Samsung C&T Renewable Energy Australia Pty Ltd – Romani Solar Farm

Scoping Report

PREPARED FOR

Samsung C&T Renewable Energy Australia Pty Ltd

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Samsung C&T Renewable Energy Australia Pty Ltd – Romani Solar Farm

Scoping Report

0704056

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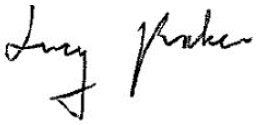

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ARENA	Australian Renewable Energy Agency
ASC	Australian Soil Classification
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BSAL	Biophysical Strategic Agricultural Land
CHMP	Cultural Heritage Management Plan
CL Act	*Crown Land Management Act 2016*
Conargo LEP	Conargo Local Environmental Plan 2013

Acronyms	Description
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DER	Distributed Energy Resources
DPE	Department of Planning and Environment (formerly Department of Planning, Industry and Environment, DPIE)
EDM	Electronic Direct Mail
Edward River CSP	Edward River Council 2018-2030 Community Strategic Plan
Edward River LSPS	Edward River Council Local Strategic Planning Statement 2020-2040
EEAP	Energy Efficiency Action Plan
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ERM	Environmental Resources Management Australia
GHG	Greenhouse gas
GW	Gigawatt
GWh	Gigawatt hours
Ha	Hectare
IAP2	International Association for Public Participation 2
IBRA	Interim Biogeographic Regionalisation for Australia
ISP	Integrated System Plan
kV	kilovolt
LALC	Local Aboriginal Land Council
LGA	Local Government Area
LSC	Land Soil Capability
LSS	Large-scale solar
MNES	Matters of National Environmental Significance
MW	Megawatt
NEM	National Electricity Market
NSW	New South Wales
PBA	Preliminary Biodiversity Assessment
PCT	Plant Community Type
POEO Act	*Protection of the Environment Act 1997*
PTA	Preliminary Traffic Assessment
PV	photovoltaic

Acronyms	Description
PVIA	Preliminary Visual Impact Assessment
REAP	NSW Renewable Energy Action Plan
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RMRP	Riverina Murray Regional Plan 2041
RNE	Register of the National Estate
SA1	ABS Statistical Area Level 1 dataset
SEARs	Secretary's Environmental Assessment Requirements
SEED	Sharing and Enabling Environmental Data
SEIFA	ABS Socio-Economic Indexes for Areas
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SSD	State Significant Development
STE	State and Territory
TEC	Threatened Ecological Community
TfNSW	Transport for New South Wales
TTIA	Traffic and Transport Impact Assessment
UCLs	ABS Urban Centres and Localities dataset

GLOSSARY

Term	Description
Project Area	The term Project Area refers to all affected lots where the Project may be located
Study Area	The Study Area refers to a specified buffer around the Project Area. The Study Area for individual assessments will differ commensurate with the relevant legislation and guidelines for individual aspects
The Project	In this report, the Project refers to the proposal by the Proponent (Samsung C&T Renewable Energy Australia Pty Ltd) to construct and operate the Romani Solar Farm as described in this Scoping report.
The Proponent	Samsung C&T Renewable Energy Australia Pty Ltd

1. INTRODUCTION

Samsung C&T Renewable Energy Australia Pty Ltd (Samsung) (The Proponent) proposes to construct and operate the Romani Solar Farm (the Project), a renewable energy development located 44 km southwest of Hay in the Riverina Murray Region of New South Wales (NSW) (**Figure 1-1**). The Project is a proposed solar farm comprised of several allotments located on Booroorban-Tchelery Road, north of The Forest Creek, with an area of approximately 1,810 hectares (ha). An existing 220 kilovolt (kV) overhead transmission line running in an east west alignment traverses the Project Area (**Figure 1-1**).

The proposed solar farm is anticipated to have an installed capacity of up to 250 MW, and a Battery Energy Storage System (BESS) facility with 150 MW / 300 MWh storage capacity. The Project will connect to either the existing transmission line (X5) or Project Energy Connect. The Proponent is seeking State Significant Development (SSD) Consent under Division 4.7, Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the Project.

The Proponent has engaged Environmental Resources Management Australia Pty Ltd (ERM) to prepare a Scoping Report for the Project, as a first step in the SSD consent process. The Scoping Report supports an application to the Secretary of the NSW Department of Planning and Environment (DPE) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will guide the preparation of an Environmental Impact Statement (EIS) for the Project.

1.1 PROPONENT

Samsung is a global leader in innovative technology and sustainability. Samsung has successfully delivered similar renewable energy projects across Europe, Korea, Canada, and USA. Samsung has recently entered into the Australian renewable energy market and have been developing solar farm, BESS and other projects as a developer.

Samsung is committed to best practice community and stakeholder engagement through transparent and open communication, taking into account even the smallest voices, making communication and engagement open to all.

Samsung C&T Renewable Australia Pty Ltd is a wholly owned company of Samsung C&T Corporation, Korea. The relevant contact details are:

- **Samsung C&T Renewable Australia Pty ABN:** 74 661 046 331
- **Address:** Suite 2506, Level 25, 2 Park Street, Sydney, NSW 2000

1.2 PROJECT OVERVIEW

The Project involves the construction, operation and decommissioning of a solar farm, a BESS and associated infrastructure. **Table 1-1** summarises the key indicative Project components and specifications.

TABLE 1-1 INDICATIVE PROJECT DESIGN – COMPONENTS AND SPECIFICATION

Component	Feature	Specification
Energy generation	Solar Arrays	Approximately 870.5 ha.
Electrical Reticulation Network	On-site substations	New high voltage substation proposed along Booroorban-Tchelery Road
	Internal electrical reticulation network	Electrical reticulation will generally follow rows of panels and parallel internal access routes. The Preferred solar area will connect into the main substation directly via underground cables.
	BESS	Battery energy storage system with a capacity of 150MW / 300 MWh
	Switchyard and transformer	Additional switchyard and transfer to connect the Project to either the existing 220 kV transmission line (X5) or Project Energy Connect.
Access Roads	Access to site	Access to the Project Area is proposed from Booroorban-Tchelery Road.

The indicative Project layout is displayed in **Figure 3-1**, which shows the proposed development footprint for the solar farm, including solar panels, BESS, substations and associated ancillary infrastructure. The Project layout is subject to further design development during the EIS phase.

The EIS and associated technical assessments will facilitate further refinement to the Project layout in response to environmental values and constraints, and will include strategies to minimise and mitigate potential impacts.

1.3 PROJECT OBJECTIVES

The objectives of the Project are to:

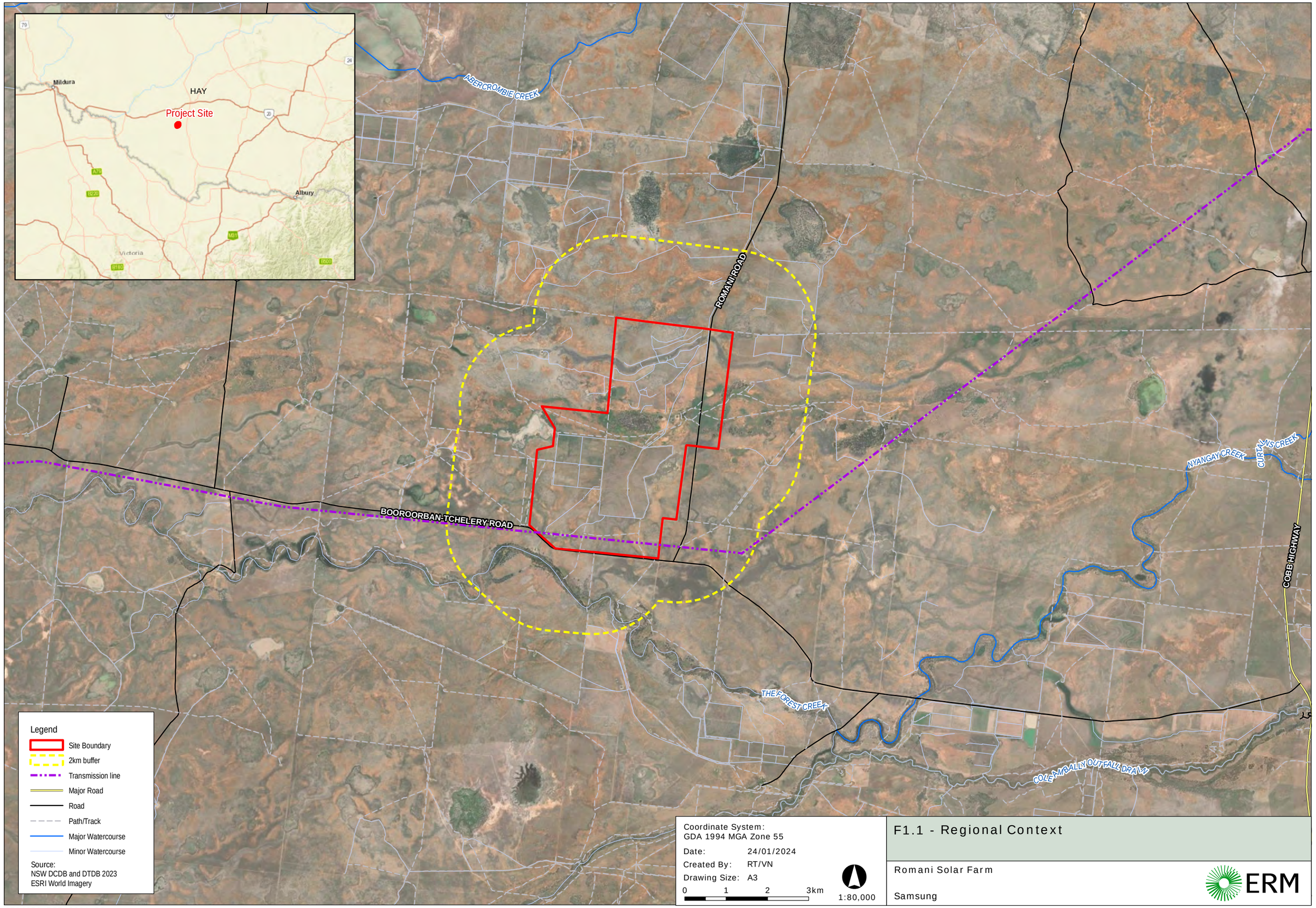
- Provide a source of renewable energy to supplement NSW and National energy requirements and assist in reducing greenhouse gas (GHG) emissions;
- Contribute to the additional generating capacity required to meet the growing energy demand in NSW and the generation shortfalls predicted as coal fired power stations reach the end of their operational lives;
- Assist in providing network stability and reliability through battery storage;
- Contribute to NSW and Commonwealth targets for renewable energy;
- Provide both direct and indirect employment opportunities during construction and operation;
- Liaise and work with the community and all potentially affected stakeholders in the identification, mitigation and/or monitoring of any potential environmental effects;
- Ensure quality, safety and environmental standards are maintained;
- Recycle and reuse materials where practical and economically feasible; and
- Minimise all potential adverse environmental impacts.

1.4 PURPOSE OF THIS REPORT

This Scoping Report supports an application for SEARs which will guide the development of the EIS to support a future SSD application under Part 4 of the EP&A Act.

The Scoping Report has been prepared in accordance with the following guidelines:

- *Large-Scale Solar Energy Guideline* (DPE, 2022a);
- *State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines* (DPE, 2021a) (Scoping Report Guidelines);
- *Social Impact Assessment Guideline for State Significant Projects* (DPE, 2021b);
- *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022b); and
- *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2021c).



F1.1 - Regional Context

Romani Solar Farm

Samsung

ERM

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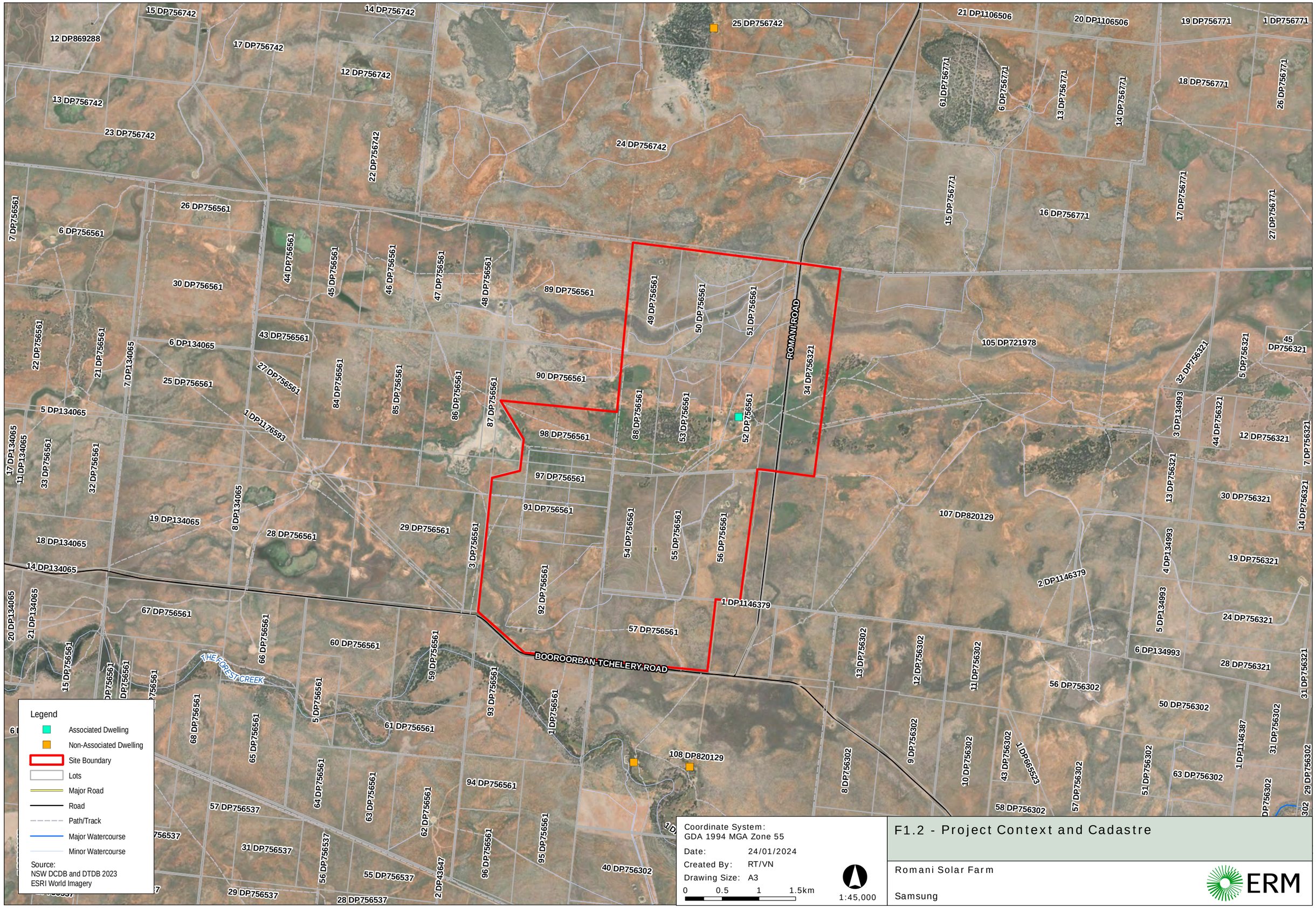

F1.2 - Project Context and Cadastre

Romani Solar Farm

Samsung

ERM

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2 STRATEGIC CONTEXT

This section addresses the key strategic issues and provides the justification for the Project, including the government strategies, policies and plans that provide strategic support for undertaking the Project.

2.1 COMMITMENTS TO RENEWABLE ENERGY

2.1.1 FEDERAL COMMITMENTS

Australia is one of 195 countries that signed on to the United Nations Paris Agreement on climate change (Paris Agreement). The Paris Agreement sets in place a durable and dynamic framework for all countries to take climate action from 2020, building on existing international efforts in the period up to 2020. The aim of the Paris Agreement is to limit emissions globally to net-zero in the second half of this century. Australia set a target to reduce emissions by 43% below 2005 levels by 2030 as part of its commitments under the Paris Agreement, which builds on its previous target of reducing emissions by five per cent below 2000 levels by 2020 (PoA, 2017; DCCEEW, 2022).

The current efforts to achieve this goal are reflected in the Renewable Energy Target (RET) Scheme. The RET was implemented in 2009 with an initial target of 44,000 GWh (later reduced to 33,000 GWh) of renewable energy generation by 2020. The RET has been an extremely successful initiative that has, in part, driven a more than 50% reduction in the cost of large-scale wind and solar projects over the past 10 years. The Project will contribute to meeting Australia's commitments through the generation of renewable solar energy and resultant annual reduction in greenhouse gas emissions.

The Federal Government committed to achieving net zero greenhouse gas emissions by 2050 ahead of the G20 Summit in Rome and the Glasgow United Nations climate discussions (COP26). The Project will assist in delivering on this key commitment for Australia.

2.1.2 STATE COMMITMENTS

In September 2013, the NSW Government released the NSW Renewable Energy Action Plan (REAP) with a vision to secure an affordable and clean energy future for NSW. The REAP was implemented alongside a separate Energy Efficiency Action Plan (EEAP) consisting of 30 actions to strengthen the energy efficiency market and aims to reach the following targets:

- Achieve 16,000 GWh in energy savings per year by 2020;
- Support 220,000 low income households to reduce energy use by up to 20 per cent by 2014; and
- Assist 50% of NSW commercial floor space to achieve a four-star NABERS energy and water rating by 2020 through the delivery of high-standard building retrofit programs.

Additionally, as identified above, the Project falls within the South-West Renewable Energy Zone as outlined in the Net Zero Plan. The Net Zero Plan outlines the NSW Government's approach to grow the economy, create jobs and reduce emissions over the next decade, including an investment in emissions reduction innovation, particularly within regional and rural NSW.

The Net Zero Plan aligns with the 'NSW Climate Change Policy Framework' (OEH, NSW Climate Change Policy Framework, 2016), which commits NSW to the aspirational objectives of achieving net-zero emissions by 2050.

The Project is consistent with the NSW Government's objectives and targets for the reduction of GHG emissions and investment in renewable energy technology and supports regional investment and development.

2.1.3 ALTERNATIVE SOURCING OF ENERGY

Other forms of large-scale renewable energy accounted for in the RET include hydro, biomass, wind and tidal energy. With the exception of wind energy, these alternative sources are in the early stages of development and are generally not 'market ready' nor as viable as solar energy in Australia.

Due to the abundance of solar resources, sparsely populated locality, and the proposed route of Project Energy Connect, it is considered that large-scale solar technology is an optimum form of energy generation.

The Project is at scale potentially adding significant amounts of renewable energy supply over a 30-year period. Large-scale solar technology is now one of the cheapest forms of new energy generation, reducing cost pressures on consumers and is completely renewable, reducing emissions.

2.1.4 CONTRIBUTION TO THE NATIONAL ELECTRICITY MARKET

The National Electricity Market (NEM) operates as a power system to deliver electricity from generators to market consumers, through an extensive transmission and distribution network comprising of around 40,000 km of transmission lines and cables. The NEM services the entire eastern and south-eastern coastline of Australia, connecting five states, and providing electricity to approximately nine million customers.

The Australian Energy Market Operator's (AEMO) 2022 Electricity Statement of Opportunities provides updated forecasts for demand and supply of electicity, focusing commentary on the next 10 years, and includes forecasts over the next 30 years (AEMO, 2022). The 2022 report noted:

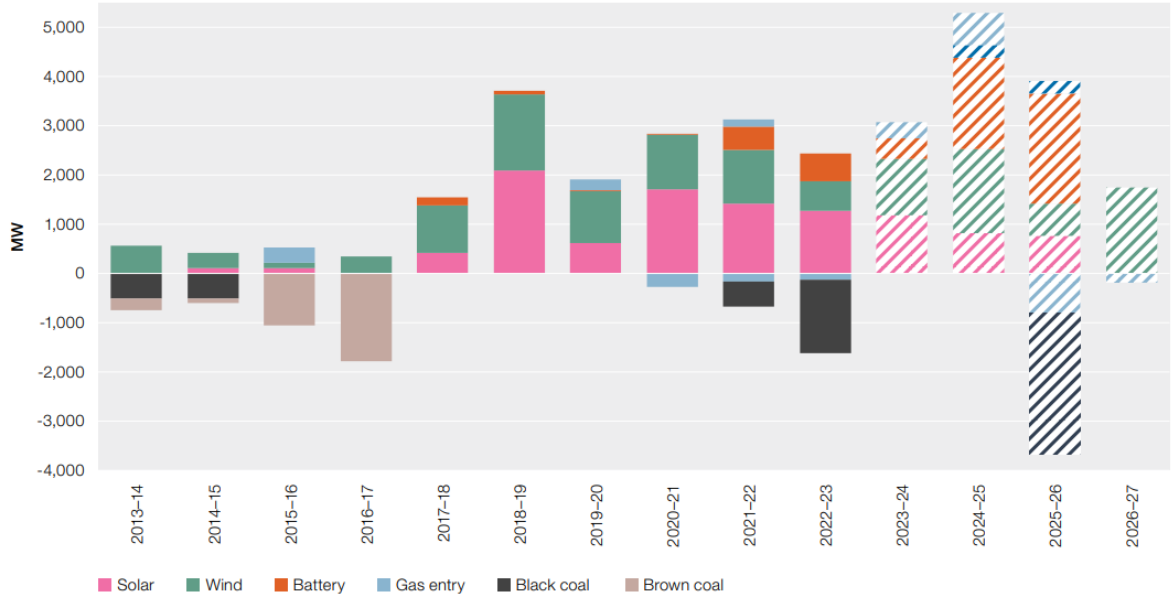
- Electricity consumption is forecast to grow over the forecast horizon, as distributed wind uptake continues;
- Growth in electricity demand is driven by the commercial sector and an acceleration in the rate of electrification, particularly electric vehicles (EVs);
- Maximum electricity demand is forecast to grow over the forecast horizon, broadly in tune with drivers affecting energy consumption growth. The operation of solar farms, battery storages, EVs and demand side response is projected to partially offset the growth in underlying consumption, potentially lessening the relative impact on forecast reliability; and
- With the sustained uptake of distributed solar, minimum demand forecasts continue to show a rapid decline.

The Project will help to meet the forecast increasing demand for energy in the NEM as forecast demand increases over the forecast horizon through production of renewable energy.

The energy sector in Australia is undergoing a necessary and inevitable transition from a centralised system of large fossil fuel generation towards a decentralised system of widely dispersed, renewable energy (mainly wind and solar) (Australian Energy Regulator, 2023). The Australia Energy Regulator (2023) identifies key drivers for the transition as:

- Increasing community concern on the impact of fossil fuel generation of carbon emissions. There has been no energy business investing in new coal fired generation in Australia since 2012, whilst investment in wind, solar and batteries continues to grow, as detailed in ;
- Technological advancements and cost reductions in grid scale wind and solar generation facilitating lower cost options for new build generation, including advancements in solar panel technology; and
- Deteriorating economics of fossil fuel generation associated with aging of the coal fired generation fleet and increase fuel costs.

FIGURE 2-1 EXIT AND ENTRY OF GENERATION CAPACITY IN THE NEM (SOURCE: (AUSTRALIAN ENERGY REGULATOR, 2023))



Note: Capacity includes scheduled and semi-scheduled generation, but not rooftop solar capacity. New entry and exit are by registered capacity, except for solar which uses maximum capacity. Committed investment and closures from 30 June 2023 are shown as shaded components. These include Eraring power station in 2025.

Source: AER; AEMO (data).

Traditionally, NSW's electricity needs have been met by coal-fired generation and some gas peaking power plants. While wind and solar power has increased and accounted for a combined 27% of total generation in 2022, fossil fuel generation continued to produce approximately 64% of electricity in the NEM, in 2022 (Australian Energy Regulator, 2023). However, about 58% of the current coal-fire capacity is expected to withdraw by 2030, initiated by the closure of Liddell's Power Station in April 2023 which marked the first of four coal station exists for the decade.

The imminent exit of much of the NEM's coal fired generation has prompted AEMO to forecast reliability gaps (risk of unserved electricity demand) as early as 2024 in some regions. AEMO's forecasts of these reliability gaps are accelerating in response to growing demand via electrification and generation investment proceeding slower than hoped. Wind and solar provide emission-free, low-cost electricity when weather conditions allow them, but their supply will need to be supplemented with adequate electricity storage technology to avoid reliability gaps as coal stations continue to retire (Australian Energy Regulator, 2023). Renewable energy generation is projected to continue to grow to 76% in 2030 and 82% in 2035 to support the NEM (DCCEEW, 2022).

The Project represents an investment in a new large scale renewable energy, providing up to 250 MW of solar electricity generating capacity and a BESS. The Project will thereby provide an essential input into the additional renewable energy sources needed in the transition from coal fired generation to renewable generation.

2.1.5 SOLAR FARM BENEFITS

Through the generation of renewable energy, solar farms provide significant contribution to Australia's transition to greener energy. The Australian Renewable Energy Agency (ARENA) (2021) notes that solar is the fastest growing generation type in Australia, contributing to approximately 10 percent of Australia's total electricity supply in 2020-2021. Large-scale solar (LSS) generation has experienced significant growth in Australia and its share of the total electricity generated is continuing to increase each year.

In relation to LSS generation in Australia, it is further noted by ARENA (2021) that:

- As of March 2021, approximately 7 GW of LSS had been connected to Australia's electricity grid, which is more than 20 times greater than the LSS capacity in 2016;
- More than 100 LSS projects have been accredited as registered generators by the Clean Energy Regulator, including over 80 of these which were connected in 2018 or later;
- The capital cost of LSS projects in Australia decreased by 25 % from $1.87 to $1.39 per watt between 2015 and 2020; and
- LSS has played a significant role in meeting the Australian Government's mandated RET of generating at least 20 per cent of electricity from renewable energy by 2020.

2.1.6 PROJECT-SPECIFIC BENEFITS

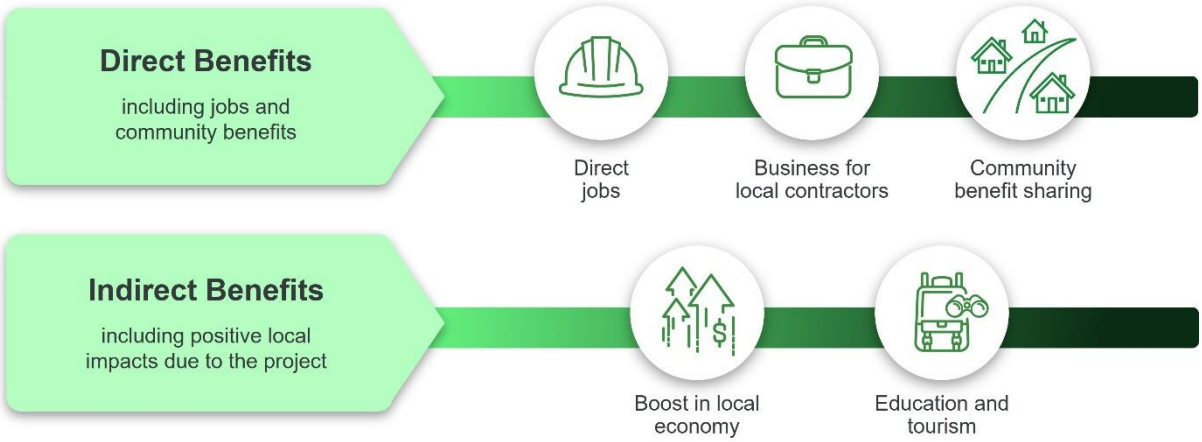
The Project would deliver renewable, low-cost energy to the national grid, and will contribute to Commonwealth and the NSW Government's emission reduction targets by:

- Providing a source of renewable energy to supplement NSW and national energy requirements, supporting the transition being undertaken in the energy sector away from a centralised system of large fossil fuel generation, towards a more decentralised system of renewable energy production and assist in reducing GHG emissions; and
- Contributing to the additional generating capacity and dispatchable energy by the provision of the large scale BESS which will assist in managing ongoing electricity demand peak required to meet the growing energy demand in NSW.

Construction and operation of the Project will require a range of skills including engineering, trades (electrical, mechanical, construction), transport, building material providers, equipment operators, consultants and administrative staff.

A summary of the Project benefits is displayed in **Figure 2-2**.

FIGURE 2-2 PROJECT BENEFITS



2.2 NATIONAL, REGIONAL AND LOCAL CONTEXT

2.2.1 STRATEGIC FRAMEWORK

The Project will align with various strategies, policies, and plans across national, state, regional, and local contexts. The strategic framework for the Project is outlined in **Table 2-1** below.

TABLE 2-1 ALIGNMENT WITH STRATEGIC FRAMEWORK

Strategy, Policy or Plan	Description	Project Alignment
National Context		
United Nations Framework Convention on Climate Change Conference of Parties (COP27) – Egypt 2022	COP27 was the 27th climate change COP held in Egypt in late 2022. A key outcome of COP27 was agreement to once again 'revisit and strengthen …2030 targets (Paris Agreement targets) in nationally determined contributions…by the end of 2023' (UNFCCC, 2022). The Federal Government committed to achieving net zero greenhouse gas emissions by 2050 ahead of the G20 Summit in Rome and the Egypt United Nations climate discussions (COP27).	The Project will contribute to meeting Australia's commitments through the generation of renewable solar energy and resultant annual reduction in greenhouse gas emissions.
United Nations Framework Convention on Climate Change Conference of Parties (COP21) – The Paris Agreement	The United Nations Paris Agreement on climate change (Paris Agreement) outlines a framework for all countries to take climate action from 2020, and builds upon the existing international efforts in the period up to 2020. The aim of the Paris Agreement is to limit emissions globally to net-zero in the second half of this century. Australia is one of 195 countries that signed on to the Paris Agreement, and has set a target to reduce emissions by 26-28 per cent below 2005 levels by 2030. This builds on the 2020 target of reducing emissions by five per cent below 2000 levels (PoA, 2017).	The Project will contribute to meeting Australia's commitments under the Paris Agreement through the generation of renewable solar energy and resultant annual reduction in greenhouse gas emissions

Strategy, Policy or Plan	Description	Project Alignment
Integrated System Plan 2020	The Integrated System Plan (ISP) provides an integrated roadmap for the development of the National Electricity Market (NEM) over the next 20 years, and the most recent ISP 2020 was released on 30 July 2020 (AEMO, 2020). The key objectives of the ISP are to design low cost and reliable energy systems through both new and existing technologies, and to identify ISP projects to achieve power needs. The ISP also serves the broader purpose of informing policymakers, investors, and consumers. It draws on stakeholder engagement and industry expertise in order to maximise the value and benefits to electricity consumers. The ISP 2020 identifies the locations of proposed REZs in Australia that can connect to existing transmission networks. The Draft 2022 Integrated System Plan was released in December 2021, and was finalised by 30 June 2022 (AEMO, 2021).	The Project is located within the South-West REZ, which has been identified as a proposed REZ in the ISP 2020. The Project will respond to Phase 2 of the ISP: "*Renewable generation development to replace energy provided by retiring coal-fired generators and supported by the actionable ISP projects*".
NSW Context		
Net Zero Plan Stage 1: 2020-2030	The Net Zero Plan Stage 1: 2020–2030 (DPE, 2020a) sets the foundation for NSW's action on climate change and how the NSW Government will deliver on its objective to achieve net zero emissions by 2050. The Plan is the NSW Government's overarching strategy to reduce emissions and mitigate the impacts of climate change. In September 2021, the NSW Government announced ambitious new emission reductions, with an updated objective to reduce emissions by 50% below 2005 levels by 2030 under the Net Zero Plan Stage 1: 2020 – 2030 Implementation Update (September 2021).	This Project will contribute in addressing the Net Zero Plan, including the NSW Government's updated 2030 50% target. This will be achieved through a reduction in greenhouse gas emissions
NSW Electricity Strategy	The NSW Electricity Strategy is the NSW Government's plan to provide more reliable, affordable, and sustainable electricity across in NSW (DPE, 2019). The Strategy encourages approximately $8 billion of new private investment in NSW's electricity system over the next decade, including $5.6 billion in regional NSW. It aligns closely with the NSW Government's Net Zero Plan Stage 1: 2020–2030, and supports a new affordable and reliable energy system by: Delivering the coordinated Renewable Energy Zone in the South-West region; Saving energy via the Energy Security Safeguard; Supporting the development of new electricity generators; Setting a target to increase the state's energy resilience; and Making it easier to do energy business in NSW.	The Project is consistent with the Strategy as it provides renewable energy generation and storage capacity that, together with other renewable generation projects, is expected to result in lower cost of power in comparison to wholesale prices. The Project will also contribute to greater energy resilience through the use of BESS to support stabilising the supply of electricity to the South West region.

Strategy, Policy or Plan	Description	Project Alignment
NSW Transmission Infrastructure Strategy	The NSW Transmission Infrastructure Strategy is the NSW Government's plan to unlock private sector investment in priority energy infrastructure projects, which can deliver least-cost energy to customers to 2040 and beyond (DPE, 2018). The Strategy forms part of the government's broader plan to make energy more affordable, secure investment in new power stations and network infrastructure and ensure new technologies deliver benefits for consumers. The aims of the Strategy include increasing NSW's connections with Victoria, South Australia and Queensland, and increasing NSW's energy capacity through the prioritisation of Energy Zones in the Central-West, South-West and New England regions of NSW. The Strategy seeks to help meet future energy needs by facilitating new transmission that could support up to 17,700 MW of new electricity generation. Other benefits include improved energy reliability, security, timely project delivery, increased affordability and access to cheaper electricity.	The Project will contribute to the development of the South-West REZ, which will result in an overall increase to NSW's energy capacity. Additionally, with the provision of a BESS, the Project will provide energy storage and dispatch capacity to facilitate and provide electricity demand management.
NSW Electricity Infrastructure Roadmap	The NSW Electricity Infrastructure Roadmap (the Roadmap), released in November 2020, is the NSW Government's plan to transform the NSW electricity sector to be cleaner, cheaper and more reliable (DPE, 2020b). The Roadmap builds on the NSW Electricity Strategy (2018) and the NSW Transmission Infrastructure Strategy (2019), and emphasises the need for NSW to transition to renewable energy. It aims to replace NSW's ageing coal-fired power stations with a coordinated portfolio of energy generation, storage and network investment. As part of this Roadmap, the NSW Government commits to Renewable Energy Zones (REZ), which will expand transmission and generation capabilities in strategic areas across NSW, including the South-West region of NSW. The Roadmap reinforces the key role of these REZs in delivering renewable energy, transitioning from coal fired power generation, and providing regional growth and investment in regional NSW.	The Project will assist in meeting the NSW Government's emissions reduction targets, NSW's energy generation and storage requirements, and NSW's transition from coal fired power generation to renewable energy. The Project will also contribute to the development of the South-West REZ, which will add to the regional growth and investment in regional NSW.
Regional Context		
Riverina Murray Regional Plan 2041	The Riverina Murray Regional Plan 2041 (RMRP) is a 20-year blueprint for the future of the Riverina Murray Region (DPE, 2023a). It was developed by DPE in 2023 following consultation with local councils, key stakeholders, and local communities. The RMRP provides a framework for guiding land use plans, development proposals, and infrastructure funding decisions over the next 20 years and includes both priority and longer-	The Project is proposed to connect with the existing transmission lines and will therefore provide ready access to the electricity network. The Project is also consistent with relevant directions

Strategy, Policy or Plan	Description	Project Alignment
	term actions (DPE, 2023a). It aims to grow the region's cities and local centres, support the protection of high value assets, and develop a strong, diverse and competitive economy through the following four key goals: A growing and diverse economy; A healthy environment with pristine waterways; Efficient transport and infrastructure networks; and Strong, connected and healthy communities.	and actions of the RMRP listed under: Objective 13: Support the transition to net zero by 2050; and Objective 16: Support the visitor economy.
Local Context		
Edward River Council Local Strategic Planning Statement 2020-2040	The Edward River Council Local Strategic Planning Statement (LSPS) provides a framework for the social, economic, and environmental land use needs throughout the Edward River LGA over the next 20 years (ERC, 2020).	The Project will provide jobs and investment within the Edward River Council LGA which contributes to the objectives of the LSPS.
Edward River Council 2018-2030 Community Strategic Plan	Edward River Council 2018-2030 Community Strategic Plan (CSP) is a 10-year plan that outlines the long-term vision and strategic directions for the Edward River community (ERC, 2018).	The Project will directly respond to *Outcome 3 – A valued and enhanced natural environment* of the CSP. It supports investigating opportunities for sustainable energy and aligns with *Strategy 3.5: Support federal and state initiatives to reduce the impacts of climate change*.

2.3 SITE AND SURROUNDING DEVELOPMENT

2.3.1 SOUTH WEST RENEWABLE ENERGY ZONE

The Project Area is located within the boundaries of the proposed South West REZ, which is being developed in the areas surrounding Hay in the South West region of NSW (Energy NSW, 2021).

The South West REZ was formally declared in 2022. This location was selected due to:

- The abundance of renewable energy resources;
- A strong pipeline of proposed renewable energy projects; and
- The relative compatibility of land uses within the region.

2.3.2 REGIONAL CONTEXT

The Project Area is situated within the locality of Booroorban in the Edward River Local Government Area (LGA). The Project is approximately 44 km southwest of Hay, the closest regional town with a population of approximately 2,300 (ABS, 2021).

Edward River LGA is located in the Riverina Murray Region of NSW and includes the town of Deniliquin and six rural villages of Blighty, Booroorban, Conargo, Mayrung, Pretty Pine, and Wanganella. The LGA is strategically located in Riverina Murray region, linked by highways to Adelaide, Sydney and Melbourne.

The Edward River LGA covers a total area of 8,881 km^2 and has a population of 8,456 (ABS, 2021). The key land uses within the region are centred on agriculture and food production, and its economy is reliant on tourism, agriculture and associated industries. The rice industry is of significance in the Edward River LGA, as Deniliquin is the home to Sun Rice – the largest rice mill in the southern hemisphere (ERC, 2020). The Project Area sits in the Deniliquin Local Aboriginal Land Council (LALC), and the traditional owners of the land are the Wamba Wamba and Perrepa Perrepa people.

The nearby towns and population centres in the vicinity of the Project Area include (ABS, 2021):

- Hay, NSW – 44km northeast (population 2,300);
- Balranald, NSW – 96 km northwest (population 2,208);
- Deniliquin, NSW – 80 km northwest (population 7,432);
- Mildura, VIC – 96 km northwest (population 56,972);
- Swan Hill, VIC – 138 km northeast (population 21,403);
- Darling Point, NSW – 180 km northeast (population 3,977);
- Griffith, NSW – 200 km northeast (population 19,505); and
- Wagga Wagga, NSW – 255 km east (LGA population 67,609).

2.3.3 LOCAL CONTEXT

The Project Area is situated in Booroorban, which is characterised by a generally flat topography, with elevation ranging from 78 m to 96 m above sea level. The gradient gradually increases on the eastern side of the Project Area.

The existing land uses surrounding the Project Area are predominantly agricultural and primarily used for irrigated cropping and grazing. A tributary of The Forest Creek crosses the southwestern corner of the Project Area, within the Murrumbidgee and Lake George Catchment which covers an area of 84,000 km^2.

The nearest national parks are the Kalyarr National Park and the Oolambeyan National Park , located 46 km north and 53 km east of the Project Area, respectively (refer **Figure 1-1**). Toogimbie Indigenous protected area is located 27 km north, and the closest conservation area is the Yanga State Conservation Area 63 km west of the Project Area.

2.3.4 IMPORTANT NATURAL OR BUILT FEATURES

The Project Area is located at Booroorban-Tchelery Road, Booroorban and covers approximately 1,810 ha. Historically, the Project Area has been used for agricultural activities and contains a dwelling house, ancillary structures and water retention dams.

There is an existing dwelling house and ancillary structures located on the eastern side within the Project Area. An existing 220 kV overhead transmission line running in an east west alignment traverses the south of the Project Area. The site is located north of The Forest Creek and is primarily used for small scale agricultural purposes.

Vegetation on the Project Area is scarce and randomly dispersed within the site and a patch of vegetation of approximately 50 ha in size at the centre of the site. The topography of the Project Area is generally flat, with a maximum height of 83 metres Australian Height Datum (AHD). Rural and agricultural activities, including grazing of livestock and the production of crops and fodder, are prominent land uses surrounding the site.

Access to the Project Area is provided via the Romani Road and Booroorban-Tchelery Road via the Cobb Highway. The Cobb Highway connects to the Sturt Highway to the north of the Project Area and which runs east-west between Wagga Wagga and Balranald.

3 THE PROJECT

3.1.1 PROJECT AREA

The Project Area is defined as the area of land corresponding to property boundaries on which the Project is located. The Project Area covers a total area of approximately 1,810 ha at Booroorban-Tchelery Road, Booroorban. The Project Area is zoned in its entirety as RU1 – Primary Production under the Conargo Local Environmental Plan 2013 (Conargo LEP) (NSW Government, 2013).

A map of the Project Area is provided in **Figure 3-1.**

TABLE 3-1 LAND CADASTRES

Lot	Deposited Plan	Title
34	756561	FREEHOLD
49	756561	FREEHOLD
50	756561	FREEHOLD
51	756561	FREEHOLD
52	756561	FREEHOLD
53	756561	FREEHOLD
54	756561	FREEHOLD
55	756561	FREEHOLD
56	756561	FREEHOLD
57	756561	FREEHOLD
91	756561	FREEHOLD
92	756561	FREEHOLD
97	756561	FREEHOLD
98	756561	FREEHOLD

3.1.2 PROJECT DESCRIPTION

The Project involves the construction, operation, and decommissioning of a solar farm, BESS and associated infrastructure. **Table 3-2** summarises the key indicative Project components and specifications.

TABLE 3-2 INDICATIVE PROJECT DESIGN – COMPONENTS AND SPECIFICATION

Component	Feature	Specification
Energy generation	Solar Arrays	Approximately 870.5 ha.
Electrical Reticulation Network	On-site substations	New high voltage substation proposed along Booroorban-Tchelery Road.
	Internal electrical reticulation network	Electrical reticulation will generally follow rows of panels and parallel internal access routes. The Project will connect into the main substation directly via underground cables.
	Switchyard/BESS	Switch and other electrical equipment providing connection to the existing 220 kV transmission network.
Access Roads	Access to site	Access to the Project Area is proposed from Romani Road and Booroorban-Tchelery Road via Cobb Highway

The indicative preliminary Project layout is displayed in **Figure 3-1**, which shows the proposed development footprint for the solar farm, including solar panels, associated ancillary infrastructure and indicative site accesses. The indicative layout is subject to further design development during the EIS phase.

The EIS and associated technical assessments will further assess identified constraints to facilitate further layout design changes and refinements in response to identified values and constraints, as well as strategies to minimise and mitigate impacts.

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

Legend

- Potential Vehicle Access
- Site Boundary
- Transmission line
- Substation Options
- BESS
- Access Tracks
- Major Road
- Road
- Path/Track
- Solar Panels

Source:
NSW DCDB and DTDB 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024

Created By: CS/VN

Drawing Size: A3

0 0.2 0.4 0.6km

1:30,000

F3.1 - Preliminary Project Layout

Romani Solar Farm

Samsung

ERM

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3.1.3 SOLAR ARRAYS

The Project is a proposed solar farm consisting of a maximum installed capacity of up to 250 MW. The solar arrays will be mounted to steel structures and utilise single axis tracking systems, with relatively little soil disturbance required. **Figure 3-2** shows the indicative tracking system.

FIGURE 3-2 EXAMPLE OF SINGLE AXIS PV ARRAY

The indicative specifications for the proposed solar arrays are provided in **Table 3-3**.

TABLE 3-3 INDICATIVE PROJECT SPECIFICATIONS

Solar Farm Feature	Specification
Tracking system	Single axis tracking system
Maximum generation capacity DC (MWdc)	312.4 MWdc
Power Stations (contains inverter)	up to 8400.0 kW
Approximate Disturbance Footprint (ha)	870 ha
Estimated height of panels when horizontal (m)	2.35 m
Distance to ground at max tilt (to lower edge) (m)	0.5 m
Estimated height (to higher edge) when at max tilt (m)	5 m
Rotational axis elevation	1.9 m to 2.6 m
Capital investment Value	~$230 million

3.1.4 BATTERY ENERGY STORAGE SYSTEM

A centralised large-scale battery energy storage is proposed for the Project. The BESS has a storage capacity of 150 MW / 300 MWh. The BESS will be located within the Project Area at the southern end of the proposed solar area.

3.1.5 OTHER INFRASTRUCTURE AND ASSOCIATED WORKS

The Project will also require additional project infrastructure and associated works including:

- Underground electrical layouts connecting panels;
- Internal access roads to connect panels and ancillary infrastructure;
- Operations and Maintenance Building;
- Substations; and
- Additional switchyard and transformer.

3.1.6 ELECTRICAL RETICULATION SYSTEM AND GRID CONNECTION

The Project will include underground and overhead electrical reticulation network to connect to a substation/s. The interconnection infrastructure will then connect to either the existing 220 kV TransGrid transmission line (X5) within the Project Area or future transmission infrastructure delivered as part of Project Energy Connect.

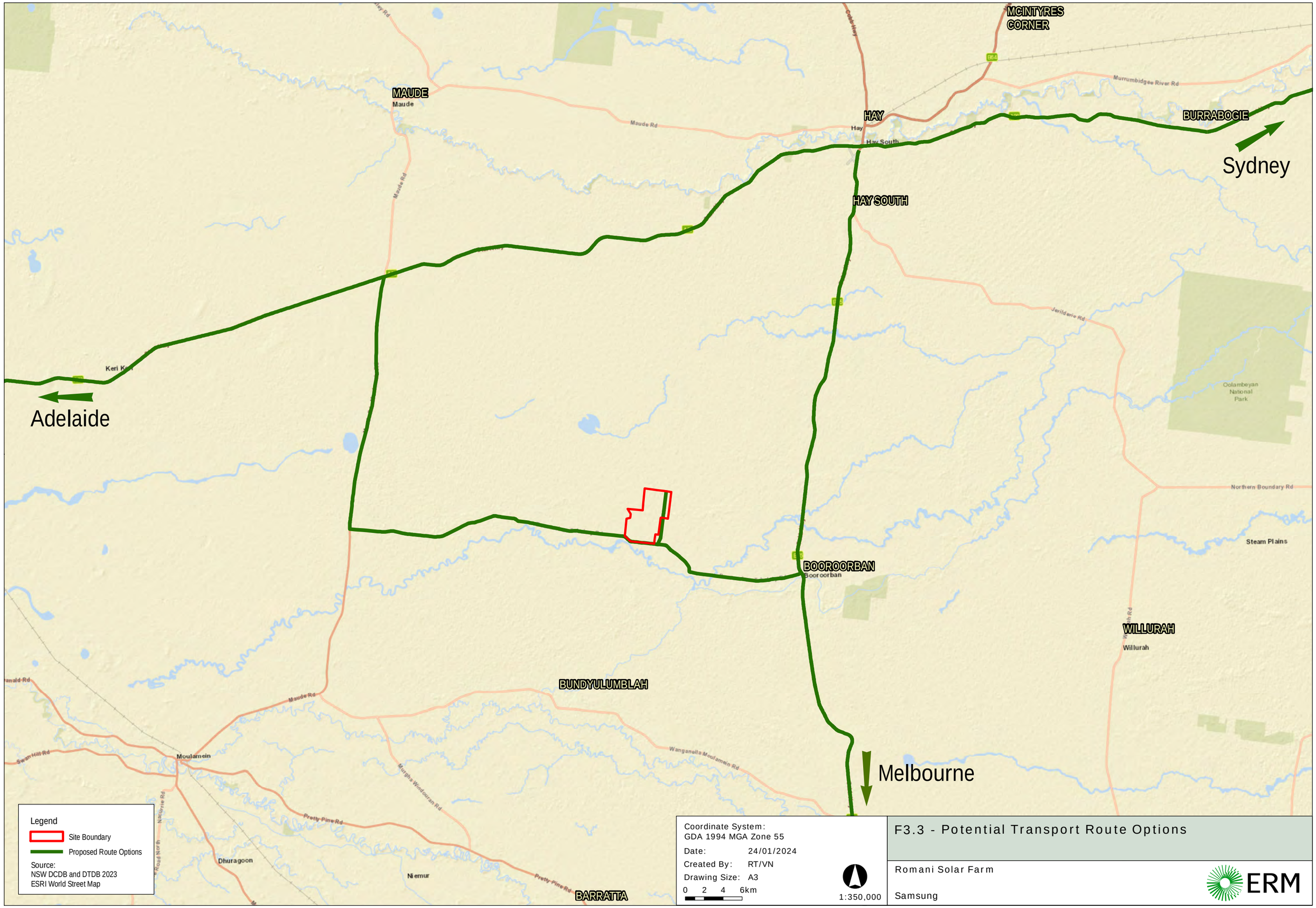
3.1.7 CONSTRUCTION AND TEMPORARY FACILITIES

The Project will require the following construction and temporary facilities:

- Temporary construction facilities such as offices, car park and amenities;
- Fencing and landscaping works;
- Delivery of project components, including panels, battery modules, substations, transformers and associated components;
- Installing maintenance and environmental managements processes and equipment;
- Internal access roads;
- Earthworks required to establish hardstand and laydown areas;
- Installation of underground and overhead cabling; and
- Access to project site via Booroorban-Tchelery Road.

3.1.8 TRANSPORT ROUTE AND SITE ACCESS

Access to the Project Area during construction and operations is proposed via the existing road network. Primary access will be via Booroorban-Tchelery Road and/or Romani Road. At this stage, a delivery port has not been selected and could potentially be Sydney, Melbourne and/or Adelaide. The transport route of PV panels and other Project related materials are subject to a Transport and Traffic Route Assessment, which will be prepared as part of the EIS, the outcomes of which will be incorporated into the Traffic and Transport Impact Assessment. This will identify a proposed transport route from the port to the Project Area, as well as any required road upgrades.



