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Scoping Report

Maules Creek Solar Farm and Battery Energy Storage System

Prepared for

FRV Services Australia Pty Ltd

Client representative

Rob Beckett

Date

22 August 2023

Rev00

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Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft Scoping Report	AGB	AB	AB	04/08/2023
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List of Abbreviations

µm	Micrometres
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG Code	Australian Code for the Transport of Dangerous Goods by Road & Rail (NTC, 2022)
AHIMS	Aboriginal Heritage Information Management System
ANZG	Australian and New Zealand Guidelines
AQC	Air Quality Category
ASC	Australian Soil Classification
ASRIS	Australian Soil Resource Information System
ASS	Acid sulfate soils
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BC SEPP	*State Environmental Planning Policy (Biodiversity and Conservation) 2021* (NSW)
BCD	DPE's Biodiversity Conservation Division
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
Biosecurity Act	*Biosecurity Act 2015* (NSW)
BOM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
CIA	Cumulative Impact Assessment
CIA Guidelines	Cumulative Impact Assessment Guidelines (DPE, 2021b)
CLM Act	*Crown Land Management Act 2016* (NSW)
CO2-e	Carbon dioxide equivalent
DCCEEW	Department of Climate Change, Energy, the Environment and Water (C'th)
DCP	Development Control Plan 2013: Amendment No. 5 (MWRC, 2020)
DEC	Department of Environment and Conservation (NSW) (former)
DECC	Department of Environment and Climate Change (NSW) (former)
DECCW	Department of Environment, Climate Change and Water (C'th) (former)
Development Footprint	The area within the Site, approximately 340 ha, to be developed with Project infrastructure
DLWC	Department of Land and Water Conservation (NSW) (former)
DoP	Department of Planning (NSW) (former)
DPE	Department of Planning and Environment (NSW)
DPI	Department of Primary Industries (NSW)
DPIE	Department of Planning, Industry and Environment (NSW) (former)
EIS	Environmental Impact Statement
EMF	Electromagnetic fields
Engagement Guidelines	Undertaking Engagement Guidelines for State Significant Project (DPE, 2021c)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (C'th)
EPI	Environmental planning instrument

EPL	Environment protection licence
ESC	Erosion and sediment control
Fisheries Portal	Fisheries NSW Spatial Data Portal
FM Act	*Fisheries Management Act 1994* (NSW)
FOV	Field of View
FTE	Full time equivalent
GDE	Groundwater dependent ecosystems
GHG	Greenhouse gases
GHz	Gigahertz
GW	Gigawatt
GWh	Gigawatt hour
ha	Hectares
HBDP	Heritage Branch Department of Planning (NSW) (former) HCNSW Heritage Council of NSW (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
HIPAP	Hazardous Industry Planning Advisory Paper
Hz	Hertz
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICOMOS	International Council on Monuments and Sites
KFH	Key Fish Habitat
kHz	Kilohertz
km	Kilometres
km	Kilometre
kV	Kilovolt
LGA	Local Government Area
LGA	Local Government Area
LSC	Land soil capability
LSSE	Large-Scale Solar Energy
LSSE Guideline	Large-Scale Solar Energy Guideline (DPE, 2022l)
LUCRA	Land Use Conflict Risk Assessment
LVIA	Landscape and Visual Impact Assessment
LVIA Technical Supplement	Technical Supplement – Landscape and Visual Impact Assessment (DPE, 2022b)
m	Metres
MNES	Matters of national environmental significance
MW	Megawatt
MW	Megawatt
MWac	Megawatt, alternating current
MWh	Megawatt hours
MWh	Megawatt hour
Narrabri LEP	*Narrabri Local Environmental Plan 2012*
Native Title Act	*Native Title Act 1993* (C'th)
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NPWS	National Parks and Wildlife Service (NSW)
NSW	New South Wales

NTC	National Transport Commission
NVI	Noise and vibration impacts
NVIA	Noise and Vibration Impact Assessment
OEH	Office of Environment and Heritage (NSW) (former)
OSOM	Oversize and over-mass
PAT	Preliminary Assessment Tool
PBA	Preliminary Biodiversity Assessment
PCT	Plant community type
PHA	Preliminary Hazard Analysis
Planning Systems SEPP	*State Environmental Planning Policy (Planning Systems) 2021* (NSW)
PM10	Particulate matter with diameter of ≤10 µm
PM2.5	Particulate matter with diameter of ≤2.5 µm
PMST	Protected Matter Search Tool
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RAV	Restricted Access Vehicle
Resilience and Hazards SEPP	*State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW)
Resources and Energy SEPP	*State Environmental Planning Policy (Resources and Energy) 2021* (NSW)
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Service
Roads Act	*Roads Act 1993* (NSW)
RTA	Roads and Traffic Authority (NSW) (former)
SAA	Solar Array Areas
Scoping Report Guidelines	State Significant Development Guidelines – preparing a scoping report (Appendix A) (DPE, 2022a)
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SIA Guidelines	Social Impact Assessment Guidelines for State Significant Projects (DPE, 2021e)
SSD	State Significant Development
t	Tonne
TEC	Threatened Ecological Communities
TfNSW	Transport for NSW
The Project	Proposed development of Maules Creek Solar Farm, consisting of a solar farm with a capacity of approximately 100 MW_{ac}, a 120 MW/240 MWh BESS, and all ancillary infrastructure, at Maules Creek NSW
The Site	Proposed location of the Project, approximately 760 ha in area, comprised of Lot 48 and Lot 49 of DP754925, and part of Lot 12 DP1054029
TIA	Traffic Impact Assessment
Transport and Infrastructure SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW)
TSP	Total Suspended Solids
WM Act	*Water Management Act 2000* (NSW)

1. Introduction

FRV Services Australia Pty Ltd (FRVSA) propose to construct a large-scale hybrid solar photovoltaic (PV) generation and storage facility (the Project) at Maules Creek, approximately 45 kilometres (km) southeast of Narrabri, in the Narrabri Shire Local Government Area (LGA). The Project location is shown in Figure 1.

The Project will include an approximately 100 megawatt (MW_{AC}) solar farm, a Battery Energy Storage System (BESS) of approximately 120 MW / 240 megawatt hours (MWh), and an electrical substation.

The Project will supply electricity to the grid via connection to a 132 kilovolt (kV) transmission line which crosses the northern land parcel of the Site. The Project will generate up to 195,000 MWh of renewable energy per year, enough to supply approximately 35,000 homes and reduce carbon emissions by approximately 154,000 tonnes (t) carbon dioxide equivalent (CO_2-e) (DCCEEW, 2022).

The Site is approximately 760 hectares (ha) and comprises Lots 48 and 49 DP754925 and part Lot 12 DP1054029. Access and use of the land is proposed under agreement with the three landowners. Within the 760 ha Site, the solar farm, BESS, and associated infrastructure would occupy up to approximately 340 ha. The Project layout, development footprint, and access options are subject to further design as the impact assessment process continues. Additional details regarding the Project location and proposed activities are provided in Chapter 3.

The land the Project is to be located on is zoned RU1 – Primary Production under the *Narrabri Local Environmental Plan 2012* (Narrabri LEP). The area surrounding the Project is predominantly rural and agricultural in nature, with many farms and forests in the area. The Site has a history of agricultural land uses and accordingly, most native vegetation has been removed.

The Project will have a capital investment value higher than $30 million and hence will trigger the provisions for State Significant Development (SSD) under *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP).

The objectives of the Project are to:

- Design, construct, and operate a utility scale solar farm and BESS while minimising environmental, social, and cultural impacts upon the site and adjoining land through adaptive design approaches
- Generate and store electricity on the site from renewable sources to reduce the amount of greenhouse gasses generated by the NSW power generation sector
- Encourage and enable community and stakeholder engagement and participation across the life of the Project; and
- Provide local and regional employment opportunities and other social benefits to Narrabri and nearby communities during construction and operation of the development and contribute to the local and regional economies.

Figure 1 Project location

1.1 Applicant Details

The Applicant is FRV Services Australia Pty Ltd (FRVSA). FRV has over 15 years' experience delivering clean, efficient, and cost competitive energy solutions. They completed their first PV Project in Spain in 2006 and have been operating in Australia since 2010. Proponent details are provided in Table 1.

Table 1 Applicant Details

Condition	Detail
Company Name	FRV Services Australia Pty Ltd
Address	Suite 1001, 1 York Street, Sydney NSW 2000
ABN	60 151 469 662
Nominated Contact	Jessica Chiarelli
Contact Details	0455 070 785

FRV Services Australia Pty Ltd (FRVSA), is a well-established developer of renewable energy assets and has been operating in Australia since 2010. FRVSA understands that community support for renewable energy developments is a key success factor.

- FRVSA, an established developer of renewable energy assets in Australia and worldwide, is preparing a Planning Application to develop and operate a co-located Solar Farm and Battery Energy Storage System (BESS) in Maules Creek.
- FRVSA is a solar energy company with a positive track record developing operational solar energy assets in the state safely and responsibly. FRVSA will continue to focus on fostering understanding within the community throughout this proposed Project's development and Approvals process; and
- FRVSA is genuine in its approach and committed to open engagement on its plans and community involvement in the proposed project.

1.2 Impact Avoidance and Minimisation Strategies

The Project will be designed to avoid and minimise impacts where possible. The final development footprint will be refined throughout the progression of the Project design process, as informed by the outcomes of community and stakeholder engagement, and the findings of environment and social assessments.

The Project will have onsite grid connection via the 132 kV transmission line which runs along the northern boundary of the Site. This removes the requirement to construct additional infrastructure for grid connection and avoids additional potential environmental impacts.

Impacts to Horsearm Creek and Middle Creek will be avoided or minimised in the Concept Layout, by maintaining vegetated riparian zones (VRZs) as development setbacks in accordance with *Guidelines for riparian corridors on waterfront land* (DPE, 2022a). The indicative Concept Layout has been designed to avoid areas of potentially high biodiversity value. Where there is a need to consider constructing vehicle crossings of waterways these would be sited to minimise impacts to the form and function of waterways and to minimise disturbance to riparian vegetation. Siting of the development has considered potential visual impacts from surrounding residences and public viewpoints and responds by seeking to impact the least number of sensitive receivers and minimise impacts from public and private viewpoints that may be impacted.

As further investigations are completed, and community and stakeholder engagement is undertaken, the Concept Layout will be reviewed and refined in response to the outcomes and findings. Where impacts cannot be avoided, measures for minimising, managing, or offsetting throughout construction, operation, and decommissioning will be developed in preparation of the Environmental Impact Statement (EIS).

1.3 Purpose of this Scoping Report

This Scoping Report has been prepared to provide a description of the Project to key regulatory and approval agencies and to identify key environmental or social aspect potentially impacted by the Project in order to inform the preparation of the Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS). This report will outline the justification for the Project and alternatives considered, describe the completed and proposed community engagement activities, and will describe the proposed level of assessment of environmental and social impacts to be undertaken in the preparation of the EIS.

This report has been prepared with consideration of the following guidelines:

- *State significant development guidelines – preparing a scoping report (Appendix A to the state significant development guidelines* (DPE, 2022a) (Scoping Report Guidelines)
- *Large-Scale Solar Energy Guideline* (DPE, 2022l) (LSSE Guideline) and the *Technical Supplement – Landscape and Visual Impact Assessment* (DPE, 2022b) (Visual Technical Supplement)
- *Social Impact Assessment Guidelines for State Significant Projects* (DPE, 2021e) (SIA Guidelines)
- *Undertaking Engagement Guidelines for State Significant Project* (DPE, 2021c) (Engagement Guidelines); and
- *Cumulative Impact Assessment Guidelines* (DPE, 2021b) (Cumulative Impacts Guidelines).

1.4 Key Terms

The following terms are used throughout this Scoping Report:

- **The Project** – Proposed development of Maules Creek Solar Farm, consisting of a solar farm with a nominal capacity of approximately 100 MW_{ac}, an approximately 120 MW / 240 MWh BESS, and all ancillary infrastructure at Maules Creek, NSW
- **The Site** – Proposed location of the Project, comprised of Lots 48 and 49 DP754925, and part of Lot 12 DP1054029, totally approximately 760 ha
- **Development Footprint** – The area within the Site, approximately 340 ha, to be developed with Project infrastructure
- **Concept Layout** – Proposed site plan of Project infrastructure within the Development Footprint
- **Associated landowner** – a landowner that is involved with the Project
- **Adjacent landowner** – a landowner with a property boundary that borders the Site and is not involved with the Project. May also be referred to as a non-associated receiver; and
- **Non-associated receiver** – a landowner/residence, including adjacent landowners, who may experience impacts from the Project (e.g. visual, noise, access) but is not involved with the Project. Their property boundary may or may not border the Site.

2. Strategic Context

2.1 Project Justification

The Project would improve the reliability and security of the state and national electricity network by generating electricity from renewable sources, storing surplus energy on the site, and releasing dispatchable energy during peak demand periods. The Project would support energy generation and storage development in NSW and Australia and increase flexibility and resilience of the energy grid as overall renewable energy generation increases and non-renewable energy generation decreases across the grid over time. The Project will generate up to 195,000MWh of renewable energy, enough to supply approximately 35,000 homes and reduce carbon emissions by approximately 154,000t CO_2-e (DCCEEW, 2022).

The Project would contribute to and support regional, state, and national objectives as outlined in Section 2.2.

2.2 Strategic and Regional Context

2.2.1 International Need

In December 2015, Australia became a signatory to the United Nations Paris Agreement on climate change. The main objectives of the Paris Agreement are:

- Limit the increase in global temperatures to well below 2 degrees and pursue efforts to limit the rise to 1.5 degrees
- Achieve net-zero emissions, globally, by the second half of the century; and
- Differentiated expectations for developed nations, including Australia, that they will reduce their emissions sooner than developing nations.

The Australian Government has committed to reduce greenhouse gas emissions by 26-28% on 2005 levels by 2030.

The Project is an effective method to meet the nation's international commitments to reduce greenhouse gas emissions and would contribute to Australia's effort to meet the Paris Agreement.

2.2.2 National Need

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage additional renewable energy generation. The Large-scale RET scheme incentivises investment in renewable energy power stations such as solar farms. The scheme has an annual target of 33,000 gigawatt hours until the scheme ends in 2030.

The Project would support the RET and provide an alternative power generation source resulting in the reduced greenhouse gas (GHG) emissions, contributing to meeting the Paris Agreement, aid the transition towards cleaner electricity generation and contribute to meeting the RET.

2.2.3 New South Wales Need

With the objective of delivering cheaper, cleaner, and more reliable electricity to support future growth across the state, the NSW government established the NSW Transmission Infrastructure Strategy (DPIE, 2018); the NSW Electricity Strategy (DPIE, 2019) and the NSW Electricity Infrastructure Roadmap (DPIE 2020).

These policies facilitate transitioning the state into a modern, global renewable energy superpower. The Project will contribute to this transition.

2.2.4 New England North West Regional Plan 2036 (NENWRP)

The New England North West Regional Plan (NENWRP) seeks to establish the area as a leader in renewable energy. The region has the second highest solar penetration in NSW, receiving 19 to 20 megajoules daily of solar exposure. Particularly relevant to the Project is Direction 5 – Grow New England North West as the renewable energy hub of NSW and Action 5.2:

'Facilitate appropriate smaller-scale renewable energy projects using biowaste, solar, wind, hydro, geothermal or other innovative storage technologies.'

2.2.5 Narrabri Shire 2040 Local Strategic Planning Statement (NLSPS)

The Narrabri Shire 2040 Local Strategic Planning Statement (NLSPS) notes the area's high potential for renewable energy projects, largely due to the area being the second highest solar penetration region in NSW. Specifically, it states that council will:

'Encourage and facilitate development of solar farms and EV charging sites in identified areas.'

2.3 Site Suitability and Layout

The Maules Creek site was subsequently identified as preferred for utility scale solar electricity generation due to:

- Proximity to and capacity of connection infrastructure, with a 132 kV transmission line running along the Site northern boundary
- Good energy yield
- Availability of suitably sized lots
- Topography is relatively flat, minimising the need for extensive land clearing and earthworks
- Ease of access to the Kamilaroi Highway and connections to Newcastle, Sydney, and Brisbane for construction logistics; and
- Expectation of low environmental and heritage constraints.

2.4 Benefits of the Project

The construction and operation of the Project would provide the following benefits:

- Improving the stability and reliability of the electricity network by storing energy during periods of low demand, including those from intermittent renewable sources and dispatching energy during periods of peak demand
- Supporting Australia's 2030 emission reduction targets and NSW's transition to net-zero emissions by 2050
- Local employment opportunities of approximately 150+ jobs during an 18-month construction period and approximately 3-4 full-time jobs during the 35-year operational life
- Construction and operation of the development is likely to be low impact upon the locality; and
- Potential for direct and indirect investment into the Narrabri Shire during construction.

Additional community benefits would be investigated during preparation of the EIS.

3. Project Description

The Project will include a solar farm with a capacity of approximately 100 MW solar farm, a 120 MW / 240 MWh BESS, and electrical substation. Associated infrastructure to be constructed as part of the Project include a substation to connect the Project to the electricity network, all associated power conversion equipment such as inverters and transformers, internal access tracks, and required road and intersection upgrades along Harparary Road and Middle Creek Road. The Project will generate up to 195,000 MWh of renewable energy for transmission to the electricity grid via connection to a 132 kV transmission line.

3.1 The Site and Regional Context

The Site is situated within Maules Creek, NSW, wholly within the Narrabri Shire Local Government Area (LGA). The Site is located approximately 45 kilometres (km) northeast of the nearest town of Narrabri.

Narrabri has a population of 7,327 (ABS, 2021b) and is approximately 521 km northwest of Sydney, 240 km north of Dubbo, 172 km northwest of Tamworth and approximately 101 km south of Moree. Narrabri is well serviced by the Kamilaroi Highway that connects to the New England Highway and the Newell Highway that connects the borders of Victoria and Queensland.

The Site includes three cadastral lots held by individual landowners and totals approximately 760 ha, comprised of Lot 48 DP754925, Lot 49 DP754925, and part of Lot 12 DP1054029. Figure 2 shows the cadastral lots associated with the Site as well as the land use zones under the Narrabri LEP. The Site is low lying and undulating, with elevation between 290 m and 320 m. The land is largely even with a gradual upward slope from south to north towards Mount Kaputar National Park. The Site is surrounded by small ridges and ranges. The Site is predominantly open grassland mostly cleared of dense vegetation with only scattered riparian vegetation along drainage lines and is currently used for agricultural purposes including cattle grazing and minor crop production.

The Site is zoned RU1 – Primary Production. The Site has a history of agricultural land uses and accordingly, most native vegetation has been removed. Middle Creek runs between the northeast and southwest corners of the site, while Horsearm Creek runs along the site's western edge. Both creeks are tributaries of the Namoi River. Appropriate setbacks would be provided from these watercourses. There is also a network of smaller drainage lines as well as several small dams for livestock within the site.

The eastern boundary of the Site is formed by the local unsealed Glencoe Road and neighbouring lots. The western boundary is formed by unsealed Middle Creek Road and Horsearm Creek. The southern boundary is formed by neighbouring lots and farmland, while a 132 kV transmission line and easement forms the northern boundary of the Site running in a west to east direction. Primary access to the Site during construction and operation would be via Middle Creek Road and Glencoe Road.

A search of the Geoscience NSW's MinView tool on 10 February 2023 indicated that there is one active exploration licence over the Site (PEL1). There are two Crown road reserves bounding the northern and southern Site boundaries, however these are not currently used as roads. Outside of the Site, Middle Creek becomes a Crown waterway beyond the northern boundary but is not listed as such within the Site. A 132 kV electrical transmission line runs along the northern boundary in an east to west alignment. These elements are shown in Figure 3.

Mount Kaputar National Park, which lies on the boundary between the Narrabri Shire, Gwydir, and Tamworth Regional LGAs, is approximately 2.5 km north of the Site. The National Park surrounds Mount Kaputar, an extinct volcano that rises to an altitude of 1,510 m and was active 17 to 21 million years ago. The park covers 36,816 ha and the vegetation ranges from semi-arid woodland and open forest to sub-alpine and heathland communities.

Maules Creek is located approximately 1.5 km south of the Site, while Stony Creek is 1.8 km east. Horsearm creek runs along the western boundary of the Site, and Middle Creek runs just beyond the Site's northwest corner and converges with Horsearm Creek. Horsearm Creek continues to the southwest for approximately 4.4 km before joining Maules Creek, which runs into the Namoi River a further 10.5 km southwest.

Approximately 15 km southwest of the Site is the Leard State Conservation Area, within the Leard State Forest. The Conservation Area covers 1,176 ha and the vegetation is predominantly North-west Slopes Sclerophyll Woodland. Located within the Leard State Forest is the Maules Creek Coal Mine, one of three open cut coal mines within 15 km of the Project, which are features of the regional landscape.

3.2 Development Footprint

Of the approximately 760 ha that makes up the Site, approximately 340 ha would be required for the Development Footprint.

Made up of three distinct areas within the Site, the Development Footprint has been designed to avoid areas of high biodiversity value by maintaining riparian vegetation. The proposed maximum Development Footprint is shown in Figure 5. This indicative layout is presented to provide context and an indication of the scale and possible layout for the development. It is based on information available at scoping stage regarding environmental constraints, engineering assessments, and access options. As the impact assessment process continues, the Development Footprint and access options would be subject to refinement, based on detailed environmental and engineering investigations, and the outcomes of community and stakeholder engagement.

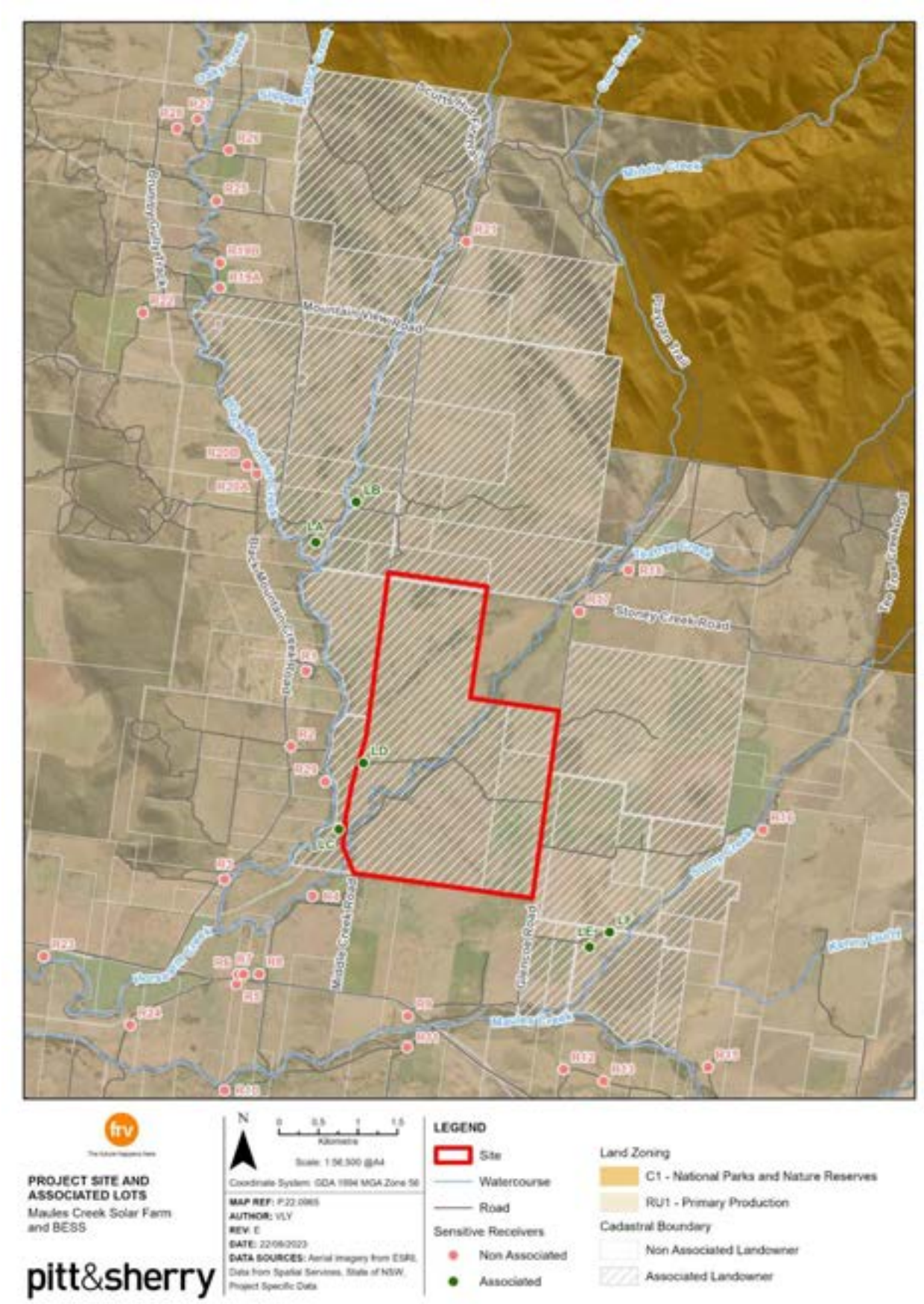

Figure 2 Project Site and Associated Lots

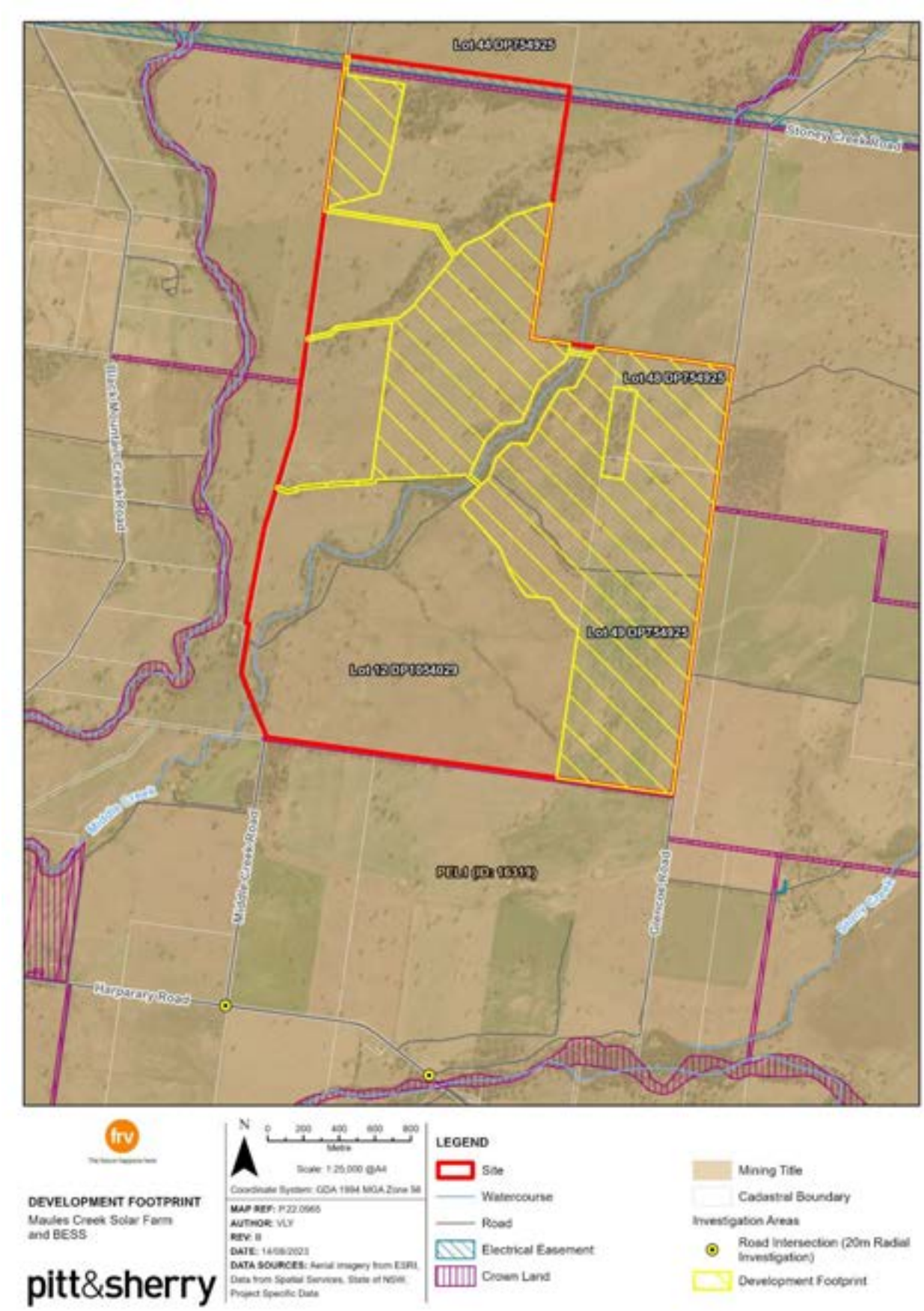

Figure 3 Development Footprint

3.3 Project Overview

Subject to detailed design, the key element of the Project would include:

- A 100 MW_{ac} solar farm consisting of approximately 200,000 bifacial flat plate solar PV modules, generating approximately 700 watt (W) each, in a 2-portrait (2P) single-axis tracking arrangement with an assumed maximum height of 5.5 m above ground level, and row spacing of up to 14 m (an indicative panel to be used is shown in Figure 4)
- Associated power conversion systems (PCU), including inverters and step-up transformers throughout the solar arrays
- Approximately 1.7 km of underground transmission cabling to connect each PCU to the on-site substation
- A BESS with a capacity of approximately 120 MW / 240 MWh. It would be comprised of approximately 110 battery units with dimensions of each unit being approximately 7.2 m (L) x 2.5 m (H) x 1.7 m (W), with a footprint of approximately 3.5 ha depending on configuration
- An on-site 132 kV substation in the north-western corner of the site. The substation will occupy no more than 2.5 ha in area and will connect to the existing 132 kV overhead transmission line
- Up to two light vehicle creek crossings traversing Middle Creek. The locations of these crossings would be identified following detailed biodiversity mapping and placed to minimise disturbance of native vegetation or riparian zones
- Co-located with vehicle creek crossings would be underground cabling, connecting the eastern and western portions of the Project
- Temporary construction facilities may include:
    - Construction compound
    - Laydown area(s)
    - Construction materials storage; and
    - Site office buildings, and amenities.
- Permanent supporting infrastructure would include:
    - Site access points and internal access tracks
    - Security fencing, lighting, CCTV, and other security infrastructure as needed; and
    - Operational staff parking.

