Puggoon Solar Farm and Battery Energy Storage System

Scoping Report

PREPARED FOR

X-Elio Aus2 Pty Ltd

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SIGNATURE PAGE

Puggoon Solar Farm and Battery Energy Storage System

Scoping Report

0717476

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AECG	Aboriginal Education Consultive Group
AEMO	Australian Energy Market Operator
AES	Aboriginal Employment Strategy
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ALS	Aboriginal Legal Service
AMS	Aboriginal Medical Service
ASC	Australian Soil Classification
BAM	Biodiversity Assessment Method 2020
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BOS	Biodiversity Offsets Scheme
BSAL	Biophysical Strategic Agricultural Land
CASA	Civil Aviation Safety Authority
CE	Critically Endangered
CHMP	Cultural Heritage Management Plan
CWORP	Central West and Orana Regional Plan
CWORP	Central West and Orana Regional Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPE	Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure, previously known as Department of Planning and Environment.
E	Endangered
EDC	Estimated Development Cost
EDM	Electronic Direct Mail
EII Act	*Electricity Infrastructure Investment Act 2020*
EIS	Environmental Impact Statement
EMF	Electromagnetic Fields
EnergyCo	NSW Energy Corporation
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority

Acronyms	Description
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Australia Pty Ltd
ESOO	Electricity Statement of Opportunities
FTE	Full Time Equivalent
GDE	Groundwater Dependent Ecosystem
GHG	Greenhouse Gas
ha	hectare
IAPP	Industry and Aboriginal Participation Plan
IBRA	Interim Biogeographic Regionalisation for Australia
ISP	Integrated System Plan 2022
km	kilometres
km^2	square kilometres
kV	kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LLS Act	NSW Local Land Services Act 2013
LSC	Land and Soil Capability
LSPS	Mid-Western Regional Council Local Strategic Planning Statement
LSS	Large Scale Solar
LVIA	Landscape and Visual Impact Assessment
m AHD	metres Australian Height Datum
Mid-Western Regional LEP	Mid-Western Regional Local Environmental Plan 2012
mm	millimetres
MNES	Matters of National Environmental Significance
MW	megawatt
NEM	National Electricity Market
NIS	Network Infrastructure Strategy for NSW
NSW	New South Wales
NSW ICC	NSW Indigenous Chamber of Commerce
NT Act	*Native Title Act 1993*
OSOM	Oversize Overmass
PBR	Preliminary Biodiversity Report
PCS	Power Conversion System

Acronyms	Description
PCS	Power Conversion System
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
PHA	Preliminary Hazard Assessment
PMST	Protected Matter Search Tool
PTA	Preliminary Transport Assessment
PV	Photovoltaic
PVIA	Preliminary Visual Impact Assessment
RDA	Regional Development Australia
REAP	Registered Environmental Assessment Practitioner
Resilience and Hazards SEPP	*State Environmental Planning Policy (Resilience and Hazards) 2021*
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Service
RNE	Register of the National Estate
SAL	Suburbs and Localities
SAL	Suburbs and Localities
SEARs	Secretary's Environmental Assessment Requirements
SEED	Sharing Enabled Environmental Data
SEIFA	ABS Socio-Economic Indexes for Areas
SEIFA	Socio-Economic Indexes for Areas
SEPP	State Environmental Planning Policy
SES	State Emergency Service
SES	State Emergency Service
SHR	NSW State Heritage Register
SIA	Social Impact Assessment
SIA Technical Supplement	DPE's Technical Supplement: Social Impact Assessment Guideline for State Significant Projects
SISD	Safe Intersection Sight Distance
SSD	State Significant Development
SVTM	State Vegetation Type Map
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community
TfNSW	Transport for New South Wales
the Plan	Community and Stakeholder Engagement Plan

Acronyms	Description
TO	Traditional Owner
Transport and Infrastructure SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
TRRA	Three Rivers Regional Assembly
TTIA	Traffic and Transport Impact Assessment
V	Vulnerable
ZVI	Zone of visual influence

GLOSSARY

Term	Description
Project Area	The term Project Area (or Site Boundary) refer to all affected lots where the Project may be located
Study Area	The Study Area refers to a specific 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 (X-Elio Australia Pty Ltd) to construct and operate the Puggoon Solar Farm & BESS as described in this Scoping Report
The Proponent	X-Elio Aus2 Pty Ltd