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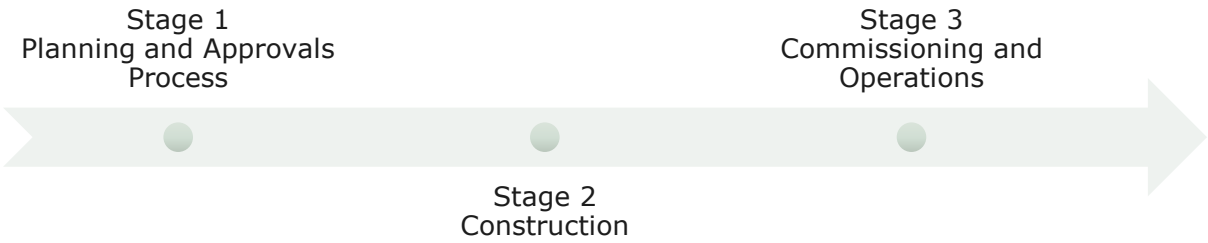
3.2 STAGING

The anticipated staging of the Project is summarised in **Table 3-4** and presented in **Figure 3-4**. The Project is currently in Stage 1, during the planning and approvals process, involving the preparation of the Scoping Report and EIS. The planning and approval process is expected be completed by early 2025. Construction of the Project is expected to commence in late 2025, with operations commencing in 2026.

TABLE 3-4 PROJECT STAGING

Stage of Project	Estimated Date of Completion
Planning and Approvals Process	Early 2025
Construction	Late 2026
Commissioning and Operations	2026 onwards

FIGURE 3-4 PROJECT STAGING MAP



3.3 PHASES

3.3.1 CONSTRUCTION

Construction of the Project is anticipated to begin in 2025 with design and procurement activities leading into groundworks commencing. Construction is anticipated to take approximately 12-18 months to complete, including commissioning of the Project to achieve full grid export.

During the construction phase of the Project, 150-200 employees will be required.

3.3.2 OPERATIONS

The operational phase of the Project is currently planned to commence in 2026 for a 30 – 40 year period minimum, unless the solar farm is re-powered at the end of the PV modules operational life.

Ongoing maintenance will be required for all infrastructure associated with the Project, including:

- Landscaping;
- Panel cleaning;
- Maintaining asset protection zones (if required); and
- Repair and replacement of Project components.

3.3.3 DECOMMISSIONING

The EIS to be prepared for the Project will discuss the potential options associated with the decommissioning of the Project upon completion of operations.

At the end of the operational life of the solar farm, approximately 30 – 40 years, the site could be formally decommissioned. A decision will be made at this point whether to erect new PV modules (re-power) or to remove the existing PV modules and rehabilitate the site.

3.4 ALTERNATIVES

Alternatives to the Project have been explored, including the alternative sourcing of energy, site locations, site layouts, and the 'do nothing' approach for the Project.

3.4.1 ALTERNATIVE SITE LAYOUT OPTIONS

The Project Layout shown in the Scoping Report is indicative and will be subject to further design development during the preparation of the EIS. The design will be informed by the environmental assessment, landowner feedback, consultation with community and stakeholders, as well as technical considerations and requirements.

3.4.2 DO NOTHING

The Project Area is currently used for agricultural land uses. 'Do nothing' would result in a slower transition to renewable energy and a missed opportunity to generate additional renewable energy to reduce Australia's dependency on fossil fuels for energy generations and the consequential emissions of GHGs. The 'do nothing' option is not considered further.

4 STATUTORY CONTEXT

This section outlines the key statutory requirements for the Project under the *Environmental Planning and Assessment Act 1979* and other relevant NSW and Commonwealth legislation with regard to the *State Significant Development Guidelines – Preparing a Scoping Report* (DPE, 2021a).

4.1 POWER TO GRANT CONSENT

Approval for the Project will be sought under Part 4, Division 4.7 of the EP&A Act, which outlines the approval pathway for development deemed to be State Significant Development (SSD). Section 4.36(2) of the EP&A Act states:

> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*

Under the provisions of Section 2.6 (1) of the Planning Systems SEPP, a development is classified as SSD if it is specified in Schedule 1 or 2:

> *(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 determines 'electricity generating works' to be SSD if it meets the following criteria:

> *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 involves development for the purpose of electricity generating works using solar power which will have a capital investment value of more than $30 million. Therefore, the Project is classified as SSD under Part 4 of the EP&A Act.

4.2 PERMISSIBILITY

The Project Area is contained wholly within the Edward River Council LGA. The Edward River Council utilises three different LEPs to regulate land use and development within the LGA; the Project Area is subject to the provisions of the Conargo LEP.

The Project Area is zoned in its entirety as *RU1 – Primary Production* under the Conargo LEP.

State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) is applicable to the Project.

The Project meets the definition of 'electricity generating works', which are defined in Section 2.35 of the Transport and Infrastructure SEPP.

> *"electricity generating works means a building or place used for the purpose of—*
>
> *(a) making or generating electricity, or*

(b) electricity storage."

Section 2.36 (1) of the Transport and Infrastructure SEPP states that 'electricity generating works' may be carried out with development consent on land within a prescribed rural, industrial or special use zone.

> *Development for the purpose of electricity generating works may be carried out by any person with consent on the following land—*
>
> *(a) in the case of electricity generating works comprising a building or place used for the purpose of making or generating electricity using waves, tides or aquatic thermal as the relevant fuel source—on any land,*
>
> *(b) in any other case—any land in a prescribed non-residential zone.*

As RU1 is a prescribed rural zone, the Project is permissible with consent under the provisions of Section 2.36 (1) of the Transport and Infrastructure SEPP.

4.2.1 OTHER APPROVALS

Other approvals required under relevant NSW and Commonwealth legislation are detailed in **Table 4-1**.

TABLE 4-1 OTHER APPROVALS REQUIRED UNDER NSW AND COMMONWEALTH LEGISLATION

Approval Category	Legislation	Requirement
Consistent Approvals Section 4.42 of the EP&A Act outlines that these approvals cannot be refused if necessary for carrying out an approved SSD and are to be consistent with the terms of the SSD approval.	Roads Act 1993 (Roads Act)	The Project will require consent from the appropriate road authority under Section 138 of the Roads Act for any works undertaken on public roads. The impacts of the Project on roads and traffic will be assessed within the EIS.
EPBC Act Approval	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Approval from the Minister for the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) is required for any action that will or is likely to have a significant impact on one or more MNES.
Other Approvals	Water Management Act 2000	The Project may require water access licences under the Water Management Act 2000. The soil and water assessment will identify whether any water access licences will be required for the Project.
	Biodiversity Conservation Act 2016 (BC Act)	A Biodiversity Assessment Report (BDAR) will be prepared to accompany the EIS and will assess impacts on listed threatened flora and fauna species and threatened ecological communities (TECs). Any biodiversity offsets required under the Biodiversity Offset Scheme will be addressed in the EIS.

Approval Category	Legislation	Requirement
Approvals not required under SSD Section 4.41 of the EP&A Act outlines the following approvals, permits etc. are not required for an approved SSD.	Fisheries Management Act 1994	The Project will not require a dredging or reclamation work permit under Section 201, a marine vegetation regulation of harm permit under Section 205, or a passage of fish not to be blocked permit under Section 219.
	Heritage Act 1977	The Project will not require a Part 4 approval to carry out an act, matter or thing referred to in Section 57(1), or an excavation permit under Section 139.
	National Parks and Wildlife Act 1979	The Project will not require an Aboriginal heritage impact permit under Section 90.
	Rural Fires Act 1997	The Project will not require a bush fire safety authority under Section 100B, as the development does not involve subdivision for residential or rural residential development. A Bushfire Assessment will be prepared as part of the EIS.
	Water Management Act 2000	The Project will not require a water use approval under Section 89, a water management work approval under Section 90, or an activity approval (other than an aquifer interference approval) under Section 91.

4.3 MANDATORY MATTERS FOR CONSIDERATION

The consent authority is required to consider a range of matters when deciding whether to grant consent for the Project. These are referred to as mandatory considerations, which are detailed in **Table 4-2**.

TABLE 4-2 MANDATORY CONSIDERATIONS

Statutory Reference	Mandatory Consideration
Considerations under the EP&A Act and Regulation	
Section 1.3 – Objects of the Act	Pursuant to Section 1.3 of the EP&A Act, the Objects of the Act are: 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, to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment, to promote the orderly and economic use and development of land, to promote the delivery and maintenance of affordable housing, to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats, to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage), to promote good design and amenity of the built environment, to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

Statutory Reference	Mandatory Consideration
	to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State, to provide increased opportunity for community participation in environmental planning and assessment.
Section 4.15 – Evaluation	In accordance with Section 4.40 and Section 4.15 of the EP&A Act, the consent authority is required to take the following matters into consideration in determining a development application: Relevant environmental planning instruments; Relevant development control plans: The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality; The suitability of the site for the development; Any submissions made in accordance with this Act or the regulations; and The public interest. These will be considered in the EIS.
Considerations under other legislation	
Biodiversity Conservation Act 2016 – Section 7.14	The Minister for Planning is required to take into account the impact of the development on biodiversity values as assessed in the Biodiversity Development Assessment Report (BDAR). The Minister may (but is not required to) further consider under the Act the likely impact of the proposed development on biodiversity values.
Considerations under relevant EPIs	
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) – Chapter 3	Chapter 3 of the Resilience and Hazards SEPP assesses the potential hazards associated with the proposed development by providing definitions and guidelines for hazardous industry, offensive industry, hazardous storage establishments, and offensive storage establishments. In accordance with Section 3.7 of the Resilience and Hazards SEPP, consideration will be given to current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development.
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)– Chapter 4	Chapter 4 of the Resilience and Hazards SEPP provides a statewide planning approach to the remediation of contaminated land. Under Section 4.6 (1) of the Resilience and Hazards SEPP, a consent authority is required to consider whether a proposed development site is contaminated before granting consent. An assessment will be prepared as part of the EIS to determine the potential contamination risk associated with the Project.
Conargo Local Environmental Plan 2013	The EIS will address relevant components of the Conargo LEP, including the land use objectives for the 'RU1 – Primary Production' zone.

5 COMMUNITY AND STAKEHOLDER ENGAGEMENT

Samsung recognises that individual communities are both diverse and unique. Across our renewable energy portfolio, we work closely with local communities to deliver projects that leave a positive, long-term impact in the regions we operate.

While solar farms provide clean renewable energy, valuable community investment, economic diversity, and local jobs, they can sometimes receive a mixed response from the community. An effective and well-executed stakeholder engagement and consultation strategy is essential to building and maintaining positive community sentiment towards the Project and garnering local support, acceptance, and approval.

5.1 OBJECTIVES

The Community and Stakeholder Engagement Plan (the Plan) documents the communications and consultation strategy and activities that will be undertaken by the Project team up to and including the Environmental Impact Statement (EIS) public exhibition phase of the application process.

In addition, the Plan intends to identify communication and engagement activities to proactively manage Project perceptions and expectations. This includes responding to enquiries, concerns and issues, to ensure stakeholders and community are heard and understood, and wherever possible, issues resolved.

The objectives of the Plan are to:

- **Identify stakeholders** – map the community and engagement environment to identify stakeholders with an interest in and influence on the Project;
- **Actively and respectfully engage** – identify and provide multiple, targeted communication channels for two-way engagement with stakeholders. Provide clear, consistent and compelling messages to increase stakeholder awareness and understanding of the Project and its benefits;
- **Build support** – identify opportunities to build positive sentiment, with residents and stakeholders across various channels;
- **Anticipate risk** – identify and proactively manage risk to minimise issues with the potential to create resistance, impacting Project timelines and budgets;
- **Respond to community feedback** – provide opportunities for stakeholders to raise concerns and provide feedback. Act on feedback received to build trust, legitimacy and credibility to enhance Samsung's social licence to operate; and
- **Reflect best practice** – ensure compliance with the NSW Government consultative requirements under relevant planning instruments and guidelines.

The Plan complies with NSW Government consultative requirements under relevant planning instruments and guidelines, including:

- *Undertaking Engagement Guidelines for State Significant Projects* (NSW DPE, 2022);
- *SSD Guidelines* (DPE, October 2022);
- *Large-scale Solar Energy Guideline 2022* (DPE, 2022a)*;*
- *Community Participation Plan*, NSW DPE, (DPE, November 2019); and

- *Social Impact Assessment Guideline for State Significant Projects*, (DPE, 2021b).

5.2 ENGAGEMENT PRINCIPLES

The Plan provides the blueprint for robust, consistent engagement that aligns with the following principles[1]:

- **Respectful** – seek to understand and be responsive to community concerns;
- **Honest** – be open and transparent about the project, decisions and activities, and about what aspects of the Project can be influenced by stakeholders;
- **Accessible and inclusive** – provide clear, concise information in formats and channels that best meet a community's needs;
- **Proportionate** – tailor engagement to reflect the level of impact across the stakeholder environment;
- **Evidence-based** – base engagement activities and tools on an understanding of community demographics, history, and social and economic influences;
- **Timely and high-profile** – engage early, across the entire Project lifecycle, and widely promote access to Project information, feedback channels and engagement activities; and
- **Accurate reporting** – build robust systems to record feedback, track response timeframes and record how feedback has been incorporated into the Project.

5.3 STAKEHOLDERS

Samsung has identified the following stakeholder groups for the Romani Solar Farm:

- **Community** – proximal landowners, sensitive residential receivers, community interest groups, environmental groups, Indigenous communities, media, surrounding communities;
- **Business** – sensitive business receivers, business representative groups, local service providers, local industry (coal and electricity), utilities;
- **Local government** – Edward River Council elected officials and executive staff;
- **Elected representatives** – State and Commonwealth; and
- **Government agencies** – NSW and Commonwealth.

5.4 PROPOSED ENGAGEMENT TOOLS AND ACTIVITIES

To facilitate engagement, the Project will deploy a range of communication and engagement channels to keep stakeholders informed, consulted, and engaged throughout the Project's life. **Table 5-1** below outlines the proposed engagement channels to use across the Project stages.

[1] These engagement principles are Project-specific, based on the foundational principles outlined in the IAP2 Core Values, the NSW Government's Undertaking Engagement Guidelines for State Significant Projects, and the CEC's Community Engagement Guidelines

TABLE 5-1 COMUNICATION AND ENGAGEMENT CHANNELS

Channel / tool	Description and purpose
Stakeholder database	A stakeholder database will be established and maintained to ensure that all stakeholder feedback, concerns, enquiries and interactions are recorded and responded to
Project email	A Project email address will be established to provide an ongoing channel for stakeholders to communicate with the Project team The email address will be used to send Project updates, construction notices, fact sheets and other collateral to registered stakeholders
Project hotline	Project information phone line: 1-800-607-484 The phone line is available to stakeholders and the community during the life of the Project. During regular business hours, calls will be answered and responded to. Outside business hours, a recorded message and voice mail facility will encourage callers to leave a message or send an email
Project website	Project website: http://samsungrenewableenergy.com The website will be regularly updated to ensure information currency. Core information on the website will include a Project overview and map, benefits, contact details, complaints process and feedback form, and FAQs (updated regularly). The site will also include information on upcoming engagement activities, Project milestones, fact sheets, Project updates, construction notifications, and upon lodgement, a link to the EIS on DPE's Planning Portal website
Project cards	Printed Project cards with contact details, including email, hotline, and website. Project cards will direct stakeholders to contact the Project community relations team Project cards to be distributed to stakeholders and local community During construction, workers would keep and distribute when asked questions about the Project
Introductory letters – addressed mail	Introduce the Project and Project team to identified stakeholders within 4km of the site
Briefing pack	PowerPoint (or similar) briefing pack created for stakeholder briefings and meetings to ensure consistency of information. Include details about the Project, map, benefits, timeline, development process, current status and FAQs
Direct, targeted engagement, such as in-person meetings and stakeholder briefings	Opportunity to engage stakeholders and decision makers to better understand their perspectives, such as landowners and proximal neighbours May include in-person or online meetings, phone calls and presentations
Letterbox drops – unaddressed mail	Used in conjunction with digital communication channels to provide Project information (including fact sheets, FAQs) Unaddressed letterbox drops used during construction phase to deliver construction notifications
Electronic direct mail (EDM)	Project updates, newsletters, notifications, etc, sent via email to registered stakeholders following Scoping Report stage

Channel / tool	Description and purpose
FAQs	Create and regularly update a list of frequently asked questions with responses These would be placed on the Project website and also sent to stakeholders upon request
Fact sheets	Project factsheets would be used to support engagement activities, for letterbox drops and uploaded to the website May expand factsheets to provide information on topics such as the planning process, solar farm operations and the electricity grid, benefits of renewable energy or solar farms and health and safety
Surveys and questionnaires	If required, use surveys and/or questionnaires to invite comments and detailed feedback These may be online only or a mix of online and hard copy
Community information sessions	Local community information sessions, eg, drop-in sessions, will commence following the Scoping Report lodgement to support genuine engagement and provide opportunities to provide direct feedback These sessions provide an opportunity for the community to meet Project team experts, and ask questions Events will feature visually interesting and easily understood visual materials to describe the Project, its benefits, planning process, timeframes May also include stands at local events such as field days or local shows
Advertising	Used to promote community information sessions, community events and public exhibition periods during the EIS phase
Image library	Site photography, including timelapse, may be used for promotional activities, including the Project website, EDMs and community events

Note: This list of channels and tools will be updated in the Community and Stakeholder Engagement Plan following SEARs and to reflect any changes to the Project based on stakeholder feedback.

5.5 CURRENT COMMUNICATION AND ENGAGEMENT ACTIVITIES

Table 5-2 below details the engagement activities Samsung has conducted to prepare the scoping report.

TABLE 5-2 ENGAGEMENT ACTIVITIES TO DATE

Timing	Objectives	Activities
March 2022 – October 2023	Property owner negotiations to secure option to lease proposed project site	Discussions with seven landholders
	Determine the project's physical and financial viability	Completed preliminary constraints analysis
	Conduct technical assessments to identify associated and non-associated receivers within a 4 km radius of the site	Initial stakeholder mapping of proximal, non-associated receivers
	Make initial contact with key stakeholders, including council and proximal landowners	Engagement with non-associated, proximal landowners/receivers

Timing	Objectives	Activities
Oct 2023	Engagement with proximal neighbours	Letters sent to proximal neighbours
Oct 2023	Develop communication and engagement strategy	Develop communication and engagement strategy, including detailed stakeholder mapping and analysis, engagement approach, identifying risks and potential issues, and a detailed action plan
Oct – Nov 2023	Engagement with Indigenous groups	Agency letters and local newspaper adverts placed inviting interested parties to register their interest in the Aboriginal Cultural Heritage Study. Project methodology issued to Registered Aboriginal Parties for comment.
Nov 2023	Develop project narrative, including key messages, to ensure consistency throughout engagement activities	Project messaging developed for project communications, website, and stakeholder meetings
Nov 2023	Develop foundational communication and engagement channels	Establish project website, 1800 number, email address and project database (in progress)
Nov 2023	Introduce the project to key stakeholders and gather feedback	Meetings with Edward River Council and Department of Planning and Environment during November 2023 to provide an overview of the Project and key issues to be addressed in the EIS

5.6 STAKEHOLDER FEEDBACK AND ENGAGEMENT OUTCOMES

Table 5-3 below provides a summary of stakeholder feedback and engagement outcomes received during project initiation, including the preparation of the feasibility study and scoping report preparation.

TABLE 5-3 FEEDBACK AND ENGAGEMENT OUTCOMES SUMMARY

Date	Stakeholder	Feedback and outcomes
1/3/22	Council	• Initial meeting with Council. Council positive about renewable developments, job creation and local growth.
9/3/22	DPE	• Initial meeting with DPE to introduce Proponent and Project
25/3/22	Neighbour	• Positive feedback about renewables development
29/3/22	Neighbour	• Initial engagement
26/4/22	Neighbour	• Leasing options for solar farm
27/4/22	Neighbour	• Questions around project footprint, remuneration, costs
24/5/22	Neighbour	• No environmental issues raised

Date	Stakeholder	Feedback and outcomes
26/10/23	Landowners letters	• Letters sent to all proximal neighbours to provide update on the Project and invite feedback • No concerns raised by neighbours
30/11/23	DPE	• Pre-lodgement meeting with DPE to provide overview of proposed development, key issues to be address in Scoping Report, and consultation undertaken with neighbours and stakeholders
26/10/23	Registered Aboriginal Parties (RAPs)	• Invitation to register interest in the project
30/11/23	RAPs	• ACHAR Project Methodology issued for comment
7/1/24	RAPs	• Responses received from two RAPs

5.7 PROPOSED COMMUNICATION AND ENGAGEMENT ACTIVITIES

Table 5-4 below provides a matrix mapping engagement objectives and planned activities to support the project's planning and approvals phase. It covers the period from the submission of the scoping report to the EIS public exhibition.

This is a significant time for any major construction project. It presents significant opportunities for engagement and building a solid understanding of the local community and stakeholders. If engagement is effective at this stage, it will help build trust and lay the foundation for a lasting social licence to operate – which is vital for a project with an operating life in excess of 30 years.

Pending project approval, this plan will be updated to reflect engagement requirements for announcing project determination, detailed design, construction, operation and decommissioning.

TABLE 5-4 FUTURE COMMUNICATION AND ENGAGEMENT ACTION PLAN

Timing	Objectives	Activities
Planning and approvals		
Agency and Council engagement	• Engage with government agencies and Council on the methodology for EIS technical studies • Engage with Council on development contributions and planning agreement	• Consult with Transport for NSW on transport route for OSOM • Consult with Biodiversity and Conservation Division on the proposed methodology for BDAR • Meet with Edward River Council to discuss development contributions, planning agreement and local road upgrades
SEARs issued	• Establish genuine, transparent relationships with the community and council • Announce commencement of EIS process and brief council. • Reassure proximal and non-proximal non-associated sensitive receivers of Samsung's intention to maintain consultation during the project design phase • Provide clear information about the planning process and focus areas of EIS • Promote opportunities for community and stakeholder input into the development of EIS and project design • Keep stakeholders informed on progress and timeframes.	• Meet with Council's SSD Committee, if required • Send letters to impacted proximal and non-proximal non-associated sensitive receivers inviting them to meet with the project team • Host a Community Information Session to introduce the project and provide information about the planning process, EIS focus areas and opportunities for stakeholder input • Promote Community Information Session/s via multiple channels, including website, EDMs, letterbox drops, advertising and media • Record feedback in stakeholder database and demonstrate how it may inform final project design • Develop factsheet on planning approval process and update website FAQs
EIS public exhibition (28 days)	• Continue building genuine, transparent relationships with the community and council • Offer support for impacted proximal and non-proximal non-associated sensitive receivers to prepare EIS submissions • Provide clear information about the planning process and focus areas of EIS • Promote opportunities for community and stakeholder input into the development of EIS and project design • Keep stakeholders informed on the progress of development application. • Promote community information sessions	• Brief council on EIS before submission • Issue media release announcing the EIS public exhibition • Host at least two Community Information Sessions attended by Samsung's technical specialists to provide opportunities for stakeholders to ask questions and provide feedback • Develop strong visual collateral to support information sessions • Record feedback in stakeholder database and demonstrate how it may inform final project design • Promote Community Information Sessions via multiple channels, including website, EDMs, letterbox drops and advertising • Develop factsheets aligned with EIS focus areas, including construction impacts, operational impacts, biodiversity, flooding and bushfires in response to community feedback.

6 PROPOSED ASSESSMENT OF IMPACTS

6.1 CATEGORISATION OF ASSESSMENT MATTERS

This section outlines matters requiring further assessment in the EIS and the level of assessment that should be undertaken for each matter. A preliminary environmental assessment was undertaken to identify the potential matters associated with the proposed construction and operation of the Project. The following were considered in the identification of matters requiring further assessment in accordance with the Scoping Report Guidelines (DPE, 2021a):

- 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;
- The ability to avoid, minimise and/or offset the impacts of the Project, to the extent known at the scoping stage; and
- The complexity of the technical assessment of the Project.

Each matter and its proposed level of assessment (detailed or standard) is identified in **Table 6-1.** Detailed assessments include environmental aspects that present a potential high constraint to the development, and other aspects which require detailed assessment, but do not pose a high risk constraint. In addition, the matters have been categorised to align with those identified in the Scoping Report Guidelines, and a Scoping Summary Table has been included in **Appendix B**.

The key matters requiring more detailed assessments have been identified based on a preliminary assessment of the Project Area and by taking into consideration other solar farm developments in NSW.

TABLE 6-1 PROPOSED ASSESSMENT

Level of Assessment	Aspect
Detailed (potential constraint)	• Amenity –Visual • Biodiversity – terrestrial flora and fauna • Heritage - Aboriginal • Access - Traffic and Transport
Standard	• Amenity – Noise, vibration • Heritage – Historic • Hazards and Risks – bushfire, environmental hazards, waste • Social – surroundings, livelihoods • Water - hydrology • Land – land capability

The EIS will be prepared in accordance with the SEARs to be issued by DPE in response to this Scoping Report, and will incorporate the issues which have been outlined in **Table 6-1** above. All assessments (including specialist assessments) will be completed by taking into consideration consultation with stakeholders, industry best practice guidelines, and the experiences from other renewable energy projects.

6.2 VISUAL AMENITY

This section provides a summary of the results and findings of the Preliminary Visual Impact Assessment (PVIA) prepared and contained as **Appendix C** to this Scoping Report.

The PVIA was undertaken by Arcadia LA in November 2023. The PVIA was prepared in accordance with the:

- *Large-Scale Solar Energy Guideline (August 2022);*
- *Large-Scale Solar Energy Guideline – Technical Supplement: Landscape and Visual Impact Assessment (August 2022);*
- *Environmental Planning and Assessment Regulation 2021; and*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP).*

In accordance with the requirements of the *Large-Scale Solar Energy Guideline* and Technical Supplement, the PVIA includes a preliminary landscape character assessment and a preliminary visual impact assessment.

6.2.1 EXISTING VISUAL AND LANDSCAPE CHARACTER

A 'Study Area' of 4km from the Project boundary has been defined in accordance with the Technical Supplement 2022. The Study Area is characterised by vast open paddocks generally used for grazing. Scattered areas of vegetation are across the paddocks and on roadside edges.

Land within the Study Area is predominantly modified with flat open areas of heavily disturbed/cleared grazing or cropping land. Additionally, there are dry creek and riverbeds, minor undulations in the flat landscape sometimes with trees and under-storey vegetation. Topography in the wider context is generally flat with minor changes in old remnant creek lines. An existing overhead 220 kilovolt (kV) transmission line intersects the Project.

There is one associated dwelling located within the Project Area. There is one non-associated dwelling located within 2.5km to the south of the Project Area (refer to **Table 6-2**).

6.2.2 ASSESSMENT APPROACH

6.2.2.1 PRELIMINARY ASSESSMENT TOOL

The preliminary assessment tool identifies viewpoints (public and private) within 4km of the Project Area that will require a detailed assessment in Stage 2. Application of the preliminary assessment tool identified that a total of seven (7) viewpoints from public and private roads are within 4km of the proposed development. Additionally, one (1) non-associated dwellings were identified within 4km of the Project. Viewshed mapping indicates that the majority of the Project will be visible from the western and some eastern public viewing locations within 4km of the Project Investigation Area.

TABLE 6-2 VIEWPOINTS LOCATED WITHIN 4KM OF THE SOLAR FARM BOUNDARY

ID	Viewpoint type	Distance from nearest panel (m)	Detailed Assessment Required
VP01	Transport / Infrastructure	1100 m (approx.)	YES
VP02	Transport / Infrastructure	1500 m (approx.)	YES
VP03	Transport / Infrastructure	2000 m (approx.)	YES
VP04	Transport / Infrastructure	100m (approx.)	YES
VP05	Transport / Infrastructure	100 m (approx.)	YES
VP06	Transport / Infrastructure	2000 m (approx.)	NO
VP07	Transport / Infrastructure	1500 m (approx.)	NO
VP08	Residential	800 m (approx.)	YES

6.2.2.2 POTENTIAL CUMULATIVE VISUAL IMPACTS

In accordance with the Cumulative Impact Assessment Guidelines (DPE, 2022b), the area chosen to assess relevant cumulative impacts from other developments should not be unnecessarily large or include areas where the cumulative impacts are likely to be negligible, relative to the baseline condition of the relevant Project. Visibility research suggests solar panels and objects recede into the background in terms of visibility at 8km (DPE, 2022b).

The occurrence of large-scale renewable energy projects within a region has the potential to alter the perception of the overall landscape character irrespective of being viewed in a single viewshed as these projects could become part of the existing landscape. It is important to determine whether the effect of multiple projects and other major infrastructure within the region would combine to become the dominant visual element, altering the perception of the general landscape character.

The Project Area is located adjacent to The Plains Solar Farm. The EIS will consider the cumulative visual impacts of the Project and the neighbouring development at The Plains Solar Farm. Other renewable energy projects within the South West REZ (such as Lang's Crossing Solar Farm and Hay Solar Farm) are located more than 10km from the Project Area, and unlikely to be visible simultaneously with the project and therefore do not require detailed assessment in the EIS.

6.2.2.3 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

A landscape and visual impact assessment will be undertaken as part of the EIS for the Project, which will assess the likely visual impacts resulting from the Project. The assessment will consider the potential impacts of the Project (including reflectivity, glare, and night lighting) on nearby receptors, and scenic or significant views, including public viewpoints in accordance with the requirements of Appendix C of the Large-Scale Solar Energy Guideline (DPE, 2022a).

Specialised modelling tools and visualisations (including photomontages) will be developed to illustrate potential views of the Project from key public viewpoints identified through this report. In addition, site inspections will be undertaken from key public viewpoints identified as requiring further assessment.

The LVIA will include an assessment of the landscape and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure. Further assessment will be undertaken to assess potential impacts of glint and glare using industry standard methodology.

Cumulative impacts on visual and landscape amenity associated with other renewable energy developments in the region will also be assessed further in the EIS.

6.3 NOISE AMENITY

6.3.1 EXISTING ENVIRONMENT

Based on review of available online aerial imagery, the existing noise environment at the closest noise sensitive receptors is characterised to be that of a typical rural area, dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels.

The closest residential receptor is the existing farm dwelling (377 Romani Road, Booroorban) on the Site (i.e. associated dwelling) and one non-associated residential receivers within the area of influence of 2 km from the Project area. Noise impacts from the construction and operation of the solar farm at the closest sensitive receptors are not anticipated to be significant.

6.3.2 LEGISLATIVE CONTEXT & ASSESSMENT APPROACH

The EIS will assess the construction and operational noise impacts at the noise sensitive receptors within the area of influence.

During the construction phase, noise and vibration impacts from machinery, equipment and vehicle movements on access roads may adversely impact nearby sensitive receptors. Construction noise generated by the Project will be assessed at the EIS, including noise impact levels and duration.

During the operational phase of the Project, noise impacts are anticipated to be minimal, and will likely be associated with noise sources such as vehicle movements on local roads within the study area and electrical infrastructure (transformers, power conversion units, BESS and substation). It is not anticipated that the operation of the solar farm will produce significant vibration impacts.

The noise and vibration assessment will be developed in accordance with the following standards and guidelines:

- NSW Interim Construction Noise Guideline (DECC 2009);
- NSW Noise Policy for Industry (EPA 2017);
- NSW Road Noise Policy (DECCW 2011); and
- Assessing Vibration: A Technical Guideline (DECC 2006).

6.4 BIODIVERSITY

ERM conducted a Preliminary Biodiversity Assessment to inform the Scoping Report for the project, as presented in **Appendix D**. This section summarises the methodology, results and recommendations presented in the Preliminary Biodiversity Assessment.

The objective of this assessment was to provide an indication of potential ecological constraints that may occur within the Project area. The results of this assessment are based on desktop reviews, remote sensing, and biodiversity field surveys undertaken in October 2023. This assessment allows preliminary recommendations to be provided in terms of avoidance, mitigation and/or additional assessment for biodiversity values.

6.4.1 EXISTING ENVIRONMENT

Native vegetation and landscape features within the locality are summarised in the Preliminary Biodiversity Assessment (PBA) (refer **Appendix D**). The Project Area is located entirely within the Riverina Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and the Murrumbidgee IBRA Sub-region.

The Murrumbidgee Sub-region is characterised by an alluvial fan with distributary channels and floodplains, undulating plains with depressions. Source-bordering dunes are common. The main connectivity features within the Sub-region are the Colombo Creek, Murrumbidgee River and Yanco Creek. The area is often dominated by River red gum and river cooba on channels; Black box, lignum and old man saltbush on floodplains and grasses formerly widespread on backplains; and White cypress pine on dunes.

The climate is dominated by a persistently dry semi-arid climate, and characterised by hot summers and cool winters. Large portions of land within the Project Area have been disturbed and are characterised by grazed native and modified grasslands resulting from vegetation clearing and livestock grazing.

The State Vegetation Mapping (SEED) has identified ten PCTs occurring on the Project Area (refer to **Table 6-4**). In addition, Section 4.2 of the PBA lists the associated threatened ecological communities with the PCTs. It is noted that approximately a quarter of the Project Area has not been classified for PCTs. Further assessment is required to determine the area occupied by the above listed PCTs. The mapping will be refined during subsequent field investigations during the EIS phase.

The stands of native vegetation present on site potentially provide important refuge, foraging and nesting habitat of native fauna.

6.4.2 LAND CATEGORISATION

Areas of native vegetation that occur within the Study Area (i.e., 1500m buffer to the Subject Land (otherwise known as the Project Area)) were calculated using data extracted from the recently published draft NVR Map. Broad assumptions have been made in determining the extent of native vegetation cover as outlined below:

- Category 1 – Exempt lands (draft): These lands are likely to have been cleared in the past for cropping and other high intensity agricultural activities. While native vegetation may occur across lands in this category, it is likely to be substantially disturbed and may be cleared without any requirement for regulatory approvals;

- Category 2 – Vulnerable Regulated Land (In-Force): These lands, which include riparian zones, steep lands and specially mapped areas are assumed to be 100% covered by native vegetation; and
- Category 2 – Regulated land (Draft): These lands are likely to comprise native vegetation cover as the predominant land use of the area (excluding cropping lands) is livestock grazing with limited pasture improvement. It has been assumed that the conservation value of the groundcover is at least medium.

The extent of native vegetation cover in the Assessment Area is provided in **Table 6-3** .The estimated native vegetation cover for the Assessment Area is within the highest category and is therefore considered to be a conservatives estimate for the purpose of this biodiversity assessment.

TABLE 6-3 AREA OF NATIVE VEGETATION

Aspect	Value
Study Area (ha)	4,210 ha
Total Area of Native Vegetation Cover (ha) Category 2 – Regulated land (Draft) Category 2 – Vulnerable Regulated Land (In-Force)	 3,394 ha 54 ha
Total Area of Exotic vegetation (ha) Category 1 exempt lands (draft)	762 ha
Percentage of Native Vegetation Cover (%)	82%
Class (0-10, >10-30, >30-70 or >70%)	>70%

An interim assessment of land categorisation, based on desktop search and Biodiversity Assessment Method (BAM) Plot data revealed that land within the western areas of the Project Area are routinely cropped and accordingly align with the definition of Category 1 exempt lands (i.e., lands with clear historical evidence of lawful land clearing followed by cropping and/or pasture management), refer to **Figure 6-1** .

The extent of native vegetation cover in the Assessment Area is provided in Table 3-2 of the Preliminary Biodiversity Assessment Area of native vegetation were initially identified through the Draft Native Vegetation Map (Draft NVR Map). The Draft NVR Map provides a classification for lands not mapped as Category 2 vulnerable lands on the transitional NVR Map (i.e., land mapped by the Environment Agency Head as land steep or highly erodible land, protected riparian land or special category land). Criteria for classifying these lands is provided in s60I of the LLS Act. Further analysis is required to finalise the land category assessment. This will involve the consideration of landholder records and datasets obtained from ongoing survey to determine the full extent of Category 1-exempt lands.

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

Legend

- Assessment Area
- Development Footprint
- Road
- Path/Track
- Major Watercourse
- Minor Watercourse

Draft Native Vegetation Regulatory Map

- Category 1 - Exempt Land (Draft)
- Category 2 - Regulated Land (Draft)
- Category 2 - Vulnerable Regulated Land (In-Force)

Source:
NSW DCDB and DTDB 2023
NSW SVTM 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024
Created By: RT/VN
Drawing Size: A3

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F6.1 - Land Categorisation Assessment

Romani Solar Farm

Samsung

ERM

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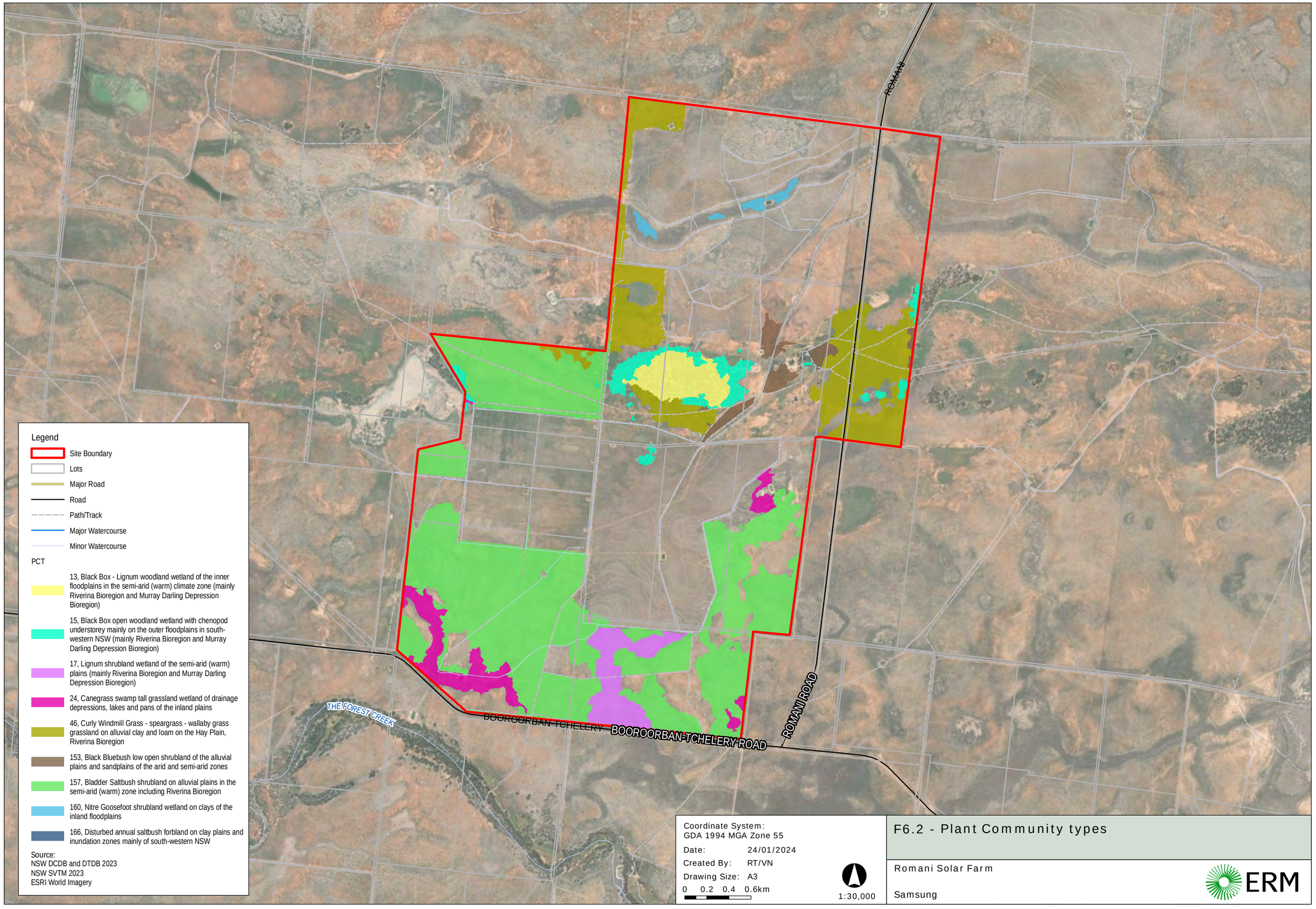
6.4.3 PLANT COMMUNITY TYPES

A review of the State Vegetation Type Mapping (STVM) for the South West region was undertaken to access existing vegetation mapping information within the Project Area. This mapping was further refined based on the ERM Spring 2023 survey observations and BAM plot data, resulting in a total of ten PCTs occurring on the Project Area. **Table 6-4** below lists these PCTs and their area (ha), and **Figure 6-2** presents updated mapping within the Project Area.

TABLE 6-4 PLANT COMMUNITY TYPES WITHIN THE PROJECT AREA

PCT No.	PCT Name	Vegetation Class	Percent Cleared Value (%)
13	Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone	Inland Floodplain Woodlands	57%
15	Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW	Inland Floodplain Woodlands	50%
17	Lignum shrubland wetland of the semi-arid (warm) plains	Inland Floodplain Shrublands	63%
24	Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	Inland Floodplain Shrublands	20%
46	Curly Windmill Grass – Speargrass – Wallaby Grass grassland on alluvial clay and loam on the Hay Plain	Riverine Plain Grasslands	20%
153	Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones	Aeolian Chenopod Shrublands	40%
157	Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone	Riverine Chenopod Shrublands	60%
160	Nitre Goosefoot shrubland wetland on clays of the inland floodplains	Inland Floodplain Shrublands	28%
164	Cotton Bush open shrubland of the semi-arid (warm) zone	Riverine Chenopod Shrublands	8%
166	Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW	Inland Saline Lakes	34%

[1]To be determined in subsequent field survey periods.



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6.4.4 THREATENED ECOLOGICAL COMMUNITIES

PCTs mapped by the SVTM within the Subject Land were reviewed to identify any potential TEC associations. The results are presented in **Table 6-5**.

TABLE 6-5 TECS IDENTIFIED ON THE SUBJECT LAND

PCTs	Associated TEC	BC Act Listing	EPBC Act Listing
24, 160	Artesian Springs Ecological Community in the Great Artesian Basin	Critically endangered	Not listed
46	Natural Grasslands of the Murray Valley Plains.	Not listed	Critically endangered
153	Acacia loderi shrublands (Part)	Endangered	Not listed

The following interim conclusions are provided:

- The Artesian Springs Ecological Community in the Great Artesian Basin CEEC is discounted as being present within the Subject Land as it does not comprise any artesian fed springs;
- The Natural Grasslands of the Murray Valley Plains CEEC (Commonwealth listing), if present, would be restricted to natural grassland areas where sufficient characterise forb and grass species occur. This will be ascertained using BAM pot data during the preparation of the BDAR; and
- The *Acacia loderi* shrublands EEC is not present within the Subject Land as field verification surveys failed to identify any occurrence of the characteristic canopy species. Confirmation of this conclusion will be provided in the BDAR.

Potential exists for some of the native vegetation located on a sandy rises to be a derived form of the Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions - Endangered Ecological Community listing. Analysis of detailed plot data against the listing advise is required to determine the presence and extent of this community within the Subject Land if it is deemed present.

6.4.5 THREATENED FLORA AND FAUNA SPECIES

Review of the BAM-C completed as part of the Preliminary Biodiversity Assessment in **Appendix D**, there are five Candidate Species that have the potential to occur within the Project Area. No species were identified in the Project Area that belong to endangered populations.

The locations of individuals of these populations recorded during the spring survey period have been recorded and be seen in **Figure 6-3**.

In accordance with the requirements of Section 5.2 of the BAM, the BDAR will identify the habitat suitability for threatened species within the Project Area. Species that meet all the relevant criteria will be automatically populated in the BAM-C (BAM Calculator) to be assessed either for ecosystem credits or species credits. No further assessment is required for those species that are unlikely to occur or where the Subject Land within the Project Area is considered as unsuitable habitat.

Species credit species are likely to have suitable habitat on the Subject Land, which are referred to as 'candidate species' in the BAM-C. A preliminary list of candidate species is provided in **Table 6-6**.

TABLE 6-6 PRELIMINARY LIST OF CANDIDATE SPECIES

Common Name	Scientific Name
Fauna	
Australian Bustard	*Ardeotis australis*
Bush Stone-curlew	*Burhinus grallarius*
Little Eagle	*Hieraaetus morphnoides*
Southern Bell Frog	*Litoria raniformis*
Major Mitchell's Cockatoo	*Lophochroa leadbeateri*
Square-tailed Kite	*Lophoictinia isura*
Barking Owl	*Ninox connivens*
Koala	*Phascolarctos cinereus*
Superb Parrot	*Polytelis swainsonii*
Masked Owl	*Tyto novaehollandiae*
Flora	
A Spear Grass	*Austrostipa wakoolica*
Mossgiel Daisy	*Brachyscome papillosa*
A Burr-daisy	*Calotis moorei*
Bindweed	*Convolvulus tedmoorei*
Yellow Gum	*Eucalyptus leucoxylon subsp. pruinosa*
Winged Peppercress	*Lepidium monoplocoides*
Lanky Buttons	*Leptorhynchos orientalis*
Chariot Wheels	*Maireana cheelii*
Turnip Copperburr	*Sclerolaena napiformis*
Slender Darling pea	*Swainsona murrayana*
Red Darling pea	*Swainsona plagiotropis*
Silky Swainson Pea	*Swainson sericea*

CLEARVIEW ROAD

GLENHOPE ROAD

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

COBB HIGHWAY

WARGAM ROAD

Legend

Site Boundary

Flora

Chariot Wheels

Mossgiel Daisy

Slender Darling Pea

Winged Peppercress

Fauna

White-fronted Chat

Road

Source:
NSW DCDB 2023
NSW BioNet 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024

Created By: RT/VN

Drawing Size: A3

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F6.3 - Threatened Species Known within the Project Area

Romani Solar Farm

Samsung

ERM

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6.4.6 ASSESSMENT APPROACH

The construction and operation of the Project has the potential to cause impacts to threatened species and TECs listed under the BC Act and EPBC Act. These will need to be considered as part of the EIS to be prepared under Part 4 of the NSW EP&A Act.

As there are recorded Biodiversity values within the Project Area, further implementation of the BAM and the preparation of the Biodiversity Development Assessment Report (BDAR) are expected to be required.

Candidate species will be selected for further assessment by considering how they and their habitat might be affected by the Project. A preliminary list has been presented above in **Table 6-6**.

In this instance the main potential impacts of the Project (during construction and operation) that would need to be assessed include:

- Impacts to TECs;
- Loss of native vegetation communities and associated fauna habitat and the subsequent impacts to local population of native species;
- Increased habitat fragmentation;
- Mortality and injury from vehicle strikes and vegetation clearing; and
- Mitigation measures relevant to threatened species, TECs, native vegetation communities, hydrology and construction impacts will be addressed within the EIS. There is also a risk that weeds may be transported within and off-site. Mitigation measures to reduce the chance of the spread of weeds will be considered within the EIS.

The desktop assessment and field surveys undertaken to date have highlighted a range of known and potential biodiversity constraints. The following steps are considered essential in ensuring an adequate assessment of biodiversity values is continued throughout future stages of the Project:

- Prepare and submit a BDAR in accordance with the BAM;
- Prepare a detailed assessment of MNES; and
- Conduct further targeted seasonal fauna and flora surveys for species considered likely or potentially occurring within the Project Area in accordance with the BAM.

6.5 ABORIGINAL CULTURAL HERITAGE

6.5.1 EXISTING ENVIRONMENT

The Project Area is located within the Murrumbidgee Province of the Riverina Bioregion. The Murrumbidgee Province is generally comprised of a natural flat landscape largely consisting of clays, silts and sands which historically has been subject to a consistent cycle of annual flooding. Environmental influences on this landscape have varied dramatically over time with post glacial climate changes in the Holocene reducing flood peaks and sediment load. Over time this has resulted in modern watercourses crossing and cutting through earlier palaeochannels. These landscape features provide complexity to an assessment of archaeological sensitivity within the Riverine region that may not be identified through the predictive features of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010).

A localised landscape based predictive model was developed by Colin Pardoe for the 'Murrumbidgee Province' as part of the Murrumbidgee Province Aboriginal Cultural Heritage Study (Pardoe & Martin, 2001). This predictive model has focused on the localised landform features and their relationship to site identification and includes assessment of the Project Area. Pardoe's assessments considered the relationship between several landform features and the location of sites making the following conclusions.

- **Water** – The pattern of site distribution was identified as having its greatest concentration within close proximity to watercourses. Some variation in site distribution based on water source type was also noted:
  - Major Streams – No site was located more than 12 km from a major river channel with most sites found with a short distance of this channel (75% of sites were within 3.3 km of a major stream);
  - Minor Streams – No site was located more than 12 km from a minor stream (75% were within 2.2 km);
  - Lakes – More than 82% of sites are found within 8 km of a lake; and
  - Swamps – No obvious pattern of distribution was identified which was attributed to variations in the way swamps are described in official mapping data.
- **Landforms** – Plains made up 93% of the province, and as such minor variations in landform were noted to be significant as an impetus to the flow of water and location of resources. While sites were identified across most landforms patterns; channelled plain and confined trace landforms were identified as containing a disproportionate number of sites. These landforms were most often associated with the modern active floodplain. Comparatively, burials were most often associated with scalded, channelled and depressed plains associated with paleo environments.
- **Soils** – Soil type was noted for its association with water resources and vegetation communities. Based on this association, varying soil types were identified to be associated more closely with site features (hearths, mounds etc) rather than overall site distribution.

Additional large-scale reviews of archaeological site types were completed by Martin in her review of the Hay Plain (Martin, 2007a; Martin, 2010). Martin noted a number of patterns in site distribution related to environmental features. In particular, Martin (2007a, 2010) noted that:

- The narrow floodplains or confined traces of the Murrumbidgee and Lachlan, the Lowbidgee distributary system, the Gum Creek palaeochannel, and the Abercrombie Creek system in the Hay Plain have the highest density of sites. Large open water lakes also have a high density of sites;
- Sites are widely spread over different geomorphic categories across the Hay Plain with certain site types most likely to be identified in specific soil types. Confined traces (including the Murrumbidgee River), plains with channels, plain with depressions and channelled plains contained a higher density of sites. Localised landforms including lunettes and lakes were also identified to have a higher than average site density;
- Mounds were identified to be located to particular parts of the Hay Plain and not directly related to geomorphology. Mounds were noted to be particularly dense along confined traces of The Lowbidgee and Hay Plain Southeast;
- Middens were identified to be largely located along the confined traces of the major rivers and on the banks of large water lakes and lunettes;
- Open sites were more commonly found away from riverine grey cracking clays;
- Burials appeared to cluster in the western portion of the Hay Plain in similar locations to mounds. These sites were not identified to be connected to geomorphology;
- Artefact sites and ground ovens were recorded to have been spread widely across the Hay Plain; and
- All archaeological site types were considered likely to occur on slightly raised sandier paleochannel features.