Access to the Site is still being investigated, and may be from the Kamilaroi Highway via Harparary Road, Middle Creek Road, and Glencoe Road. An alternative approach would be via Narrabri using Maules Creek Road.

To facilitate construction vehicle access to site, the following ancillary works may be required to support the Project depending on further investigations and final transport plans:

- Upgrade of approaches and turning lanes if necessary, such as the intersection of Harparary Road and Kamilaroi Highway, and intersections of Harparary Road with Middle Creek Road and Glencoe Road
- Upgrades to Middle Creek Road and Glencoe Road; and
- Construction of temporary construction access roads within the development site and adjacent to Middle Creek Road within cleared agricultural land, to avoid impacts to native vegetation along Middle Creek Road.

Figure 4 Example of panels that may be used

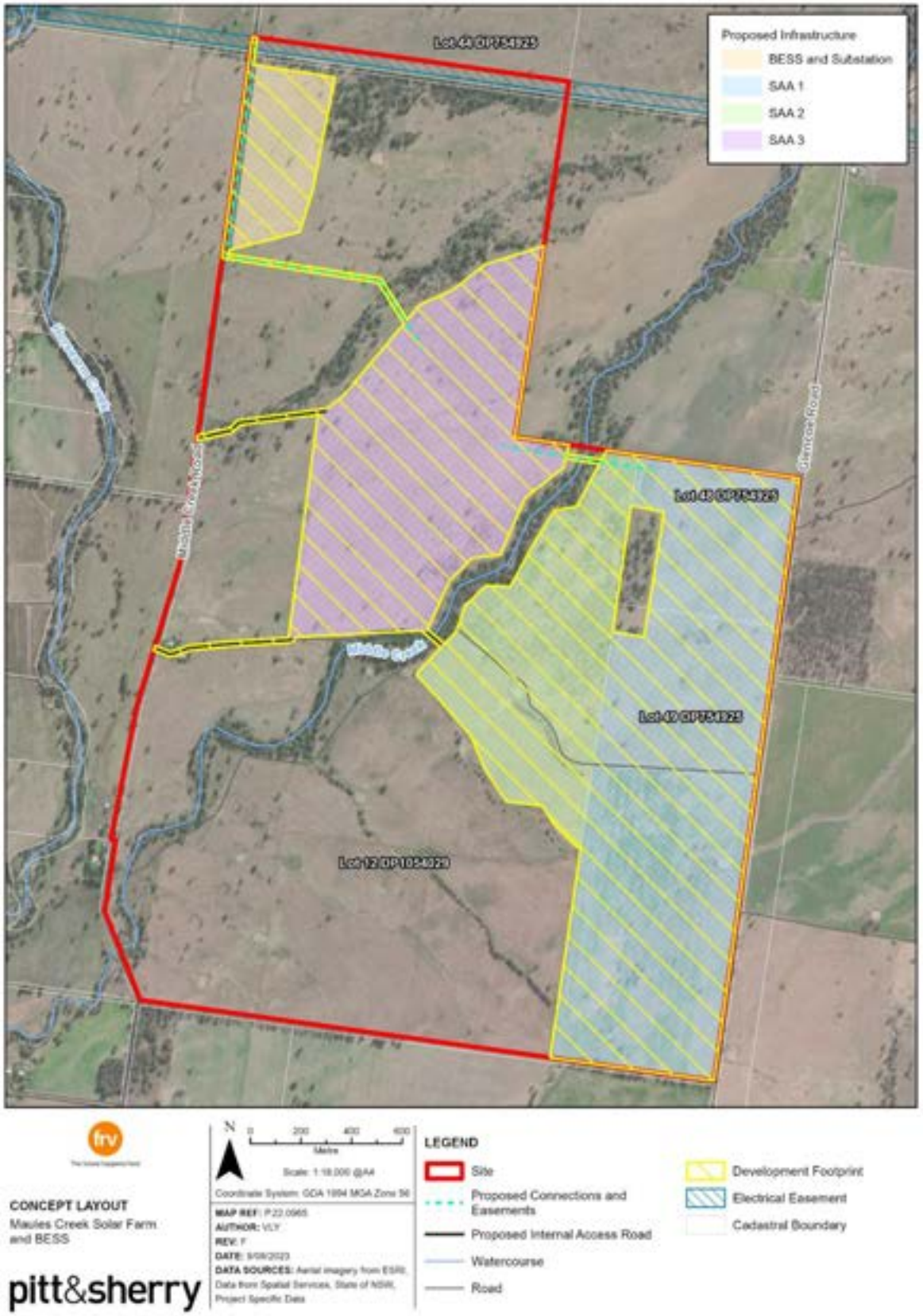

Figure 5 Concept Layout

3.4 Project Delivery

3.4.1 Transport and Access

While the transport route is yet to be confirmed, it is likely that access to the site would use the Transport for NSW operated state road network and local roads under the ownership of Narrabri Shire Council. From the Kamilaroi Highway, vehicles would likely travel to the site via Harparary Road, a distance of approximately 21 km, then use both Middle Creek Road and Glencoe Road. An alternative transport route that is approved for B-double use is via Narrabri using Maules Creek Road and Harparary Road.

Harparary Road is a fully formed, partially sealed road that provides important access to a largely rural community. It is regularly used by heavy vehicles that support rural industries and agriculture in activities such as transport of grain stock and other materials. Council maintains Harparary Road and has plans to seal the remaining sections of Harparary Road.

Middle Creek Road and Glencoe Road are minor unsealed roads with low traffic volumes, utilised by local residents and for rural logistics. These roads roughly border the Site to the west and east, respectively, and are both envisaged as potential access routes.

3.4.2 Construction

It is estimated that up to 150+ construction personnel would be required on site during the 6-month peak construction period. As far as practicable, the construction workforce would be sourced from the local area in line with NSW Government procurement requirements.

Construction is anticipated to commence in early 2026, subject to environmental approvals, licencing, and finalisation of Project design. Construction is expected to take between 12-18 months, with a peak construction period of approximately 6 months.

3.4.3 Operations

Once completed the Project will operate over 24 hours 7 days a week in its entirety with electricity generation, storage, and transmission activities occurring as circumstances allow. Electricity generation by solar panels would occur during daylight hours, with the BESS discharging to the grid for a maximum of two hours, likely during evening demand periods. Daily operations and maintenance by site staff would be undertaken during standard working hours. Emergency response, inspections, and maintenance activities may be required to be undertaken out of hours or as night works.

Operation of the Project is anticipated to create up to 4 full time equivalent (FTE) employment opportunities. The Project has a proposed operational life of 30 to 35 years.

3.4.4 Decommissioning

At the end of the Project's useful life, there is an option for FRVSA to either extend the lease for continued operation or decommission the Project.

In the instance that the lease is not extended, decommissioning and rehabilitation of the Site would be undertaken. The objective of decommissioning would be to return the land to as close to its pre-construction condition as possible. The Site would be left suitable for the current or appropriate alternative land use. Decommissioning would be undertaken in consultation with relevant stakeholders, landowners, and approval authorities.

3.5 Development Alternatives

Alternatives to the Project have been considered and include alternative site locations, different layouts, and not proceeding with the Project (the 'do nothing' option).

3.5.1 Alternative locations

Following an analysis of alternative locations, including a Fatal Flaw Assessment completed for the site (ERM, 2022), the proposed Site was identified as the best option for the Project due to the combination of favourable factors, including proximity to the grid via the existing 132 kV overhead transmission line, good solar exposure, and a relatively low impact on sensitive environmental and cultural resources.

3.5.2 Alternative Development Footprints

Two alternative development footprints were developed. The first (option 1) was prepared at an early stage when relatively little was known about site specific constraints and opportunities. Option 2 was developed after initial site investigations were completed and site constraints were better understood and seeks to reduce potential environmental impacts.

Option 1 – Northern parcel

This option comprises three roughly equal lease areas from three different landowners (northern, central and eastern land parcels), totalling approximately 300 ha for the Development Footprint. Solar array infrastructure was proposed to be located on all three lease areas, with the BESS and substation proposed to be located on the northern land parcel, adjacent to the overhead 132 kV transmission line. Option 1 is shown in Figure 6.

Solar infrastructure would be located on five distinct Solar Array Areas (SAA). SAA 1 would cover almost all of Lot 48 DP754925, avoiding areas of biodiversity value, and most of Lot 49 DP754925, and be approximately 100 ha in area.

SAA 2 would extend from the eastern side of Middle Creek to the boundary of Lot 12 DP1054029 and be approximately 30 ha, while SAA 3 would be located on the western edge of Middle Creek within Lot 12 DP1054029 and be approximately 60 ha in area.

SAA 4 would occupy the northern land parcel of Lot 41 and Lot 44 DP754925 covering approximately 100 ha.

Biodiversity surveys conducted in the northern land parcel where the substation, BESS, and SAA1 were proposed to be located, concluded that this would not meet the requirements to be considered Category 1 – Exempt Land under Part 5A Land Management (native vegetation) of the *Local Land Services Act 2013* (LLS Act). This dictated a review of the layout.

Option 2 – Central concentration

Option 2 is a reconfigured layout to exclude the northern parcel, to avoid potential impacts to native vegetation. Additional areas for development within the remaining two parcels were added to meet the capacity requirements of the Project.

This included extending SAA 1 to cover an additional 55 ha of Lot 49 DP754925, expanding SAA 2 of Lot 12 DP1054029 by an additional 34 ha, the centrally located SAA 3 by an additional 20 ha, and proposing an envelope of 20 ha in the north-west corner of Lot 12 DP1054029 within which, the BESS and substation would occupy up to 6 ha, with the remaining land being unused. The total Site area under this option is approximately 760 ha, with a Development Footprint of approximately 340 ha.

Option 3 – the 'do nothing' option

The 'do nothing' option would allow for the continued use of the investigation area for agricultural purposes, however, would forgo the potential benefits of the Project identified in Chapter 2.4.

The 'do nothing' option may avoid potential environmental impacts associated with the Project. However, it is considered the benefits of the Development would significantly outweigh any potential environmental impacts whilst contributing to ecologically sustainable development.

3.5.3 Preferred Option

Option 2 was chosen as the preferred option for the Project due to the reduced magnitude of potential impacts, in particular upon biodiversity values associated with the northern land parcel proposed under Option 1. The option was further refined following preliminary biodiversity site surveys and consultation with landowners and is shown in Figure 5.

It is noted however, that Option 1 has been used for some specialist investigations for the Scoping Report, particularly in regard to landscape and visual impacts. These studies were in progress prior to the Concept Layout being amended to the preferred Option 2. These studies remain relevant for the purpose of scoping stage investigations and the preparation of SEARs.

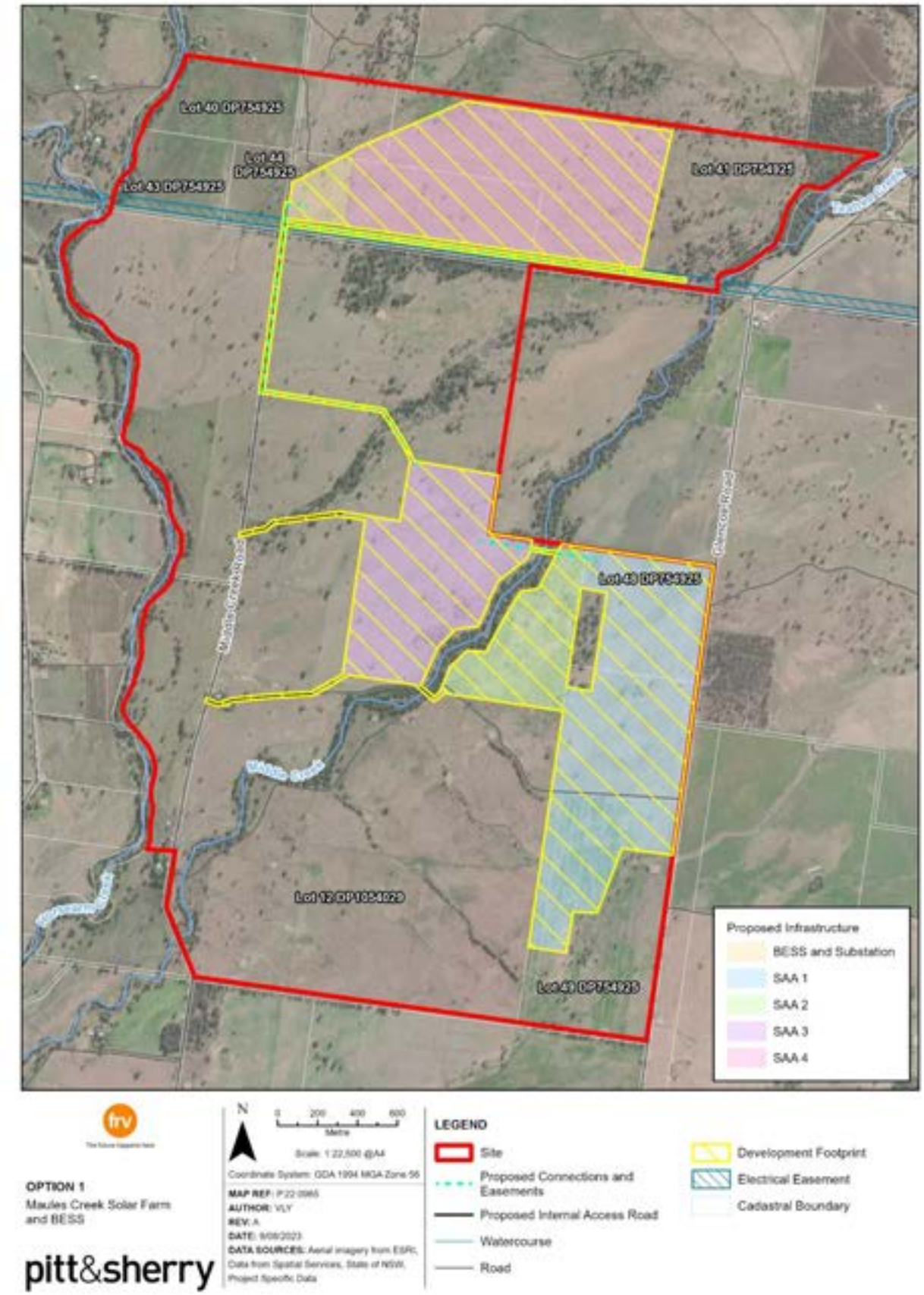

Figure 6 Option 1 Concept Layout – not used

4. Statutory Context

The relevant statutory requirements for the Project with regard to NSW and Commonwealth legislation, and environmental planning instruments (EPIs) are summarised in Table 2. This table is presented in accordance with the Table 1 of the Scoping Report Guidelines and includes the following:

- Power to grant consent
- Permissibility
- Consistent approvals
- Commonwealth approvals
- Approvals not required (pursuant to Section 4.41 of the EP&A Act)
- Pre-conditions to exercising the power to grant consent; and
- Mandatory matters for consideration.

A detailed consideration of relevant statutory requirements will be provided in the EIS.

Table 2 Statutory Context

Matter	Legislation	Requirement
Power to grant consent	*Environmental Planning and Assessment Act 1979* (EP&A Act)	Part 4 of the EP&A Act addresses development assessment and consent. Division 4.7 relates to the assessment of state significant development (SSD). Section 4.36(2) states that a: *…State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*
	State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	SSD is identified by the Planning Systems SEPP. Section 2.6(1) of the Planning Systems SEPP states: *(1) Development is declared to be State significant development for the purposes of the Act if:* *(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and* *(b) the development is specified in Schedule 1 or 2.* Schedule 1 Section 20 of the Planning Systems SEPP provides the following definition for SSD: *Electricity generating works and heat or co-generation* *Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that—* *(a) has a capital investment value of more than $30 million* The Project is a development for the purpose of electricity generation and will have a capital investment value of more than $30 million and accordingly is considered SSD and will require consent under Part 4 of the EP&A Act. The consent authority will be the Minister for Planning.

Matter	Legislation	Requirement
Permissibility	*Narrabri Local Environmental Plan 2012* (Narrabri LEP)	The Project is located on land zoned RU1 – Primary Production under the Narrabri LEP. Development for the purpose of electricity generating works is not listed under Item 2 or 3 of the Land Use Table of the Narrabri LEP and is therefore considered prohibited development. However, the Project is permitted with consent under Clause 2.36(1) of the Transport and Infrastructure SEPP.
	State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)	Under Clause 2.36(1) of the Transport and Infrastructure SEPP, development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial, or special use zone. Section 2.35 of the Transport and Infrastructure SEPP identifies RU1 – Primary Production as a prescribed zone. The Project located on land zoned as RU1 – Primary Production, is therefore permissible with consent.
Consistent approvals	Section 4.42 of the EP&A provides approvals that cannot be refused if it is necessary for carrying out an approved SSD and is to be substantially consistent with the consent.	
	Roads Act 1993 (Roads Act)	The Roads Act addresses authorities, functions, and regulations of activities relating to the use and types of roads. Under Section 138 of the Roads Act, a person must not undertake works that would impact or carry out work on or over a public road without approval from the relevant authority. If necessary, road upgrades for construction vehicle access as listed in Section 3.3 would be undertaken to enable safe access for construction heavy vehicles. Approval under Section 138 of the Roads Act from the relevant authority will be required for these works and cannot be refused for an approved SSD project. Additional interactions of the Project with the local and regional road networks will be addressed in the EIS.
	Protection of the Environment Operations Act 1997 (POEO Act)	The POEO Act is the primary piece of legislation regulating pollution control and waste disposal in NSW. Section 48 of the POEO Act requires and environment protection licence (EPL) in order to undertake scheduled activities at any premises. Scheduled activities are defined in Schedule 1 of the POEO Act. Section 17 of Schedule 1 requires an EPL for general electricity works with the capacity to generate more than 30 MW of power. Solar farms are excepted from the definition of general electricity works, and so are not considered a scheduled activity. An EPL is therefore not required for the Project.
Commonwealth approvals	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	The EPBC Act protects matters of national environmental significance (MNES). Where an action is considered likely to have a significant impact on any MNES, a referral is required to be submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). If the action is determined to be a controlled activity under Part 9 of the EPBC Act, approval for that action is required from the Federal Minister for the Environment. A search of the Commonwealth Protected Matter Search Tool (PMST) on 13 February 2023. The Project is not located on or in proximity to land containing any World Heritage Properties,

Matter	Legislation	Requirement
		National Heritage Places, Wetlands of International Importance, and is not within either a Commonwealth marine area or the Great Barrier Reef Marine Park. There are Results indicate that 8 Threatened Ecological Communities (TECs), 34 listed Threatened Species, and 10 Migratory Species could occur within a 10 km buffer of the Project investigation area. The PMST report is provided in Appendix B. Further biodiversity assessments will be completed in preparation of the EIS to determine the presence of any TECs and Threatened or Migratory Species within the investigation area. Design of the Project layout will seek to minimise impacts to any identified TECs, and the habitats of Threatened or Migratory Species. A referral may be prepared for submission to DCCEEW following field surveys to confirm whether the Project requires assessment and approval under the EPBC Act.
	Native Title Act 1993 (Native Title Act)	A search undertaken 13 February 2023, of the National Native Title Register, the Register of Native Title Claims, and Native Title Applications Registration and Determinations identified that the Project is within an active Native Title Claim, (National Native Title Tribunal Number: NC2011/006, Federal Court File Number: NSD37/2019). Native Title may exist in certain land areas including vacant Crown Land, waterways that are not privately owned, and some types of pastoral leases. Where a Native Title claim exists in relation to the Project investigation area, the Applicant would comply with all provisions of the Native Title Act 1993 and undertake consultation with Native Title claimants as required.
Approvals not required	Section 4.41 of the EP&A provides that the following approvals that would otherwise be relevant to the Project are not required for SSD.	
	Fisheries Management Act 1994	A permit under Section 201 and Section 219 of the *Fisheries Management Act 1994* to carry out dredging or reclamation work, or to block passage of fish respectively, is not required for the Project. The Project requires up to two creek crossings to allow for light vehicle and cable crossings of Middle Creek. These works would be undertaken in accordance with the *Guidelines for riparian corridors on waterfront land* (DPE, 2022a) and *Guidelines for watercourse crossing on waterfront land* (DPE, 2022b).
	Heritage Act 1977	An approval under Part 4, or an excavation permit under Section 139 of the *Heritage Act 1977* will not be required for the Project. A desktop search of available datasets showed that there are no historic heritage items within the investigation area or its vicinity.

Matter	Legislation	Requirement
	National Parks and Wildlife Act 1974	An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974* is not required for SSD Projects. A search undertaken on 13 February 2023 of the Aboriginal Heritage Information Management System (AHIMS) web service did not identify any previously recorded sites within or surrounding the investigation area, however this may be due to a lack of prior investigation in the area. An Aboriginal Cultural Heritage Assessment (ACHA) will be prepared as part of the EIS and will include consultation with the registered Aboriginal parties.
	Rural Fires Act 1997	A bushfire safety authority under Section 100B will not be required for the Project. A bushfire assessment will be carried out for the Project in accordance with *Planning for Bushfire Protection* (RFS, 2019).
	Water Management Act 2000 (Water Management Act)	A water use approval under Section 89, a water management work approval under Section 90, or an activity approval under Section 91 of the Water Management Act 2000 will not be required for the Project. Construction work within or near watercourses will be required as part of the Project. These works will be carried out in accordance with relevant DPE Guidelines for controlled activities.
Other approvals	*Crown Land Management Act 2016* (CLM Act)	Under the Crown Land Management Act 2016, Crown Land must not be occupied, used, sold, leased, licenced, dedicated, reserved, or dealt with in any other way unless authorised by the Crown Land Management Act 2016. A number of Crown roads and waterways are present within the investigation area. Consultation with Department of Primary Industries (DPI) Crown Lands would be required to develop on these areas.
Preconditions to exercising the power to grant consent	*Biodiversity Conservation Act 2016* (BC Act)	Section 7.9 of the BC Act requires a Biodiversity Development Assessment Report (BDA) be prepared for any SSD project. A BDAR will be prepared for the Project and submitted with the EIS as part of the development application. Consultation with DPE's Biodiversity Conservation Division (BCD) would be undertaken in the preparation of the BDAR and EIS.
	State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP)	Chapter 3 and Chapter 4 of the Biodiversity and Conservation SEPP promote the proper conservation and management of areas that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current decline in koala population. LGAs to which the Biodiversity and Conservation SEPP applies are identified in Schedule 2. Narrabri is listed as an applicable LGA in this Schedule. The BDAR will address the Project's potential impacts on koala habitat.