1. INTRODUCTION

X-Elio Aus2 Pty Ltd (X-Elio) (The Proponent) proposes to construct and operate the Puggoon Solar Farm and Battery Energy Storage System (BESS) (the Project), a renewable energy development located in Beryl, New South Wales (NSW), in the Mid-Western Regional Local Government Area (LGA) (**Figure 1-1**). The Project is a proposed solar farm comprised of several allotments located on the eastern side of Puggoon Road, approximately 302 kilometres (km) (by road) northwest from Sydney, NSW, and approximately 10 km northwest of Gulgong, NSW. The Project has an area of approximately 553 hectares (ha), and a disturbance area of 505 ha. An existing 330 kilovolt (kV) overhead transmission line traverses the Project Area in a general northeast- southwest alignment and an existing active trainline running in a north-south alignment also traverses the Project Area (**Figure 1-1**).

The proposed solar farm is anticipated to have an installed capacity of up to 264 MWp, and a Battery Energy Storage System (BESS) facility with 110 MW / 440 MWh storage capacity, located at 340 Jacksons Lane, Beryl, NSW 2852. 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, Housing and Infrastructure (DPHI) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will guide the preparation of an Environmental Impact Statement (EIS) for the Project.

It is noted that the Project was initially named Rollsville Solar Farm and BESS and was subsequently renamed for geographic relevance to Puggoon Solar Farm and BESS. Some sections in this scoping report still refer to Rollsville Solar farm and BESS, as initial desktop searches were undertaken under the original name.

1.1 PROPONENT

X-Elio is a global leader in renewable and sustainable energy development. X-Elio has successfully delivered similar renewable energy projects in more than ten countries across Europe, Asia, North America, South America, and Oceania. X-Elio has recently entered the Australian renewable energy market and have been developing solar farm, BESS and other projects as a developer.

X-Elio is committed to best practice community and stakeholder engagement through actions that cover education development at all levels and focus on the preservation and improvement of the ecosystem to achieve an eco-friendly life in the community. The group has a strong commitment to greenhouse gas reduction and the fight against climate change.

X-Elio Aus2 Pty Ltd is a wholly owned company of X-Elio and is the Proponent for the Project. The relevant contact details are:

- X-Elio Aus2 Pty Ltd ACN: 678 801 315; and
- **Address**: Level 4, 80 Market Street, South Melbourne, VIC 3205.

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 453 ha.
Electrical Reticulation Network	On-site substation	New high voltage substation proposed near the intersection of the existing 330 kV transmission line with the existing train line.
	Internal electrical reticulation network (Medium Voltage)	• Electrical reticulation will generally follow rows of panels and internal access routes to reach the step-up substation (33 / 330 kV) for the Project. • The Project will connect into the substation (33 / 330 kV) on-site directly via underground MV cables (33 kV, internal reticulation voltage). • The Project will be connected to the Grid by Switching Station (330 kV) located on-site boundary.
	Switchyard / BESS	BESS with a capacity of 110 MW / 440 MWh. Switch and other electrical equipment providing connection to the existing 330 kV transmission network.
Access Roads	Access to site	Access to the Project Area will be from Castlereagh Highway and Puggoon Road and/or via Barneys Reef Road and Jacksons Lane. This will be subject to assessment in the EIS phase.

The indicative Project Area is displayed in **Figure 3-3**, which shows the proposed Disturbance Area for the solar farm, including solar panels, BESS, substation 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;

