



Statement of Environmental Effects

4.95MW Solar Farm
19 Murray Street, Hay



Image: Green Gold Project, SA

August 2022

Ref: 20158

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GREEN GOLD
ENERGY

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4.95MW Solar Farm 19 Murray Street, Hay

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1 Introduction

1.1 Overview

This report and Statement of Environmental Effects (SEE) has been prepared by Chris Smith and Associates for Green Gold Energy Pty. Ltd. – referred to herein as “Green Gold”. The proposal is for a 13-hectare solar farm on a property with a total area of approximately 85 hectares at 19 Murray Street, Hay.

The facility is similar to the other facilities that have been approved in the Hay region. Green Gold’s proposed facility is designed to provide approximately 4.95MW (megawatts) of electricity to the local distribution network. To generate this electricity, the proposal would occupy approximately 13 hectares of land.

Situated in South-Western New South Wales, Hay Shire is located within the Riverina region, situated along the Murrumbidgee River. This application presents an opportunity for a regional municipality to capitalise upon and become a key player in the growth of the Renewable Energy industry due to its strategic geographical location and availability of grid connections.

This report is prepared in accordance with the various Planning Instruments and other planning controls that are relevant to the proposal. Consequently, this report and SEE provides an assessment and response under each of the respective sub-headings throughout this report.

The subject site has been selected based on its suitable attributes, in accordance with the NSW Renewable Energy Action Plan 2018, which identified Hay as a potential priority Energy Zone. Reflecting this, this site represents an ideal connection opportunity to nearby transmission lines.

Key reference documents used to guide the site selection and design process for this proposal are:

- NSW Renewable Energy Action Plan 2018
- Pre-Permit Preliminary Assessment – Local Aboriginal Land Council
- Hay Shire Council Local Strategic Planning Statement, March 2020
- Hay Local Environmental Plan 2011
- Riverina Murray Regional Plan

The proposal is supported by the below-listed assessments, plans and documents:

- **Certificate of Title**
- **Development Plans**, by Green Gold Energy
- **Landscape Plan** by Chris Smith & Assoc.
- **Site Feasibility Report**, by Green Gold Energy
- **Construction Environmental Management Plan**, by Green Gold Energy
- **Waste Management Plan**, by LID Consultants
- **Traffic Impact Assessment**, by Traffic Works
- **Preliminary Aboriginal Heritage Assessment**, by Red-Gum Consulting

1.2 Development Classification under EP&A Act

The proposed development does not comprise Integrated Development pursuant to the provisions of Section 4.46 of the Act.

Development that is state and regionally significant is identified in *SEPP ((Planning Systems) 2021*. Private infrastructure, including electricity generating facilities that has a capital investment value of over \$5 million is declared regionally significant. The proposed solar farm has a CIV of \$9.5 million and is therefore identified as **Regionally Significant Development**.

Accordingly, the proposed development is not classified to be Designated Development under Section 4.10 of the Act.

1.3 Scope of Statement of Environmental Effects

This Statement of Environmental Effects (SEE) accompanies a development application for the proposed development. It has been prepared on behalf of the applicant and includes the matters referred to in Section 4.15 of the *Environmental Planning and Assessment Act 1979* and the matters required to be considered by the consent authority.

When considering the application, the consent authority will have regard to Section 4.2 of the Act which states:

“4.2 Development that needs consent

(1) General

If an environmental planning instrument provides that specified development may not be carried out except with development consent, a person must not carry the development out on land to which the provision applies unless:

- (a) such a consent has been obtained and is in force, and*
- (b) the development is carried out in accordance with the consent and the instrument.”*

The purpose of this SEE is therefore to:

- Seek Development Consent from the relevant consent authority;
- Describe the land to which the DA relates and the character of the surrounding area;
- Outline the scope and intention of the proposed development;
- Define the statutory planning framework within which the DA is to be assessed and determined; and,
- Assess the proposed development in the light of all relevant heads of consideration.

2 Green Gold Energy Company Profile

Green Gold is a South Australian-based company that takes a collaborative approach to renewable energy. Green Gold seek to partner with landowners to identify land that balances the farmer's needs with the requirements for Green Gold's solar farms.

Green Gold's core business is centred around rural land that is typically no larger than 16 hectares (40 acres) that can support commercially viable Solar Energy Facilities with the necessary investment and infrastructure.

These solar farm projects are designed to export generated energy into the grid, enabling it to be sold on the National Electricity Market using the latest state-of-the-art PV technologies to ensure the most efficient, reliable power generation.

Green Gold projects deliver:

- Long-term, secure supplementary income to landowners
- Access to the Australian renewable energy market to investors and shareholders
- Sustainable returns for investors

These projects also bring significant benefits to the regional communities they are located in, by creating jobs, providing local economies with the assets to improve energy infrastructure, and creating stronger, more sustainable communities.

The Green Gold executive team has commissioned a series of solar energy facilities in South Australia. Green Gold state: “We are proud of the role we’re playing in powering our region’s green energy transition”.¹

3 Application Details

The decision by Green Gold Energy to expand into providing solar energy facilities in New South Wales was based on a sound business model, including consideration of the region’s solar access, its trunk electricity network infrastructure and the region’s desire for clean, efficient, and affordable electricity.

The subject land and the surrounding region are largely flat and cleared – there are few environmental constraints such as rock, terrain or native vegetation.

The land is marginally affected along the eastern boundary by the **Riparian Land & Waterways** provisions. This should not affect the proposal as the facility will likely be sited approximately 250m from the bank of the Murrumbidgee River.

The subject site was secured by Green Gold because it held the above-mentioned attributes conducive for solar facilities, as well as being proximate to existing 33kV powerlines and has a willing owner – who was looking to divest the portion of the land to receive an alternative income.

The due diligence and site selection process undertaken by Green Gold is set out in its **Site Feasibility Report**, attached herewith.

Once it was determined that the site had the required physical and electricity network attributes – a flat open site, adjacent powerlines that have the capacity to accept electricity generated by the facility that can feed into the nearby Hay electric substations for use by the community – an option to lease the site was entered into and Chris Smith & Associates were engaged to carry out a rigorous pre-application investigation. This included the following **two-phase** investigation and assessment process:

Phase 1: Initial investigation:

- Desktop planning investigation to determine planning controls applying
- Pre-application agricultural advice from NSW Department of Primary Industries (NSW DPI) Agriculture – Officers on 7th August 2020, and a number of follow-up telephone conversations.

¹ <https://greengoldenergy.com.au/about/>

- Initial pre-application meeting with Council Officers, and a number of follow-up telephone conversations.

Phase 2: Detailed investigation and specialist assessments.

- Engage specialist consultants to undertake aboriginal heritage investigations and traffic impact assessments of the site and provide independent professional opinion of the likely impacts of the proposal on the surrounding area.
- Detailed planning assessment.
- Refine solar facility layout and design, based on the recommendations of these investigations and assessments.

Initial desktop planning investigations and subsequent site inspections confirmed the subject site's suitability, including being well clear of any areas of potential cultural heritage sensitivity. Accordingly, it is submitted that a detailed and balanced approach to all relevant site and planning considerations has been undertaken to provide a sound planning proposal, as set out in this report and supporting documents.

4 Strategic Context

Australia has the highest average solar radiation per square metre of any continent in the world. NSW has an abundance of excellent solar resources and established electricity infrastructure that, along with declining technology costs, makes it an attractive location for solar energy development.

In the strategic context, large-scale solar energy projects provide an opportunity to:

- Contribute to NSW achieving net-zero emissions by 2050 as set out in the NSW Climate Change Policy Framework
- Deliver on commitments in the NSW Renewable Energy Action Plan
- Support Australia's commitments to reduce greenhouse gas emissions
- Contribute to any Commonwealth renewable energy targets
- Assist in meeting energy demand and improving energy security for NSW.

4.1 NSW Renewable Energy Action Plan 2018

The *NSW Renewable Energy Action Plan* outlines a comprehensive framework to achieve renewable energy targets by 2030 and details the opportunities and actions underway for renewable energy technologies in NSW.

The Plan also details three goals and 24 actions to facilitate the emergence of renewable energy generation most efficiently in NSW:

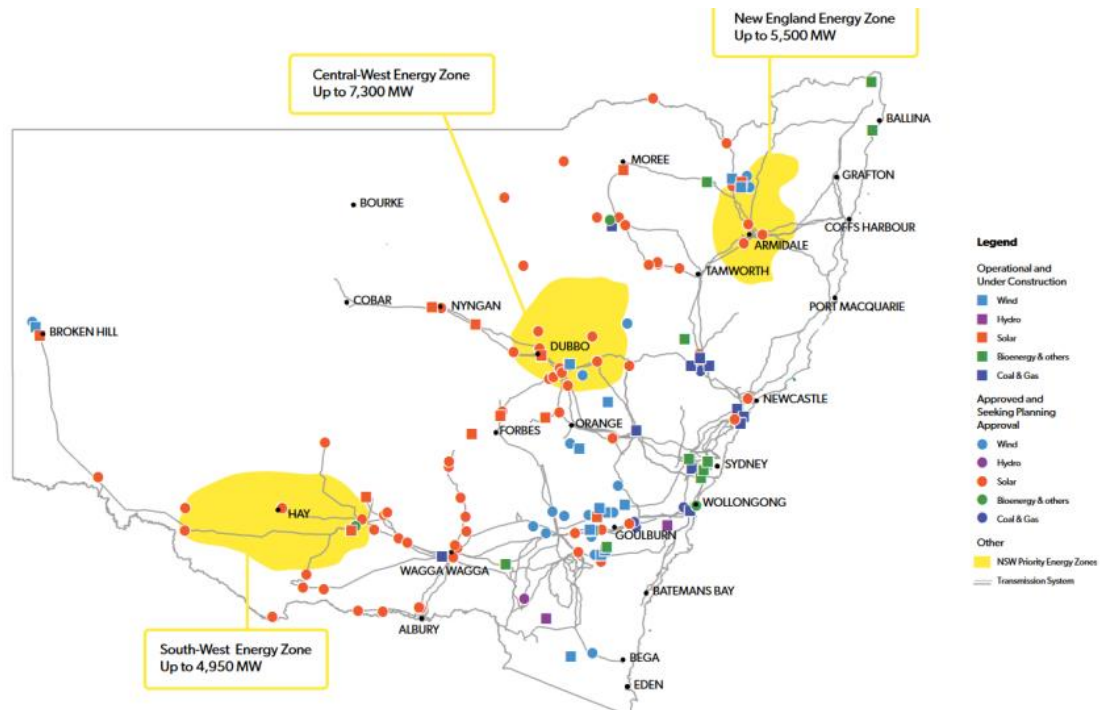
- Attract renewable energy investment and projects
- Build community support for renewable energy
- Attract and grow expertise in renewable energy technology

The Renewable Energy Plan identifies, NSW has a range of competitive advantages as a location for solar power investment, including excellent solar resources and world-class solar research institutions.

The proposed development represents a step for NSW toward a renewable energy future, on land that is currently used for moderate agricultural use and contains limited identifiable biodiversity value.

The development would not require removal of native vegetation and would provide a regional municipality with access to affordable renewable energy.

The *NSW Renewable Energy Action Plan 2018* identified Hay as a potential priority Energy Zone (see below figure). There are opportunities around all the transmission lines, including the Transgrid line to the south of the Shire.



NSW Renewable Energy Projects and Potential Priority Zones
Identifying Hay for Solar Energy Generation (NSW Renewable Energy Action Plan, 2018)

5 Design Considerations

The Large-Scale Solar Energy Guideline (LSEG) was published in December 2018, in response to the NSW's transition to renewable solar energy sources. Although these Guidelines apply to **State Significant Development**, only

With many projects under way and many others being planned, the NSW Government has been proactive in providing a framework for the assessment, design and operation and determination of State significant large-scale solar energy projects under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This guideline aims to ensure that:

- impacts are assessed with best practice methods and in a consistent manner
- effective stakeholder engagement is undertaken that encourages community input on solar energy development
- there is a balance between attracting investment and considering the interests of the community.