Matter	Legislation	Requirement
	State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)	Section 2.48 of the Transport and Infrastructure SEPP requires written notice to be given of a project located near electrical infrastructure to the electricity supply authority inviting comments about potential safety risks. The Project will be situated below an existing 132 kV transmission line, therefore consultation with the electricity authority will be undertaken in preparation of the EIS.
Mandatory matters for consideration	Section 1.3 of the EP&A Act	Objectives of the EP&A Act relevant to the Project are: *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,* *(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,* *(c) to promote the orderly and economic use and development of land,* *(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,* *(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),* *(g) to promote good design and amenity of the built environment,* *(j) to provide increased opportunity for community participation in environmental planning and assessment.* These objectives will be considered in the EIS.
	Section 4.15 of the EP&A Act	A consent authority is required to take into consideration the following relevant matters in determining development application: *(a) the provisions of -* *(i) any environmental planning instrument, including:* *State Environmental Planning Policy (Biodiversity and Conservation) 2021* *State Environmental Planning Policy (Resilience and Hazards) 2021* *State Environmental Planning Policy (Transport and Infrastructure) 2021* *Narrabri LEP 2012* *(ii) any proposed instrument that is or has been the subject of public consultation under the EP&A Act and that has been notified to the consent authority* *(iii) any development control plan – Under Section 2.10 of the Planning Systems SEPP, Development Control Plans (DCPs) do not apply to SSD projects and a therefore not a relevant consideration for the Project* *(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* *(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*

Matter	Legislation	Requirement
		(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.* The above matters will be considered in the EIS and addressed subsequent to the outcomes of environmental assessment.
	Biodiversity Conservation Act 2016 (BC Act)	Section 7.16 of the BC Act (serious and irreversible impacts on biodiversity values) will be considered in the BDAR and EIS.
	State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)	Under Section 3.7 of the Resilience and Hazards SEPP, consideration must be given to current circulars or guidelines published by DPE relating to hazardous or offensive development in determining whether a development is: *(a) a hazardous storage establishment, hazardous industry or other potentially hazardous industry, or* *(b) an offensive storage establishment, offensive industry or other potentially offensive industry.* The following will be considered in the preparation of the EIS: • *Applying State Environmental Planning Policy (Resilience and Hazards) 2021* • HIPAP No. 3 – Risk Assessment • HIPAP No. 12 – Hazards
	Narrabri LEP	The EIS will consider all relevant provisions of the Narrabri LEP, including: • The relevant objectives and land uses for RU1 zone; • Clause 4.2 Rural Subdivision; • Clause 5.10 Heritage conservation • Clause 5.21 Flood planning • Clause 6.1 Earthworks • Clause 6.5 Essential services

5. Community Engagement

5.1 Engagement Undertaken

Engagement for the Project commenced in late 2022 with a focus on proactive and meaningful early communication with the potentially affected community, Narrabri Council, and government agencies. Community and key stakeholder mapping for Maules Creek and Narrabri provided a geographical reach for the Project, ensuring the engagement approach would be proportionate to the scale and impact of the Project.

Consultation and engagement was carried out in accordance with *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2021c), with the Communications and Engagement Plan's (CEP) approach, objectives, and methodology centred around bringing awareness of the Project and its potential impacts to the community and key stakeholders. A bespoke range of communication methods appropriate for the target audience were implemented in the lead up to Scoping Report submission.

Key aspects of the Project were refined following consultation with the community and key stakeholders, including road access and upgrades, the Development Footprint, environmental impacts, and social impacts and opportunities. Feedback has been actively sought to leverage local knowledge to the fullest extent, in order to avoid, minimise, or mitigate potential impacts where practicable.

Social issues and risks drawn from the project team's learnings in developing other solar farms and preliminary conversations with key stakeholders has shaped the Frequently Asked Questions and key messages in advance of consultation.

5.1.1 Government agency and key stakeholders

High level discussions occurred with key government agencies and stakeholders on important themes and topics, whilst bringing awareness to the project and receiving feedback on impacts from the stakeholder's perspective. These discussions are summarised in Table 3. Consideration for cost, time impacts, and engagement fatigue were factored into delivery to foster positive relationships.

Table 3 Summary of key government agency stakeholders

Agency / Stakeholder	Date	Summary

Narrabri Shire Council	6/12/2022	**Face to face meeting.**
		Introduction of the Project to Council. Discussion topics included:
		• Project background and site selection
		• Ongoing engagement with host landowners
		• Community support for solar farms
		• Council support of development contributing to a diverse local economy
		• Traffic, transport, and access considerations, including:
		  ○ Local road use, traffic volumes, and influences of agricultural activities, in particular along Harparary Road
		  ○ Council's capital works agenda
		  ○ Road upgrades to facilitate construction access
		  ○ Post construction remediation works
		  ○ Harparary Bridge condition and seasonal flooding

Agency / Stakeholder	Date	Summary
		○ Transportation of plant and equipment via rail • Other significant developments in the area to be considered in cumulative impact assessment (Inland Rail, Newell Highway upgrade, NNSW Inland Port, SAP, and surrounding coal mine expansions).
DPE BCD	06/02/2023 and 16/06/2023	**Email and phone call** Discussion of Category 1 Land exemptions, particularly regarding northern land parcel.
DPE	16/5/2023	**Pre-lodgement Scoping Meeting** Introduction of the Project. Discussion topics included: • Identification of key constraints and proposed management approaches • Summary of consultation activities undertaken and proposed • Community benefit to be administered under a Voluntary Planning Agreement, or similar, subject to Council's preference
Local Land Services (LLS)	19/04/2023	**Phone call** Discussion of Category 1 Land exemptions, particularly regarding the northern land parcel given its history for crop production.
Transgrid	28/04/2023 and 08/06/2023	**Preliminary Connection Enquiry** Preliminary enquiries to introduce the project to TransGrid and confirm that the project is consistent with available transmission capacity in the region.
NPWS	29/05/2023 and 31/05/2023	**Phone call and follow up email** Project introduction and discussion of proximity to Kaputar National Park

5.1.2 Community engagement

Community engagement focussed on bringing awareness to the Project, enabling potentially impacted receivers to engage in face-to-face meetings, and those who have an interest in the Project to access information, provide feedback and share what's important to influence shaping the scoping and development report. Details of the Project website, email address and phone number were provided to community ensuring they were aware and knew how to provide feedback or reach out for further contact with the Project team.

A summary of the outcomes of community engagement activities is provided in Table 4.

Table 4 Summary of key community engagement activities

Stakeholder	Timing	Summary
Affected neighbours (4)	5 - 6/12/2022	**Face to face meeting** • Visual impact of the solar farm from their properties and the effect of visual impacts on the value of their properties • Concern about toxic leachate from panels • Concern that solar farms should be constructed closer to cities and not in regional locations • Traffic safety along Harparary Road; and

Stakeholder	Timing	Summary
		• Acknowledged that they were concerned that the local school would soon close and that the solar farm may bring new opportunities to the area and with it, new families.
Maules Creek Community Council	5/12/2022	**Face to face meeting** • Primary concern was the impact of mining on the local community and that the impact of many people moving away from the area has placed the local school at risk of closure • Acknowledged that they were concerned that the local school would soon close and that the solar farm may bring new opportunities to the area and with it, new families • Traffic impacts on local residents that use Harparary Road; and • Biodiversity impacts
Business suppliers (5)	05/12/2022 – 07/08/2023	**Incoming phone calls** • Positive sentiment towards business servicing & job opportunities with enquiries to share their offerings and skills
Job seekers (2)	05/12/2022 – 07/08/2023	**Incoming phone calls** • Positive sentiment towards business servicing & job opportunities with enquiries to share their offerings and skills

5.2 Community Views

Engagement during the Scoping Phase focussed primarily on adjacent neighbours, with efforts made to engage early with them as the most likely to be affected by the Project. Engagement with the broader community, including surrounding neighbours and community groups, was undertaken through letterbox delivery of Project postcards. These provided introductory information on the Project, direction to the Project website, and contact information to make direct enquiries to the Project team.

More targeted engagement was undertaken with adjacent landowners, with individual letters prepared to introduce the Project, and invite feedback and comments to the Project team.

In general, community sentiment was positive toward renewable development in the area, with recognition of the opportunities to both businesses and job seekers, as well as the potential of the Project to contribute toward diversification of the local economy bringing new families to the area. Negative sentiments were principally expressed by adjoining landowners and potential receivers, and were primarily concerned with visual impacts, perceived reduction in land values, and the use of agricultural land for solar farms. These themes are summarised in Figure 7.

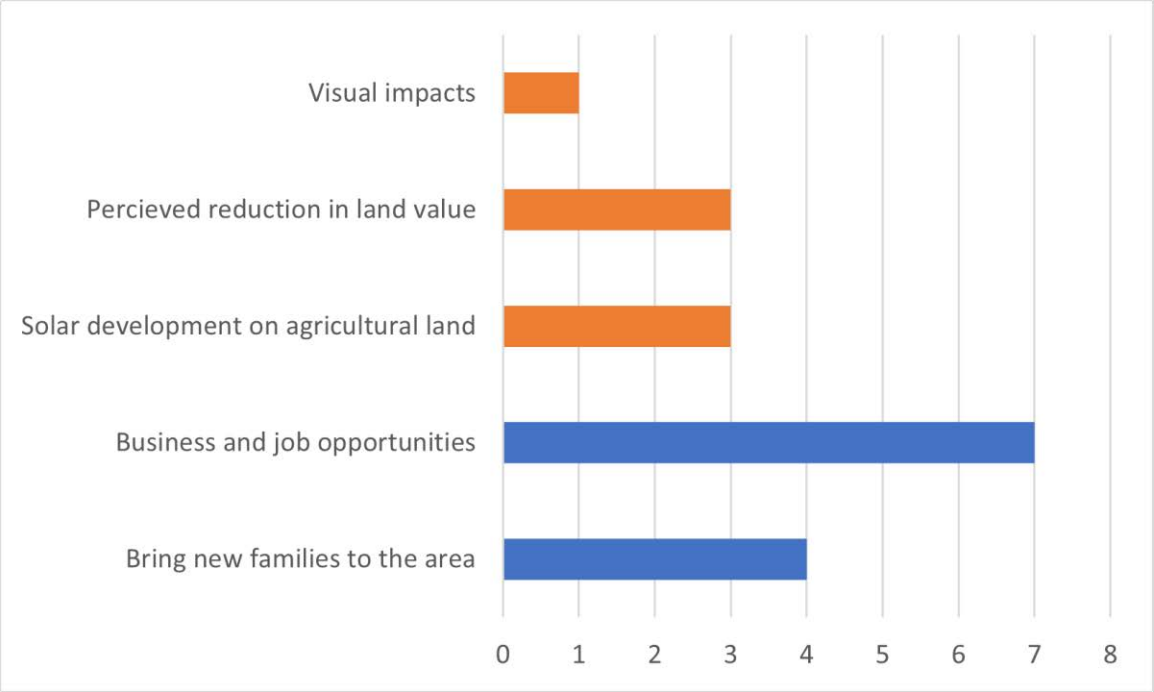

Figure 7 Community feedback themes

5.3 Proposed Engagement

The CEP would continue to be developed as the Project progresses. The CEP would build on previously completed community consultation activities and would be based upon the following objectives:

- To confirm previously identified stakeholder groups, and identify additional stakeholder groups with an interest in the Project
- To explain to stakeholders the objectives of the development
- To provide stakeholder groups with information about the planning, approvals, and development timeframe
- To provide stakeholder groups with opportunities to engage with the development team, ask questions, and offer feedback about the development; and
- To provide stakeholder groups with updates about the development as new information arises, and how any feedback received has shaped development decision making.

The purpose of the CEP is to provide relevant, accessible, timely, and meaningful ways for the community to learn about and engage in the Project. During the EIS and community engagement process, the CEP will be reviewed and updated in response to feedback received, and to ensure consultation is undertaken in accordance with the SEARs.

Longer-term, FRVSA's goal is to generate community acceptance and trust for the Project – ensuring sustainable social and economic performance over the Project's lifetime.

5.3.1 Stakeholder Identification

Table 5 identifies stakeholders that should be consulted in the preparation of the EIS.

Table 5 Stakeholder Identification

Stakeholder group	Stakeholder Name
Aboriginal representatives for the Gomeroi/Kamilaroi people	Narrabri Local Aboriginal Land Council
Adjacent landowner	Six – refer Figure 11
Community groups	• Maules Creek Community Council • Narrabri Rotary Markets • Boggabri & District Historical Society • Maules Creek Country Woman's Association • Maules Creek Catholic Church – Church of our Lady Help of Christians; and • Geni Energy
Emergency Services	• Maules Creek Bushfire Shed • NSW Rural Fire Service • NSW State Emergency Service • NSW Police Force; and • NSW Ambulance
Energy providers	• TransGrid; and • Essential Energy
Environment groups	• Narrabri Community Bushcare Group • Namoi Water; and • Lock the Gate Alliance
Local businesses	• Whitehaven Coal
Local Government	• Narrabri Shire Councillors; and • Narrabri Shire Staff
State Government	• Department of Planning and Environment • National Parks & Wildlife, Narrabri office • The Water Group • Department of Regional NSW • NSW Environment and Heritage • Biodiversity Conservation Division • NSW Aboriginal Land Council • Energy NSW

Stakeholder group	Stakeholder Name
	• Energy Corporation of NSW (EnergyCo) • NSW Environment Protection Authority • Transport for NSW; and • Roads and Maritime Services, Western Region

6. Proposed Assessment of Environmental Impacts

A preliminary environmental assessment has been carried out to identify matters requiring assessment in the EIS, and to inform the level of assessment required. In accordance with the *State Significant Development Guidelines* (DPE, 2022a) (Scoping Report Guidelines), the following factors have been considered in determining the level of assessment required for each matter in the EIS:

- The scale and nature of the likely impacts of the project and the sensitivity of the receiving environment
- Whether the project is likely to generate cumulative impacts with other relevant future projects in the area; and
- The ability to avoid, minimise and/or offset the impacts of the project, to the extent known at the scoping stage.

Matters to be considered in the EIS have been categorised in accordance with Appendix B of the Scoping Report Guidelines, with the applicable level of assessment identified in accordance with Appendix D of the Scoping Report Guidelines (DPE, 2022a).

In accordance with the Scoping Report Guidelines, a scoping summary table outlining the required level of assessment for each matter is included in Appendix A. A summary of the key environmental matters identified and the level of proposed for each is presented in Table 6. The findings of the preliminary assessment and the proposed assessment approach for each matter to be included in the EIS is presented in this section.

Table 6 Level of assessment for identified environmental matters

Level of assessment	Assessment matter
Detailed	Aboriginal heritage
	Biodiversity
	Hydrology and flooding
	Hazards and risks
	Landscape and Visual
	Noise
	Social
	Traffic and access
Standard	Air quality
	Land use
	Historic heritage

6.1 Aboriginal heritage

6.1.1 Existing environment

A preliminary investigation of the Site's archaeological context, and the potential for Aboriginal heritage was undertaken by OzArk Environment and Heritage (OzArk) (OzArk, 2023). A summary of the findings of previous archaeological investigations carried out in the surrounding area indicate that:

- Stone artefact sites are one of the most prevalent types of heritage sites in the region, however due to erosion and agricultural activity, these are likely to have been disturbed and therefore be found in locations removed from their original depositional context
- Culturally modified trees are most likely to occur in areas adjacent to waterways that have experienced less vegetation clearing, although generally they are not common within the area
- Consistent with findings throughout NSW, site frequency and density is dependent on their location in the landscape and nearby resources, and is particularly influenced by the existing level of disturbance to the landscape
- The most commonly recorded site type, including both isolated finds and artefact scatters, was stone artefacts, especially in areas around watercourses; and
- Where suitable landscape features such as elevated terraces adjacent to permanent or semi-permanent watercourses is present, other site types are possible, including potential archaeological deposits (PADs).

A search of the Aboriginal Heritage Information Management System (AHIMS) database conducted by OzArk on 15 December 2022 returned 64 results for Aboriginal sites within the search area (GDA Zone 56 Eastings: 212308 – 229341; Northings: 6616553 – 6628817, no buffer). A second search of the area surrounding the intersection of Harparary Road, and Kamilaroi Highway (located in GDA Zone 55) was also performed, however it returned no previously recorded sites in the area. Table 7 summarises the results of the AHIMS search by number and frequency of each site type identified.

Most of the sites recorded are in the vicinity of the Maules Creek Coal Mine, approximately 15 km south of the Site, with the majority of these recorded within 200 m of a watercourse. There were no recorded sites within the Project investigation area, however this is likely due to a lack of previous assessments in the area.

Table 7 AHIMS site types and occurrence frequency

Site type	Number	Frequency (%)
Artefact scatter	32	50
Isolated find	28	43.75
Modified tree (carved or scarred)	3	4.69
Grinding grooves	1	1.56
Total	**64**	**100**

6.1.2 Potential impacts

Activities such as creation of access tracks and installation of energy generation infrastructure will cause disturbance to soils and clearing of vegetation. Such activities could impact on currently unidentified Aboriginal heritage sites. Predictive models indicate that greater Aboriginal archaeological potential tends to exist on landforms within 200 m of permanent and ephemeral water sources, along access or trade routes, and areas with suitable flora/fauna and shelter. However, archaeological potential is generally reduced on landforms disturbed by erosion and historical impacts (e.g., farming and infrastructure installation). The long history of agricultural activity and soil disturbance over much of the Site reduces the potential for areas of high archaeological potential to exist. Nevertheless, an archaeological survey would enable a great understanding of the archaeological

potential and archaeological characteristics of all landforms within the study area. The results of a survey would inform options to avoid or minimise impacts to any identified items of Aboriginal heritage.

6.1.3 Assessment approach

It is anticipated that the results of the preliminary Aboriginal heritage investigation would lead to the SEARs requiring an Aboriginal Cultural Heritage Assessment (ACHA) be prepared. The ACHA, including all field investigations and consultation activities would be undertaken in accordance with:

- *Code of Practice for the Investigation of Aboriginal Objects in NSW South Wales* (DECCW, 2010a)
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH, 2011); and
- *Aboriginal cultural heritage consultation requirements for proponents* (DECCW, 2010b)

6.2 Biodiversity

6.2.1 Existing Environment

The Site is predominantly open grassland, mostly cleared of large areas of dense vegetation with scattered riparian vegetation along Middle Creek and unnamed tributaries to Horsearm Creek.

A Preliminary Biodiversity Assessment (PBA) was undertaken by OzArk Environment and Heritage (OzArk) investigating a potential footprint incorporating both Option 1 and 2 as discussed in Section 3.5.2. Both options were assessed for biodiversity values to allow for greater flexibility in footprint design. However, as Option 2 has been chosen as the preferred option, for the purposes of the Scoping Report, only data relevant to the Site has been analysed. The PBA included desktop assessments and ongoing site investigations including targeted surveys, the results of which will be presented in the final BDAR accompanying the EIS. As the PBA is still ongoing at time of reporting, desktop assessments were conducted for the Scoping Report to inform future investigation parameters. The investigation results, applicable to the Site, are summarised below.

Desktop Assessments

Desktop assessments of the following databases were undertaken between 13 February and 26 July 2023:

- NSW BioNet
- DCCEEW Protected Matters Search Tool (PMST); and
- Fisheries NSW Spatial Data Portal (Fisheries Portal)

The Narrabri LEP does not include mapping for biodiversity constraints, so was not included in the search.

The BioNet assessment searched an area of 10 km x 10 km around the Site for sightings of protected species listed under the BC Act within the last decade. The assessment identified 33 sightings of 21 species protected under the BC Act, including two species also listed under the EPBC Act. The results of the BioNet search are summarised in Table 8.

Table 8 BioNet results

Scientific Name	Common Name	BC Act Status	EPBC Act Status
Cryptoblepharus pulcher	Elegant Snake-eyed Skink	P	
Geopelia humeralis	Bar-shouldered Dove	P	
Circus assimilis	Spotted Harrier	V, P	
Hieraaetus morphnoides	Little Eagle	V, P	
Lophoictinia isura	Square-tailed Kite	V, P, 3	
Falco cenchroides cenchroides	Nankeen Kestrel	P	
Falco subniger	Black Falcon	V,P	
Glossopsitta concinna	Musk Lorikeet	P	
Glossopsitta pusilla	Little Lorikeet	V,P	
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P	
Chthonicola sagittata	Speckled Warbler	V,P	
Gerygone olivacea	White-throated Gerygone	P	
Plectorhyncha lanceolata	Striped Honeyeater	P	
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V,P	
Daphoenositta chrysoptera	Varied Sittella	V,P	
Cracticus nigrogularis	Pied Butcherbird	P	
Rhipidura albiscapa	Grey Fantail	P	
Hirundo neoxena	Welcome Swallow	P	
Zosterops lateralis	Silvereye	P	
Lepidium aschersonii	Spiny Peppercress	V	V
Cadellia pentastylis	Ooline	V	V

BC Act Status: V = Vulnerable, P = Protected, 3 = Sensitivity Class 3 (Sensitive Species Data Policy)
EPBC Act Status: V = Endangered

The PMST assessed the Site with a 5 km buffer for Matters of National Environmental Significance (MNES), with a summary of findings presented in Table 9.

Table 9 PMST Results

World heritage Properties	None
National Heritage Places	None
Wetlands of International Importance (RAMSAR)	3
Great Barrier Reef Marine Park	None
Commonwealth Marin Area	None
Listed Threatened Ecological Communities	8
Listed Threatened Species	34
Listed Migratory Species	10

All three identified RAMSAR wetlands are located upstream from the Site, with the nearest one being the Banrock station wetland complex being approximately 900 to 1,000 km from the Site.

The eight listed Threatened Ecological Communities (TECs) are provided in Table 10.

Table 10 EPBC Act listed TECs

TEC Name	EPBC Act Status	Likelihood of Occurrence
Coolibah - Black Box Woodlands Darling Riverine Plains and the Brigalow Belt South Bioregions	E	May occur
Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	E	May occur
Mount Kaputar land snail and slug community	E	Likely to occur
Natural grasslands on basalt and fine-textured alluvial plans of northern New South Wales and southern Queensland	CE	Likely to occur
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	CE	May occur
Poplar Box Grassy Woodland on Alluvial Plains	E	Likely to occur
Weeping Myall Woodlands	E	May occur
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	Likely to occur

A total of 34 threatened species and 10 migratory species were identified within the search area. Of these, 11 threatened species and two migratory species are known to occur while 15 threatened species and two migratory species are likely to occur. Table 11 summarises the types of threatened species identified.

Table 11 Threatened and migratory species

Type	May Occur	Likely to Occur	Known to Occur	TOTAL
Threatened				
Bird	3	5	2	10
Fish	0	1	0	1
Mammal	1	1	5	7
Plant	3	6	3	12
Reptile	1	2	1	4
Migratory				
Bird	6	2	2	10
TOTAL	14	17	13	44

Fish habitat

The Fisheries Portal identified Middle Creek, which runs through the site from northeast to southwest, as Key Fish Habitat (KFH) within the northern basin of the Murray Darling Basin. Middle Creek is graded as a "Fair" quality watercourse that supports freshwater fish communities. Middle Creek is mapped as habitat for the BC Act listed, endangered Southern Purple Spotted Gudgeon (*Mogurnda adspersa*). Horsearm Creek located to the west of the Site is also identified as KFH within the northern basin of the Murray Darling Basin. Its northern

stretch is graded as a “Poor” quality watercourse supporting freshwater fish communities, which becomes “Fair” toward the south where it merges with Middle Creek offsite. Horsearm Creek is mapped as habitat for both the Southern Purple Spotted Gudgeon and the Eel Tailed Catfish (*Tandanus tandanus*), also listed as endangered under the BC Act.

Groundwater Dependent Ecosystems

Groundwater dependent ecosystems (GDEs) are ecosystems that need access to groundwater to meet all or some of their water requirements to maintain their communities of plants and animals, ecological processes, and ecosystem services. The dependence of GDEs on groundwater varies from seasonal or episodic, to continual.

A desktop assessment of the BOM GDE Atlas was completed on 26 July 2023. The BOM GDE Atlas did not identify aquatic GDE within the Site or surrounding areas. Groundwater Vulnerability mapping is not available under the Narrabri LEP.

Site Investigation

Preliminary vegetation mapping was undertaken in December 2022 by an OzArk botanist to ground-truth existing vegetation mapping and database results. The preliminary vegetation mapping indicated that six PCTs occur across the Site and at key intersections:

- PCT 27 – Weeping Myall open woodland of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion
- PCT 78 – River Red Gum riparian tall woodland / open forest wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion
- PCT 88 – Pilliga Box - White Cypress Pine - Buloke shrubby woodland in the Brigalow Belt South Bioregion
- PCT 101 – Poplar Box – Yellow Box – Western Grey Box grassy woodland on cracking clay soils mainly in the Liverpool Plans, Brigalow Belt South Bioregion
- PCT 589 – White Box - White Cypress Pine - Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion; and
- PCT 599 – Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion

Of these, PCT 27, PCT 101, PCT 589, and PCT 599 were identified as potentially conforming to Critically Endangered Ecological Communities (CEECs) under the BC Act, and/or Threatened Ecological Communities (TECs) under the EPBC Act.

Only PCT 589 and PCT 599 were observed within the main development footprint, while PCT 27 and PCT 101 were observed at possible intersection upgrade locations, or along transport access routes. The largest area of PCT 599 was observed outside of the Site, within the northern land parcel included under layout Option 1. It was determined that this area did not conform to the BC Act listed CEECs or the EPBC Act listed TECs. Areas within the Site that were identified as potentially conforming to CEECs or TECs have been avoided in the design of the Development Footprint. Locations of PCTs observed on Site are shown in Figure 8.

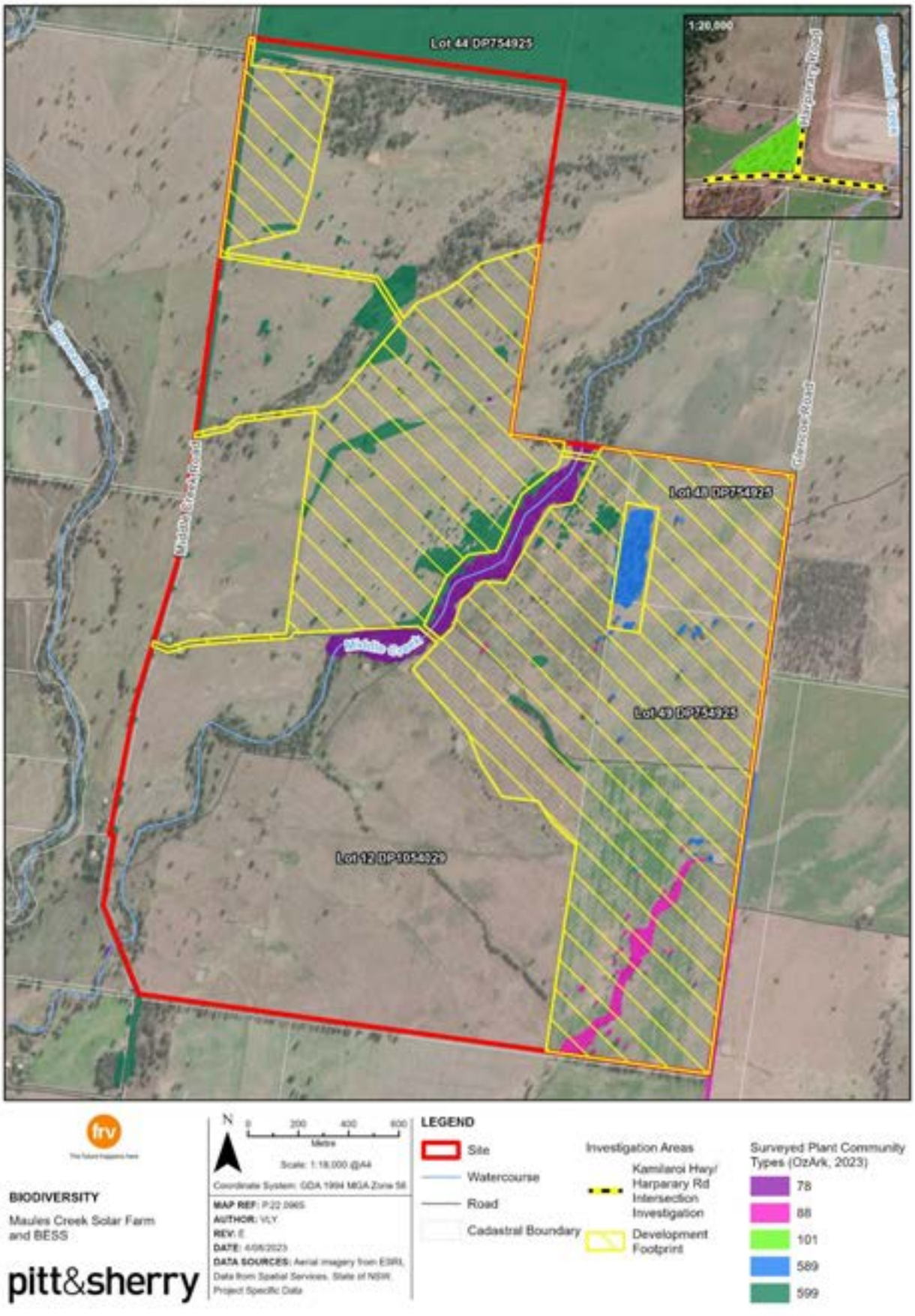

Figure 8 Observed PCTs on Site

6.2.2 Potential Impacts

The Project is unlikely to significantly impact areas of high biodiversity value as the Development Footprint has been designed to avoid these areas as much as possible. Mitigation measures to be implemented during construction to avoid these areas would further reduce the risk of potential impacts. Despite this, the Project would still require the clearing of groundcover and has the potential to reduce available flora and fauna habitat throughout its lifespan.