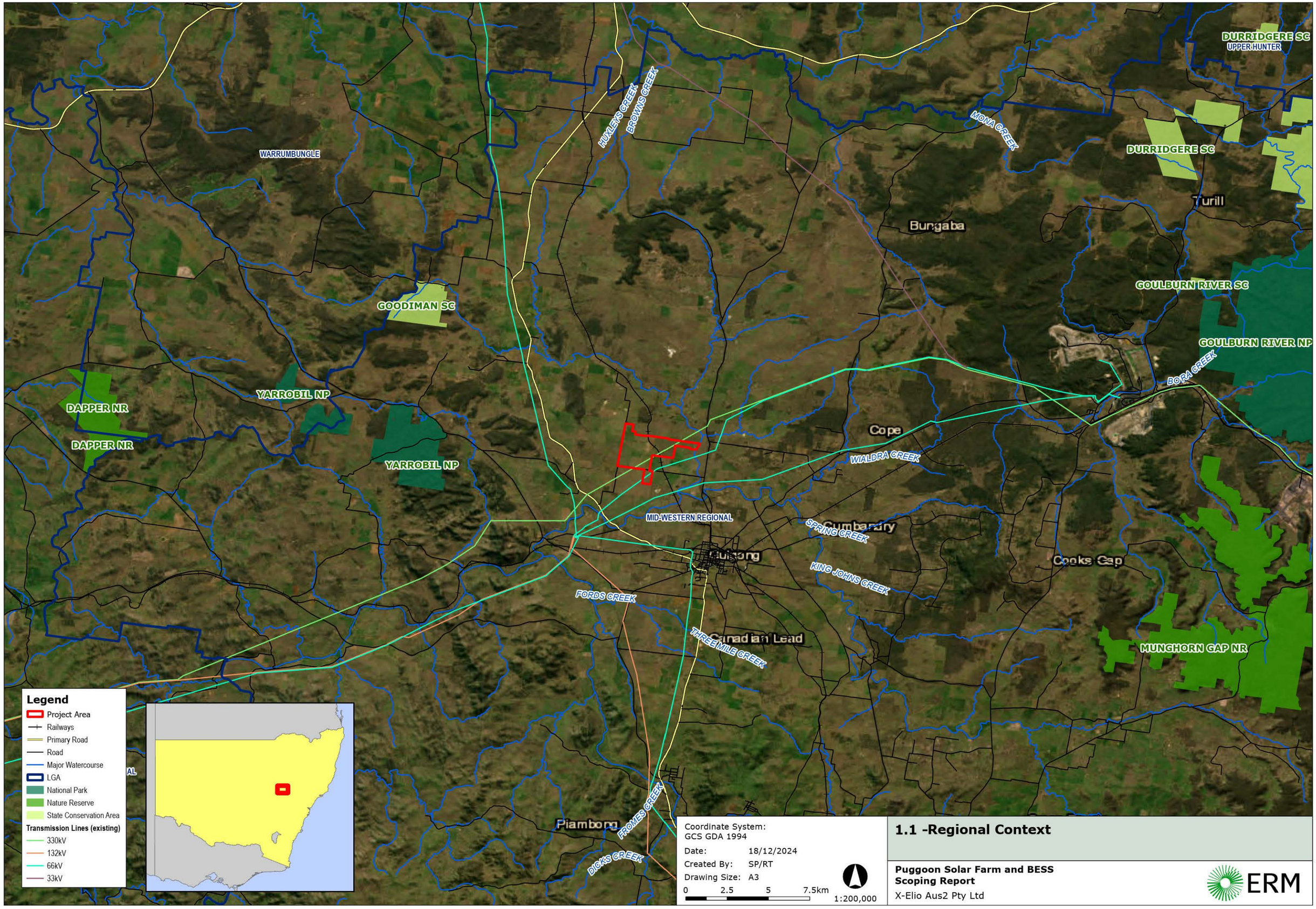
- Contribute to the additional generating capacity required to meet the growing energy demand in NSW and the generation shortfalls predicted as coal fired power stations reach the end of their operational lives;
- Assist in providing network stability and reliability through battery storage;
- Contribute to NSW and Commonwealth targets for renewable energy;
- Provide both direct and indirect employment opportunities during construction and operation;
- Provide additional income streams for associated landholders;
- Provide broader financial benefits to the community through the community enhancement fund and neighbour benefits;
- 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* (DPHI, 2024a);
- State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines (DPE, 2022b) (Scoping Report Guidelines);
- Social Impact Assessment Guideline (DPE, 2023a);
- *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects* (DPE, Technical Supplement: Social Impact Assessment Guideline for State Significant Projects, 2023c);
- Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2022c); and
- Undertaking Engagement Guidelines for State Significant Projects (DPHI, 2024b).



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Date: 18/12/2024

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1.1 -Regional Context

Puggoon Solar Farm and BESS
Scoping Report
X-Elio Aus2 Pty Ltd

ERM

Xelio_Rollsville_R1.mxd

2. STRATEGIC CONTEXT

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 November 2020, the NSW Government released NSW Electricity Infrastructure Roadmap with the aim of facilitating reliable and affordable energy. This roadmap is facilitated by the *Electricity Infrastructure Investment Act 2020* (EII Act). Part of this includes the appointment of the NSW Energy Corporation (EnergyCo) as the Infrastructure Planner under Section 63 of the EII Act for five Renewable Energy Zones (REZs).

In May 2023 EnergyCo released the Network Infrastructure Strategy for NSW (NIS) which outlines a 20-year plan for the state's electricity network and the target to deliver a total capacity of 12 gigawatts of renewable electricity generation and 2 gigawatts of long-duration storage within the REZs by 2030. The Strategy also includes a "Secure Now" and "Plan for the Future" which seek to identify options for increases in network capacity and resilience into and beyond 2030. The Project is located within the Central-West Orana REZ identified by the NIS, which is incorporates Hay NSW and surrounds.