These Guidelines set out best practice advice for developers of solar energy facilities in NSW, including recommendations for community consultation, design, consideration of off-site impacts, construction, operation and decommissioning. In addition to the details throughout this report, the considerations and application requirements set out in the Guidelines have been grouped and responded to under the following themes.

5.1 Identifying suitable locations

Green Gold has extensive past project experience across Australia – having commissioned a series of solar energy facilities in South Australia – typically small-scale solar generation facilities, similar to the current proposal. Most of these facilities have been built and are currently providing clean and cheap renewable energy to the immediately surrounding local community.

New South Wales has been identified as having excellent solar irradiance and the Hay region is a prime candidate to see local renewable electricity generation for the use and benefit of its local residents. Accordingly, Green Gold embarked on a process of securing suitable sites in NSW.

Factors such as land availability, proximity to the electricity network, accessibility, topography and site constraints are all key considerations when first looking for potential sites.

5.2 Visual Impacts and Site Context

The proposal is for a sub-4.95MW facility that will occupy approximately 13 ha of land, a relatively small portion of agricultural land; especially in comparison to the larger facilities that the Guidelines are designed to accommodate.

Accordingly, in consideration of the nature of the proposed facility and physical separation to any nearby facilities, the development would not lead to any undue cumulative visual impact on the surrounding area as a result of the proposed solar panels.

The visual impact of the facility is to be further softened through the use of landscape screening along the road frontage.

Accordingly, it is submitted that when viewed in the context of their surrounds the cumulative impact of the approved and proposed solar facilities, in terms of both land use and visual impact, is minimal.

5.1 Traffic Management

The peak of construction activities will occur during the mechanical and electrical installation phases of construction. During these times, up to 20 workers could be on site during working hours. Workers will access the site in the morning and leave at the end of the working day in either their private car or work vehicle (ute or small truck). It is anticipated that there will be some car pooling, therefore it is expectant that **up to 15 cars/utes** would be accessing the site during the height of the construction period.

A Traffic impact assessment has been undertaken by Traffic works – submitted herewith. It is established that the road network surrounding the site are local rural roads that are managed by the Hay Shire Council. Murray Street and Cemetery Road are all-weather sealed roads, capable of heavy vehicle access – subject to condition report before the construction work is commenced.

Deliveries of components will be scheduled across Stages 2, 3 and 4, as required. Solar components (support system, trackers, panels and cabling) are delivered in pre-packed containers that are lifted from the delivery truck onto the lay-down area.

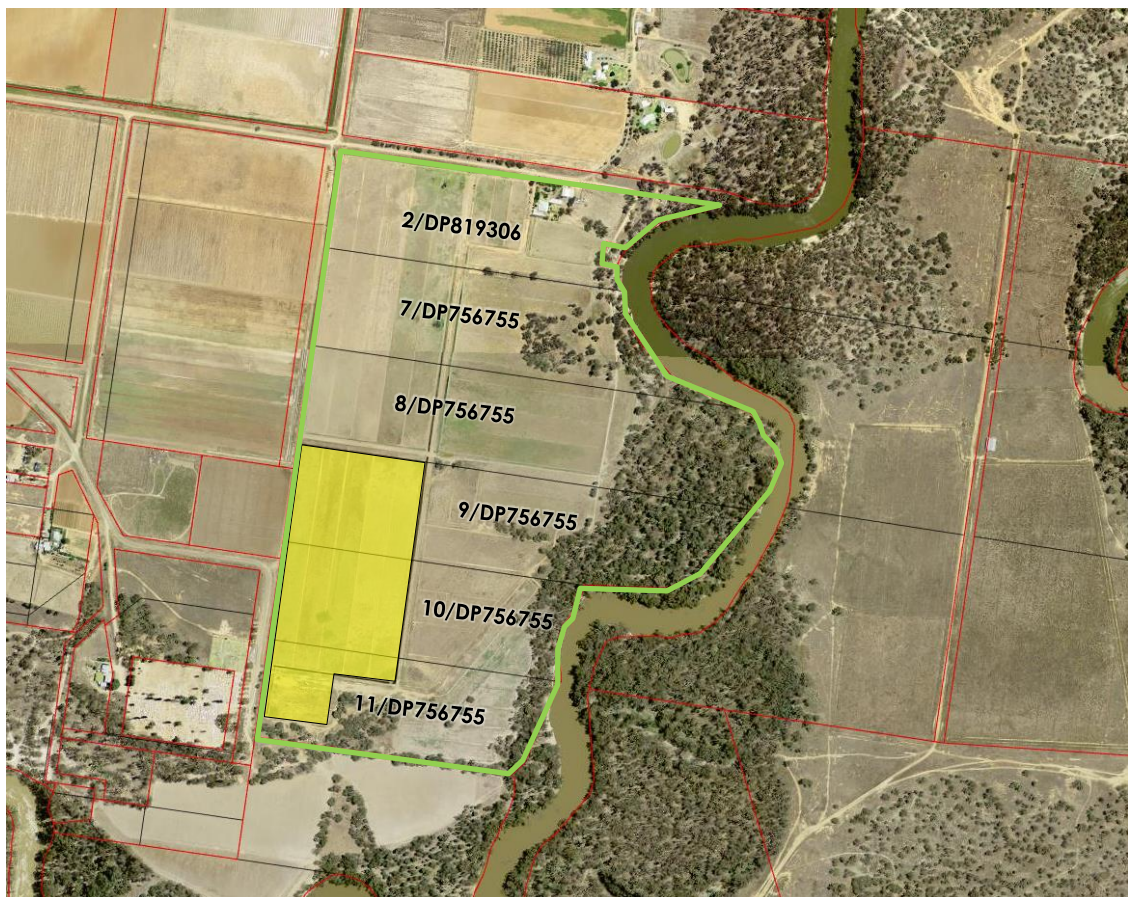
Other than during construction, the facility will be un-manned, other than intermittent periodical maintenance. The site will be remotely monitored in real time and local

contractors would be rapidly deployed to deal with any fault or other matter, which provides the added benefit of local jobs for the local community.

6 Site and Context Description

The proposed solar farm is to be built on a portion of an existing farming property addressed as 19 Murray Street, Hay. This property consists of six (6) separately transferrable parcels within common ownership. Green Gold Energy has agreed to terms with the current farmer to lease the south-western portion of the property to develop it for a solar farm (see below figure) – for a period of approximately thirty (30) years.

Accordingly, this proposal relates to the western portion of **Lot 9, 10 and 11 on DP756755, only**. The lots are the three (3) southern lots – fronting Cemetery Road and is referred to herein as “the subject land”. A Certificate of Title for the subject land is attached herewith.



19 Murray Street, Hay (Extracted from ePlanning Spatial Viewer)
 Extent of proposed lease area shaded yellow

The proposed facility will occupy approximately 13-ha of the 98-ha property. The remaining land outside the facility's fence – mostly along the eastern and northern boundaries – which will remain “as is” and will be managed seasonally. The subject land is abutted by farming land along western site and beyond Murrumbidgee River running parallel along eastern boundary.

The subject land – being Lots 9, 10 and 11 – comprises three (3) regularly-shaped allotments with an area of approximately 41ha hectares – all three (3) lots are 200

metres wide (north-south). The only irregular dimensions of these parcels are along the eastern boundary where they adjoin the Murrumbidgee River.

Accordingly, the subject site has a frontage of approximately 600 metres along Cemetery Road along its western boundary. The subject land has a maximum depth of approximately 920 metres along its northern boundary – being the northern boundary of Lot 9.

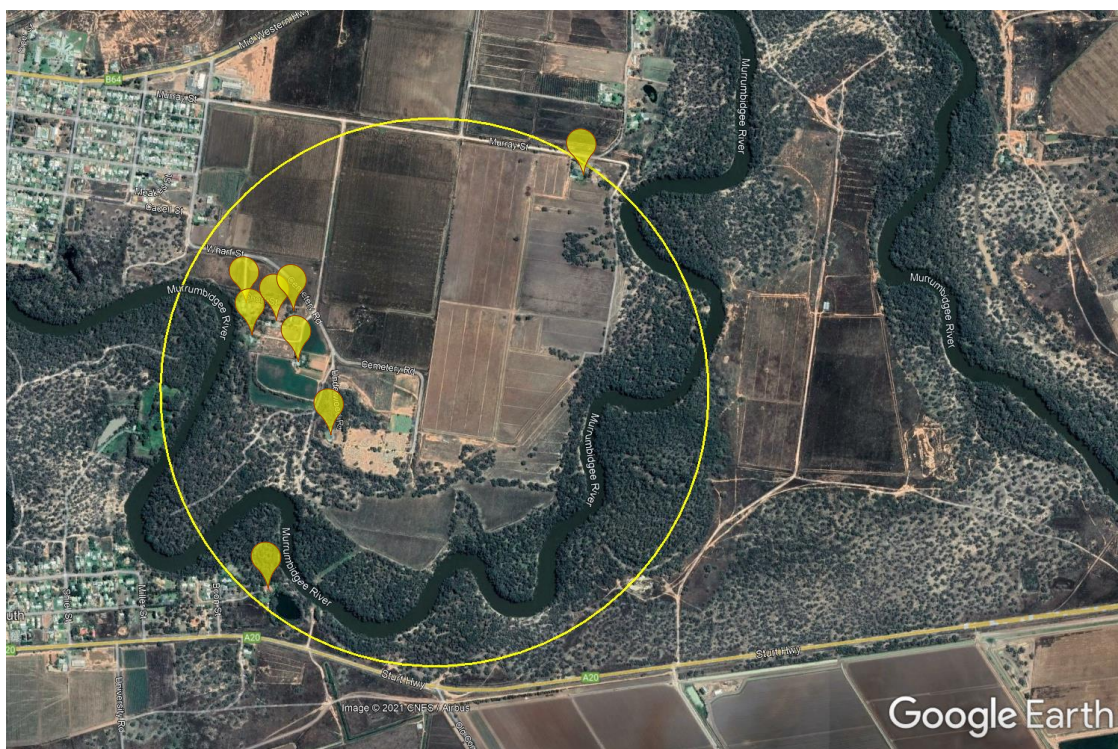
Access to the site is provided via Cemetery Road, a sealed, all-weather rural road that would be capable of supporting vehicle traffic during construction of the solar farm. Arterial road access to this road is from the Mid-Western Highway to the north via Bourke Street – which turns into Cemetery Road as it leaves the Hay township.

The subject site, including the broader property to the north is largely open, cleared land, with the exception of some planted vegetation and a mix of large patches and scattered remnant trees along the eastern boundary of the site along the Murrumbidgee River riparian corridor.

6.1 Surrounding Context

The subject land is located approximately 1.2 km west of the Hay township – by direct measurement to the nearest urban-zoned land.

There are eight (8) dwellings within a 1km radius of the proposed facility – as illustrated in the below figure; however, other than the cemetery caretaker's residence, all of these dwellings are within the RU1 zone.



East Hay locality (Source: Google Earth, image circa 2021)

Showing dwellings within 1km radius from centre of proposed facility, to east of Hay township

The surrounding area is predominantly a mix of dryland and irrigated agriculture, public land, and rural living. The land immediately surrounding the subject site is as follows:

- **North:** Primarily used for conventional agriculture – with grazing and some cropping evidenced through historical imagery.

- **South and East:** Beyond the agricultural land forming the broader farming property, the land contains the Murrumbidgee River – a public reserve that comprises significant native vegetation and serves as a key biodiversity corridor and water source for the Murray Riverina region.
- **West:** The Hay township is located approximately 1.2km west of the subject land – defined by Bourke Street – along which the land use begins to transition to convention urban land uses.