Martin noted that on a wider scale that the gently west sloped topography of the Hay Plain was identified to have an influence on the overall presence of sites. Martin suggested this may have been related to earlier water retention environments. Prior to modern water control systems, it was noted that the western half of the Hay Plain would have acted as a sump which collected seasonal floodwater and excess rainfall and would have provided appropriate resources for the growth of many plant and animal resources. Mound sites in the area surrounding Gum Creek and the Abercrombie Creek System were noted to be focused on paleo channel features and around ephemeral lakes and swamps (Martin, 2007a).

The vast majority of the Project Area is comprised of landform types which were identified by Pardoe and Martin as having the potential to contain Aboriginal sites. Sensitivity mapping focused on delineating sensitivity into zones based on types of sites which would be expected in each landscape. Areas associated with scalded plains and paleo environments were assessed to contain high archaeological sensitivity associated with their potential to contain burials and intact deposits while depression plains and otherwise clay-based deposits were considered to demonstrate moderate sensitivity. Delineation of soil landscapes was based off data available from the Reconnaissance Soil Landscape of the Riverine Plains (Department of Natural Resources, 2006) which was subsequently adjusted based on visual clues available from aerial imagery.

Preliminary and development constraints mapping for the Project Area was provided GHD's Tchelery Solar Farm, Preliminary Site Assessment report (GHD, 2023). This was based on cultural heritage sensitivity provided in Ozark's Tchelery Solar Farm Preliminary Aboriginal Heritage Assessment (OzArk, 2023). Preliminary cultural heritage sensitivity based on these two reports is provided in **Figure 6-4** . Detailed environmental modelling and ground-truthing would be required to adequately categorise the archaeological and cultural sensitivity of the Project Area.

In addition to the large number of tangible cultural heritage remains identified across the Murrumbidgee Province, Pardoe and Martin also noted that intangible ceremonial, dreaming, and story sites were common through the region. These were often associated with landscape features such as waterholes, hills, trees, or other minor features.

6.5.2 AHIMS SEARCH RESULTS

The Aboriginal Heritage Information Management System (AHIMS) database provides information concerning previously recorded Aboriginal sites in NSW. An extensive search of the AHIMS database using a shapefile, was conducted on 26 September 2023 to encapsulate the Project Area. The search was conducted utilising the parameters provided in **Table 6-7**.

TABLE 6-7 AHIMS DATABASE SEARCH DETAILS

Parameters	Search
Client Service ID	823173
Buffer	1000 m
Number Sites	1

One site was identified within or in close proximity to the Project Area; AHIMS #48-5-0461 'Tchelery Hearth Complex 1' is a Hearth site located within the 1000 m buffer of the Project Area. Its location is illustrated in **Figure 6-4** .

6.5.3 NATIVE TITLE ACT 1994

The *Native Title Act 1994* was introduced to work in conjunction with the *Commonwealth Native Title Act 1993*. The Native Title Act recognises and protects the traditional and continuing rights and interests of Aboriginal and Torres Strait Island people. This may include the right to protect places and areas that area important under traditional law where Native Title has been determined.

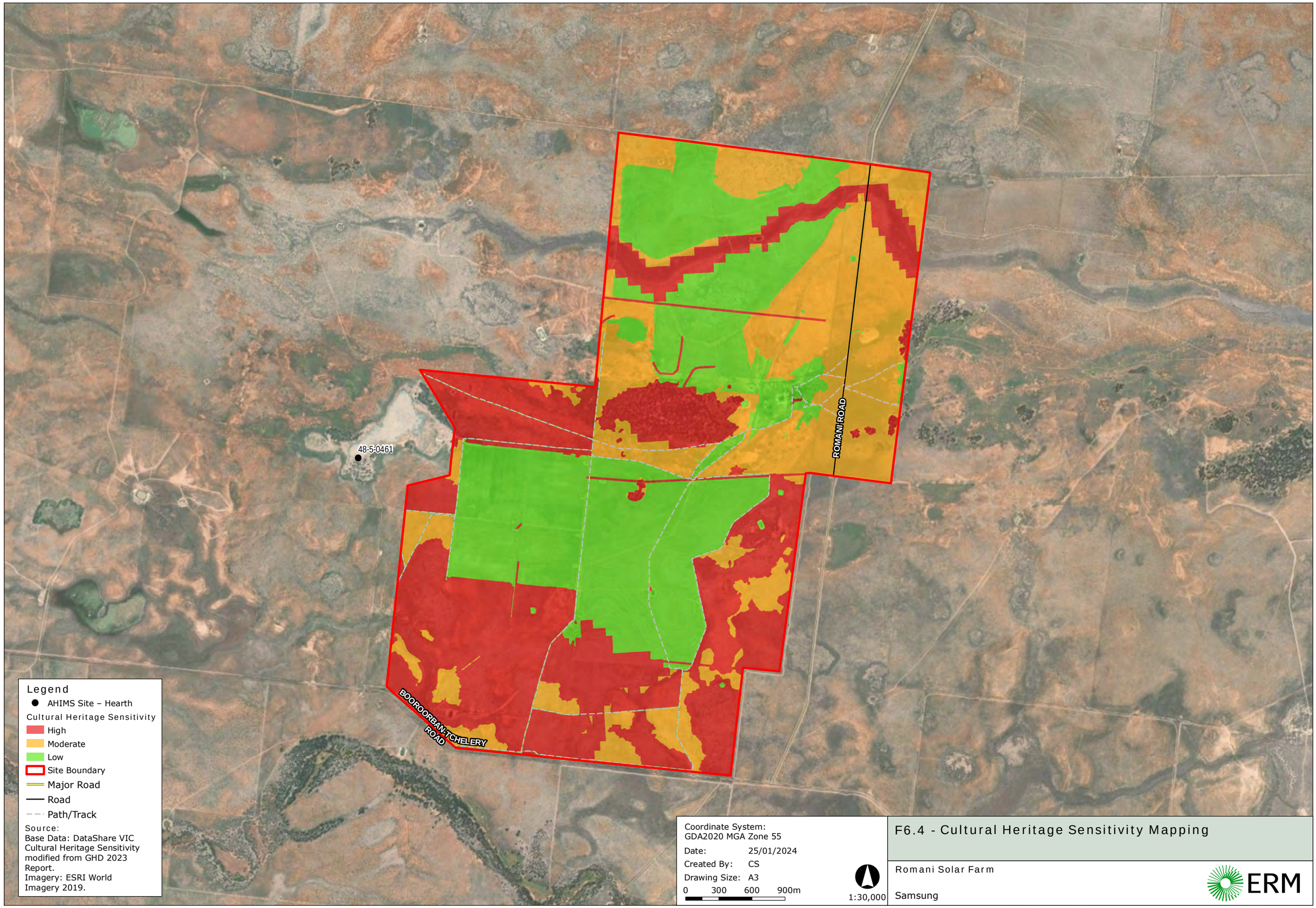
The Project Area is not located within the boundaries of a native title claim or determination.

6.5.4 ASSESSMENT APPROACH

Despite the search results yielding only one AHIMS-registered site, based on the results of the preliminary assessment, it is considered likely that there are significant areas within the Project Area which contain evidence of past Aboriginal land use. Predictive modelling prepared at this stage of the process can assist in determining sensitive landscapes; however, it is acknowledged that more detailed investigation and assessment will be required to inform the next phase of project planning and design.

In consideration of these factors, the following recommendations are made:

- Comprehensive investigation, to include pedestrian field survey, consultation with Aboriginal stakeholders, sensitivity mapping, and archaeological test excavation (as required) should be undertaken during the development application stage;
- The investigations are to be undertaken in accordance with all NSW legislation and relevant guidelines including the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011), the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010c), and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010);
- Results of the investigations are to be detailed in an Aboriginal Cultural Heritage Assessment Report (ACHAR), in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010b); and
- Upon completion of the ACHAR, a Cultural Heritage Management Plan (CHMP) should be prepared in consultation with the projects registered Aboriginal parties (RAPs) to ensure appropriate management of any identified cultural heritage throughout the construction process.



F6.4 - Cultural Heritage Sensitivity Mapping

Romani Solar Farm

Samsung

ERM

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6.6 HISTORIC HERITAGE

6.6.1 EXISTING ENVIRONMENT

Early colonial exploration of the Murrumbidgee Region occurred from the 1820s with Sturt's exploration originally focused along the Murrumbidgee River. Through the 1830s, stockholders gradually encroached westward into the region Sturt and his men explored, and by 1839, squatters had occupied the area surrounding nearby Hay, approximately 45 km north-east of the Project Area. Occupation was initially focused on cattle and sheep farming and later grain crops.

Development of a town soon followed at the nearby Balranald, approximately 95 km to the north-west of the Project Area. Balranald was first investigated as the site of a township in 1848, when George James MacDonald, The Commissioner for Crown Lands for the Lower Darling District, arrived in the region. That same year Leighton Robinson and Thomas Duggan established a general store at Balranald and during the same year a public-house, the Balranald Inn, was erected by a Mr Robertson. The township of Balranald was formally gazetted in April 1851 and the first land sale held on 14 January 1852, with thirty-five lots submitted to public auction.

Surveying of a number of reserves on the lower Murrumbidgee River was ordered by the Colonial Secretary, which were then gazetted in October 1852. One reserve to come out of this 1852 gazetting was the Pimpampa Reserve. In the 1860s, the surveyors Adams and Twynam laid out plans for a township at Pimpampa Reserve. They proposed the name Pimpaympa, after the original stock runs, however the town was to be called Maude (located approximately 48 km north-west of the Project Area). Despite valid concerns of the area's proclivity to flooding and high river levels, construction of a hotel was completed in 1862, and a post office by 1863. Locals' requests for land to be posted for sale were initially rebuked with officials citing a lack of traffic and desire for colonial settling of the area, however land was eventually offered for sale in 1865.

In the October 1858, Henry Leonard completed construction of an inn at Lang's-Crossing-Place, and by mid-1859, the Department of Lands had proclaimed reservations either side of the Murrumbidgee River. A township coalesced here, and by October 1859, Lang's-Crossing-Place was renamed Hay. In 1859 the first Post office was opened and in 1860 the original courthouse was built (now present location of the Post Office). Cobb & Co Coaches made Hay the headquarters of their Victoria and Riverine operations from 1862 to 1896, setting up a coach factory on the corner of Lachlan and Randall Streets; this became the largest coach factory in Australia outside of Sydney (Hay Shire Council, 2023)

Given the amount of traffic from Langs Crossing to Deniliquin in the south, there was a need for a place to rest and be reliably watered. In 1859, Hay citizens raised money to dig a well at Pine Ridge (now Booroorban, approximately 16 km south-east of the Project Area). In 1868 the Royal Mail Hotel was built adjacent to the well, and it became a vibrant Cobb & Co staging post. By 1885 Booroorban was formerly proclaimed as a village and two hotels, a school, post office, and general store had been established (Aussie Towns, 2023).

The Project Area is within the historic Miranda Parish of Wakool County. Historical maps and aerials of the Project Area indicate that historic land use comprised agricultural pursuits. Land use associated with pastoral properties would have included the construction of homesteads as well as a variety of structures associated with grazing activities including sheds, tanks, and shearing quarters. Little has changed in the use of these properties, as pastoral grazing of sheep and cattle is still the principal industry of the region.

6.6.2 STATUTORY HERITAGE REGISTER SEARCHES

TABLE 6-8 HERITAGE REGISTER SEARCHES

Register	Description	Consideration
Statutory Heritage Registers		
World Heritage List	The United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List includes properties in Australia that are matters of national environmental significance and are protected and managed under the EPBC Act.	There are no World Heritage places within a 2 km radius of the Project Area.
Commonwealth Heritage List	The Commonwealth Heritage List includes natural, Indigenous, and historical heritage places owned or controlled by the Australian Government. Items on the list have satisfied the minister as having one or more Commonwealth Heritage values	There are no Commonwealth Heritage listed places within a 2 km radius of the Project Area.
National Heritage List	The Australian National Heritage List contains natural, historic, and Indigenous places deemed to be of outstanding heritage significance to Australia. Before a site is placed on the list a nominated place is assessed against nine criteria by the Australia Heritage Council	There are no National Heritage listed places within a 2 km radius of the Project Area.
State Heritage List	A search of the NSW State Heritage Register (SHR) was conducted on 11 September 2023.	The search revealed that there are no SHR-listed items within a 2 km radius of the Project Area.
Conargo Local Environmental Plan 2013	A search of the Conargo Local Environmental Plan (LEP) 2013 was conducted on 11 September 2023	The search identified no locally heritage listed sites within a 2 km radius of the Project Area.
Section 170 Heritage Registers	Section 170 of the *Heritage Act* 1977 requires all NSW state agencies to identify, conserve and manage the heritage assets owned, managed and occupied by that agency. In order to facilitate this, Section 170 heritage registers were established for all NSW government agencies. These registers are held and maintained by each state agency and updated as assets are acquired, altered, or decommissioned.	A search of the relevant Section 170 registers was undertaken on 11 September 2023. No Section 170 heritage places are located within a 2 km radius of the Project Area.

Register	Description	Consideration
Non-Statutory Considerations		
Register of the National Estate	The Register of the National Estate (RNE) is a non-statutory archive of natural, historic, and Indigenous places and incorporates over 13,000 places. Originally compiled between 1976 and 2003 by the Australian Heritage Commission, the register is now maintained by the Australian Heritage Council. Following amendments to the *Australian Heritage Council Act 2003*, the RNE was frozen on 19 February 2007, which means that no new places can be added, or removed. Since February 2012 the RNE has been maintained as a non-statutory archive.	A search of the Australian Heritage Database was undertaken on 11 September 2023. This search identified no RNE listed places within a 2 km radius of the Project Area.
National Trust of Australia Heritage Register	The National Trust of Australia maintains a register of landscapes, townscapes, buildings, industrial sites, cemeteries, and other heritage places which the Trust determines to have cultural significance. This register is non-statutory but provides an indication of places considered significant by the wider community.	A search of the National Trust Heritage Register conducted on 11 September 2023 indicated there are no National Trust listed properties within a 2 km radius of the Project Area.

6.6.3 ASSESSMENT APPROACH

Preliminary assessment has shown there are no historic heritage items within the Project Area listed on national, state, or local statutory heritage registers. While no registered historic heritage items are located within the Project Area, further assessment would be required to better establish the non-Indigenous archaeological potential of the Project Area. Based on this information, it is recommended that a preliminary historic heritage assessment be prepared as part of the EIS.

6.7 HAZARDS AND RISKS

6.7.1 PRELIMINARY HAZARD ANALYSIS

A Preliminary Hazard Assessment (PHA) is required for potentially hazardous or offensive development under *State Environmental Planning Policy Resilience and Hazards 2021*. Clause 3.2 of the Resilience and Hazards SEPP defines a 'potentially hazardous industry' is as:

> *"development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality—*
>
> *(a) to human health, life or property, or*
>
> *(b) to the biophysical environment"*

Appendix 3 of the Applying SEPP 33 Guidelines (DoP, 2011) lists the industries that may fall within the Resilience and Hazards SEPP (former SEPP 33), which do not include solar farms or energy storage facilities. However, the BESS facility proposed for the Project is likely to utilise lithium-ion batteries, which are listed as Class 9 - Miscellaneous dangerous goods. While Class 9 materials are excluded from the SEPP 33 screening test, the hazards related to these materials should be considered in accordance with the Applying SEPP 33 Guidelines.

Batteries can be a serious safety risk for occupants and installers if incorrectly installed or operated, potentially leading to electric shock, fire, flash burns, explosion or exposure to hazardous chemicals and released gases. The Battery installation guidelines for accredited installers guidelines, prepared by the Clean Energy Council (2017) state that there are numerous hazards associated with battery systems and storage in relation to electrical, energy, fire, chemical, explosive gas, and mechanical hazards. Where a hazard is identified, risk reduction should be applied to eliminate or reduce these risks, in order to protect persons, property and livestock from fire, electric shock, or physical injury (CEC, 2017).

Preliminary Hazards Assessment will be undertaken as a component of the EIS, which will assess the potential hazards and risks associated with the Project in accordance with the requirements of the Resilience and Hazards SEPP. Specifically, it will assess the potential hazards associated with the inclusion of a battery energy storage system at the Project Area, and evaluate the likely risks to public safety, by focusing on the transport, handling and use of hazardous materials. The assessment will also determine whether the Project should be considered a hazardous or potentially hazardous industry under the Resilience and Hazards SEPP.

6.7.2 BUSHFIRE

6.7.2.1 EXISTING ENVIRONMENT

Bushfire presents a threat to human life and assets and can adversely impact ecological values. Bushfire risk can be considered in terms of environmental factors that increase the risk of fire (fuel quantity and type, topography and weather patterns), as well as specific activities (such as hot works and construction activities) or infrastructure components that exacerbate combustion or ignition risks (such as transmission lines and other electrical components).

A review of the NSW RFS Bushfire Prone Land mapping confirms that the Project Area is currently recognised as Vegetation Category 3[2] (refer to **Figure 6-5**). In line with the NSW RFS Guide for Bush Fire Prone Land Mapping (RFS, 2015), Vegetation Category 3 is considered to be medium bush fire risk vegetation.

[2] The SEED database identifies the area as Category 3 Vegetation (Environment NSW, 2021). Category 3 Vegetation is considered to be medium bush fire risk vegetation. It is higher in bush fire risk than Category 2 (and the excluded areas) but lower than Category 1.

6.7.2.2 ASSESSMENT APPROACH

The EIS will include a Bushfire Risk Assessment and will aim to identify potential hazards and risks associated with bushfires / use of potential bushfire prone land. The assessment will aim to demonstrate that the proposed solar farm can be designed, constructed and operated to minimise ignition risks and provide for asset protection consistent with the *NSW Rural Fire Service Guidelines - Planning for Bushfire Protection 2019* (NSW RFS, 2019).

The Bushfire Risk Assessment and mitigation strategies will be guided by the following factors that contribute to bushfire risk:

- Fuels, weather, topography, predicted fire behaviour and local bushfire history;
- Suppression resources, access (roads, tracks) and water supply; and
- Values and assets.

Mitigation will be a combination of complementary strategies, all of which are required to provide the best possible protection outcome for the solar farm, land managers and the community.

6.7.3 ELECTROMAGNETIC FIELD (EMF)

Electromagnetic Fields (EMF) are associated with all electrical wiring and equipment. Electrical fields are caused by the voltage of the equipment, while magnetic fields are caused by the current flowing (amperage). Electric fields and magnetic fields are independent of one another and, in combination, cause energy to be transferred along electric wires.

The Project will involve the generation of EMFs during operation from the proposed transmission lines and substations. An EMF assessment will be prepared as a component of the EIS, which will assess the potential impacts and risks to human health associated with the EMF generated by the solar farm electrical infrastructure. While adverse health effects from exposure to extremely low frequency EMFs have not been established, the possibility remains that such effects may exist, and it remains a risk during the construction and operational phases of the Project.

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

THE FOREST CREEK

Legend

- Site Boundary
- Lots

Bushfire Prone Land

- Vegetation Category 3
- Vegetation Buffer
- Major Road
- Road
- Path/Track
- Major Watercourse
- Minor Watercourse

Source:
NSW DCDB and DTDB 2023
NSW SVTM 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/01/2024

Created By: RT/VN

Drawing Size: A3

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F6-5 - Bushfire Prone Land

Romani Solar Farm

Samsung

ERM

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6.8 TRAFFIC AND TRANSPORT

6.8.1 EXISTING ENVIRONMENT

The Project Area is located approximately 375 km from Melbourne, 640 km from Adelaide and 770 km from Sydney (by road). Access to the Project Area during construction and operations is expected via the regional council road network, Booroorban-Tchelery Road and Romani Road, that extend from the Cobb Highway each with a 100 km/h speed limit. The Cobb Highway is a State Road under the management of Transport for New South Wales (TfNSW). It runs in a general north-south alignment between the Barrier Highway in the north and Echuca in the south. It has a speed limit of 100km/hr within the vicinity of the site, and a carriageway width of approximately 7 metres accommodating one lane of traffic in each direction with grassed verges on both sides of the road.

It is anticipated that major PV solar farm components (PV modules) will be delivered via either the Port of Sydney, Melbourne or Adelaide and transported by road to the Project Area as shown in **Figure 3-3**.

6.8.2 ASSESSMENT APPROACH

As part of the Scoping Report, a Preliminary Transport Assessment (PTA) (**Appendix E**) was prepared by Amber in October 2023 which considers potential transportation routes for construction traffic and potential impacts of the size, loads, and volumes of vehicles on the road network. The PTA was prepared in accordance with:

- Guide to Traffic Generating Developments (RTA, 2002);
- Austroads Guide to Road Design; and
- Austroads Guide to Traffic Management (Austroads, No Date).

No decision has been made regarding the port of delivery at this stage. The Port of Sydney, Melbourne, and Adelaide are the likely options. The transport route for OSOM vehicles will be confirmed as part of the Environmental Impact Statement (EIS).

Vehicle access to the site is yet to be determined, however, is likely to be provided via Booroorban-Tchelery Road and/or Romani Road. The details of the site access will be determined as part of the EIS. It is noted that Booroorban-Tchelery Road and Romani Road are currently not approved for 26-metre B-Double vehicles, this would need to be assessed as part of the future traffic assessment.

There is no traffic volume data available for Booroorban-Tchelery Road, however available data from 2006 to 2012 suggests that the Cobb Highway in the vicinity of the Project carries in the order of 600 vehicles per day (two-way volume).

Given the final site access location is yet to be determined and the lack of recent traffic data on the adjacent road network, it is recommended that traffic surveys be undertaken the support any future analysis. Potential surveys and locations could include:

- A tube count in the vicinity of the site on Booroorban-Tchelery Road;
- A tube count in the vicinity of the site on Romani Road;

- A turning movement count survey at the intersection of Cobb Highway / Booroorban-Tchelery Road;
- A turning movement count survey at the intersection of Sturt Highway / Romani Road; and
- A turning movement count survey at the intersection of Maude Road / Booroorban-Tchelery Road.

The assessment of the road network is to be undertaken against the requirements set out in the Austroads Guide to Traffic Management. Given the low traffic volumes expected on the surrounding road network, it is not anticipated that the increase in traffic generated during construction stage would result in any significant adverse impacts to the operation of the road network. Any future assessment should consider the cumulative impacts of other nearby major projects. During operation the project would generate a negligible level of traffic on the road network.

A Traffic and Transport Impact Assessment (TTIA) will be prepared to inform the EIS. This will identify a proposed transport route from the port to the Project Area, as well as any required road upgrades.

6.9 SOCIAL

This section provides an overview of the first phase Social Impact Assessment (SIA) undertaken for the Project, found in **Appendix F**. The first phase SIA aligns with the DPE's Social Impact Assessment Guideline for State Significant Projects (SIA Guideline) (DPE, 2021b) and DPE's Technical Supplement: Social Impact Assessment Guideline for State Significant Projects (SIA Technical Supplement) (DPE, 2021b).

The first phase SIA involves scoping and preliminary assessment, and sets further parameters for the second phase SIA (the assessment report to be appended to the EIS) (DPE 2021e, p.12). Accordingly, the first phase SIA includes:

- Defining the Project Social Locality;
- Social baseline describing the profile of the community in the Social Locality;
- Preliminary assessment of potential social impacts to inform Project refinement; and
- Outlining the approach that will be undertaken to complete the second phase SIA.

6.9.1 EXISTING ENVIRONMENT

As depicted in **Figure 1-1** the Project is located on the Northern boundary of the Edward River LGA, which borders on the Hay LGA. Deniliquin (94km by road and 2,316 people) and Hay (65km by road and 6,833 people) are the two nearby regional centres that are likely to provide goods and services to support the construction and operation (e.g., ongoing maintenance) phases of the Project. Importantly, the Cobb Highway, which runs North-South approximately 15km East of the Project area, provides easy accessibility to these two regional centres. Refer to **Figure 1-2** for a breakdown of the travel distances to nearby regional and town centres.

6.9.2 COMMUNITY PROFILE

This first phase SIA draws on both 2016 and 2021 ABS datasets (i.e. latest available) for the purposes of providing an socio-economic baseline analysis. SEIFA data outlined in **Table F-3** highlights that the level of socio-economic disadvantage in the Social Locality has decreased consistently at the LGA level since the 2016 ABS census period. Additionally, 2021 SEIFA data shows that the two SA1's immediately surrounding the Project Area are moderately advantaged.

6.9.3 SOCIAL INFRASTRUCTURE

The two regional centres that are likely to provide social infrastructure for the Project are Hay and Deniliquin due to their size, proximity, and accessibility to the Project via Cobb Highway. Social infrastructure comprises schools and other education institutions, medical services, emergency services, recreational facilities and community organisations.

The preliminary desktop assessment has determined that the social infrastructure provided by Hay and Deniliquin will likely be sufficient to the meet the demands during the construction and operation phases of the Project. The second phase SIA will further investigate the capacity of social infrastructure in the Social Locality and will draw on engagement activities undertaken with relevant stakeholders, including local Government, local businesses and the wider community.

6.9.4 ASSESSMENT APPROACH

The desktop analysis of social impacts has revealed a range of positive and negative social impacts that will be assessed in detail in the second phase SIA. The negative social impacts identified were mainly to local amenity, and landscape and land use changes; whereas positive impacts regarded local employment and procurement opportunities, and community benefits. The identified potential impacts will be investigated further during the EIS preparation and supplemented by stakeholder feedback, and reviewed against any proposed changes to the design following the issue of the SEARs.

6.10 WATER RESOURCES

6.10.1 EXISTING ENVIRONMENT

6.10.1.1 HYDROLOGY

The Project Area is located within the Murrumbidgee and Lake George Catchment which covers an area of 84,000 km^2. Elevations across the catchment vary from over 1,400 metres in the high mountain ranges north of the catchment, to less than 50 metres associated with floodplains. The Ramsar site NSW Central Murray State Forests Wetlands is located 44 km south of the Project Area.

The Lowbidgee floodplain, between Maude and Balranald, is the largest remaining wetland in the Murrumbidgee Valley covering an area of over 2,000 km^2. The Catchment also includes the second largest red gum forest in Australia along the river downstream of Redbank Weir (Australian Government, 2023).

The Forest Creek, running in a general west-east alignment is located approximately 1 km south of the Project Area and the hydrolines/ catchment extend across the southwest corner of the site. An ephemeral creekline extends from the west into the northern portion of the site and manmade dams are scattered across the site. The Coleambally outfall drain is located approximately 6.3 km southeast of the site, running in a general west-east alignment.

There is one (1) groundwater bore next to a manmade dam within the Project Area and several more near the site. The site is not within an area mapped as 'Groundwater Vulnerability' under the Conargo LEP.

A map of the local hydrology present within the Project Area and its surroundings is provided in **Figure 6-6**.

6.10.1.2 FLOODING

The Project Area is characterised by generally flat topography with several manmade dams and intermittent, ephemeral waterways. Land uses are typical of a rural setting, with large pockets of farmland, isolated buildings/sheds and unsealed roads. Flood maps for the Booroorban area are not available in the Conargo LEP. Hay and Maude have experienced several large floods since the 1880s associated with the Murrumbidgee River floodplain (HSC, 2023).

6.10.2 ASSESSMENT APPROACH

The following approach to water resources will be undertaken as part of the EIS:

Flooding and Hydrology Assessment will assess:

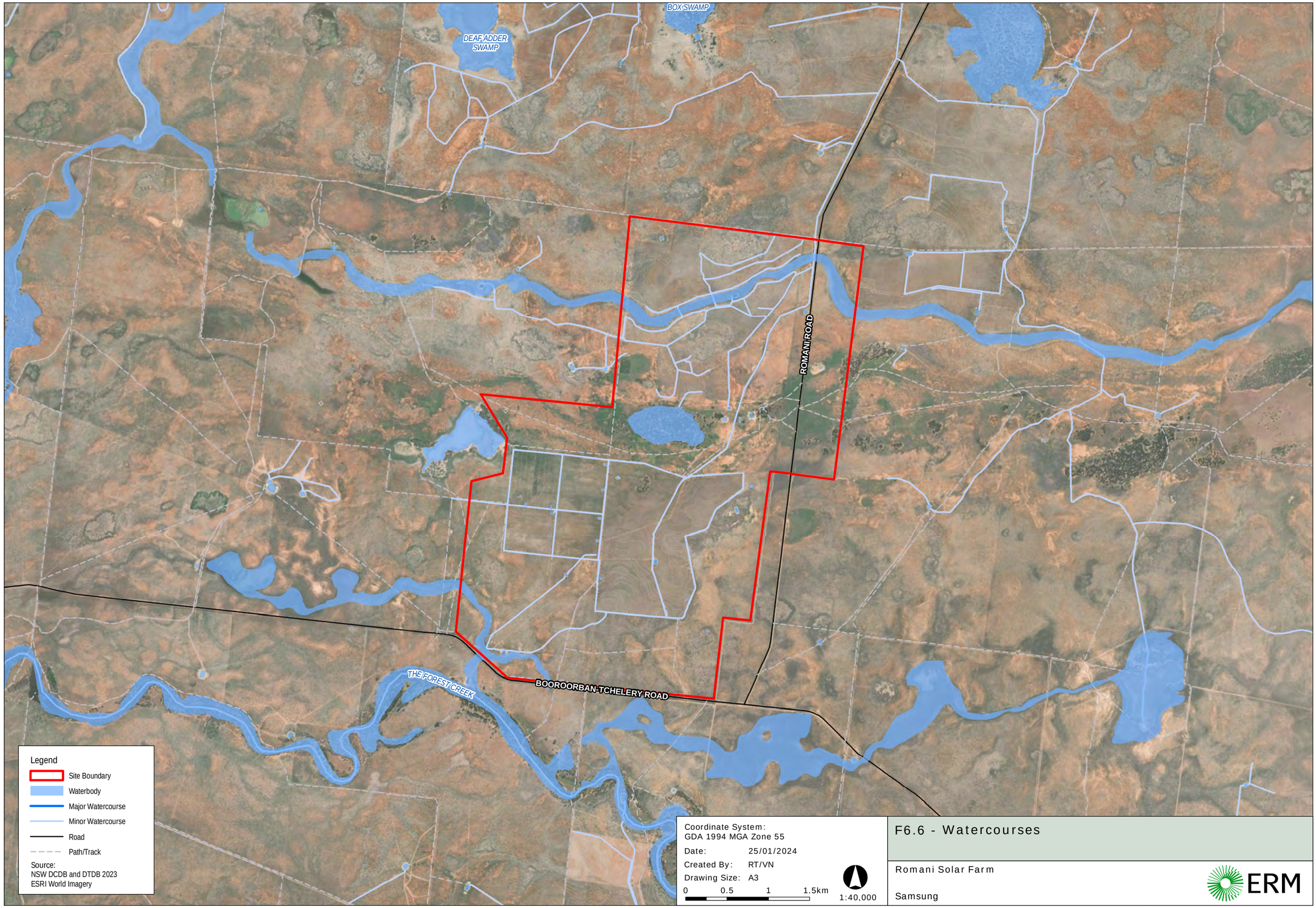
- Existing flood behaviour through review of existing available data, developing computer models and defining flood levels, depths, velocities and flood hazard category for the Project Area for existing topographic conditions; and
- Post development flood behaviour, including quantifying flood levels, depths, velocities and flood hazard category with the Project in place.

A Water Impact Assessment will be undertaken which will include a review of standard construction environmental management plans to ensure that impacts during excavation, road works, transport of machinery, etc. are adequately mitigated through avoidance, minimisation and management.

The assessment will consider the potential impacts of the Project on hydrology and groundwater and will determine the need for further hydrological investigations. The assessment will also identify and quantify sources of water required during construction and operation of the Project and determine whether any water access licences under the *Water Management Act* 2000 will be required. All required licences and approvals will be obtained prior to the commencement of construction activities.

The water impact assessment will be generally undertaken in accordance with the following guidelines and resources:

- Managing Urban Stormwater; Soils & Construction (Landcom, 2004);
- Guidelines for Controlled Activities on Waterfront Land (DPI Water, 2018);
- Relevant Water Sharing Plans (DPI Water); and
- Guidelines for Watercourse Crossings on Waterfront Land (DPI Water, 2012).



F6.6 - Watercourses

Romani Solar Farm

Samsung

ERM

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6.11 LAND RESOURCES

6.11.1 EXISTING ENVIRONMENT

The land and soil capability (LSC) assessment scheme gives an indication of the land management practices that can be applied to a parcel of land without causing degradation to the land and soil at the site and to the off-site environment (OEH, 2012).

A preliminary review of the Soil and Land Capability Mapping data for NSW (DPE, 2020d) suggests that the majority of the Project Area is within LSC *Class 5 – Severe limitations* and *Class 6- Very severe limitations*. The LSC Class 5 and 6 has severe to very severe limitations for high impact land management uses such as cropping. A map of soil classes in the vicinity of the Project Area is provided in **Figure 6-7**.

A search of the Australian Soil Classification (ASC) Soil Type Map of NSW (DPE, 2017a) reveals that the site is largely Vertosols (VE) soils, which are also known as cracking clay soils. They have a clay texture throughout the profile, display strong cracking when dry, and shrink and swell significantly during wetting and drying phases. Vertosols generally have high soil fertility, and have a large water-holding capacity. The ASC Soil Type Map of NSW also revealed the presence of Chromosols (CH) within the centre the Project Area, aligning with the location of LSC Class 6 within the sight. Chromosols display a strong texture contrast between surface and subsoil horizon and have a moderate fertility.

A review of Biophysical Strategic Agricultural Land (BSAL) data (DPE, 2013) showed that there are no areas of BSAL mapped within, or in close proximity to the Project Area.

6.11.2 ASSESSMENT APPROACH

The *Large-Scale Solar Energy Guideline* has been prepared by DPE to provide further guidance on the process for assessing impacts on agricultural land and principles and encourage development on land with limited agricultural productivity (DPE, 2022a). The guideline was published by the NSW DPE in August 2022.

The Project EIS will follow the approach to agricultural impact assessment as detailed in Appendix A of the guideline. Figure 4 of Appendix A of the *Large-Scale Solar Energy Guideline* (DPE, 2022a) provides a flow chart outlining various levels of assessment.

As the Project Area is on land zoned RU1, is not mapped BSAL, and is mapped as LSC Class 5 and 6 a Level 1 Basic Agricultural Impact Assessment is required which includes:

- Land and soil capability mapping, and site investigation results;
- Include consultation with neighbouring landholders to identify potential project impacts (if any) on immediately adjacent agricultural land;
- Describe project impacts (if any) on immediately adjacent land;
- Describe consultation undertaken; and
- Consider measures to reduce impacts on neighbouring agricultural land.

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

Legend

Site Boundary

Most Limiting LSC

4 - Moderate to severe limitations

5 - Severe limitations

6 - Very severe limitations

Road

Path/Track

Source:
NSW DCDB and DTDB 2023
NSW LSC 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/01/2024

Created By: RT/VN

Drawing Size: A3

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F6.7 - Land and Soils Capability

Romani Solar Farm

Samsung

ERM

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6.12 AIR QUALITY

The Project is not expected to have significant impacts on air quality in the region. Impacts during construction will generally relate to dust generation from construction works, while impacts during operation are expected to be minimal. More broadly, the Project will also have a positive impact on air quality by contributing to the overall reduction of greenhouse gas emissions.

The EIS will consider the potential impacts to air quality and propose appropriate management and mitigation measures during the construction and operational phases of the Project. Air quality and dust management will generally be assessed in accordance with relevant guidelines and policies including:

- National Greenhouse Accounts Factors (Australian Government, 2021); and
- NSW Climate Change Policy Framework (Office of Environment and Heritage, 2016).

6.13 WASTE MANAGEMENT

The EIS will quantify and classify the likely waste streams to be generated during construction and operation and describe measures to manage, reuse, recycle and dispose of waste in accordance with waste Classification Guidelines (NSW EPA, 2014).

6.14 CUMULATIVE IMPACTS

The Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2022b) provides a framework for assessing and managing project-level cumulative impacts.

A cumulative impact assessment will be undertaken as a component on the EIS in accordance with the Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2022b).

TABLE 6-9 CUMULATIVE IMPACTS AND TIMEFRAMES

Project Phase	Estimated Timeframe	Likely Scale of Impact	Duration of Impact	Potential Cumulative Impacts
Assessment	2024	Minor	Temporary	Social – community health and wellbeing
Approval	2025	Minor	Temporary	Social – community health and wellbeing
Construction	2026 - 2028	Moderate to Major	Temporary	Amenity – visual, noise Social – community health and wellbeing Transport and traffic
Operation	2028 - 2058	Minor to Moderate	Ongoing during operations	Amenity – visual
Decommissioning	Post 2058	Moderate	Temporary	Social – community health and wellbeing Amenity – air quality and noise Transport and traffic

7 CONCLUSION

The preliminary environmental assessment undertaken for this Scoping Report finds the Project Area to be suitable for the Project for the following reasons:

- It has access to existing transmission lines and is within the corridor for Project Energy Connect, which will allow for the renewable energy generated from the Project to be supplied to the region;
- It is located within the boundaries of the proposed South West REZ, and the Project will contribute to the future development of the REZ;
- There are a number of other existing and proposed renewable energy projects located within the region and in close proximity to the Project Area;
- It is easily accessible via Booroorban-Tchelery Road, Booroorban;
- The Project is consistent with the *RU1 – Primary Production* zoning and will meet the following objective of the RU1 zone to encourage sustainable primary industry production;
- The Project will allow for existing grazing activities to continue within the Project Area; and
- The Project will contribute to diversifying the local economy and creating new employment opportunities.

The preliminary environmental assessment was undertaken to identify the potential matters associated with the proposed construction and operation of the Project. The considered:

- 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;
- The ability to avoid, minimise and/or offset the impacts of the Project, to the extent known at the scoping stage; and
- The complexity of the technical assessment of the Project.

Detailed assessments will be undertaken for environmental aspects that present a potential constraint to the development, or where detailed assessment is required. These assessments are listed in **Table 7-1** .

TABLE 7-1 PROPOSED ASSESSMENT

Level of Assessment	Aspect
Detailed (potential constraint)	• Amenity –Visual • Biodiversity – terrestrial flora and fauna • Heritage - Aboriginal • Access - Traffic and Transport
Standard	• Amenity – Noise, vibration • Heritage – Historic • Hazards and Risks – bushfire, environmental hazards, waste • Social – surroundings, livelihoods • Water - hydrology • Land – land capability

The EIS will be prepared in accordance with the SEARs to be issued by DPE in response to this Scoping Report. All assessments (including specialist assessments) will be completed by taking into consideration consultation with stakeholders, industry best practice guidelines, and the experiences from other solar farm projects.

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APPENDIX A COMMUNITY AND STAKEHOLDER ENGAGEMENT STRATEGY

PREPARED FOR

Samsung C&T Romani Solar Farm

Community & Stakeholder Engagement Plan

DATE
January 2024

REFERENCE
0704056

DOCUMENT DETAILS

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SIGNATURE PAGE

Samsung C&T Romani Solar Farm

Community & Stakeholder Engagement Plan

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ABS	Australian Bureau of Statistics
BESS	Battery energy storage system
CCC	Community Consultative Committee
CEC	Clean Energy Council
DAWE	Australian Department of Agriculture, Water and Environment
DP	Deposited Plan
DPE	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
EnergyCo	Energy Corporation of NSW
ERM	Environmental Resources Management Australia
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPA	NSW Environmental Protection Authority
FAQs	Frequently Asked Questions
GW	Gigawatt
IAP2	International Association for Public Participation
IPA	Indigenous Protected Area
kV	Kilovolt
LGA	Local Government Area
MW	Megawatt
NSW	New South Wales
PPS	Public Participation Spectrum
PV	Photovoltaic
RAP	Registered Aboriginal Party
RDA	Regional Development Australia
REZ	Renewable Energy Zone
SEARs	NSW Secretary's Environmental Assessment Requirements
SIA	Social Impact Assessment
SSD	State Significant Development
TfNSW	Transport for New South Wales
TO	Traditional Owners
VIA	Visual Impact Assessment

1. INTRODUCTION

Samsung C&T Renewable Energy Australia Pty Ltd (Samsung) proposes to construct and operate the Romani Solar Farm and Battery Energy Storage System (the Project), a renewable energy development located 44 km southwest of Hay in the Riverina Murray Region of New South Wales (NSW).

While solar farms provide clean renewable energy, valuable community investment, economic diversity, and local jobs, they can sometimes receive a mixed response from the community. An effective and well-executed stakeholder engagement and consultation strategy is essential to building and maintaining positive community sentiment towards the Project and garnering local support, acceptance, and approval.

1.1 DOCUMENT REVIEW AND UPDATE

This Community and Stakeholder Engagement Plan (the Plan) has been prepared based on current available information to support the development of a Scoping Report by the Samsung Project team. The scoping report must give an early indication of community views on the project and identify what engagement will be carried out during the preparation of the EIS.

The Plan will be updated as the Project progresses and to reflect community consultation advice received from the Department of Planning and Environment (DPE) following the Secretary's Environmental Assessment Requirements (SEARs) process, as well as feedback from stakeholders and the community.

The Plan will be reviewed and updated at least annually throughout the life of the Project and be updated as required to address:

- stakeholder feedback and any subsequent changes to the Project;
- changes in the Project schedule;
- changes to community and stakeholder needs or requirements; and
- lessons learned during the Project lifecycle.

1.2 OBJECTIVES

The Plan documents the communications and consultation strategy and activities that will be undertaken by the Project team up to and including the Environmental Impact Statement (EIS) public exhibition phase of the application process.

In addition, the Plan intends to identify communication and engagement activities to proactively manage Project perceptions and expectations. This includes responding to enquiries, concerns and issues, to ensure stakeholders and community are heard and understood, and wherever possible, issues resolved.

The Plan responds to the regulatory process associated with NSW State Significant Development solar energy projects and is reflective of the NSW Government's *Large-Scale Solar Energy Guideline*, 2022 and the Clean Energy Council *Community Engagement Guidelines*.

The objectives of the Plan are to:

- **identify stakeholders** – map the community and engagement environment to identify stakeholders with an interest in and influence on the Project;
- **actively and respectfully engage** – identify and provide multiple, targeted communication channels for two-way engagement with stakeholders. Provide clear, consistent and compelling messages to increase stakeholder awareness and understanding of the Project and its benefits;
- **build support** – identify opportunities to build positive sentiment, with residents and stakeholders across various channels;
- **anticipate risk** – identify and proactively manage risk to minimise issues with the potential to create resistance, impacting Project timelines and budgets;
- **respond to community feedback** – provide opportunities for stakeholders to raise concerns and provide feedback. Act on feedback received to build trust, legitimacy and credibility to enhance Samsung's social licence to operate; and
- **reflect best practice** – ensure compliance with the NSW Government consultative requirements under relevant planning instruments and guidelines.

1.3 PROJECT OVERVIEW

1.3.1 COMPANY BACKGROUND

Samsung is a global leader in innovative technology and sustainability. They have successfully delivered similar renewable energy projects across Europe, Korea, Canada, and USA. Samsung has recently entered into the Australian renewable energy market to develop solar farms, battery energy storage systems (BESS) and other projects as a developer.

Samsung is committed to best practice community and stakeholder engagement through transparent and open communication, taking into account even the smallest voices, and making communication and engagement open to all.

1.3.2 PROJECT LOCATION

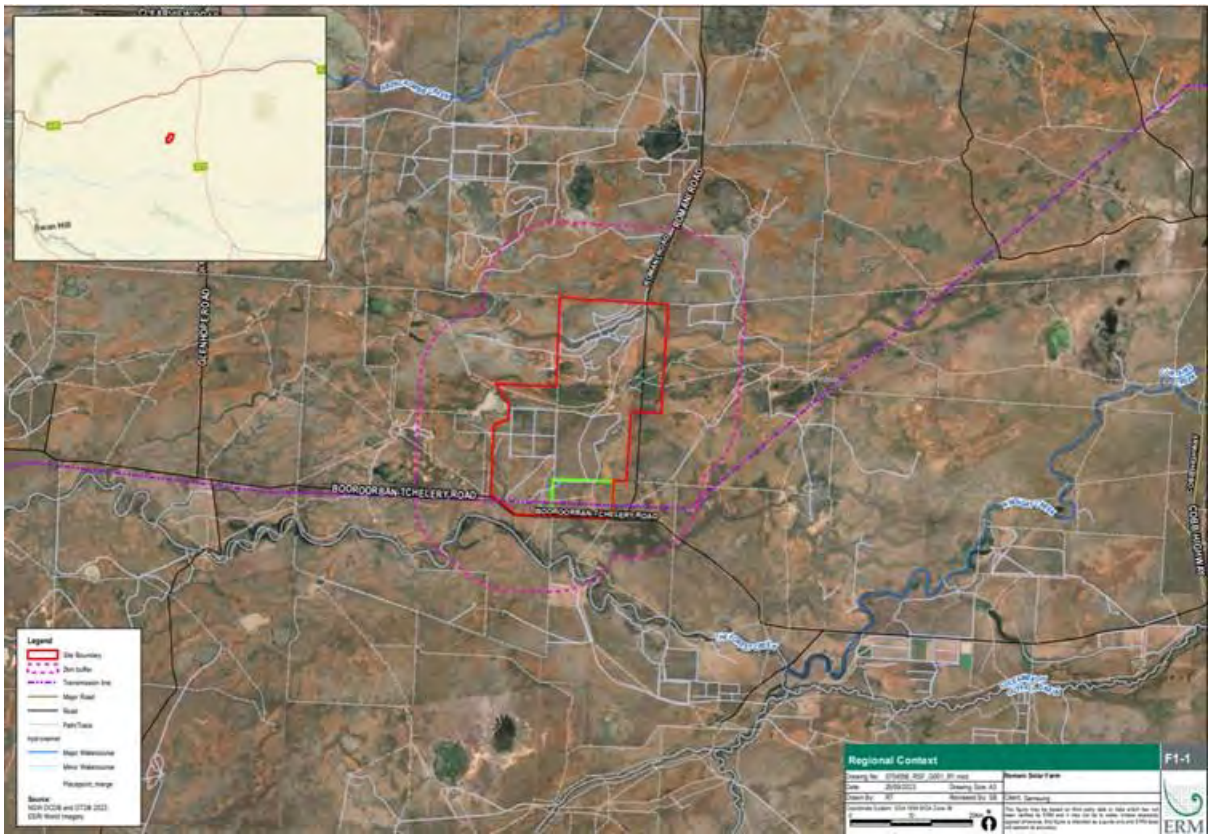
The Project is proposed to be located on Booroorban Tchelery Road, north of The Forest Creek, around 44 km southwest of Hay in the Riverina Murray Region of NSW. The Project Area is approximately 1,810 hectares (ha) and the indicative development footprint is 870 ha. An existing 220 kilovolt (kV) overhead transmission line running in an east west alignment traverses the south of the Project area.

The Project area is characterised by a generally flat topography. The land is predominantly used for agricultural purposes, primarily irrigated cropping and grazing of livestock, and contains a dwelling house, ancillary structures and water retention dams.

The nearest national parks are the Kalyarr National Park and the Oolambeyan National Park, located 46 km north and 53 km east of the Project area, respectively. Toogimbie Indigenous Protected Area (IPA) is located 27 km north, and the closest conservation area is the Yanga State Conservation Area 45 km north of the Project area.

The location of the proposed Project is displayed in **Figure 1-1**. This is subject to further assessment and confirmation during the EIS phase.

FIGURE 1-1 MAP OF PROJECT LOCATION



1.3.3 PROJECT DESCRIPTION

The Project involves the construction, operation and future decommissioning of a solar farm, a BESS and associated infrastructure. The solar farm is anticipated to have an installed capacity of up to 252.3 MW_{AC}, and a Battery Energy Storage System (BESS) facility, as shown in **Table 1-1** below.

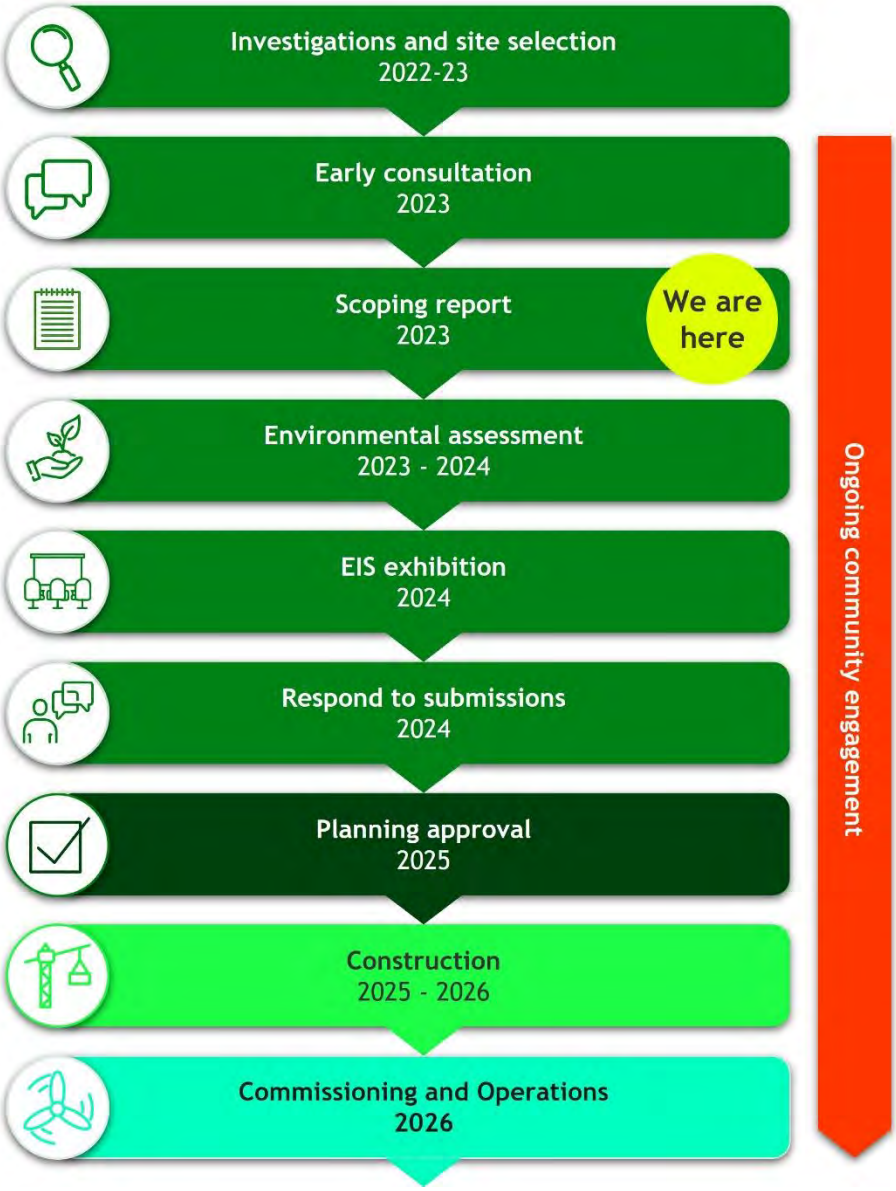
TABLE 1-1 INDICATIVE PROJECT DESIGN – COMPONENTS AND SPECIFICATIONS

Component	Feature	Specification
Energy generation	Solar Arrays	Approximately 870.5 ha
Electrical Reticulation Network	On-site substations	New high voltage substation proposed along Booroorban-Tchelery Road
	Internal electrical reticulation network	Electrical reticulation will generally follow rows of panels and parallel internal access routes The preferred solar area will connect into the main substation directly via underground cables
	BESS	Battery energy storage system with a capacity of 150MW / 300 MWh
	Switchyard and transformer	Additional switchyard and transfer to connect the Project to either the existing 220 kv transmission line (X5) or Project Energy Connect
Access roads	Access to site	Access to the Project Area is proposed from Booroorban-Tchelery Road

1.3.4 PROJECT TIMELINE

The key milestones of the Project are outlined in **Figure 1-2** below. The timeline shows that community and stakeholder engagement will be ongoing throughout the Project lifecycle.