Additionally, these are supported by the newly implemented *Climate Change (Net Zero Future) Act 2023*. This Act legislates net zero greenhouse gas emissions in NSW by 30 June 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 REGIONAL AND LOCAL PLANNING CONTEXT

The development of renewable energy is supported by relevant regional and local plans and strategies which have been outlined in **Table 2-1** below, and include:

- Central West and Orana Regional Plan 2041 (DPE, 2022d);
- Mid-Western Regional Local Strategic Planning Statement - Our Place 2040 (Mid-Western Regional Council, 2020a); and
- Mid-Western Region Community Plan - Towards 2040 (Mid-Western Regional Council, 2022b).

2.1.4 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 and sparsely populated locality, 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.

2.1.5 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) 2023 Electricity Statement of Opportunities (ESOO) provides updated forecasts for demand and supply of electricity, focusing commentary on the next 10 years, and includes forecasts over the next 30 years (AEMO, 2023). The 2023 report noted:

- Electricity consumption is forecast to grow faster than forecast in the 2022 ESOO;
- Growth in electricity demand is driven primarily by economic activity, population growth, an acceleration in the rate of electrification of all sectors of the economy, and the emergence of a domestic hydrogen industry, supported by jurisdictional policy;
- Maximum electricity demand is forecast to grow over the forecast horizon, broadly in tune with drivers affecting energy consumption growth. The distributed photovoltaic (PV) has less offset impact, as operational maximum demand is typically in the early evening, with little or no contribution from PV systems;
- With the sustained uptake of distributed PV, minimum demand forecasts continue to show a rapid decline; and

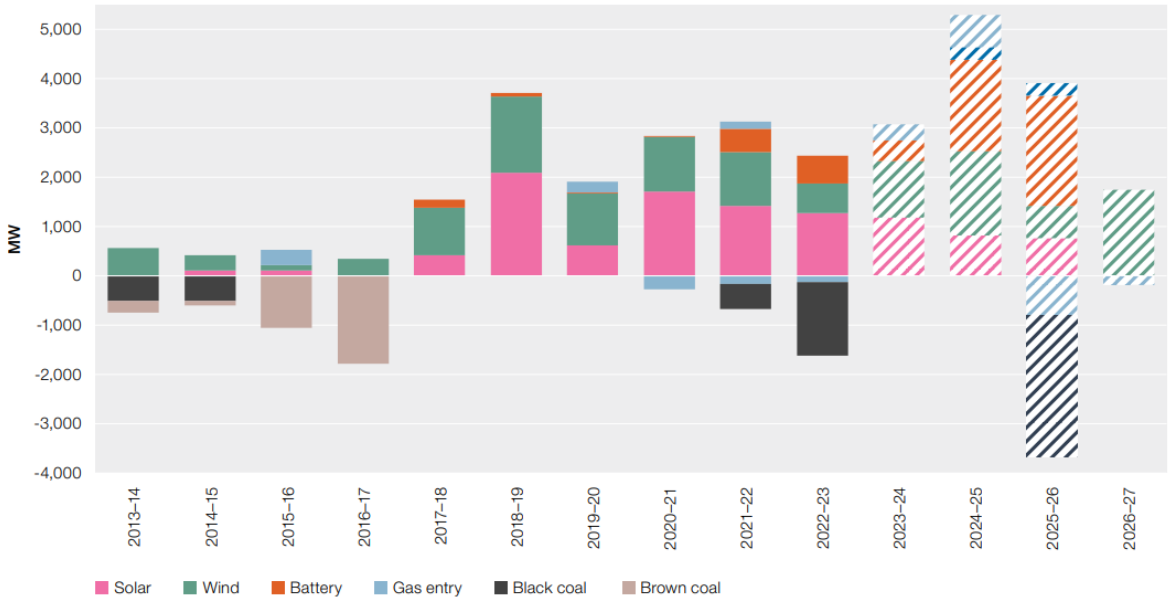
- A significant component that drives electricity consumption is business electrification and electrical vehicle uptake in the residential and business sectors, which combined are responsible for more than three quarters of forecast consumption growth over the next 10 years.

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 **Figure 2-1**;
- 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 73% in 2030 and can reach up to 82% in the 'with additional measures' scenario, that includes higher generation from large-scale renewables projects such as solar and wind for on grid electricity and lower fossil fuel generation when compared with the baseline scenario (DCCEEW, 2022).

