b>Project # and Title</b>	
<b>O&amp;M Manager</b>	<p>During the incident:</p> <ul style="list-style-type: none"> <li>Respond to the HSE Officer's request for any required assistance</li> <li>Respond to emergency calls</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>Notify the Asset Owner of the incident.</li> <li>Submit an incident report to the Asset Owner.</li> </ul>

	<ul style="list-style-type: none"> <li>Review and update all applicable procedures.</li> </ul>
<b>HSE Officer</b>	<p><b>During the incident:</b></p> <ul style="list-style-type: none"> <li>Evaluate the event.</li> <li>Send first responders to work crew location/s.</li> <li>Arrange evacuation if required.</li> <li>Notify the O&amp;M Manager about the incident</li> <li>Notify the O&amp;M Manager of any required assistance</li> <li>Keep the O&amp;M Manager up to date on the incident.</li> <li>Dial 000 for emergency services, if required.</li> <li>Terminate incident.</li> </ul> <p><b>After the incident:</b></p> <ul style="list-style-type: none"> <li>Confirm it is safe to return to work.</li> <li>Complete debrief.</li> <li>Complete an incident report for the O&amp;M Manager.</li> <li>Provide counselling as required.</li> <li>Return to work if deemed safe to do so.</li> </ul>
<b>Employees</b>	<p><b>During the incident:</b></p> <ul style="list-style-type: none"> <li>Raise the alarm.</li> <li>Contact the HSE Officer.</li> <li>Provide details on the emergency.</li> <li>Follow the emergency procedure with instructions from O&amp;M Manager and HSE Officer</li> </ul> <p><b>After the incident:</b></p> <ul style="list-style-type: none"> <li>Return to work after receiving confirmation from the HSE Officer.</li> </ul>
<b>First Responders</b>	<p><b>During the incident:</b></p> <ul style="list-style-type: none"> <li>Attempt first attack extinguishing and containment, if safe to do so.</li> <li>Keep the HSE Officer up to date on the incident.</li> <li>Rescue any injured personnel if it is safe to do so.</li> <li>Extinguish the fire, if possible and be safe to do so.</li> </ul> <p><b>After the incident:</b></p> <ul style="list-style-type: none"> <li>Return to work after receiving confirmation from the HSE Officer.</li> </ul>
<b>Trained First Aiders</b>	<p><b>During the incident:</b></p> <ul style="list-style-type: none"> <li>Provide first aid, if required.</li> </ul> <p><b>After the incident:</b></p> <ul style="list-style-type: none"> <li>Return to work after receiving confirmation from the HSE Officer.</li> </ul>

## 6 REFERENCES

Australia, G. (2019). *ELVIS - Elevation - Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: <http://elevation.fsdf.org.au/>

Keith, D. (2004). "Ocean Shores to Desert Dunes" Department of Environment and Conservation, Sydney

National Association of Steel-Framed Housing (2014) *NASH Standard Steel Framed Construction in Bushfire Areas*

NSW Department of Environment, Climate Change and Water (2010) Southeast NSW Native Vegetation Classification and Mapping - SCIVI VIS\_ID 2230 20030101. Bioregional Assessment Source Dataset. Viewed 18 June 2018, <http://data.bioregionalassessments.gov.au/dataset/0f1aeb33-1b49-4839-88fa-8b635cf9d3ab>.

NSW Department of Planning and Environment. Planning Portal. Accessed at: <https://www.planningportal.nsw.gov.au/>

NSW Office of Environment and Heritage (2020). Biodiversity Value Map. Accessed at: <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap>

NSW Rural Fire Service, *Standards for Asset Protection Zones*

NSW Rural Fire Service (2019). NSW Rural Fire Service (2019). *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. November 2019

Standards Australia (2018). AS3959, *Construction of buildings in bushfire-prone areas*.

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S (2010). *Native Vegetation of southeast NSW: a revised classification and map for the coast and Eastern Tablelands*. *Cunninghamia* 11:359-406.

## Appendix ii Hazard Matrix and Risk Register

The bushfire risk to people, property (assets), and the environment has been assessed in relation to the likelihood and consequence per the Australian Standard AS ISO 310000 *Risk Management Guidelines*.