FIGURE 1-2 PROJECT TIMELINE

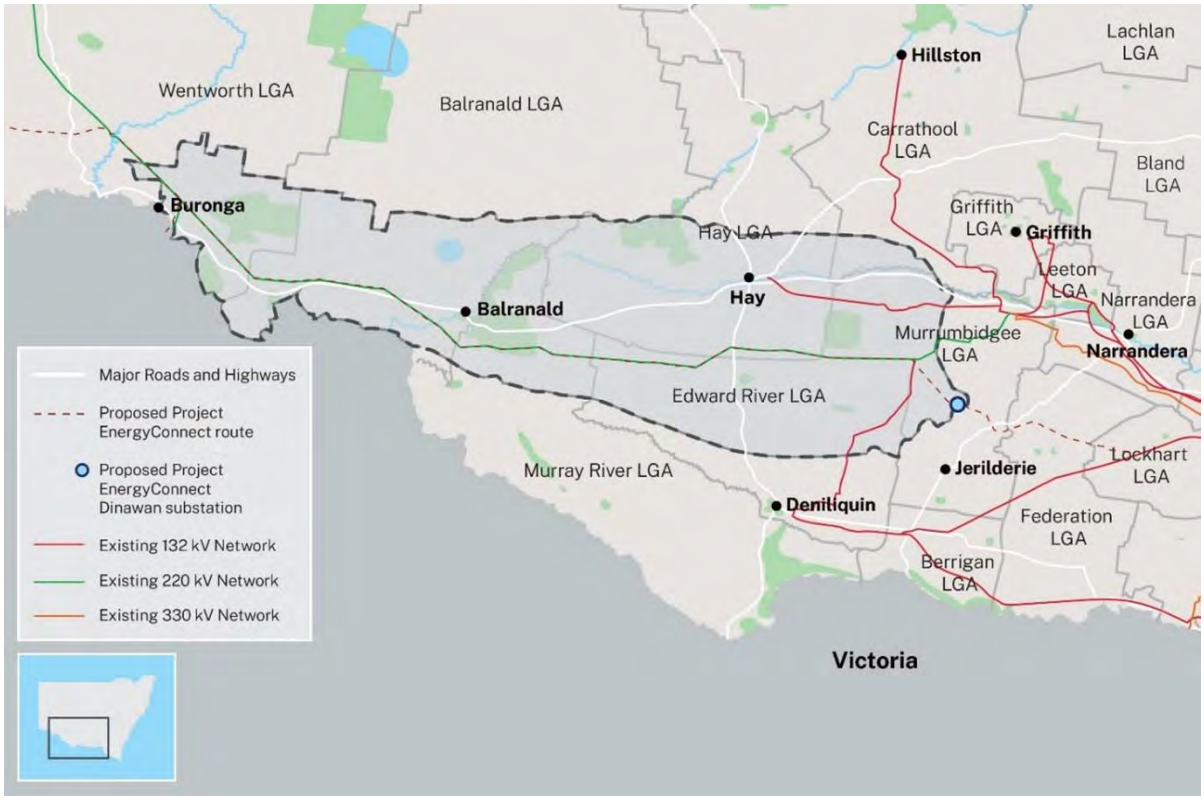


1.3.5 SOUTH WEST RENEWABLE ENERGY ZONE

The Project is located in the South West Renewable Energy Zone (REZ) shown in Figure 3, on the lands of the Wiradjuri, Yorta Yorta, Baraba Baraba, Wemba Wemba (also known as Wamba Wamba), Perrepa Perrepa, Wadi Wadi, Madi Madi, Nari Nari, Dadi Dadi, Kureinji and Yitha Yitha people.

The South West REZ was formally declared in November 2022, and was chosen following a detailed statewide geospatial mapping exercise undertaken by the NSW Government in 2018.

FIGURE 1-3 SOUTH WEST REZ



Source: EnergyCo

1.3.6 PROJECT BENEFITS

The Project is expected to deliver the following local and state-wide benefits:

- increase investment in the south west region of New South Wales;
- create new construction and long-term operational jobs;
- increase renewable energy capacity to help achieve the state's renewable energy goals;
- assist Australia's transition to renewable energy to reduce greenhouse gas emissions;
- assist in providing network stability and reliability through battery storage;
- provide additional income streams for associated landholders; and
- provide positive, lasting and meaningful long-term benefits to the local community through community benefit sharing scheme, developed in consultation with the community.

2. ENGAGEMENT APPROACH

Samsung is committed to listening to the community and stakeholders, and providing opportunities for genuine input into the development of Romani Solar Farm. The Plan includes consideration of relevant statutory requirements, government guidelines, and industry best practice, as outlined below in Section 2.1.

> Effective community and stakeholder engagement is essential for the development of the large-scale solar energy industry and the environmental assessment process[1]

While engaging communities and stakeholders is an essential requirement for NSW State Significant Projects, Samsung believe that effective engagement provides a unique opportunity for projects to benefit from local insights, better anticipate unforeseen issues and build lasting partnerships that are key to a project's long-term success.

The Plan identifies communication and engagement activities to proactively manage Project perceptions and expectations. The Plan creates a framework to identify issues, risks and concerns at the earliest possible stage in the Project life cycle, and outlines strategies for mitigating them. This includes responding to enquiries, concerns and issues, to ensure stakeholders and community are heard and understood, and where possible, issues resolved.

Samsung also understands that there are other renewable energy projects in development within the REZ, such as The Plains Solar Farm and Transgrid's EnergyConnect that may create cumulative impacts on the community and stakeholders, particularly during construction. Wherever possible, the engagement and communications activities undertaken for this Project will consider these cumulative impacts.

2.1 ENGAGEMENT GUIDELINES

This Plan complies with NSW Government consultative requirements under relevant planning instruments and guidelines, and other industry guidelines, including:

- *Undertaking Engagement Guidelines for State Significant Projects*, NSW DPE, 2022;
- *SSD Guidelines*, NSW DPE, October 2022;
- *Large-scale Solar Energy Guideline 2022*, NSW DPE, August 2022;
- *Best Practice Charter for Renewable Energy Developments*, Clean Energy Council, 2018;
- *Community Engagement Guidelines*, Clean Energy Council, 2018[2];
- *Community Participation Plan*, NSW DPE, November 2019; and
- *Social Impact Assessment Guideline for State Significant Projects*, DPE, July 2021.

[1] *Large-Scale Solar Energy Guideline*, 2022, NSW Department of Planning and Environment
[2] While the CEC *Community Engagement Guidelines* was written for the Australian Wind Industry, many of the practices and principles outlined apply equally to the Solar Industry

2.2 INDUSTRY BEST PRACTICE

This Plan follows industry best practice as outlined in the International Association for Public Participation 2 (IAP2) Quality Assurance Standard[3]. Designed to respond to market requirements for evidence that effective community and stakeholder consultation has been delivered, the Standard supports delivery of the IAP2 Spectrum of Public Participation. The Spectrum of Public Participation aims to move engagement along a scale ranging from inform, consult or involve, to more actively collaborating and empowering stakeholders and communities.

The Standard provides:

- a set of principles to ensure consistency in quality of consultation and engagement;
- an outline of the important elements in the engagement process and what each stage of an engagement process should entail;
- a quality process by which engagement projects can be assessed; and
- certainty for practitioners and clients that the community and stakeholder engagement practice has been delivered to a best practice standard.

The *Undertaking Engagement Guidelines for State Significant Projects* (NSW Government, 2022) states that the IAP2 core values and the IAP2 public participation spectrum should inform all engagement strategies.

The IAP2 Spectrum of Public Participation is attached in **Appendix A**.

2.3 STAKEHOLDER EXPECTATIONS

Community and stakeholder expectations regarding involvement in the decision-making process for infrastructure projects has increased significantly in recent years.

> Our awareness of the world around us, and the impacts of our decisions and behaviours, is increasing. […] The expectations Australian communities place on governments, institutions, services and products are changing. Citizens, employees, customers, and shareholders are expecting – and demanding – more. People are engaging more.[4]

The IA report also states that "community opposition has contributed to the delay, cancellation or mothballing of more than $20 billion of infrastructure projects in the last decade".

In July 2023, NSW Farmers, the largest farming organisation in Australia, expressed concerns that renewable energy developers are not acting in the long-term interests of regional communities, and have called for a temporary ban on the construction of new large-scale solar farms in NSW.

While this has not been actioned, increasing community objection and opposition to renewable projects in regional areas highlights the need for more effective and genuine engagement, to ensure that stakeholders are involved and empowered across all stages of the project lifecycle.

[3] https://iap2.org.au/wp-content/uploads/2019/07/IAP2_Quality_Assurance_Standard_2015.pdf
[4] *Australian Infrastructure Audit*, 2019, Infrastructure Australia

2.4 ENGAGEMENT PRINCIPLES

The Plan provides the blueprint for robust, consistent engagement that aligns with the following principles[5]:

- **Respectful** – seek to understand and be responsive to community concerns;
- **honest** - be open and transparent about the project, decisions and activities, and about what aspects of the Project can be influenced by stakeholders;
- **accessible and inclusive** - provide clear, concise information in formats and channels that best meet a community's needs;
- **proportionate** - tailor engagement to reflect the level of impact across the stakeholder environment;
- **evidence-based** - base engagement activities and tools on an understanding of community demographics, history, and social and economic influences;
- **timely and high-profile** - engage early, across the entire Project lifecycle, and widely promote access to Project information, feedback channels and engagement activities; and
- **accurate reporting** - build robust systems to record feedback, track response timeframes and record how feedback has been incorporated into the Project.

[5] These engagement principles are Project-specific, based on the foundational principles outlined in the IAP2 Core Values, the NSW Government's *Undertaking Engagement Guidelines for State Significant Projects*, and the CEC's *Community Engagement Guidelines*

3. STAKEHOLDER IDENTIFICATION AND MAPPING

3.1 COMMUNITY PROFILE

The proposed site location of the Project is situated within the locality of Booroorban in the Edward River Local Government Area (LGA), in the Riverina Murray Region of NSW. The Edward River LGA covers a total area of 8,881 km2 and houses a population of 8,456 (ABS, 2021). It includes the town of Deniliquin and six rural villages: Blighty, Booroorban, Conargo, Mayrung, Pretty Pine, and Wanganella. The proposed Project location is around 44km southwest of Hay, with a population of approximately 2,300 (ABS, 2021). Other key towns located nearby include:

- Balranald, NSW – 96 km northwest (population 2,208);
- Deniliquin, NSW - 80 km northwest (population 7,432);
- Mildura, VIC - 96 km northwest (population 56,972);
- Swan Hill, VIC - 138 km northeast (population 21,403);
- Darling Point, NSW - 180 km northeast (population 3,977);
- Griffith, NSW - 200 km northeast (population 19,505); and
- Wagga Wagga City, NSW - 255 km east (population 67,609).

The key land use within the LGA is centred on agriculture and food production. The rice industry is significant in the LGA, as Deniliquin is the home to SunRice – the largest rice mill in the southern hemisphere[6]. Other main industries providing employment in the LGA include health care, retail, education, construction, tourism and hospitality, public administration, manufacturing, and transport[7].

Table 3-1 below outlines a range of demographic data from the 2021 Census for the Edward River LGA, compared to the data across NSW and Australia

TABLE 3-1 EDWARD RIVER LGA, CENSUS 2021

	Edward River %	NSW %	Australia %
Indigenous status			
Aboriginal and/or Torres Strait Islander	4.8	3.4	3.2
Non-Indigenous	86.1	91.7	91.9
Not stated	9.0	4.8	4.9
Cultural diversity			
Country of birth – Australia	83.9	65.4	66.9
Country of birth – England	1.1	2.9	3.6
Country of birth – New Zealand	0.7	1.5	2.1
Country of birth – India	0.5	2.6	2.6

[6] Economic Developmennt Strategy, Edward River Council, 2018, www.edwardriver.nsw.gov.au/files/assets/public/document-resources/council/governance/strategic-documents/economic-development-strategy-september-2018.pdf

[7] Edward River Council community profile, idcommunity, https://profile.id.com.au/edward-river (data based on 2021 Census)

	Edward River %	NSW %	Australia %
Country of birth – Philippines	0.4	1.3	1.2
English only used at home	87.9	67.6	72.0
Households where a non-English language is used	3.7	29.5	24.8
Employment Status			
Worked full-time	59.0	55.2	55.9
Worked part-time	31.5	29.7	31.2
Unemployed	3.6	4.9	5.1
Income and housing			
Owned outright	40.6	31.5	31.0
Owned with a mortgage	29.4	32.5	35.0
Rented	24.8	32.6	30.6
Household income more than $3,000 weekly	12.3	26.9	24.3
Monthly median mortgage payments	$1,083	$2,167	$1,863
Owners with mortgage repayments greater than 30% of household income	8.2	17.3	14.5
Median weekly rent	$220	$420	$375

Source: ABS Census, 2021

Within Edward River LGA, First Nations people make up 4.8 percent of the population, higher than the State average of 3.2 percent, although this may be an under-estimate as 9.0 percent of census respondents did not provide their Indigenous status. The Project site sits in the Deniliquin Local Aboriginal Land Council (LALC), and the traditional owners of the land are the Wamba Wamba and Perrepa Perrepa people.

The majority of households in the LGA are English-speaking, with only 3.7 percent of households speaking a non-English language, significantly lower than the Australian average of 24.8 percent of households. Over 83 percent of residents are Australian-born, with the largest number of migrants arriving from England (1.1 percent), New Zealand (0.7 percent) and India (0.5 percent).

The unemployment rate in Edward River LGA is low at 3.6 percent, lower than the NSW rate (4.9 percent) and the Australian unemployment rate (5.1 percent). The rate of home ownership is higher than the NSW average: 40.6 percent of residents own their homes outright and 29.4 percent own with a mortgage, while 24.8 percent are renting.

Household income in the LGA is lower than the state and national average, with only 12.3 percent earning more than $3,000 per week (compared to 26.9 percent in NSW and 24.3 percent in Australia). However, the cost of housing is more affordable, with median monthly mortgage payments of $1,083, compared to $2,167 in NSW and $1,863 in Australia. Similarly, the median rent in Edward River is $220, compared to $420 in NSW and $375 in Australia. At 8.2 percent, mortgage stress (that is, households with mortgage payments greater than 30% of household income) is lower than the NSW rate of 17.3 percent and the Australian rate of 14.5 percent.

3.2 STAKEHOLDER ANALYSIS

This Plan has been designed to enable community members (especially those who may be impacted by the Project) to be part of the Project's development process with the opportunity to ask questions and engage in a meaningful way. The following stakeholder groups have been identified and included in **Table 3-2** below.

TABLE 3-2 STAKEHOLDER GROUPS

Stakeholder group	Stakeholders	Potential interests / concerns
State and Federal elected members	• Ms Helen Dalton MP, State Member for Murray (Independent) • The Hon Sussan Ley MP, Federal Member for Farrer (Liberal) *Note: Electorate offices are located in Griffith*	Community consultation, community wellbeing, impact on local residents and businesses, economic benefits, impacts on local roads and infrastructure
State and federal representatives and agencies	• Department of Planning and Environment (DPE) • Transport for NSW (TfNSW) • NSW Environment Protection Authority (EPA) • Office of Energy and Climate Change (OECC)	Stakeholder consultation, community wellbeing, Project approval, regulatory compliance, environmental impact
	• Rural Fire Service • Fire and Rescue NSW • NSW Police • NSW State Emergency Services • Emergency service departments	Consultation will be undertaken as per the relevant guidelines
Local government – elected officials and executive staff	Edward River Council: • Cr Peta Betts, Mayor and elected councillors • Phil Stone, Chief Executive Officer • Mark Dalzell, Director Infrastructure	Stakeholder consultation, community wellbeing, impact on local residents and businesses, economic benefits, impacts on local roads and infrastructure
Utilities	• EnergyCo • Essential Energy • Transgrid • WaterNSW • Telecommunications providers • National Broadband Network (NBN)	Stakeholder consultation, Project approval, regulatory compliance, environmental impact, signal interference, impact on infrastructure
Industry	• Agriculture, transport and freight, hospitality, tourism	Stakeholder consultation, environmental impact, impact of construction, traffic

Stakeholder group	Stakeholders	Potential interests / concerns
Indigenous communities	• Traditional Owners (TOs) • Registered Aboriginal Parties (RAPs) and Aboriginal groups	Community consultation, impact on Aboriginal social, historical, scientific and aesthetic objects or values, economic benefits / impacts, impacts of construction traffic, health and safety
Host landowners / landholders	• Landowner/s with the potential to host infrastructure	Individual consultation, access to private leased land, audible impacts, visual amenity, property values, health and safety, construction disruption, operation agreements / remuneration
Immediate neighbours (proximal landholders)	• Neighbouring dwellings within 4 km of a solar panel	Individual consultation, access to private leased land, audible impacts, visual amenity, property values, health and safety, construction disruption
Local community organisations and businesses	• Murray-Riverina NSW Business Chamber • Deniliquin Business Chamber • Local business (especially tourism or agriculture) • NSW Farms Association • Country Women's Association • Lions & Rotary Clubs • Local action groups • Landcare group • Tourism organisations	Community consultation, community wellbeing, business opportunities (during construction with influx of workers and ongoing operations), social and economic impacts, health and safety, environment impacts, local Indigenous and European heritage objects and values
Surrounding communities	• Community members who live outside of the 4km radius from the nearest solar panel	Community consultation, community wellbeing, economic benefits / impacts, impacts of construction traffic, health and safety
Local schools, religious organisations, clubs	• Primary and high schools, such as Booroorban School, Hay Public School, Hay War Memorial High, Moulamein Public School, TAFE • Local churches (Hay) • Sporting organisations, such as Hay Golf Course, Hay Tennis Club, Hay Bowling Club	Community consultation, community wellbeing, impact on local residents and businesses, economic benefits, impacts on local roads and infrastructure
Local media	• The Riverine Grazier • The Daily Advertiser (Wagga) • ABC Radio • 2HAY FM (community radio) • Triple AAA FM (Wagga) • Facebook pages for all the above media outlets	Community consultation, community wellbeing, Community opposition, Project milestones, Project budget, local employment, Project updates and community involvement and events
National / state media	• National and state newspapers, radio and television	Community discontent / protests, serious safety concerns, environment or heritage impacts budget and timelines

3.3 IMPACTS AND OPPORTUNITIES

Samsung is committed to building strong relationships with key stakeholders and communities as part of the Project and understands the importance of ensuring local participation and community input, to achieve positive local and regional community benefits.

Samsung recognises that the Project may result in impacts to the community and landscape, and that impacts are experienced differently across stakeholder groups. Section 6 below identifies a number of potential issues, risks and concerns that may arise during the Project, and outlines recommended strategies to manage and mitigate these risks.

As part of the Romani Solar Farm development, Samsung plans to work with the local community to explore benefit sharing options and target areas for contribution. This approach would be informed by community engagement undertaken for the Project and would focus on meeting local community needs and aspirations.

4. COMMUNICATION AND ENGAGEMENT

4.1 ENGAGEMENT TOOLS AND ACTIVITIES

To facilitate engagement, the Project will deploy a range of communication and engagement channels to keep stakeholders informed, consulted, and engaged throughout the Project's life. **Table 4-1** below outlines the proposed engagement channels to use across the Project stages.

TABLE 4-1 COMMUNICATION AND ENGAGEMENT CHANNELS

Channel / tool	Description and purpose
Stakeholder database	• A stakeholder database will be established and maintained to ensure that all stakeholder feedback, concerns, enquiries and interactions are recorded and responded to
Project email	• A Project email address will be established to provide an ongoing channel for stakeholders to communicate with the Project team • The email address will be used to send Project updates, construction notices, fact sheets and other collateral to registered stakeholders
Project hotline	• A Project information phone line will be available to stakeholders and the community during the life of the Project • During regular business hours, calls will be answered and responded to. Outside business hours, a recorded message and voice mail facility will encourage callers to leave a message or send an email
Project website	• A website will be established to provide a key interface with stakeholders • The website will be regularly updated to ensure information currency • Core information on the website will include a Project overview and map, benefits, contact details, complaints process and feedback form, and FAQs (updated regularly) • The site will also include information on upcoming engagement activities, Project milestones, fact sheets, Project updates, construction notifications, and upon lodgement, a link to the EIS on DPE's Planning Portal website
Project cards	• Printed Project cards with contact details, including email, hotline, and website. • Project cards will direct stakeholders to contact the Project community relations team • Project cards to be distributed to stakeholders and local community • During construction, workers would keep and distribute when asked questions about the Project
Introductory letters (addressed mail)	• Introduce the Project and Project team to identified stakeholders within 4km of the site
Briefing pack	• Powerpoint (or similar) briefing pack created for stakeholder briefings and meetings to ensure consistency of information • Include details about the Project, map, benefits, timeline, development process, current status, and FAQs
Direct, targeted engagement, such as in-person meetings and stakeholder briefings	• Opportunity to engage stakeholders and decision makers to better understand their perspectives, such as landowners and proximal neighbours • May include in-person or online meetings, phone calls and presentations
Letterbox drops (unaddressed mailout)	• Used in conjunction with digital communication channels to provide Project information (including fact sheets, FAQs) • Unaddressed letterbox drops used during construction phase to deliver construction notifications

Channel / tool	Description and purpose
Electronic direct mail (EDMs)	• Project updates, newsletters, notifications, etc, sent via email to registered stakeholders following Scoping Report stage
FAQs	• Create and regularly update a list of frequently asked questions with responses • These would be placed on the Project website and also sent to stakeholders upon request
Fact sheets	• Project factsheets would be used to support engagement activities, for letterbox drops and uploaded to the website • May expand factsheets to provide information on topics such as the planning process, solar farm operations and the electricity grid, benefits of renewable energy or solar farms and health and safety
Surveys and questionnaires	• If required, use surveys and/or questionnaires to invite comments and detailed feedback • These may be online only or a mix of online and hard copy
Community information sessions	• Local community information sessions, eg, drop-in sessions, will commence following the Scoping Report lodgement to support genuine engagement and provide opportunities to provide direct feedback • These sessions provide an opportunity for the community to meet Project team experts, and ask questions • Events will feature visually interesting and easily understood visual materials to describe the Project, its benefits, planning process, timeframes • May also include stands at local events such as field days or local shows
Advertising	• Used to promote community information sessions, community events and public exhibition periods during the EIS phase
Image library	• Site photography, including timelapse, may be used for promotional activities, including the Project website, EDMs and community events

Note: This list of channels and tools will be updated following SEARs and to reflect any changes to the Project based on community and stakeholder feedback.

4.2 ENQUIRIES AND COMPLAINTS MANAGEMENT AND RECORDING

Samsung will establish dedicated Project contact details to manage enquiries, feedback, and complaints for the life of the Project, including phone number, email address and website.

All stakeholder enquiries, feedback and complaints will be recorded in the Project's stakeholder database. The database will house contact details for all registered and known stakeholders and affected properties, details for email and newsletter subscribers, and will be frequently updated and maintained throughout the Project.

Samsung will manage enquiries, feedback and complaints received and capture the following information in the database:

- Contact name and details;
- Time and date enquiry received;
- Nature of the enquiry/complaint;
- Response provided, action required and resolution timeframes; and
- Closure of enquiries and complaints.

The process for managing enquiries, feedback and complaints is outlined in **Appendix B**.

All interactions with stakeholders will be recorded promptly and consistently, including face-to-face meetings. This will enable the Project to maintain open communication with the community and assist in building trusting relationships between the Project and stakeholders.

The database will also track complaints and monitor the timeliness and effectiveness of responses. This process will assist with gaining an early understanding of issues and highlight areas of concern with the Project's design, construction or operations, and ensure compliance with regulatory obligations.

Response timeframes for responding to enquiries and complaints are provided in **Table 4-2** below:

TABLE 4-2 COMPLAINT RESPONSE TIMEFRAMES

Type of enquiry	Response timeframe
Urgent complaints during construction (eg, safety, worker behaviour, noise, etc)	Within 24 hours
Other complaints	Within two business days
Enquiries and feedback	Within two business days

4.3 MEDIA STRATEGY AND PROTOCOLS

Both national and local media may be interested in the Project at different stages throughout the Project lifecycle.

The Samsung team will proactively manage media and public relations, and Project benefits highlighted through key messaging as outlined in the Plan.

Any media issues will be managed according to the following:

- media activities coordinated by Samsung staff;
- media enquiries received (eg, emails, community enquiries, complaint letters etc) will be referred to the Project Manager and Samsung’s media team; and
- any issue/incident likely (in the short term) to attract the attention of media, the Council, a local MP, or the broader community will be referred to the Project Manager and Samsung’s media team.

5. KEY MESSAGES

The following messages aim to provide a consistent and coordinated approach for all engagement, communications and media activities.

Messaging will be updated as the Project progresses and in response to stakeholder feedback.

5.1 ABOUT SAMSUNG

- Samsung is a global leader in innovative technology and sustainability;
- Samsung has successfully delivered similar renewable energy projects across Europe, Korea, Canada, and USA; and
- Samsung has recently entered into the Australian renewable energy market and is currently developing solar farm, BESS and other projects as a developer.

5.2 ABOUT THE PROJECT

- The proposed Romani Solar Farm includes building, operating, maintaining and the future decommissioning of a 250MW solar farm;
- The solar farm development will include a Battery Energy Storage System (BESS) facility, new substation, and access roads; and
- The solar farm will connect to the existing transgrid network or Project Energy Connect

5.3 PROJECT APPROVAL PROCESS

- As a State Significant Development, the Romani Solar Farm will be subject to a rigorous approval process under NSW planning laws;
- Samsung is currently drafting a Scoping Report for the NSW Department of Planning and Environment (DPE) – the first step in preparing an Environmental Impact Assessment (EIS);
- The EIS will assess the potential environmental, cultural heritage, community, social and economic impacts of the Project during both construction and long-term operation;
- To prepare the EIS, Samsung will be consulting widely with the community and stakeholders to understand all concerns and issues, to help develop a project that delivers benefits to the community and region; and
- While the Project is currently in the very early stages of the Project, Samsung is undertaking work to understand the biodiversity, visual and noise impacts the Project may have on the surrounding areas, and communicating with landowners and key stakeholders including Council.

5.4 PROJECT LOCATION

- The proposed site is 44 km southwest of Hay, in the Riverina area of NSW, within the bounds of Edward River Local Government Area (LGA);
- The proposed site has considerable benefits for solar farming due to the geographic features, existing infrastructure and close alignment with state, Commonwealth and local government policy and economic objectives;
- The 1,809 hectare site is within the NSW Government's South West Renewable Energy Zone;
- The site has direct access to the existing TransGrid transmission infrastructure which will allow for the energy generated from the Project to be added at low-cost direct to the National Grid; and
- The Project will allow for existing grazing activities on the land to continue within the Project area.

5.5 PROJECT BENEFITS

- The proposed solar farm will generate sustainable, clean electricity to power Australian homes;
- The solar farm will support the Australian electricity grid's transition away from fossil fuels; and
- The Project is expected to generate employment opportunities, creating jobs during construction and operation phases, and provide an economic boost to the region.

5.6 CONSULTATION AND THE COMMUNITY

- Samsung recognises that individual communities are diverse and unique, and will be working closely with local communities to deliver renewable energy projects that leave a positive, long-term impact;
- There will be opportunities for the community to find out more about the Project and provide their views as the proposed Project progresses through planning;
- We are working with landowners, neighbours, stakeholders, and community from the early phase of the Project, providing regular information and opportunities to contribute to the success of the Project;
- While the Project is currently in the very early stages, Samsung is undertaking work to understand the impacts of the Project on stakeholders and the surrounding areas; and
- All questions, feedback and comments are welcome and encouraged. Please contact the Project team via email or phone.

5.7 PHASE ONE (PRE-SCOPING REPORT)

- Samsung is currently drafting a Scoping Report for the NSW Department of Planning and Environment (DPE) – the first step in preparing an Environmental Impact Assessment (EIS);
- The Scoping Report will be lodged with NSW DPE to support an application for Secretary's Environmental Assessment Requirements (SEARs);
- In response to the Scoping Report, the SEARs will guide the preparation of the EIS. SEARs specify what issues are required to be addressed in the EIS;
- The EIS will assess the potential environmental, cultural heritage, community, social and economic impacts of the Project during both construction and long-term operation; and
- The Scoping Report, SEARs and EIS will be available online via DPE's Major Projects portal, and the community are invited to make submissions.

5.8 PHASES TWO (POST-SEARS) AND THREE (EIS)

Messages relating to future project phases will be drafted based on stakeholder feedback and as a result of the SEARs and EIS process.

6. POTENTIAL ISSUES, RISKS AND CONCERNS

There are several potential community and stakeholder engagement risks, issues and concerns that may arise during the development of the Project. These risks and issues need to be managed effectively to maximise the success of the Project. A summary of the key risks and proposed management strategies is set out below in **Table 6-1**.

TABLE 6-1 RISK MANAGEMENT STRATEGIES

Subject	Risk / Issue / Concern	Mitigation strategy / Project response	Tools / Channels
Project impact concerns (real and/or perceived)	• Visual amenity: community objections to the visual impacts of solar panels and associated infrastructure, including solar glint and glare • Environment, flora and fauna concerns, including agricultural land use, tree clearing • Property values and land value of surrounding properties • Traffic and transport impacts during construction • Perceived heat transmission from solar panels and associated risk of bushfires	• Early engagement with residents and community members • Clear and honest information on Project impacts using plain English communications • Develop collateral to counter false or misleading information • Acknowledge community opinions, objections, and concerns	**Recommended**: Project website, fact sheets, targeted emails, newsletters, community information sessions, face-to-face meetings, complaints and feedback channels. **Optional**: Social media, site tours and briefings
	• Cultural heritage impacts from the Project, including Aboriginal groups	• Early and ongoing engagement and collaboration with key stakeholders, including Aboriginal groups and heritage knowledge holders • Develop clear messaging on how cultural heritage assessments are conducted and what happens if an artefact or place of significance is identified and confirmed	**Recommended**: Project website, fact sheets, information sessions, face-to-face meetings, stakeholder briefings. **Optional**: Site tours for heritage groups

Subject	Risk / Issue / Concern	Mitigation strategy / Project response	Tools / Channels
Project opposition	• Unsupportive community • Organised community campaign • Activation of action group	• Structured and transparent early engagement • Consistent approach to engagement and communications • Provide extensive information on the benefits of the Project • Develop collateral to counter false or misleading information • Ensure media responses are prepared in advance to counter issues • Develop Community Benefits Scheme in collaboration with community and stakeholders • Develop local procurement strategy, if applicable • Structured and responsive (rather than reactive) issues management	**Recommended**: Project website, newsletters, media releases, information sessions, fact sheets, community consultative committee (CCC), sponsorships and/or community benefits program **Optional**: Social media
	• Opposition by adjacent landholders	• Transparent neighbourhood payment policy to offset impacts • Develop community benefits program to create long-term benefits for community	**Recommended**: Targeted emails, face-to-face meetings, complaints and feedback channels, community benefits program
	• Engagement activities focus on vocal minority, taking focus and resources away from broader engagement process	• Structured and transparent early engagement • Consistent approach to engagement and communications • Promotion of consultation with broad stakeholder groups • Structured and responsive (rather than reactive) issues management • Positive media strategy	**Recommended**: Newsletters, media release, community information sessions, community consultative committee (CCC) **Optional**: Sponsorships and community benefits program, social media
Negative media	• Media takes negative interest in the Project and launches campaign to oppose Project	• Clear and honest information about Project • Proactive communications, not reactive	**Recommended**: Media releases, holding statement, information sessions, fact sheets

Subject	Risk / Issue / Concern	Mitigation strategy / Project response	Tools / Channels
Lack of information	• Community members do not have access to adequate and accurate information on the Project to keep themselves informed on progress and potential impacts on health, safety, and the local environment	• Provide extensive, clear and easy-to-understand information across a range of readily accessible mediums	**Recommended**: Project website, social media, fact sheets, media releases, newsletters, targeted mail and emails, information sessions, sponsorships **Optional**: Social media, site tours and briefings, special interest group meetings and workshops, presentation material
Approval process and timing	• Delays with published timelines for the Project	• Ensure that Project teams provide an accurate forecast on the planning and construction process	**Recommended**: Project website, fact sheets, media releases, newsletters, targeted mail and emails, complaints and feedback channels **Optional**: Social media
Construction impacts	• Construction noise, dust and traffic impacts, poor worker behaviour or influx of workers in the area	• Update affected parties as variations occur	**Recommended**: Project website, newsletters, targeted email, construction notices, complaints and feedback channels **Optional**: Face to face visits, phone calls, social media, information sessions, site tours and briefings
Cumulative impacts / consultation fatigue	• Consultation for other developments in the region may be happening simultaneously, which could lead to consultation fatigue or confusion.	• Provide proactive updates to the community on upcoming construction work, its potential impacts and duration. Provide avenues for complaints and feedback	**Recommended**: Project website, newsletters, direct mail, email fact sheets
Mistrust in consultation process	• Stakeholder concerns that the consultation process is 'just for show' and not genuine	• Clear messaging showing how stakeholder feedback has and will continue to be used going forward (transparency) • All team members to show genuine interest in stakeholder feedback and capture feedback at all times irrespective of sentiment • Treat all stakeholders equally and fairly	**Recommended**: Project website, newsletters, targeted email, construction notices, complaints and feedback channels **Optional**: Face to face visits, phone calls

7. COMMUNICATION AND ENGAGEMENT ACTION PLAN

The Action Plan in **Table 7-1** below is based on the key project milestones that form part of the planning and environmental approval process, as shown in **Figure 7-1.**

FIGURE 7-1 KEY EIS MILESTONES

Samsung will consult and engage with the local community and other stakeholders through a variety of means throughout the course of the Project, as outlined in **Table 7-1** below.

A list of proposed collateral recommended for the planned activities below can be found in **Appendix C** of this Plan. A community events calendar is available in **Appendix D**.

TABLE 7-1 COMMUNICATION AND ENGAGEMENT ACTION PLAN

Activity	Objective / details	Stakeholders	Timing
Phase One: Pre-Scoping Report			
Develop community and stakeholder engagement plan	• Identify strategy, objectives and activities to undertaken appropriate engagement to support the development application	Internal	Oct 2023
Identify and contact landowner/s	• Identify and categorise host landowner/s and proximal neighbours within 4km of the nearest solar panel • Contact landowners via phone and/or email to introduce the Project • Send introductory letters • Gather stakeholder contact details • One-on-one meetings and negotiations with landowner/s and neighbours	Landowners	Oct 2023
Ensure Project contact details are in place	• Set up Project-specific email address, phone number and website to enable communication with stakeholders	Internal	Nov/Dec 2023
Ensure stakeholder feedback database is in place	• Set up Project contact details and database	Internal	Nov/Dec 2023
Populate database	• Set up appropriate thematic tags, so feedback can be categorised for reporting purposes	Internal	Nov/Dec 2023
Develop collateral to support the Project	• Supporting materials to be confirmed and developed. These may include: ◦ Website content ◦ Letter to seek briefing meetings with key Government stakeholders ◦ Briefing slide pack	ALL	Nov/Dec 2023
Letters to Govt representatives seeking/offering briefings, including DPE and Edward River Council	• Establish point of contact • Develop early relationships with key stakeholders who have interest and influence on Project • Provide Project overview and planned consultation activities • Offer face-to-face briefing to provide more information • Gather and document feedback at all briefings for input into the development application • Establish communication channels to facilitate two-way engagement • Identify opportunities for future engagement	Govt representatives	Nov 2023
One-on-one meetings with DPE and Council	• Face-to-face briefing with DPE • Face-to-face briefing with Council	Project team DPE Council	Nov 2023

Activity	Objective / details	Stakeholders	Timing
Lodge Scoping Report	• Scoping Report to be lodged with DPE. • Report to include Stakeholder Engagement Chapter outlining communication and engagement activities undertaken to date	DPE	Dec 2023
Phase Two: Post-SEARs			
Review and update this Plan	• Review this Plan as required following SEARs, as well as feedback from key stakeholder and the general community	ALL	Feb 2024
Project information distributed to general community (outside 4km radius)	• Promote the Project to the wider community. Activities may include: ◦ Letterbox drop Project information ◦ Promote communication channels for community to obtain further information and ask questions ◦ Develop FAQs and fact sheets to respond to community issues and concerns ◦ Update Project information on website	Broader community	TBA
Advertisement and promotional activities	• Promote the Project and activities to the wider community. Activities may include: ◦ Letterbox drop Project information ◦ Advertisement in local newsletters and website/s ◦ Promote channels for community to obtain further information and ask questions ◦ Plan community drop-in sessions for the community to discuss the Project and provide feedback	Broader community	TBA
Project updates on application process	• Provide Project updates to the community in response to SEARs. Activities may include: ◦ Project newsletter distributed by letterbox drop and online via EDM ◦ Website updates ◦ Update fact sheets and FAQs in response to SEARs ◦ Media release	ALL	TBA
EIS Consultation	• Continue to engage with stakeholders and community during development of the EIS • Provide regular Project updates – print and EDM • Inform community on what aspects of the Project can be influenced by the community • Understand local context, social issues and perceived impact from Project • Build positive sentiment across local media and with local community • Attend local events to promote Project and encourage feedback	ALL	TBA
Host community drop-in session/s	• Hold further information session/s to provide Project update and provide the community with further opportunities to ask questions and receive answers about the Project	Broader community	TBA

Activity	Objective / details	Stakeholders	Timing
Develop Community Benefits Program framework	• In collaboration with Edward River Council, stakeholders and key community groups , develop the framework for a Community Benefits Program	Community Council	TBA
Phase Three: EIS Public Exhibition			
Lodge EIS	• EIS to include detailed Stakeholder Engagement Chapter outlining communication and engagement activities undertaken to date, feedback from the community and how the Project has incorporated feedback into the development	DPE	TBA
EIS Public Exhibition period	• Advertise and promote EIS 28-day Public Exhibition period, to encourage stakeholders to lodge submissions with DPE. Activities may include: ◦ Project newsletter – print and EDM ◦ Website updates ◦ Fact sheet highlighting key EIS points ◦ Letter to key Government stakeholders inviting them to provide formal submission to EIS ◦ Face-to-face briefings/meetings with key stakeholders and landowner/s ◦ Advertisement in local newsletters and website/s ◦ Promote channels for community to obtain further information and lodge formal submissions to EIS ◦ Social media updates ◦ Inform community on what aspects of the Project can be influenced by the community ◦ Plan community drop-in sessions for the community to discuss the EIS and provide feedback	ALL	TBA
Host community drop-in session/s	• Hold information session/s to enable community to ask questions about the EIS • Sessions to include displays of collateral and copies of the EIS documentation • Subject matter experts will be available to answer community questions and concerns	Broader community	TBA
Draft Submissions Report	• Collate, categorise and respond to all submissions received during the public exhibition period • Draft Submissions Report to be submitted to DPE, in support of the development application	Internal DPE	TBA
Phase Four: Post-Project approval			
Following Project determination, this Plan will be updated to reflect construction and operational phases.			

8. MONITORING AND EVALUATION

8.1 MONITORING

Engagement and communication processes will be monitored throughout the Project life cycle to:

- ensure the techniques being used are effective;
- identify new stakeholders; and
- respond to any new issues or concerns.

Monitoring activities may include:

- reviewing enquiries and complaints data to identify unresolved or recurring issues and emerging trends;
- informal discussions with stakeholders and the community;
- information discussions with members of the Project team; and
- media monitoring, including social media.

8.2 EVALUATION

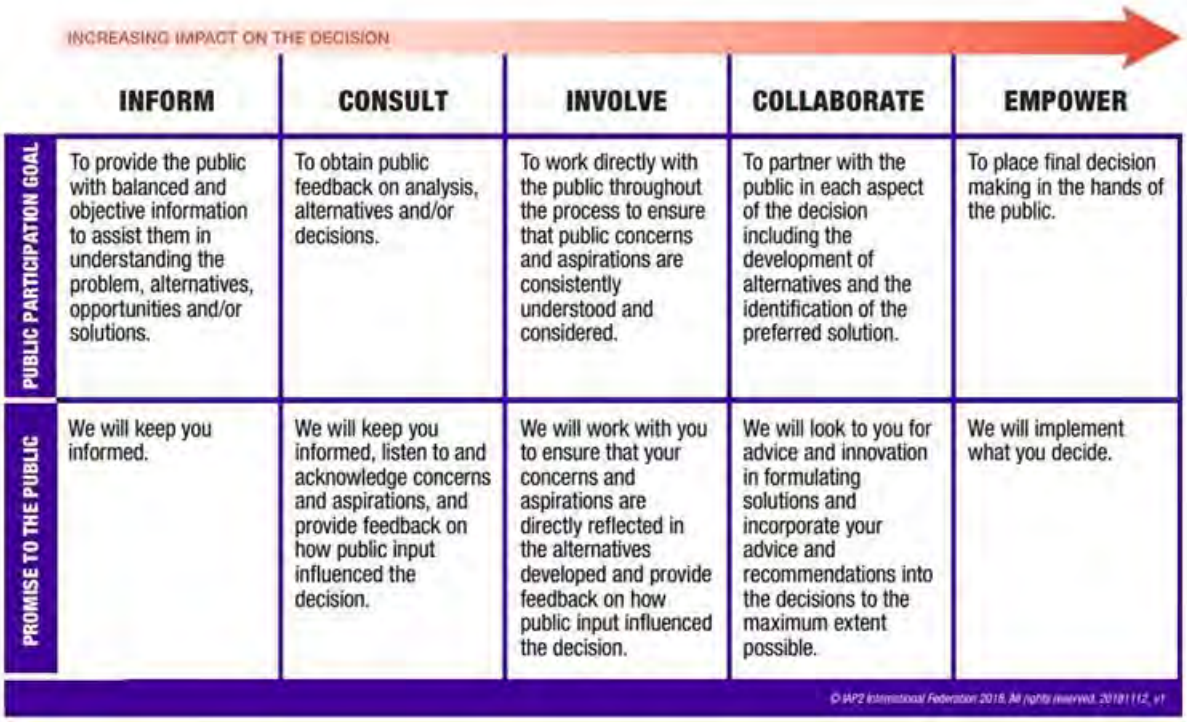
An evaluation process should be undertaken after key engagement activities. This includes results of stakeholder feedback including a summary of enquiries, issues raised and complaints (if any).

It is recommended that as part of any key engagement activities, stakeholders are asked how they felt about the engagement in terms of relevance, delivery style and opportunities for improvement.

It is expected that a Project closeout process will be undertaken by Samsung at the conclusion of the development application process and prior to construction, to assess the impact and benefits of this strategy, including any lessons learned and areas for improvement for future projects.

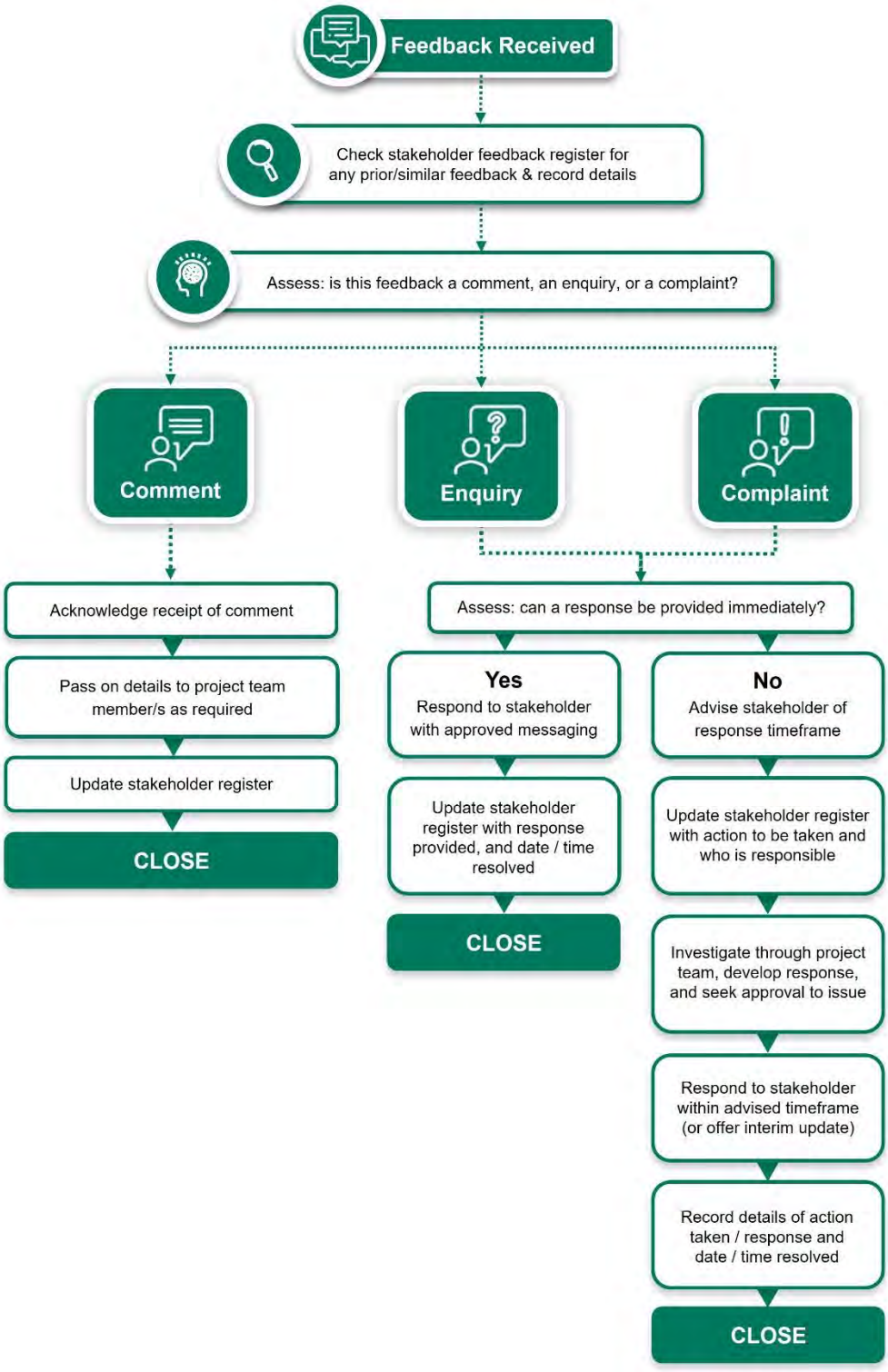
APPENDIX A IAP2'S PUBLIC PARTICIPATION SPECTRUM

The IAP2 has developed the Spectrum of Public Participation to help groups define the public's role in any public participation process. The IAP2 Spectrum is used internationally for strategic and effective stakeholder engagement and community consultation.



	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

APPENDIX B MANAGING ENQUIRIES AND COMPLAINTS


Feedback Received
Check stakeholder feedback register for any prior/similar feedback & record details
Assess: is this feedback a comment, an enquiry, or a complaint?
Comment
Enquiry
Complaint
Acknowledge receipt of comment
Pass on details to project team member/s as required
Update stakeholder register
CLOSE
Assess: can a response be provided immediately?
Yes
Respond to stakeholder with approved messaging
Update stakeholder register with response provided, and date / time resolved
CLOSE
No
Advise stakeholder of response timeframe
Update stakeholder register with action to be taken and who is responsible
Investigate through project team, develop response, and seek approval to issue
Respond to stakeholder within advised timeframe (or offer interim update)
Record details of action taken / response and date / time resolved
CLOSE

APPENDIX C LIST OF EXPECTED PROJECT COLLATERAL

- Project website:
    - Content for website may include imagery, maps, graphics and infographics.
- Project cards;
- Introductory letters – addressed mail to residents within 4km of Project site;
- Introductory letters – unaddressed mail to community outside 4km of Project site;
- Briefing pack (ie, Powerpoint);
- Template for Project update newsletter;
- Frequently Asked Questions; and
- Fact sheets, if required.

APPENDIX D COMMUNITY EVENTS CALENDAR

There are numerous local events held in Hay and the surrounding towns including Deniliquin and Griffith. Many of these events are held in Spring. Where dates for 2024 are not yet available, the dates for 2023 have been included.