The Project represents an investment in a new large scale renewable energy, providing up to 264 MW of solar electricity generating capacity. 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. Additionally, the proposed BESS would provide approximately 110 MW / 440 MWh of storage to regulate the supply of energy to the grid and increase the reliability of the NEM.

2.1.6 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 (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.

2.1.7 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.

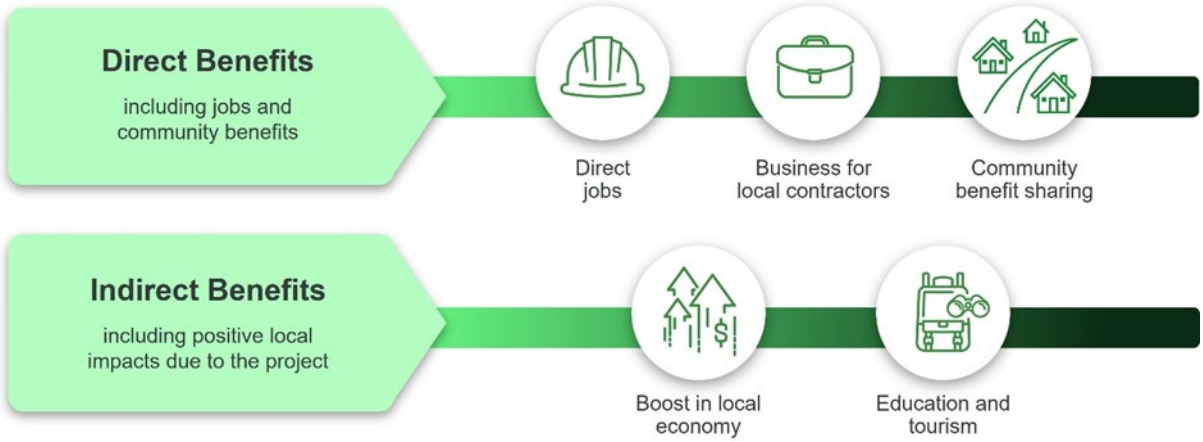
In addition, the Project will deliver significant benefits to the Mid-Western Region and local communities, including:

- Direct investment in the region;
- Opportunities for local contractors and businesses, through creation of construction jobs and operational activities;
- Diversified income stream for rural landholders;
- Renewable low-cost energy to the national grid; and
- Development of new skilled labour in the region within the growing renewable energy industry.

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 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 (COP28) – United Arab Emirates 2023	COP28 was the 28th climate change conference held in Dubai, UAE in 2023. One of the key outcomes of COP28 was an agreement to "triple the world's renewable energy capacity and double its energy efficiency by 2030" (WRI, 2023). This pledge was made by 130 countries, including Australia.	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. It should be noted that NSW targets are to achieve net-zero emissions by 2050, and is listed in Part 2 section 9(1)(c) of the *Climate Change (Net Zero Future) Act 2023.*
Integrated System Plan 2022	The Integrated System Plan 2022 (ISP) provides an integrated roadmap for the development of the National Electricity Market (NEM) over the next 20 years, and the most recent ISP 2022. In December 2023 the AEMO published an update to the ISP along with a draft version of the 2024 ISP (AEMO, 2020). Submissions on the draft closed 16 February 2024. The final report is scheduled to be released 28 June 2024.	The Project is located within the Central-West Orana REZ, which is anticipated to receive the Central West Orana REZ Transmission Link in the ISP 2022. The Project will respond to Phase 1 of the ISP: "*Development to help meet regional renewable energy targets and other policies, and/or where there is good access to existing network capacity with good system strength, including:* *- New South Wales: VRE development in Central-West Orana REZ, forming part of the New South Wales Electricity Strategy".*

Strategy, Policy or Plan	Description	Project Alignment
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 Australia's first coordinated Renewable Energy Zone in the Central-West Orana 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 Mid-Western 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 Central-West Orana 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 REZs, which will expand transmission and generation capabilities in strategic areas across NSW, including the Central-West region of 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 Central-West Orana REZ, which will add to the regional growth and investment in regional NSW.