The Project is highly unlikely to impact RAMSAR wetlands identified in the PMST due to the distance between the wetlands and the Site. The possible upgrades of waterway crossings along Harparary Road, and the on-site vehicle crossing of Middle Creek would involve works within waterways, with the potential to reduce water quality and impact upon freshwater fish communities that may be present.

The Project has the potential to impact threatened species populations and ecological communities, so a detailed assessment is required for the EIS to accurately determine the extent of potential biodiversity impacts.

6.2.3 Assessment approach

A BDAR would be prepared by a suitably qualified specialist to complete a detailed assessment of potential biodiversity impacts resulting from construction and operation of the Project. The BDAR and all associated site investigations would be undertaken in accordance with the Biodiversity Assessment Method (BAM) (DPIE, 2020c). The BDAR would inform refinement of the Concept Layout and include mitigation measures to avoid or minimise potential impacts to biodiversity during the life of the Project.

An assessment of land would be undertaken to identify areas that may meet the requirements to be considered Category 1 – Exempt Land under Part 5A Land Management (native vegetation) of the Local Land Services Act 2013 (LLS Act). Such areas may be exempt from assessment under a BDAR.

6.3 Hydrology and Flooding

6.3.1 Existing environment

The Site is within the Namoi River catchment and drains into the Namoi River approximately 18 km to the southwest. With respect to water access and sharing, the Site is within the Water Sharing Plan for the Namoi and Peel Unregulated River Water Sources 2012 (Maules Creek Water Source); and the Namoi Alluvial Groundwater Sources Water Sharing Plan (Upper Namoi Zone 11, Maules Creek Groundwater Source).

Local drainage is dominated by two named watercourses, Maules Creek and Horsearm Creek, which collectively drain more than 60,000 ha of predominantly mountainous terrain including the Mount Kaputar National Park and associates ranges to the north and east.

At a Site scale, the major surface water drainage feature is Middle Creek which dissects the site and drains in a roughly south-westerly direction to join Horsearm Creek about 3 km to the southwest of the Site (Figure 9). Horsearm Creek continues to the southwest for approximately 4.4 km before joining Maules Creek, which runs into the Namoi River a further 10.5 km southwest. Middle Creek is a fifth order watercourse under the Strahler stream ordering system and has a total catchment area of approximately 9,800 ha. It has an incised channel containing coarse sediment ranging from sand to rounded pebbles, cobbles, stones and boulders, indicative of periodic high flow energy. Native vegetation lines the banks of the waterway. Water quality in Middle Creek is expected to be very good.

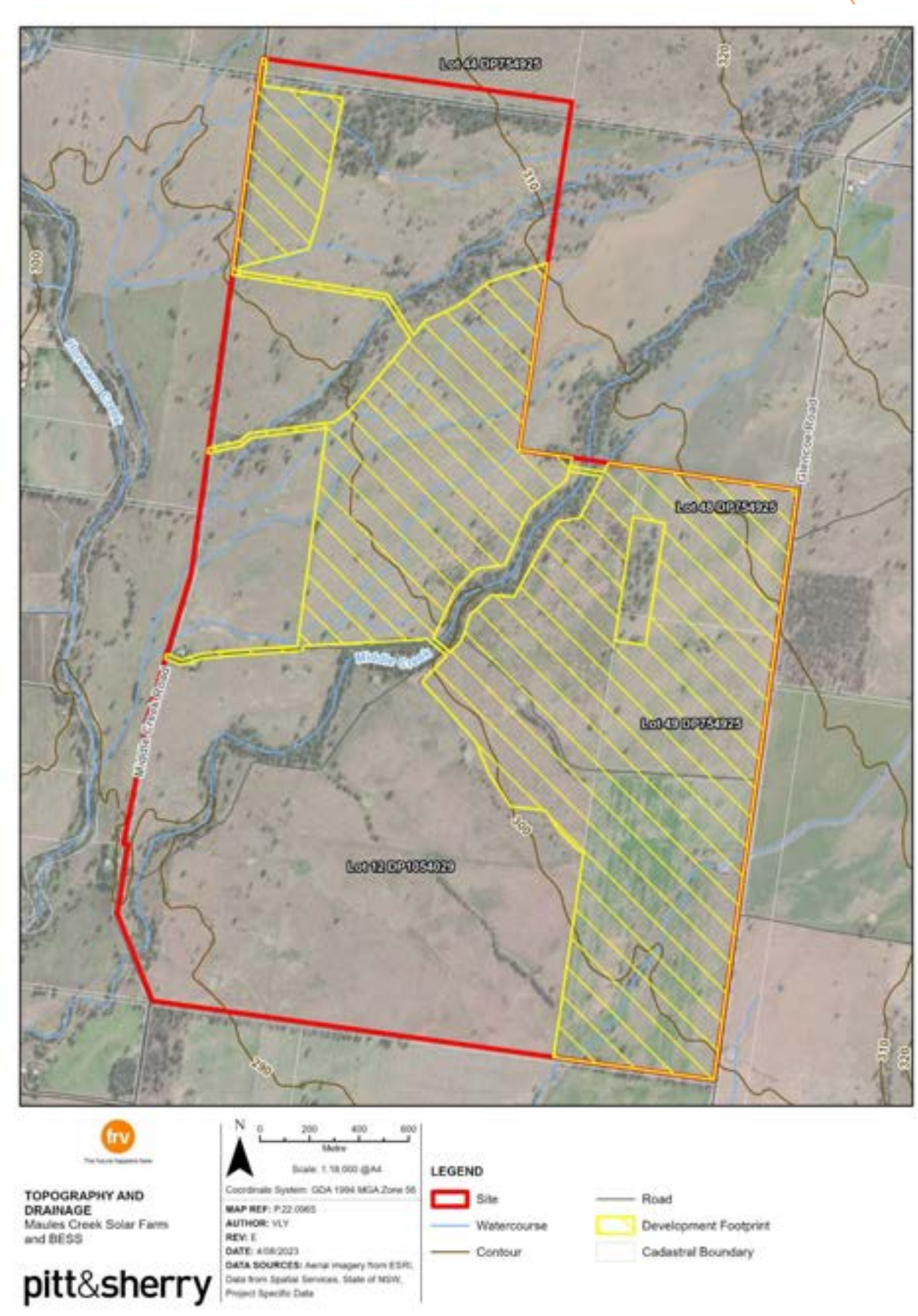

Figure 9 Topography and drainage

Drainage across the Site occurs predominantly as sheet flow over low gradient (approximately 1%) cleared grazing and cropping land. Some constructed contour banks control drainage in the southeast of the Site. Other drainage features of note are numerous south-west oriented paleochannels occupying the central and northern parts of the Site. These channels are mapped as first and second-order watercourses on the relevant topographic map, are relatively shallow and contain river alluvium such as rounded cobbles and boulders. However, they are clearly an artefact of historic drainage conditions and changing river courses. These channels no longer receive the magnitude of flows that led to their formation and instead drain only small local catchments. They are mostly absent of any native riparian vegetation, contain mainly exotic grasses and are often hard to distinguish from the surrounding grazing land.

6.3.2 Potential impacts

Sensitive drainage landscapes

The environment of Middle Creek represents the main sensitive hydrological landscape feature within the Site. Design of the Concept Layout for the Project has applied a nominal 40 m protective buffer either side of Middle Creek consistent with the *Controlled Activities – Guideline for Riparian Corridors on Waterfront Land* (DPE, 2022a). This buffer would be maintained in a vegetated state and should be highly effective in protecting the form and function of the watercourse while preserving important native vegetation and fauna habitat. Smaller buffers may also be applied to other minor waterways, where necessary, to prevent flow obstruction or protect areas of native vegetation.

Up to two light vehicle access crossings of Middle Creek may be required for both construction and operational stages of the development and would be subject to further design. Two possible locations have been selected and both align with existing informal crossings used by the landowner. These crossings provide limited 4WD access in low flow conditions. They have unstable sandy banks and no formed pavement. They are not currently fit for regular use by construction machinery and would need to be reformed. A suitable passive type crossing would be preferred that minimises impacts on stream flows and fish passage, while maintaining the natural form and function of the creek bed and banks. A suitable example is a low, at-grade rock causeway or similar.

Flooding

A preliminary hydrologic and hydraulic model was set up to assess drainage patterns and flood affectation in the vicinity of the Site and to inform the concept design development. A 2D hydraulic domain was generated to encircle the site to facilitate the input of flows approaching from each upstream catchment. A RORB storage-routing hydrological model was developed using DRAINS and the rational method was used to verify the accuracy of outputs from the RORB model. The hydrological model was roughly calibrated to gauge 419051 Maules Creek at Avoca West Stream Flow, which is located on Maules Creek, about 7 km downstream from the property.

Hydraulic modelling used HEC-RAS software. The hydraulic model is a two-dimensional model which takes output hydrographs from DRAINS as boundary condition inflows into the 2D domain encompassing the Site and uses rain-on-grid modelling to generate flows from rain over the 2D Domain. The terrain model used in the 2D hydraulic domain was based on a 5 m digital elevation model (DEM) downloaded from the ELVIS elevation data portal.

The modelling provided graphic outputs representing flow velocity, depth, and flood hazard. These were interrogated to understand drainage patterns and hazard categories and so inform development of the Concept Layout. As indicated in Figure 10, flow depths in a 1% AEP flow event are greatest in the major waterways of Middle Creek, Horsearm Creek and Maules Creek. Within the Site flows exceeding 1.5 m depth occur only within Middle Creek. The 1% AEP flows are mainly contained within the Middle Creek channel with only limited shallow breakout flows less than 0.5 m deep. Elsewhere, shallow linear flows occur in paleochannels. Flooding is likely to represent only a minor limitation.

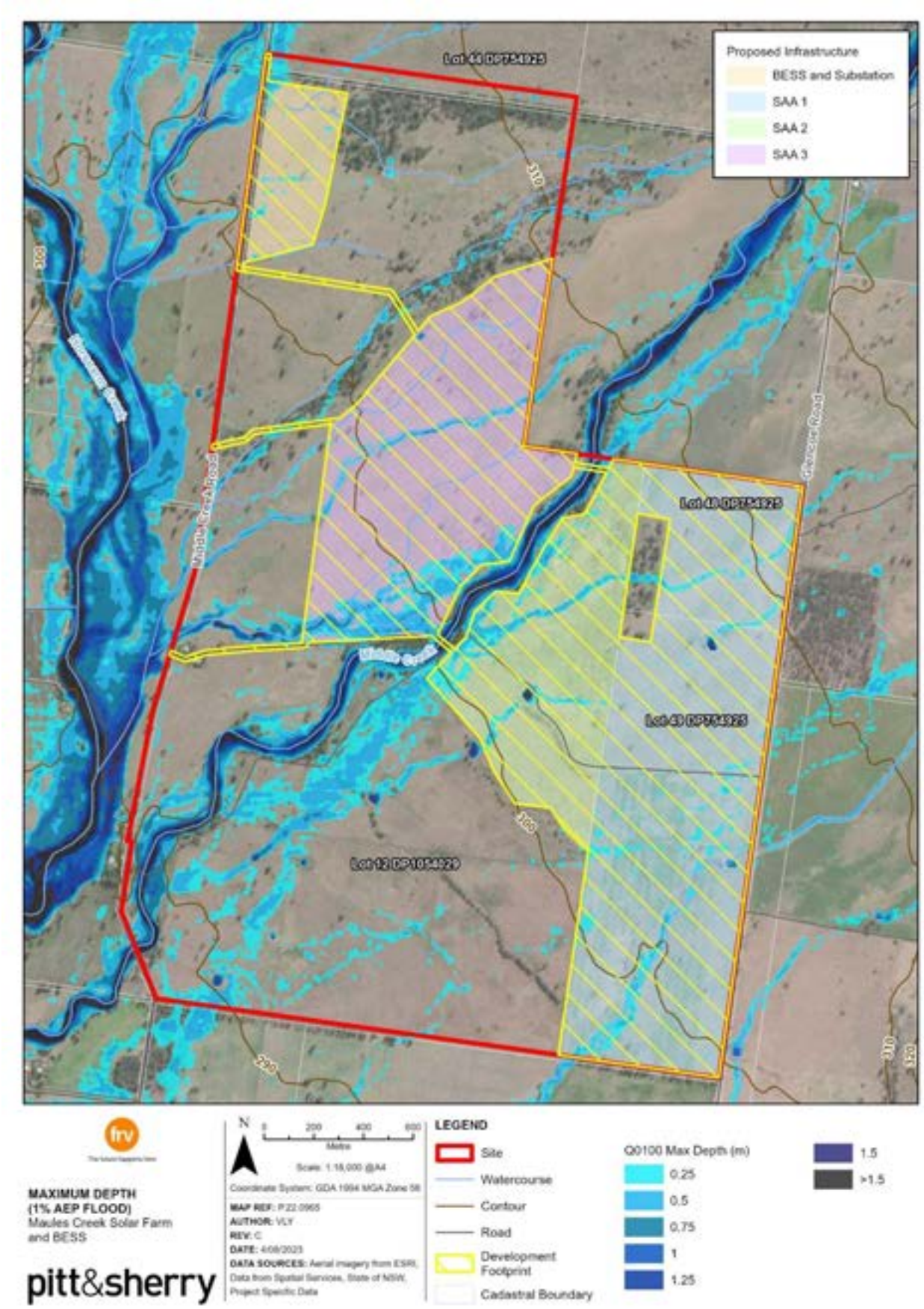

Figure 10 Maximum depths of 1% AEP flood

Water quality

Construction activities have potential to disturb soils. Associated soil erosion by rainfall, flowing water and wind, could mobilise sediment and other pollutants that may impact on receiving water quality. These impacts can be mitigated through implementation of appropriate erosion and sediment controls, and by rehabilitating the site to restore ground cover post construction. Over most of the site the erosion hazard is low due to the very gentle site gradients and low annual rainfall. Appropriate erosion and sediment controls have the capacity to be highly effective in reducing water quality risks. Erosion and water quality risks will be highest in and around watercourses, in this case Middle Creek. Works within the riparian zone of Middle Creek would require site specific controls and a construction methodology that minimises disturbance and water quality risks to the aquatic environment.

Operational solar farms and BESS developments are generally considered to present a low water pollution risk, being made of relatively inert materials that are not known for emitting pollutants.

Water demand

Water would be required during the construction stage of the project and, to a much lesser extent, during the operational stage. The site does not have access to a reticulated town water supply and has only a limited number of relatively small dams that catch and store water for rural purposes. It is likely that the project's water needs would be met by tankering water to the site. Any proposal to abstract water from local groundwater or surface water sources would need to be in accordance with requirements of the Water Management Act with respect to water access and licensing.

6.3.3 Assessment approach

A surface water and groundwater assessment will be undertaken as part of the EIS and in accordance with the SEARs. This will consider potential impacts of the Project on surface water and groundwater resources within the Site and downstream.

Factors to assess would include drainage patterns and watercourse protection, erosion hazard and sediment control, water quality, flooding, groundwater levels, impact to water users (including licensed surface water and groundwater users), and water availability and demand. A qualitative assessment of water quality is considered adequate given the relatively low water quality risks presented by solar farm developments. Quantitative water quality modelling is not proposed. The preliminary flood modelling undertaken to date, would be further developed to assess flood impacts of the development. The assessment would identify appropriate buffers and other measures to protect sensitive drainage systems.

6.4 Hazards and risks

6.4.1 Preliminary Hazard Analysis

The Project would require the transportation, use, or storage of potentially hazardous materials which present potential risk to the environment and the safety of the public.

An indicative list of hazardous materials which may be transported, stored, or used as part of the Project is presented in Table 12, with relevant classifications under the *Australian Code for the Transport of Dangerous Goods by Road & Rail* (NTC Australia, 2022) (ADG Code).

Table 12 Potential hazardous materials used by Project

Material	Dangerous Goods Class
Lithium ion batteries	Class 9
Transformer oil	Combustible liquid C1 (AS1940)
Diesel fuel	Class 3
Aerosols	Class 2
Solvents	Class 3

6.4.2 Bushfire

Bush fires pose a health and safety risk for on-site personnel during construction and operation of the Project.

A desktop assessment of the NSW RFS Bush Fire Prone Land database was undertaken on 4 May 2023. The assessment did not identify bush fire prone land within the Site or in close vicinity to the Site. However given the presence of the BESS and potential combustible materials being stored on Site, it is proposed that further assessment of bushfire risks would be undertaken for the EIS against *Planning for Bush fire Protection 2019* (RFS, 2019). This assessment would be undertaken in consultation with the Rural Fire Service (RFS) and NSW Fire and Rescue.

6.4.3 Biosecurity

Weeds, pests, diseases, contaminants, and other biosecurity matter are regulated under the *Biosecurity Act 2015* (Biosecurity Act) which aims to manage biosecurity risks to primary production industries, threats to the environment and human health. Under the Biosecurity Act, everyone has a general biosecurity duty.

A desktop assessment of NSW WeedWise was undertaken on 26 July 2023 to identify known priority weeds relevant to the Site. The Narrabri Shire LGA is included in the North West region. The assessment identified a total of 135 weeds. Table 13 summarises the results.

Table 13 Priority weeds for the North West

Duty	Number of Weeds
Prohibited Matter	28
Biosecurity Zone	3
Prohibition on Certain Dealings	53
Regional Recommended Measure	47
Control Order	4

Note: Some weeds fall into more than one Duty category

The Site and surrounds are zoned RU1 – Primary Production under the Narrabri LEP and are primarily used for agriculture. Biosecurity outbreaks in primary production areas pose a significant risk to the agricultural industry and national food security. General construction activity, transportation of materials can pose a biosecurity risk as weeds, pests and contaminants can be dispersed through plant, equipment, and vehicle movement. However, risks can be effectively managed through standard plant, equipment, and vehicle cleaning protocols during construction.

An existing site access protocol is in place for biosecurity management. A detailed assessment of biosecurity would be undertaken as part of the BDAR.

6.4.4 Electromagnetic Fields

Electromagnetic fields (EMFs) are present on the site due to the existing 132 KV overhead transmission line. The potential electric, magnetic, and electromagnetic field risks of the Project will be assessed in the EIS against the International Commission on Non-Ionizing Radiation Protection *Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1Hz to 100kHz)* (ICNIRP, 2010).

6.4.5 Assessment Approach

A Preliminary Hazard Analysis (PHA) will be prepared in accordance with:

- Chapter 3 of the Resilience and Hazards SEPP
- *Multi-Level Risk Assessment* (DoP, 2011a)
- Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP, 2011b); and
- Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (DoP, 2011c).

An assessment of bushfire risks would be undertaken for the EIS against *Planning for Bush fire Protection 2019* (RFS, 2019). This assessment would be undertaken in consultation with the Rural Fire Service (RFS) and NSW Fire and Rescue.

A detailed assessment of biosecurity would be undertaken as part of the BDAR.

The potential electric, magnetic, and electromagnetic field risks of the Project will be assessed in the EIS against the International Commission on Non-Ionizing Radiation Protection *Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1Hz to 100kHz)* (ICNIRP, 2010).

6.5 Visual

6.5.1 Preliminary Visual Impact Assessment

A preliminary visual impact assessment (PVIA) has been prepared by Envisage Consulting Pty Ltd (Appendix C) in accordance with the *Large-Scale Solar Energy Guideline* (DPE, 2022l) and supporting *Technical Supplement – Landscape and Visual Impact Assessment* (DPE, 2022b) (the Technical Supplement).

The assessment was completed prior to finalisation of the Concept Layout and assumes a development footprint aligned with Option 1.

The purpose of the PVIA was to identify viewpoints that could be visually impacted by the Project and determine which viewpoints will require a detailed assessment as part of the EIS.

In accordance with the Technical Supplement, receivers within 4 km of the project (e.g. residents and public facilities), and possible public viewpoints from roads or rail within a 2.5 km viewshed, must be identified.

A viewshed map was prepared to identify all theoretical viewpoints, and to eliminate receivers with no potential views of the Project. It is a 'bare earth' projection of the mapped topography only and doesn't account for intervening elements such as vegetation or buildings which would have the potential to obstruct views. It therefore presents a worst-case scenario for visual impacts.

The viewshed shown in Figure 11 was prepared based on layout Option 1, and an approximate panel height of 5.5 m. Additional receivers outside of the 4 km radius are also illustrated for context.

There were 22 receivers (21 residences and one community hall) within 4 km with potential viewpoints of the Project. Parts of five local public roads were identified as being potential public viewpoints. Each receiver has been identified with an identification number (e.g. R1, R2 etc.).

The Preliminary Assessment Tool (PAT) provided in the Technical Supplement was then applied to these potential viewpoints. The PAT is based on the vertical and horizontal field of view that a Project is likely to occupy when viewed from each viewpoint, and is influenced by distance, height, change in elevation, and width of a project.

The results of the PAT, were determined based on the following steps as laid out in the Technical Supplement:

- Calculate the distance of each receiver to the nearest point of the Project
- Determine the relative height difference between the Project and each receiver
- Plot each receiver on the PAT Graph, based on distance and relative height difference (from above) to determine the vertical field of view (as either 1, 2, 3, or 4+ degrees (°)
- Measure the worst case horizontal field of view of the Project from each receiver (this does not allow for any existing obstructions such as vegetation); and
- Compare the vertical and horizontal fields of view (using the matrix supplied in Table 1 of the Technical Supplement) to determine which receivers require a detailed assessment in preparation of the EIS.

As summarised in Table 14, six private residences within 4 km would require a detailed assessment, specifically, R1, R2, R4, R17, R18, and R29. There was one receiver (R16) for whom the Project would not be visible when applying the PAT.

It was also determined that viewpoints along five local roads within 2.5 km of the Project – being parts of Glencoe Road, Black Mountain Creek Road, Harparary Road, Stoney Creek Road, and Middle Creek Road – would be required, with locations of viewpoints to be determined during field investigations.

Table 14 Summary results of Preliminary Assessment Tool for receivers within 4 km

Receiver No.	Distance from Project	Height at viewpoint	Relative Height Difference	Vertical field of view	Horizontal field of view	Assessment required?
R1	1,310 m	304.5 m	46.5	2°	105°	Yes
R2	1,390 m	302.5 m	46.5	2°	100°	Yes
R3	2,660 m	287.5 m	56	1°	50°	No
R4	2,140 m	288.5 m	55	1°	75°	Yes
R5	3,300 m	282.5 m	61	1°	52°	No
R6	3,250 m	283.5 m	60	1°	52°	No
R7	3,190 m	284.5 m	59	1°	55°	No
R8	3,000 m	286.5 m	57	1°	57°	No
R9	1,860 m	291.5 m	52	1°	50°	No
R10	4,120 m	284.5 m	59	1°	40°	No
R11	2,190 m	292.5 m	51	1°	42°	No
R12	2,230 m	302.5 m	46.5	1°	30°	No
R13	2,480 m	301.5 m	46.5	1°	32°	No

Receiver No.	Distance from Project	Height at viewpoint	Relative Height Difference	Vertical field of view	Horizontal field of view	Assessment required?
R14	3,210 m	309.5 m	46.5	1°	33°	No
R15	3,100 m	308.5 m	46.5	1°	37°	No
R16	Project not visible from viewpoint					No
R17	300 m	328.5 m	46.5	4°	186°	Yes
R18	470 m	342.5 m	46.5	4°	130°	Yes
R19A	4,090 m	338.5 m	46.5	1°	38°	No
R20A	2,140 m	316.5 m	46.5	1°	62°	No
R20B	2,240 m	317.5 m	46.5	1°	50°	No
R29	1,000 m	294.5 m	49	2°	82°	Yes

6.5.2 Assessment approach

A detailed Landscape and Visual Impact Assessment (LVIA) will be prepared in accordance with the Technical Supplement for the Project as part of the EIS, to assess the visual impacts on the six private viewpoints and public viewpoints identified in the PVIA.

While Option 1 was used for the Preliminary Assessment, it is not anticipated that the Concept Layout proposed for Option 2 would result in significant changes to the outcome of the Preliminary Assessment. Subject to revisions to the Concept Layout as the impact assessment process continues, some of the results of the preliminary assessment may change during detailed assessment. Any change to the relative location, number, and sensitivity of receivers would be reviewed and updated as part of the LVIA.