Event	Host	Location	Date/s	Website
Hay Farmers Markets	HCS Markets	Hay	5th Saturday of each month	www.visithay.com.au/play/activity/hcs-markets
Hay Show	Hay Show Society	Hay	9 September 2023	www.visithay.com.au/play/activity/annual-hay-show
Hay NAIDOC celebrations	Hay Aboriginal Party Committee	Hay	25 October 2023	www.visithay.com.au/play/type/events
Hay Races	Hay Racing Club	Hay	25 November 2023	www.visithay.com.au/play/activity/hay-races
Titanium 2023 – Rainbow on the Plains	Hay Mardi Gras	Hay	17-19 November 2023	https://www.rainbowontheplains.com.au
Booligal Sheep Races	Held for 20 years	Booligal	30 September 2023	www.visithay.com.au/play/activity/booligal-sheep-races
Deni Fest	Visit NSW	Deniliquin	Easter Weekend 2024	visitdeni.com.au
Naponda Farmers Market	Naponda Store	Deniliquin	Second Saturday morning	
Play on the Plains	Visit NSW	Deniliquin	9 March 2024	www.visitnsw.com/destinations/country-nsw/the-murray/deniliquin/events/play-the-plains
Ute Muster	Visit NSW	Deniliquin	End of September 2024 (TBC)	www.deniutemuster.com.au
Griffiths Spring Festival		Griffith	8-21 October 2023	visitgriffith.com.au/listing/griffith-spring-fest-citrus-sculptures-2
Griffith Agricultural Festival		Griffith	October 2024 (TBC)	www.visitnsw.com/destinations/country-nsw/riverina/griffith/events/griffith-agricultural-show
NSW Country Races	Balranald Racing Club	Balranald	October 2023/March 2024	racingnswcountry.com.au/club/balranald-racing-club
The Great Murray River Salami Festival		Euston	11 November 2023	murrayriversalamifestival.com.au

DISTANCES

Hay to Booligal – approx. 77km, 48 minutes' drive time

Hay to Deniliquin – approx. 123km

Hay to Griffith NSW – approx. 155km

ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

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Switzerland
Taiwan
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UAE
UK
US
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APPENDIX B SCOPING SUMMARY TABLE

SCOPING REPORT SUMMARY TABLE

Level of Assessment	Matter	Scale of Impact [1]	Nature of Impact [2]	Sensitivity of receiving environment[3]	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Scoping Report Reference
Detailed	Biodiversity	Moderate	Direct Indirect	Sensitive (ecological values of species / biodiversity present)	Likely	No	General	Biodiversity Assessment Methodology (DPE 2020) Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia, 2013) Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species (various)	Section 6.4
Detailed	Amenity – Landscape and Visual	Low	Direct Cumulative Perceived	Sensitive (receptors, townships, communities)	Likely	Yes	Specific	Landscape Institute and Institute of Environmental Management and Assessment, Guidelines for Landscape and Visual Impact Assessment Third Edition (2013)	Section 6.2
Standard	Amenity – Noise and Vibration	Low	Direct Cumulative Perceived	Sensitive (receptors)	Likely	No	General	Noise Policy for Industry (2017) (NSW Environment Protection Authority) Interim Construction Noise Guidelines 2009 (Department of Environment, Climate Change) NSW Road Noise Policy 2011 (Department of Environment, Climate Change and Water) Assessing Vibration: A Technical Guideline 2006	Section 6.3
Detailed	Heritage – Aboriginal Cultural	Low	Direct Indirect Perceived	Sensitive (cultural values)	Likely	No	Specific	Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011) Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010) Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010c) Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010b)	Section 6.5
Detailed	Access – Traffic and Transport	Low	Direct Indirect Cumulative	Sensitive (disturbance to other road users)	Likely	Yes	Specific	Guide to Traffic Generating Developments (RTA, 2002) Austroads Guide to Road Design Austroads Guide to Traffic Management	Section 6.8
Standard	Heritage – Historic	Low	Direct Indirect	Sensitive (heritage values)	Likely	No	General	Historical Archaeology Code of Practice (Heritage Council, 2006)	Section 6.6
Standard	Hazards and Risks – SEPP 33 / Preliminary Hazard Analysis (BESS)	Low	Direct Indirect Perceived	Sensitive (safety)	Likely	No	General	Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011) Assessment Guideline: Multi-level Risk Assessment (Department of Planning and Infrastructure, 2011) Hazardous Industry Planning Advisory Paper No 6: Hazard Analysis (Department of Planning, 2011)	Section 6.7.1
Standard	Hazards and Risks – Bushfire	Low	Direct Indirect	Sensitive (safety)	Likely	No	General	Planning for Bushfire Protection 2019 – NSW Rural Fire Service (RFS, 2019)	Section 6.7.2
Standard	Hazards and Risks – Health – Electromagnetic Field	Low	Direct Perceived	Sensitive (safety)	Likely	No	General	National Health and Medical Research Council advice	Section 6.7.3

[1] Scale of Impacts – based on the severity of the impact, the geographical location and the duration of the impact as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPE, 2021a).
[2] Nature of Impact - type of impact, i.e. direct, indirect, cumulative, perceived, as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPE, 2021a).
[3] Sensitivity of the receiving environment – expressed in legislation, societal values, or vulnerability to change, as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPE, 2021a).

Level of Assessment	Matter	Scale of Impact [1]	Nature of Impact [2]	Sensitivity of receiving environment[3]	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Scoping Report Reference
Standard	Social	Low	Direct Indirect Cumulative Perceived	Sensitive (social, environmental and economic values)	Likely	Yes	General	Social Impact Assessment Guideline for State Significant Projects (DPE, 2021b) Technical Supplement: Social Impact Assessment Guideline for State Significant Projects (Technical Supplement) (DPE, 2021d)	Section 6.9
Standard	Water Resources (flooding and hydrology)	Low	Direct Indirect	Sensitive (local hydrology and water quality)	Likely	No	General	Managing Urban Stormwater; Soils & Construction (Landcom, 2004); Guidelines for Controlled Activities on Waterfront Land (DPI Water, 2018); Relevant Water Sharing Plans (DPI Water); and Guidelines for Watercourse Crossings on Waterfront Land (DPI Water, 2012) Floodplain Risk Management Guidelines (Department of Environment and Climate Change, 2016) Floodplain Development Manual: The management of flood liable land (NSW Government, 2005)	Section 6.10
Standard	Land Resources (agriculture and soils)	Low	Direct Indirect	Sensitive (agricultural land use)	Likely	No	General	Soil and Landscape Issues in Environmental Impact Assessment (OEH, 2000); Landslide Risk Management Guidelines (AGS, No Date); and Site Investigations for Urban Salinity (OEH, 2002). Revised Large Scale Solar Guidelines (DPE, 2022a)	Section 6.11
Standard	Air Quality	Low	Direct Indirect	Sensitive (local air quality)	Likely	No	General	National Greenhouse Accounts Factors (Australian Government, 2021); and NSW Climate Change Policy Framework (Office of Environment and Heritage, 2016).	Section 6.12
Standard	Waste Management	Low	Direct Indirect	Sensitive (environmental values, safety)	Likely	No	General	Waste Classification Guidelines (DECCW, 2009)	Section 6.13

APPENDIX C PRELIMINARY VISUAL IMPACT ASSESSMENT

ROMANI ROAD SOLAR FARM

LANDSCAPE ARCHITECTURE
VISUAL IMPACT ASSESSMENT

STAGE 1 PRELIMINARY ASSESSMENT

PREPARED FOR ERM
DECEMBER 2023

ARCADIA

Figure 1.1 DPIE Large Scale Solar Energy Guidelines 2002 Image Extract

We respectfully acknowledge the Traditional Custodians of the lands where we live and work. We acknowledge their unique ability to care for Country and deep spiritual connection to it. We honour Elders past, present and emerging whose knowledge and wisdom has and will ensure the continuation of cultures and traditional practices.

Rev B **Issued November 2023**

Authorised by CHRIS TIDSWELL
Director
M.Land Arch M.Arch B.DesSt Dip.PM
Registered Landscape Architect #001858
IFLA APR Honorary Secretary

Front Cover - Figure 1.1 - DPIE Large Scale Solar Energy Guidelines 2002 Image Extract

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DRAFT

Document No: Landscape Architecture Visual Impact Assessment - STAGE 1 Preliminary Assessment

Revision	Date
B	17 November 2023

Approval Record

Function	Position	Name	Date
Production	Landscape Architect	Rania Martono / Cyrus Radmehr	17 November 2023
Technical Checker	Principal	Chris Tidswell	17 November 2023
Reviewed by	Principal	Chris Tidswell	17 November 2023
Approved by	Principal	Chris Tidswell	17 November 2023

Amendment Record

Changes made to this document sine its last revision, which affect its scope or sense, are marked in the right margin by a vertical bar (|).

Date	Rev	Amendment Description	By
17.11.2023	B	Comments	Chris Tidswell / Rania Martono / Cyrus Radmehr

Information Class: Standard

List of figures

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03

Figure 1.2 DPIE Large Scale Solar Energy Guidelines 2002 Image Extract

01
INTRODUCTION

Figure 1.3 Contextual Photo from corner of site

1.1 Purpose of Visual Impact Assessment

1.1.1 Purpose

Arcadia Landscape Architecture through ERM were commissioned by the client to undertake an independent preliminary visual impact assessment of the Romani Solar Farm.

This assessment is to respond to no specific visual impact rating for all design elements of the project, where feasible and reasonable.

To respond to this condition, the following assessment assesses the visual impact of the current design on the views and visual environment condition identified. This assessment considers the visual impacts of the solar farm only.

As per the NSW Department of Planning and Environment's Large Scale Solar Energy Guideline - Technical Supplement - Landscape and Visual Impact Assessment, these tools consider factors such as:

- A view from a residence is more sensitive to change than from a local road where views are more intermittent and less frequent
- A view from a rural residence is more sensitive if it is from principal living spaces and the front and rear of the dwelling than from other areas
- A view is more sensitive to change if it has higher scenic qualities and more valued landscape features
- A distant solar energy development would have a lesser magnitude than one closer
- Magnitude is likely to be higher from areas overlooking a solar array as more of the project would be visible than if the viewer were at a similar elevation.

The existing visual environment was established through a combination of desk-top study and assessment of mapping / GIS Photography.

The impacts of the proposal on the existing visual environment were assessed using Software and Desktop industry standard methodologies.

The visual assessor uses professional judgement to categorise the visual modification and sensitivity of the visual environment which is applied to an assessment matrix to generate an overall impact.

1.1.2 Report Structure

The following table provides an overview of the requirements of the Guideline and the Technical Supplement, and where these have been addressed in the PVIA:

PVIA Report Reference	**Guideline and Technical Supplement Requirements**
Refer Section 3.3 Conclusion: Community Consultation	Ongoing community consultation will be undertaken to ensure and develop an understanding of the community's landscape values.
Refer Section 2.8 Nearby Renewable Energy and Related Projects: Cumulative impacts	Cumulative impacts of surrounding renewable energy projects will also be assessed in the LVIA in order to identify impacts on the broader landscape character of the region. Currently, one (1) proposed wind farm project (Bullawah Wind Farm) was identified in proximity to Project Investigation Areas 1 and 2. The Plains Wind and Solar Farm is adjacent to the site (to the east).
Refer Section 3.3 Conclusion: Preliminary Landscape Character Assessment	Detailed assessment of the impacts of these renewable energy projects will be undertaken in the EIS phase.

Figure 1.4 377 Romani Road, Booroorban Visual Impact

1.2 Site Context

The site is located on the Wiradjuri country.

Romani Solar Farm, 377 Romani Road is located within the Edward River Council, in Booroorban, New South Wales.

The site location is around 44 km southwest of Hay and 600 km southwest of Sydney and is 1810 haproject site.

It is located to the west of the Cobb Highway and Booroorban.

The site of Booroorban was on a stock-route supplying the Victorian market that developed in the 1850s, located on the Old Man Plain between the Murrumbidgee River and Billabong Creek.

Abercrombie Creek is a feature in the landscape.

The site context is typically flat landscape that has been used of livestock grazing. Other areas have been used for agricultural activities such as grazing, irrigated and dry-land cropping. Topography in the wider context is generally flat with minor changes in old remnant creek lines. Damning in this agricultural land is common and changes the natural topography creating small dam walls that are sometimes visible.

KEY

- **SITE**
- **MAIN ROAD**
- **WATERCOURSE**

Figure 1.5 377 Romani Road, Booroorban Context Map
Source: Google Earth Pro

1.3 Site Location

The subject site is located on Booroorban-Tchelery and Romani Road. The Forest Creek and other watercourses are located nearby the site. Topography of the site is relatively flat with its 1m interval contours shown on map.

This agricultural land is relatively flat, which reduces the scale and likelihood of visual impacts.

The land within the project investigation are is defined by vast open paddocks generally used for grazing. Native vegetation is characterised by low cehnopod shrublands and native grasslands on grey cracking clays to sandy rises. A stand of Black Box (Eucalyptus largiflorens) is in the central parts of the site west of the main homestead and livestock yards.

Vegetation around the homestead and livestock yards comprises planted native trees of mostly West Australian origin. East of the livestock yards is a single senescent White Cypress Pine (Callitris glaucophylla), with Emu Bush (Eremophila longifolia) and Sugarwood (Myoperum platycarpum) The limited canopy coverage is associated with creeks and rivers. The creeks and rivers remain dry throughout the year but act as landmarked in the landscape.

KEY

- **SITE**
- **MAIN ROAD**
- **WATERCOURSE**
- **1M CONTOURS**

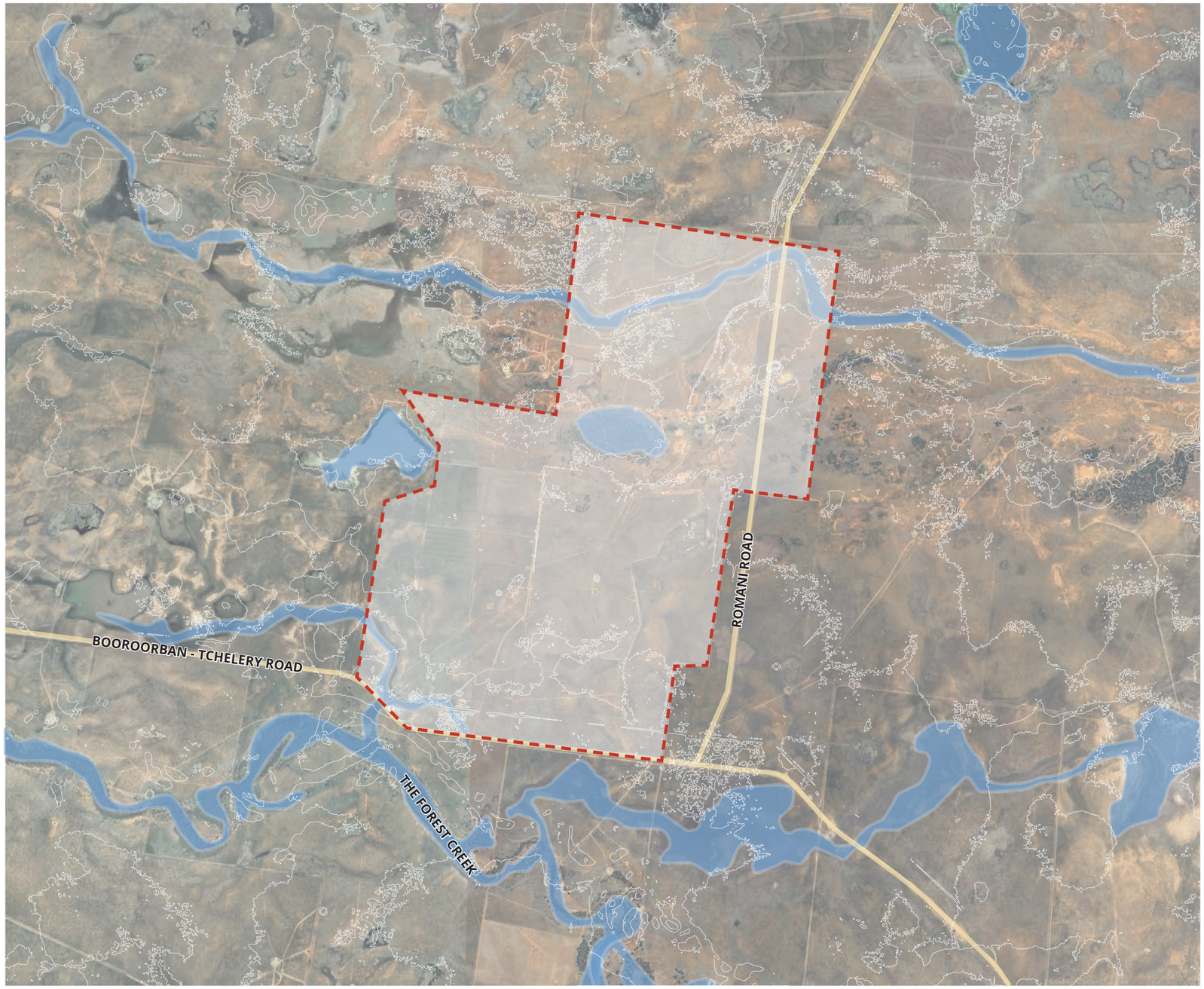

Figure 1.6 377 Romani Road, Booroorban Site Map
Source: Google Earth Pro & ELVIS Data

1:60000 @ A3 0 200 400 600 1000m ARCADIA

1.4 Site Photos

The site photo's illustrate the character of the flat terrain and scattered vegetation with treeless paddocks.

Figure 1.7 Project Site Photo:

Figure 1.8 Project Site Photo:

Figure 1.9 Project Site Photo:

1.4 Site Photos (Continued)

Figure 1.10 Project Site Photo: North-west corner of the site looking south

Figure 1.11 Project Site Photo: Northern boundary of site looking south

Figure 12 Project Site Photo: Northern boundary looking south west

Figure 1.13 Project Site Photo: North eastern boundary looking south

1.6 Preliminary Project Layout

The project proposal is to have the solar farm to the north of the transition line. The solar arrays will be placed around ecological communities as deemed required with access tracks and substation to the south of the proposal.

The site with Romani Road to the east and Booroorban Tchelery Road to the south.

It is anticipated that the physical layout and design of the Project will comprise the following key infrastructure elements:

/ Solar farm - Photo voltaic modules will be mounted on single-axis tracking systems within the development footprint. The solar farm will also include power conversion units (CUs), a cable network and internal access tracks.
/ Battery energy storage system (BESS) - to store and discharge electricity as required with a storage capacity of up to approximately 150 MW / 300 MW.
/ Electrical collection system, substation and control room - an on-site substation connected to the solar farm and BESS.
/ Operations and maintenance (O&M) facility - including site offices, O&M buildings, amenities, equipment sheds, storage and parking areas.
/ Site access - including access to the Romani Road to the East and Booroorban Tchelery Road to the south.
/ Temporary construction facilities - including construction compounds), site office buildings, laydown areas and construction materials storage.

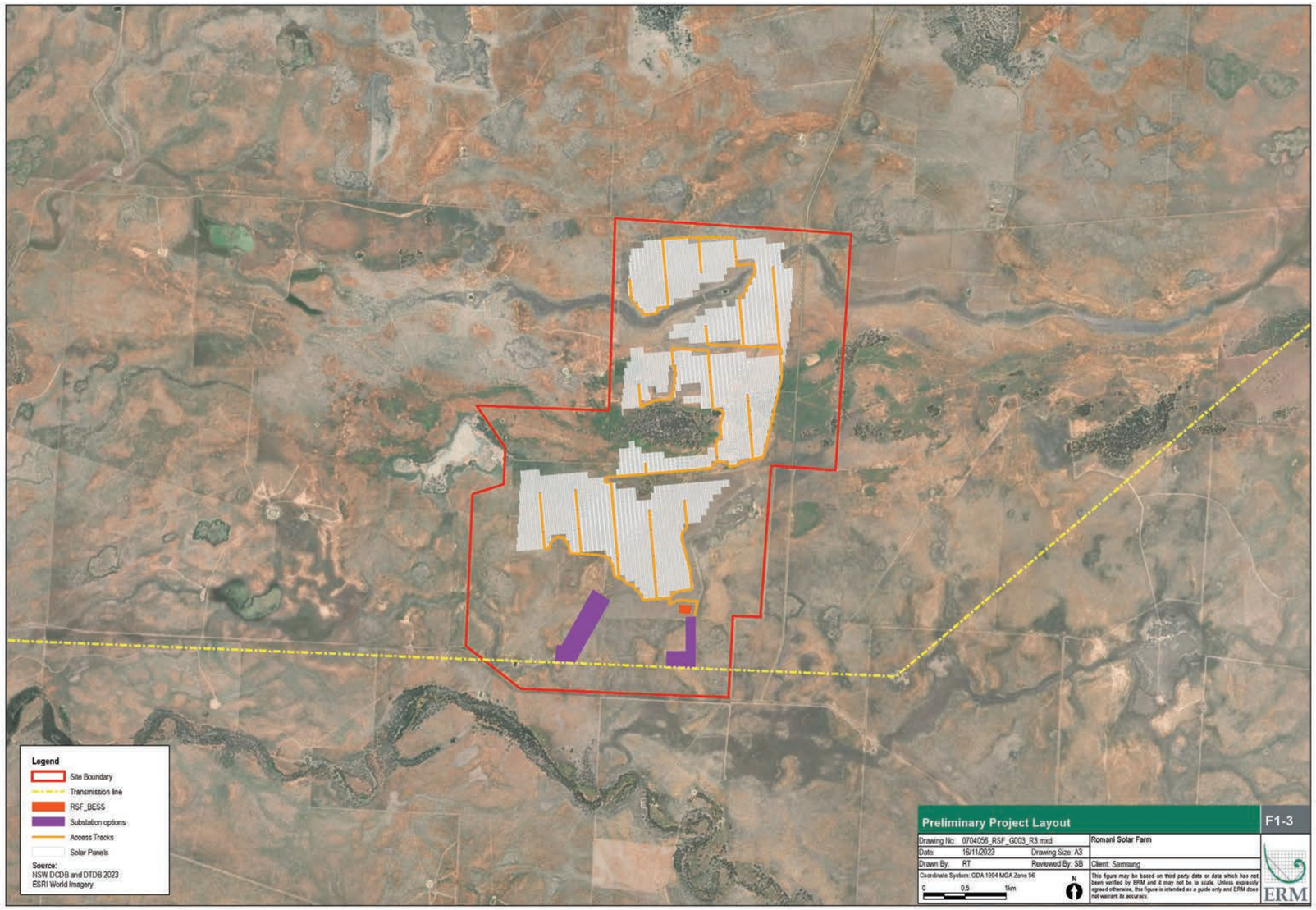

Figure 1.14 377 Romani Road, Booroorban Project Layout

N. T. S.

1.7 Key Project Components

The below is some information about the Solar Panel proposal by Samsung to use a two row panel for the project:

The NX Gemini™ 2P solar tracker is a robust solution for enhancing the efficiency and performance of solar power plants in challenging environments. With a rugged design, patent-pending distributed drive system, and versatile 2P module configuration, it maximizes stability and power density. Cost-effective with the fewest foundations per megawatt, it excels in challenging installations. Compatibility with both PV module types, integration with TrueCapture™ for enhanced energy yield, and proven innovations make it a strong choice. Endorsements from industry experts, like George Hershman, highlight its collaborative development and position the NX Gemini as a impactful tracker for sites with challenging conditions.

Solar Farm Feature	Specification
Tracking system	Single axis tracking system
Maximum generation capacity DC (MWdc)	312.4 MWdc
Power Stations (contains inverter)	up to 8400.0 kW
Approximate Disturbance Footprint (ha)	870 ha
Estimated height of panels when horizontal (m	2.35m (approximate)
Distance to ground at max tilt (to lower edge) (m)	0.5m (approximate)
Estimated height (to higher edge) when at max tilt (m)	5m (approximate)

NX Gemini

Introducing the NEXTracker Two-in-Portrait Smart Solar Tracker

The NX Gemini™ two-in-portrait (2P) solar tracker optimizes lifetime value and performance, helping project developers and asset owners get the most from their power plant. Ideally suited for sites with challenging soils, high winds, and irregular boundaries, the ruggedized 2P tracker features a patent-pending distributed drive system for maximum stability in extreme weather, eliminating the need for dampers and producing virtually zero energy losses associated with stowing.

Capitalize with Highest Power Density Solar Tracker

NX Gemini's flexible 2P module configuration allows for the maximum number of modules per foundation, requiring only 60 meters and seven foundation posts to provide support for up to 120 modules on four 1500-volt strings. With the lowest number of foundations per megawatts on the solar tracker market today, NX Gemini helps reduce tracker installation costs on difficult sites.

Pair with TrueCapture and Bifacial for Maximum Performance

The 2P tracker can be equipped with either monofacial or bifacial PV modules and integrated with the entire NEXTracker software ecosystem, including the TrueCapture™ advanced smart control and energy yield enhancement platform. Incorporated into the NX Gemini design is the field-proven innovations found in NX Horizon™, such as independent-row architecture, intelligent control systems and wireless communications.

FEATURES AND BENEFITS

- Industry-leading 2P design with 7 foundations points per 120 module row
- Ideal for challenging soils
- Bifacial-optimized for maximum performance
- Patent-pending distributed drive system for maximum stability in high winds
- TrueCapture ready, gain up to 6% more energy
- Special rotation feature for high velocity module installation

> "The NEXTracker team has always collaborated with us during their product development process, resulting in trackers that are faster to build, compatible for more sites and easier to maintain. NX Gemini is a strong tracker option for sites with challenging topography and geotechnical conditions."
>
> **George Hershman, President of Swinerton Renewable Energy**

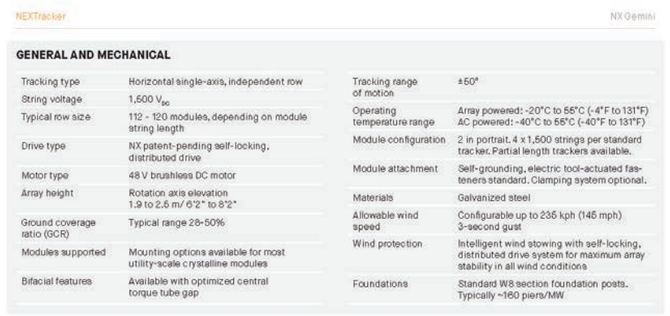

Figure 1.15 Specification of type of PV Panel

02
VISUAL ASSESSMENT

Figure 1.16 DPIE Large Scale Solar Energy Guidelines 2002 Image Extract

2.1 Method

Guidelines and Standards

This visual impact assessment has been undertaken in a manner consistent with established assessment methodologies.

Using this methodology, the following assessments have been carried out:

/ Assessment of landscape character and visual impacts
/ Recommendation of mitigation measures
/ The tools should also be used to identify where consultation with potentially affected landowners and the local community should be focused

The tools are designed to eliminate the need to assess viewpoints that are likely to experience very low impacts. This 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. Further information about vertical and horizontal field of view, including a method for roughly measuring the field of view an object occupies, is provided in Section 3.

To use the preliminary assessment tools:

/ Identify all viewpoints from public roads and rail lines within 2.5 km of the proposed development
/ Identify other public and private viewpoints within 4 km of the proposed development
/ Calculate the distance of each of these viewpoints from the nearest point of the proposed development
/ Determine the 'relative plot each viewpoint on the Preliminary
/ Assessment Tool – Vertical Field of View to determine the indicative 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 viewpoint (not considering topography or vegetation)
/ Compare the vertical and horizontal fields of view using the matrix in Table 1 to determine whether detailed visual assessment of each viewpoint is required because of height difference' between the proposed development and each viewpoint.

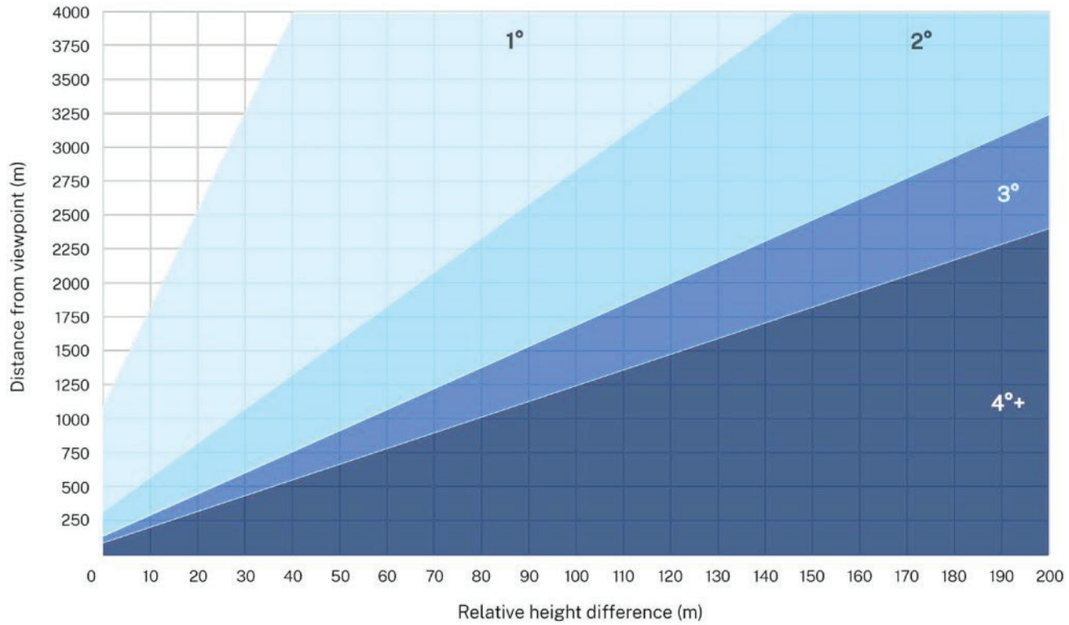

Figure 1.17 377 Romani Road, Booroorban Visual impact assessment Diagram

Accuracy Review

/ An accuracy review was carried out to ensure any slight inaccuracies that occurred through the process were reduced.
/ These processes allowed us to cross reference and check the location and scale of the site within the visual montage.

Assumptions

/ The following limitations and assumptions were made in the course of undertaking this study - This assessment was undertaken as a desktop study.

Disclaimer

The visual impact assessment aligns with typical VIA practice. The typical VIA practice refers to the below:

/ DPIE Large Scale Solar Energy Guidelines 2002 - Technical Supplement - Landscape and Visual Impact Assessment Large-Scale Solar Energy Guideline
/ Roads and Maritime Services (RMS) Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment (Reference number EIA-N04, 2013).
/ We have also used the Australian Institute of Landscape Architects Guidance Note for Landscape and Visual Assessment June 2018.

2.2 The Impact of View shed Mapping in GIS

View Shed Map is a preliminary assessment tool that represents a bare ground scenario - i.e landscape without screen, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable. It is important to note the map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

A View Shed Map identifies all areas from which a project may be viewed. View shed mapping can be achieved by using geographic information systems (GIS) that account for topography and line of sight between viewpoints and the project.

We have used view shed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tool if the analysis shows there is intervening terrain that would block line of sight to a particular viewpoint.

This step is optional but is recommended as it can reduce assessment requirements in cases where topography will play a significant role in limiting the view of a project. Where a view shed analysis is used, this should be informed only by terrain and not by other intervening factors including built structures and vegetation screening.

We have used this useful tool to refine project design process to reduce any significant impacts. It can also be used to communicate the visibility of certain parts of the project and aid consultation with the community. This analysis should be used to highlight parts of the project that can be seen from the greatest number of viewpoints.

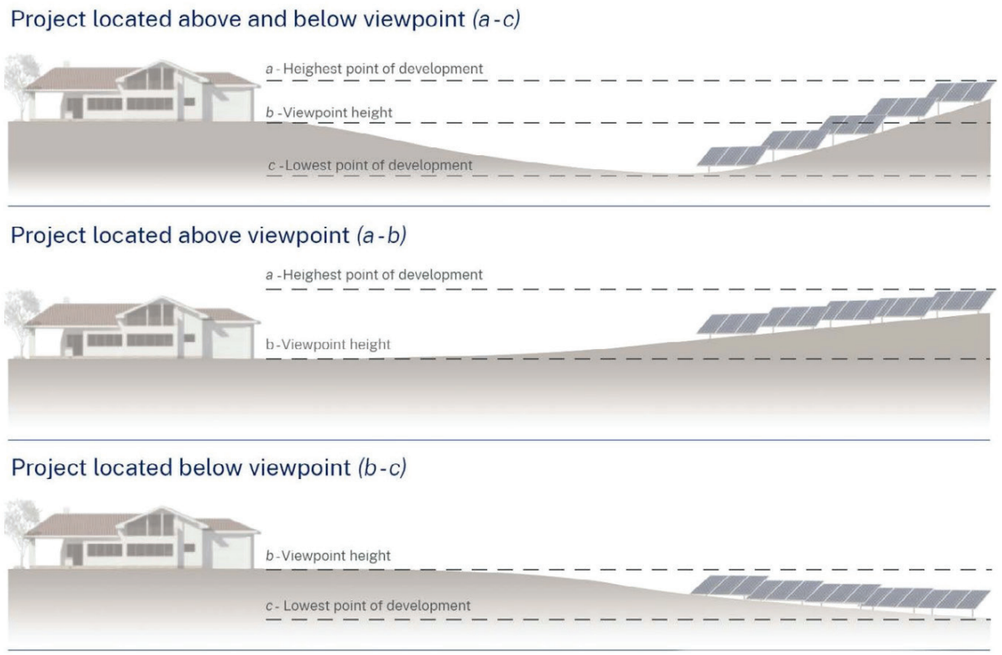

Figure 1.18 377 Romani Road, Booroorban The Impact of View shed Source: Technical Supplement - Landscape and Visual Impact Assessment

Horizontal field of view of project	1° vertical field of view	2° vertical field of view	3° vertical field of view	4°+ vertical field of view
1-10°	No assessment required	No assessment required	No assessment required	No assessment required
11-20°	No assessment required	No assessment required	No assessment required	Assessment required
21-30°	No assessment required	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required
31-40°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required for all viewpoints except road/rail	Assessment required
41-50°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required
51-60°	No assessment required	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required
61-70°	No assessment required	Assessment required	Assessment required	Assessment required
71-130°	Assessment required for all viewpoints except road/rail	Assessment required	Assessment required	Assessment required
130°+	Assessment required	Assessment required	Assessment required	Assessment required

Figure 1.19 377 Romani Road, Booroorban The Impact of View shed Source: Technical Supplement - Landscape and Visual Impact Assessment

2.3 Topography

The site sits on a relatively flat topography with surrounding levels of lowest RL 79 and highest RL 84. As seen on the map, the southwest area of the site has the lowest point and it gradually rise up to the northeast side. These levels also determine the location of water catchments, being located in lower levels.
(RL=height above sea level)

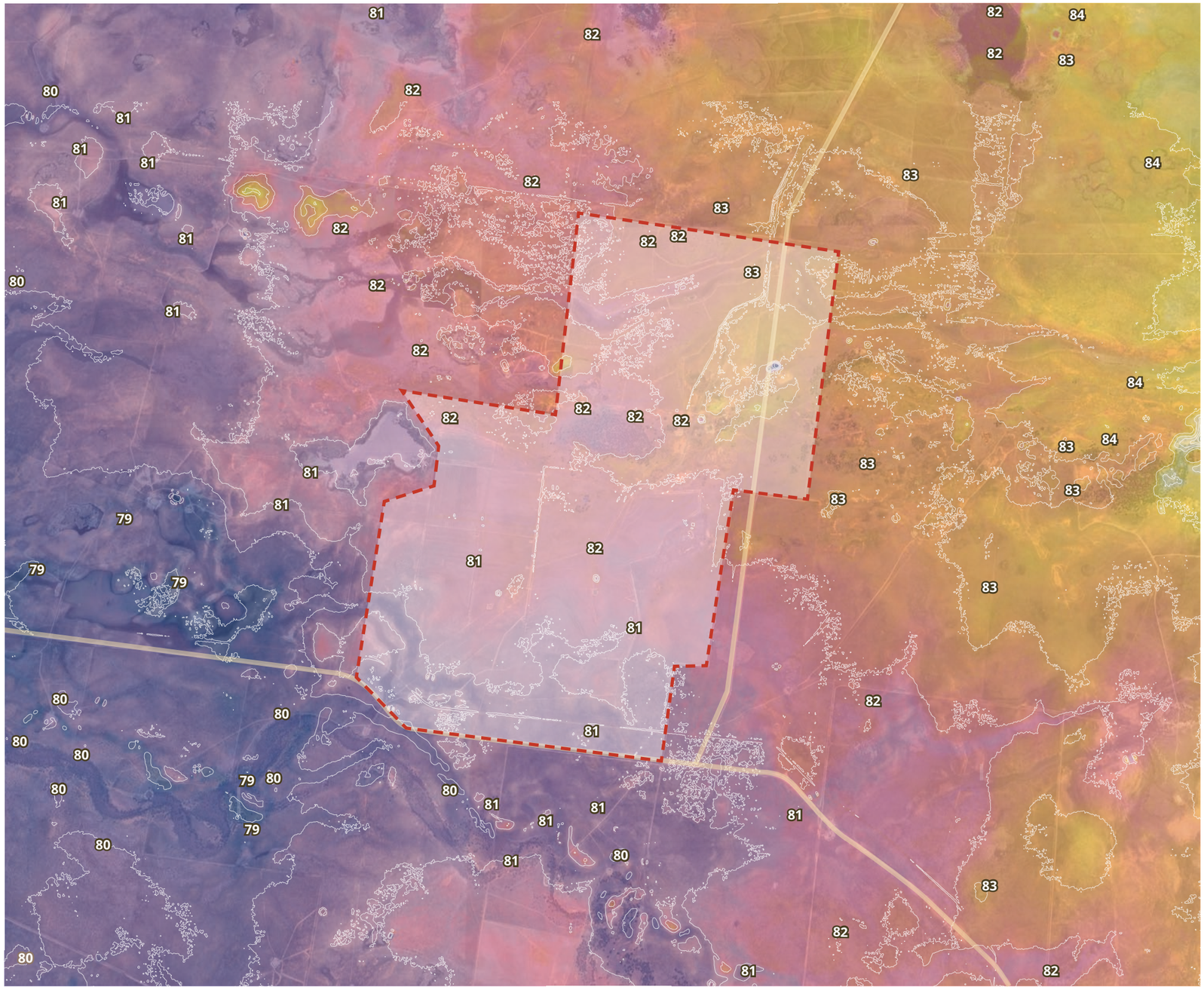

Figure 1.19 377 Romani Road, Booroorban Topography Map
Source: Google Earth Pro & ELVIS Data

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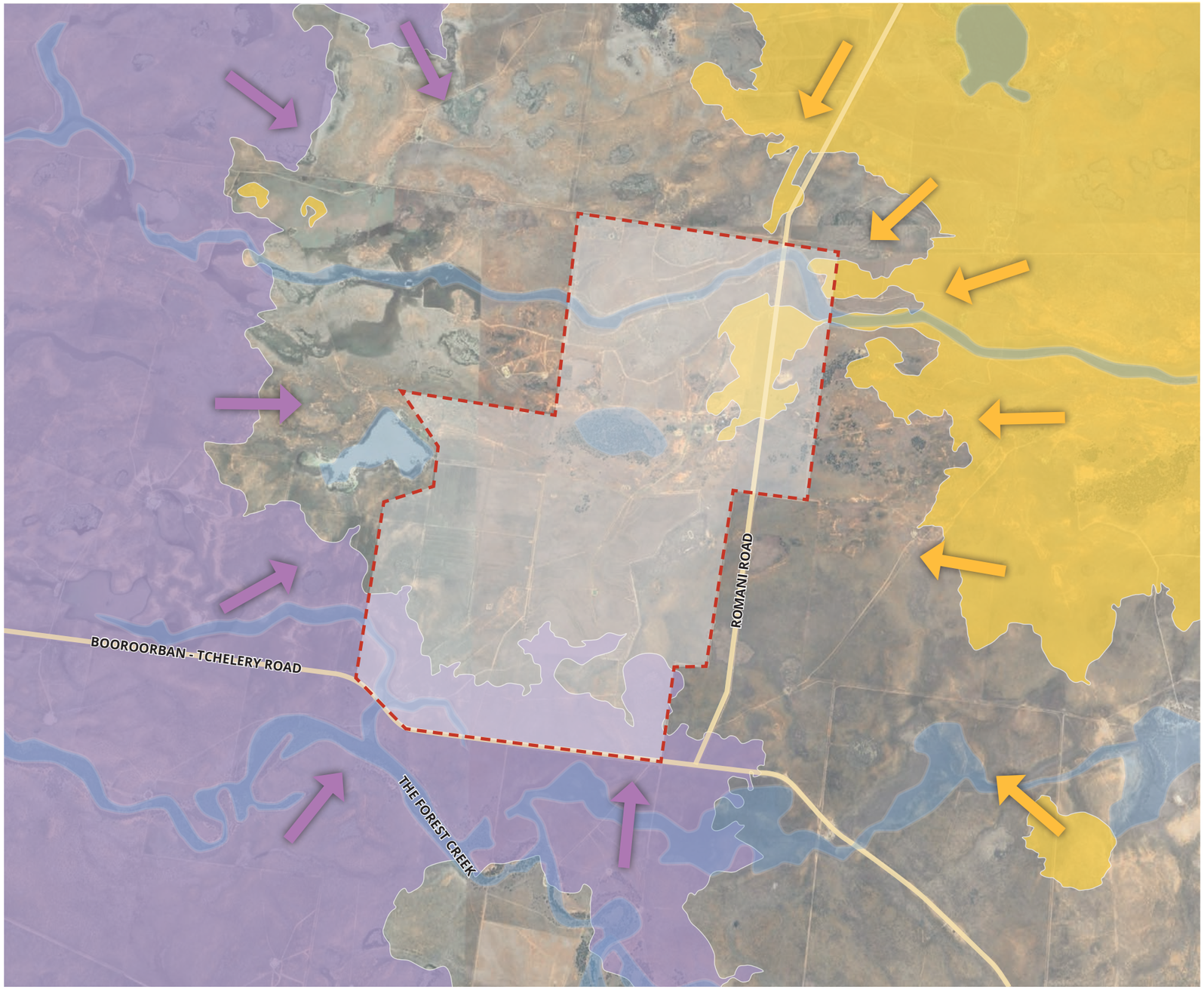
2.4 Visual Exposure (View-shed Mapping)

This View shed mapping illustrates the visible extents of the site. This visual envelope is defined through existing landform.

Understanding the visual exposure of the site is important as this agricultural land is flat which reduces the scale and likelihood of visual impact. This makes the site more visible to sensitive receivers.



KEY

- SITE
- MAIN ROAD
- WATERCOUSE
- VIEW UP UNTO SITE
- VIEW DOWN UNTO SITE

Figure 1.20 377 Romani Road, Booroorban Views Map
Source: Google Earth Pro & ELVIS Data

1:60000 @ A3 0 200 400 600 1000m ARCADIA

2.5 Local Plant Communities

The Romani Solar Farm sits on a few local plant communities, with its location close to the forest creek influencing on the varied communities.

Cotton Bush Open Shrubland of the semi-arid

Disturbed Annual Saltbush Forbland on clay plains

Lignum Shrubland Wetland of the semi-arid plains

Black Box - Lignum Woodland Wetland

Black Box Open Woodland Wetland

Nitre Goosefoot Shrubland Wetland on clays

KEY

- **SITE**
- **MAIN ROAD**
- **COTTON BUSH OPEN SHRUBLAND**
- **DISTURBED ANNUAL SALTBUSH FORBLAND**
- **LIGNUM SHRUBLAND WETLAND**
- **BLACK BOX - LIGNUM WOODLAND WETLAND**
- **BLACK BOX OPEN WOODLAND WETLAND**
- **NITRE GOOSEFOOT SHRUBLAND WETLAND**

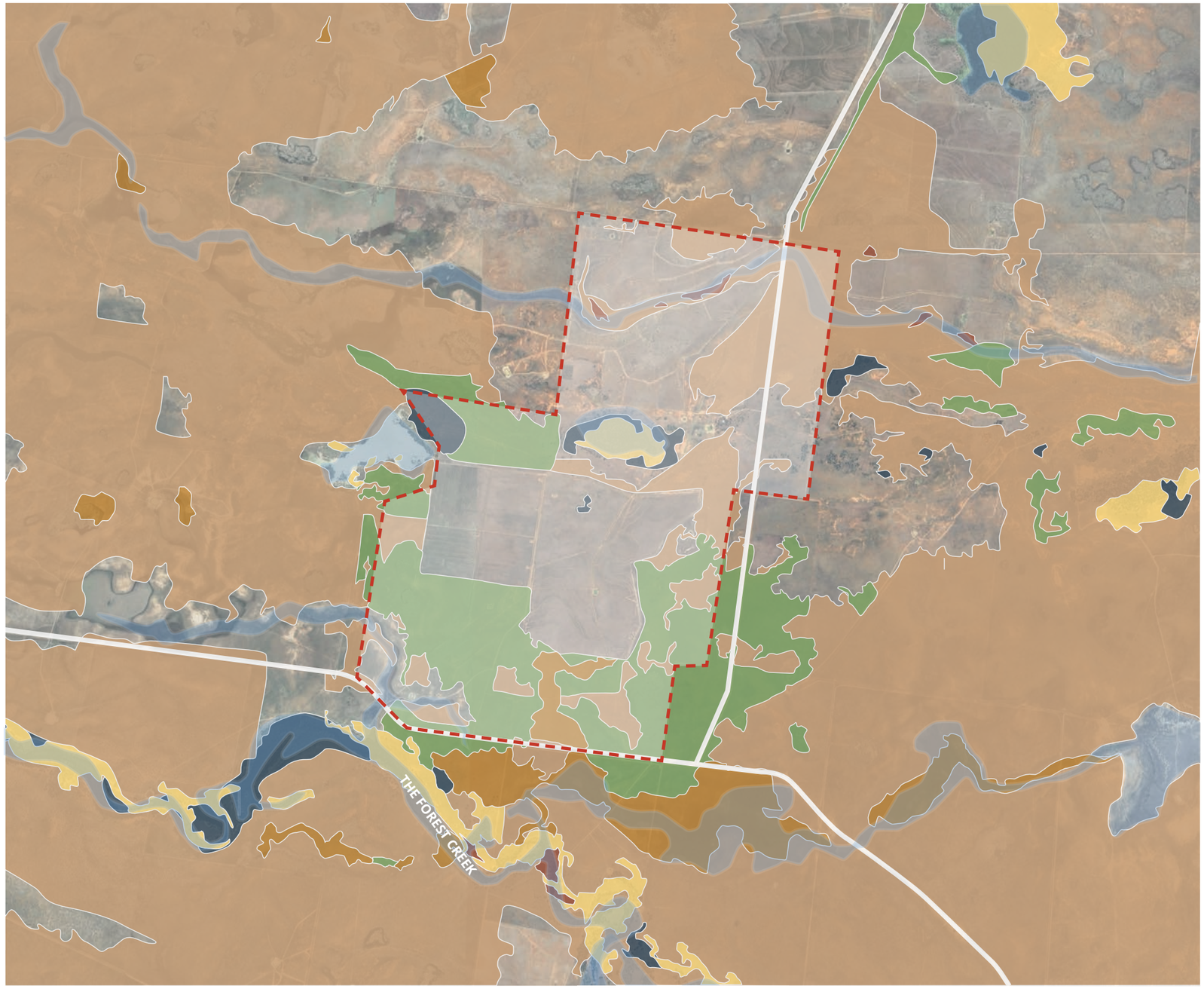


Figure 1.21 377 Romani Road, Booroorban Plant Community Types
Source: ERM & Google Earth Pro

1:60000 @ A3 0 200 400 600 1000m

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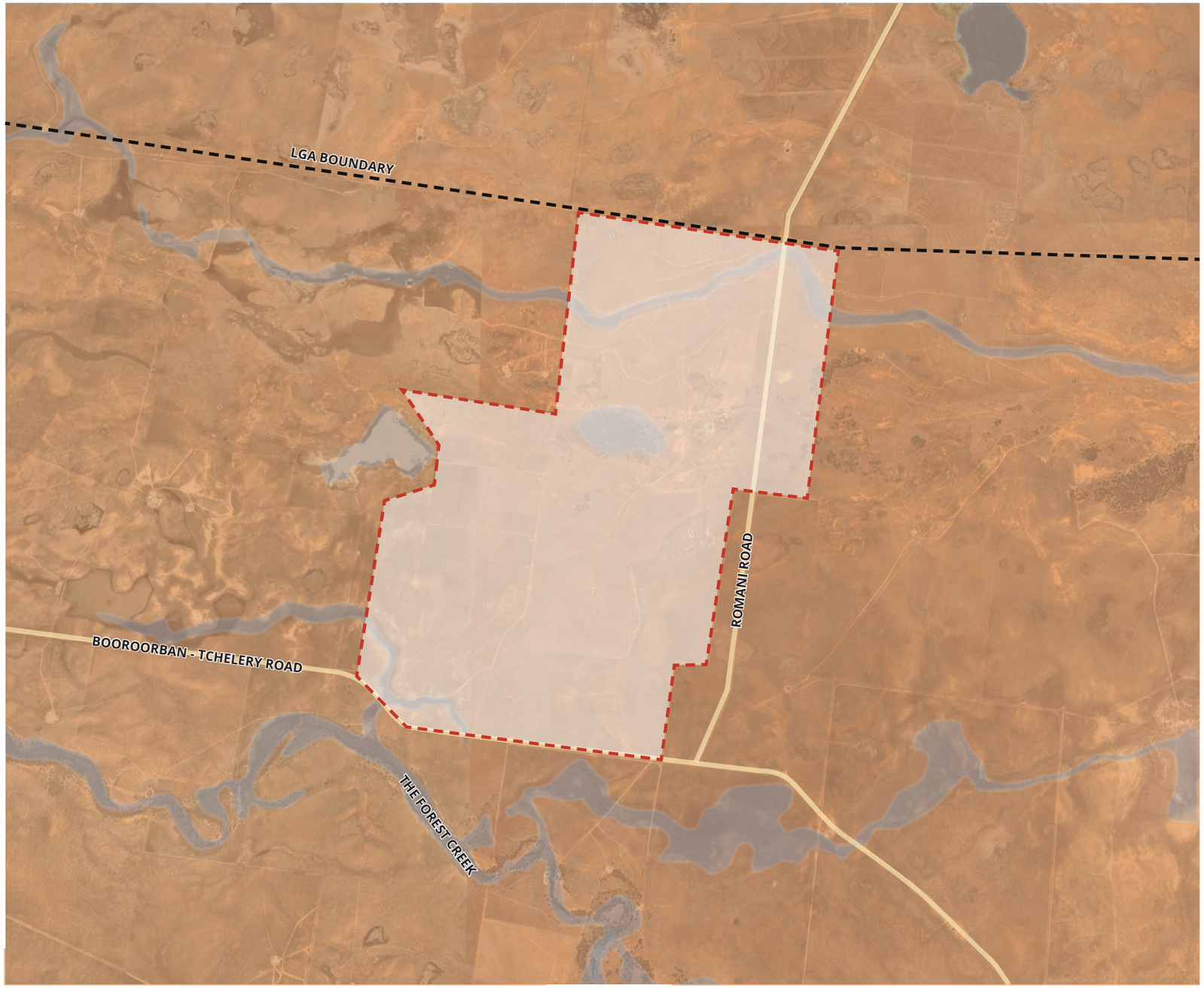
2.6 Land Use

The context surrounding the Solar Farm is dominantly in Zone RU1: Primary Production. The primary purpose of a rural zone is to promote agricultural production and protect the environment

Sustainable primary industry production through the maintenance and enhancement of natural resources are encouraged in this zone.