Strategy, Policy or Plan	Description	Project Alignment
	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.	
Regional Context		
Central West and Orana Regional Plan 2041	Central West and Orana Regional Plan (CWORP) 2041 was published in 2022, and considers a 20-year timeframe with a focus on the next 5 years. It is a land-use plan that set out the strategic vision for the region's ongoing prosperity (DPE, 2022d). It was developed by DPE in 2022 following consultation with local councils, key stakeholders, and local communities. The CWORP provides a framework for guiding land use plans, addressing housing demands, jobs, infrastructure, a healthy environment, access to green spaces and connected communities (DPE, 2022d).	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 and actions of the CWORP listed under *Objective 2: Support the State's transition to Net Zero by 2050 and deliver the Central-West Orana Renewable Energy Zone;* and *Objective 22: Support a diverse visitor economy.*
Local Context		
Our Place 2040 - Mid-Western Regional Local Strategic Planning Statement	The Mid-Western Regional Council Local Strategic Planning Statement (LSPS) provides a framework for the social, economic, and environmental land use needs throughout the Mid-Western Regional LGA over the next 20 years (Mid-Western Regional Council, 2020a).	The Project will provide jobs and investment within the Mid-Western Regional Council LGA which contributes to the objectives of *Theme 3: Building a Strong Local Economy* of the LSPS.
Towards 2040 - Mid-Western Region Community Plan	The Mid-Western Region Towards 2040 Community Plan outlines the community's future vision and strategic directions for the Mid-Western Region community to achieve its aspirations. The Community Plan is executed under five key themes encompassing an economic, social or business benefit to the local community (Mid-Western Regional Council, 2022b).	The Project will directly respond to *Theme 2 – Protecting our Natural Environment* by considering the provision of alternative green energy sources. The Project also meets the goals of *Theme 3 – Building a Strong Local Economy* of the Community Plan. It creates new jobs in the region and help built a diverse and multi-skilled workforce. The Project drives investment and economic growth in the region.

2.3 SITE AND SURROUNDING DEVELOPMENT

2.3.1 LOCAL AND REGIONAL COMMUNITIES

2.3.1.1 CENTRAL-WEST ORANA RENEWABLE ENERGY ZONE

The Project Area is located within the boundaries of the proposed Central-West Orana REZ as shown in **Figure 1-1** which is approximately 20,000 km^2 centred by Dubbo and Dunedoo.

The Central-West Orana region benefits from lower transmission build costs due to its proximity to the existing high voltage network. The Central-West Orana REZ will deliver over $5 billion of new investment in the region and over 3,900 jobs during construction (Energy Corporation of NSW, 2022). The Central-West Orana REZ was formally declared in November 2021.

2.3.1.2 REGIONAL CONTEXT

The Project Area is located in Beryl NSW 2852, in the Mid-Western Regional LGA. The Project is approximately 302 km (by road) northwest from Sydney NSW 2000 and approximately 10 km northwest of Gulgong NSW 2852, the closest community to the Project Area with a population of approximately 2,057 (ABS, 2021).

Mid-Western Regional LGA is located in the Central West and Orana region of NSW and includes the town of Mudgee, Gulgong, Rylstone, Kandos and the rural villages of Bylong and Ilford, and the locality of Bombira, approximately 3 km from the largest town, Mudgee.

Mid-Western Regional LGA covers a total area of 8,752.30 km^2 (NSW Government, 2021) and has a population of 25,713 (ABS, 2021). The LGA is crossed by the Castlereagh Highway, that runs through the middle of the area in a general north-south alignment connecting the main towns.

The key land uses within the region are centred around agriculture and mining, and its economy is also reliant on tourism and viticulture. Coal mining is the largest industry employer in the region followed by primary education, food retail, aged care services and social assistance sector (NSW Government, 2021). The Project Area sits in the Mudgee Local Aboriginal Land Council (LALC), and the traditional owners of the land are the Wiradjuri people.

Nearby Towns and Population Centres

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

- Gulgong – 4.5 km southeast (population 2,680);
- Mudgee – 30 km southeast (population 12,563);
- Rylstone – 68 km southeast (population 624);
- Kandos – 73 km southeast (population 1,208);
- Bylong – 58 km east (population 19); and
- Ilford – 78 km southeast (population 165).

Nearby Renewable Energy and Related Projects

There are several existing or proposed renewable energy projects located in close proximity to the Project Area, which are listed in **Table 2-2** below. There is a high concentration of renewable energy projects within the region due to its location within the proposed Central-West Orana REZ and the future Central-West Orana REZ Transmission Project. The locations of the Central-West Orana REZ and nearby renewable energy projects are displayed in **Table 2-2** and **Figure 2-3**.