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High	High	Extreme	Extreme	Extreme
Likely	Medium	High	High	Extreme	Extreme
Possible	Low	Medium	High	Extreme	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Medium	High	High

Risk Level	Risk Response
Extreme	<b>High priority - unacceptable risk – Immediate action required</b> Urgent site-specific mitigation and comprehensive management measures are required to reduce risk levels.
High	<b>High priority - unacceptable risk – Immediate action required</b> site-specific mitigation and comprehensive management measures are required to reduce risk levels.
Medium	<b>Medium priority - Potentially unacceptable risk</b> Site-specific mitigation and comprehensive management measures are required to reduce risk levels.
Low	<b>Low priority - Acceptable risk</b> Ongoing mitigation and management measures will ensure risk level remains low and risk is eliminated over time.



Risk Register – Construction and operation of the Holbrook Battery Energy Storage System					
Risk No#	Description	Risk Rating	Treatment	Residual Risk Rating	Responsible
1	Physical impact on persons or loss of life.	Extreme	<ul style="list-style-type: none"> <li>Implementation of the bushfire management and protection measures detailed in section 6.</li> <li>Daily actions outlined in the Bushfire Emergency And Evacuation Plan</li> </ul>	Medium	Site management EPC Fire Wardens Site Occupants
2	Fire impacting the subject site and assets.	Extreme	<ul style="list-style-type: none"> <li>Implementation of the bushfire management and protection measures detailed in section 6.</li> </ul>	Medium	Site management EPC Fire Wardens
2	Fire propagation within the site and spreading from the site.	Extreme	<ul style="list-style-type: none"> <li>Implementation of the bushfire management and protection measures detailed in section 6.</li> <li>Follow</li> </ul>	Medium	Site management EPC Fire Wardens

## BUSHFIRE EMERGENCY & EVACUATION PLAN

### Appendix iii EPC Services Protocol

**Table 1** outlines the roles and responsibilities of key personnel involved in a fire emergency during the construction and operation phases of the proposed development.

All personnel shall follow the corresponding Fire Emergency Protocols in **Table 2** below during or after a bushfire incident.

**Table 1 – Roles and Responsibilities**

Role	Responsibility
<b>O&amp;M Manager (Office based)</b>	<ul style="list-style-type: none"> <li>Respond to emergency calls</li> <li>Respond to the HSE Officer's request for any required assistance</li> <li>Report the incident to the Asset Owner</li> <li>Review and update relevant emergency procedures</li> </ul>
<b>HSE Officer (Site based)</b>	<ul style="list-style-type: none"> <li>Respond to emergency calls</li> <li>Ascertain the nature of the emergency</li> <li>Initiate the corresponding emergency protocol</li> <li>Arrange first responders to attend to the fire</li> <li>Notify Emergency Services and First Responders</li> <li>Notify the O&amp;M Manager of any required assistance</li> <li>Control and guide the emergency response process</li> </ul>
<b>Trained First Aiders (Site based)</b>	<ul style="list-style-type: none"> <li>Treat injured individuals in coordination with the HSE Officer</li> </ul>
<b>First Responders</b>	<ul style="list-style-type: none"> <li>Assist in the emergency response process and provide adequate resources to the HSE Officer</li> </ul>
<b>Employees (Site based)</b>	<ul style="list-style-type: none"> <li>Raise the alarm</li> <li>Notify HSE Officer</li> <li>Follow the emergency procedure with instructions from O&amp;M Manager and HSE Officer</li> </ul>