Protecting visual landscape values are also put to importance in this rural area.



KEY

- SITE
- MAIN ROAD
- WATERCOURSE
- ZONE RU1: PRIMARY PRODUCTION

Figure 1.22 377 Romani Road, Booroorban Land Use Map
Source: Google Earth Pro & NSW Planning Portal Spatial Viewer

1:60000 @ A3 0 200 400 600 1000m ARCADIA

2.7 Associative and non associative Dwelling

Figure 1.16 provides information about nearest Associative and non associative buildings to the site area.

There is one dwelling that is within 2.5km of the site to the south.

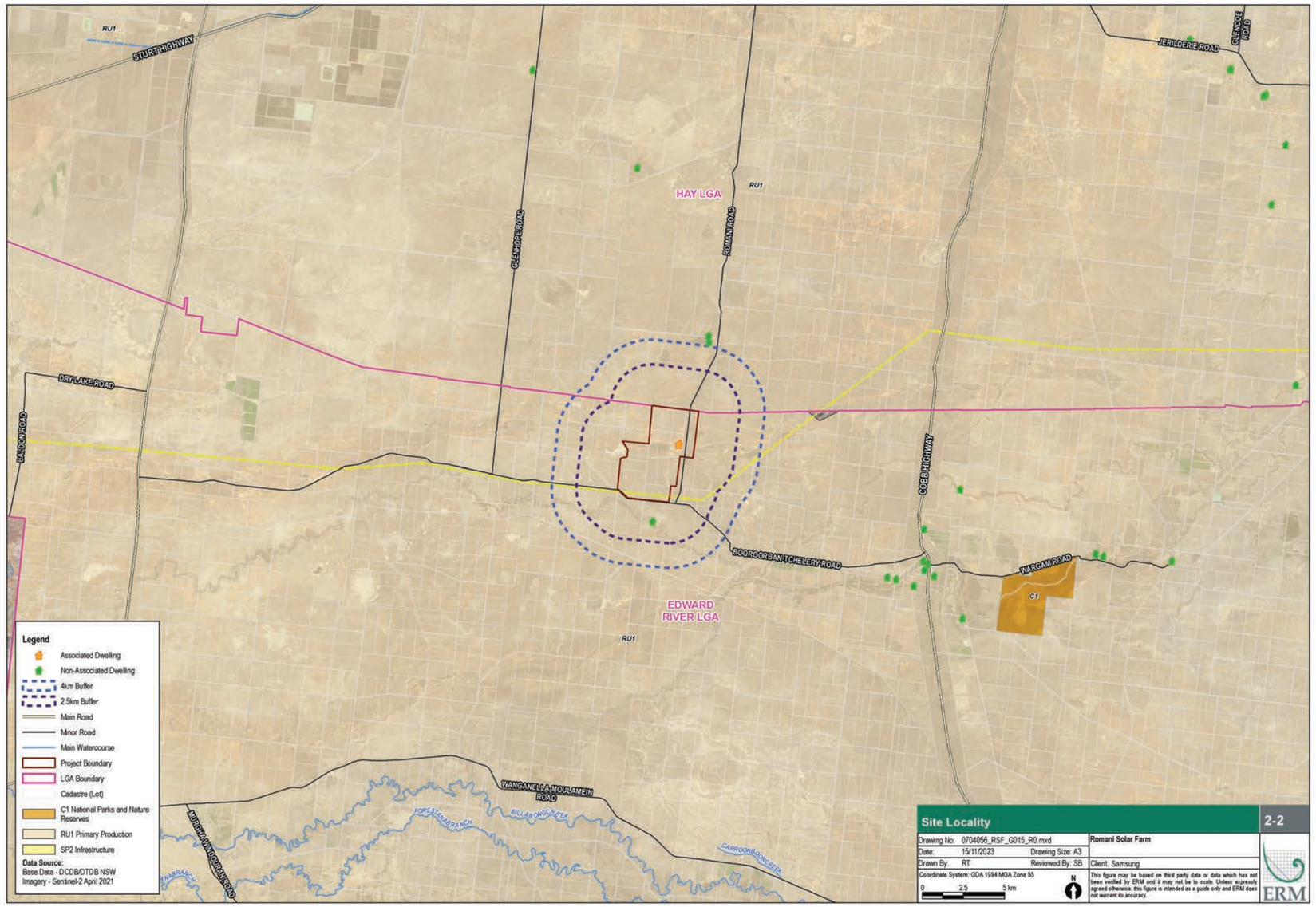


Figure 1.23 377 Romani Road, Booroorban Land Use Map
Source: Google Earth Pro & NSW Planning Portal Spatial Viewer

N. T. S.

2.8 Nearby Renewable Energy and Related Projects

Several renewable energy projects, either existing or in the planning stages, are situated near the Project Area, as detailed. The region experiences a notable clustering of renewable energy initiatives, primarily attributed to its positioning within the proposed South-West REZ and EnergyConnect corridor.

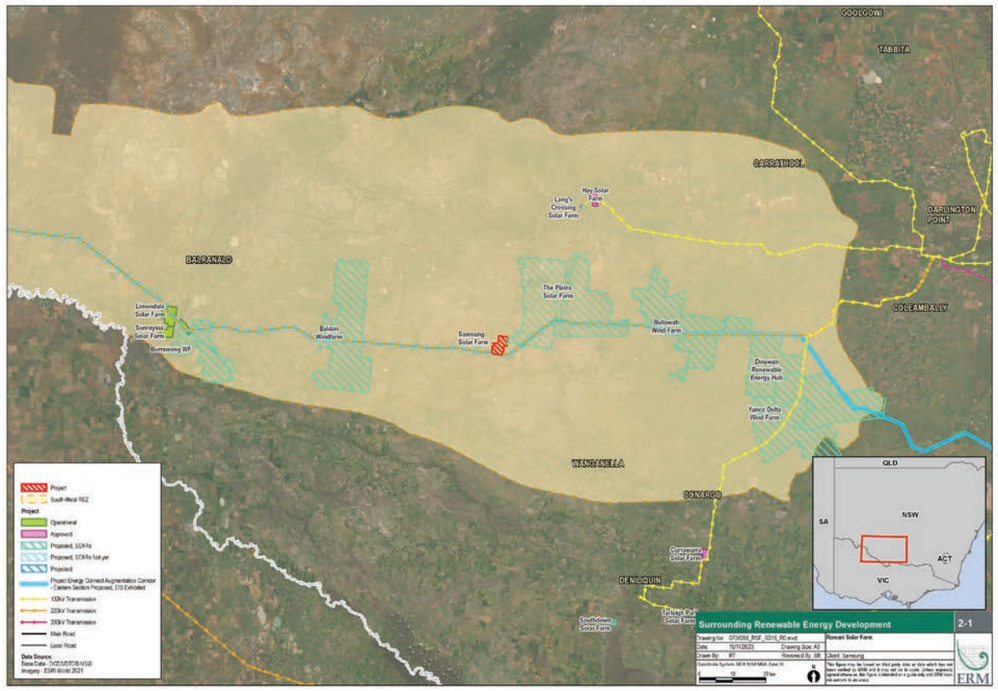


Figure 1.24 377 Romani Road, Booroorban
Nearby Renewable Energy and Related Projects

Project	Developer / Operator	Energy	Indicative Scale	Proximity to Project*	Status
Limondale Solar Farm	RWE	Solar	349 MW	104 Km	Operational
Sunraysia Solar Farm	Maoneng	Solar	255 MW	110 Km	Operational
Lang's Crossing Solar Farm	TEC-C	Solar	5MW	13 Km	Approved
Hay Solar Farm	Plains SF No1 Pty Ltd	Solar	110 MW	15 Km	Approved
Burrawong Wind Farm	Windlab	Wind	750 MW	92 Km	Proposed, SEARs issued
Baldon Wind Farm	Goldwind Australia and Lacour Energy	Wind	800 – 900 MW	51 Km	Proposed, SEARs not yet requested
Keri Keri Solar Farm	Acciona	Solar	400 MW	74 Km	Proposed, SEARs issued
Keri Keri Wind Farm	Acciona	Wind	1003 MW	59 Km	Proposed, SEARs issued
Dinawan Renewable Energy Hub	Spark Renewables	Wind / Solar	~2500 MW	47 Km	Proposed
Bullawah Wind Farm	BayWa r.e.	Wind	~1020MW	19 Km	Proposed, SEARs not yet requested
Yanco Delta Wind Farm	ViRYA	Wind	1500 MW	60 Km	Proposed, SEARS issued
The Plains Wind Farm	Engie	Wind	1800 MW	0 Km	Proposed, SEARS requested
EnergyConnect	TransGrid	Transmission Line	330kV	0 Km	Western section approved Eastern section proposed, EIS exhibited
Currawarra Solar Farm	RES	Solar	195 MW	78 Km	Approved
Tarleigh Park Solar Farm	RES	Solar	90 MW	95 Km	Approved
Southdown Solar Farm	juwi Renewable Energy P	Solar	130 MW	90 Km	Proposed, SEARs issued
Finley Solar Farm	ESCO Pacific	Solar	175 MW	110 Km	Operational

** Estimated distance*

Figure 1.25 377 Romani Road, Booroorban Nearby
Renewable Energy and Related Projects Table

Figure 1.26 DPIE Large Scale Solar Energy Guidelines 2002 Image Extract

3.1 Landscape Character Zones (LCZ) and Assessment

Landscape Character Zones (LCZ)

The technical supplement states: “If the landscape includes district areas that have different qualities, the study area should be broken down into different character zones. Landscape character zones (LCZs) should divide the landscape based on common distinguished visual characteristics. These patterns are formed by combinations of vegetation, water bodies, landforms and land-use, from which key landscape features can also be identified.”

Further, the technical supplement states: “ The study area for the landscape character assessment should generally be approximate 5 km from the proposed development”.” (DPE, 2022)

The following table provides a description for the LCZs::

LCZ	Name	Character Description
LCZ 1	Farmland and Plains	Flat open and expansive areas of heavily disturbed / cleared grazing or cropping land with the odd dam and lots of fencing at typically 1m high. This land is used for sheep and cattle grazing.
LCZ 2	Creeklines	Dry creek and river beds, minor undulations in the flat landscape sometimes with trees and under-storey vegetation.

Assessment

The technical Supplement states: ‘A preliminary visual assessment must be included in an applicant’s scope report as part of their request for the Secretary’s environmental assessment requirements (SEARs).” (DPE, 2022b)

Furthermore “ To use the preliminary assessment tools; identify al view points from public roads and rail lines with 2.5km of the proposed development; identify other public and private view points within 4 km of the proposed development.” (DPE, 2022b)

The preliminary assessment tools must be used to identify viewpoints that require detailed assessment in the EIS. The tools can be used to eliminate the need to assess viewpoints that are likely to experience very low impacts. This 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 .” (DPE, 2022b)

The below Table provides and overview of the requirements of the Preliminary Assessment:

Preliminary Assessment in accordance with Requirements	PVIA Report Reference
The applicant can use view-shed mapping to further eliminate the need to assess viewpoints that fall below the lines in the Preliminary Assessment Tools if the analysis shows there is intervening terrain would block line of sight to particular viewpoint.	2.4 Visual Exposure (View-shed Mapping)
Identify all view points from public roads and rail lines with 2.5km of the proposed development	3.2 Proposed Views for Detail Assessment (ZVI)
Identify other public and private view points within 4 km of the proposed development	3.2 Proposed Views for Detail Assessment (ZVI)
Calculate the distance of each of these viewpoints from the nearest point of the proposed development	3.2 Proposed Views for Detail Assessment (ZVI)
Determine the ‘relative height different’ between the proposed development and each viewpoint	3.2 Proposed Views for Detail Assessment (ZVI)
Plot each viewpoint on the Preliminary Assessment Tool - Vertical Field of View to determine the indicative vertical field of view (as either 1, 2, 3 or 4+ Degrees)	3.2 Proposed Views for Detail Assessment (ZVI
Measure the worst case horizontal field of view of the project from each viewpoint	Assessment will be refined in EIS
Compare the vertical and horizontal fields of view using the matrix to determine whether detail visual assessment of each viewpoint is required.	3.2 Proposed Views for Detail Assessment (ZVI

The proposed solar farm at Lot 377 Romani Road, Booroorban would be classified with a sensitivity and magnitude rating as low given the Site Location, Context, Topography, Visual Exposure, Local Plant Communities and Land uses.

3.2 Proposed Views for Detail Assessment (ZVI)

This preliminary assessment stage is used to identify viewpoints that will require a detailed assessment in stage 2.

We have identified 7 x viewpoint from public roads within 2.5 km of the proposed development - these are 7 x public and 1 x private viewpoints (i.e Viewpoint 8) within 4 km of the proposed development

The distances of each viewpoints from the nearest point of the proposed development is illustrated in Figure 1.20.

Note: DPIE Large Scale Solar Energy Guidelines 2002 Image Extract - Technical Supplement - Landscape and Visual Impact Assessment Table 1. Preliminary visual assessment tool – assessment requirements need to be taken in consideration when selecting View Points

The ZVI is a preliminary assessment tool that analysis a bar earth scenario. That is, does not consider features that could screen view including vegetation and structures. Therefore the ZVI represents the worst case scenario.

KEY

SITE

MAIN ROAD

AA **PROPOSED VIEW POINTS**

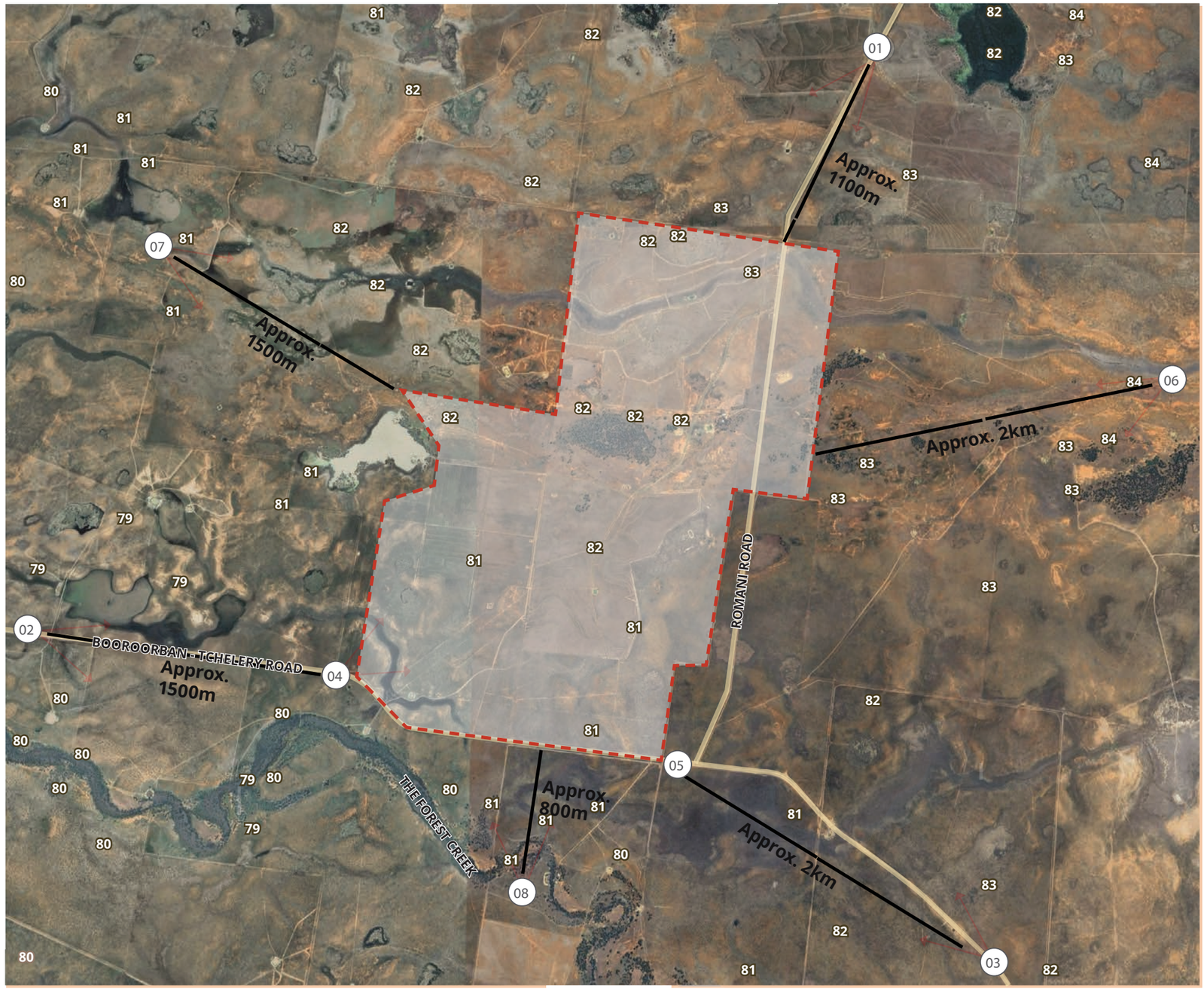


Figure 1.27 377 Romani Road, Booroorban Land Use Map
Source: Google Earth Pro & NSW Planning Portal Spatial Viewer

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3.2 Proposed Views for Detail Assessment (ZVI) (Continued)

The below table illustrates:

- Distance of each of these viewpoints from the nearest point of the proposed development
- 'Relative height different' between the proposed development and each viewpoint
- Vertical Field of View to determine the indicative vertical field of view (as either 1, 2, 3 or 4+ Degrees)
- Horizontal field of view of the project from each viewpoint

It then compare the vertical and horizontal fields of view using the matrix to determine whether detail visual assessment of each viewpoint is required.

Receptor ID	Distance to Nearest Panel	Elevation of Receptor	Relative Hight Difference	Vertical field of View	Horizontal Extent of View	Horizontal field of view	Detailed Assessment Required?
VP 01	1100 m (approx.)	82 m	0 m	0 Degree	190 - 220 Degrees	30 Degrees	Yes as it is on key public road
VP 02	1500 m (approx.)	80 m	1 m	1 Degree	45 - 110 Degrees	65 Degrees	Yes as it is on key public road
VP 03	2000 m (approx.)	82 m	1 m	0 Degree	300 - 330 Degrees	30 Degrees	Yes as it is on key public road
VP 04	100 m (approx.)	81 m	0 m	0 Degree	5 - 110 Degrees	105 Degrees	Yes as it is on key public road
VP 05	100 m (approx.)	81 m	0 m	0 Degree	270 - 10 Degrees	100 Degrees	Yes as it is on key public road
VP 06	2000 m (approx.)	84 m	2 m	1 Degree	240 - 300 Degrees	60 Degrees	No
VP 07	1500 m (approx.)	81 m	1 m	1 Degree	90 - 145 Degrees	55 Degrees	No
VP 08	800 m (approx.)	81 m	0 m	0 Degree	330 - 30 Degrees	60 Degrees	Yes, dwelling is located in this close approx. location

*Please note the above assessments of if a detailed assessment is required once Community Consultation occurs

3.3 Conclusion

The proposed solar farm at Lot 377 Romani Road, Booroorban would be classified with a sensitivity and magnitude rating as low given the Site Location, Context, Topography, Visual Exposure, Local Plant Communities and Land uses.

Due to the relatively flat topography that is typical of the existing landscape. It is likely that the majority of the solar farm will be low visual impact even though there is a general lack of intervening elements such as vegetation and structures. The preliminary visual assessment condensed 4km buffer from the proposed solar farm to identify a worst-case scenario. One dwelling receptor was identified within the 2.5km radius.

Next Steps

A Landscape and Visual Assessment (LVIA) will be prepared in accordance with the Guidelines and the Technical Supplement in the EIS Phase. During the preparation of the VIA, detailed site investigations will be undertaken from the areas identified in the preliminary assessment. As having potential visibility towards the Project. This process will be undertaken using the procedures outlines in the following Guidelines:

/ Large-Scale Solar Energy (August 2022)
/ Technical Supplement Landscape and Visual Impact Assessment – Large-Scale Solar Energy Guideline (August 2022)
/ Environment Planning and Assessment Regulation 2021
/ State Environment Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)

Specialized BIM modelling tools and renders/visualisations (including photomontages) will be developed to illustrates potential views of the Project from key public viewpoints as identified in the report. In addition, site inspections and field work will be undertaken from these key public viewpoints.

The LVIA will include an assessment of the landscape and visual impact resulting from many associated informative and ancillary structures, and consideration of the cumulative impact of nearby infrastructure. Further assessment will be undertaken to assess potential impacts of the glint and glare using industry standards methodology.

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APPENDIX D PRELIMINARY BIODIVERSITY ASSESSMENT

PREPARED FOR

SAMSUNG C&T REA

Romani Solar Farm and BESS

Preliminary Biodiversity Assessment

DATE
January 2024

REFERENCE
0704056

DOCUMENT DETAILS

DOCUMENT TITLE	Romani Solar Farm and BESS
DOCUMENT SUBTITLE	Preliminary Biodiversity Assessment
PROJECT NUMBER	0704056
Date	January 2024
Version	01
Author	James Salinas, Samantha Maher
Client name	Samsung C&T Renewable Energy Australia

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Draft	01	James Salinas Samantha Maher	Mark Aitkens	Lucy Baker	20.11.2023	Issue to client for review and comment
Draft	02	James Salinas	Simon Bennett	Lucy Baker	30.11.2023	Client comments addressed
Final	03	James Salinas	Simon Bennett	Lucy Baker	25.01.2024	

SIGNATURE PAGE

Romani Solar Farm and BESS

Preliminary Biodiversity Assessment

0704056

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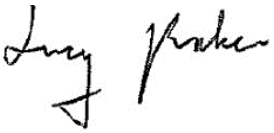
Ecologist

Mark Aitkens
Principal Ecologist



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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
BAM	Biodiversity Assessment Methodology 2020
BAM-C	Biodiversity Assessment Methodology Calculator
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Strategy
DP	Deposited Plans
DPE	Department of Planning & Environment
EP&A	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ERM	Environmental Resources Management Australia Pty Ltd
GIS	Geographic Information System
ha	Hectare
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
LLS	Local Land Services Act
MNES	Matters of National Environmental Significance
MW	Mega Watt
NPWS	NSW National Parks and Wildlife Service
NSW	New South Wales
NVR	Native Vegetation Regulatory
PCT	Plant Community Type
PMST	Protected Matter Search Tool
SAII	Serious and Irreversible Impacts
SEED	The Central Resource for Sharing and Enabling Environmental Data in NSW
SF	Solar Farm
SSD	State Significant Development

Acronyms	Description
SVTM	State Vegetation Type Map
TEC	Threatened Ecological Community
VZ	Vegetation Zones
SEARS	Secretary's Environmental Assessment Requirements

1. OVERVIEW OF BIODIVERSITY ASSESSMENT

Samsung C&T Renewable Energy Australia Pty Ltd (Samsung) proposes to construct and operate the Romani Solar Farm and Battery Energy Storage System (the Project), a renewable energy development located 44 km southwest of Hay in the Riverina Murray Region of New South Wales (NSW).

This Preliminary Biodiversity Assessment has the purpose of overviewing the project location's biodiversity values and providing a foundation for progression to the preparation of a Biodiversity Development Assessment Report (BDAR). The project BDAR will form part of the Environmental Impact Statement and is to be compliant with Stage 1 (Biodiversity Assessment) and Stage 2 (Impact Assessment) of the NSW Biodiversity Assessment Method (BAM).

This report provides details of initial desktop investigations aligned with this assessment framework and early field work. This report focuses on the mapping of plant community types (PCTs) and the identification of associated threatened species and ecological community constraints. Additionally, this report outlines future survey and assessment requirements, with an approach to addressing residual impacts.

1.1 APPLICABLE LEGISLATION AND POLICIES

The Project has been designated as a State Significant Development (SSD), which requires approval under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and requires consideration of the NSW *Biodiversity Conservation Act 2016* (BC Act). (s1.7 of the EP&A Act). Part 7 of the BC Act applies to the project which outlines the requirement of a BDAR for projects designated as SSD, unless a successful BDAR Waiver is obtained (s7.14 of the BC Act). A BDAR Waiver for the project cannot be considered until the relevant survey periods have been completed and the desktop data has been ground verified.

1.2 BIODIVERSITY OFFSETS SCHEME

Biodiversity Credits are used in the Biodiversity Offsets Scheme (BOS) to resolve residual impacts of a project on biodiversity values. Biodiversity credits are calculated through the application of the BAM for:

- Unavoidable impacts on biodiversity through the clearing of native vegetation and habitat for the development site; and
- Predicted gain in biodiversity values at a biodiversity stewardship site also known as a conservation area.

This preliminary biodiversity assessment focuses on a development site where the BDAR will be used to determine the number of biodiversity credits required to offset the project's residual and unavoidable impacts. The assessment of a biodiversity stewardship site does not form part of this assessment.

1.3 THE BIODIVERSITY ASSESSMENT METHOD

The BAM comprises of three stages of assessment. This preliminary biodiversity assessment only considers the relevant elements of Stages 1 and 2 of the BAM. The key elements of Stage 1 of the BAM applied in this assessment are listed in Table 1-1.

Stage 2 of the BAM outlines the requirements for assessing the impacts on biodiversity values identified in Stage 1. It follows the mitigation hierarchy principles of avoid, minimise, and offset. This stage is also used to determine the number and class of biodiversity credits required to offset any remaining impacts to biodiversity that are unavoidable.

TABLE 1-1 STAGE 1 OF THE BAM

Aspect	Description
Establishing the Site Context	Identification of the Subject Land Identification of landscape features including Interim Biogeographic Regionalisation for Australia (IBRA) bioregions and subregions, bodies of water, habitat connectivity, geographical features of significance, areas of outstanding biodiversity values, and NSW (Mitchell) landscapes. Assessment of native vegetation cover on the Subject Land Identification of Category 1 – Exempt Land
Assessing Native Vegetation, Threatened Ecological Communities and Vegetation Integrity	Review of existing databases for information on native vegetation communities Mapping of the native vegetation on the Subject Land, including ground cover and tree canopy cover Identification of plant community types (PCTs) Completing accepted methods of plot-based vegetation surveys (BAM Plots) Identification of threatened ecological communities (TECs) that are associated with identified PCTs Mapping of native vegetation zones and assessment of vegetation integrity.
Assessing Habitat Suitability for Threatened Species	Identification of Ecosystem Credit Species, Species Credit Species and Dual Credit Species Scoping of proposed field surveys to address relevant candidate species.
Identifying Prescribed Additional Biodiversity Impacts	Identification of prescribed direct, and indirect impacts on the habitat of threatened species, including geographical features of significance, human-made structures, and non-native vegetation, habitat connectivity, waterbodies, and potential vehicle strike.

1.4 INFORMATION SOURCES USED IN THE ASSESSMENT

The following information sources were used as a part of this assessment:

- The Biodiversity Assessment Method (BAM 2020);
- BAM Calculator (BAM-C) https://www.lmbc.nsw.gov.au/bamcalc;
- NSW Department of Planning and Environment (DPE) Threatened Species Database https://www.environment.nsw.gov.au/threatenedspeciesapp/;
- NSW Mitchell Landscapes map and descriptions (NPWS 2003);
- NSW State vegetation Type Map (SVTM) C1.1.M1.1 (December 2022);
- NSW eSPADE Soil and Land Information https://www.environment.nsw.gov.au/eSpade2Webapp/; and
- Interim Biogeographical Regionalisation for Australia (IBRA) and IBRA sub-regions v7 https://www.dcceew.gov.au/environment/land/nrs/science/ibra.

1.5 BIODIVERSITY VALUES NOT ASSESSED

The BAM does not assess the following biodiversity values and therefore have been excluded from this preliminary biodiversity assessment:

- Marine mammals;
- Wandering seabirds;
- Biodiversity that is endemic to Lord Howe Island; and
- Native vegetation and loss of habitat on category 1 exempt land (under Part 5A of the *Local Land Services Act 2013*) other than the additional biodiversity impacts under clause 6.1 of the BC Regulation.

2. INTRODUCTION

2.1 THE PROPOSAL

Samsung C&T Renewable Energy Australia Pty Ltd (Samsung) proposes to construct and operate the Romani Solar Farm (the project), a renewable energy development located 44 km southwest of Hay in the Riverina Murray Region of NSW. The proposed solar farm comprises of several allotments located on Booroorban Tchelery Road, north of the Forest Creek with an area of 1,680 hectares (ha).

2.1.1 PROJECT DESCRIPTION

The Project consists of a proposed solar farm and a Battery Energy Storage System (BESS) and associated infrastructure with project specifications outlined in Table 2-1 .

TABLE 2-1 PROJECT SPECIFICATIONS

Project Aspect	Details
Project Footprint	1,810 ha
Solar Farm	870.5ha of Solar Panels with an anticipated installed capacity of 250 MW.
Associated Infrastructure	• Battery Energy Storage System (BESS) • New high voltage substation proposed along Booroorban-Tchelery Road • Underground cables • Internal access roads • Access to the Project from Booroorban-Tchelery Roads via the Cobb Highway.

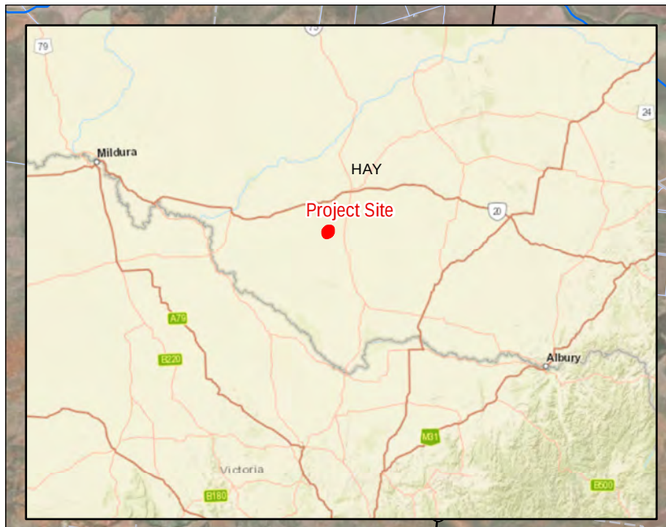
2.1.2 SUBJECT LAND

The Subject Land is shown in Figure 2-1. Description of the Subject Land is listed in Table 2-2.

For the purpose of this assessment the Subject Land is comprised of the area within the Project boundary. This assessment also considers a defined study area, which is comprised of the Subject Land and a 1500 m buffer from the Project boundary.

TABLE 2-2 SUBJECT LAND DESCRIPTION

Feature	Description	
Locality	Booroorban-Tchelery Road, Borroorban NSW	
Local Government Area	Edward River Council	
Lot/DP	• Lot 34 DP756561 • Lot 49 DP756561 • Lot 50 DP756561 • Lot 51 DP756561 • Lot 52 DP756561 • Lot 53 DP756561 • Lot 54 DP756561	• Lot 55 DP756561 • Lot 56 DP756561 • Lot 57 DP756561 • Lot 91 DP756561 • Lot 92 DP756561 • Lot 97 DP756561 • Lot 98 DP756561
Zoning	RU1 – Primary Production	
Current Land Use	Agricultural use including livestock grazing, and historical cropping.	



ABERCROMBIE CREEK

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

NYANGAY CREEK

CURTAYNS CREEK

COBB HIGHWAY

THE FOREST CREEK

COLEAMBALLY OUTFALL DRAIN

Legend

- Site Boundary
- Transmission line
- Major Road
- Road
- Path/Track
- Major Watercourse
- Minor Watercourse

Source:
NSW DCDB and DTDB 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 24/01/2024
Created By: RT/VN
Drawing Size: A3

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F2.1 - The Subject Land

Romani Solar Farm

Samsung

ERM

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2.2 METHODS

This section outlines the methods used to prepare this Preliminary Biodiversity Assessment.

2.2.1 SITE CONTEXT

2.2.1.1 LANDSCAPE FEATURES

Landscape features were identified through desktop review and are required to be confirmed through field investigations. The following has been identified in accordance with the BAM.

- IBRA regions and subregions;
- Native vegetation extent and cleared areas within the Project Area (ha);
- Rivers, streams, estuaries, and wetlands;
- Connectivity features; and
- Areas of geological significance and soil hazard.

2.2.1.2 NATIVE VEGETATION COVER

A desktop assessment has been conducted to determine the indicative extent of native vegetation cover on the Subject Land and within the total study area (1500 m buffer). The following resources were used:

- ArcGIS Online (basemap imagery);
- Historic Imagery (Historical Imagery (nsw.gov.au)); and
- Sharing Enabled Environmental Data (SEED) Portal (Geocortex Viewer for HTML5 (nsw.gov.au)).

At the time of writing, the Study Area has not been ground verified. Reliance is placed on available desktop resources for this mapping. Consequently, there is likely additions or omissions to the actual extent of native vegetation as defined in the BAM.

2.2.1.3 LAND CATEGORISATION

Under the LLS Act, land is categorised as either:

- Category 1 – Exempt Land; and
- Category 2 – Regulated Land.

Land categorisation for the Subject Land was reviewed using the Draft Native Vegetation Regulatory Map (Draft NVR Map). The Draft NVR Map provides uncategorised land (i.e., lands not mapped as Category 2 vulnerable lands on the transitional NVR Map). Criteria for classifying these lands is provided in s60I of the LLS Act.

2.2.2 NATIVE VEGETATION TYPES, THREATENED ECOLOGICAL COMMUNITIES AND VEGETATION INTEGRITY

A desktop review was conducted to determine the PCTs and TECs hat have the potential to occur on the Subject Land. The SVTM identified the following PCTs as being mapped on the Subject Land:

- PCT 13 Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Basin);
- PCT 15 Black Box open woodland wetland with chenopod understory mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion);
- PCT 17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion);
- PCT 24 Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains;
- PCT 46 Curly Windmill Grass – Speargrass – Wallaby Grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion;
- PCT 153 Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones;
- PCT 157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion;
- PCT 160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains;
- PCT 164 Cotton Bush open shrubland of the semi-arid (warm) zone; and
- PCT 166 Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW.

BAM plot sampling was stratified by the SVTM, as shown in Figure 2-2, with the accuracy of the SVTM mapping to be examined following review of survey data.

2.2.2.1 BAM PLOTS

BAM plots are to be administered in accordance with section 4.2.1 of the BAM. The BAM plots are to be used to calculate the vegetation integrity score of each vegetation zone. The BAM plots consisted of a central 50 m transect and a 20 m by 20 m plot. Data collection within each plot includes:

- Identification of all flora species present within the plot area;
- Stratum and layers in which all species occur;
- Growth form of species;
- Abundance rating for each species;
- One 1000 m^2 (20m by 50 m) plot to assess the function attributes (Number of hollow bearing trees, stem size class, tree regeneration and length of logs); and
- Five 1 m^2 plots to assess average leaf litter cover, bare earth, cryptogram, and rock cover.

All BAM plots are to be recorded using GIS software and given unique identification for ease of assessment. The location of BAM plots is shown in Figure 2-2.

2.2.3 THREATENED FLORA SURVEY METHODS

2.2.3.1 REVIEW OF EXISTING INFORMATION

Review of the BioNet Atlas and the BAM-C, as informed by the SVTM, was conducted to produce an indicate candidate species list to inform this preliminary biodiversity assessment. This formed the basis for guiding the specifications for early field survey methods, timing and effort.

2.2.3.2 FIELD SURVEYS

A spring survey was conducted on the Subject Land by two ecologists from 19-24 September 2023, four ecologists from 19-24 October 2023 and two ecologists from 6-10 November 2023. Site evaluation was conducted through parallel walking transects to determine vegetation types, identification of areas containing biodiversity features and targeted threatened flora. Biodiversity features targeted in the spring survey included:

- Stands of native vegetation;
- Water sources;
- Mature Trees; and
- Areas of native vegetation recruitment.

Transects were conducted with 10 m spacing due to the chenopod vegetation type. Transects are shown in Figure 2-3.

The BAM requires targeted surveys for threatened flora when suitable habitat is identified. This information is used to inform the project BDAR. Targeted surveys were completed for the following species using the relevant survey guidelines:

- Brachyscome papillosa, Mossgiel Daisy;
- Calotis moorei, A Burr Daisy;
- Convolvulus tedmoorei, Bindweed;
- Eucalyptus leucoxylon subsp. pruinose, Yellow Gum;
- Lepidium monoplocoides, Winged Peppercress;
- Leptorhynchos orientalis, Lanky Buttons;
- Maireana cheelii, Chariot Wheels;
- Sclerolaena napiformis, Turnip Copperburr;
- Swainsona murrayana, Slender Darling-pea; and
- Swainsona plagiotropis, Red Darling-pea.

BAM plots were undertaken during the second spring visit and were conducted a per Section 2.2.2.1.

2.2.4 THREATENED FAUNA SURVEY METHODS

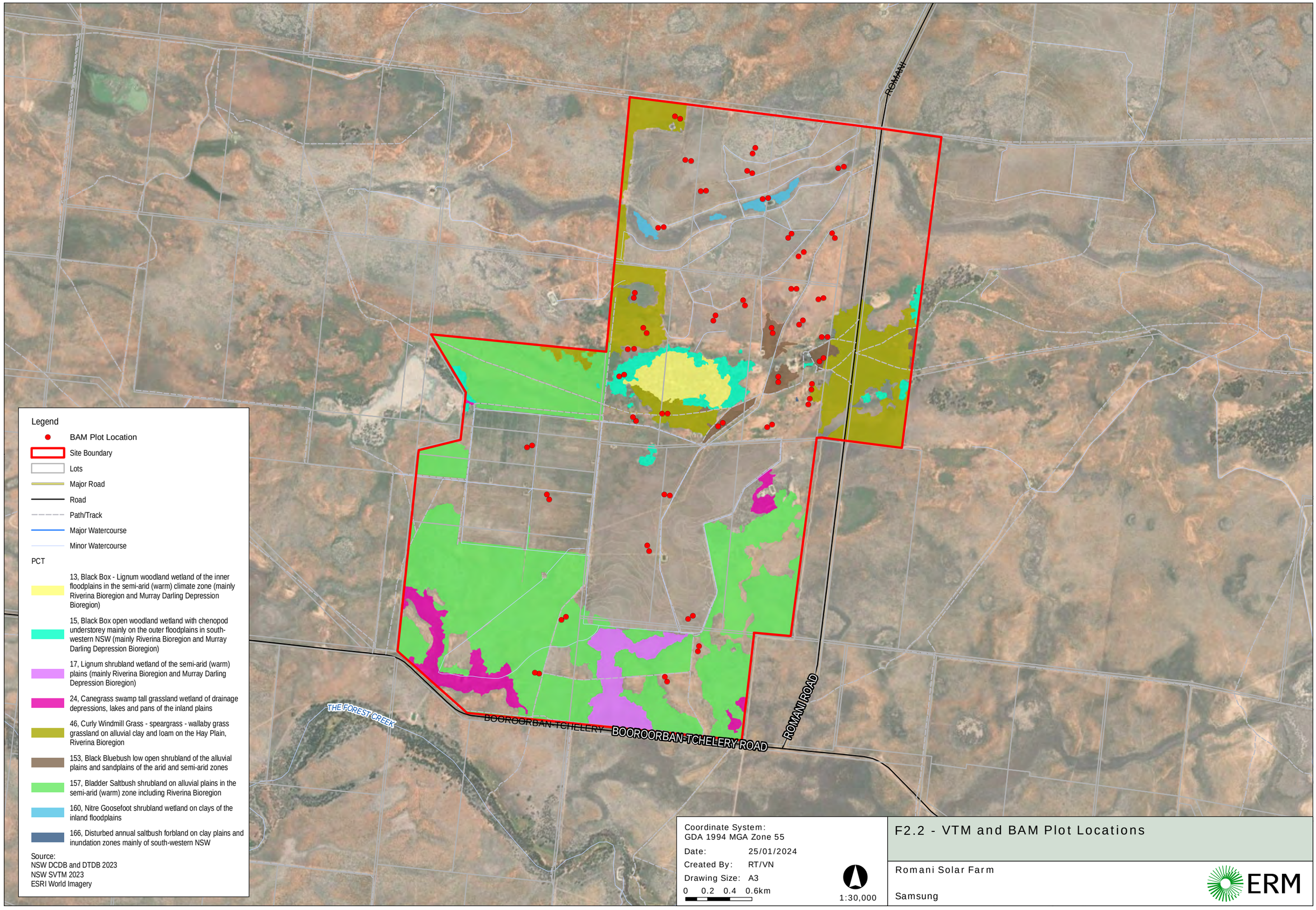
2.2.4.1 REVIEW OF EXISTING INFORMATION

Review of the BioNet Atlas and the BAM-C, as informed by the SVTM, was conducted to produce an indicate candidate species list to inform this preliminary biodiversity assessment. This formed the basis for guiding the specifications for early field survey methods, timing and effort.

2.2.4.2 FIELD SURVEYS

A spring survey was completed on the Subject Land by two ecologists from 19-24 and 26-29 September and 18 to 24 October searching for the following species:

- Pink-tailed Worm Lizard;
- Australian Bustard;
- White-bellied Sea Eagle
- Little Eagle;
- Major Mitchell's Cockatoo;
- Square-tailed Kite; and
- Superb Parrot.



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ROMANI ROAD

THE FOREST CREEK

BOOROORBAN-TCHELERY ROAD

Legend

- Survey Transects (Spring)
- Subject Land
- Road
- Path/Track
- Major Watercourse
- Minor Watercourse

Source:
NSW DCDB and DTDB 2023
NSW SVTM 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024

Created By: RT/VN

Drawing Size: A3

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F2.3 - Targeted Flora Survey

Romani Solar Farm

Samsung

ERM

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2.2.5 WEATHER CONDITIONS

Weather conditions experienced during the spring survey period were appropriate for the survey of a variety of flora and fauna species. Weather conditions and values that occurred on each day were taken from the Hay Airport Station (Station 075019). Summary of the weather conditions present during the survey period is shown in Table 2-3.

TABLE 2-3 WEATHER CONDITIONS DURING SITE SURVEYS

Date	Temperature (˚C)		9am Wind (km/h)	Rainfall (mm)
	Min	Max		
19/09/2023	14.8	35.6	28	0
20/09/2023	11.4	25.4	19	0
21/09/2023	4.6	20.4	19	0
22/09/2023	2.3	22.9	17	0
23/09/2023	3.3	25.0	15	0
24/09/2023	4.5	29.2	22	0
26/09/2023	8.7	29.6	9	0
27/09/2023	5.8	25.4	15	0
28/09/2023	3.7	27.9	13	0
29/09/2023	3.6	29.7	2	0
18/10/2023	5.5	25.8	20	0
19/10/2023	8.1	30.9	24	0
20/10/2023	10.3	33.3	17	0
21/10/2023	14.3	26.7	28	0
22/10/2023	8.3	19.5	33	0
23/10/2023	3.9	24.2	17	0
24/10/2023	7.8	32.3	24	0
6/11/2023	16.4	34.5	26	0
7/11/2023	19.4	33.6	30	1.4
8/11/2023	13.6	33.3	19	0
9/11/2023	16.9	35.2	11	0
10/11/2023	14.7	37.2	19	0

2.3 STAFF QUALIFICATIONS

This report was prepared by:

- James Salinas, Ecologist ERM, Bachelor of Science in Environmental Sciences; and
- Samantha Maher, Ecologist ERM, Bachelor of Environmental Science and Management (Honours).

And reviewed by:

- Mark Aitkens, Principal Ecologist ERM, BAAS17034 Bachelor of Science (Environmental Biology).

Field work was completed by:

- Michael Somerville, Ecologist, Somerville Ecology, Bachelor of Science, Botany / Plant Biology (University of New England); Graduate Diploma, Natural Resources (University of New England);
- Kai Somerville, Ecologist Somerville Ecology;
- Gabrielle Rose, Ecologist MangoGreen, Bachelor Environmental Science, Natural Resources Management and Policy (Southern Cross University);
- Selkie Molloy, Ecologist MangoGreen;
- Samantha Maher, Ecologist ERM. Bachelor of Environmental Science and Management (Honours); and
- Mark Aitkens, Principal Ecologist ERM, BAAS17034 Bachelor of Science (Environmental Biology).

2.4 LICENSING

The flora and fauna surveys undertaken for the Preliminary Biodiversity Assessment were conducted under the NSW Scientific Licence SL100196 held by ERM.

3. SITE CONTEXT

3.1 LANDSCAPE FEATURES

This section of the preliminary biodiversity assessment provides details of the landscape of the Subject Land, in accordance with sections 4.2 and 4.3 of the BAM, including:

- IBRA bioregion and subregion;
- NSW (Mitchell) landscape;
- Rivers, streams, estuaries, and wetlands;
- Habitat connectivity;
- Karst, caves, crevices, cliffs, rocks, or other geological features of significance;
- Areas of outstanding biodiversity; and
- Soil hazard features.

Table 3-1 presents the landscape features of the Subject Land.

TABLE 3-1 LANDSCAPE FEATURES

Landscape Feature	Description
IBRA Bioregion and Subregion	The Subject Land is located entirely within the Riverina IBRA Bioregion and the Murrumbidgee Subregion
NSW (Mitchell) Landscape	The Subject Land is split between the Murrumbidgee Scalded Plains and Murrumbidgee Depression Plains Landscapes
Rivers, Streams, Estuaries, and Wetlands	The are no permanent natural watercourses. Field investigations indicate that there are several artificial canals (i.e., excavation undertaken to improve drainage lines).
Habitat Connectivity	The site forms part of a larger area of continuous mixed woodland, grassland and shrubland which extend along the Hay Plain.
Geological Features of Significance	There are no documented significant features in the Subject Land.
Areas of Outstanding Biodiversity	There are no areas of outstanding biodiversity on the Subject Land.
Soil Hazard Features	• Acidification hazard: southern portion of the site is 1 very slight to negligible limitations and the north is 2 slight but significant limitations. • Mass movement hazard: 1 Very slight to negligible limitations • Structural decline hazard: Southern portion of the site is 4 Moderate to severe limitations and the northern portion is 1 very slight to negligible limitations. • Water erosion hazard: Southern portion of the site is 2 Slight, but significant limitations and the north is 3 Moderate limitations. • Waterlogging hazard: Southern portion of the site is 2 slight but significant limitations and the northern portion is 1 Very slight to negligible limitations. • Wind erosion hazard: Southern portion of the site 5 severe limitations and the northern portion is 6 very severe limitations.

3.2 NATIVE VEGETATION COVER

Native vegetation cover agnostic of type is used to inform the BAM-C in predicting Candidate Species relevant to the assessment. The Study Area includes a 1.5 km buffer from the Subject Land boundary as shown in Figure 3-1. Areas of native vegetation that occur within the Study Area were calculated using data extracted from the recently published draft NVR Map. Broad assumptions have been made in determining the extent of native vegetation cover as outlined below:

- Category 1 – Exempt lands (draft): These lands are likely to have been cleared in the past for cropping and other high intensity agricultural activities. While native vegetation may occur across lands in this category, it is likely to be substantially disturbed and may be cleared without any requirement for regulatory approvals;
- Category 2 – Vulnerable Regulated Land (In-Force): These lands, which include riparian zones, steep lands and specially mapped areas are assumed to be 100% covered by native vegetation; and
- Category 2 – Regulated land (Draft): These lands are likely to comprise native vegetation cover as the predominant land use of the area (excluding cropping lands) is livestock grazing with limited pasture improvement. It has been assumed that the conservation value of the groundcover is at least medium.

The extent of native vegetation cover in the Study Area is provided in Table 3-2.

TABLE 3-2 AREA OF NATIVE VEGETATION ON SUBJECT LAND

Aspect	Value
Study Area (ha)	4,210
Total Area of Native Vegetation Cover (ha) • Category 2 – Regulated land (Draft) • Category 2 – Vulnerable Regulated Land (In-Force)	 3,394 54
Total Area of Exotic vegetation (ha) • Category 1 exempt lands (draft)	 762
Percentage of Native Vegetation Cover (%)	82%
Class (0-10, >10-30, >30-70 or >70%)	>70%

The estimated native vegetation cover for the Study Area is within the highest category and is therefore considered to be a conservatives estimate for the purpose of this biodiversity assessment.

ROMANI ROAD

BOOROORBAN-TCHELERY ROAD

Legend

- Assessment Area
- Subject Land
- Road
- Path/Track
- Major Watercourse
- Minor Watercourse

Draft Native Vegetation Regulatory Map

- Category 1 - Exempt Land (Draft)
- Category 2 - Regulated Land (Draft)
- Category 2 - Vulnerable Regulated Land (In-Force)

Source:
NSW DCDB and DTDB 2023
NSW SVTM 2023
ESRI World Imagery

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024
Created By: RT/VN
Drawing Size: A3

0 0.5 1 1.5km

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F3.1 - Study Area

Romani Solar Farm

Samsung

ERM

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4. NATIVE VEGETATION, THREATENED ECOLOGICAL COMMUNITIES AND VEGETATION INTEGRITY

4.1 NATIVE VEGETATION EXTENT

This section describes the PCTs present on the Subject Land, as defined by the SVTM, in accordance with the requirements of section 4 of the BAM as listed below:

- Vegetation formation and class;
- Species relied upon for identification of vegetation type and relative abundance;
- Justification of evidence used to identify a PCT (as outlined in paragraph 5.2.1.12 of the BAM);
- TEC status (as outlined in paragraph 5.2.1.14-15 of the BAM);
- Estimate percentage cleared value of PCT (as outlined in paragraph 5.2.1.16 of the BAM);
- Results of the vegetation integrity assessments completed for the Subject Land; and
- Areas of non-native vegetation and native vegetation are discussed in the subsequent sections.

4.1.1 AREAS OF NON-NATIVE VEGETATION

In this assessment, lands classified as Category 1-exempt vegetation on the Draft NVR Map have been interpreted as lands not comprising native vegetation. A review of this mapping is being undertaken as part of the BDAR, which will take into account site-based survey datasets.

4.2 MAPPING PCTS AND ECOLOGICAL COMMUNITIES

4.2.1 PCTS WITHIN THE SUBJECT LAND

The SVTM has mapped 10 PCTs occurring on the Subject Land. These are:

- PCT 13 Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Basin);
- PCT 15 Black Box open woodland wetland with chenopod understory mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion);
- PCT 17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion);
- PCT 24 Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains;
- PCT 46 Curly Windmill Grass – Speargrass – Wallaby Grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion;
- PCT 153 Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones;
- PCT 157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion;

- PCT 160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains;
- PCT 164 Cotton Bush open shrubland of the semi-arid (warm) zone; and
- PCT 166 Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW

A description for these PCTs is provided in the following tables.