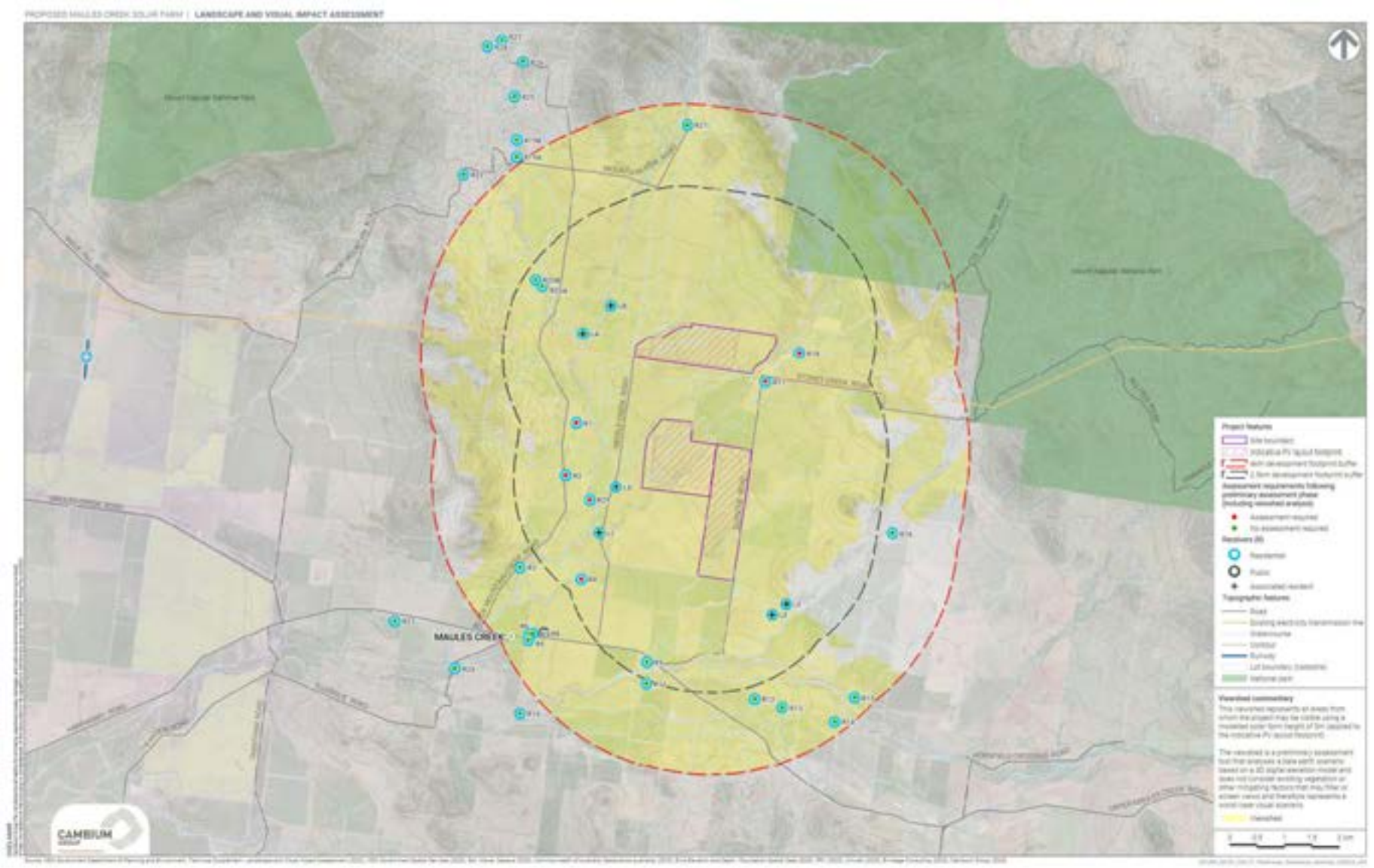

Figure 11 Preliminary theoretical viewshed

6.6 Noise

6.6.1 Existing Environment

The existing noise environment around the Project is likely to be typical of a rural setting, with the predominant noise sources being from agricultural activities, vehicle movement along local roads, and natural background sounds such as bird calls. Coal mine operations associated with the Maules Creek Coal Mine, approximately 15 km south of the Site were audible during site investigations.

The area surrounding the investigation area is lightly populated, with less than 30 non-associated receivers within 5 km of the Project, and two within 500 m of the proposed development footprint (R17 and R18 shown in Figure 11).

6.6.2 Potential Impacts

Potential noise impacts from the Project will be mostly associated with construction activities, including earthworks, delivery and assembly of Project infrastructure, pile driving/drilling, construction of the BESS and substation, and commissioning works.

Operational noise impacts would be minimal and would be further reduced where possible through locating noise generating infrastructure, such as the BESS and substation, in areas with minimal impacts to nearby receivers.

6.6.3 Assessment Approach

A Noise and Vibration Impact Assessment will be prepared as part of the EIS in accordance with:

- *Interim Construction Noise Guideline* (DECC, 2009)
- *NSW Road Noise Policy* (DECCW, 2011)*; and*
- *Noise Policy for Industry* (EPA, 2017).

6.7 Social

A Scoping Social Impact Assessment (SIA) has been prepared in accordance with the LSSE Guideline (DPE, 2022l) and the SIA Guidelines (DPE, 2021e). The full Scoping SIA is attached as Appendix D.

6.7.1 Existing Environment

The Project is located in the Narrabri Shire LGA in Maules Creek (Figure 12), approximately 45 km southeast of Narrabri. The population of Narrabri during the 2021 Census (ABS, 2021b) was 7,327, with a median age of 39 years old. The distribution for Narrabri was similar the NSW distribution, with 50.5% of the population identifying as female and 49.5% identifying as male. Aboriginal and/or Torres Strait Islander persons make up 15.3% of the population of Narrabri, significantly higher than the NSW figure of 3.2%. The majority of Narrabri residents were born in Australia (86.2%), with the next most represented countries being the Philippines, England, and New Zealand, all less than 1%.

Unemployment in Narrabri is 3.7%, lower than the NSW rate of 4.9%, with a majority of persons (63.6%) employed on a full-time basis. Health Care and Social Assistance was the main industry of employment, followed by Agriculture, Forestry, and Fishing, and Retail Trade. The median weekly household income in Narrabri is $1,590.

At the 2021 Census, 21% of the population of Narrabri listed a certificate as their highest level of education,

compared to 15.1% for the rest of NSW. The next highest levels of educational attainment for Narrabri was completion on Year 10 (17.9%), and completion of a bachelor's degree or higher (12.4%).

Reporting of one or more long term health conditions in Narrabri was higher than the NSW rate of 27%, with 32.4% of residents reported having one or more long term health conditions. The most commonly reported long term health conditions were asthma (10.6%), arthritis (10.3%), and mental health condition (including depression or anxiety) (6.8%).

Rented dwellings accounted for 31.5% of housing in Narrabri, with a median weekly rent of $260. The median monthly mortgage repayments for Narrabri was $1,448, lower than the NSW median of $2,167.

The suburb of Maules Creek had a population of 87 at the 2021 Census, while Boggabri, the nearest other population centre to the Project had a population of 1,203.

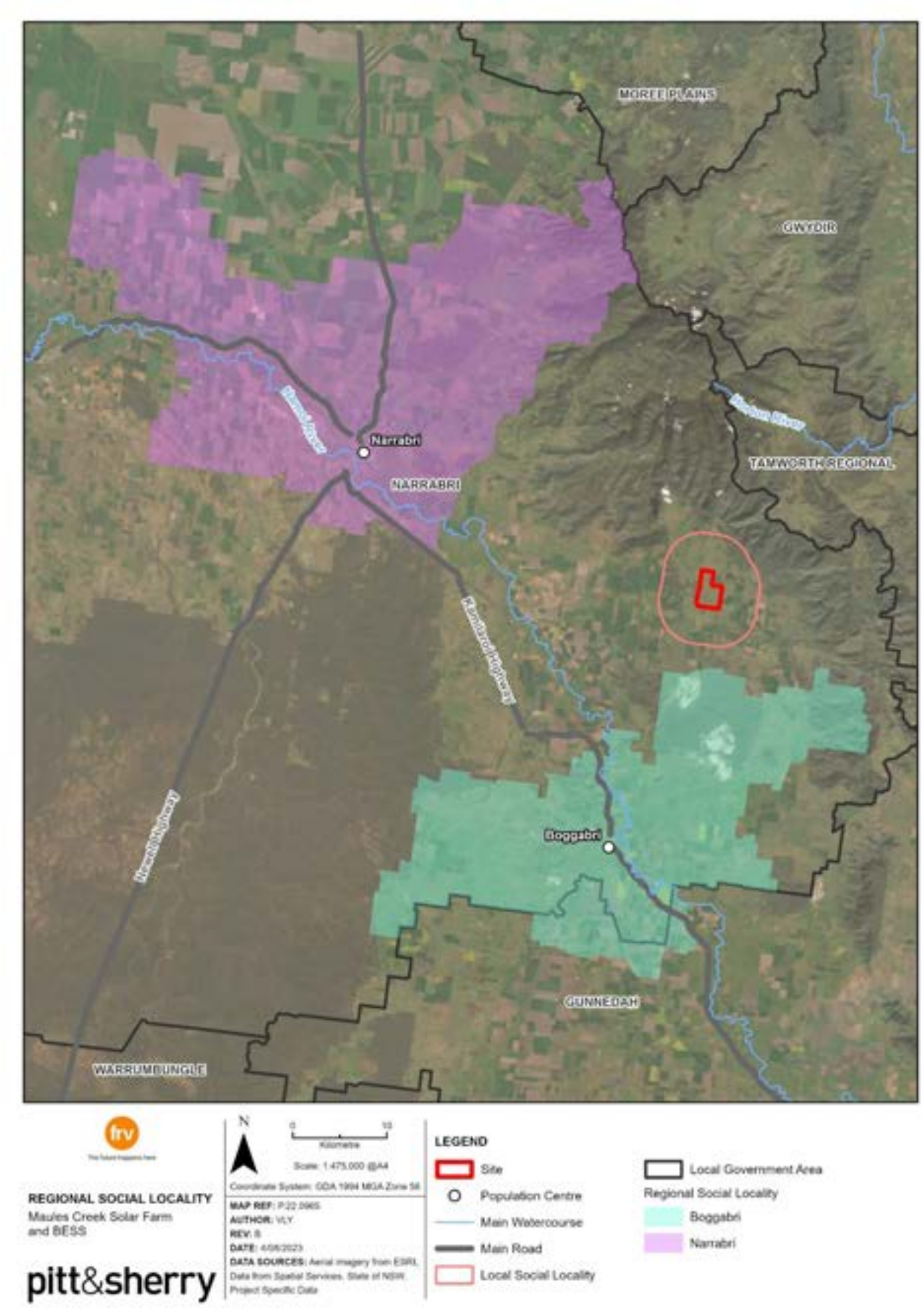

Figure 12 Regional social locality of the Project

6.7.2 Potential Impacts

The Scoping SIA identified a range of potential impacts and opportunities associated with the Project. These were identified through engagement with the community and stakeholders, and through a review of publicly available reports completed for other proposed developments in the area.

Key impacts identified as having a potential negative impact, and requiring further investigation include:

- Availability of accommodation during peak construction periods
- Impacts to visual amenity during construction and operation
- Amenity impacts from noise disturbance during construction for adjacent neighbours and residents along the proposed access route
- Impacts to unidentified Aboriginal Heritage items or sites during construction
- Biosecurity concerns around introduction of weed species by construction vehicles and workers
- Potential reduction in property values; and
- Community understanding and involvement in planning, assessment, and consultation processes.

Social impacts identified which have the potential to have a positive impacts will be investigated further during the EIS stage. These include:

- Upgrade of the proposed access roads, improving access and safety for local users
- Community benefit and contribution scheme
- Local employment opportunities; and
- Upskilling and economic diversification through employment and training initiatives.

Further assessment of the identified impacts will be undertaken in the preparation of the EIS and accompanying SIA to evaluate impacts and identify relevant mitigation and enhancement strategies.

6.7.3 Assessment Approach

Potential social impacts and benefits will be assessed in accordance with the requirements of the SIA Guidelines and the *Technical Supplement Social Impact Assessment Guideline for State Significant Projects* (DPE, 2023a).

6.8 Traffic and access

6.8.1 Existing environment

The State road network includes the Kamilaroi Highway (Route B75) which connects areas around Narrabri to the New England Highway (Route A15) which connects to Tamworth and to Newcastle via the Hunter Expressway (Route M15).

While the transport route is yet to be confirmed, it is likely that access to the site would use the Transport for NSW operated state road network and local roads under the ownership of Narrabri Shire Council. From the Kamilaroi Highway, vehicles would likely travel to the site via Harparary Road, a distance of approximately 21 km, then use both Middle Creek Road and Glencoe Road. Harparary Road is a fully formed, partially sealed road that provides important access to a largely rural community. It is regularly used by heavy vehicles that support rural industries and agriculture in activities such as transport of grain stock and other materials. Council maintains Harparary Road and has plans to seal the remaining sections of Harparary Road.

An alternative transport route that is approved for B-double use is via Narrabri using Maules Creek Road and Harparary Road.

Middle Creek Road and Glencoe Road are minor unsealed roads with low traffic volumes, utilised by local residents and for rural logistics. These roads roughly border the Site to the west and east, respectively, and are both envisaged as potential access routes.

6.8.2 Potential impacts

During construction heavy vehicles will require access to the Project to transport construction and operational machinery, equipment, and supplies. Some improvements to the local road network including widening may be required, particularly of Middle Creek Road, to accommodate heavy vehicles. Subject to further results of environmental investigations, including biodiversity and heritage, a temporary access road may instead be constructed adjacent to Middle Creek Road in cleared agricultural land to avoid potential impacts to native vegetation within the road corridor, and allow for construction vehicle access.

Subject to detailed design, internal access tracks, including up to two creek crossings could be established. All internal access tracks would be unsealed and serve as construction access and maintenance access for operations. During construction and operation, internal creek crossings would be used for light vehicle access only and would not carry heavy vehicles.

Increased levels of traffic will be generated during the construction stage of the project. Traffic will include light vehicles for the movement of construction workers and the delivery of materials, as well as heavy vehicles or B-doubles where required, for the delivery of large infrastructure and components to the project site. Traffic increases associated with the operation of the Project would be minimal and would generally involve light vehicle movements.

6.8.3 Assessment approach

A Traffic Impact Assessment (TIA) will be prepared as part of the EIS to assess the potential impacts to transport routes and the wider road network. Consultation and engagement with Transport for NSW and Narrabri Council will inform the TIA and help to understand existing road conditions and safety concerns. The TIA will consider the following documents in its preparation:

- *Guide to Traffic Generating Developments* (RTA 2002)
- *Austroads Guides to Road Design* (Austroads, 2021)
- *Austroads Guides to Traffic Management* (Austroads, 2020); and
- All relevant standards.

Should road upgrades be required, these will be detailed and assessed in the EIS.

6.9 Air quality

6.9.1 Existing environment

The existing air quality of the site is characteristic of a rural environment based on the surrounding land uses. Regular sources of air pollutants and emissions in the surrounding area are from the agricultural activities (e.g. dust) and emissions from motor vehicles and farm machinery. Bushfires are irregular though when they occur represent a major source of particulates and other air pollutants.

Air quality in the area is monitored by the Maules Creek monitoring station, approximately 3 km south of the Site. Concentrations for PM2.5 and PM10 recorded at this location for 2023 are presented in Figure 13.

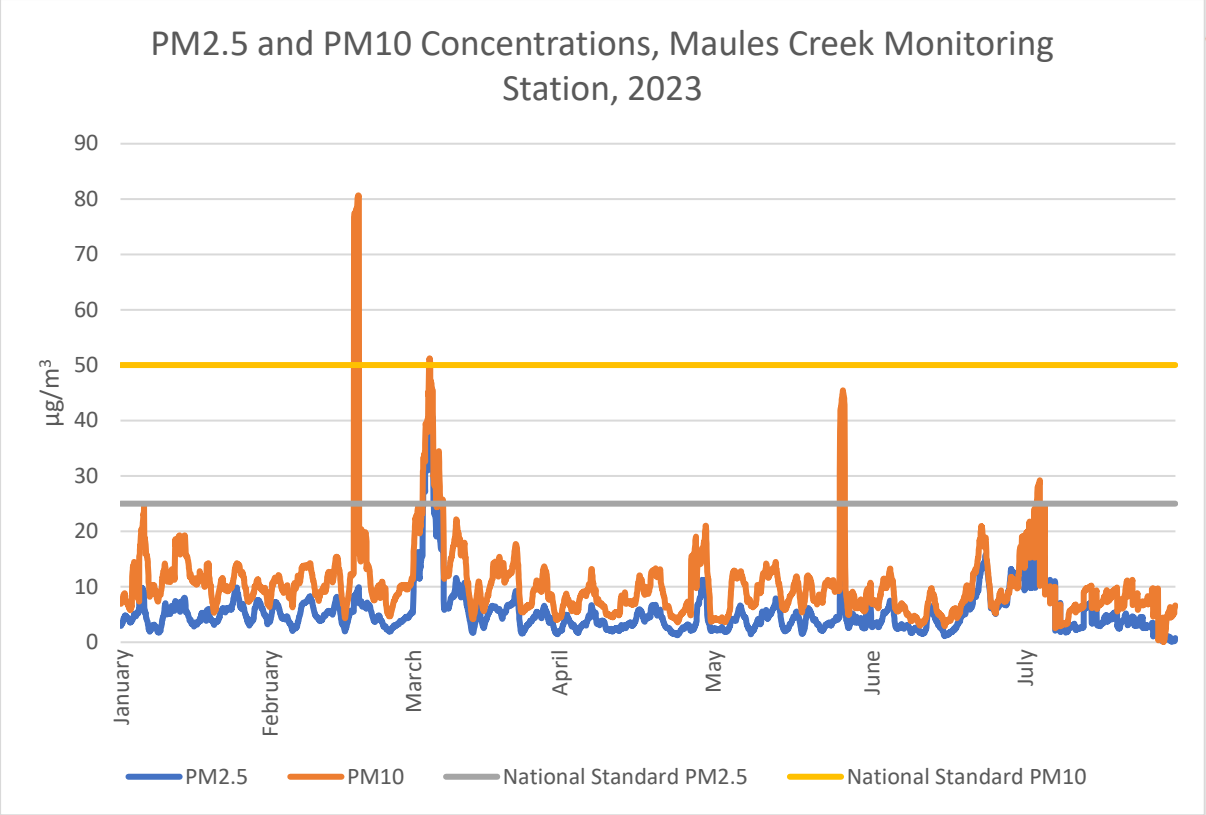

Figure 13 Air quality results for 2023 at Maules Creek monitoring station

6.9.2 Potential impacts

Subject to weather conditions, there is potential for dust generation from activities like material handling, vehicle movements and site preparation. Ground disturbance from pile foundations for the solar arrays is unlikely to generate significant dust emissions. Additional ground disturbance would result from trenches for cabling and footings for other infrastructure and vegetation removal. Particulate emissions would also be generated from the exhaust of construction plant and equipment. These dust and particulate emissions would be temporary for the duration of the construction period. With the implementation of standard dust suppression measures during construction, air quality impacts during construction are anticipated to be minor.

Rehabilitation of the site following construction would restore groundcover, reduce the areas of disturbed and exposed soils, and greatly minimise the risk of dust generation. As such, operation of the Project is not anticipated to impact air quality.

6.9.3 Assessment approach

Air quality impacts associated with the project are likely to be low and limited mainly to the construction and decommissioning stages of the project. A quantitative air quality assessment is not considered appropriate given the low risk of air quality impacts and is not proposed.

A qualitative impact assessment would be undertaken as part of the EIS. This would assess the potential for air emissions during construction, identify key sensitive receivers and outline appropriate mitigation measures to manage and mitigate air emissions during construction.

6.10 Land use

6.10.1 Existing Environment

The Site includes three cadastral lots held by individual landowners and totals approximately 760 ha, comprised of Lot 48 DP754925, Lot 49 DP754925, and part of Lot 12 DP1054029. The Site is low lying and undulating, with elevation between 290 m and 320 m. The land is largely even with a gradual upward slope from south to north towards Mount Kaputar National Park. The site is surrounded by small ridges and ranges. There is one active exploration licence over the Site (PEL1) and two Crown road reserves bounding the northern and southern Site boundaries, however these are not currently used as roads. Outside of the Site, Middle Creek becomes a Crown waterway beyond the northern boundary but is not listed as such within the Site.

Desktop assessments of the following NSW Environment Protection Agency (EPA) databases were undertaken:

- Contaminated land record of notices; and
- List of notified sites.

Desktop assessments of the DPE eSPADE v2.2 and NSW SEED database were undertaken to assess the following land and soil properties:

- Australian Soil Classification (ASC)
- Land and Soil Capability (LSC)
- BSAL; and
- Acid Sulfate Soils (ASS).

Contamination

Contaminated land presents a risk to human health and the environment and is regulated under the *Contaminated Land Management Act 1997* and *Environmentally Hazardous Chemicals Act 1985*.

The assessment reviewed records located within Maules Creek, Tarriaro and Harparary. No record of notice or list of notified sites were identified within the Site or in close proximity to the Site. However, based on historic agricultural land use of the Site, elevated levels of agricultural chemicals could still be present in the soil.

Australian Soil Classification

Soils on Site to the north west of Middle Creek are dominated by Chromosols, while soils to the south east of Middle Creek dominated by Vertosols.

Chromosols have a strong contrasting texture and are not strongly acidic or sodic. They have moderate agricultural potential, chemical fertility, and water-holding capacity. They can be susceptible to acidification and structural decline. Vertosols are clay-rich soils with uniform texture, and potential for strong cracking when dry. Vertosols have high agricultural potential with high chemical fertility and water-holding capacity (Isbell, 2021).

Land Soil Capability

LSC refers to the inherent physical capacity of the land to sustain a range of land uses and management practices in the long term without degradation to soil, land, air, and water resources. Land and soil hazards including water erosion, wind erosion, soil structure decline, soil acidification, salinity, waterlogging, shallow soils, and mass movement are assessed and the LSC class of the land is based on the most limiting hazards.

The Site is within LSC Class 5 – moderate capability land. This class is defined under the LSC as land with moderate to high limitations for high impact land uses. Land management options for regular high-impact land uses such as cropping, high intensity grazing, and horticulture will be restricted. These limitations can only be

managed by specialised management practices with a high level of knowledge, expertise, inputs, investment, and technology (OEH, 2012).

Biophysical Strategic Agricultural Land (BSAL)

BSAL is land with high quality soil and water resources capable of sustaining high levels of productivity. BSAL was assessed and determined to support the *State Environmental Planning Policy (Resources and Energy) 2021* (Resources and Energy SEPP). Although the Resources and Energy SEPP is aimed at governing the mining and coal seam gas industries and is not applicable to renewable energy developments, the BSAL map is a good indicator of high quality agricultural land.

The desktop assessment did not identify BSAL within the Site

Acid Sulfate Soils

The desktop assessment did not identify acid sulfate soils within the Site or the surrounds.

6.10.2 Potential impacts

Potential impacts to land and soils are expected to occur mainly during the construction and decommissioning phases of the Project. Once in operation, there is opportunity for productive agriculture to continue that is compatible with a solar farm and BESS renewable energy development and the LSC class of the Site, such as sheep grazing.

Potential soil and land impacts that could occur during construction include:

- Soil disturbance during groundcover clearing and civil works, leading to erosion of exposed soil and stockpiled materials
- Dust generation due to wind activity and vehicle movements over exposed soil
- Compaction and surface sealing of exposed soils, leading to increased erosion and runoff and poor vegetation condition
- Soil structure decline caused by topsoil removal and compaction by machinery
- Poor storm water quality due to erosion and increased sediment loads, causing turbid stormwater runoff and impacts on receiving waters
- Potential disturbance of historical land contamination; and
- Contamination of soil due to spillage of hazardous chemicals such as fuels, oils etc.

Maintenance of established vegetation groundcover and application of site specific ESC measures, have the ability to substantially reduce risks of erosion and sedimentation. Rehabilitation of the Site with groundcover in areas disturbed by construction would further reduce the erosion hazard in disturbed areas.

Impacts to agricultural land resulting from the development of the Project would need to be recognised as part of broader environmental studies, particularly in relation to cumulative impacts, which may arise if multiple projects are approved in the greater area. Additionally, potential impacts to surrounding agricultural operations during construction and operation of the Project should be considered during EIS development. Potential cumulative impacts are detailed in Section 6.11.

6.10.3 Assessment approach

A Level 2 Basic Assessment would be undertaken in accordance with the LSSE Guideline. The assessment would include the following:

- Confirmation of soil type using the ASC system (Isbell, 2021), through visual, physical and laboratory analysis
- Verification of LSC class through laboratory analysis
- Erosion hazard would be assessed using the Revised Universal Soil Loss Equation and relevant controls identified to manage erosion and sedimentation
- Agricultural impact assessment in accordance with the LSSE Guidelines; and
- A Land Use Conflict Risk Assessment (LUCRA) in accordance with the *Land Use Conflict Risk Assessment Guide* (DPI, 2011) fact sheet, including targeted engagement with affected landholders.

6.11 Historic heritage

Statutory registers were reviewed including the National Heritage List (NHL), the Commonwealth Heritage List (CHL), the State Heritage Register (SHR), the Section170 Register (s170) and Schedule 5 of the Narrabri LEP. Non-statutory registers reviewed as a part of this assessment include the National Trust of Australia, NSW (NT) and the Register of the National Estate (RNE). No items of National, State, or local heritage significance have been identified within the site, or within 500 m of the investigation area.

No further investigation of historic heritage is proposed.

6.12 Cumulative impacts

Under the LSSE Guidelines, a Project is required to be assessed for cumulative impacts with other developments (proposed, approved, and operational). Specific matters for consideration of cumulative impacts for this project include construction traffic and access, biodiversity, and social impacts.

The Scoping Report Summary Table in Appendix A outlines where a cumulative impact assessment is to be undertaken for a relevant environmental matter as part of the EIS, including the level of assessment and consultation. Surrounding developments that may contribute to cumulative impacts from the Project are summarised in Table 15.

Table 15 Surrounding developments

Project Name (Reference)	Description	Status	Distance from Project
Maules Creek Coal Mine – Modification (MP10_0138-Mod-9)	Inclusion of electricity transmission line	Response to Submissions	15 km S
Tarrawonga Coal Mine – Modification (MP11_0047)	Extension of open cut mining operations and replacement of haulage road with rail transport	Approved	20 km S
Narrabri Coal Mine – Stage 3 Extension (SSD-10269)	Extension of approved underground mining operations	Approved	25 km SW
Narrabri South Solar Farm – Modification (SSD-8387-Mod-1)	Realignment of grid connection route and incorporation of battery energy storage system	Prepare Mod Report	26 km W

Project Name (Reference)	Description	Status	Distance from Project
Silverleaf Solar Farm (SSD9358)	Development of a 120MW solar farm and associated infrastructure	Approved	40 km NW
Inland Rail – Narrabri to North Star Phase 1 (SSI-10054)	Construction of 170km rail track between Narrabri and North Star.	Approved	40 km NW
Inland Rail – Narrabri to North Star Phase 2 (SSI-10054)	Upgrade of approximately 15 km of the existing rail line within the Narrabri to North Star corridor.	Response to Submissions	40 km NW

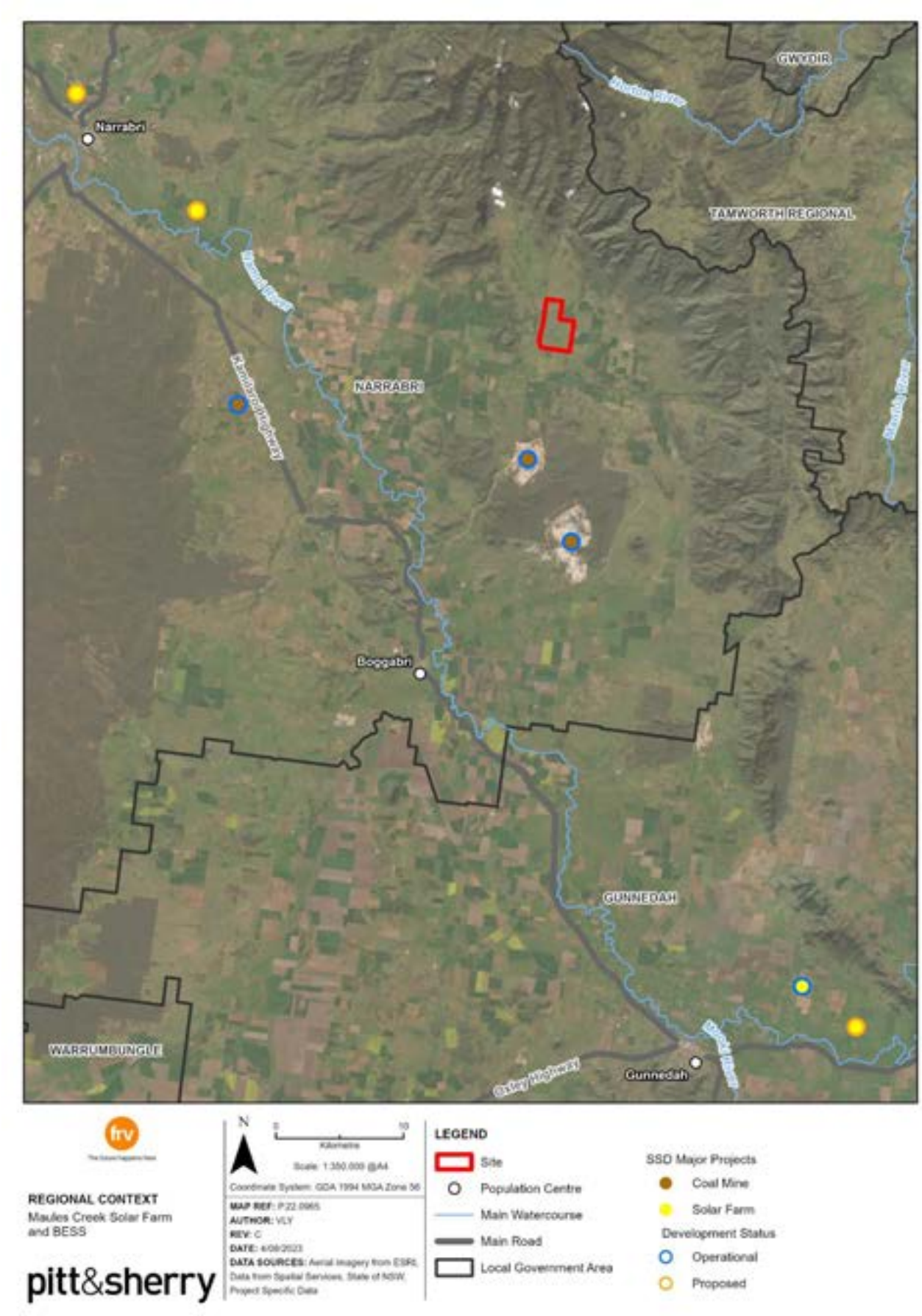

Figure 14 Surrounding developments

6.13 Matters not requiring further assessment in the EIS

This section documents other environmental matters that, although they need to be addressed in the EIS, are not relevant to the Development or the impacts are of such a small scale to not warrant further assessment. The environmental matters requiring no further assessment in the EIS are described in Table 16.