The site is fronted by 33kV overhead powerlines which run along Cemetery Road and feed into the Hay substation, located approximately 3.98km north-east of the subject land along Mid-Western Highway.

7 Proposal

7.2 Facility Equipment and Componentry

This application seeks Development Approval to develop approximately 13 hectares of land at 19 Murray Street for a **4.95MW solar farm** – as shown on the attached plans and figures, below.

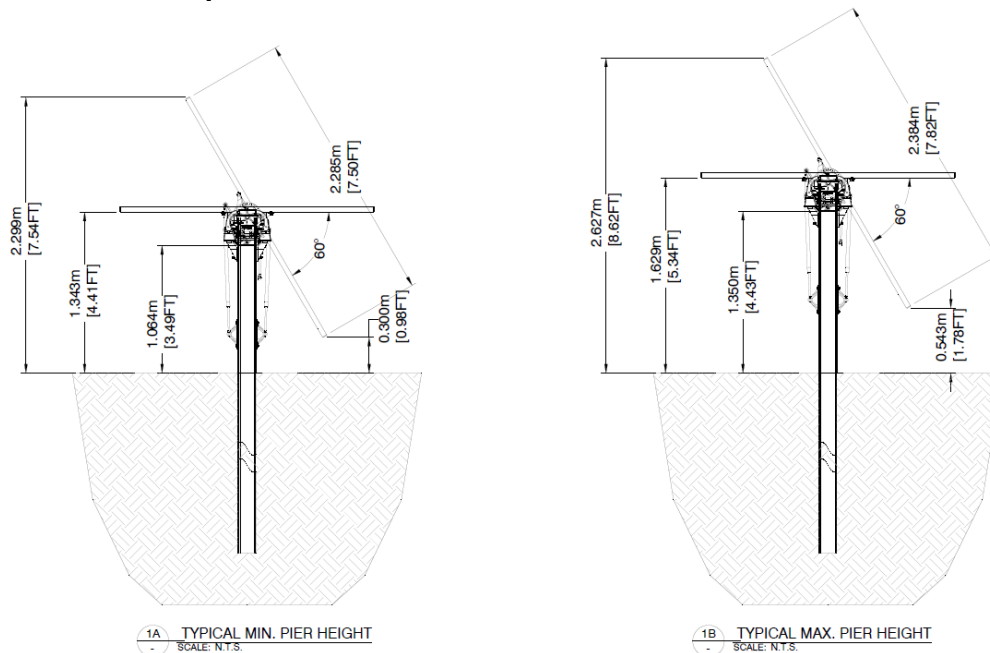


Proposed Site Plan
Prepared by Green Gold Energy

The proposed solar farm and associated works are to be as shown on the attached plans and supporting documents.

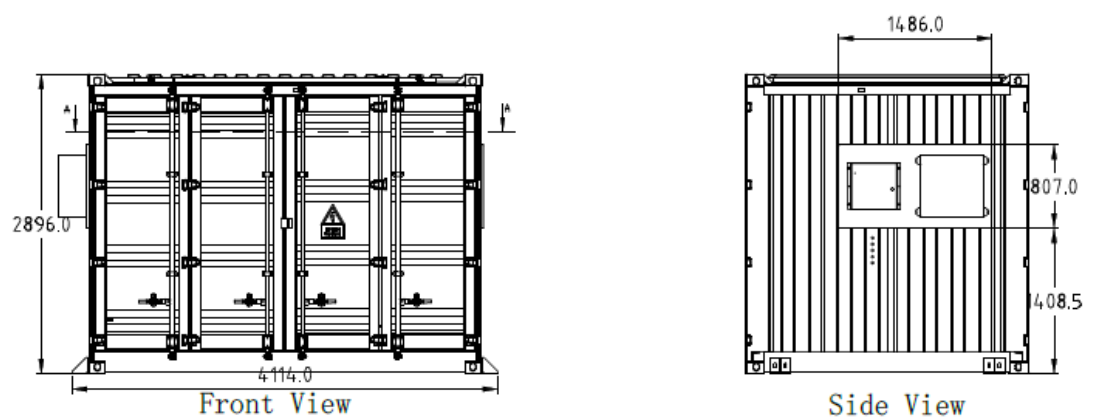
Specifically, it will consist of:

- **12,312 solar panels**, mounted on single axis tracking arrays, each having the following specification:
 - Nominal dimensions of 2.2m by 1.1m
 - Maximum height of 2.7m above ground (when at maximum rotation)
- The panels will be arranged in **162 individual rows**, each will comprise **76 individual panels**



- **One (1) high voltage power switchboard**, positioned centrally at the front of the facility – along western edge of the facility.

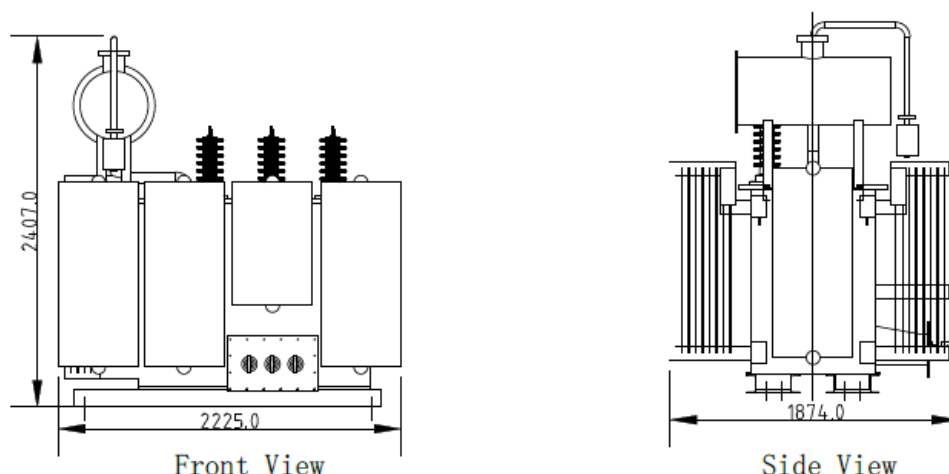
TYPICAL HIGH VOLTAGE SWITCHBOARD ENCLOSURE ELEVATION DETAILS



- **1.8m high chain mesh perimeter fence** around entire perimeter of facility, including two (2) gates – positioned to the front of compound.
- **Two Vehicle crossings (access points)** from Cemetery Road along western edge at the locations shown on the Site Plan.
- **Internal access track** and associated facilities (car park, assembly area/unloading bays, storage bays) for use during construction and for service operations and maintenance.

- **Landscaping** along western frontage, as shown on Landscape Plan, directly outside the compound fence, within the road reserve.
- **Pole and 33kV overhead powerline** connection to Essential Energy electricity distribution network and nearby Hay substations.
- **One power station inverter** positioned centrally within the facility – between panel arrays

TYPICAL INVERTER TRANSFORMER ELEVATION DETAILS



The figures and cross-sections overleaf illustrate the key components of the development, including dimensions for reference.

7.3 Landscaping

The facility is to be landscaped around the western perimeter of the facility to reduce potential for visual impact as a result of the facility from any nearby public land; all equipment will be located within the compound – behind the proposed landscaping – which will consist of vegetation indigenous to the local area.

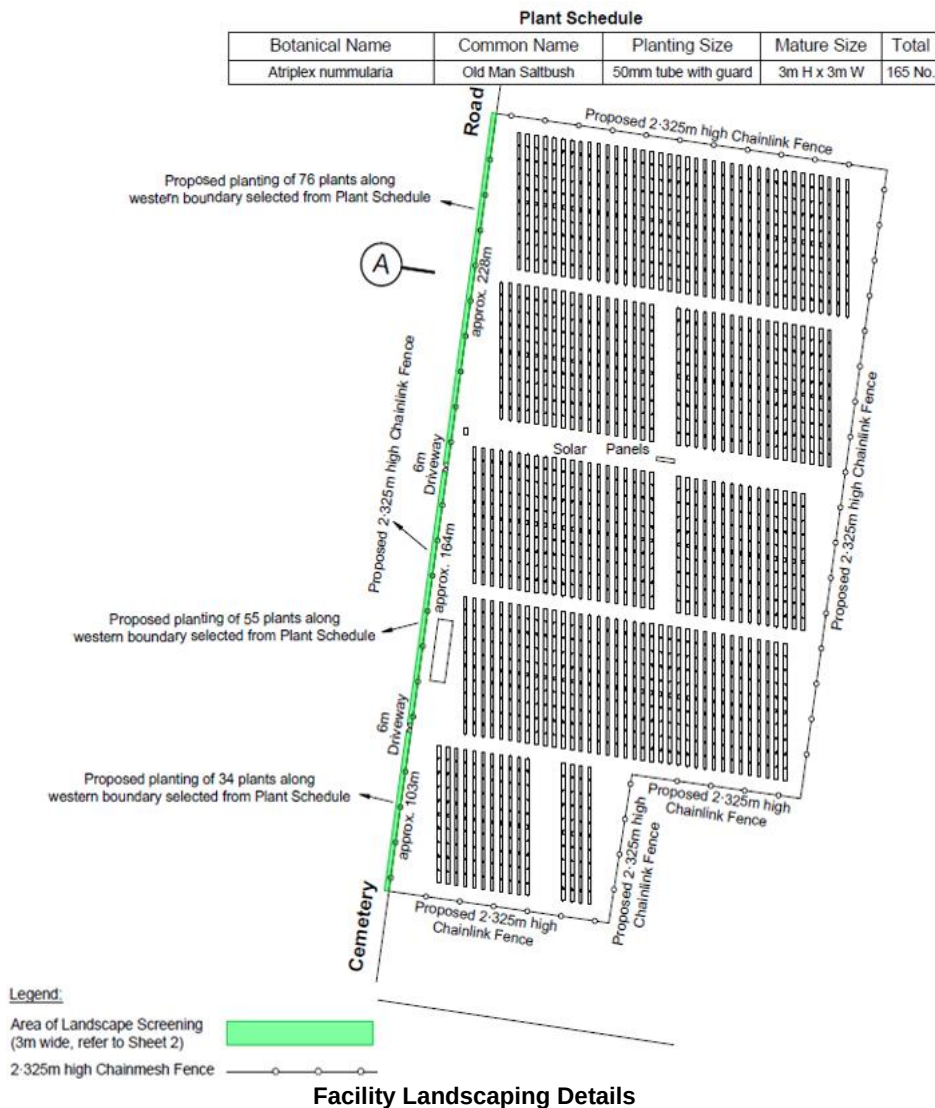
The below schedule of landscape maintenance provides an overview of the anticipated timing to ensure that vegetation will be appropriately established on the site.

Landscape Maintenance Plan	
Task	Time Period
Planting of local drought tolerant plants (refer Plant Schedule)	Upon construction of solar panels perimeter fence
Water at planting & then fortnightly	1st & 2nd month after planting
Maintenance (watered by rainfall or as required)	
Visual inspection once a month ensuring plants are alive	3rd to 5th month after planting
Visual inspection once every 3 months ensuring plants are alive	6th to 8th month after planting
Visual inspection once every 6 months ensuring plants are alive	9th month to 30 years after planting
Note: (1) Any dead, diseased or damaged plants will be replaced as soon as possible by maintenance services team. (2) The Landscape Maintenance Plan has been prepared in accordance with advice from Green Gold Energy. Disclaimer: Chris Smith & Associates P/L. take no responsibility for the implementation of the Landscape Maintenance Plan.	

Proposed Landscape Plan & Landscape Maintenance Schedule
Prepared by CSA Drwg no. 20158/LS01 Rev.0

The site will be accessed from the western boundary from a local road managed by the Hay Shire Council – providing access to equipment within the facility compound for maintenance and emergency purposes.