**Table 2 – Fire Emergency Protocol**

Fire	
Project # and Title	
O&M Manager	<p>During the incident:</p> <ul style="list-style-type: none"> <li>Respond to the HSE Officer's request for any required assistance</li> <li>Respond to emergency calls</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>Notify the Asset Owner of the incident.</li> <li>Submit an incident report to the Asset Owner.</li> <li>Review and update all applicable procedures.</li> </ul>
HSE Officer	<p>During the incident:</p> <ul style="list-style-type: none"> <li>Evaluate the event.</li> <li>Send first responders to work crew location/s.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Arrange evacuation if required.</li> <li>▪ Notify the O&amp;M Manager about the incident</li> <li>▪ Notify the O&amp;M Manager of any required assistance</li> <li>▪ Keep the O&amp;M Manager up to date on the incident.</li> <li>▪ Dial 000 for emergency services, if required.</li> <li>▪ Terminate incident.</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>▪ Confirm it is safe to return to work.</li> <li>▪ Complete debrief.</li> <li>▪ Complete an incident report for the O&amp;M Manager.</li> <li>▪ Provide counselling as required.</li> <li>▪ Return to work if deemed safe to do so.</li> </ul>
Employees	<p>During the incident:</p> <ul style="list-style-type: none"> <li>▪ Raise the alarm.</li> <li>▪ Contact the HSE Officer.</li> <li>▪ Provide details on the emergency.</li> <li>▪ Follow the emergency procedure with instructions from the O&amp;M Manager and HSE Officer</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>▪ Return to work after receiving confirmation from the HSE Officer.</li> </ul>
First Responders	<p>During the incident:</p> <ul style="list-style-type: none"> <li>▪ Attempt first attack extinguishing and containment, if safe to do so.</li> <li>▪ Keep the HSE Officer up to date on the incident.</li> <li>▪ Rescue any injured personnel if it is safe to do so.</li> <li>▪ Extinguish the fire, if possible and be safe to do so.</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>▪ Return to work after receiving confirmation from the HSE Officer.</li> </ul>
Trained First Aiders	<p>During the incident:</p> <ul style="list-style-type: none"> <li>▪ Provide first aid, if required.</li> </ul> <p>After the incident:</p> <ul style="list-style-type: none"> <li>▪ Return to work after receiving confirmation from the HSE Officer.</li> </ul>

## Appendix iv Landscaping Details



LANDSCAPE WORKS CONSTRUCTION NOTES:

1 WORKS BY CIVIL/OTHERS

All construction & civil works incl. demolition, building works, bulk earthworks, drainage infrastructure, road pavements, solar panel arrays & associated infrastructure, fencing and other related works.

The civil contractor will ensure the following minimum depths of site topsoil are provided for the landscape works:

- Planting areas -- min. 150 mm depth site topsoil.
- Finished level of topsoil to be generally 100-150 mm above surrounding existing ground surface levels to ensure topsoil/planting areas are free from waterlogging during wet periods.

2 INSURANCES

Provide certificates of currency for Public Liability Insurance (min. \$20M) and Workcover insurance (min. \$10M) to the Superintendent prior to commencing works. Each certificate of currency shall note the Proprietor as an interested party.

3 ROAD OPENING PERMIT

Apply to the responsible authority for a road opening permit (if required), incl. the payment of all fees and charges re same. An approved copy of the approved road opening permit shall also be provided to the Superintendent prior to works commencing on site.

4 LANDSCAPE PRE-COMMENCEMENT MEETING

The Contractor shall Initiate, coordinate and attend a pre-commencement meeting with Council, Proprietor & Superintendent, incl. achieving compliance with all Council & specified requirements, checklists, insurances, approvals, etc.

5 TRAFFIC MANAGEMENT

If required, prepare and submit to the responsible authority a traffic management plan to their satisfaction, incl. the payment of all fees and charges re same. An approved copy of this plan shall also be provided to the Superintendent prior to works commencing on site. Implement approved traffic management plan during the duration of the Works on site.

6 LOCATE EXISTING SERVICES

Locate all existing services prior to commencing works, contacting Dial Before You Dig, the project civil engineers/contractor and/or the relevant authorities re same as required. Identify all overhead services prior to commencing works.

7 SET OUT THE WORKS

Accurately set the works out as per the documentation set.

8 SOIL TESTING

Undertake soil sampling & testing from an approved ag. soil testing laboratory, incl. seeking recommendations for fertilising planting zone to improve soil NPK balance, trace elements, etc. Any recommended adjustments must be made to improve the soil conditions for native tree & shrub planting.

9 PLANTING AREAS PREPARATION -- INITIAL

These works to be done ideally in LATE FEBRUARY/MARCH of the planting year:

- Eradicate broadleaf, woody and noxious weeds from all planting areas using selective, non-residual herbicides. Manual removal of larger woody weeds may be required -- inspect site to confirm extent.
- Rip along planting line to 2.0 m wide to min. 300 mm depth with a Yeomans/Keyline plough with tynes at max. 750 mm centres to break up/aerate natural subgrade and to relieve compaction, grade & level.
- Apply fertilisers and additives at rates recommended by soil test results.
- Cultivate planting lines to break up soil clods and provide an appropriate planting medium.
- DO NOT WORK WET SOIL. Remove any deleterious material brought to the surface, consolidate soil and grade surface to even grades, free of any depressions or undulations.