TABLE 4-1 PCT 13 BLACK BOX - LIGNUM WOODLAND WETLAND OF THE INNER FLOODPLAINS IN THE SEMI-ARID (WARM) CLIMATE ZONE (MAINLY RIVERINA BIOREGION AND MURRAY DARLING DEPRESSION BIOREGION)

Aspect	Description
PCT ID and Name	13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
Vegetation Formation	Semi-arid Woodlands (Grassy sub-formation)
Vegetation Class	Inland Floodplain Woodlands
Cleared Extent (%)	57
Vegetation Description (BioNet)	Woodland, open forest or open woodland averaging about 15 m high dominated by a sparse to dense stands of Lignum (*Muehlenbeckia florulenta*), Nitre Goosefoot (*Chenopodium nitrariaceum*) and River Cooba (*Acacia stenophylla*). The ground cover includes low shrubs such as *Sclerolaena muricata* var. *muricata*, *Enchylaena tomentosa*, *Einadia nutans* subsp. *nutans* and various saltbush species (*Atriplex* spp.). Forb species include *Solanum esuriale*, *Cotula australis*, *Oxalis perennans*, *Alternanthera denticulata* and *Pratia concolor*. Grass species include Warrego Summer Grass (*Paspalidium jubiflorum*), Curly Windmill Grass (*Enteropogon acicularis*) and Walwhalleya proluta and wallaby grasses (*Austrodanthonia* spp.). Weed species include the shrub African Boxthorn (*Lycium ferocissimum*), the forbs *Cotula bipinnata*, *Erodium cicutarium* and *Sisymbrium irio* and the grasses *Hordeum leporinum* and *Lolium perenne*. Occurs on clay or clay-loam, often gilgaied, soils on inner floodplains and on alluvial plains mostly in depressions that are frequently flooded. A widespread community along rivers in south-western NSW including the Murray, Wakool, lower Darling, Lachlan, Murrumbidgee Rivers and Willandra Creek. Mainly located in the semi-arid (warm) climate zone in the Riverina and Murray Darling Depression and southern Cobar Peneplain Bioregions. This community extends up the Darling River to above Kinchega National Park where it intergrades with floodplain communities dominated by Coolabah (*Eucalyptus coolabah* subsp. *coolabah*). In more arid areas of the Murray-Darling Depression Bioregion this community grades into the Black Box - chenopod community (ID15) that occurs on higher ground and contains less or no lignum and more chenopod shrubs. This community has been extensively cleared in eastern areas such as near Lake Cargelligo on the Lachlan River and east of Deniliquin on the Murray River.
Threatened Ecological Communities	No associations

TABLE 4-2 PCT 15 BLACK BOX OPEN WOODLAND WETLAND WITH CHENOPOD UNDERSTOREY MAINLY ON THE OUTER FLOODPLAINS IN SOUTH-WESTERN NSW (MAINLY RIVERINA BIOREGION AND MURRAY DARLING DEPRESSION BIOREGION)

Aspect	Description
PCT ID and Name	15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
Vegetation Formation	Semi-arid Woodlands (Grassy sub-formation)
Vegetation Class	Inland Floodplain Woodlands
Cleared Extent (%)	50
Vegetation Description (BioNet)	Woodland or open woodland dominated by Black Box (*Eucalyptus largiflorens*) with an understorey of chenopod shrubs such as Black Bluebush (*Maireana pyramidata*), *Maireana decalvans*, Nitre Goosefoot (*Chenopodium nitrariaceum*) and Old Man Saltbush (*Atriplex nummularia*) but the latter has mostly disappeared due to grazing. Small shrubs include Bladder Saltbush (*Atriplex vesicaria*) and Cotton Bush (*Maireana aphylla*) with a ground cover of annual or perennial saltbushes, copperburrs, grasses and forbs. Common copperburrs include *Sclerolaena obliquicuspis*, *Sclerolaena stelligera*, *Sclerolaena divaricata*, *Sclerolaena brachyptera*. Lignum (*Muehlenbeckia florulenta*) may be absent or very sparse. Weed species include Black Nightshade (*Solanum nigrum*) and Paddy Melon (*Cucumis myriocarpus* subsp. *leptodermis*). Occurs on alkaline brown or grey clay soil on alluvial plains or sandy-loam soils on the flood plain of river systems. Also observed on sandy lunettes of some dry lakes in the semi-arid (warm) and arid climate zones of far south western NSW. In many places the understorey may have once been dominated by Old Man Saltbush (*Atriplex nummularia*) but this has been reduced due to grazing leaving bluebush, Nitre Goosefoot and copperburrs to dominate today. Grades into bluebush shrubland on higher ground. Mostly cleared in some regions such as the Murray CMA but significant stands remain in far western regions. The understorey is degraded throughout.
Threatened Ecological Communities	No associations

TABLE 4-3 PCT 17 LIGNUM SHRUBLAND WETLAND OF THE SEMI-ARID (WARM) PLAINS (MAINLY RIVERINA BIOREGION AND MURRAY DARLING DEPRESSION BIOREGION)

Aspect	Description
PCT ID and Name	17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
Vegetation Formation	Freshwater Wetlands
Vegetation Class	Inland Floodplain Shrublands
Cleared Extent (%)	63
Vegetation Description	Open shrubland usually up to 2 m high dominated by Lignum (*Muehlenbeckia florulenta*) often with Nitre Goosefoot (*Chenopodium nitrariaceum*) and low cover of Canegrass (*Eragrostis australasica*). Scattered trees of Black Box (*Eucalyptus largiflorens*) may be present. Cooba (*Acacia salicina*) and River Cooba (*Acacia stenophylla*) may be present as tall shrubs. Ground cover species include the small shrubs such as Giant Redburr (*Sclerolaena tricuspis*), Roly Poly (*Sclerolaena muricata* var. *muricata*), *Atriplex lindleyi*, *Atriplex suberecta* and *Salsola tragus* subsp. *tragus*, the fern *Marsilea drummondii*, the rush *Juncus flavidus*, the forbs *Rumex tenax*, *Einadia nutans* subsp. *nutans*, *Bulbine bulbosa*, *Senecio glossanthus* and *Senecio cunninghamii*. Grass species include *Walwhalleya proluata* and *Enteropogon ramosus*. Weed species include *Lolium perenne*, *Hordeum leporinum* and *Rapistrum rugosum*. Occurs on black, brown and grey-cracking clay soils and clay loam soils in river channels and depressions on floodplains subject to regular flooding in south-western NSW extending into Victoria and South Australia mainly in the semi-arid (warm) climate zone. Although very widespread it tends to have a consistent floristic composition. Grades into Black Box or River Red Gum woodlands near major rivers and into Bladder Saltbush or other chenopod shrublands on higher ground. Large areas of Lignum have been cleared for cropping in the middle-western and eastern parts of its range including in the Lowbidgee region on the Murrumbidgee River floodplain. Some stands remain in the west. This community is becoming increasingly threatened by clearing and altered flooding regimes due to irrigation developments.
Threatened Ecological Communities	No associations

TABLE 4-4 PCT 24 CANEGRASS SWAMP TALL GRASSLAND WETLAND OF DRAINAGE DEPRESSIONS, LAKES AND PANS OF THE INLAND PLAINS

Aspect	Description
PCT ID and Name	24 Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains
Vegetation Formation	Freshwater Wetlands
Vegetation Class	Inland Floodplain Shrublands
Cleared Extent (%)	20
Vegetation Description (BioNEt)	Tall, tussock grassland dominated by Canegrass (*Eragrostis australasica*) growing to over 2 m high ranging in cover from dense to isolated plants. Sometimes growing with Glasswort (*Sclerostegia tenuis*) or samphire *Halosarcia pergranulata*. Depending which part of NSW a range of grass species may be present including Windmill Grass (*Chloris truncata*), Blown Grass (*Lachnagrostis filiformis*), Plains grass (*Austrostipa aristiglumis*), Neverfail (*Eragrostis setifolia*) and *Eragrostis parviflora*. A range of low shrubs occur including *Sclerolaena* spp., *Atriplex* spp. and *Teucrium racemosum*. Sedges such as *Eleocharis acuta*, *Eleocharis pusilla* and *Eleocharis pallens* may be common along with rushes (*Juncus* spp.). The aquatic *Marsilea drummondii*, *M. costulifera*, *Azolla filiculoides* and *Myriophyllum* spp. May be present but die off in dry times. Highly salt tolerant plant species are more common in western-most areas and include *Disphyma crassifolium* subsp. *clavellatum*, *Frankenia serpyllifolia* and *Osteocarpum acropterum*. There is considerable floristic variation across its range and this sub-formation could be divided into a number of communities but several dominant species tend to be consistently present. Occurs on heavy non-cracking clay and silty clay soils in periodically flooded depressions on floodplains, alluvial plains, claypans in sand dune and sandplain areas, and floodouts of watercourses. Soils are red-grey compact clay or sandy clay that crack very little. These soils form claypans that pond from local runoff after rain. Widespread. Distributed in throughout western NSW in the arid and semi-arid zones.
Threatened Ecological Communities	BC Act listed, critically endangered, Artesian Springs Ecological Community in the Great Artesian Basin

TABLE 4-5 PCT 46 CURLY WINDMILL GRASS – SPEARGRASS – WALLABY GRASS GRASSLAND ON ALLUVIAL CLAY AND LOAM ON THE HAY PLAIN , RIVERINA BIOREGION

Aspect	Description
PCT ID and Name	46 Curly Windmill Grass – Speargrass – Wallaby Grass grassland on alluvial clay and loam on the Hay Plain , Riverina Bioregion
Vegetation Formation	Grasslands
Vegetation Class	Riverine Plain Grasslands
Cleared Extent (%)	20
Vegetation Description	Open to closed tussock grassland generally about 0.3 m high dominated by Curly Windmill Grass (Enteropogon ramosus), corkscrew grass (Austrostipa nodosa and/or Austrostipa scabra) and a number of wallaby grass species (Austrodanthonia spp.) with a range of forbs including Rhodanthe corymbiflora, Crassula colorata var. acuminata, Erodium crinitum, Oxalis perennans, Sida trichopoda, Sida corrugata, Goodenia pusilliflora, Goodenia fascicularis, Calotis scabiosifolia var. scabiosifolia, Calocephalus sonderi, Bulbine semibarbata and Daucus glochidiatus form G. A very sparse shrub layer may be present including Sclerolaena stelligera, Maireana excavata and Maireana aphylla. Occurs on medium brown to grey clays and loams on level alluvial plains on the western Riverine Plain (Hay Plain) near Hay and north-east of Deniliquin in the Riverina Bioregion. Contains a high proportion of annual exotic species in Spring dominated by Wimmera Rye Grass (Lolium rigidum) and Wild Oats (Avena fatua). Very poorly represented in protected areas as of 2005 and susceptible to clearing for cropping.
Threatened Ecological Communities	EPBC Act listed, critically endangered, Natural Grasslands of the Murray Valley Plains.

TABLE 4-6 PCT 153 BLACK BLUEBUSH LOW OPEN SHRUBLAND OF THE ALLUVIAL PLAINS AND SANDPLAINS OF THE ARID AND SEMI-ARID ZONES

Aspect	Description
PCT ID and Name	153 Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones
Vegetation Formation	Arid Shrublands (Chenopod sub-formation)
Vegetation Class	Aeolian Chenopod Shrublands
Cleared Extent (%)	40
Vegetation Description (BioNet)	Mid-high open shrubland generally less than one meter high dominated by Black Bluebush (*Maireana pyramidata*) which may be dominant. Scattered low trees of Black Oak (*Casuarina pauper*) or Western Rosewood (*Alectryon oleifolius* subsp. *canescens)* may be present. Tall shrubs are rare or absent and may include *Eremophila sturtii*. Other chenopod shrub species include Thorny Saltbush (*Rhagodia spinescens*), bluebushes such as *Maireana georgei*, *Maireana sedifolia* and *Maireana appressa*, Bladder Saltbush (*Atriplex vesicaria sens lat*), *Atriplex lindleyi* and *Atriplex pumillio*, Cannonball (*Dissocarpus paradoxus*), Ruby Saltbush (*Enchylaena tomentosa*) and copperburrs such as *Sclerolaena obliquicuspis, Sclerolaena patenticuspis, Sclerolaena brachyptera, Sclerolaena lanicuspis, Sclerolaena divaricata, Sclerolaena tricuspis* and *Sclerolaena diacantha*. Grass species include the cork screw grasses *Austrostipa nitida, Austrostipa scabra* and *Austrostipa nodosa* and wallaby grass *Austrodanthonia caespitosa. Eragrostis dielsii* and *Enneapogon avenaceus* occur in northern areas. Forbs include *Calotis hispidula, Tetragonia tetragonioides, Goodenia pinnatifida, Plantago* varia, *Minuria integerrima, Senecio runcinifolius, Brachyscome lineariloba, Brachyscome ciliaris* var*. ciliaris, Calandrinia eremaea*. Bladder Saltbush may have been more common prior to stock grazing. Weeds include *Hordeum* spp., *Heliotropium europaeum, Salvia verbenaca, Medicago* spp. and *Salvia verbenacea*. Occurs on red-brown duplex soils with textures of clay loam, sandy-loam or light clay on low sandy rises, undulating sandplains, drainage depressions and prior stream levees in the semi-arid and arid zones of far western NSW extending into South Australia and northern Victoria. In NSW, Black Bluebush tends to be more common than Pearl Bluebush (ID154). It occurs on soils where the surface sandy layer is deep and contains medium to low levels of lime, whereas Pearl Bluebush tends to dominate areas with lime-rich soils. However, both species commonly co-exist. Black Bluebush is widespread on the transition zone between the eolian sand sheets and the riverine plain in far south-western NSW but also occurs to the north on sandplains and on the Darling River floodplain.
Threatened Ecological Communities	BC Act listed, endangered, *Acacia loderi* shrublands (Part)

TABLE 4-7 PCT 157 BLACK BLUEBUSH LOW OPEN SHRUBLAND OF THE ALLUVIAL PLAINS AND SANDPLAINS OF THE ARID AND SEMI-ARID ZONES

Aspect	Description
PCT ID and Name	157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
Vegetation Formation	Arid Shrublands (Chenopod sub-formation)
Vegetation Class	Riverine Chenopod Shrublands
Cleared Extent (%)	60
Vegetation Description (BioNet)	Low to mid-high to 90cm high, open to sparse chenopod shrubland dominated by Bladder Saltbush (*Atriplex vesicaria*) often with Desert Glasswort (*Pachycornia triandra*), Three-spined Copperburr (*Sclerolaena tricuspis*), *Sclerolaena intricata* and Pigface (*Disphyma crassifolium* subsp. *clavellatum*). Other commonly occurring small shrubs include Slender Glasswort (*Sclerostegia tenuis*), *Sclerolaena brachyptera, Sclerolaena tenuis, Maireana decalvans, Maireana aphylla, Malacocera tricornis, Dissocarpus biflorus* var. *biflorus, Atriplex lindleyi* and *Atriplex pseudocampanulata*. Grasses include *Chloris truncata, Austrodanthonia setacea* and *Sporobolus caroli*. Ephemeral daises occur after rains including *Minuria cunninghamii, Brachyscome smithwhitei* and *Rhodanthe corymbiflora*. The succulent forb *Calandrinia volubilis* often present. Myall (*Acacia pendula*) or Black Oak (*Casuarina pauper*) may occur as isolated trees. In heavily grazed regions Bladder Saltbush may be replaced by a disturbed shrubland complex composed of *Nitraria billardierei, Sclerolaena* spp. and Cotton Bush (*Maireana aphylla*) or Desert glasswort (*Pachycornia triandra*). This has happened on the lake beds of most of the Willandra Lakes and along the heavily grazed floodplains of the Murray River. Floristic variation occurs from north to south and from east to west, however many species are consistently present over the range. Occurs on grey and brown cracking clays and red-brown clay loam soils on alluvial plains including the Hay Plain, in the Darling Ana-Branch region and occurrences in the Scotia mallee around salt lakes in south west NSW. This community grades into ID195 Bladder Saltbush on the floodplains of the Darling Riverine Plain on the Darling and its tributaries near Wilcannia and east of Bourke including the Warrego River. In the Riverina it grades into bluebush and other chenopod shrublands, glasswort/samphire forblands (e.g. ID18), native grasslands, Myall woodlands, and Black Box woodland near watercourses. It is estimated that over half of this community has been cleared or severely altered through grazing and dieback over the last 150 years. Due to a combination of stock and rabbit grazing, droughts and grub-herbivory dieback, it is considered that Bladder Saltbush may have retreated 100 km to the west on the Riverine Plain leaving behind "derived" grasslands (IDs 44-46).
Threatened Ecological Communities	No associations.

TABLE 4-8 PCT 160 NITRE GOOSEFOOT SHRUBLAND WETLAND ON CLAYS OF THE INLAND FLOODPLAINS

Aspect	Description
PCT ID and Name	160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
Vegetation Formation	Freshwater Wetlands
Vegetation Class	Inland Floodplain Shrublands
Cleared Extent (%)	28
Vegetation Description	Tall shrubland to two metres high, dominated by Nitre Goosefoot (*Chenopodium nitrariaceum*) often with Black Roly Poly (*Sclerolaena muricata*). Low shrubs include *Sclerolaena stelligera,* Soft Horns (*Malacocera tricornis*) and *Atriplex semibaccata*; forb species include *Omphalolappula concava, Harmsiodoxa blennodioides* and *Oxalis perennans*. Exotic species may be common including the grasses *Hordeum leporinum, Hordeum marinum, Lolium perenne* and *Avena fatua*. Common exotic forbs include *Brassica tournefortii; Cirsium vulgare; Echium plantagineum; Erodium cicutarium, Hedypnois rhagadioloides* subsp. *cretica* and *Medicago polymorpha*. Tall shrubs of Cooba (*Acacia salicina*) and River Cooba (*Acacia stenophylla*) may be present. Occurs on cracking clay or sandy clay soils in lake beds, low lying plains, drainage depressions and alluvial plains subject to flooding in the arid and semi-arid zones of far western NSW. Widespread but usually found in discrete stands. In some places this community may be derived from a previous Old Man Saltbush shrubland as it generally occurs in highly disturbed sites. Grades into Lignum communities in wetter sites where drainage is impaired.
Threatened Ecological Communities	(part) BC Act listed, critically endangered, Artesian Springs Ecological Community in the Great Artesian Basin

TABLE 4-9 PCT 164 COTTON BUSH OPEN SHRUBLAND OF THE SEMI-ARID (WARM) ZONE

Aspect	Description
PCT ID and Name	164
Vegetation Formation	Arid Shrublands (Chenopod sub-formation)
Vegetation Class	Riverine Chenopod Shrublands
Cleared Extent (%)	8
Vegetation Description	Low to mid-high sparse to mid-dense shrubland usually about 0.8 m high dominated by Cotton Bush (*Maireana aphylla*) with occasional remnant shrubs of Bladder Saltbush (*Atriplex vesicaria* s.l.). Smaller shrubs include copperburrs (*Sclerolaena muricata, Sclerolaena tricuspis* and *Sclerolaena bicornis*) and annual saltbushes (*Atriplex lindleyi, Atriplex leptocarpa*). The sparse ground cover contains native forbs such as paper daisies (*Rhodanthe* spp.), *Minuria cunninghamii*, and *Calotis scabiosifolia* var*. scabiosifolia* and grasses such as *Austrodanthonia caespitosa*. Often contains a very high cover of weed species including *Hordeum* spp., *Bromus* spp., *Vulpia* spp., *Medicago* spp., *Avena fatua* and *Lolium perenne*. Occurs on grey to grey-brown clays or clay-loam soils on depressed alluvial plains mainly in the Riverina Bioregion of the semi-arid (warm) climatic zone. This is derived community occurring in highly disturbed areas. Areas in which it occupies were probably dominated by Bladder Saltbush and other species prior to European settlement but heavy grazing and other processes have led to the decline of perennial saltbush species leaving this Cotton Bush-dominated community.
Threatened Ecological Communities	No associations.

TABLE 4-10 PCT 166 DISTURBED ANNUAL SALTBUSH FORBLAND ON CLAY PLAINS AND INUNDATION ZONES MAINLY OF SOUTH-WESTERN NSW

Aspect	Description
PCT ID and Name	166 Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW
Vegetation Formation	Saline Wetlands
Vegetation Class	Inland Saline Lakes
Cleared Extent (%)	34
Vegetation Description	A disturbed and probably derived open chenopod, herbland or grassland dominated by annual saltbushes such as Baldoo (*Atriplex lindleyi*), *Atriplex eardleyae* and *Atriplex angulata* along with and Babbagia (*Osteocarpum acropterum* var. *deminuta*). *Atriplex holocarpa* is often present. Many species of copperburr may be present including *Sclerolaena divaricata, Sclerolaena intricata, Sclerolaena brachyptera, Sclerolaena decurrens, Sclerolaena diacantha, Sclerolaena stelligera, Sclerolaena ventricosa* and *Sclerolaena bicornis*. Cottonbush (*Maireana aphylla*) common in places. Other Maireana species include *Maireana ciliata, Maireana coronata* and *Maireana turbinata*. Forbs include daisies such as *Rhodanthe floribunda* and *Brachyscome ciliaris*. Swainsona peas - *Swainsona affinis* and *Swainsona campylantha* may be present after rain. Neverfail grass (*Eragrostis setifolia*) is common in northern areas. The main weeds species are the grasses Hordeum marinum *and Hordeum leporinum* along with Capeweed (*Arctotheca calendula*) and Ward's Weed (*Carrichtera annua*). This community occurs on clay and loam clay soils on dry lake-beds and alluvial floodplains in the semi-arid and arid zones - mainly in south-western NSW but also to the north. This is probably a derived community from previous perennial chenopod shrublands, although some areas may be similar to a natural state where regular flooding is a feature.
Threatened Ecological Communities	No associations

4.2.2 VEGETATION OF THE SUBJECT LAND

A total of 39 BAM plots were completed to test the occurrence and extent of PCTs identified in the SVTM. This data will be analysed using the Bray Curtis similarity metric to classify plots into similar groups and will be presented in the Project BDAR, prepared to support the EIS.

In general, the native vegetation of the Subject Land can be characterised as a mosaic of low chenopod shrublands and native grasslands on grey cracking clays to sandy rises. A stand of Black Box (*Eucalyptus largiflorens*) is in the central parts of the Subject Land west of the main homestead and associated livestock yards. Vegetation around the main homestead and livestock yards comprises mainly planted native trees of mostly West Australian origin. East of the livestock yards is a single senescent White Cypress Pine (*Callitris glaucophylla*), with Emu Bush (*Eremophila longifolia*) and Sugarwood (*Myoperum platycarpum*) also noted nearby. Plot analysis to be completed as part of the BDAR will be used to determine which types of native vegetation occur and their consideration states.

4.3 THREATENED ECOLOGICAL COMMUNITIES

PCTs mapped by the SVTM within the Subject Land were reviewed to identify any potential TEC associations. The results are provided in Table 4-11.

TABLE 4-11 TECS ASSOCIATED WITH SVTM PCTS MAPPED ON THE SUBJECT LAND

SVTM PCTs	Associated TEC	BC Act Listing	EPBC Act Listing
24, 160	Artesian Springs Ecological Community in the Great Artesian Basin	Critically Endangered	Not listed
46	Natural Grasslands of the Murray Valley Plains	Not Listed	Critically Endangered
153	*Acacia loderi* shrublands	Endangered	Not listed

The following interim conclusions are provided:

- The Artesian Springs Ecological Community in the Great Artesian Basin CEEC is discounted as being present within the Subject Land as it does not comprise any artesian fed springs.
- The Natural Grasslands of the Murray Valley Plains CEEC (Commonwealth listing), if present, would be restricted to natural grassland areas where sufficient characterise forb and grass species occur. This will be ascertained using BAM pot data during the preparation of the BDAR.
- The Acacia loderi shrublands EEC is not present within the Subject Land as field verification surveys failed to identify any occurrence of the characteristic canopy species. Confirmation of this conclusion will be provided in the BDAR.

Potential exists for some of the native vegetation located on a sandy rises to be a derived form of the Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions - Endangered Ecological Community listing. Analysis of detailed plot data against the listing advise is required to determine the presence and extent of this community within the Subject Land if it is deemed present.

5. THREATENED SPECIES

Review of the BAM-C provided a list of candidate species likely to occur within the Subject Land. Potential Candidate species are listed in Table 5-1. The BAM Important Area Viewer was also reviewed as a part of this process and there were no important areas present within the Subject Land.

TABLE 5-1 CANDIDATE SPECIES LIST

Common Name	Scientific Name	BC Act	EPBC Act	Recommended Survey Period	Recorded on Site
Flora					
A Spear Grass	*Austrostipa wakoolica*	E	E	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☐ September ☐ N/A ☐ May	Undetermined
Mossgiel Daisy	*Brachyscome papillosa*	V	V	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Absent
A Burr-daisy	*Calotis moorei*	E	E	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Absent
Bindweed	*Convolvulus tedmoorei*	E	-	☐ January ☑ June ☐ October ☐ February ☑ July ☐ November ☐ March ☑ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Undetermined (likely absent)
Yellow Gum	*Eucalyptus leucoxylon subsp. pruinosa*	V	-	☑ January ☑ June ☑ October ☑ February ☑ July ☑ November ☑ March ☑ August ☑ December ☑ April ☑ September ☐ N/A ☑ May	Absent
Winged Peppercress	*Lepidium monoplocoides*			☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☑ September ☐ N/A ☐ May	Present

Common Name	Scientific Name	BC Act	EPBC Act	Recommended Survey Period	Recorded on Site
Lanky Buttons	*Leptorhynchos orientalis*			☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Likely absent (reviewing collected plant material)
Chariot Wheels	*Maireana cheelii*	V	V	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☑ September ☐ N/A ☐ May	Present
Turnip Copperburr	*Sclerolaena napiformis*	E	E	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☑ September ☐ N/A ☐ May	Absent
Slender Darling pea	*Swainsona murrayana*	V	V	☐ January ☐ June ☐ October ☐ February ☐ July ☐ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Present (note: survey performed in October)
Red Darling pea	*Swainsona plagiotropis*	V	V	☐ January ☐ June ☐ October ☐ February ☐ July ☐ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Absent (note: survey performed in October)
Silky Swainson Pea	*Swainson sericea*	V	-	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Absent (note: survey performed in October)

Common Name	Scientific Name	BC Act	EPBC Act	Recommended Survey Period	Recorded on Site
Fauna					
Australian Bustard	*Ardeotis australis*	E	-	☑ January ☑ June ☑ October ☑ February ☑ July ☑ November ☑ March ☑ August ☑ December ☑ April ☑ September ☐ N/A ☑ May	Absent
Bush Stone-curlew	*Burhinus grallarius*	E	-	☑ January ☑ June ☑ October ☑ February ☑ July ☑ November ☑ March ☑ August ☑ December ☑ April ☑ September ☐ N/A ☑ May	Undetermined
Little Eagle	*Hieraaetus morphnoides*	V	-	☐ January ☐ June ☑ October ☐ February ☐ July ☐ November ☐ March ☑ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Present (note: survey for breeding inconclusive)
Southern Bell Frog	*Litoria raniformis*	E	V	☑ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☐ September ☐ N/A ☐ May	Undetermined (note: no suitable habitat present)
Major Mitchell's Cockatoo	*Lophochroa leadbeateri*	V	-	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☑ September ☐ N/A ☐ May	Likely absent
Square-tailed Kite	*Lophoictinia isura*	V	-	☑ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☑ December ☐ April ☑ September ☐ N/A ☐ May	Likely absent
Barking Owl	*Ninox connivens*	V	-	☐ January ☑ June ☑ October ☐ February ☑ July ☑ November ☐ March ☑ August ☑ December ☐ April ☑ September ☐ N/A ☑ May	Undetermined

Common Name	Scientific Name	BC Act	EPBC Act	Recommended Survey Period	Recorded on Site
Koala	*Phascolarctos cinereus*	E	E	☑ January ☑ June ☑ October ☑ February ☑ July ☑ November ☑ March ☑ August ☑ December ☑ April ☑ September ☐ N/A ☑ May	Undetermined (note: no preferred feed tree species identified)
Superb Parrot	*Polytelis swainsonii*	V	V	☐ January ☐ June ☑ October ☐ February ☐ July ☑ November ☐ March ☐ August ☐ December ☐ April ☑ September ☐ N/A ☐ May	Absent
Masked Owl	*Tyto novaehollandiae*	V	-	☐ January ☑ June ☐ October ☐ February ☑ July ☐ November ☐ March ☑ August ☐ December ☐ April ☐ September ☐ N/A ☑ May	Undetermined

This list of Candidate species will be reviewed following completion of PCT mapping for the Subject Land.

The location of threatened flora and fauna species within the locality is provided in Figure 5-1 (flora) and Figure 5-2 (fauna)

Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024
Created By: RT/VN
Drawing Size: A3

0 1 2 3km

1:100,000

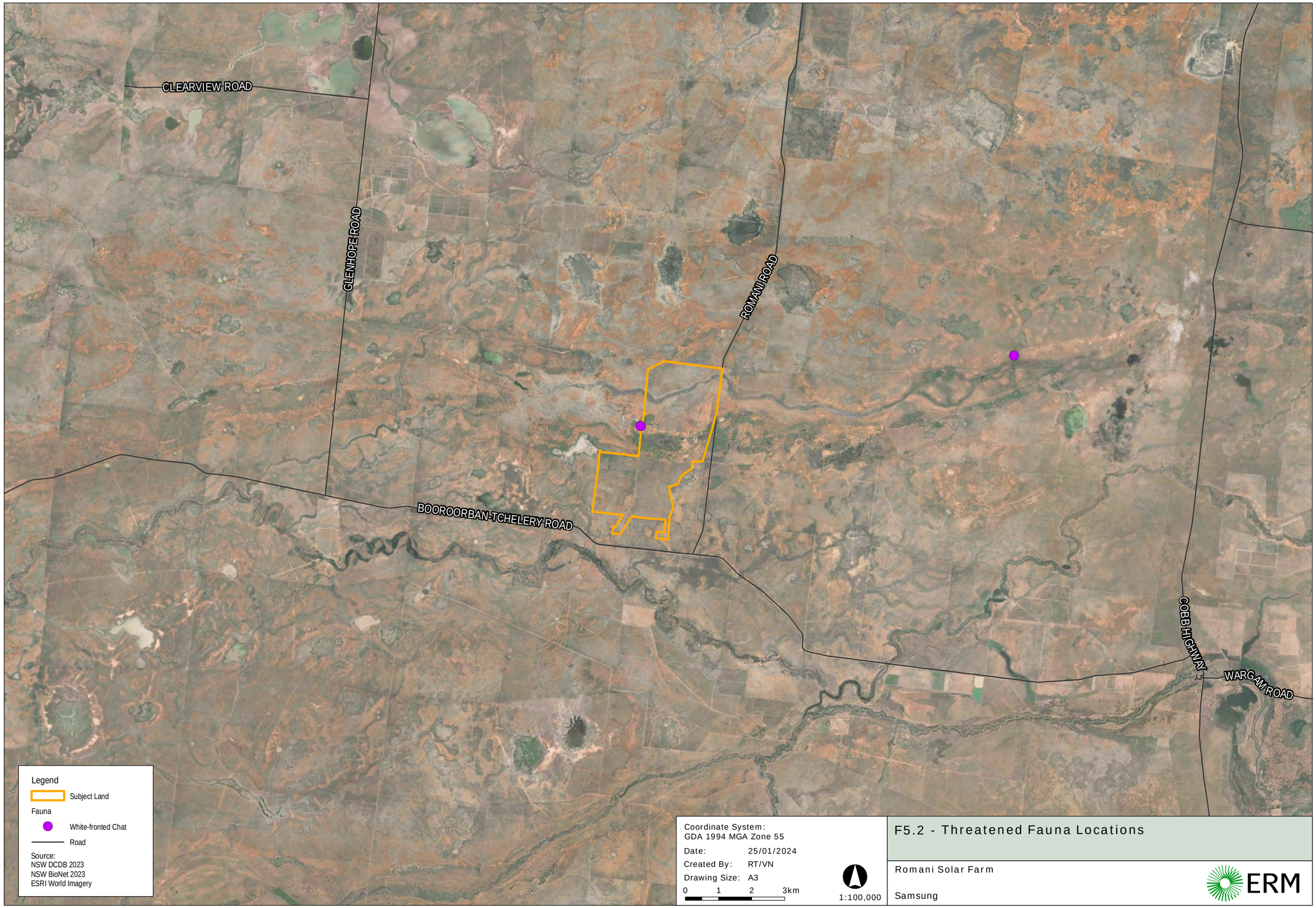
F5.1 - Threatened Flora Locations

Romani Solar Farm

Samsung

ERM

0704056_RSF_Bio_G005_R0.mxd



Coordinate System:
GDA 1994 MGA Zone 55

Date: 25/01/2024

Created By: RT/VN

Drawing Size: A3

0 1 2 3km

1:100,000

F5.2 - Threatened Fauna Locations

Romani Solar Farm

Samsung

ERM

0704056_RSF_Bio_G006_R0.mxd

6. IDENTIFYING PRESCRIBED IMPACTS

Prescribed impacts are identified in Clause 6.1 of the Biodiversity Conservation Regulation 2017 (BC Regulation). Prescribed impacts are those that are additional to the clearing of native vegetation and associated habitat. These include:

- Management of the habitat of threatened species or ecological communities associated with:
  - Karst, caves, crevices, cliffs, rock outcrops and other geological features of significance;
  - Human made structures; and
  - Non-native vegetation.
- Management of areas connecting threatened species habitat, such as movement corridors;
- Management of water quality, water bodies and hydrological processes that sustain threatened species and TECs (including from subsidence or subsidence from underground mining);
- Wind turbine strikes on protected animals; and
- Vehicle strikes on threatened species or on animals that are part of a TEC.

The BAM does not provide an approach to determine the number and class of biodiversity credits that are required for a prescribed impact. However, prescribed impacts on biodiversity may be considered by a consent authority when they determine biodiversity credits generated on a Biodiversity Stewardship Site.

An assessment of the relevance of these prescribed impacts to the Project is provided in Table 6-1.

TABLE 6-1 PRESCRIBED IMPACTS

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature
Karst, caves, crevices, cliffs, rocks, or other geological features of significance	☐Yes/ ☒No	N/A (there are no karst, caves, crevices, cliffs, or other geological features of significance to threatened species or threatened communities within the Subject Land)	N/A
Human-made structures	☐Yes/ ☒No	Transmission towers intersect the Subject Land	Nesting habitat for birds.
Non-native vegetation	☒Yes/ ☐No	Areas of non-native vegetation are present within the Subject Land (planted trees endemic to Western Australia)	Several nests have been observed in planted trees throughout the site.
Habitat connectivity	☒Yes/ ☐No	Remnant and planted trees and drainages occur within the Subject Land. These features may aid in local and regional wildlife movement.	Ecosystem and Candidate bird species.
Waterbodies, water quality and hydrological processes	☒Yes/ ☐No	Constructed dams and water channels occur being part of a wider irrigation system of the Hay Plains.	Permanent water bodies with sufficient vegetation character may provide habitat for frog and waterbird species.
Wind turbine strikes	☐Yes/ ☒No	N/A	N/A
Vehicle strikes	☒Yes/ ☐No	An increase in access tracks to maintain solar farm infrastructure has the potential to result in an increase in vehicle strikes to threatened fauna.	Threatened birds and reptiles

7. MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Matters of National Environmental Significance (MNES) relevant to the Subject Land are provided in Table 7-1.

TABLE 7-1 PRELIMINARY ASSESSMENT OF MNES

MNES	Relevance to the Subject Land
World Heritage Properties	No World Heritage Properties are mapped within or are adjacent to the Subject Land
National Heritage Places	No National Heritage Places are mapped within or are adjacent to the Subject Land
Wetlands of International Importance (Ramsar Wetlands)	The Ramsar sites NSW Central Murray State Forests Wetlands and Hattah-kulkyne lakes are located 44km and 150 km from the Subject Land respectively and are not expected to be impacted by the construction, operation and decommissioning of the proposed project. Other Ramsar wetlands identified by the PMST are in excess of 300 km from the Subject Land.
Listed Threatened Ecological Communities (TECs)	The PMST identified four TECs with the potential to occur within the Subject Land: • Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions • Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grassland of South-eastern Australia. • Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plan Bioregions. • Weeping Myall Woodlands. • Spring surveys failed to verify the occurrence of these TECs within the Subject Land. Further analysis will be provided in the BDAR to confirm this interim conclusion.
Listed Threatened Species	The PMST identified twenty-eight threatened species listed under the EPBC Act that have the potential to occur within the Subject Land.
Listed Migratory Species	The PMST identified nine migratory species with the potential to occur two of these species are listed as critically endangered.
Great Barrier Reef Marine Park	Not applicable
Other Matters Protected by the EPBC Act	Not other matters protected by the EPBC Act.

Under the EPBC Act, projects that are expected to have a significant impact on MNES are required to refer the proposed action (the Project) to the Commonwealth Minister for Climate Change, Energy, Environment and Water. This process involves a formal assessment and determination by the Minister. If the Minister determines the proposed action is likely to have a significant impact on MNES then the action is deemed to be controlled action under the EPBC Act.

NSW maintains a bilateral agreement with the Australian Government with regards to biodiversity. This agreement aims to establish a consistent framework for environmental assessment and approvals. This agreement allows accredited assessors in NSW to conduct assessments and approvals for state significant development projects in line with state and federal standards.

8. NEXT STEPS

The Project SEARs are likely to require the preparation of a BDAR. This will require completion of Stage 1 and Stage 2 of the BAM. The following sections generally outline the future scope of these works.

8.1 STAGE 1 OF THE BAM

Stage 1 of the BAM requires that additional survey periods be completed to inform the Project BDAR. At this stage of the project, ERM has completed the Spring Survey period, which is to be followed by the Summer and Winter seasonal surveys to meet the anticipated survey requirements. The project BDAR will document the methods and results of these survey efforts and how they adhere to the relevant survey guidelines. Relevant survey guidelines include:

- Threatened Reptiles – Biodiversity Assessment Method Survey Guide, 7 November 2022;
- Koala (*Phascolarctos cinereus*): Biodiversity Assessment Method Survey Guides, 17 June 2022;
- Surveying Threatened Plants and their Habitats: NSW Survey Guide for the Biodiversity Assessment Method, 3 April 2020;
- Species Credit Threatened Bats and their Habitats, 3 October 2018;
- NSW Survey guide for threatened Frogs, 24 September 2020; and
- 2004 Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft), 1 November 2004.

Remaining investigations include the following:

- Review of Category 1-exempt land mapping as presented in the Draft NVR Map;
- Mapping of field verified PCTs and conditions states to determine vegetation zones;
- Obtaining of additional BAM plot data for delineated vegetation zones;
- Review of Candidate Species list following confirmation of PCT mapping; and
- Conduct targeted surveys for updated Candidate Species list.

8.2 STAGE 2 OF THE BAM

Application of Stage 2 of the BAM aims to determine how the project will meet the "No Net Loss" standard required by the NSW BC Act. This calculation depends on the extent of biodiversity values being impacted, whether the impact is direct, indirect of prescribed. These impacts are to be assessed following application of the mitigation hierarchy (Avoid, minimise, mitigate). Therefore, allowing for the quantification of residual impacts.

The BAM is then used to calculate the offset liability of the Project in units referred to as biodiversity credits. A biodiversity offset strategy will be defined to demonstrate how this offset is to be delivered, this defines the "No Net Loss" for the proposed project.

8.2.1 APPLICATION OF THE MITIGATION HIERARCHY

This Preliminary biodiversity Assessment has identified the biodiversity constraints on the proposed Romani Solar Farm and BESS that will require consideration and application of the mitigation hierarchy. Impacts to native vegetation and threatened species should be avoided as apriority. The following principles are to be considered in the application of the mitigation hierarchy:

Avoid

- Avoid areas of native vegetation patches of defined PCTs and corresponding TECs; and
- Avoid areas that contain identified biodiversity values such as habitat features.

Minimise

- Minimise the risk for weed and pest incursion on the Subject Land; and
- Minimise the risk of injury to fauna.

Mitigate

- Mitigate any residual impacts to biodiversity. This should be achieved through the conservation and improvement of existing native vegetation on the Subject Land.

8.2.2 OFFSET STRATEGY

If deemed to be required, an offset strategy is required to demonstrate a 'no net loss' outcome and accordingly could comprise one or more of the following:

- Retirement of suitable ecosystem and species credits registered in the BOS;
- Contribution to a conservation initiative; and
- Implementation of a voluntary planning agreement.

In relation to the latter two listed options, for the Project may take into consideration the balance of the Subject Land where the management and protection of biodiversity values could be used to demonstrate achievement of a 'no net loss' standard. An operational biodiversity management plan for proximal lands could be used to improve local biodiversity values as well as implementation of a suitable conservation mechanism, which can act together to remedy any biodiversity loss. This approach is supported by the Subject Land falls within a landscape/ IBRA subregion that is highly over cleared and comprises a poor representation of biodiversity values within the conservation reserve network. Such efforts effectively represent conservation initiatives that directly address biodiversity loss in a local context.

The merits of this approach hinge on the extent of avoid/minimise/mitigate measures and how any related commitments expressed through condition of consent can act to improve local biodiversity values relative to the identified losses. For instance, a planning agreement (s7.18 of the BC Act) may form part of the application where it specifies the project offset for impacts on biodiversity values by way of managing and conserving retained native vegetation and habitat in the local area. In considering s7.14(2) of the BC Act and in exercising s7.14(3), the Minister for Planning may form the view that by endorsing the terms of the Planning Agreement there are no residual impacts thus obviating any credit retirement liability. This approach to achieving a 'no net loss' standard is supported by s7.14(5) of the BC Act where it states that the Minister for Planning is not limited by the matters specified in s7.14 when considering the impact of the proposed development on biodiversity values.

8.3 PREPARATION OF A BDAR

A BDAR prepared in accordance with the provisions of the BAM is expected to be provided as a part of the EIS. This is to be used to assess the impacts of the Project on assessable biodiversity values. The project BDAR will comprise the survey methods and results, and the assessment of the impacts. It will also outline the offset strategy for any residual impacts as a result of the Project.

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APPENDIX E PRELIMINARY TRAFFIC ASSESSMENT

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15 November 2023

Issued via email: lucy.baker@erm.com

Dear Lucy

Romani Solar Farm – Desktop Traffic Assessment

Amber Organisation has been engaged to provide a desktop review of the traffic matters associated with the Romani Solar Farm. The site is located at 377 Romani Road in Booroorban, approximately 44km south-west of Hay and 600km south-west of Sydney. The solar farm project boundary is proposed to occupy an area of approximately 1,810ha. The generating capacity of the solar farm is 250MW and the Battery Energy Storage System (BESS) has a storage capacity of 150MW/300MWh.

No decision has been made regarding the port of delivery for plant at this stage. The Port of Sydney, Melbourne, and Adelaide are the likely options, with the adopted delivery port to be confirmed as part of the Environmental Impact Statement (EIS).

Vehicle access to the site is yet to be determined, however, is likely to be provided via Booroorban-Tchelery Road and/or Romani Road. The details of the site access will be determined as part of the EIS.

The following provides a review of the traffic engineering matters relevant to the proposal. It includes a review of potential access routes for construction traffic and oversize/overmass (OSOM) vehicles, as well as a review of access arrangements based on the information available at this time.

The assessment has used available aerial and road network imagery and has been undertaken with consideration to the approved heavy vehicle network maps provided by TfNSW.

1. Transport Network

1.1 Road Environment

Booroorban-Tchelery Road is a sealed local road that runs in a general east-west alignment between Cobb Highway in the east and Maude Road in the west. The road has a sealed carriageway width of approximately 3.5m and gravel verges on each side which vary in width, however, are typically 2.0m wide. The default rural speed limit of 100km/h applies within the vicinity of the site.

Romani Road is a local road that runs in a general north-south alignment between Sturt Highway in the north and Booroorban-Tchelery Road in the south. The road has a carriageway width of approximately 5.5m and is sealed or unsealed along sections. The default rural speed limit of 100km/h applies within the vicinity of the site.

Cobb Highway is a State Road under the care and management of Transport for New South Wales (TfNSW). It runs in a general north-south alignment between Barrier Highway in the north and Echuca in the south. It has a speed limit of 100km/hr within the vicinity of the site, and a carriageway width of approximately 7.0m accommodating one lane of traffic in each direction with grassed verges on both sides of the road.

1.2 Traffic Volumes

A review of the TfNSW Traffic Volume Viewer indicates there is no traffic volume data available for Booroorban-Tchelery Road, however, there is data available for Cobb Highway between Hay and Deniliquin. The Cobb Highway data was collected between 2006 and 2012 and suggests that this section of the highway carries in the order of 600 vehicles per day (two-way volume).

Given the final site access location is yet to be determined and the lack of recent traffic data on the adjacent road network, it is recommended that traffic surveys be undertaken to support any future analysis. Potential surveys and locations could include:

- A tube count in the vicinity of the site on Booroorban-Tchelery Road;
- A tube count in the vicinity of the site on Romani Road;
- A turning movement count survey at the intersection of Cobb Highway/Booroorban-Tchelery Road;
- A turning movement count survey at the intersection of Sturt Highway/Romani Road; and
- A turning movement count survey at the intersection of Maude Road/Booroorban-Tchelery Road.

1.3 Public Transport Services

There are no public transport services in the vicinity of the site, including on Cobb Highway between Hay and Deniliquin. Dyson Group operate school bus services in the surrounding area and have advised the following services operate in the area:

- Booroorban Bus, which travels along Cobb Highway past the Booroorban-Tchelery Road intersection at approximately 7:45am, 8:05am, 4:00pm and 4:05pm.
- Balranald Bus, which travels along Sturt Highway past the Romani Road intersection at approximately 7:15am, 8:15am, 4:05pm and 4:55pm.

The interaction and any potential conflict between heavy vehicles and school buses will be assessed as part of the EIS.

1.4 Crash History

Amber has conducted a review of the TfNSW Road Safety database for all casualty crashes along the length of Booroorban-Tchelery Road and Romani Road. The review also included all casualty crashes within 2.0km of the intersections of Cobb Highway/Booroorban-Tchelery Road, Sturt Highway/Romani Road, and Maude Road/Booroorban-Tchelery Road.

The crash database provides the location and severity of all injury and fatal crashes for the five-year period from 2017 to 2021. The search revealed no crashes within the review area and as such, it is concluded that the road network is currently operating in a relatively safe manner.

1.5 Restricted Vehicle Access

The TfNSW Restricted Vehicle Access Map for the surrounding area is provided within Figure 1 with the green lines indicating approved B-Double routes. The figure shows that Cobb Highway, Maude Road, and the surrounding State Road network are approved routes for 25/26m B-Double vehicles.

Figure 1: TfNSW Restricted Access Vehicle Map

Source: TfNSW Restricted Vehicle Access Map

2. Preliminary Traffic Assessment

Transport impacts resulting from the proposed solar farm will be largely limited to the construction phase and can broadly be separated into the following categories:

- Light vehicles associated with transporting the workforce to/from the site;
- Shuttle buses to transport the majority of the workforce between the site and nearby towns;
- Medium and Heavy Rigid Trucks (MRV and HRV) used to deliver raw materials and smaller plant;
- Truck and Dog vehicles used to transport earthwork material to/from the site; and
- 19 metre long Articulated Vehicles (AV) and 26 metre long B-Doubles used to transport larger plant.

It is recommended that tube count surveys be undertaken at the locations detailed at Section 1.2 of this report to assess the capacity of the road network to cater for the additional traffic movements generated during the construction phase. The assessment of the road network is to be undertaken against the requirements set out in the *Austroads Guide to Traffic Management*.

Given the low traffic volumes expected on the surrounding road network, it is not anticipated that the increase in traffic generated during construction stage would result in any significant adverse impacts to the operation of the road network. Any future assessment should consider the cumulative impact of other nearby major projects.

During operation the project would generate a negligible level of traffic on the road network.

3. Preliminary Route Assessment

3.1 Transformer Transport Vehicle (Oversize/Overmass)

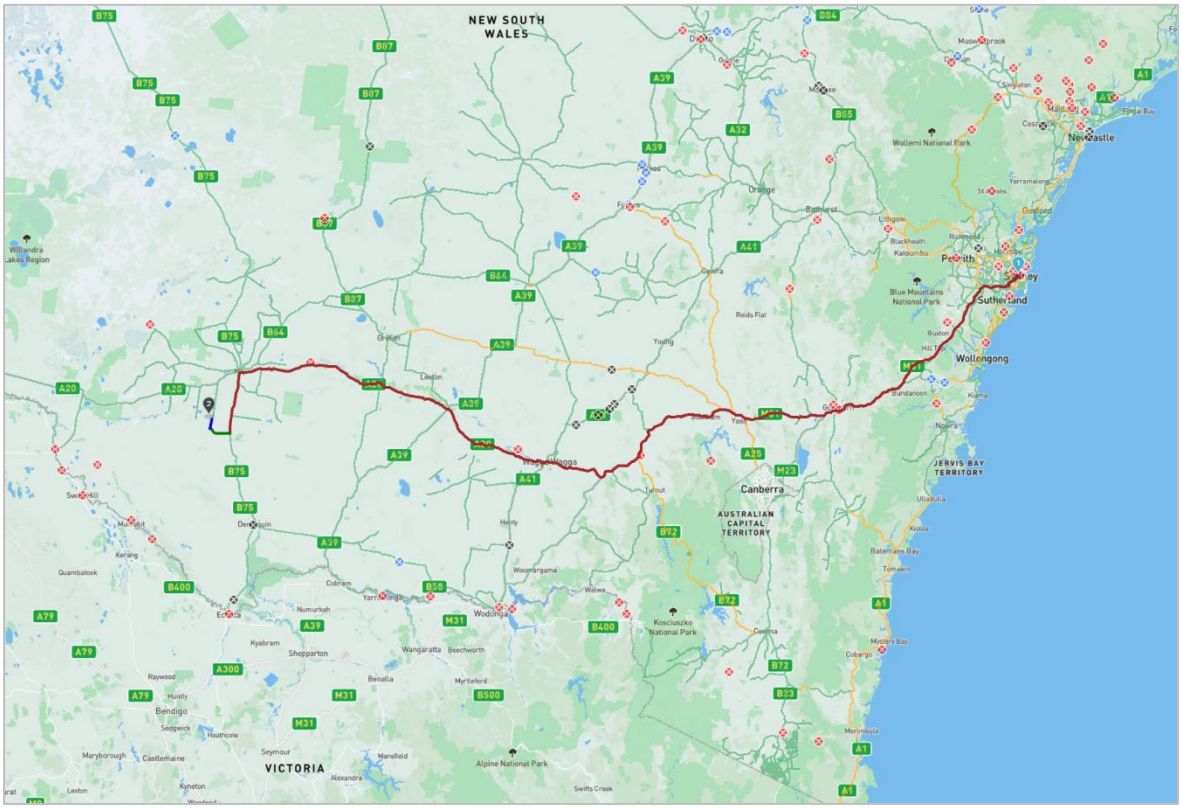
No decision has been made regarding the port of delivery for plant at this stage. The Port of Sydney, Melbourne, and Adelaide are the likely options, with the adopted delivery port to be confirmed as part of the EIS.