It is therefore considered that the proposal is strategically located within an area of the subject site that maintains significant separation distances from adjacent properties, except to the east and it is anticipated that the proposal would have limited detrimental visual impact on the surrounding properties.



8 Development Details

8.4 Construction Phase

Once built, the facility will remain largely static (with the exception of tracking arrays) and largely unmanned. Accordingly, the construction period will be the most impactful period of the facility's lifespan. However, it is for a short finite period and – if managed appropriately – impacts can be controlled to an acceptable level.

The **Construction-Environment Management Plan** by Green Gold – attached herewith – includes a construction delivery timeframe of six months. This is an approximate nine (9) month construction period, with the following expectant parameters:

- **Stage 1 – Early works** consisting of piling tests, road construction and upgrades for site access, including road widening and paving.
- **Stage 2 – Civil works** consisting of land clearing, levelling and earthworks, internal road construction, drainage installation, laydown area preparation, fencing installation, site establishment, preparation of delivery station and vegetation screening/landscaping.
- **Stage 3 – Mechanical works** consisting of foundation piling (ramming and auguring), tracker installation, module installation and delivery.
- **Stage 4 – Electrical works** consisting of solar cabling of aerials and conduits, DC main cabling via direct burial, MV cabling from inverter station to delivery station through direct buried, module connection, connection of junction boxes-inverters-delivery station, connection to grid and finally testing and commissioning.

It is anticipated that all components will be delivered in containers by semi-trailer trucks and deliveries will be scheduled across the nine-month project construction period.

The Construction Management Plan sets out how construction activities will be carried out, including site logistics, operations and equipment to be used, construction hours and site management.

The proposed solar array system requires minimal earthworks; the support system is augured and rammed into the earth. Thus, there is less propensity for environmental impacts.

Deliveries of components will be scheduled across Stages 2, 3 and 4, as required. Solar components (support system, trackers, panels and cabling) are delivered in pre-packed containers that are lifted from the delivery truck onto the lay-down area.

The local road network will ultimately connect to the state-managed arterial road network for traffic to and from the site.

8.4.1 Construction traffic management

The peak of construction activities will occur during the mechanical and electrical installation phases of construction. During these times, up to 20 workers could be on site during working hours. Workers will access the site in the morning (and leave at the end of the working day in either their private car or work vehicle (ute or small truck).

The standard hours of operation are:

- **7:00am to 6:00pm** Monday to Friday
- **8:00am to 1:00pm** Saturday; and
- No works on Sundays and Public Holidays

Materials deliveries will also occur throughout the construction period, with most components coming in during the mechanical works phase. Deliveries will be via rigid truck or semi-trailer and will be scheduled throughout the working day, to ensure efficient unloading and handing. It is anticipated that there will **up to 3 or 4 truck deliveries** per day during the height of the construction period.

The road network surrounding the site are local rural roads that are managed by the Hay Shire Council and are all-weather sealed roads, capable of heavy vehicle access.

8.5 Operation Stage

Beyond the nine-month construction period, the facility will be largely un-manned, other than intermittent periodical maintenance. The facility does not include batteries and there is no intention to store any dangerous goods on site.

The site will be remotely monitored in real time and local contractors would be rapidly deployed to deal with any fault or other matter, which provides the added benefit of local jobs for the local community.

Considering that the proposed facility will be un-manned, with limited moving componentry (other than the tracking arrays), it is considered that it will have a very minimal impact on the landscape or surrounding road network.

From past project experience, we are aware of community interest in the following matters in relation to solar facilities.

8.5.1 Electromagnetic radiation (EMR)

Small amounts of electromagnetic radiation (EMR) can be produced (emitted) by electrical componentry associated with a solar facility such as inverter, transformers and high voltage powerlines. However, the level of radiation dissipates quickly – becoming largely indistinguishable from background levels over distance from the componentry.

The electromagnetic field (EMF) produced around an electric installation is non-ionising, within a range that exists in our daily lives from natural sources (which are most noticeably manifested in lightning discharges) and from appliances and electrical devices that surround our daily lives.

EMR from these types of components dissipates to indistinguishable levels over about 5-to-10 metres. The inverter is centrally located within the facility, well in excess of 100 metres from any boundary or the edge of the facility.

8.5.2 Heat island effect

In recent proposals, the community has raised concern for the potential of a “heat island effect” being created by solar facilities. This is where ambient temperatures are artificially raised by reflective heat from the facility, which could have impact on adjacent sensitive vegetation or horticultural operations.

Various studies have been undertaken and assessments presented as evidence for other contested solar facility proposals. As a result of these investigations, it was determined that any discernible impacts would be unlikely and would be quickly dissipated over a relatively short separation distance. Further, the facility has observed a 30-metre separation distance between facilities and the property boundary.

The proposed layout achieves a significant setback from any nearby properties – even greater when considering properties in private ownership. Any “heat island effect” created by the proposal would have no discernible effects over these distances.

8.5.3 Environmental, risk and emergency management

There are substantial elements of environmental management provided within the Construction Environmental Management Plan prepared by Green Gold. However, it is anticipated that a detailed Waste Management Plan will be required as per the Council’s initial advice due to the limited capacity of the Hay township transfer station.

Accordingly, a Construction Waste Management Plan (**Appendix C**) has been prepared by Low Impact Development (LID) consultants and is provided herewith as **Appendix D**.

The CWMP sets out the matters, to be approved before construction begins, such as site management, dust and sediment control during construction.

A Traffic Impact Assessment has been undertaken by Traffic Works to estimate the traffic generation from the proposed development and determine the suitability of the proposed access. It is provided herewith as **Appendix A**.

The proposed facility will be remotely monitored in real-time. Thus, it will be under constant surveillance and alarm reporting to ‘on-call’ staff will occur automatically in the event of a fault or potentially dangerous situation. An operational management plan will be an integral part of the operation of the facility.

The site is subject to planning controls pertaining to ground water vulnerability; however, it is considered that the proposed solar farm development is unlikely to have negative impacts on the ground water resources.

8.5.4 Site access and traffic management

As set out above, during operation the facility will be monitored remotely; thus, there will be no permanent workers on site. The facility will remain largely unattended, other than periodical visits by maintenance contractors or the instance of a fault that requires site attendance.

These contractors will carry out seasonal site maintenance (slashing and ground fuel control, etc), cleaning panels and periodical visual checks of componentry and equipment. Accordingly, it could be weeks between site visits and most visits would be no more than one or two contractors in a single vehicle (likely a work ute), carrying out visual checks.

8.6 Waste Management

A Waste Management Plan has been prepared for the subject site by Low Impact Development (LID) Consulting. The report is attached as **Appendix D** with this application.

The report encapsulates the recommendation for better practice management of construction waste in accordance with the nature of the proposed solar farm development. While there is no demolition to occur on the site, the construction waste generated will be limited to hole boring for pad footings, wire cut-offs and packaging waste

8.6.1 Construction Phase:

A project of this size is expected to have a construction period of 6 – 9 months approximately. It is anticipated that all components will be delivered by semi-trailer trucks scheduled across the project construction period.

Of particular note is that the local *Hay Waste depot is unable to accept construction waste without an executed Waste Management Agreement with the Hay Shire Council. This depot is currently at capacity.*

Accordingly, Green Gold Energy have advised that their sub-contractor agreements stipulate that each trade is to manage and remove their own waste. This agreement should also ensure that the waste is appropriately streamed, and materials recycled where possible to minimise waste going to landfill.

Section 5 of the WMP report enlists alternative regional waste and recycling locations which can also be found on the NSW EPA website:

- <https://www.epa.nsw.gov.au/yourenvironment/recycling-and-reuse/household-recycling-overview/find-crcs-or-hcco>

The sections delineate the types of waste each centre would accept.

8.6.2 Operational Waste:

Once the solar farm is up and running, it will be remotely monitored and will be unmanned, therefore the waste generated during operational phase will be relatively low.

There will be a need for panel cleaning 1-2 times a year, mowing / weed removal as well as any general maintenance to ensure continue operation. It is anticipated that any operational waste will be limited to lunch wrappers and drink containers and any supplies required for maintenance or repair. All of which will be taken away with the contractor when they leave the site.

8.7 Noise

All construction work will be carried out during standard business hours. The impacts of noise are anticipated based on the nearby dwellings (refer image above) within 1km radius of the site.

Predominantly, the subject site is surrounded by large farming lots with sparsely located farm dwellings. The closest of these receptors are adjacent to the west of the subject site.

8.7.1 Construction & Decommissioning Phase:

The noise issues would primarily and almost exclusively be centered around the construction and de-commissioning of the site, which can be suitably implemented through a construction management plan via permit condition – to the satisfaction of the responsible authority. In addition, the Noise and Management plan prepared by Green Gold – submitted herewith, outlines noise and vibration mitigation measures, which shall ensure the impacts are minimised.

Though the work will occur during the approved operating hours, there will be significant noise generated during installation of fence and solar panels. Noise of minor nature will be generated by movement of heavy vehicles and other construction equipment.

8.7.2 Operational Phase

It is anticipated that the proposed facility will have negligible noise once its operational. The facility will be an un-manned and would see only limited active work – generally when contractors are present on site for maintenance purpose. A desktop Noise Assessment assessed insignificant potential impacts from the proposed equipment during operation stage and deemed there would be no undue impacts to surrounding farm residences.

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an “A-weighting” filter. People’s hearing is most sensitive to sounds at mid frequencies (500 Hz to 4000 Hz), and less sensitive at lower and higher frequencies. A change of 1 dBA or 2 dBA in the level of a sound is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10dBA change corresponds to an approximate doubling or halving in loudness. See the table below:

Table 1 – Examples of typical noise levels

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120 110	Heavy rock concert Grinding on steel	Extremely noisy
100 90	Loud car horn at 3m Construction site with pneumatic hammering	Very noisy
80 70	Kerbside of busy street Loud radio or television	Loud
60 50	Department store General Office	Moderate to quiet
40 30	Inside private office Inside bedroom	Quiet to very quiet
20	Unoccupied recording studio	Almost silent

The following mitigation measures are proposed to be implemented to alleviate the noise to minimum level (*Green Gold Environmental Management Plan, p.10 – Table 3*):

Table 3 – Noise and Vibration Mitigation Measures

Mitigation Measure	Responsibility	Timing
Plant and equipment to be properly maintained	General Superintendent	During Construction
Avoid unnecessary noise when carrying out manual operations and when operating plant	General Superintendent	During Construction
Switch off any equipment not in use for extended periods	General Superintendent	During Construction
Works will be undertaken in accordance with the working hours outlined in section 5.3	General Superintendent	During Construction
Where practical, all vehicular movements to and from the construction and renovation site must be made only during normal working hours	General Superintendent	During Construction
Where practical, machines would be operated at low speed or power and would be switched off when not being used rather than left idling for prolonged periods	General Superintendent	During Construction
Prior to construction work being undertaken all personnel involved in undertaking that work receive environmental induction training	HSE coordinator / General Superintendent	Prior to / During Construction

8.8 Decommissioning

The majority of components of the proposed facility (including panels) have a thirty-year design life expectancy. At this stage, the intention is to maintain/upgrade the facility over its life, as components wear out and new technology becomes available. Accordingly, the facility is likely to remain functional and operating into the foreseeable future.

However, should the facility's useful life end – for any number of commercial or practical reasons – the site can easily be remediated and reverted back to agriculture or converted to another use, as allowable under the planning provisions of the time.

The non-invasive mounting system makes decommissioning and removal of all panels and componentry a relatively simple process and would allow for the full remediation of the subject site to pre-development condition.