Table 16 Matters not requiring further assessment in the EIS

Environmental matter	Comment
Port and airport facilities	The Project will not result in any changes to port or airport facilities. Project infrastructure may transit through a port facility but would not impact its normal function.
Odour	The Project is not anticipated to cause any odour.
Coastal hazards	The Project is not located within a coastal area, so will not generate any impacts.
Water availability	The Project does not propose to impact upon impact water resources, so would not impact water availability.
Greenhouse gas and emissions	The Project will generate renewable energy, reducing the emission of GHG and CO_2 into the atmosphere through operation. Any emissions associated with the construction of the project would likely be rapidly offset through Project operation.

7. Conclusion

The Project Site was identified as a preferred location due its relatively flat topography, limited agricultural purpose, and its proximity to and capacity of connection to the existing 132 kV transmission line.

The Project would improve the reliability and security of the state and national electricity network by generating electricity from renewable sources, storing surplus energy on the Site, and releasing dispatchable energy during peak demand periods. This in turn would support energy generation and storage development in NSW and Australia by increasing flexibility and resilience of the electrical grid as overall renewable energy generation increases and non-renewable energy generation decreases over time.

The Development Footprint has been selected to avoid areas of high biodiversity value and minimise impacts to natural drainage tributaries of Middle Creek within the Site. The Development Footprint has incorporated deliberate boundary setbacks in consideration of minimising the potential visual, and construction noise impacts to surrounding receivers.

As further investigations are completed, and community and stakeholder engagement is undertaken, the Development Footprint would be reviewed and refined in response to the outcomes and findings. Where impacts cannot be avoided, measures for minimising, managing, or offsetting throughout construction, operation, and decommissioning would be developed in preparation of the EIS.

While minimising impacts to the environment, the Project will also provide the following benefits to the state, regional, and local communities, including:

- Supporting Australia's 2030 emission reduction targets, NSW's transition to net-zero emissions by 2050 and the objectives and themes of the NENWRP and NLSPS
- Improving the stability and reliability of the electricity network by storing energy during periods of low demand, including those from intermittent renewable sources and dispatching energy during periods of peak demand
- Local employment opportunities during an approximate 18 month construction period with 150+ jobs during a peak construction period of six months and up to four full-time jobs during the proposed 35 year operational life; and
- Benefits to the local community through the implementation of a community benefit scheme to be developed in consultation with the community and stakeholders.

Following scoping phase investigations, the Project is unlikely to have significant long-term impacts to the environment, locality, and region, with potential impacts during construction likely to be short-term, and able to be acceptably mitigated.

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Scoping Summary Table

Appendix A

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Matter	CIA	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Detailed Assessment				
Aboriginal Heritage	N	Specific	• *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (ICOMOS, 2013) • *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) • *Aboriginal cultural heritage consultation requirements for proponents* (DECCW, 2010b) • *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010a)	6.1
Biodiversity	N	General	• *Biodiversity Assessment Method* (DPIE, 2020c) • *NSW Biodiversity Offsets Policy for Major Projects* (OEH, 2014) • *Framework for Biodiversity Assessment* (OEH, 2018) • *Threatened Biodiversity Survey and Assessment* (DEC, 2004) • *Surveying threatened plants and their habitats* (DPIE, 2020b) • *Policy and Guidelines for Fish Habitat Conservation and Management* (DPI, 2013a) • *Controlled activities - Guidelines for watercourse crossings on waterfront land* (DPE, 2022f) • *Controlled activities - Guidelines for riparian corridors on waterfront land* (DPE, 2022e) • *Controlled activities – Guidelines for vegetation management plans on waterfront land* (DPE, 2022i)	6.2
Hydrology and Flooding	N	General	• *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) • *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) • *Managing Urban Stormwater: Soils and Construction Volume 2* (DECC, 2008) • *Approved methods for the sampling and analysis of water pollutants in NSW* (EPA, 2022b)	6.3

Matter	CIA	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
			• *Controlled activities - Guidelines for instream works on waterfront land* (DPE, 2022h) • *Controlled activities – Guidelines for outlet structures on waterfront land* (DPE, 2022g) • *Controlled activities - Guidelines for watercourse crossings on waterfront land* (DPE, 2022f)	
Hazards and Risks	N	Specific	• *Planning for Bushfire Protection* (RFS, 2019) • *ICNIRP Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1 Hz to 100 kHz)* (ICNIRP, 2010) • *Hazardous Industry Planning Advisory Paper No 2. – Fire Safety Study Guidelines* (DoP, 2011b) • *Hazardous Industry Planning Advisory Paper No. 3 – Risk Assessment* (DoP, 2011c) • *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (DoP, 2011e) • *Hazardous Industry Planning Advisory Paper No 12 – Hazards-Related Conditions of Consent* (DoP, 2011f) • *Australian Code for the Transport of Dangerous Goods by Road & Rail* (NTC Australia, 2022) • *State Environmental Planning Policy (Resilience and Hazards) 2021* • *Assessment Guideline: Multi-Level Risk Assessment* (DoP, 2011a)	6.4
Landscape and Visual Amenity	Y	Specific	• *Large-Scale Solar Energy Guideline* (DPE, 2022c) • *Technical Supplement – Landscape and Visual Impact Assessment* (DPE, 2022b)	6.5
Glint and Glare	N	General	• *Large-Scale Solar Energy Guideline* (DPE, 2022c) • *Technical Supplement – Landscape and Visual Impact Assessment* (DPE, 2022b)	6.5
Noise and Vibration	Y	Specific	• *Interim Construction Noise Guideline* (DECC, 2009) • *NSW Road Noise Policy* (DECCW, 2011) • *Noise Policy for Industry* (EPA, 2017)	6.6

Matter	CIA	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
			• *Assessing Vibration: a technical guideline* (DEC, 2006)	
Social	Y	Specific	• *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2022d) • *Social Impact Assessment Guidelines for State Significant Projects* (DPE, 2021a) • *Large-Scale Solar Energy Guideline* (DPE, 2022c) • *IAP2 Core Values* (IAP2, 2019) • *IAP2 Public Participation Spectrum* (IAP2, 2018) • *Workforce Strategy 2022-26* (MWRC, 2022)	6.7
Traffic, Transport, and Access	Y	Specific	• *Austroads Guide to Road Design* (Austroads, 2021) • *Austroads Guide to Traffic Management* (Austroads, 2020) • *Temporary Road Closures Policy* (MWRC, 2013) • *Unmaintained and Unformed Roads Policy* (MWRC, 2019) • *Bitumen Sealing of Gravel Roads Policy* (MWRC, 2018) • *Protective Fencing and Overhead Protective Structures in Public Places Policy* (MWRC, 2013) • *Roads Asset Management Plan 2016-2026* (MWRC, 2016) • Relevant Austroads Specifications • *Australian Code for the Transport of Dangerous Goods by Road and Rail* (NTC Australia, 2022)	6.8
Air Quality	N	General	• *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2022a) • *Approved methods for the sampling and analysis of air pollutants in NSW* (EPA, 2022c)	6.9
Land, Soil Quality, and Agriculture	N	General	• *Land Use Conflict Risk Assessment Guide* (DPI, 2011) • *Best Practice Erosion and Sediment Control* (IECA, 2008) • *Large-Scale Solar Energy Guideline* (DPE, 2022c)	6.10

Matter	CIA	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
			• *Land and Soil Capability Assessment Scheme* (OEH, 2012)	
Cumulative Impacts	Y	General	• *Cumulative Impact Assessment Guidelines*	6.12
Standard Assessment				
Conservation Areas, Historic Heritage, and Natural Heritage	N	General	• *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (ICOMOS, 2013) • *Investigating heritage significance* (HCNSW, 2021) • *Assessing heritage significance* (DPIE, 2022) • *Assessing Significance for Historical Archaeological Sites and 'Relics'* (HBDP, 2009)	6.11

Database Search Results

Appendix B

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AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : P.22.0965. - MCSF

Client Service ID : 752959

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Level 9, Suite 902, 1-5 Railway St, North Tower
Chatswood New South Wales 2067

Attention: Anna Butler

Email: abutler@pittsh.com.au

Date: 13 February 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -30.4993, 150.0938 - Lat, Long To : -30.4253, 150.2174, conducted by Anna Butler on 13 February 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

National Native Title Tribunal

Extract from the Register of Native Title Claims

Application Information

Application Reference:	**Federal Court number:** NSD37/2019 **NNTT number:** NC2011/006
Application name:	Sidney Chatfield & Ors on behalf of the Gomeroi People v Attorney General of New South Wales (Gomeroi People)
Registration History:	Registered from 20/01/2012

Register Extract (pursuant to section 186 of the *Native Title Act 1993* (Cth))

Application filed with:	Federal Court of Australia
Date application filed:	20/12/2011
Date claim entered on Register:	20/01/2012
Additional Information:	Not Applicable
APPLICANT:	
Person/s authorised as applicant:	Sidney Chatfield, Peter White, Malcolm Talbot, Leslie Woodbridge, Richard Green, Clayton Simpson-Pitt, Chris McGrady, Madeline McGrady, Allen Tighe, Donald Murray, Dorothy Tighe, Ian Brown, Lee-Ann Pearl Davern, Noeline Sherill 'Sheryl' Nicholls, Shannon Draper, Christine Porter, Susan Smith, Elaine Binge, Anthony Munro
Condition/s on authority:	Not Applicable
Address for service:	Mishka Holt NTSCORP Ltd Level 1 44-70 Rosehill Street Redfern NSW 2016 **Phone:** 02 9310 3188 **Email**: information@ntscorp.com.au

DESCRIPTION OF THE AREA COVERED BY THE CLAIM:

The area covered by the application ('the Application Area') comprises all the land and waters within the external boundaries described in Attachment B and depicted in the map at Attachment C.

The Application Area description and map have been prepared with the assistance of the Geo-Spatial Unit of the National Native Title Tribunal. The area covered by this application does not include the areas described at point B below.

(B) Areas within the external boundaries not covered by the application

1. The area covered by the application excludes any land and waters covered by past or present freehold title or by previous valid exclusive possession acts as defined by section 23B of the Native Title Act 1993 (Cth)

2. The area covered by the application excludes any land and waters which are:

a) a Scheduled interest;

b) a freehold estate;

c) a commercial lease that is neither an agricultural lease nor a pastoral lease;

d) an exclusive agricultural lease or an exclusive pastoral lease;

e) a residential lease;

f) a community purpose lease;

g) a lease dissected from a mining lease and referred to in s 23B(2)(c)(vii) of the Native Title Act (1993) (Cth); and

h) any lease (other than a mining lease) that confers a right of exclusive possession over particular land or waters.

3. Subject to paragraphs 5 and 6, the area covered by the application excludes any land or waters covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996.

4. Subject to paragraphs 5 and 6, exclusive possession is not claimed over areas which are subject to valid previous non-exclusive possession acts done by the Commonwealth, State or Territory.

5. Subject to paragraph 7 below, where the act specified in paragraphs 2, 3 and 4 falls within the provisions of:

a) s 23B(9) Exclusion of acts benefiting Aboriginal Peoples or Torres Strait Islanders;

b) s 23B(9A) Establishment of a national park or state park;

c) s 23B(9B) Acts where legislation provides for non-extinguishment;

d) s 23B(9C) Exclusion of Crown to Crown grants; and

e) s 23B(10) Exclusion by regulation;

the area covered by the act is not excluded from the application.

6. Where an act specified in paragraphs 2, 3 and 4 affects or affected land or waters referred to in:

f) s 47 Pastoral leases etc covered by claimant application;

g) s 47A Reserves covered by claimant application;

h) s 47B Vacant Crown land covered by claimant application;

the area covered by the act is not excluded from the application.

7. The area covered by the application excludes land or waters where the native title rights and interests claimed have been otherwise extinguished.

PERSONS CLAIMING TO HOLD NATIVE TITLE:

The Gomeroi People are the native title claim group on whose behalf the Applicant makes this application. The native title claim group comprises all the descendants of the following apical ancestors:

Thomas Pitt (who was born in 1838).

Billy Barlow (who was born in Tycannah in 1835)

Peter James Cutmore (who was born in Tycannah in 1849)

James Swan (who was born in Combadello in 1825)

Harriett Wyndham (who was born in Mungie Bundie in 1863)

William Levy (who was born in Terry Hie Hie in 1867)

Sally Nerang (who was born in Terry Hie Hie circa 1840)

Eliza Barlow (who was born in Terry Hie Hie circa 1860)

Kitty Dangar (who was born in Walgett in 1837)

William Clark (who was born in Collarenebri in 1845)

Murray Ippai (who was born in Collarenebri)

Mary Ann Ippai (who was born on the Barwon River)

Edward Morgan (who was born in Dungalear in 1855)

Nancy Morgan (who was born in Dungalear in 1861)

Robert Nicholls (who was born in Collarenebri in 1842)

Frank Mundy (who was born in Collymongle in 1872)

Lena Combo (who was born in Mogil Mogil in 1876)

Jack Thunderbolt (who was born in Walgett in 1847)

Betsy Yates (also known as Polly Yates and Polly Burras) (who was born on the Barwon River circa 1860)

Jenny (who was born in Walgett circa 1840)

Dick Silk (who was born in Walgett)

Fred Parker (who was born in Gingie in 1864)

Murray Rook (who was born in Collarenebri in 1865)

Ethel Tinker (who was born in Mercadool circa 1878)

Emily McPherson (who was born in Collarenebri in 1892)

Billy Whitford (who was born in 1828)

King Robert Cobbler (who was born in Mogil Mogil in 1855)

Billy Wightman (who was born in Kunopia in 1813)

John McGrady (who was born in Moree in 1853)

William Dennison (who was born in Kunopia in 1843)

Charlie Dennison (who was born circa 1846-1866)

Alice Dennison (who was born in Moree circa 1863 -1873)

Lucy Long (who was born in Boomi circa 1850)

Minnie Lance (who was born in Boomi circa 1868), Harry Denham

Charles Cubby (who was born on the Boomi River)

Sarah Wilson (also known as Sarah Murphy and Sarah Witman) (who was born in Kunopia in 1868)

Reuben Bartman (who was born in Boomi in 1876)

Billy Dunn (who was born in Mungindi)

William Edwards (who was born in Thallon)

Queen Susan (who was born in Welltown)

Phoebe Munday-Williams (who was born in Mungindi in 1864)

George Bennett (who was born in Mungindi in 1873)

Amelia Bell (also known as Amelia Brown) (who was born in Bingara in 1862)

William Snow (who was born in Tamworth or Moonbi in 1855)

Francis Snow (who was born in Tamworth in 1858)

Matilda Wyndham (who was born in Bingara in 1842)

Thomas Duke (who was born in Bingara in 1847)

Teasie Griffen (also known as Jessie Griffen and Ellen Griffen) (who was born in Barraba in 1859)

Mary Anne Hammond (who was born in Tamworth in 1836)

Elizabeth Guest (also known as Eliza Gillan) (who was born in Liverpool Plains in 1840)

Jane Maloney (who was born in Walhallow in 1838)

Mary Ann Healy (who was born in Murrurundi in 1829)

Thomas Taylor (who was born in Coolah in 1836)

Elizabeth Loder (also known as Elizabeth Bates) (who was born in Murrurundi in 1843)

Sarah Gatehouse (who was born in Aberdeen in 1835)

William Duncomb (who was born in Muswellbrook circa 1830)

John Morris Tighe (who was born in 1852)

Susan Bishop-Young (also known as Susan Dangar) (who was born in Warialda)

Sarah Murphy (who was born in 1846)

Thomas French (who was born in Scone in 1825)

John Thomas Bates (who was born on the Mooki River in 1840)

Alexander Nean (who was born in Liverpool Plains in 1843)

David Johnson (who was born in Cassilis circa 1838-1844)

Mary Orr (also known as Nellie Orr) (who was born in Garrawilla in 1853)

Julia Campbell (who was born on the Castlereagh River circa 1833-1834)

Annie Jendis (who was born in Burbagate in 1845)

Harriet Munro (who was born in Gunnedah in 1867), Alice Eliza Natty (who was born on the Namoi River near Boggabri in 1857)

James Tighe (who was born in Coonabarabran in 1842)

William Tighe (who was born in Toorawandi in 1844)

Patrick Tighe (who was born in Coonabarabran in 1852)

Jane Tighe (who was born in 1864)

Mary Jane Griffin (also known as 'Old Ibidah')

Susan Slater (who was born in Coonabarabran in 1839)

Thomas Leslie (who was born in Kirban circa 1850-1854)

James Leslie (who was born in born Armatree in 1853)

Ellen Fuller (who was born in Rockgidgiel in 1854)

Sarah Hughes (who was born in Coonabarabran circa 1834-1859)

James Cole (who was born in NSW in 1845)

Mary Ann Hall (who was born on the Castlereagh River in 1840)

Samuel Bruce Smith (who was born in Tambar Springs circa 1860 ' 1863)

Elizabeth Ann Smith (who was born in Mullaley in 1866)

William Green (also known as William Edwards) (who was born in Kings Plains near Inverell in 1853)

Angus Landsborough (who was born in Newstead in 1867)

Patrick Landsborough (who was born in Newstead in 1872)

Alec Brown (who was born in Bundarra in 1873)

Margaret King (who was born in Gummin Gummin near Gulargambone circa 1854-1858)

William James King (who was born in Coonabarabran circa 1851-1853)

Florence May Blackman (also known as Louisa Florima Blackman) (who was born in Coonamble in 1846)

Euphemia Blackman (who was born on the Castlereagh River in 1851)

Henry Arthur Yates (who was born in Coonamble in 1860)

Betsy Yates (who was born in Wingadee in 1854)

Annie Day (who was born in Bullarora Station near Coonamble circa 1871-1876)

Army Toomey (who was born in Wingadee near Coonamble in 1886)

Maria Clare Hall (who was born in Gulargambone circa 1830-1833)

Thomas Carney (who was born in Tonderburine in 1852)

Jim Duncan (who was born in Coonamble in 1854)

Thomas Reid (who was born in Cuttabri in 1840)

Thomas John Blacklock (who was born in Terembone in 1851)

Thomas Dangar (who was born in Drilldool in 1857), Harry Doolan (who was born in Pilliga in 1855)

George Green (who was born in 1851)

Lucy Barr (who was born in Boggabri in 1851)

Peggy Reid (who was born in Cuttabri in 1836)

Julia Jane Saunders (who was born in Wee Waa in 1845)

William Newman (who was born in Cuttabri in 1807)

Emma Dingwell (who was born in Bograh Station near Narrabri in 1864)

Kate Purser (who was born in Narrabri in 1863)

Mary Ann Lucas (who was born in Millie in 1840)

Frank Maybury (who was born in Killarney Station near Narrabri circa 1840)

Charlotte Hagan (also known as Charlotte Keegan) (who was born in Narrabri circa 1850-1870)

Nellie Combo (who was born in Wallah Station near Narrabri in 1850)

Mary Peake (who was born in Narrabri in 1848)

Descendants include persons who are descendants by adoption according to traditional law and custom.

See further information attached and marked 'A'.

REGISTERED NATIVE TITLE RIGHTS AND INTERESTS:

The following Native Title Rights & Interests were entered on the Register on 20/01/2012

1. Where exclusive native title can be recognised (such as areas where there has been no prior extinguishment of native title or where s.238 and/or ss.47, 47A and 47B apply), the Gomeroi People as defined in Schedule A of this application, claim the right to possession, occupation, use and enjoyment of the lands and waters of the application area to the exclusion of all others subject to the valid laws of the Commonwealth and the State of New South Wales.

2. Where exclusive native title cannot be recognised, the Gomeroi People as defined in Schedule A of this application, claim the following non-exclusive rights and interests including the right to conduct activities necessary to give effect to them

(a) the right to access the application area;

(b) the right to use and enjoy the application area;

(c) the right to move about the application area;

(d) the right to camp on the application area;

(e) the right to erect shelters and other structures on the application area;

(f) the right to live being to enter and remain on the application area;

(g) the right to hold meetings on the application area;

(h) the right to hunt on the application area;

(i) the right to fish in the application area;

(j) the right to have access to and use the natural water resources of the application area;

(k) the right to gather and use the natural resources of the application area (including food, medicinal plants, timber, tubers, charcoal, wax, stone, ochre and resin as well as materials for fabricating tools, hunting implements, making artwork and musical instruments);

(m) the right to share and exchange resources derived from the land and waters within the application area;

(n) the right to participate in cultural and spiritual activities on the application area;

(o) the right to maintain and protect places of importance under traditional laws, customs and practices in the application area;

(p) the right to conduct ceremonies and rituals on the application area;

(q) the right to transmit traditional knowledge to members of the native title claim group including knowledge of particular sites on the application area;

3. The native title rights and interests referred to in paragraph 2 do not confer possession, occupation, use or enjoyment of the lands and waters of the application area to the exclusion of all others.

4. The native title rights and interests are subject to and exercisable in accordance with:

(a) the laws of the State of New South Wales and the Commonwealth of Australia including the common law;

(b) the rights (past or present) conferred upon persons pursuant to the laws of the Commonwealth and the laws of the State of New South Wales; and

(c) the traditional laws and customs of the Gomeroi People for personal, domestic and communal purposes (including social, cultural, religious, spiritual and ceremonial purposes).

REGISTER ATTACHMENTS:

1. NC2011_006 External boundary description, 5 pages - A4, 20/12/2011
2. NC2011_006 Map of the area covered by the application, 1 page - A4, 20/12/2011

Note: The Register of Native Title Claims may, in accordance with section 188 of the Native Title Act 1993 (Cth), contain confidential information that will not appear on the Extract.

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Feb-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	8
Listed Threatened Species:	34
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	900 - 1000km upstream from Ramsar site	In feature area
Riverland	900 - 1000km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1100 - 1200km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area	In feature area
Mount Kaputar land snail and slug community	Endangered	Community likely to occur within area	In feature area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area	In feature area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community may occur within area	In buffer area only
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area

Community Name	Threatened Category	Presence Text	Buffer Status
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
[Maccullochella peelii](#)			
Murray Cod [66633]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			
[Chalinolobus dwyeri](#)			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
[Nyctophilus corbeni](#)			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Petauroides volans](#)			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In buffer area only
[Petrogale penicillata](#)			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
[Pteropus poliocephalus](#)			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
[Androcalva procumbens](#)			
[87153]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat known to occur within area	In feature area
Callistemon pungens [55581]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Homopholis belsonii Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium aschersonii Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat likely to occur within area	In feature area
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anomalopus mackayi			
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In feature area
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
Uvidicolus sphyrurus			
Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat known to occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca			
Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat likely to occur within area	In buffer area only
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris acuminata](#)			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
[Calidris ferruginea](#)			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Calidris melanotos](#)			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#)			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [13296]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Corporation [13295]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
[Actitis hypoleucos](#)			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Apus pacificus](#)			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat known to occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Leard	CCA Zone 3 State Conservation Area	NSW	In buffer area only
Mount Kaputar	National Park	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Maules Creek Coal Project	2010/5566	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Namoi	Northern Inland Catchments	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Preliminary Visual Impact Assessment

Appendix C

pitt&sherry

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24 February 2023	Attention: Adam Bishop, Pitt & Sherry From: Stacey Brodbeck, Envisage Consulting
Ref: 20623 REV02	**Proposed Maules Creek Solar Farm, Landscape and Visual Impact Assessment** **Preliminary Assessment Stage**

Introduction

Envisage Consulting Pty Ltd prepared this preliminary visual assessment for the proposed Maules Creek Solar Farm for Pitt & Sherry Pty Ltd, on behalf of FRV Services Australia Pty Ltd (the 'proponent').

The preliminary assessment responds to requirements of the *Large-scale Solar Energy Guideline* (DPE, 2022) and the *Technical Supplement - Landscape and Visual Impact Assessment* (DPE, 2022). Its primary purpose is to identify viewpoints that could be visually impacted by the Project and those that will require a more 'detailed assessment' in the Environmental Impact Statement (EIS) phase.

Preliminary assessment methodology

The *Technical Supplement's* steps to be undertaken for the preliminary assessment are:

- to identify viewpoints from public roads and rail lines within 2.5km of the project
- to identify other public and private viewpoints within 4 km of the project
- to measure the distance of the viewpoints to the proposed development footprint
- to determine the 'relative height difference'[1] between the project and each viewpoint
- to plot the 'vertical field of view'[2] for each viewpoint
- to measure the 'horizontal field of view'[3] of the development footprint at each viewpoint
- to determine whether detailed assessment is required using the *Technical Supplement* matrix.

Identification of viewpoints

Receivers within 4 km of the project (e.g. residents and public facilities), and possible public viewpoints from roads or rail within a 2.5 km viewshed, are identified in Figure 1. Some other receivers beyond 4km are also indicated for context.

22 receivers (21 residences and one community hall), and parts of five local public roads were identified.