10 PLANTING AREAS PREPARATION -- SECONDARY

These works to be done ideally in APRIL/MAY of the planting year:

- Eradicate broadleaf, woody and noxious weeds from all planting areas using selective, non-residual herbicides. Manual removal of larger woody weeds may be required.
- Re-cultivate planting lines to break up soil clods and provide an appropriate planting medium.
- DO NOT WORK WET SOIL. Remove any deleterious material brought to the surface, consolidate soil and grade surface to even grades, free of any depressions or undulations.

11 PLANT SUPPLY

All plants shall be healthy, free from any pests or diseases, be attractive, well grown and well formed plant specimens and shall have a healthy, well formed root system commensurate in size with the foliage mass (root systems must not be pot bound). Plant container sizes shall be as listed in the detail planting schedule, but shall be min. hiko, ViroTube or 50 mm round/square pot size.

The planting contractor shall inspect all plants on delivery to site and shall certify in writing to the Superintendent that all plants supplied are as described above and are accepted by the planting contractor for planting in this project.

12 PLANTING

Set out plants as documented. Individual holes are to be dug (tree planter, mini-auger, etc.) in the prepared planting areas of sufficient size to easily accommodate the plant's root system and relieve any polishing. Create broad, shallow watering bowl to ALL plants to facilitate effective watering (min. 15 litre capacity). All plants shall be watered-in immediately after planting and at such times during the Contract period as is required to maintain growth free of water stress. Planting medium must be moist - do not plant into dry soil. Handle and plant all plants at all times in accordance with best horticultural practice.

13 FERTILISING

Refer maintenance section.

14 WEED MATS

Supply & install to each plant a 600 x 600 mm TreeMax or similar approved jute weed mat. Installation strictly to manufacturer's recommendations.

15 MILK CARTON GUARDS

Supply & install to nominated plant species TreeMax 300 x 95 x 95 mm 2 litre MilkGuard or similar approved plastic coated high density cardboard tree guard, incl. 2 no. x 600 x 8-10 mmØ securing stakes per guard, to all plants. Installation strictly to manufacturer's recommendations.

16 GRASSING (IF REQUIRED)

Some areas of grass seeding may be required and will be directed and quantified by the Superintendent.

Do not sow seed in periods of extreme heat, cold or wet, or where wind velocities are excessive unless otherwise approved. Seed mix shall be as follows:

- TURF-TYPE REGENERATING PERENNIAL RYEGRASS 95% by count
- TURF-TYPE TALL FESCUE 3% by count
- SUB CLOVER 1% by count
- WHITE CLOVER 1% by count

Seeding rate shall be min. 30 gms per m2. Apply seed evenly -- seed application shall be via direct drilling or by other approved methods. Seeding shall be programmed when there is a period of anticipated weather conditions (i.e. rain) that will provide the best chance for germination of grass seed. Any areas affected by heavy rain, wind removing seed or other cause shall be re-seeded as specified to achieve an even cover of grass.

Slash grass when growth height has reached 100 mm or otherwise as directed by Superintendent. Should all the areas not require cutting at one time, complete all further cuts as necessary until 100% of the area has achieved successful coverage and all areas have received at least first cut.

17 PRACTICAL COMPLETION COORDINATION

The Contractor shall Initiate, coordinate and attend a Practical Completion meeting with Council, Proprietor & Superintendent, incl. achieving compliance with all Council & specified requirements, checklists, insurances, approvals, etc. NOTE: Min. 3 no. working days notice is required for a Practical Completion meeting.

18 LANDSCAPE ESTABLISHMENT MAINTENANCE PERIOD

Maintain the contract works from the Date of Practical Completion to the Date of Final Completion/hand-over.

Maintenance shall include care of the contract area by accepted horticultural practices, and rectification of any defects that become apparent during this period. Maintenance tasks to be carried out during the maintenance period shall include, but shall not be limited to, slashing, watering as required, weed control, pest & disease control & management, tree guard adjustment/replacement as required, rubbish removal.