9 Statutory Framework and Assessment

9.1 Environmental Planning & Assessment Act 1979

The proposal is subject to the provisions of the *Environmental Planning & Assessment Act 1979* No. 203 (*"the Act"* herein)

Under the Act, the consent authority is required to consider the full range of matters listed under Division 4.3, Section 4.15 of the Act in its assessment of a development application. Each of the relevant matters are addressed below:

Matters for Consideration – General

The consent authority must take into consideration:

(a) *the provisions of:*

- (i) *any environmental planning instrument, and*
- (ii) *any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
- (iii) *any development control plan, and*
- (iiia) *any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and*
- (iv) *the regulations (to the extent that they prescribe matters for the purposes of this paragraph),*

that apply to the land to which the development application relates,

- (b) *the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*
- (c) *the suitability of the site for the development,*
- (d) *any submissions made in accordance with this Act or the regulations,*
- (e) *the public interest.*

Accordingly, the proposal and potential impacts are now considered – in accordance with the above provisions of Section 4.15, under the following headings:

Impacts on the Natural Environment

The proposed development is to be undertaken on a largely cleared property zoned RU1 for Primary Production.

The current DA is accompanied by conceptual plans and relevant environmental impact assessments to demonstrate that there will not be any undue detrimental impacts as a result of the proposal – either on- or off-site.

There are two approved solar farms within Hay Shire Council to the north of the subject site, reflective of the capacity of the existing Essential Energy infrastructure, which will ensure that adjoining landholders and operators are not unduly impacted by the development of the site or any connections. To this end, the proposal does not require the removal of any vegetation that would endanger the natural environment.

Although the wider property is identified as being prone to inundation, and has historically been flooded, the development site is outside this floodplain. Further, in considering the nature of a solar farm, the development comprises largely permeable fencing and ground-mounted installations would not significantly impede natural flow paths. The facility would be largely un-manned and there would be no risk to life from flooding as a result of the proposal.

The proposed development site does not contain any mapped wetland. Although the Murrumbidgee River Corridor is within a wetland protection zone, the development site is well clear of it.

Impacts on the Built Environment

In considering the existing built environment of Cemetery Road, there is an operational cemetery; however, the prevailing land use is that of agriculture, which is undertaken at a range of scales and intensities within the surrounding area.

The site has been deemed suitable because of the relatively strong electricity network and close proximity to the substation.

The site contains areas of scattered remnant trees and some planted vegetation to the north. The proposal has been designed to completely avoid the existing paddock trees; thus, there will be no impact on biodiversity as a result of the proposal or any associated works.

The site is identified as being within an area of ground water vulnerability – however, the nature of the proposed development is unlikely to impact the ground water sources. A detailed assessment of this risk is undertaken against the relevant provisions of the Hay LEP.

In considering size and magnitude of the facility, as well as the flat topography of the site and the proposed built form, any adverse landscape impacts are considered to be unlikely.

The proposal also includes a centrally located inverter station, and a switchboard within the compound at the electricity network connection point. None of these components are particularly large or visually intrusive and are considered comparable to an agricultural shed.

The subject land is within the Primary Production Zone (RU1) and many surrounding properties are used for seasonal grazing. The nearest dwelling with a potential view of the proposal facility is located on the property to the west of the subject site – over 450m from the proposed facility. However, this dwelling is located within the RU1 Zone and is therefore not considered a sensitive use for the purpose of planning.

It is submitted that the proposal will have a negligible visual impact on the locality, mostly due to the topography of the land and the height and scale of the proposed facility. The site has been selected through a careful site selection and design process to ensure that views from most public interfaces are largely obscured via landscaping or inherent site features.

Social and Economic Impacts

The proposed development will support the economic growth of the Hay Shire Council

The proposed solar farm has been designed and located to maximise the electricity generation efficiency while limiting the use of rural land – retaining the majority of the broader farming property for continued agricultural use.

It is estimated that during construction, a large portion of the work will be undertaken by the local contractors. The skilled workers from outside the region would need to be accommodated which will create an influx of spending within the area. The proposal will also have a positive effect on NSW's electricity prices and lead to affordable energy.

Further, the proposed development will remain under lease from the current farmer, providing for a supplemental income for the farmer and allowing for further investment in agricultural operations on the property, while also supporting the emergence of renewable energy.

The Suitability of the Site

The subject site is a largely cleared farming property that contains limited topographical or environmental constraints.

There are limited land use conflicts that would arise as a result of the proposal, as the site is screened by substantial vegetation along the Murrumbidgee River to the south and east, whilst the farming land to the north and west contains only a limited number of dwellings.

The application now submitted to Council is for a land use that will be fully contained within the subject land and has been designed in a site-responsive manner mindful of the context of the site (i.e. site constraints and existing servicing and public infrastructure assets in the vicinity).

Any submissions made in accordance with this Act or the Regulations

Any relevant representations will need to be considered by the Council in determination of the development application.

The public interest

The public interest is best served by the orderly and economic use of land for purposes permissible under the relevant context of the site within the Hay LGA and in accordance with the prevailing planning controls.

9.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

Part2 – Division 4 – Electricity generating works or solar energy systems

2.36 Development permitted with consent

(9) Solar energy systems – Development for the purpose of a solar energy system may be carried out by any person with consent on any land.

The proposed use of the land for a solar farm (as a solar energy system) is considered to be compatible with adjoining agricultural land uses.

The use and development of land would generate negligible impacts on the surrounding area – the primary concern for solar energy facilities is the visual impact that solar panels may have on surrounding amenity and/or loss of agricultural utility. The proposed facility has been designed to minimise any negative amenity/utility impact.

The proposal has been carefully designed to ensure that it will not impede existing agriculture within the surrounding area. The use of the land for a solar farm will be a low-impact use and has been carefully sited to avoid any adverse impact upon rural infrastructure – notably the existing rural roads that runs along the western boundary of the site.

The proposal is intended to facilitate the transition toward the State government's renewable energy target by 2020. To this end, the proposed facility will contribute 4.95MW of renewable energy into the NSW electricity grid.

Furthermore, solar farms are considered to be relatively benign in terms of their potential off-site impacts and it would be highly improbable that any existing and/or future farmers would be impacted by the proposal.

Division 5 – Subdivision 2 – Development likely to affect an electricity transmission or distribution network

2.48 Determination of development applications—other development

The proposed development site has been selected due to its immediate proximity to existing 33kV infrastructure, as illustrated in purple in the below figure.

(1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following—

- (a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,*
- (b) development carried out—*
 - (i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or*
 - (ii) immediately adjacent to an electricity substation, or*
 - (iii) within 5m of an exposed overhead electricity power line,*
- (d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.*

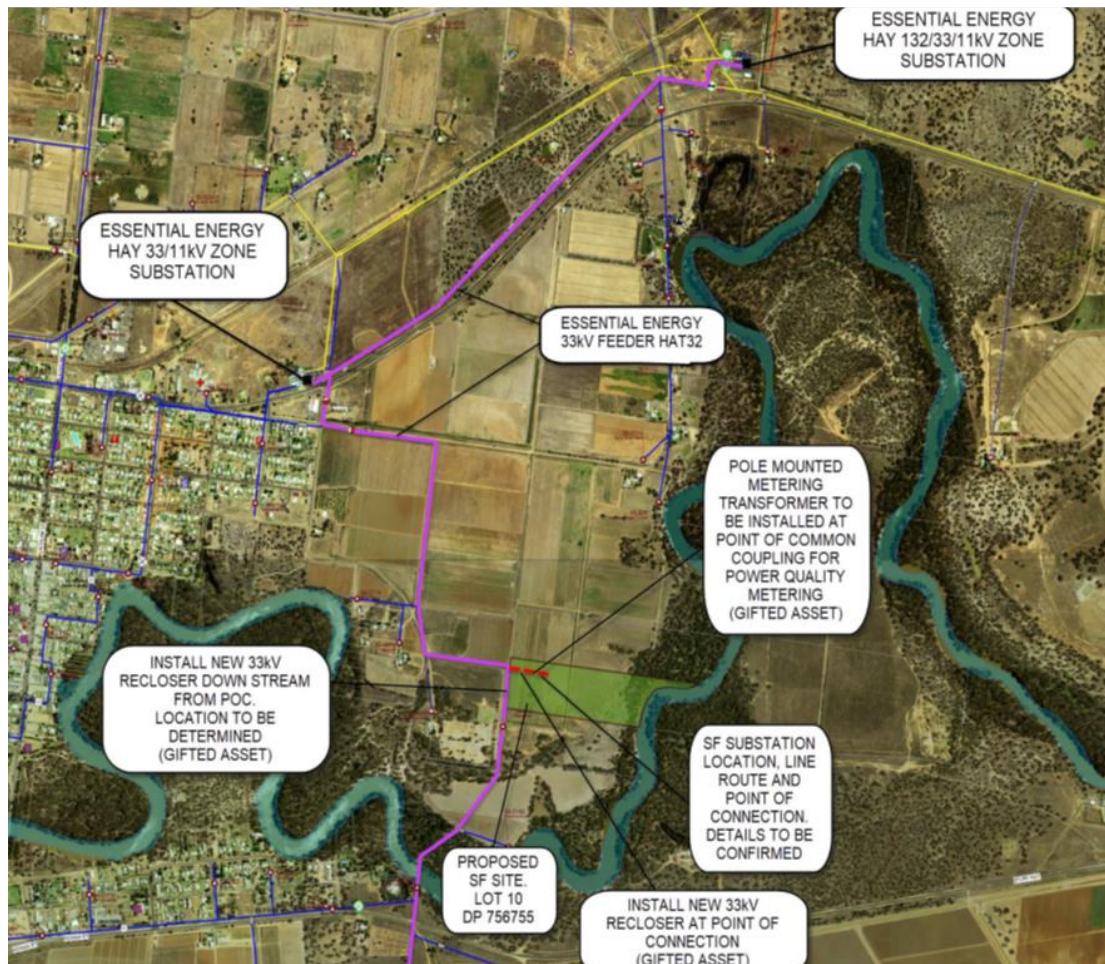
(2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must—

- (a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and*
- (b) take into consideration any response to the notice that is received within 21 days after the notice is given.*

The financial viability of a sub-4.95 MW facility is dependent on the facility being within immediate proximity of the distribution network, as beyond this, network augmentation

costs become prohibitive. The subject site was initially selected for its direct abuttal to existing 33kV lines.

The siting of the facility close to the existing transmission infrastructure allows efficient transmission of the energy generated into the grid; and for a financially viable connection to be achieved – this connection will be by way of an overhead line that will be connected via a post-mounted transformer.



Essential Energy Network Map

Identifying strong electricity network and close proximity to the substation

The facility design – in particular, positioning of the HV Switchboard – has considered existing trees on the land and the adjacent road reserve. A clear line of sight has been achieved for the overhead connection between the switchboard and the nearest power pole along Cemetery Road.

Green Gold has reached initial agreement with Essential Energy for the connection into their established infrastructure; nevertheless, formal notice will be issued to EE as part of the DA process. However, it is considered unlikely that there would be any impact on the operation of the existing overhead infrastructure as a result of the proposal.

9.3 State Environmental Planning Policy (Primary Production) 2021

Part 2.1 – Preliminary

The (relevant) aims of this *chapter* are as follows:

- (a) to facilitate the orderly economic use and development of lands for primary production,
- (b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,
- (c) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
- (d) to encourage sustainable agriculture, including sustainable aquaculture,

In response to these aims, the proposal is not designated development, nor is it development that is considered to unduly impact the ongoing use of the surrounding land for primary production.

Further, neither the subject site nor the surrounding area is identified within Schedule 1 as State significant agricultural land.