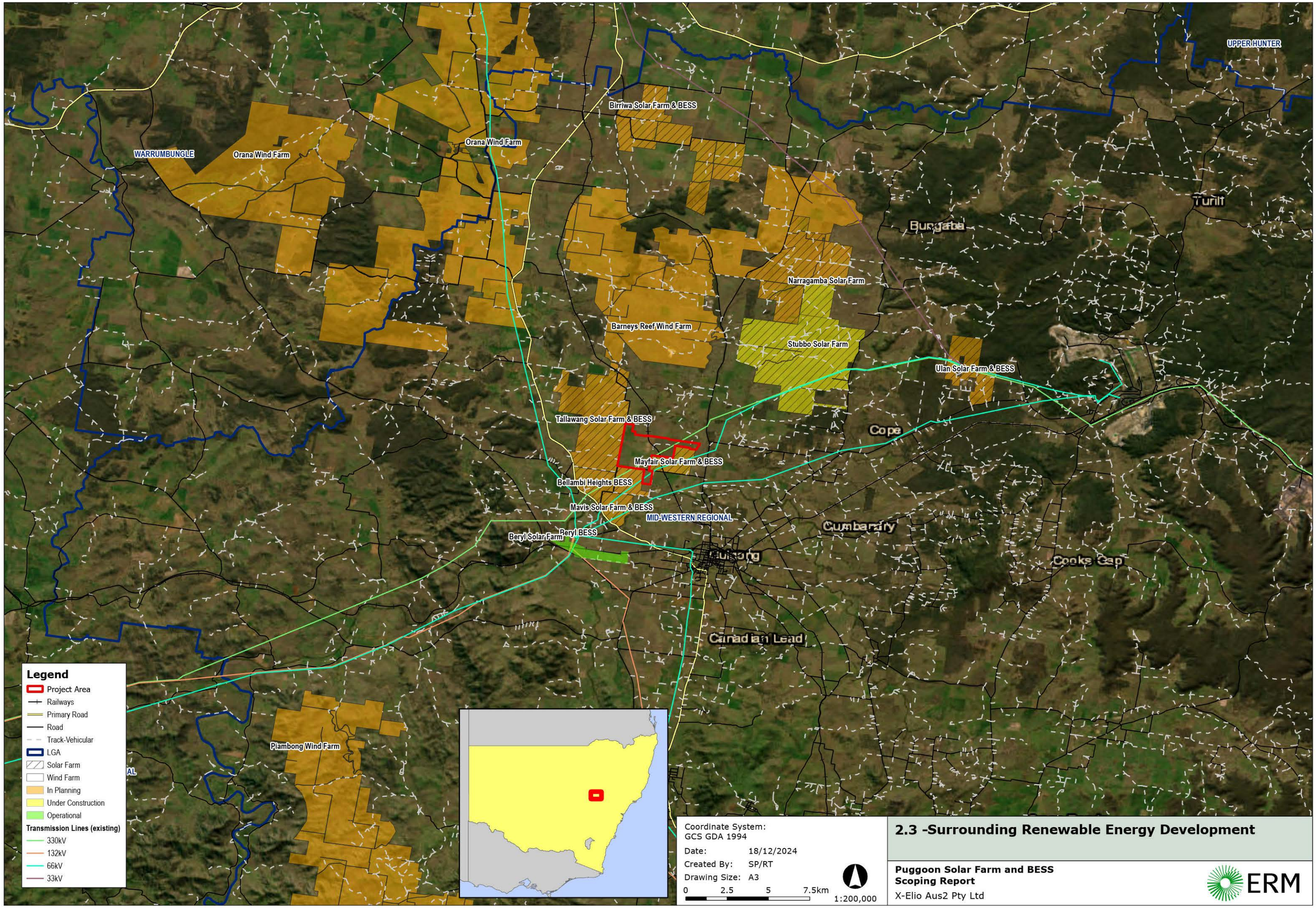
TABLE 2-2 NEARBY RENEWABLE ENERGY AND RELATED PROJECTS