Viewpoints with no 'theoretical' view

A viewshed of the proposed project (based on an approximate height of 5 metres (m) for the solar panels, extending to the Project boundary), was used to eliminate receivers with no potential views of the Project. The Project's 'theoretical' viewshed is shown in yellow in Figure 1. It was produced via geographic information systems (GIS) which account for landform and possible line of sight to the Project. It is 'theoretical' as it is based on 'bare earth' terrain and does not account for intervening elements such as vegetation or buildings which could obstruct views.

[1] 'Relative height difference' is calculated based on Figure 3 of the *Technical Supplement* and determined by measuring the total project elevation (highest point to lowest point) relative to the viewpoint elevation.
[2] 'Vertical field of view' is calculated based on Figure 2 of the *Technical Supplement* and reflects the visual height of the project relative to the viewpoint.
[3] 'Horizontal field of view' is a measurement of degrees and reflects the visual width of the project relative to the viewpoint.

One viewpoint (receiver R16) was eliminated through applying the viewshed.

Application of the Preliminary Assessment Tool (PAT)

The PAT is based on the vertical and horizontal field of view that a development is likely to occupy when viewed from each viewpoint, and is influenced by distance, height elevation changes and width of a project.

The results of the PAT for the Project are shown in **Attachment A**, **Table 1**, based on the following required steps:

- Calculating the distance of each receiver (VP) from the nearest point of the Project
- Determining the 'relative height difference' between the Project and each receiver
- Plotting each receiver on the PAT Graph – based on distance and relative height difference (from above) to determine the Vertical Field of View (as either 1, 2, 3 or 4+ degrees) (graph results provided in **Attachment A**, **Figure 2**)
- Measuring the worst-case horizontal field of view of the Project from each receiver (note this does not allow for the elimination of Project areas obstructed by landform and/or vegetation)
- Comparing the vertical and horizontal fields of view (using the matrix in Table 1 of Guidelines) to determine which receivers are to be assessed in the next stage (i.e. detailed visual assessment for EIS).

Results - viewpoints requiring a detailed assessment

Based on the PAT, the following viewpoints require a detailed assessment:

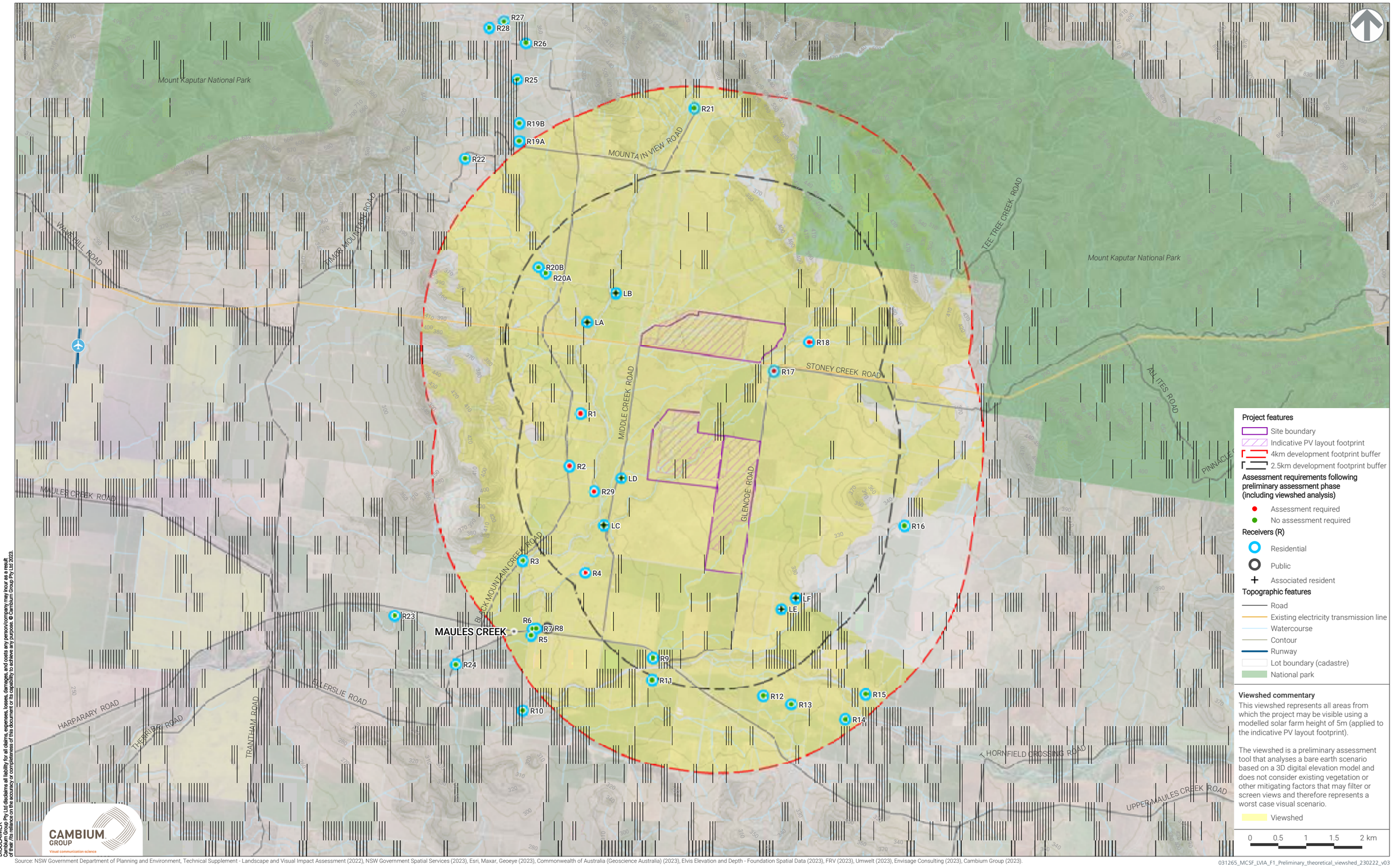
- Six private residences within 4km – being Receivers R1, R2, R4, R17, R18 and R29 (refer **Figure 1**)
- Viewpoints along parts of five local roads within 2.5km – being parts of Glencoe Road, Black Mountain Creek Road, Harparary Road, Stoney Creek Road and Middle Creek Road (representative viewpoints would be determined during field investigations).

Next stage - detailed Landscape and Visual Impact Assessment

A detailed Landscape and Visual Impact Assessment (LVIA) will be prepared as part of the EIS process, to assess the visual impacts on the viewpoints identified in the preliminary assessment.

Figure 1

Preliminary theoretical viewshed



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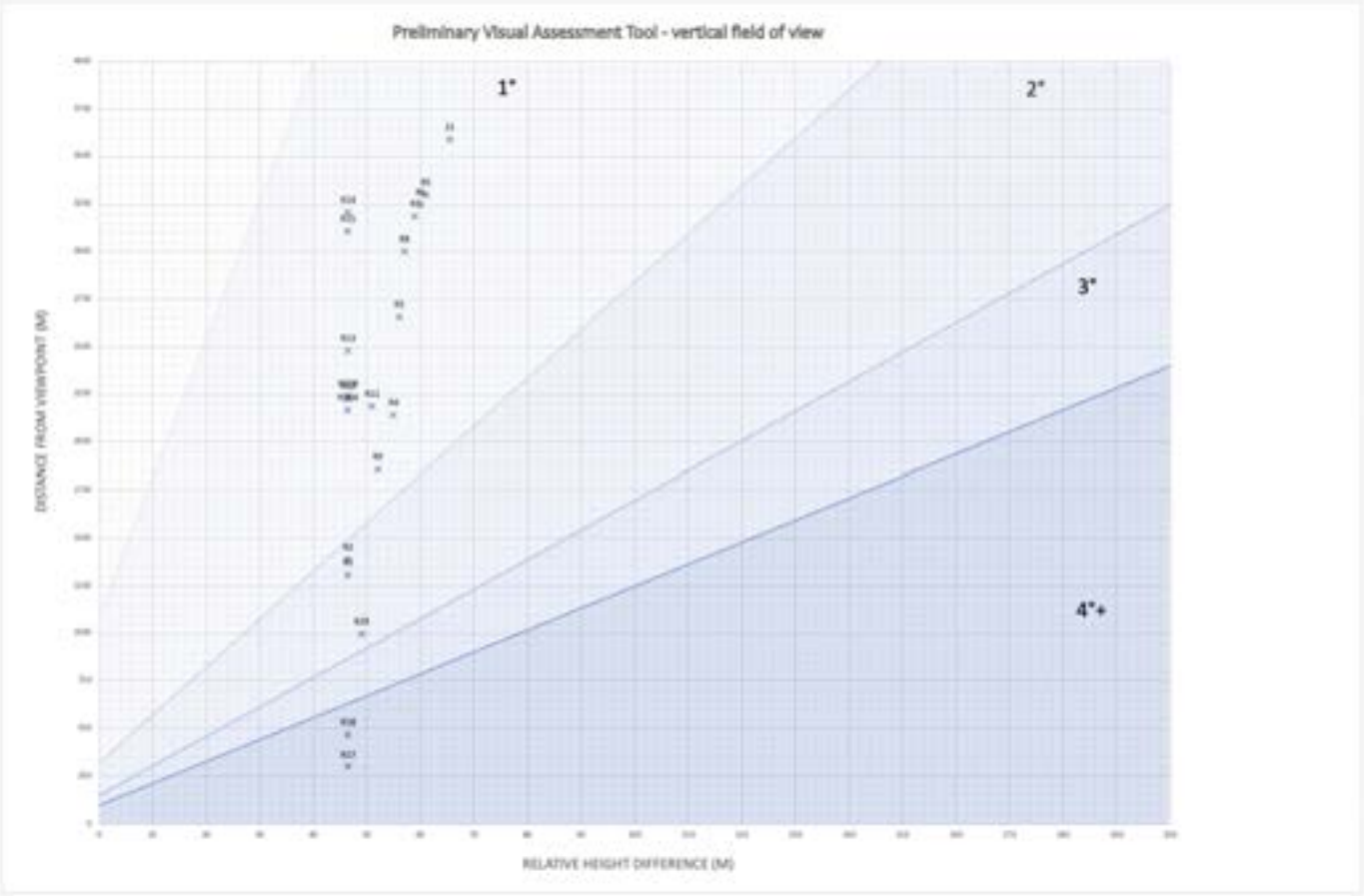
Source: NSW Government Department of Planning and Environment, Technical Supplement - Landscape and Visual Impact Assessment (2022), NSW Government Spatial Services (2023), Esri, Maxar, Geoeye (2023), Commonwealth of Australia (Geoscience Australia) (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), FRV (2023), Umwelt (2023), Envisage Consulting (2023), Cambium Group (2023).

Table 1 - Preliminary assessment of receivers within 4km

Receiver No.	Type of viewpoint	Distance from Project (m)	Viewpoint height (m) - obtained from spatial data contours	Final height of VP (ground height + standard height of viewer)	Relative Height Difference (m)	Vertical field of view (sector as per PAT FoV graph)	Horizontal field of view (degrees)	Is detailed visual assessment required (yes (Y)/no (N)?
R1	Residential	1310	303	304.5	46.5	2	105	Y
R2	Residential	1390	301	302.5	46.5	2	100	Y
R3	Residential	2660	286	287.5	56	1	50	N
R4	Residential	2140	287	288.5	55	1	75	Y
R5	Residential	3300	281	282.5	61	1	52	N
R6	Residential	3250	282	283.5	60	1	52	N
R7	Residential	3190	283	284.5	59	1	55	N
R8	Public facility (community hall)	3000	285	286.5	57	1	57	N
R9	Residential	1860	290	291.5	52	1	50	N
R10	Residential	4120	283	284.5	59	1	40	N
R11	Residential	2190	291	292.5	51	1	42	N
R12	Residential	2230	301	302.5	46.5	1	30	N
R13	Residential	2480	300	301.5	46.5	1	32	N
R14	Residential	3210	308	309.5	46.5	1	33	N
R15	Residential	3100	307	308.5	46.5	1	37	N
R16	Residential	no visibility of Project site						N
R17	Residential	300	327	328.5	46.5	4	186	Y
R18	Residential	470	341	342.5	46.5	4	130	Y
R19A	Residential	4090	337	338.5	46.5	1	38	N
R20A	Residential	2170	315	316.5	46.5	1	62	N
R20B	Residential	2240	316	317.5	46.5	1	50	N
R29	Residential	1000	293	294.5	49	2	82	Y
				1.5	342			
				1.5	342			

Figure 2: Matrix combining vertical and horizontal field of view (derived from Figure 2 of *Technical Supplement* of the *Guidelines*)



Scoping Social Impact Assessment

Appendix D

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SIA Scoping Report

Maules Creek Solar Farm and Battery Energy Storage System

Prepared for
FRV Australia

Client representative
Rob Beckett

Date
22 August 2023

Rev00

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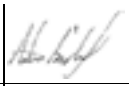
Prepared by — Anna Butler |  | **Date — 22/08/2023**

Reviewed by — Adam Bishop		**Date — 22/08/2023**
Authorised by — Adam Bishop		**Date — 22/08/2023**

Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft to client	AGB	AB	AB	15/03/2023
00	Final	AGB	AB	AB	22/08/2023

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1. Introduction

Fotowatio Renewable Ventures Services Australia Pty Ltd (FRV) propose to construct a large-scale hybrid solar photovoltaic (PV) generation and storage facility (the Project) at Maules Creek, approximately 45 kilometres (km) southeast of Narrabri, in the Narrabri Shire Local Government Area (LGA).

1.1 Purpose

The purpose of this Social Impact Assessment (SIA) is to identify, predict, and evaluate the likely impacts of the proposed development and provide appropriate responses to mitigate and manage negative impacts and enhance positive impacts.

1.2 Project Overview

The Project will include an approximately 120 megawatt (MW) solar farm, a Battery Energy Storage System (BESS) of approximately 120MW/240 megawatt hours (MWh), and an electrical substation.

The Project will supply electricity to the grid via connection to a 132 kilovolt (kV) transmission line which crosses the northern land parcel of the Site. The Project will generate up to 195,000MWh of renewable energy, enough to supply approximately 35,000 homes and reduce carbon emissions by approximately 154,000 tonnes (t) carbon dioxide equivalent (CO_2-e) (DCCEEW, 2022). A concept layout of the Project is shown in Figure 1.

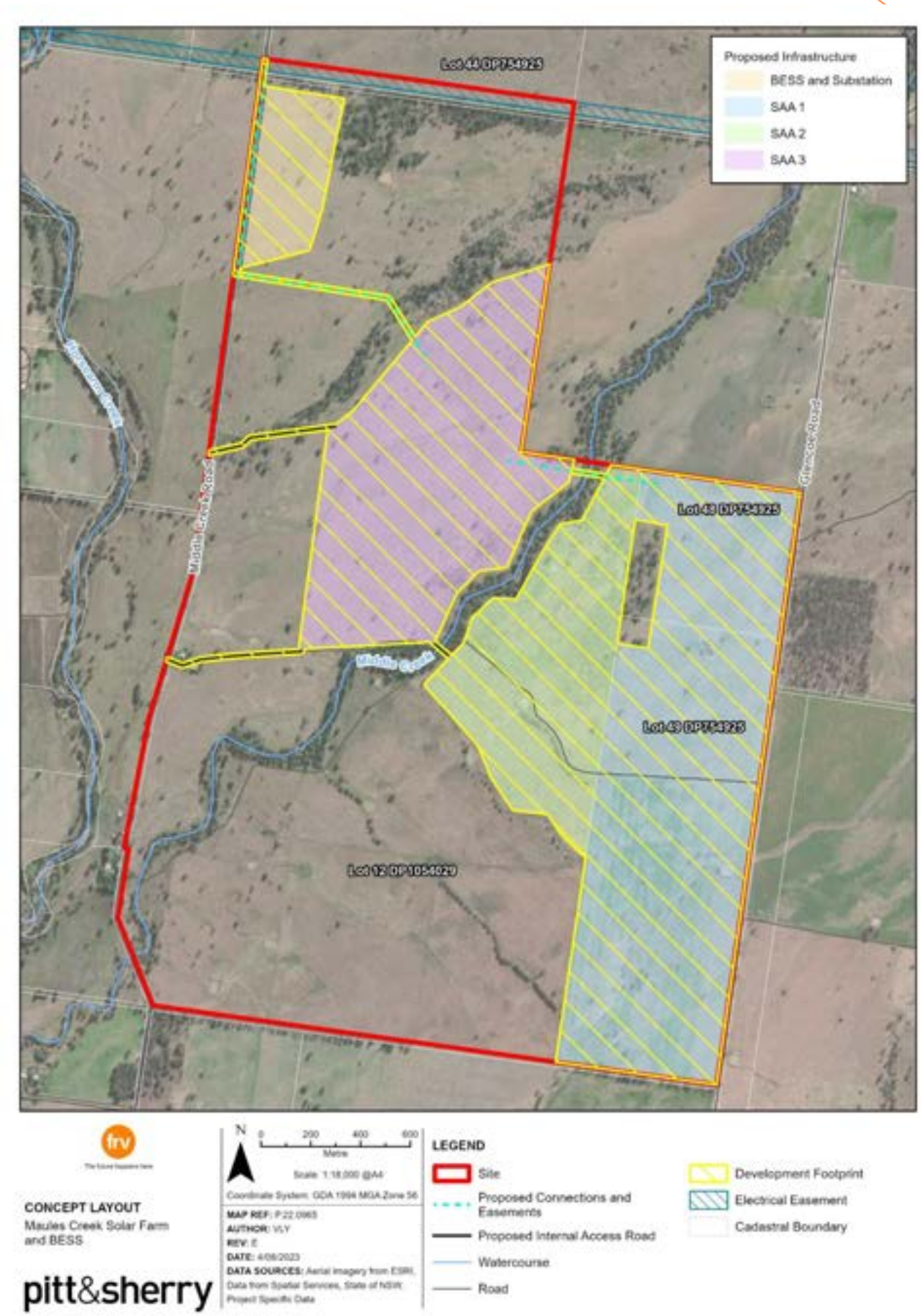

Figure 1 Concept Project layout

2. Methodology

2.1 Social Locality and Baseline

The social locality of a development is identified through consideration of a development's nature and potential impacts and can be considered to be its area of social influence. The social locality for a specific development is identified by analysing its scale and nature; who may be affected; if vulnerable or marginalised people could be affected; if any nearby built or natural features could be affected; any relevant social, cultural, and demographic trends in the area; and the history of the area in which the development is proposed.

The social baseline provides an understanding of existing social conditions within the social locality, establishing a base case against which potential impacts can be assessed. To identify the proposed development's social locality and to establish the baseline, the following information was taken into consideration:

- Development description and proposed transportation routes during construction and operation of the solar farm;
- Publicly available data from the ABS, NSW Government and Narrabri Shire Council; and
- Community consultation reports.

2.2 Scoping Impacts

To scope the potential social impacts, research was undertaken on previous renewable energy developments to understand the possible implications, concerns, and benefits to communities with these findings applied to the local subject community. In addition, community consultation was undertaken to identify perceived social impacts to the surrounding community. This built on the social impact scoping and involved a further review of relevant information including relevant EIS technical reports and stakeholder and community engagement findings. An assessment was then carried out to determine the likely significance of each potential impact based on its predicted magnitude and likelihood.

Therefore, this SIA includes desktop searches, and consideration of the local community sentiment, knowledge, and experiences towards renewable energy projects.

Using the *Social Impact Assessment Guideline for State Significant Projects* (DPE, 2023a) (SIA Guideline) and the *Social Impact Assessment Guideline for State Significant Projects – Technical Supplement* (DPE, 2023b) (SIA Technical Supplement), social impacts and opportunities are categorised into the following themes:

- Way of life – including how people live, work, get around, play, and interact each day;
- Community – including composition, cohesion, character, how a community functions, resilience, and sense of place;
- Accessibility – including infrastructure, services and how facilities are accessed and used;
- Culture – both Aboriginal and non-Aboriginal, including shared beliefs, customs, practices, obligations, values and stories, and connections to Country, land, waterways, places, and buildings;
- Health and wellbeing – including physical and mental health, especially those vulnerable to social exclusion or substantial change, psychological stress resulting from financial or other pressures, access to open space and effects on public health;
- Surroundings including ecosystem services such as shade, air quality, noise, public safety and security, access to and use of the natural and built environment, and aesthetic value and amenity; Livelihoods – including people's capacity to sustain themselves through employment; and
- Decision-making systems – including the extent to which people can have a say in decisions that affect their lives, and have access to complaint, remedy, and grievance mechanisms.

The potential impacts associated with the proposed development were scoped in accordance with these categories and

are identified in Section 6.

2.3 Impact Assessment

Once identified, the potential impacts were assessed to determine the level of significance, by evaluation in accordance with the likelihood levels (Table 1), magnitude levels (Table 2), and social impact significance matrix (Table 3).

Table 1 Likelihood levels of social impacts

Likelihood level	Meaning
Almost certain	Definite or almost definitely expected (e.g. has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Table 2 Magnitude level for social impacts

Magnitude level	Meaning
Transformational	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the locality.

Table 3 Social Impact significance matrix

		Magnitude level				
		Minimal	**Minor**	**Moderate**	**Major**	**Transformational**
Likelihood	**Almost certain**	Low	Medium	High	Very High	Very High
	Likely	Low	Medium	High	High	Very High
	Possible	Low	Medium	Medium	High	High
	Unlikely	Low	Low	Medium	Medium	High
	Very Unlikely	Low	Low	Low	Medium	Medium

The level of assessment required for each identified social impact determines the extent of effort and data required for the SIA. Using the Scoping Worksheet (DPE, 2023c), the level assessment for each impact, will fall into one of four categories:

- **Detailed** – The project may result in significant social impacts, including cumulative effects
- **Standard** – The project is unlikely to result in significant social impacts, including cumulative impacts
- **Minor** – The project may result in minor social impacts
- **Not relevant** – The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration.

3. Social Locality

The Project's social locality has been defined within the local and regional context as the following:

- Associated landholders and residents situated on or adjacent to the Project who have a vested interest in the Project (refer to Figure 3);
- The 'Suburbs and Localities', as per the Australian Bureau of Statistics (ABS) data category, of Maules Creek, Boggabri, and Narrabri; and
- The Narrabri Shire Local Government Area (LGA) (refer to Figure 3).

During subsequent stages of the Project, the localities may change to either include additional areas of influence, or contract, to remove areas that will experience no appreciable social impact from the Project.

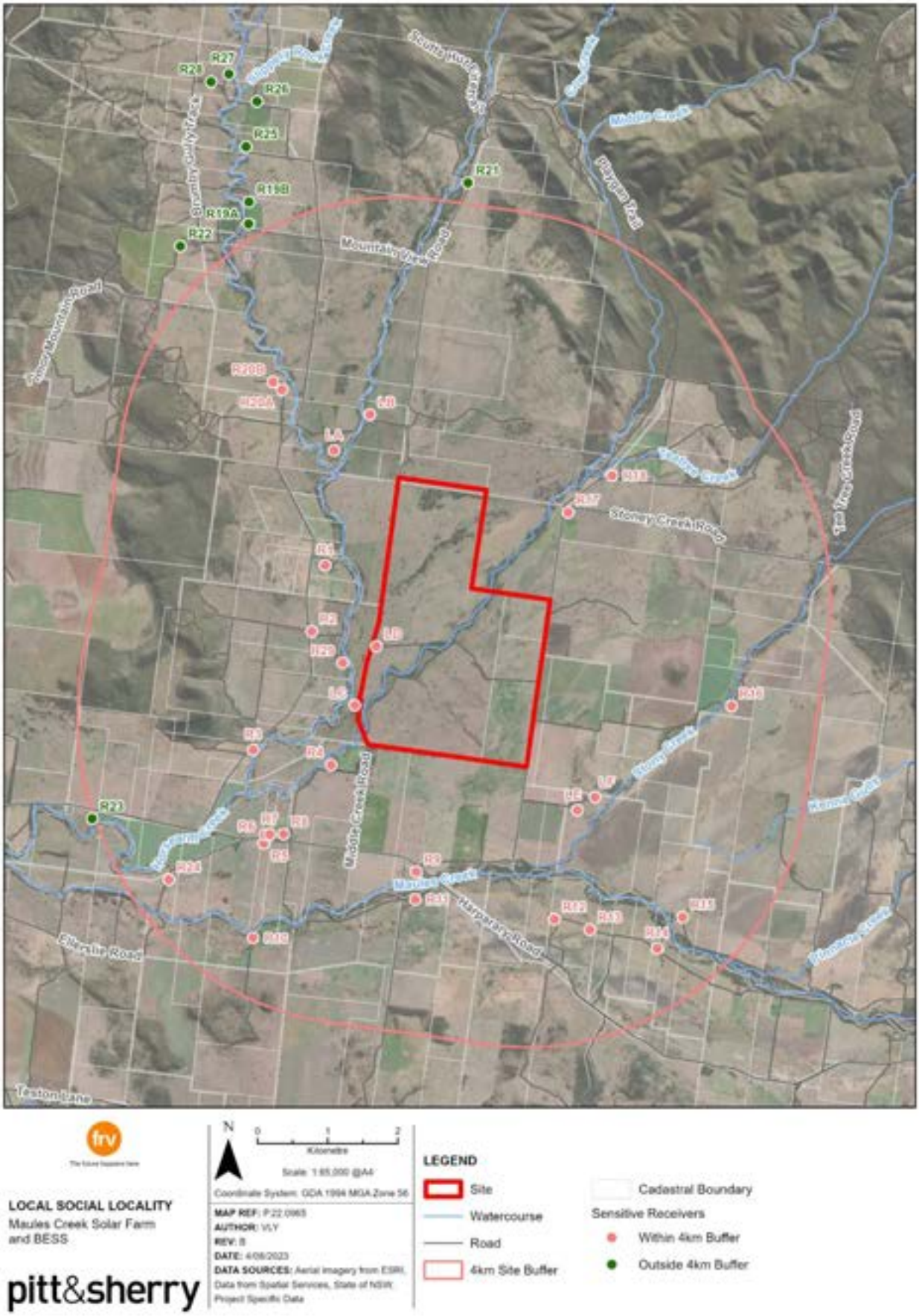

Figure 2 Local Social Locality

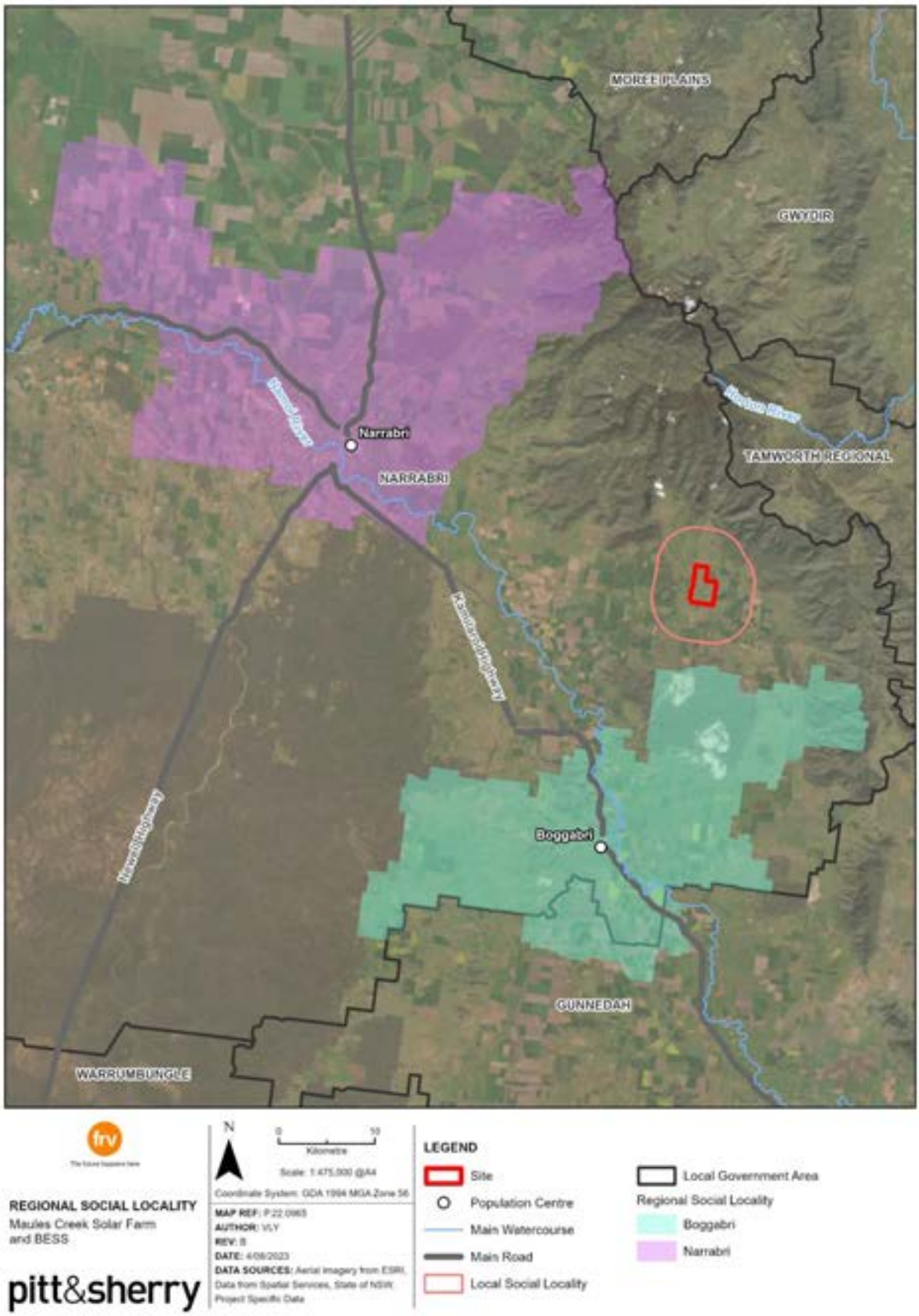

Figure 3 Regional Social Locality

4. Social Baseline

The social baseline describes the social context of the site. Data used below was sourced from the 2021 Census where available, or the 2016 Census where data was not published at the time of reporting.