9.4 State Environmental Planning Policy (Planning Systems) 2021

Schedule 6 – Regionally Significant Development

5 Private infrastructure and community facilities over \$5 million

Development that has a capital investment value of more than \$5 million for any of the following purposes—

- (a) air transport facilities, electricity generating works, port facilities, rail infrastructure facilities, road infrastructure facilities, sewerage systems, telecommunications facilities, waste or resource management facilities, water supply systems, or wharf or boating facilities,
- (b) affordable housing, child care centres, community facilities, correctional centres, educational establishments, group homes, health services facilities or places of public worship.

Development that is state and regionally significant is identified in *SEPP (Planning Systems) 2021*

Private infrastructure, including electricity generating stations, that have a capital investment value of over \$5 million are declared regionally significant. The proposed Solar Farm development has a CIV of \$9.5 million and is therefore identified as a **Regionally Significant Development**.

9.5 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 - Remediation of Land

SEPP (Resilience and Hazards) aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or other aspects of the environment.

4 Objective of this Chapter

- (1) The object of this Policy is to provide for a State-wide planning approach to the remediation of contaminated land.
- (2) In particular, this Policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment—

- (a) by specifying when consent is required, and when it is not required, for a remediation work, and
- (b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and
- (c) by requiring that a remediation work meet certain standards and notification requirements.

4.6 Contamination and remediation to be considered in determining development application

- (1) A consent authority must not consent to the carrying out of any development on land unless—
- (a) it has considered whether the land is contaminated, and
 - (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
 - (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The solar farm development is proposed on the site which has been used for agricultural activities such as cropping, livestock grazing etc. According to the preliminary investigations carried out by Green Gold Energy as part of the site feasibility and site history, there is no evidence to suggest that the site is or might be contaminated to a level that would impact on the proposed use.

Therefore, it is considered that the proposed development is compliant with SEPP (Remediation and Hazards).

10 Hay Local Environmental Plan 2011

10.1 Part 1 – Preliminary

1.9 Application of SEPPs

“(1) This Plan is subject to the provisions of any State environmental planning policy that prevails over this Plan as provided by section 3.28 of the Act”

Accordingly, pursuant to the provisions of Clause 1.9 of the Hay LEP, the applicable State Environmental Planning Policies have been considered in conjunction with the Hay LEP.

In particular, the prevailing provisions of SEPP (Transport and Infrastructure) 2021 with regard to the allowability of the development within the RU1 under the LEP.

10.2 Primary Production Zone

The subject property is zoned **RU1 – Primary Production** under the provisions of the Hay LEP 2011; the below figure shows the subject site within the context of the LEP's zoning map.

The Primary Production Zone comprises the following objectives for development:

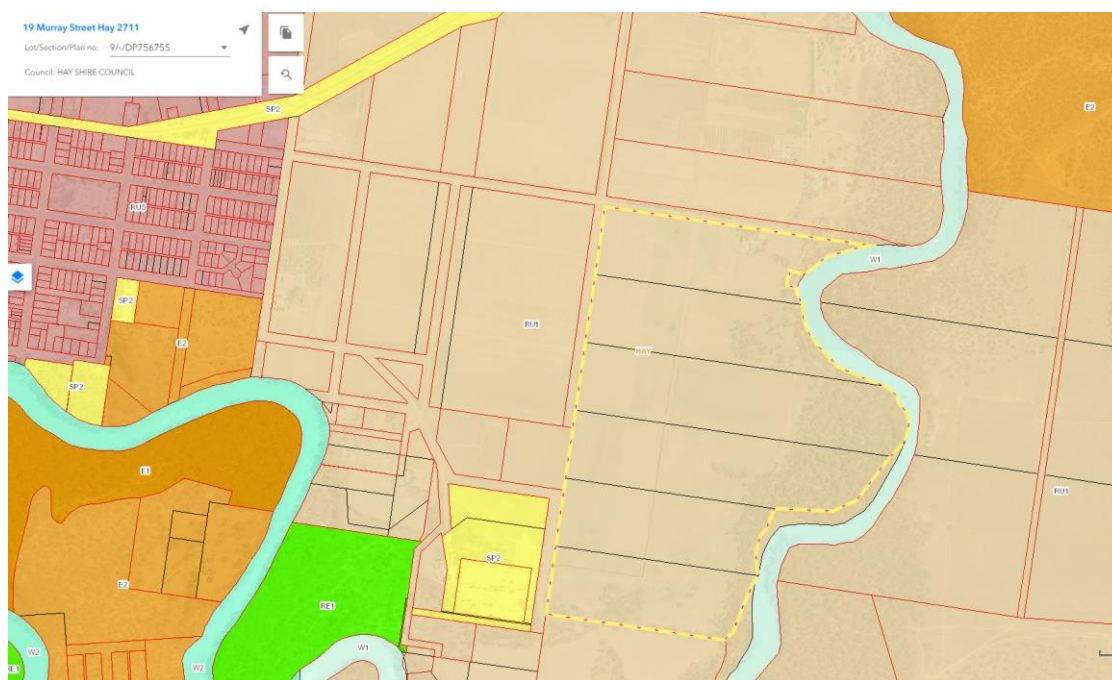
- “To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.”

Pursuant to the Dictionary of the Hay LEP, the proposed development is considered to be “**electricity generating works**” which is defined as:

- “a building or place used for the purpose of making or generating electricity.”

This use is prohibited in zone RU1. However, the *SEPP (Transport and Infrastructure)* prevails over *Hay LEP 2011* to this extent, the use of land for a **solar energy system** is permitted with consent on any land in accordance with the *SEPP (Transport and Infrastructure)*.

The proposed use and development of land for a solar energy system is considered to be supported by the Zone RU1. Accordingly, the proposal is therefore supported by the Hay LEP 2011.



Land zoning under the LEP
(Source: ePlanning Spatial Viewer)

10.3 Part 5 – Miscellaneous Provisions

5.21 Flood planning

(1) *The objectives of this clause are as follows—*

- to minimise the flood risk to life and property associated with the use of land,*
- to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,*
- to avoid adverse or cumulative impacts on flood behaviour and the environment,*

- (d) *to enable the safe occupation and efficient evacuation of people in the event of a flood.*

In response to the aims of flood planning, the proposed development will be an un-manned facility that would not have any permanent residents or staff that would be potentially impacted by flooding.

A solar farm is a relatively low-risk development from a flooding standpoint, as materials and built form are such that flood paths would not be heavily obstructed – owing to the permeable nature of the fencing and solar arrays.

- (2) *Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—*

- (a) *is compatible with the flood function and behaviour on the land, and*
- (b) *will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and*
- (c) *will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and*
- (d) *incorporates appropriate measures to manage risk to life in the event of a flood, and*
- (e) *will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.*

The development site is a significant distance from the Murrumbidgee River. Despite being within the floodplain, the development is unlikely to create an on-site risk, or exacerbate any existing flood risks within the area.

- (3) *In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—*

- (a) *the impact of the development on projected changes to flood behaviour as a result of climate change,*
- (b) *the intended design and scale of buildings resulting from the development,*
- (c) *whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,*
- (d) *the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.*

The form of the proposed solar farm provides for free passage of floodwaters. The proposed solar farm is anticipated to be on the site for a 30-year-lease and is not considered a permanent installation.

The solar farm design is compatible with the management of floodwaters and would be of a scale that would not unduly impact the natural flows of the surrounding floodplain.

10.4 Part 6 – Additional Local Provisions

6.1 Earthworks

- (1) *The objectives of this clause are as follows—*

- (a) *to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes,*

- neighbouring uses, cultural or heritage items or features of the surrounding land,*
- (b) *to allow earthworks of a minor nature without requiring separate development consent.*

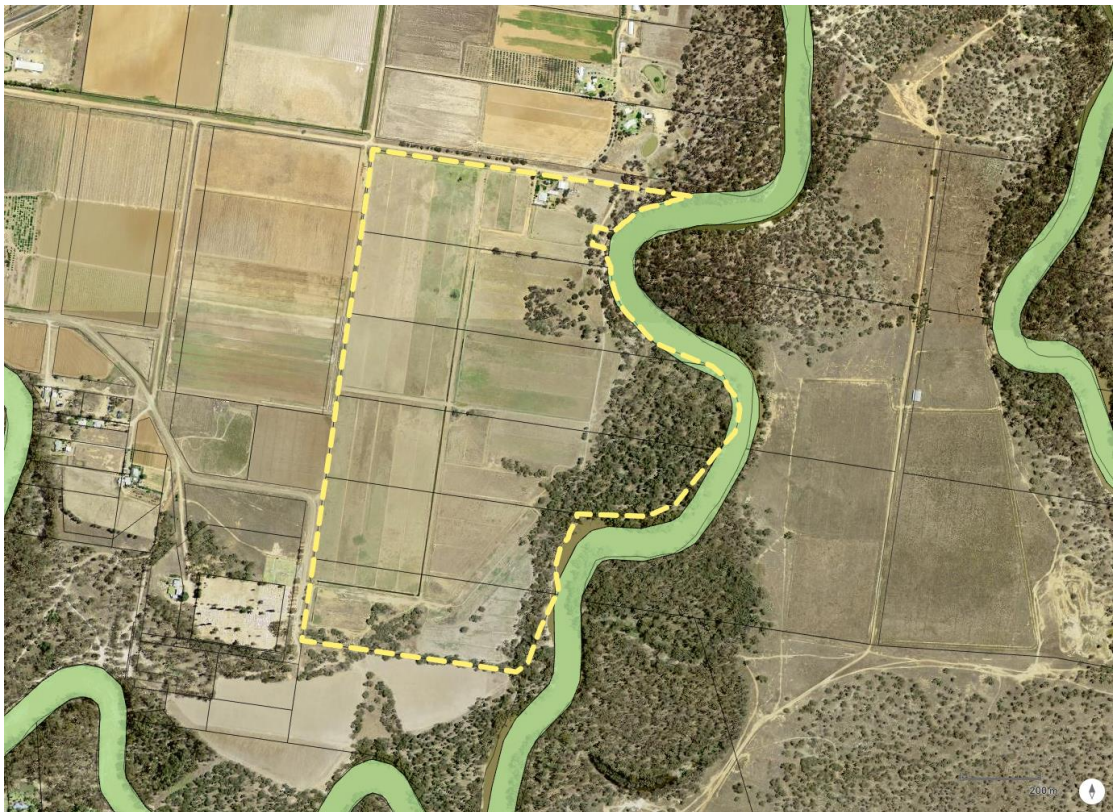
Earthworks associated with the development comprise minor excavation to 150mm to install road base for accessways, 750mm footings for the inverters and security fence strainer posts, 1,200mm footings for the access gate and for the panel mounting frames.

All of these earthworks are ancillary to the development of a solar farm and are not expected to impact adversely on the future rural use of the land, if the facility is decommissioned, relics, the natural environment or adjoining developments.

The proposal has been carefully designed to ensure that it will not impede existing agriculture within the surrounding area. The use of the land for a solar farm will be a low impact use and has been carefully sited to avoid any adverse impact upon rural infrastructure.

There will be limited to no impact on the amenity of surrounding properties, or on waterways by the earthworks on the site.

6.5 Riparian Lands and Watercourses



Hay LEP Mapping – Riparian Lands and Watercourses

The eastern-most edge of the subject site adjoins the mapped Riparians Land and Watercourse under the Hay Local Environmental Plan – which applies the provisions of Clause 6.5 of the LEP.

- (1) *The objectives of this clause are as follows—*
- (a) *to support natural riverine processes, including the migration of the Lachlan and Murrumbidgee Rivers' channels,*
- (b) *to protect and improve the bed and bank stability of those rivers,*

- (c) to maintain and improve the water quality of those rivers,*
- (d) to protect the amenity, scenic landscape values and cultural heritage of those rivers and to protect public access to their riverine corridors,*
- (e) to conserve and protect the riverine corridors of those rivers, including wildlife habitat.*

Development consent is **not required** under Clause 6.5, as there is no development proposed within the affected area along the riparian corridor, accordingly it is considered that the proposed solar farm would be unlikely to impact the Murrumbidgee River.