WEED CONTROL -- PLANTED AREAS:

In planted areas, poison all broadleaf, noxious & woody weeds as they appear. Slashable grasses are to be retained generally between planting rows. Selective herbicides shall be nominated by the Contractor and approved by the Superintendent prior to use. Non-selective herbicide shall be Monsanto 'Roundup BIACTIVE' glyphosate-based herbicide -- standard 'Roundup' is NOT to be used. NO OTHER HERBICIDE SHALL BE USED WITHOUT PRIOR APPROVAL. All herbicide applications shall use NuFarm 'Spraymate or similar approved marker dye admixture and shall be handled and applied strictly according to manufacturer's recommendations, recommended rates and directions.

GRASS MANAGEMENT -- PLANTED AREAS:

Slash all areas between plants in rows and min. 1.5 m along all outside edges of all planting zones on a regular basis to maintain grass height to max. 100 mm. Slashing shall comply with all local Council and RFS guidelines re grass heights.

JUTE MAT & MILK CARTON GUARDS:

Maintain jute mat and milk carton tree guards for first two summers minimum, repair and replace as required during this period.

PLANT REPLACEMENT:

Replace any failing, failed or dead plants during the maintenance period. The Superintendent and the Contractor will inspect the full planting areas at the end of each summer and will identify the number and species of plants that are failing, have failed/died. The Contractor shall replace all such plants identified.

WATERING:

The Contractor shall ensure all plants planted/maintained under this contract receive adequate (but not excessive) watering to maintain optimum growth and health. Watering shall be localised to each plant, not broad spraying across the entire planting area, to limit weed/grass growth between planting rows.

Watering shall be manually via watercart/hose as required.

All plants shall be watered as required for at least the FIRST TWO SUMMERS to aid in establishment of healthy root systems and foliage growth, with further waterings if required during late spring and/or early autumn or at any other time of the year based on prevailing climatic conditions. Further waterings may be needed beyond this minimum establishment watering should prevailing climatic conditions deteriorate with potential to lead to deterioration of plant growth, health or plant deaths (e.g. severe drought, El Niño conditions, etc.).

FERTILISING:

All plants (excluding Proteacea family) shall be fertilised with Scotts 'Osmocote® Plus Trace Elements: Native Gardens' (NPK 21.8 : 0.7 : 7.2) or similar approved at the manufacturer's recommended rates. Fertiliser shall be locally spread on soil surface around plants during planting operations. If unsure which plants are in the Proteacea family -- ASK.

Allow for one fertiliser application in Year 1 and second application in Year 2.

PESTS & DISEASES:

Regularly monitor all plants grasses planted/maintained under this contract for evidence of pest and/or disease attack -- identify and treat any/all problems arising.

RABBITS, HARES, KANGAROOS, ETC.:

Identify any predation by rabbits, hares and other pests with potential to damage or destroy the landscape works under this contract. Take all necessary steps, within local authority regulations and/or guidelines, to limit or eradicate predation. Maintain all tree guards in good condition to limit rabbit/hare/kangaroo/other damage to plants with installed guards.

Notes

IMPORTANT NOTE RE CLARIFICATION:  
Tenderers/Contractors are advised to contact this office to confirm/clarify any aspect of the works, incl. any details of the contract documents (incl. this plan) of which they are uncertain. No claim will be accepted on account of failure to do so. IF IN DOUBT ... ASK.

This plan shall be read in conjunction with the ACenergy GRIFFITH SOLAR FARM drawings:

G-1.1\_221101\_REV A dated 4 April 2023  
G-1.2\_221101\_REV A dated 4 April 2023  
G-2.1\_221101\_REV A dated 4 April 2023  
G-2.2\_221101\_REV A dated 4 April 2023

Rev	Date	Revision Note	By
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Issue	Date	Issue Note	By
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Surveyors

—  
Tel: eMail

Structural Engineer:

—  
Tel: eMail

Consulting Engineer

—  
Mob: eMail

Project Managers

ACEnergy Pty Ltd

Mob: 0497 514 353 eMail: danny.will@acenergy.com.au

Other:

—  
Mob: eMail

Proprietor



Project

GriffithSolar Farm

2773 Berecny Road, Tharbogang NSW

Drawing

Landscape Specification  
Notes

Sheet 4 of 4

Local Authority Griffith City Council

Scale N.T.S.

Drawn CW Date 11 Apr 2023

Project #	Drawing #	Rev
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groundcontrol

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APPROVAL ISSUE - 11 April 2023