4.1 Local and Regional Context

New England North West Regional Plan 2036 (NENWRP)

The New England North West Regional Plan (NENWRP) seeks to establish the area as a leader in renewable energy. The region has the second highest solar penetration in NSW, receiving 19 to 20 megajoules daily of solar exposure. Particularly relevant to the Project is Direction 5 – Grow New England North West as the renewable energy hub of NSW and Action 5.2:

'Facilitate appropriate smaller-scale renewable energy projects using biowaste, solar, wind, hydro, geothermal or other innovative storage technologies.'

Narrabri Shire 2040 Local Strategic Planning Statement (NLSPS)

The Narrabri Shire 2040 Local Strategic Planning Statement (NLSPS) notes the area's high potential for renewable energy projects, largely due to the area being the second highest solar penetration region in NSW. Specifically, it states that council will:

'Encourage and facilitate development of solar farms and EV charging sites in identified areas.'

4.2 Other Major Projects in the Region

Surrounding developments that may interact with the Project are shown in Figure 4 and summarised in Table 4.

Table 4 Surrounding developments

Project Name (Reference)	Description	Status	Proximity
Maules Creek Coal Mine – Modification (MP10_0138-Mod-9)	Inclusion of electricity transmission line	Operational – Modification	15km S
Tarrawonga Coal Mine – Modification (MP11_0047)	Extension of operations and replacement of road with rail transport	Operational – Modification	20km S
Narrabri Coal Mine – Stage 3 Extension (SSD-10269)	Extension of underground operations	Operational – Modification	25km SW
Narrabri South Solar Farm – Modification (SSD-8387-Mod-1)	Realignment of grid connection and incorporation of BESS	Proposed – Prepare Mod Report	26km W
Silverleaf Solar Farm (SSD9358)	Development of a 120MW solar farm and associated infrastructure	Proposed – Approved	40km NW
Inland Rail – Narrabri to North Star Phase 1 (SSI-10054) (not shown on map)	Construct 170km rail track between Narrabri and North Star.	Proposed – Approved	40km NW
Inland Rail – Narrabri to North Star Phase 2 (SSI-10054) (not shown on map)	Upgrade approx.15km of existing rail line between Narrabri to North Star.	Proposed – Response to Submissions	40km NW

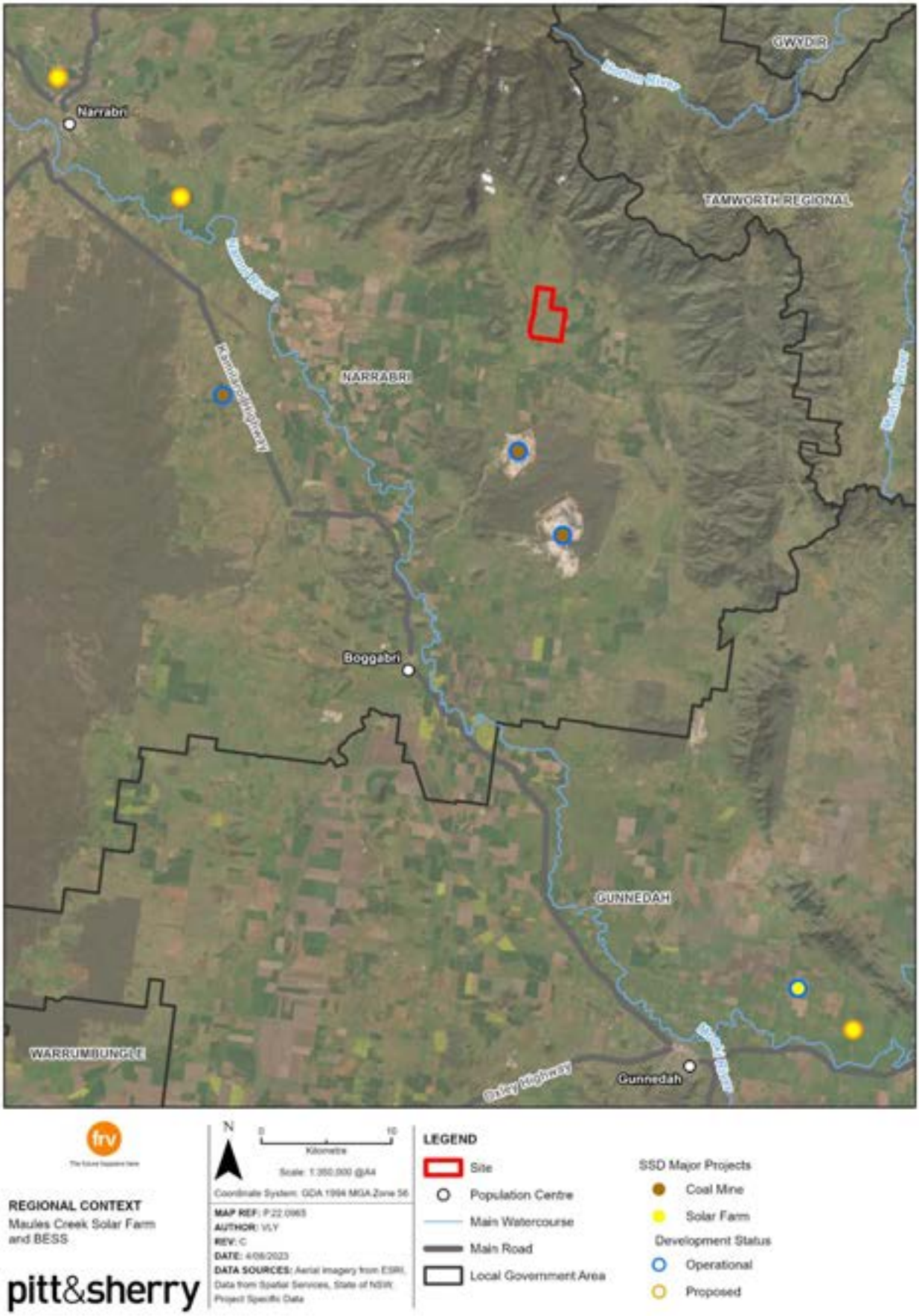

Figure 4 Surrounding Major Projects – proposed and operational

4.3 Population and demography

4.3.1 Population

Maules Creek is a small rural community located in the Narrabri Shire LGA of New South Wales, Australia. The 2021 Census for Maules Creek (ABS, 2021a) lists the population at 87 people, with a median age of 45 years old. The most populous age group is 5-14 and 45-54 years (17 each), followed by 65-74 years (14), and then 55-64 years (13). Aboriginal persons make up 3.4% of the population of Maules Creek, which is comparable to the NSW figure of 3.2%.

The population of Narrabri during the 2021 Census (ABS, 2021b) was 7,327, with a median age of 39 years old, and the most populous age groups are 5-14 years (1,051), followed by 55-64 years (1,007), and 25-34 years (970). Aboriginal and/or Torres Strait Islander persons make up 15.3% of the population of Narrabri, significantly higher than the NSW figure of 3.2%, and the Australian figure of 2.8%.

The population of Boggabri during the 2021 Census (ABS, 2021c) was 1,203, with a median age of 43 years old. The most populous age groups are 50-54 years (7%), 55-56 years (6.9%), and 20-24 years (6.8%). Aboriginal and/or Torres Strait Islander persons make up 12.1% of the population of Boggabri.

The percentage of males to females was higher across Maules Creek than compared to the NSW average, with 57.4% of the population being male and 42.5% being female. The distribution for Narrabri was similar the NSW distribution, with 50.5% of the population identifying as female and 49.5% identifying as male, while Boggabri was evenly distributed 50% male and 50% female. The majority of Maules Creek residents were born in Australia (86.2%), with other birthplaces not stated. Similarly, 86.2% of the population of Narrabri, and 81.9% of Boggabri was born in Australia, with the next most represented countries being the Philippines (0.7%), England (0.6%), and New Zealand (0.5%) for Narrabri, and New Zealand (0.9%), England (0.7%), and Fiji (0.4%) being the next most represented countries of birth for Boggabri.

4.3.2 Employment

Unemployment in Maules Creek for the 2016 Census was 5.6%, lower than the then NSW average of 6.3% Agriculture, forestry, and fishing is the primary industry of employment for Maules Creek, employing 34.4% of the labour force (persons over 15 years), with Mining and Health Care and Social Assistance each employing 13.1% of the labour force. The median weekly household income is $1,624, which is lower than the NSW median weekly income of $1,829.

Narrabri has an unemployment rate of 3.7%, lower than the NSW rate of 4.9%, with a majority of persons (63.6%) employed on a full-time basis. Health Care and Social Assistance was the main industry of employment (12.4%), following by Agriculture, Forestry, and Fishing (10.2%), and Retail Trade (8.9%). Mining, and Education and Training each employed 8.1% of the workforce of Narrabri. The median weekly household income in Narrabri is $1,590.

Mining was the highest industry of employment for Boggabri (21.6%), followed by Agriculture, Forestry and Fishing (16.7%), and health Care and Social Services (7.2%). The median weekly income for Boggabri is $1,506. Unemployment in Boggabri is 5.3%, higher than the NSW rate of 4.9% and the Australian rate of 5.1%.

4.3.3 Education

From the 2016 Census, 21.% of the Maules Creek population have a bachelor's degree or higher, slightly below the NSW rate of 23.4%. For post-secondary education, Maules Creek had a higher level of attainment of certificates (19.7%) compared to NSW 15.7% (ABS, 2016).

At the 2021 Census, 21% of the population of Narrabri listed a certificate as their highest level of education, compared to 15.1% for the rest of NSW. The next highest levels of educational attainment for Narrabri was completion on Year 10 (17.9%), and completion of a bachelor's degree or higher (12.4%) (ABS, 2021b).

Post-secondary Certificate training was the highest level of educational attainment for 19.7% of the population of Boggabri, while 18.9% listed completion of Yeah 10, and 14.9% listed Year 9 or below as their highest educational attainment. These last two values are significantly higher than the NSW values of 10.6% and 7.4% respectively.

4.3.4 Health

In the 2021 Census, 32.2% of residents of Maules Creek reported having one or more long term health conditions, higher than the NSW rate of 27%. The most commonly reported long term health conditions were asthma (18.4%), arthritis (8.0%), and lung conditions (6.9%).

In Narrabri, 32.4% of residents reported having one or more long term health conditions, higher than the NSW rate of 27%. The most commonly reported long term health conditions were asthma (10.6%), arthritis (10.3%), and mental heal condition (including depression or anxiety) (6.8%).

One of more long-term health conditions were reported by 33.5% of the population of Boggabri, compared to 27% for NSW and 27.7% for Australia. The most prevalent long-term health conditions were Asthma(12.6%), Arthritis (12.0%, and mental health condition (including depression or anxiety) (9.2%). All of these figures are higher than the respective NSW and Australia values.

4.3.5 Housing and accommodation

Of the occupied dwellings in Maules Creek, 34.5% were owned outright, while 23.1% were owned with a mortgage. In Narrabri, 32.8% of dwellings were owned outright, with 31.4% owned with a mortgage. Rented dwellings accounted for 31.5% of housing in Narrabri, with a median weekly rent of $260. Outright home ownership in Boggabri is 37.2%, with 24.4% owning their home with a mortgage. Rented properties account for 28.3% of housing in Boggabri, with median weekly rent of $300. The median monthly mortgage repayments for Maules Creek was $1,279, while the median mortgage repayment in Narrabri was slightly higher at $1,448, and the median monthly mortgage repayments in Boggabri being $1,200, all lower than the NSW median of $2,167.

There are two large-scale accommodation centres in the area, primarily servicing the mining industry. One in Narrabri has approximately 500 person capacity, while in Boggabri, the capacity is approximately 600. Each of these would be explored as potential workforce accommodation options in further detail during the preparation of the EIS.

5. Community and Stakeholder Consultation

In discussions with Council in late 2022, positive sentiment and general support of the project was expressed. FRV committed to engaging neighbours again before submitting the scoping report. Early interests expressed at this stage included visual impacts, house prices, and potential traffic impacts.

Coal mining plays a large role in the local economy/community, with the Maules Creek Mine (Whitehaven) 15km south of the Project site. There is also the Narrabri Mine (Whitehaven), Tarrawonga Coal Mine (Whitehaven) and Narrabri Gas (Santos) within the region.

There are a number of projects at different stages in the region, so the local community and stakeholders will likely have an existing understanding of the benefits and impacts of solar farm development in the region. Some community members may will be more interested in the cumulative impact of renewable energy development changing the industry and local identity of the region. Table 5 summarises some of the engagement activities undertaken for the Project during the scoping phase.

Table 5 Summary engagement undertaken to date

Method	Stakeholder	Purpose	Outcome
Phone call	4 Sensitive receivers	To understand the stakeholder's preferred method of receiving information	All stakeholders provided a response to their preferred method and any specific needs. Three provided unsolicited feedback on their concerns with the project such as devalues land value; visual impact; fire hazard and increases temperature. Three expressed anti solar views on prime agricultural land.
Letter Email	4 Sensitive receivers 1 Sensitive receiver	Introduce project proposal for a new Maules Creek solar farm & battery energy storage system to Sensitive receivers	Impacted neighbour's awareness of proposal for a new MCSF and BESS, Scoping & Development, impacts, engagement opportunities and benefits. FRV conducted further engagement with impacted landowners. Visual Impact Assessment (VIA) underway. One local expressed negative sentiment towards VIA officer near site.
DL Postcard	35 nearby neighbours, groups, and agencies	To inform and direct receivers to the Maules Creek Project website for clear, detailed information. To inform on email and project phone details to provide feedback.	
Website	Primary stakeholders	Central location for community and stakeholders to find information and contact details to provide feedback or seek further information.	Interested community making contact to ask about things that are important to them.

6. Preliminary Impact Assessment

A preliminary set of potential impacts and benefits of the Project has been identified based on the scoping assessment, including the outcomes of desktop investigations and community and stakeholder engagement.

The purpose of identifying potential impacts and benefits at this preliminary stage is to ensure that in the preparation of the EIS, the social impacts and concerns raised by community and stakeholders are adequately addressed, in particular, those indicated of being high concern.

Potential impacts and their recommended level of assessment are summarised Table 6.

Table 6 Preliminary Assessment of Impacts

Impact Category	Description	Positive / Negative	Initial mitigation measures	Level of Assessment
Access	Construction vehicle access may require upgrade of local roads to a higher safety standard, benefitting local users	Positive	• Establish and communicate a Community Benefit Strategy for the Project, including specific information regarding traffic impacts and potential road safety upgrades	Minor
	Influx of temporary construction workers moving to the area could restrict the availability of housing and accommodation as well as lead to an increase in rental housing prices. An influx of construction workers may also constrain the availability of accommodation for tourism or seasonal workers.	Negative	• Develop a workforce accommodation strategy	Detailed
Community	Shift from agricultural land use and mining to renewable energy generation could cause a change in the sense of place and way of life among the community	Negative	• Dual land-use for site including sheep grazing. • Communicate information and research on combined agriculture and solar farmland uses • Conduct open and transparent community consultation, including providing opportunity for further Project input in the SIA and broader EIS	Minor
	Community benefit scheme and Project investment increasing social cohesion and resilience	Positive	• Establish and communicate a Community Benefit Strategy for the Project	Standard
Surroundings	Increase in temperature of area	Negative	• Include information about solar panel temperatures, reflectivity, shading properties etc. in Project communications and FAQ.	Minor
	Reduced capacity to conduct bushfire prevention actions, including controlled burns, due to presence of Project infrastructure	Negative	• Conduct transparent community consultation with concerned community members to better understand fire risk and identify appropriate management strategies	Minor
	Impacts to visual amenity	Negative	• Complete a Landscape and Visual Impact Assessment to determine impacts and develop suitable mitigation measures in consultation with affected receivers. • Refine Project as far as practicable to reduce visual impacts experienced by neighbours.	Detailed
	Adverse noise impacts for landowners and adjacent neighbours, as well as those along construction access routes, particularly Harparary Road	Negative	• Complete Noise Assessment to analyse noise impacts during construction and operation • Refine Project design and develop mitigation strategies to minimise operational noise impacts	Detailed

	Use of prime agricultural land for solar panels	Negative	• Investigate dual land use for site including ongoing agricultural uses, including sheep grazing	Minor
Way of Life	Impacts during construction on the ability of surrounding residents to move freely to/from/across their land due to increased construction vehicle movements along access roads - Glencoe Road, Middle Creek Road, Harparary Road	Negative	• Complete a Traffic Impact Assessment to assess potential impacts on road quality, safety, and access. • Communicate openly with the community and potentially affected	Minor
Livelihoods	Potential reduction in property values	Negative	• To be assessed during preparation of the EIS	Standard
	Potential biosecurity and weed spread to surrounding farms due to construction vehicle movements during construction	Negative	• Engage with landowners and neighbours to develop and implement Site Biosecurity Access Protocol for all construction vehicles and personnel	Standard
	Increased employment opportunities for local and regional workforce, particularly during construction phase.	Positive	• Develop a Local Employment and Procurement Strategy to ensure Project benefits are experienced in the local area	Detailed
	Increased resilience of local economy through diversification of economic inputs, both direct and indirect (landowner lease agreements, local procurement, ongoing services related to operations)	Positive	• Partner with local employment and training providers to implement mechanisms such as training programs, scholarships, apprenticeship programs and/or local employment schemes to drive the development of renewable energy expertise/skills in the region	Detailed
Culture	Potential for impacts to unidentified Aboriginal heritage items or sites	Negative	• Complete an Aboriginal Cultural Heritage Assessment, with active participation from Registered Aboriginal Parties	Detailed
Decision-making Systems	Perceived lack of knowledge and inclusion in the planning, assessment, and consultation process of the Project.	Negative	• Provide transparent communication of Project details and timelines, including FAQ documentation • Conduct open and transparent community consultation, including providing opportunity for further input in the SIA and EIS assessment phase	Standard
Health and Wellbeing	Stress and anxiety associated with community tensions surrounding lease agreements	Negative	• Provide transparent communication of Project details and timelines, including FAQ documentation • Conduct open and transparent community consultation, including providing opportunity for further input in the SIA and EIS assessment phase	Minor
	Increased traffic movements may be perceived as a potential safety risk	Negative	• Complete a Traffic Impact Assessment to assess potential impacts on road quality and safety	Minor

7. Conclusion

This Scoping Social Impact Assessment has assessed the potential positive and negative social impacts associated with the construction and operation of the proposed Maules Creek Solar Farm. Key impacts identified as having a potential negative impact, and requiring further investigation include:

- Availability of accommodation during peak construction periods
- Impacts to visual amenity during construction and operation
- Amenity impacts from noise disturbance during construction for adjacent neighbours and residents along the proposed access route
- Impacts to unidentified Aboriginal Heritage items or sites during construction
- Biosecurity concerns around introduction of weed species by construction vehicles and workers
- Potential reduction in property values
- Community understanding and involvement in planning, assessment, and consultation processes

Social impacts identified which have the potential to have a positive impacts will be investigated further during the EIS stage. These include:

- Upgrade of the proposed access roads, improving access and safety for local users
- Community benefit and contribution scheme
- Local employment opportunities
- Upskilling and economic diversification through employment and training initiatives

Further assessment of the identified impacts will be undertaken in the preparation of the EIS and accompanying SIA to evaluate impacts and identify relevant mitigation and enhancement strategies.

8. References

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Scoping SIA

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Social Impact Assessment (SIA) Worksheet | Project name: Maules Creek Solar Farm and BESS | Date:

CATEGORIES	POTENTIAL IMPACTS ON PEOPLE		CUMULATIVE IMPACTS	ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.	Is the impact expected to be **positive or negative**	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: **extent** i.e. number of people potentially affected?	**duration** of expected impacts? (i.e. construction vs operational phase)	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?	Level of assessment for each social impact	What methods and data sources will be used to investigate this impact? Secondary data	Primary Data - Consultation	Primary Data - Research	Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
way of life	Landowner and neighbour conflict related to Project lease agreements and perceived impacts to property values	Negative	Unknown	No	Unknown	Unknown	Unknown	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Extensive community and stakeholder engagement to be undertaken throughout all stages of Project development.
way of life	Impacts during construction on the ability of surrounding residents to move freely to/from/across their land due to increased construction vehicle movements along access roads - Glencoe Road, Middle Creek Road, Harparary Road	Negative	Unknown	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Yes	Extensive community and stakeholder engagement to be undertaken throughout all stages of Project development.
community	Shift from agricultural land use and mining to renewable energy generation could cause a change in the sense of place and way of life among the community	Negative	Yes	No	Unknown	No	No	No	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Extensive community and stakeholder engagement to be undertaken throughout all stages of Project development.
community	Community benefit scheme and Project investment increasing social cohesion and resilience	Positive	Yes	Yes	Unknown	Yes	Unknown	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Yes	Extensive community and stakeholder engagement to be undertaken throughout all stages of Project development.
community	Change of social composition and community identity from influx of construction workers	Negative	Yes	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Exploration of alternate accommodation options and development of worker accommodation strategy is proposed.
access	Influx of temporary construction workers moving to the area could restrict the availability of housing and accommodation as well as lead to an increase in rental housing prices. An influx of construction workers may also constrain the availability of accommodation for tourism or seasonal workers.	Negative	Yes	Yes	Unknown	No	Unknown	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Yes	Exploration of alternate accommodation options and development of worker accommodation strategy is proposed. Investigation of capacity for local procurment in first instance
access	Influx of construction workers could place demands on local social infrastructure and community services beyond their current capacity	Negative	Yes	Yes	Unknown	Unknown	Yes	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Exploration of alternate accommodation options and development of worker accommodation strategy is proposed. Investigation of capacity for local procurment in first instance
access	Construction vehicle access may require upgrade of local roads to a higher safety standard, benefitting local users	Positive	Yes	No	No	No	No	Yes	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Yes	Investigation of alternative and/or temporary transport access routes
culture	Potential for impacts to unidentified Aboriginal heritage sites or items.	Negative	Yes	Unknown	Unknown	Unknown	Yes	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Appropriate response to desing based on findings of Aboriginal heritage investigations
health and wellbeing	Stress and anxiety associated with community tensions surrounding lease agreements	Negative	Unknown	No	Unknown	No	No	No	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	High levels of engagement with associated and adjacent landowners to maintain Project transparancy and confidence
health and wellbeing	Increased traffic movements may be perceived as a potential safety risk	Negative	Yes	No	No	No	No	Yes	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Development of construction traffic management plan. Investigation of alternative access routes for construction heavy vehicles.
surroundings	Reduced capacity to conduct bushfire prevention actions, including controlled burns, due to presence of Project infrastructre	Negative	Yes	No	No	Yes	No	No	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Completion of hazard and risk assessment. Engagement with local landowners and RFS
surroundings	Changed sense of place due to landscape and visual changes	Negative	Yes	No	Yes	Yes	No	Yes	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	To be informed by the Landscape Character and Visual Impact Assesment, Community and Stakeholder Engagement.
surroundings	Adverse noise impacts for landowners and adjacent neighbours, as well as those along construction access routes, particularly Harparary Road	Negative	No	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Development of construction traffic management plan. Investigation of alternative access routes for construction heavy vehicles.
livelihoods	Potential biosecurity and weed spread to surrounding farms due to construction vehicle movements during construction	Negative	No	No	No	No	No	Yes	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Engagement with landowners and establishment of site access protocols for all Project workers and vehicles.
livelihoods	Increased employment opportunities for local and regional workforce, particularly during construction phase.	Positive	Yes	Yes	No	No	Unknown	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Prioritise local workforce procurement, and investigate options for skills development and training opportunities
livelihoods	Diversification of local economy through direct and indrict investment (local procurement and hiring, and local spending by workforce)	Positive	Yes	No	Yes	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Prioritise local workforce procurement, and investigate options for skills development and training opportunities
livelihoods	Increased resilience of local economy through diversification of economic inputs, both direct and indirect (landowner lease agreements, local procurement, ongoing services related to operations)	Positive	Yes	No	Unknown	No	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Prioritise local workforce procurement, and investigate options for skills development and training opportunities
livelihoods	Potential for new industries to develop in the area to operate and maintain Project once operational	Positive	Yes	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	No	Prioritise local workforce procurement, and investigate options for skills development and training opportunities
decision-making systems	Perceived lack of knowledge and inclusion in the planning, assessment, and consultation process of the Project.	Negative	Unknown	Unknown	No	Unknown	Unknown	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	No	Extensive community and stakeholder engagement to be undertaken throughout all stages of Project development.

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Maules Creek Solar Farm and BESS Scoping Report

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