6.6 Development on riverbeds of the Murrumbidgee River

The proposed Solar Farm development is along western edge of Murrumbidgee River corridor; however, the proposed earthworks would take place 350m away from the river corridor.

(1) The objectives of this clause are as follows—

- (a) to manage and maintain the quality of water in the Lachlan and Murrumbidgee Rivers,*
- (b) to protect the environmental values and scenic amenity and cultural heritage of those rivers,*
- (c) to protect the stability of the bed and banks of those rivers,*
- (d) to limit the impact of structures in or near those rivers on natural riverine processes and navigability of those rivers.*

According to the objective above *this clause applies to land comprising the bed of Murrumbidgee River and up to the top of the bank of that River.* The subject site is neither within the Murrumbidgee Riverbed, nor to the top of the banks, therefore this Clause is not applicable in the instance.

Additionally, the site is cleared of native vegetation and the proposal does not seek the removal of any native vegetation, therefore is unlikely to affect the stability of the soil along the river corridor.

The disturbance to the proposed site is likely to occur during construction phase. The earthworks for footings and foundation with the proximity to and potential impacts on Murrumbidgee River corridor. The CMP and WMP prepared by LID consultants outlines the necessary precautions to mitigate any potential impacts.

Furthermore, suitable conditions can be imposed at the permit stage to alleviate likely disruption of, or any detrimental effect on, soil stability in the locality of the development, should the Council deem it necessary.

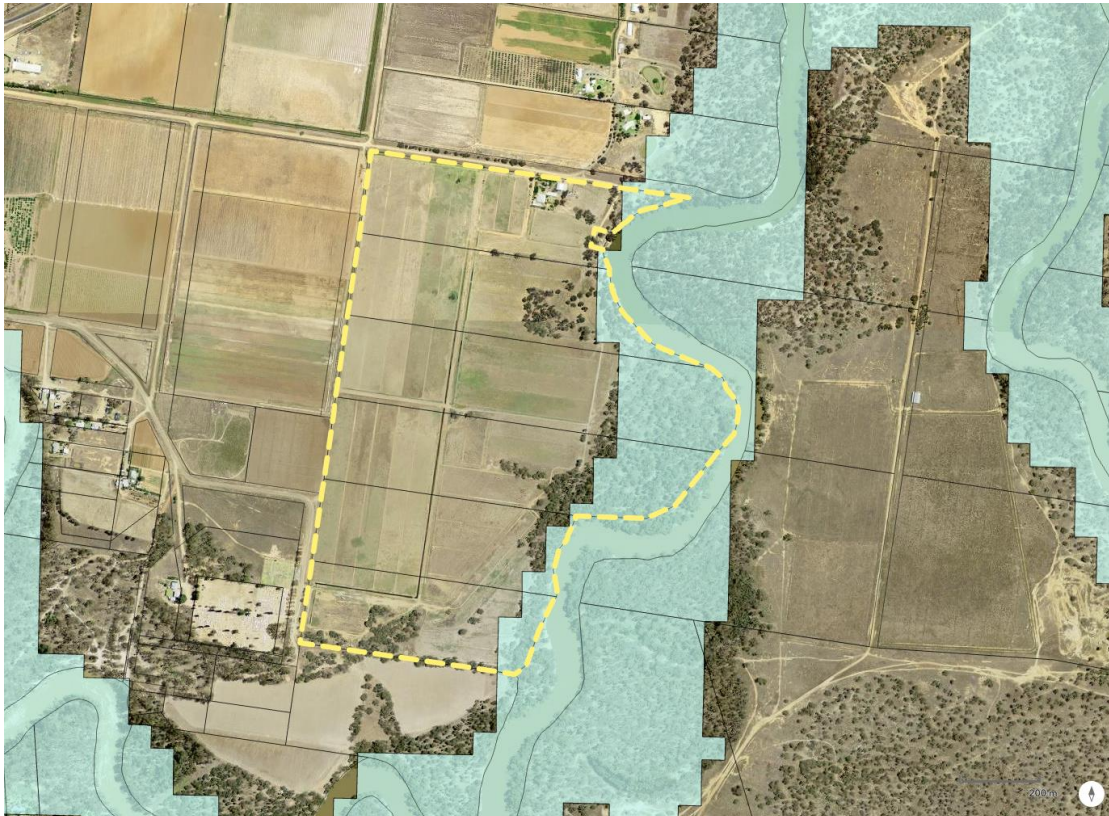
6.7 Wetlands

The eastern portion of the site is within the mapped wetlands area of the LEP, which applies the considerations of Clause 6.7, which states:

- (1) The objective of this clause is to ensure that wetlands are preserved and protected from the impacts of development.*
- (2) This clause applies to land identified as “Wetlands” on the Natural Resource Wetlands Map.*
- (3) Before determining a development application for development on land to which this clause applies, the consent authority must consider whether or not the development is likely to have any adverse impact on the following—*
 - (a) the condition and significance of the existing native fauna and flora on the land,*

- (b) the growth and survival of the existing native flora and fauna on the land,
- (c) the provision and quality of habitats on the land for indigenous and migratory species,
- (d) the surface and groundwater characteristics of the land, including water quality, natural water flows and salinity,
- (e) any wetlands in the vicinity of the development.

The proposed solar farm has been sited to avoid impacts on any environmental values, either directly or indirectly. The site has been an agricultural paddock for an extended period of time and is not identified as being within a biodiversity corridor.



Hay LEP Mapping – Wetlands

The proposed facility has been designed to uphold the protection of identified wetland along the river corridor. The site has sufficient area to accommodate the proposed facility, while avoiding and retaining the remnant trees along north and native vegetation along east (outside the solar farm site). The facility layout has been carefully designed to provide adequate buffer between the identified wetland and any site works or installations.

In addition, environmentally, the site is not identified as being ecologically significant, neither identified within wetland boundary. The development of a solar farm would not impact the quality of habitats or the existing native flora and fauna of the land.

6.9 Groundwater Vulnerability

(1) The objectives of this clause are to maintain the hydrological functions of key groundwater systems and to protect vulnerable groundwater resources from depletion and contamination as a result of inappropriate development.

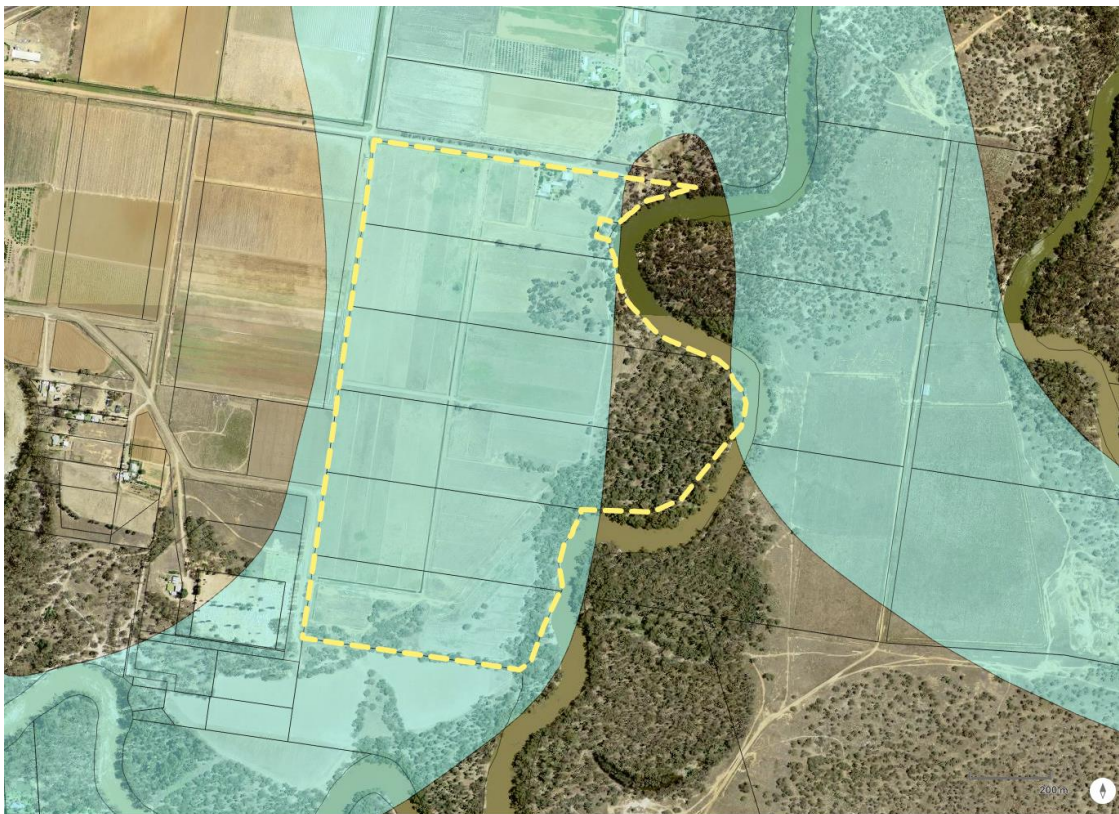
(2) This clause applies to land identified as "Groundwater Vulnerability" on the Natural Resource Groundwater Vulnerability Map.

(3) *Before determining a development application for development on land to which this clause applies, the consent authority must consider—*

- (a) *whether or not the development (including any on-site storage or disposal of solid or liquid waste and chemicals) is likely to cause any groundwater contamination or have any adverse effect on groundwater dependent ecosystems, and*
- (b) *the cumulative impact (including the impact on nearby groundwater extraction for potable water supply or stock water supply) of the development and any other existing development on groundwater*

There will be no storage of dangerous goods or disposal of solid or liquid waste and chemicals which would adversely impact the ground water or dependent ecosystem. The proposed development is designed, sited and will be managed to avoid any significant adverse environmental impact.

There are substantial elements of environmental management provided within the Construction Management Plan prepared by Green Gold and LID consultants.



Hay LEP Mapping – Groundwater Vulnerability

The CMP prepared by Green Gold Energy will address detailed matters, in regard to procedure before construction begins, such as on-site induction, site management, dust and sediment control and traffic during construction, etc.

6.10 Terrestrial Biodiversity

The subject site is mapped as terrestrial biodiversity under the Hay LEP; however, the extent of development will be outside of the affected area.

Nevertheless, the relevant provisions of the LEP state that:

- (1) *The objective of this clause is to maintain terrestrial biodiversity by—*
 - (a) *protecting native fauna and flora, and*

- (b) *protecting the ecological processes necessary for their continued existence, and*
 - (c) *encouraging the conservation and recovery of native fauna and flora and their habitats.*
- (2) *This clause applies to land identified as “Sensitive Area” on the [Natural Resource Biodiversity Map](#).*
- (3) *Before determining a development application for development on land to which this clause applies, the consent authority must consider whether or not the development—*
 - (a) *is likely to have any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and*
 - (b) *is likely to have any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and*
 - (c) *has any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and*
 - (d) *is likely to have any adverse impact on the habitat elements providing connectivity on the land.*
- (4) *Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—*
 - (a) *the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or*
 - (b) *if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or*
 - (c) *if that impact cannot be minimised—the development will be managed to mitigate that impact.*

The proposal represents an appropriate response to these provisions in that:

- It does not propose the removal of any prescribed native vegetation
- Is located wholly outside the mapped areas of terrestrial biodiversity



Hay LEP Mapping – Terrestrial Biodiversity

11 Hay Development Control Plan

Not applicable. There is no Development Control Plan that applies to the Hay Shire municipality.

12 Hay Shire Council Local Strategic Planning Statement

The Hay Shire Council Local Strategic Planning Statement (LSPS) outlines the framework to support the transition toward renewable energy by adopting the NSW Renewable Energy Action Plan.