A high level assessment of the potential transport routes from the abovementioned ports has been completed. The assessment has focused on the transformer transport vehicle which typically represents the worst-case scenario due to the length of the vehicle and associated load. The routes aim to reduce the number of turn manoeuvres at intersections as these may require road upgrades to accommodate the vehicle. It also aims to avoid built-up areas to limit conflicts between the OSOM vehicles and vulnerable road users.

There are seven renewable energy State Significant Applications within approximately 50km of the site, including Pottinger Solar Farm and The Plains Solar Farm. These projects require detailed route assessments for OSOM vehicles similar to the proposal.

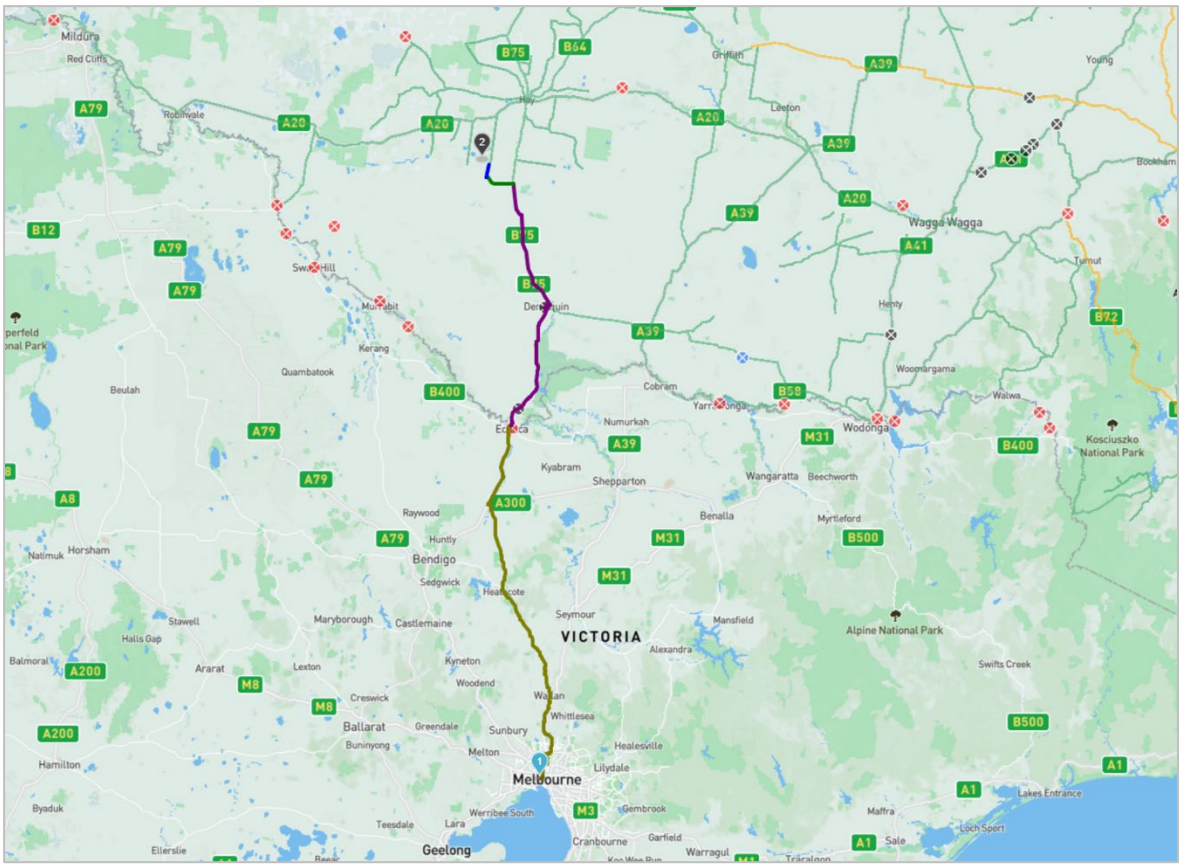
Indicative routes for the OSOM vehicles from Sydney, Melbourne, and Adelaide are shown in Figure 2 to Figure 4.

Figure 2: OSOM – Indicative Access Route from Port of Sydney



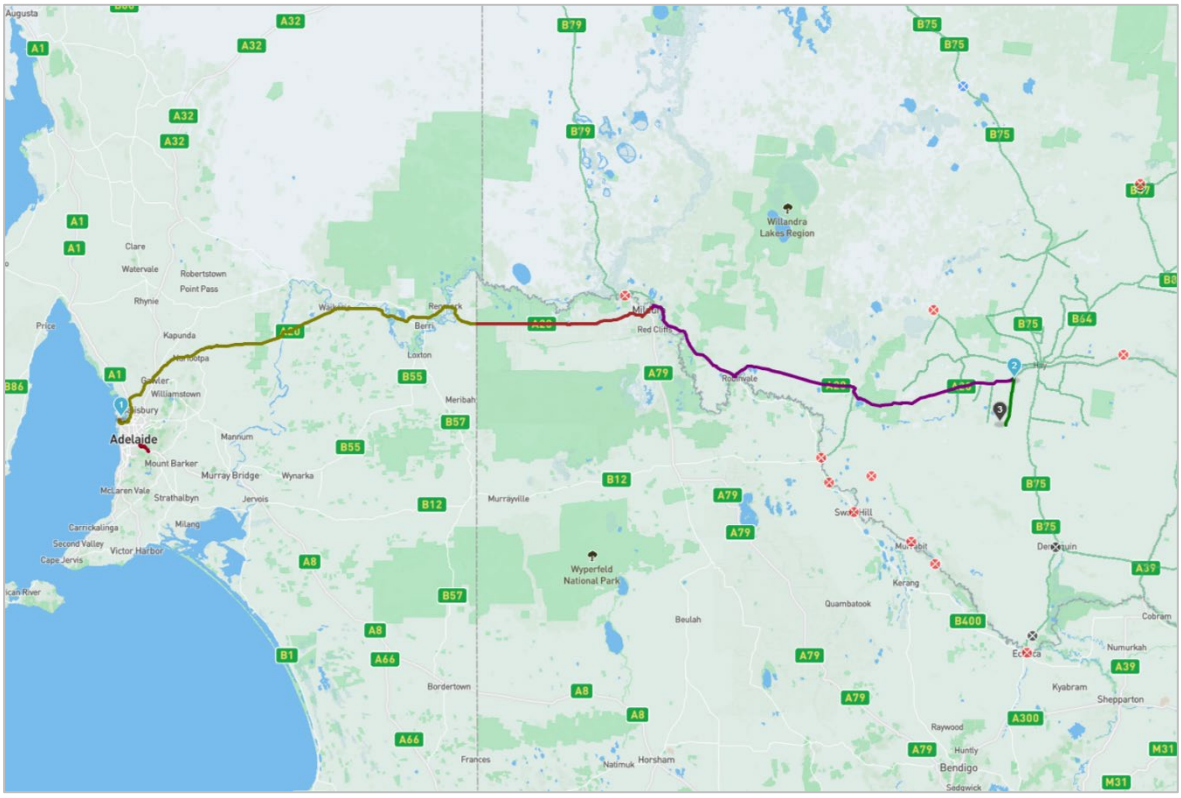
Source: NHVR Route Planner – Route ID: 1FCMA-7 v1

Figure 3: OSOM – Indicative Access Route from Port of Melbourne



Source: NHVR Route Planner – Route ID: 1FCM5-0 v1

Figure 4: OSOM – Indicative Access Route from Port of Adelaide



Source: NHVR Route Planner – Route ID: 1FCM2-1 v1

The preliminary routes are approved within the NSW Oversize Overmass Load Carrying Vehicles Network Map. Travel conditions are applicable on sections of the Hume Motorway and M5 South Western Motorway if the Port of Sydney is the adopted transport route.

Oversize vehicle movements to and from the site will be required to travel during permitted times only. The vehicles are subject to specific road permits that would be applied for once the dimensions of the load and the specific delivery vehicle are known.

The final route for the transformer transport vehicle is recommended to be reviewed as part of a future detailed Route Assessment which would be prepared as part of the preparation of the EIS. The Route Assessment should provide an assessment and commentary on the following matters:

- Confirm the dimensions and loading of the OSOM vehicle;
- Contact TfNSW, relevant Council(s), and rail authorities to undertake an assessment of any bridge structures based on the loading of the vehicle;
- Provide a review of the height clearances along the access route and confirm the vehicle is able to suitably access the site;
- Provide a horizontal alignment review utilising swept paths to confirm if any road upgrades are required at key pinch points and provide concept designs for any road improvements; and
- Identify suitable pullover bay locations.

Overall, the OSOM vehicle is expected to be able to be accommodated within the existing road reserve. Road upgrades may be required once the port of delivery and transport route is known. It is noted that the indicative routes primarily utilise State roads which are typically designed to accommodate the associated loads.

3.2 General Construction Traffic (B-Doubles)

B-Double vehicles travelling to/from the site are anticipated to utilise the same routes identified above. It is noted that the routes are currently approved for 26-metre B-Double vehicles within the NSW Restricted Access Vehicles Network Map, with exception to Booroorban-Tchelery Road and Romani Road. Some travel conditions may apply if the Port of Sydney is the adopted transport route.

Booroorban-Tchelery Road and Romani Road are not rated to accommodate B-Double vehicles. It is recommended that any local roads are designed to accommodate simultaneous two-way vehicle movement for the largest heavy vehicle to access the site. Alternatively, traffic management measures can be considered to safely control vehicle movements. Any road upgrades should be undertaken in consultation with Council and would be assessed as part of the EIS.

3.3 Railway Crossings

The indicative access routes from the Port of Sydney and Adelaide do not traverse any railway level crossings within NSW, while the route from Port of Melbourne traverses two railway crossings within NSW. This would require further assessment as part of the EIS, depending on the adopted travel route.

3.4 Unsealed Roads

The adopted access route is expected to primarily utilise the State Road network and would not utilise any unsealed roads. There are some sections of Romani Road that are unsealed which may require upgrades should vehicle access occur from this road. This is to be determined as part of the EIS and should be undertaken in accordance with the *Unsealed Roads Manual* and consultation with Council.

4. Access Arrangements

4.1 Turn Treatments

The primary traffic impact during construction is generated by staff accessing the site in the morning peak hour and exiting the site in the evening peak hour, and by heavy vehicles accessing the site during the day. Staff are expected to primarily be located within Hay, Deniliquin, and other smaller regional centres.

Austroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings specifies the turning treatments required at intersections. The minimum treatment is a Basic Left/Right Turn (BAL/BAR) facility which is suitable for relatively low volumes of through and turning traffic.

Turn treatments may be required at the intersections of Cobb Highway/Booroorban-Tchelery Road, Sturt Highway/Romani Road, or Maude Road/Booroorban-Tchelery Road, depending on the final travel route adopted for construction traffic for the solar farm. This would require an assessment against the requirements of the *Austroads Guide to Traffic Management* as part of the EIS.

It is noted that based on a desktop assessment the intersections of Sturt Highway/Romani Road and Maude Road/Booroorban-Tchelery Road are provided with BAL/BAR treatments. The intersection of Cobb Highway/Booroorban-Tchelery Road does not appear to have any turn treatments under existing conditions.

4.2 Sight Distance

Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections specifies the Safe Intersection Sight Distance (SISD) as the minimum sight distance which should be provided along the major road at any intersection. Table 3.1 of the guide specifies the SISD required for various design speeds. Given Booroorban-Tchelery Road and Romani Road have a speed limit of 100km/hr a design speed of 110km/hr is applicable, which requires a SISD of 300m based on a reaction time of 2.5 seconds.

Vehicle access to the site is to be determined, however, is likely to be provided via Booroorban-Tchelery Road and/or Romani Road. A sight distance assessment will be required for the vehicle access points against the Austroads guidelines once known, which will be completed as part of the EIS.

5. Conclusion

Based on the above assessment, it has been determined that:

- Public and school bus services operate along Cobb Highway and Sturt Highway. The interaction and any potential conflict between heavy vehicles and school buses will be assessed as part of the EIS.
- No decision has been made regarding the port of delivery for plant at this stage. The Port of Sydney, Melbourne, and Adelaide are the likely options, with the adopted delivery port to be confirmed as part of the EIS.
- The adopted travel route for the transformer transport vehicle (OSOM) and general construction traffic (B-Doubles) will be addressed within the EIS. The route is expected to be able to accommodate OSOM vehicles, noting that road upgrades may be required depending on the final adopted route.
- No traffic volume data is available for Booroorban-Tchelery Road and Romani Road. It is recommended that traffic surveys are undertaken along these roads in the vicinity of the site to review the existing traffic environment and determine the required turn treatments at the site access points (once known).
- The EIS should identify any local road upgrades that may be required to accommodate simultaneous two-way vehicle movement for the largest heavy vehicle, which would be undertaken in consultation with Council.
- Turn treatment assessments and associated design works should be undertaken at the relevant connections with the State road network based on the determined transport route.
- A minimum sight distance of 300m should be provided along Booroorban-Tchelery Road and/or Romani Road at the site access points (once known).

If you have any questions, please feel free to contact the undersigned.

Yours sincerely
Amber Organisation

Michael Willson
Director

Kirk Ballantyne
Associate

APPENDIX F SOCIAL IMPACT ASSESSMENT

PREPARED FOR

SAMSUNG C&T REA

Romani Solar Farm and BESS

Preliminary Social Assessment

DATE
January 2024

REFERENCE
0704056

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Final	03	Catherine Mackay	Simon Bennett	Lucy Baker	25.01.2024	Final

SIGNATURE PAGE

Romani Solar Farm and BESS

Preliminary Social Assessment

0704056

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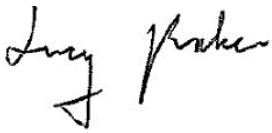

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ABS	Australian Bureau of Statistics
EIS	Environmental Impact Assessment
LGA	Local Government Area
NSW	New South Wales
SA1	Statistical Area Level 1
SEIFA	ABS Socio-Economic Indexes for Areas
SIA	Social Impact Assessment
UCL	Urban Centres and Localities

1. PRELIMINARY SOCIAL IMPACT ASSESSMENT

1.1 EXISTING ENVIRONMENT

The Project is located on the Northern boundary of the Edward River LGA, which borders on the Hay LGA. Deniliquin and Hay are two nearby town centres likely to provide goods and services to support the construction and operation (e.g. ongoing maintenance) phases of the Project. Importantly, the Cobb Highway, which runs North-South approximately 15km East of the Project area, provides easy accessibility to these two regional centres. Moulamein and Swan Hill are secondary regional centres that may also provide goods and services to support both phases of the Project, Moulamein is a small town with only 339 residents and a labour force of 125 people, while Swan Hill, although having a population of 10,600, is situated beyond a safe commuting distance at 139km by road from the Project Area.

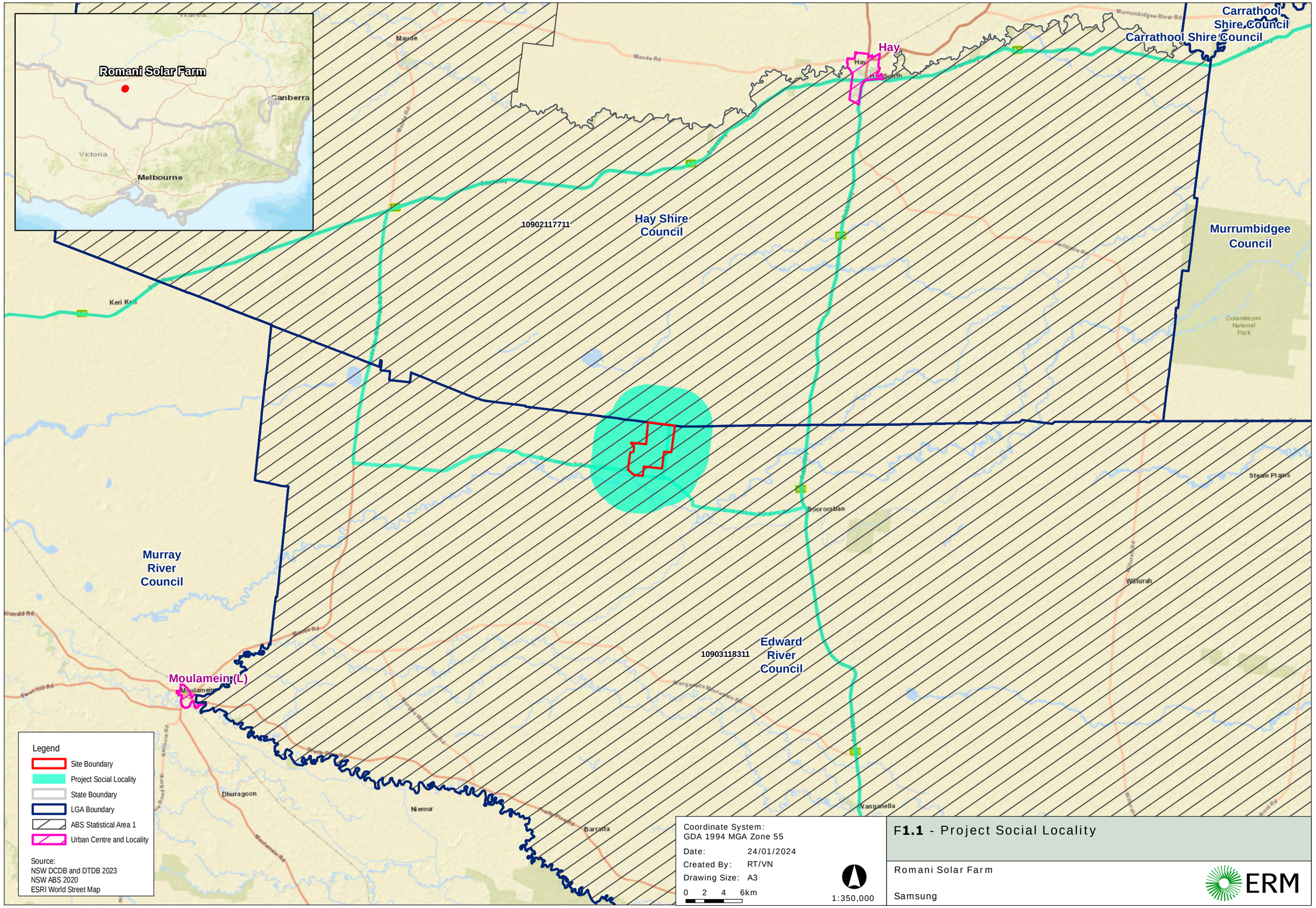
Based on the above, the Project Social Locality, as defined for the purposes of the SIA, was determined to comprise of the following three components:

- The Project Area and immediate surrounding areas, located within the Australian Bureau of Statistics (ABS) Statistical Area Level 1 (SA1) Nos. 10903118311 (containing the Project), SA1 10902117711 (adjacent to Project Area to the North). SA1 data has been used to identify key socio-economic baseline indicators for the Social Locality, where applicable. Additionally, data for the Edward River and Hay LGAs, and state level data for NSW have been used to provide an understanding of the broader and comparative social context within which the Project is located;
- The possible transportation and haulage routes to the Project Area, which include the road network along the Cobb Highway via Booroorban-Tchelery Rd and Romani Rd; and
- The surrounding towns and regional centres of Hay, Deniliquin, Moulamein and Swan Hill, which may provide goods and services to support the construction and operation phase of the Project. ABS Urban Centres and Localities (UCLs) provide baseline data for these towns and regional centres.

The Project Area and immediate surrounding areas, SA1s 10903118311 and 10902117711, Edward River and Hay LGAs, transportation and haulage routes, and UCLs for Hay, Deniliquin, Moulamein and Swan Hill form the Social Locality, as depicted in **Table 1-1** and **Figure 1-1**.

TABLE 1-1 APPROXIMATE DISTANCES TO THE PROJECT AREA

Town/Regional Centre	Travel Distance
Hay	65 km
Moulamein	68 km
Deniliquin	94 km
Swan Hill	139 km



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1.2 COMMUNITY PROFILE

The community profile presented in this section will inform the social baseline in the second phase SIA (part of the EIS) and is primarily based on ABS 2021 Census data.

Table 1-2 outlines the ABS datasets used to provide key demographic data across the Project Social Locality.

This first phase SIA draws on both 2016 and 2021 ABS datasets (i.e. latest available) for the purposes of an initial socio-economic baseline. A trend analysis of these socio-economic baseline data sets will be provided in the second phase SIA.

TABLE 1-2 SUMMARY OF RELEVANT ABS DATASETS

Location	ABS Data Reference (Census)
Edward River LGA	LGA 12730
Hay LGA	LGA 13850
SA1 (area containing the Project)	SA1 10903118311
SA1 (adjacent to Project Area to the North)	SA1 10902117711
Hay UCL	UCL 115079
Moulamein UCL	UCL 122091
Deniliquin UCL	UCL 114008
Swan Hill UCL	UCL 213014
NSW	Code 1 (STE)

In addition to the above listed ABS datasets, the second phase SIA social baseline will be informed by a desktop review of sources including from public health advisory bodies, principally NSW Health and local hospitals (i.e. regarding physical and mental health issues prevalent in the local community), and educational institutions, principally the NSW Department of Education and local schools. Information relating to the economic profile of the Project is also provided by ABS 2016 and 2021 Census data, while information on developmental priorities and challenges in the region will be provided by local and State government planning documents, such as Edward River Shire Council LGAs' Local Strategic Planning Statements.

Table 1-3 draws on the ABS datasets listed in **Table 1-2** to provide a demographic overview of the Project Social Locality. As outlined above, the Project Area is located within ABS SA1 no.10903118311 and adjacent to SA1 no. 10902117711. These Statistical Area are the primary source of information about the potentially impacted community's, which defines the characteristics and is used to provide an understanding of potentially vulnerable groups within the Project's immediate Social Locality.

Table 1-3 also includes the ABS' Socio-Economic Indexes for Areas (SEIFA)[1] based on 2021 census to provide an indication of comparative socio-economic advantage and disadvantage (ABS, 2023). The ABS broadly defines socio-economic advantage and disadvantage in the SEIFA as, *"…people's access to material and social resources, and their ability to participate in society"* at an area rather than individual level (ABS, 2023). SEIFA combines Census data such as income, education, employment, occupation, housing and family structure to summarise the socio-economic characteristics of an area. Each area receives a SEIFA score, referred to as the socio-economic advantage and disadvantage score, indicating how relatively advantaged or disadvantaged that area is compared with other areas. A lower score indicates that an area is relatively disadvantaged compared to an area with a higher score. The SEIFA scores in **Table 1-3** are a percentile score which divide a distribution into 100 equal groups. The lowest scoring 1% of areas are given a percentile number of 1 and the highest 1% of areas are given a percentile number of 100. A score of 50 suggests an area is neither advantaged nor disadvantaged.

Table 1-3 indicates that Hay LGA is relatively disadvantage based on the SEIFA index (34/100). Edward River LGA (42/100) is less disadvantaged than Hay LGA on average. However, LGA areas are large and contain urban and regional areas. Therefore, to understand the more immediate Project surroundings, it is important to look at SA1, small geographic area contained within an LGA, which provide more granular data. The SA1 SEIFA data reveals that the SA1s are relatively advantaged, particularly, when compared to each of the LGAs they are located within. This suggests that socio-economic disadvantage and vulnerable groups are concentrated to regional centres surrounding the Project, which is reflected in the median household income data.

TABLE 1-3 KEY INDICATORS FOR ALL ABS DATASETS (2016 AND 2021) ACROSS THE PROJECT'S SOCIAL LOCALITY

Population		Median Age	Indigenous Pop. (%)	Pop. Over 65 Years of Age	Median Weekly Household Income	Unemployment (%)	SEIFA (Percentile in NSW)	Dwelling Count (Occupied / Unoccupied (%))	Dwelling Tenure (Owned Outright + Mortgaged / Rented, %)	Household Composition (Families / Singles / Groups, %)
Edward River LGA 12730 (LGA)										
2016	8,851	45	4.0%	22.2%	$1,080	5.0%	37	3,378/ 472 (12.3%)	67.5% / 28.4%	65.2% / 32.2% / 2.6%
2021	8,456	46	4.8%	24.9%	$1,240	3.6%	42	3,331 / 523 (13.6%)	70.0% / 24.8%	64.2% / 33.4% / 2.4%
Hay LGA 13850 (LGA)										
2016	2,946	46	6.8%	21.8%	$1,075	4.6%	24	1,087/ 294 (21.3%)	62.8%/ 30.3%	66.8% / 31.6% / 1.6%
2021	2,882	48	8.3%	23.3%	$1,236	4.0%	34	1134 / 239 (17.4%)	64.7% / 26.4%	64.3% / 33.5% / 2.2%
SA1 10903118311 (SA1) (area containing the Project)										
2016	308	45	3.5%	13.3%	$1,211	2.6%	55	106 / 48 (31.2%)	60.0% / 31.3%	69.8% / 27.4% / 2.8%
2021	254	47	14.1%	22.4%	$1,412	2.0%	56	97 / 34 (25.8%)	66.0% / 14.4%	65.7% / 31.3% / 3.0%
SA1 10903117711 (SA1) (adjacent to Project Area to the North)										
2016	197	45	2.0%	12.5%	$1,437	0.0%	69	61 / 30 (33.0%)	63.5% / 28.4%	77.1% / 18.6% / 4.3%
2021	202	52	14.4%	27.4%	$1,797	3.6%	62	73 / 29 (28.2%)	52.0% / 6.8%	73.1% / 26.9% / 0.0%
Hay 115075 (UCL)										
2016	2,316	47	6.3%	24.4%	$1,013	5.5%	-	891 / 213 (19.3%)	60.9% / 32.8%	63.0% / 35.1% / 1.9%
2021	2,208	49	9.3%	26.1%	$1,116	4.9%	-	899 / 177 (16.4%)	64.1% / 31.1%	62.0% / 38.0% / 0.0%
Moulamein 122091 (UCL)										
2016	305	48	5.3%	29.8%	$778	2.6%	-	121 / 45 (27.1%)	63.9% / 28.6%	60.5% / 39.5% / 0.0%
2021	339	46	2.7%	26.1%	$1,062	3.2%	-	128 / 44 (25.9%)	64.9% / 25.0%	62.0% / 38.0 / 0.0%
Deniliquin 114010 (UCL)										
2016	6,833	45	4.7%	24.1%	$1,018	5.9%	-	2,704/ 298 (9.9%)	66.0% / 30.6%	62.0% / 35.2% / 2.8%
2021	6,431	47	5.6%	26.9%	$1,159	4.4%		2,646 / 376 (12.5%)	68.0% / 28.4%	60.7% / 36.6% / 2.7%
Swan Hill 213015 (UCL)										
2016	10,600	39	3.6%	20.6%	$1,090	5.0%	-	3,924 / 426 (9.8%)	62.1% / 33.6%	64.3% / 31.7% / 4.0%
2021	10,869	38	4.3%	26.9%	$1,380	3.1%	-	4,246 / 309 (8.8%)	64.4% / 32.2%	65.6% / 30.9% / 3.5%
NSW Code 1 (STE)										
2016	7,480,228	38	2.9%	16.2%	$1,486	6.3%	-	2,604,320 / 284,741 (10%)	64.5% / 31.8%	72.0% / 23.8% / 4.2%
2021	8,072,163	39	3.4%	17.7%	$1,829	4.9%	-	2,900,486 / 299,524 (9.4%)	64.0% / 32.6%	71.2% / 25.0% / 3.8%

Note: SEIFA is not provided for ABS UCL and STE Statistical Areas.

Table 1-4 outlines the key industries and areas of employment for SA1s and LGAs in the Project Social Locality. The most prominent occupations across the SA1s in 2021 was Managers, Labourers, and Technicians & Trades Workers. The Social Locality has a prominent amount of the workforce in the agricultural sector, with 125 people (3.3%) employed in Sheep Farming in the Edward River LGA and 96 people (7.5%) employed in specialised Sheep Farming in Hay LGA. Both LGAs display low working populations, which is typical in remote regions in NSW.

TABLE 1-4 KEY INDUSTRIES FOR SELECT ABS STATISTICAL AREAS (2021 CENSUS DATA)

Location	Workforce Population	Key Occupation and Industries
Edward River LGA LGA12730	3,918	56.2% of the LGA's residents reported being in the workforce. The top occupations reported in the LGA were Managers (19.3%), Professionals (14.7%), Community and Personal Service Workers (13.1%), Technicians and Trades Workers (12.6%), Labourers (12.0%), Clerical and Administrative Workers (11.3%), Sales Workers (7.9%), and Machinery Operators and Drivers (6.7%). Of the employed people in the LGA, the top industries of employment were Other Social Assistance Services (4.5%), Hospitals (3.7%), Grain-Sheep or Grain-Beef Cattle Farming (3.3%), Primary Education (3.2%), and Supermarkets and Grocery Stores (3.2%)
Hay LGA LGA13850	1,337	55.3% of the LGA's residents reported being in the workforce. The top occupations reported in Hay LGA were Managers (19.9%), Labourers (17.7%), Technicians and Trades Workers (14.8%), Clerical and Administrative Workers (10.4%), Professionals (10.3%), Community and Personal Service Workers (9.5%), Sales Workers (8.6%), and Machinery Operators and Drivers (7.5%). Of the employed people in Hay LGA, the top industries of employment were Sheep Farming (specialised) (7.5%), Local Government Administration (3.0%), Primary Education (3.8%), Supermarket and Grocery Stores (3.4%), and State Government Administration (3.1%).
SA1 (area containing the Project) SA1-10903118311	148	66.7% of the UCL's residents reported being in the workforce. The top occupations reported in the UCL were Managers (53.7%), Labourers (20.8%), Clerical and Administrative Workers (5.4%), Community and Personal Service Workers (4.7%), Technicians and Trades Workers (3.4%), Machinery Operators and Drivers (3.4%), professionals (2.0%), and Sales Workers (2.0%). Of the employed people in the UCL, the top industries of employment were Sheep Farming (specialised) (24.2%), Grain-Sheep or Grain-Beed Cattle Farming (13.4%), State Government Administration (8.7%), Sheep-Beef Cattle Farming (8.1%), and Beef Cattle Feedlots (specialised) (3.4%).

Location	Workforce Population	Key Occupation and Industries
SA1 (adjacent to Project Area to the North) SA1-10902117711	111	62.4% of the SA1's residents reported being in the workforce. The top occupations reported in the SA1 were Managers (48.1%), Labourers (17.6%), Clerical and Administrative Workers (11.1%), Professionals (8.3%), Machinery Operators and Drivers (7.4%), Technicians and Trades Workers (4.6%), Sales Workers (3.7%), and Community and Personal Service Workers (2.8%). Of the employed people in the SA1, the top industries of employment were Sheep Farming (specialised) (24.1%), Beef Cattle Farming (specialised) (13.0%), (10.9%), Sheep-Beef Cattle Farming (6.5%), Cotton Growing (5.6%), and Site preparation Services (5.6%).
Hay UCL115079	978	52.2% of the UCL's residents reported being in the workforce. The top occupations reported in the UCL were Labourers (18.0%), Technicians and Trades Workers (17.6%), Managers (12.8%), Professionals (11.0%), Community and Personal Service Workers (11.0%), Clerical and Administrative Workers (10.1%), Sales Workers (9.6%), and Machinery Operators and Drivers (9.0%). Of the employed people in the UCL, the top industries of employment were Supermarket and Grocery Stores (4.3%), Local Government Administration (4.1%), Accommodation (3.7%), Primary Education (3.3%), and Secondary Education (3.1%),
Moulamein UCL122091	125	46.3% of the UCL's residents reported being in the workforce. The top occupations reported in the UCL were Labourers (22.8%), Managers (17.1%), Community and Personal Service Workers (17.1%), Machinery Operators and Drivers (11.4%), Technicians and Trades Workers (9.8%), Clerical and Administrative Workers (9.8%); Sales Workers (7.3%), and Professionals (5.7%). Of the employed people in the UCL, the top industries of employment were Local Government Administration (14.6%), Aged Care Residential (12.2%), Pig Farming (8.1%), Postal Services (4.1%), and Meat Processing (3.3%).
Deniliquin UCL114008	2,840	52.6% of the UCL's residents reported being in the workforce. The top occupations reported in the UCL were Professionals (15.9%), Community and Personal Service Workers (15.2%), Technicians and Trades Workers (14.2%), Labourers (12.0%), Clerical and Administrative Workers (11.6%), Managers (11.0%), Sales Workers (9.6%), and Machinery Operators and Drivers (7.2%). Of the employed people in the UCL, the top industries of employment were Other Social Assistance Services (5.3%), Hospitals (4.1%), Supermarket and Grocery Stores (3.8%), Ages Care Residential Services (3.3%), and Primary Education (3.1%).

Location	Workforce Population	Key Occupation and Industries
Swan Hill UCL213014	5,235	59.5% of the UCL's residents reported being in the workforce. The top occupations reported in the UCL were Professionals (17.2%), Labourers (15.1%), Technicians and Trades Workers (13.5%), Managers (13.5%), Community and Personal Service Workers (12.9%), Clerical and Administrative Workers (11.2%), Sales Workers (9.7%), and Machinery Operators and Drivers (4.9%). Of the employed people in the UCL, the top industries of employment were Hospitals (7.1%), Primary Education (3.4%), Supermarket and Grocery Stores (2.6%), Secondary Education (2.5%), and Meat Processing (2.4%).
NSW Code 1 (STE)	3,874,012	58.7% of the State's residents reported being in the workforce. The top occupations reported in NSW were Professionals (25.8%), Managers (14.6%), Clerical and Administrative Workers (13.0%), Technicians and Trades Workers (11.9%), and Community and Personal Service Workers (10.6%), Labourers (8.2%), Sales Workers (8.0%), and Machinery Operators and Drivers (6.0%). Of the employed people in NSW, the top industries of employment were Hospitals (4.2%), Supermarket and Grocery Stores (2.5%), Other Social Assistance Services (2.4%), Computer System Design and Related Services (2.3%), and Aged Care Residential Services (2.2%).

1.3 SOCIAL INFRASTRUCTURE OVERVIEW

Social infrastructure comprises schools and other education institutions, medical services, emergency services, recreational facilities and community organisations. The two regional centres that are likely to provide social infrastructure for the Project are Hay and Deniliquin due to their size, proximity, and their connectivity to the Project via Cobb Highway.

Hay is located 65km by road to the North of the Project and comprises of a hospital offering primary healthcare services, a variety of emergency services, educational institutions, and a diverse range of amenities and organizations. Specifically, the hospital provides services like community nursing, early childhood nursing, mental health support, palliative care, physiotherapy, speech therapy, and nutrition guidance, in addition to a 24-hour Accident and Emergency Department. Emergency services include Fire and Rescue NSW, the Hay Police Station, and NSW Ambulance. In terms of education, Hay has one preschool, a private and three public primary schools, as well as a public high school and a TAFE institution. The town also offers a multitude of amenities such as sporting and social clubs, aged care services, social support services, religious groups, a post office, supermarkets, accommodation options, and community facilities including a public swimming pool, library, memorial hall, and an airport.

Deniliquin is located approximately 94 kilometres by road to the south of the Project Area. This town hosts a hospital with a 24-hour Accident and Emergency Department, as well as specialized services like a day surgery, maternity ward, Renal Unit, and a separate Oncology Service. Emergency services in Deniliquin include Ambulance NSW, NSW Police, NSW Fire Brigade, and the Deniliquin-Conargo State Emergency Services Unit. Deniliquin provides a diverse spiritual landscape with Catholic, Baptist, Uniting, Presbyterian, and Anglican churches, as well as a Kingdom Hall for Jehovah's Witnesses. The town's educational infrastructure includes four primary schools (including one private institution), one public high school, a private school for kindergarten to year 10, and a TAFE institution. Social amenities in Deniliquin include sporting facilities and clubs, a swim centre, aged care services, service stations, supermarkets, a post office, a library, news agencies, banks, and an airport.

1.4 POTENTIAL SOCIAL IMPACTS

The first phase SIA provides a preliminary desktop assessment of the potential impacts while the second phase SIA, that will be incorporated into the EIS, develops this preliminary assessment into a full assessment report. The full assessment report provides a detailed analysis of the potential impacts and incorporates key stakeholder feedback.

The identified potential impacts listed **Table 1-5** will be ground-truthed, supplemented by stakeholder feedback, and reviewed against any changes associated with further design development subsequent to issuing the SEARs.

Generally, SA1s are more likely to experience direct impacts, UCLs and LGAs will experience indirect impacts.

TABLE 1-5 PRELIMINARY SOCIAL IMPACT ASSESSMENT

Description of Impact	Impact Categories	Impact Influence	Project Phase	Level of Assessment
Employment and Procurement				
Increased demand for labour in the Social Locality (generates direct and indirect employment opportunities)	Livelihoods	Positive	Construction	Detailed Assessment
Increased demand for labour in the Social Locality leading to a skill shortages/ reduced labour availability for local services and/or businesses	Livelihoods	Negative	Construction	Detailed Assessment
Increased demand for goods and services in the Social Locality (stimulates local economies)	Livelihoods	Positive	Construction	Detailed Assessment
Increased demand for goods and services in the Social Locality (creates shortages)	Livelihoods	Negative	Construction	Detailed Assessment

Description of Impact	Impact Categories	Impact Influence	Project Phase	Level of Assessment
Diversification of income streams for host landowners	Livelihoods	Positive	Life of the Project	Detailed Assessment
Local Disruptions				
Disruptions to agricultural activities / farming practices (e.g. activities may limit access and cause temporary inconveniences for the operation of rural properties, such as stock movements, paddock access, etc.)	Livelihoods	Negative	Life of the Project	Detailed Assessment
Increased vehicular movement from workers employed by the Project, and the transportation of materials and equipment to site, increasing the potential for accidents and wear and tear on road infrastructure	Health and Wellbeing	Negative	Construction	Detailed Assessment
Interruptions to daily life, such as changes in traffic conditions (e.g. diversions for school buses, road closures, changes to public vehicular access), utility disruptions, etc.	Way of Life Access	Negative	Construction	Detailed Assessment
Impacts associated with noise, vibration, and dust, which may cause impacts or disruptions to community health.	Health and Wellbeing Surroundings	Negative	Construction	Detailed Assessment
Changes to public vehicular access in the vicinity of the Project Area has the potential to impact community access	Access	Negative	Life of the Project	Detailed Assessment
Land Use and Landscape				
Perceived impacts on land and/or property values (i.e. a decrease in land values)	Livelihoods	Negative	Operation	Detailed Assessment
Visual impact through altered rural character/changes to rural amenity (i.e. loss of scenic views and negative changes to visual amenity, glare from solar panels)	Way of Life Surroundings	Negative	Life of the Project	Detailed assessment
Altered landscape has the potential to impact tangible and intangible Aboriginal heritage	Culture	Negative	Life of the Project	Detailed Assessment
Accommodation and Worker Influx				
Increased demand / pressures on housing and accommodation potentially resulting in a	Way of life	Negative	Construction	Detailed Assessment

Description of Impact	Impact Categories	Impact Influence	Project Phase	Level of Assessment
shortage and/or increased cost of living				
Increased demand and pressure on social, emergency, community, and recreational services and/or facilities including health care	Access Way of Life	Negative	Construction	Detailed Assessment
Stakeholder and Community				
Development of a Community Benefit Fund (or similar Project-specific community benefit sharing scheme), which may generate positive outcomes for the local community (e.g. support of local community groups, scholarships, etc.)	Livelihoods Culture	Positive	Life of the Project	Detailed Assessment

1.5 ASSESSMENT APPROACH

This section outlines the plan for developing the second phase SIA, in accordance with the requirements of the Social Impact Assessment Guideline (DPE, 2023b) and Technical Supplement (DPE, 2021d).

The impact assessment methodology to be applied to the second phase SIA follows DPE's Social Impact Significance matrix as depicted in **Table 1-6**. In this matrix, the likelihood level refers to the probability of a social impact's occurrence as a result of the Project while the magnitude is considered in terms of the following elements:

- **Extent:** Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any potential vulnerable people? Which location(s) and people are affected? (e.g. near neighbours, local, regional);
- **Duration:** When is the social impact expected to occur? Will it be time-limited (e.g. over particular Project phases) or permanent?
- **Severity:** What is the likely scale or degree of change? (e.g. mild, moderate, severe);
- **Intensity:** How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change; and
- **Level of Concern/Interest:** How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or severity. Concern itself can lead to negative impacts, while interest can lead to expectations of positive impacts.

The characteristics of the magnitude of impact combine with their likelihood of occurrence to yield a rating of social impact significance, as indicated in **Figure 1-1**. The social impact significance matrix depicted in **Table 1-6** will be applied to yield the initial evaluation of social impacts that are likely to be experienced by different groups within the Project Social Locality. The SIA will recommend mitigations, monitoring and social impact management measures.

TABLE 1-6 ADAPTED SOCIAL IMPACT SIGNIFICANCE MATRIX

		Magnitude Level				
		1 Minimal	**2 Minor**	**3 Moderate**	**4 Major**	**5 Transformational**
Likelihood Level	**A** Almost Certain	Medium	Medium	High	Very High	Very High
	B Likely	Low	Medium	High	High	Very High
	C Possible	Low	Medium	Medium	High	High
	D Unlikely	Low	Low	Medium	Medium	High
	E Very Unlikely	Low	Low	Low	Medium	Medium
*Where impacts are positive the following colour scale is used:						
	Positive		Low	Medium	High	Very High

APPENDIX G CUMULATIVE IMPACT ASSESSMENT SCOPING SUMMARY

CUMULATIVE IMPACT ASSESSMENT SCOPING SUMMARY

KEY

Level of Assessment	Description
Detailed Assessment	The Project may result in significant impacts on the matter, including cumulative impacts. Detailed assessment is characterised by: Potential overlap in impacts between a future project (e.g. Project A) and the proposed project Potential for significant cumulative impacts as a result of the overlap, requiring detailed technical studies to assess the impacts Sufficient data is available on the future project to allow a detailed assessment of cumulative impacts with the proposed project for the relevant matter Uncertainties exist with respect to data, mitigation, assessment methods and criteria
Standard Assessment	The Project is unlikely to result in significant impacts on the matter, including cumulative impacts. Standard assessments are characterised by: Impacts are well understood Impacts are relatively easy to predict using standard methods Impacts are capable of being mitigated to comply with relevant standards or performance measures the assessment is unlikely to involve any significant uncertainties or require any detailed cumulative impact assessment.
N/A	No potential overlap in impacts between a future project and the proposed project that would warrant any consideration in the cumulative impact assessment.

CUMULATIVE IMPACT ASSESSMENT SCOPING SUMMARY TABLE

Project	Distance to Project (Approx)	Project Status/ Indicative timing/ Overlap	Potential overlap between impacts of Project and impact of other projects			
			Access (Traffic)	**Amenity – Noise**	**Amenity – Visual**	**Social (workforce, workers accommodation, health and wellbeing, goods and services)**
The Plains Solar Farm (Proposed, SEARS Issued)	4 km	Project proposed, SEARS issued December 2022 Construction commencement planned for 2026 Proposed operational life of 30 years Potential construction overlap Operations overlap				
	Key Features 400 MW capacity solar farm 900,900 solar modules Area across 2,156 hectares		Potential overlap in access, traffic and transport impacts between this project and the proposed Project.	Potential overlap in noise impacts between this project and the proposed Project.	Potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required.
Limondale Solar Farm (Operational)	95 km	Project completed; no construction overlap Operational since late 2021 Proposed operational life of 30 years Operations overlap				
	Key Features 349 MW capacity solar farm Approx. 872,000 panels Area across 900 hectares		No potential overlap in access, traffic and transport impacts between this project and the proposed Project.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required.
Sunraysia Solar Farm (Operational)	96 km	Project completed; no construction overlap Operational since 2020 Proposed operational life of 30 years Operations overlap				
	Key Features 255 MW capacity solar farm 750,000 solar modules Area across 1,000 hectares		No potential overlap in access, traffic and transport impacts between this project and the proposed Project.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required.
Lang's Crossing Solar Farm (Approved)	45 km	Currently in its early planning phase Construction and operations timeframes unknown				
	Key Features 5MW solar farm Not a designated development or State significant project. In accordance with Table 2.1 of the Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE, 2021c) this project may be excluded from the cumulative impact assessment within the EIS.		Low risk of cumulative impacts relating to access, traffic and transport, subject to the transport route.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap between this project and the proposed Project.	Low risk of cumulative social impacts subject to the proposed timing of the construction of. Lang's Crossing Solar Farm.
Hay Solar Farm (Approved)	50 km	Project approved in 2017 Proposed 12-month construction period (construction timeline unknown) Proposed operational life of 30 years				
	Key Features 110 MW solar farm 300,000 panels Area across 660 hectares		Low risk of cumulative impacts relating to access, traffic and transport, subject to the transport route.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts subject to the proposed timing of the construction of. Lang's Crossing Solar Farm.

Project	**Distance to Project (Approx)**	**Project Status/ Indicative timing/ Overlap**	**Potential overlap between impacts of Project and impact of other projects**			
			Access (Traffic)	**Amenity – Noise**	**Amenity – Visual**	**Social (workforce, workers accommodation, health and wellbeing, goods and services)**
Junction Rivers Wind Farm (formerly Burrawong Wind Farm) (Proposed)	82 km	SEARs issued; EIS submission expected in late 2022 Construction to begin in 2023 across a 2-3 year period Proposed operational life of 30-35 years Construction and operations overlap				
	Key Features 750 MW wind farm 107 WTGs Area across approx. 2660 ha		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route. Low risk given the distance of this project from the proposed Project. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.
Baldon Wind Farm (Proposed)	39 km	SEARs issued July 2022 Construction to begin in late 2024 Proposed operational life of 30 years				
	Key Features 800 – 900 MW wind farm 140 – 170 WTGs		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.
Keri Keri Solar Farm (Proposed)	47 km	SEAR issued April 2022 Construction expected to begin in 2024 for a 18-24 month period Operational phase begins in 2026 for a 30-year period Construction and Operations overlap				
	Key Features 400 MW solar farm Area across approx. 1,322 ha		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.
Keri Keri Wind Farm (Proposed)	47 km	SEARs issued April 2022 Construction expected to begin in 2024 for a 24 month period Operational phase begins in 2026 for a 30-year period Construction and Operations overlap				
	Key Features 1003 MW wind farm 176 Wind Turbine Generators (WTGs) Area across 18,081 hectares		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.

Project	**Distance to Project (Approx)**	**Project Status/ Indicative timing/ Overlap**	**Potential overlap between impacts of Project and impact of other projects**			
			Access (Traffic)	**Amenity – Noise**	**Amenity – Visual**	**Social (workforce, workers accommodation, health and wellbeing, goods and services)**
Dinawan Energy Hub (Proposed)	73 km	SEARs issued December 2022, EIS on exhibition November 2023 Construction expected to begin in 2024				
	Key Features Solar Farm Wind Farm BESS		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.
Bullawah Wind Farm (Proposed)	49 km	SEARs issued December 2022				
	1000 MW wind farm 170 Wind Turbine Generators (WTGs) Maximum blade tip height 300m		No potential overlap in access, traffic and transport impacts between this project and the proposed Project.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts subject to the timing of the construction of the Bullawah Wind Farm. Further assessment required.
Yanco Delta Wind Farm (Proposed)	78 km	SEARs issued; EIS prepared, more information required Potential construction and operations overlap				
	Key Features 1500 MW wind farm and BESS 208 Wind Turbine Generators (WTGs) Area across approx. 24,000 ha		Low risk of cumulative impacts relating to traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts. Further assessment required.
The Plains Wind Farm (Proposed)	4 km	SEARs issued December 2022. EIS submission expected late 2023 Construction and Operations overlap				
	Key Features 1,800 MW 226 Wind Turbine Generators (WTGs)		Potential overlap in access, traffic and transport impacts between this project and the proposed Project.	Potential overlap in noise impacts between this project and the proposed Project.	Potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required.
Project EnergyConnect (NSW – Eastern Section) (Approved)	1 km	EIS approved Construction between July 2023 and October 2024				
	Key Features 330kV transmission line Includes 375 km of new transmission lines and associated infrastructure		No potential overlap in access, traffic and transport impacts between this project and the proposed Project.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	No potential overlapof social impacts
Currawarra Solar Farm (Approved)	83 km	Project approved in 2018 Proposed 18-month construction period				
	Key Features 195 MW solar farm 670,000 panels		Low risk of cumulative impacts relating to access, traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required

Project	**Distance to Project (Approx)**	**Project Status/ Indicative timing/ Overlap**	**Potential overlap between impacts of Project and impact of other projects**			
			Access (Traffic)	**Amenity – Noise**	**Amenity – Visual**	**Social (workforce, workers accommodation, health and wellbeing, goods and services)**
Tarleigh Park Solar Farm (Approved)	95 km	Project approved in 2018 Proposed 12-month construction period				
	Key Features 90 MW solar farm 290,000 panels		Low risk of cumulative impacts relating to access, traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required
Southdown Solar Farm (Proposed)	86 km	SEARs issued June 2020 Construction of the Project is expected to take approximately 15 months and is anticipated to begin in 2022.				
	Key Features 130 MW capacity solar farm Approx. 335,000 panels Area across 390 hectares		Low risk of cumulative impacts relating to access, traffic and transport, subject to the transport route. Further assessment required.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required
Finley Solar Farm (Operational)	110 km	Project completed; no construction overlap Operational since 2019 Proposed operational life of 30 years Operations overlap				
	Key Features 175 MW capacity solar farm Area across 350 hectares		No potential overlap in access, traffic and transport impacts between this project and the proposed Project.	No potential overlap in noise impacts between this project and the proposed Project.	No potential overlap in visual impacts between this project and the proposed Project.	Low risk of cumulative social impacts, given the distance of this project from the proposed Project. Further assessment required

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