The transition to renewable energy provides the economic benefits of local job creation and access to cheap, clean energy; environmental benefits in response to climate change as well as social benefits such as education, energy justice and infrastructure investment remaining in the local community.

The LSPS sets out a strategic direction and priorities for what the region is trying to achieve and how it can achieve it in a coordinated and effective manner. It identifies the opportunities for the Hay Shire Council and the reasons why it is suitable for renewable energy investment.

Strategic Priorities

Economy

Priority 4. Agriculture

Direction 1: Protect the region's diverse productive agricultural land

The Riverina Murray Regional Plan identifies that agriculture is integral to the success of the economy and a major force in the State. The Riverina Murray makes the largest regional contribution to agricultural production in NSW (\$1.4 billion). The agricultural industry in the Hay Shire contributes over \$83 million to the region's gross regional product per year

Agricultural zonings take up the vast majority of land zoning in the Hay Shire, with 1,097,547 ha being zoned RU1 Primary Production, and 1,230 ha being zoned RU4 Primary Production Small Lots. These two zonings make up 97% of land in the Hay Shire.

Identifying and protecting important agricultural land in the Hay Shire is fundamental to the future of agricultural production within the LGA and Region.

The proposed solar farm is located on land zoned under RU1 Primary Production, by siting the facility in close proximity to existing Essential Energy infrastructure (being the overhead 33kV power lines along the western side along Cemetery Road. The proposal reduces the requirement for extensive overhead lines that could further impact productive agricultural uses or landscape amenity, either on the subject land or off-site.

The proposal has been carefully designed to ensure that it will not impede existing agriculture within the surrounding area. In considering the site's agricultural capacity, whilst conducive to a region's economy in regard to agricultural pursuits:

Solar Energy Facilities are considered to be relatively benign in terms of their potential off-site impacts and it would be highly unlikely that any existing and/or future farmers would be impacted by the proposal. In addition, the design of the facility is such that decommissioning of the facility will ensure that the land is capable of being returned to

conventional agricultural land uses, therefore compliant with protecting important agricultural land in the Hay Shire.

Accordingly, it is not considered that the use of approximately 13 hectares of productive land out of 98ha would undermine the economic base of either the Hay Shire Council, or the State of New South Wales.

The subject site represents a prime location to promote investment within the Hay Shire. The site is in proximity to the electric substation and provides for a renewable energy facility responsive to the surrounding agricultural and environmental context in accordance with the relevant Strategy in Hay LSPS 2020.

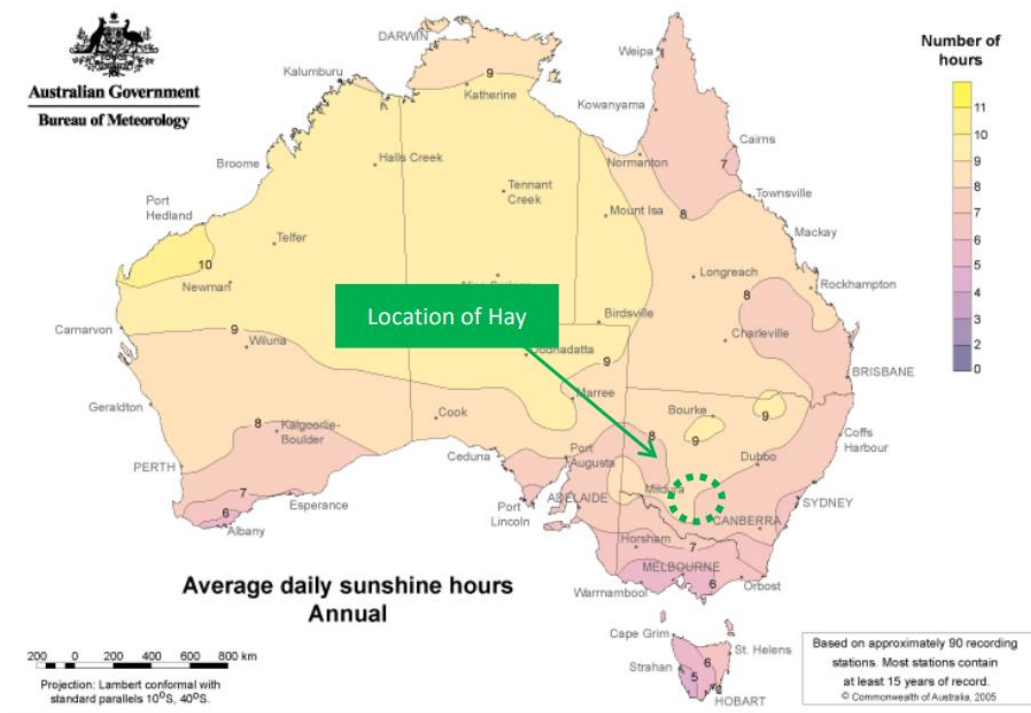
The use and development of a solar farm within Hay Shire Council will promote an opportunity for a regional Shire to transition toward renewable energy and a sustainable energy future, while compromising on a small portion of agricultural land for a definite period of time. The proposal represents a significant opportunity for a low-impact, sustainable diversification of the municipality's economic base, through the facilitation of investment in an emerging industry.

Whilst the proposed land use and development is for a "solar farm", which requires consent within the RU1 Zone, the use of the land for renewable energy production is consistent with Agricultural production – this is supported by the State Environmental Planning Policy (Transport and Infrastructure) 2021 which seeks to support renewable energy in appropriate locations.

Environment and Resources

Priority 9. Renewable Energy

Direction 11: Promote the diversification of energy supplies through renewable energy generation



Average Daily Sunshine (BoM) Planning Priority 9 Renewable Energy Justification

Source: Hay Shire Council LSPS, p. 46

The geographical location of Hay Shire is vital to cater for renewable energy on all scales, there is ample sunshine, levelled topography, affordable land, and readily accessible grid connections, which provide opportunities for all scales - from domestic to large scale renewable energy installations.

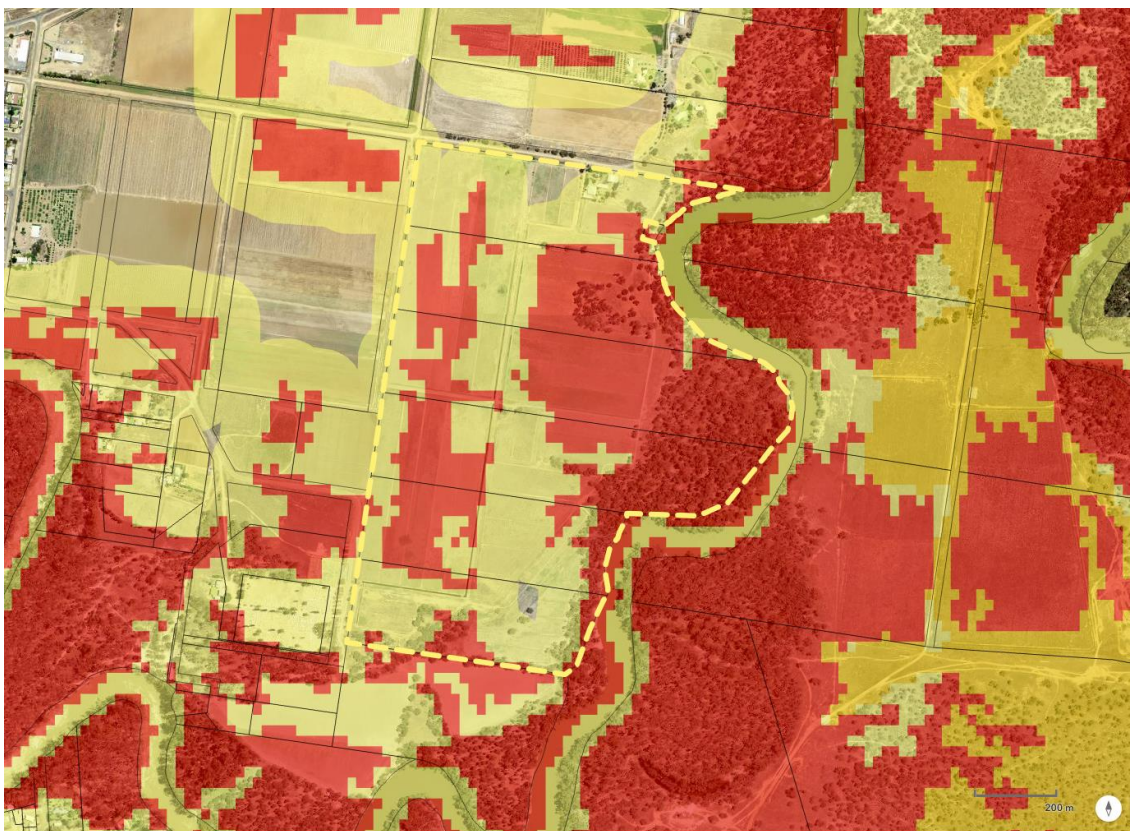
13 Planning for Bushfire Protection 2019

Planning for Bush Fire Protection 2019 (PBP) provides development standards for designing and building on bush fire prone land in New South Wales.

The proposed development is identified under Bushfire prone area; accordingly, it considers Bushfire protections measures listed in the document, such as:

- Asset protection Zone (APZs)
- Access
- Construction, siting and design
- Landscaping
- Services; and
- Emergency and evacuation planning.

The facility has incorporated these principles into the design and layout, with the facility having two points of access to Cemetery Road to the west, as well as a 10-metre perimeter fire break between the facility fence and the solar panels.



In considering the immediate landscape within the vicinity of the proposed solar farm (being managed grassland). The proximity of the subject site with Murrumbidgee River along west is the primary fuel for the bushfire risk.

To mitigate any potential risks caused by grasslands from neighbouring paddocks following measures are undertaken:

- Appropriate location of access roads for the proposed development to enable safe egress for any individual attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.
- The existing road infrastructure shall provide sufficient width and other dimensions to ensure safe unobstructed access and allow firefighting crews to operate equipment around the vehicle.
- The design of internal tracks maintaining 10m-15m setback from the property boundary, thereby strategically creating a peripheral access route surrounding the proposed development.
- Additionally, the facility will be located a suitable distance from the Murrumbidgee River – therefore maintaining a significant distance from any potential bushfire risk.
- The subject site has access to all weather road and provision for continuous water supply, thereby ensuring protection of human life and property.

From above it is anticipated that the subject site will be well protected by any event of bushfire.

14 Conclusion

The proposal is for a new solar farm within the Hay Shire Council that will provide affordable clean energy for the local community, effectively contributing to the implementation of New South Wales transition to renewable energy.

The proposal is supported by the **NSW Regional Energy Action Plan 2018** to Net Zero Emissions that sets out a high-level framework for achieving the region's aspirations and expectations for renewable energy by providing regional opportunities for the benefit of the regional community.

The 4.95MW output will supply local businesses, industry and houses and will produce enough energy to contribute to the transition of the Hay Shire Council into a renewable municipality.

The proposal will generate local employment opportunities for electrical and construction workers to build and install the facility; operations, maintenance and security jobs will be required ongoing.

It has been demonstrated in this report that the proposal meets the application requirements for a solar farm, including relevant sections of the Hay Local Environmental Plan 2011 - particularly **State Environmental Planning Policy (Transport and Infrastructure) 2021 – Chapter 2_Infrastructure**; the **Hay Local Environment Plan 2011** and the **Hay Shire Council – Local Strategic Planning Statement, March 2020**.

The holistic considerations of the proposed solar farm and the primary considerations of the proposal, including the merits of both preserving agricultural land against promoting renewable energy have been addressed at length in the various sub-sections of this report and the appended documentation.

It is submitted that the information provided within this report and various supporting documents demonstrate that the proposal warrants development approval.