Project	Developer/ Operator	Energy	Indicative Scale	Proximity to Project*	Status
Solar Energy Developments					
Tallawang Solar Farm	RES	Solar	500 MW of solar farm capacity	Adjacent to the Project	Under Assessment
Mayfair Solar Farm & BESS	Elgin Energy	Solar	60 MW of solar capacity with a 60 MWh BESS	Adjacent to the Project	Prepare EIS
Mavis Solar Farm & BESS	Metka-EGN Australia	Solar	250 MW of solar capacity with a 100 MW / 200 MWh BESS	Adjacent to the Project	Prepare EIS
Stubbo Solar Farm & BESS	UPC Renewables Australia	Solar	400 MW of solar capacity with a 200 MWh BESS	4.6 km	Under Construction
Sandy Creek Solar Farm	Lightsource bp	Solar	750 MW of solar farm and BESS capacity	4.6 km	Response to Submissions
Beryl Solar Farm	First Solar Pty Ltd	Solar	109 MW of solar capacity	5.0 km	Operational
Narragamba Solar Farm	Acen Australia	Solar	320 MW of solar capacity with a potential BESS with capacity of 200 MWh	9.0 km	Prepare EIS
Birriwa Solar Farm & BESS	Acen Australia	Solar	600 MW of solar capacity with a coupled BESS of up to 1000 MWh	15.0 km	Approved

Project	Developer/ Operator	Energy	Indicative Scale	Proximity to Project*	Status
Avonside Solar Farm	EEW Eco Energy World Pty Ltd	Solar	180 MW of solar capacity with a 400MW BESS	18.0 km	Prepare EIS
Dapper Solar Farm	Origin Energy Power Limited	Solar	300 MW of solar capacity	30.0 km	Prepare EIS
Cobbora Solar Farm	Marble Energy	Solar	700 MW of Solar Energy with 200 MW of BESS	31.0 km	Prepare EIS
Dunedoo Solar Farm	Sun Spot 4 Pty Ltd	Solar	55 MW of solar capacity	32.0 km	Approved
Wollar Solar Farm & BESS	Wollar Solar Development	Solar	280 MW of solar capacity with a 30 MWh BESS	40.0 km	Under Construction
Goulburn River Solar Farm	Lightsource Development Services Australia Pty Ltd	Solar	420 MW of solar capacity	50.0 km	Approved
Wind Energy Developments					
Orana Wind Farm & BESS	ACIONA Energy Australia Global	Wind	524 MW of wind capacity with a 200 MWh BESS	15.0 km	Prepare EIS
Piambong Wind Farm & BESS	Piambong Wind Farm	Wind	551 MW of wind capacity with a 200 MWh BESS	18.0 km	Prepare EIS
Spicers Creek Wind Farm	Spicers Creek Wind Farm Pty Ltd	Wind	700 MW of wind capacity and two BESS with 400 MW capacity	19.0 km	Recommendation
Valley of the Winds Wind Farm	UPC Renewables Australia Pty Ltd	Wind	800 MW of wind capacity and BESS with 320 MW of capacity	26.0 km	Assessment
Bodangora Wind Farm	Inflgen Energy Development Pty Ltd	Wind	120 MW of wind capacity	29.0 km	Operational
Uungula Wind Farm	Uungula Wind Farm Pty Ltd	Wind	400 MW of wind capacity	34.0 km	Under Construction

Project	Developer/ Operator	Energy	Indicative Scale	Proximity to Project*	Status
Burrendong Wind Farm	Burrendong Wind Farm	Wind	400-500 MW of wind capacity	41.0 km	Response to Submissions
Liverpool Wind Farm	Epuron / Tilt Renewables	Wind	962 MW of wind capacity	49.0 km	Modification
Other Developments					
Bellambi Heights BESS	Vena Energy Australia	Battery Energy Storage	Generation capacity of 408 MW (two 204 MW BESS generating units) and energy storage capacity of 816 MWh	1.2 km	Approved
Beryl BESS	Ratch-Australia Corporation	Battery Energy Storage	100 MW / 200 MWh BESS	3.9 km	Response to Submissions

**Estimated distance*



Coordinate System:
GCS GDA 1994

Date: 18/12/2024

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Drawing Size: A3

0 2.5 5 7.5km

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2.3 -Surrounding Renewable Energy Development

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2.3.2 LOCAL CONTEXT

The Project Area is located at 340 Jacksons Lane, Beryl, NSW 2852, which is characterised by a generally flat topography with gentle sloped land and undulations along creek corridors. The Project Area elevation ranges from approximately 422 m, near the Slapdash Creek, to 468 m at its north most point, above sea level. The gradient increases on the northwestern 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 Wialdra Creek, the Slapdash Creek adjoins the eastern boundary of the Project Area, within the Murray-Darling Northern Casin and the Macquarie- Castlereagh Catchment which covers an area of 75,000 km^2.

The nearest national park is the Yarrobil National Park, located 8 km west of the Project Area (**Figure 1-1**), and the closest conversation area is the Goodiman State Conservation Area located 13 km north-west of the Project Area.

2.3.3 IMPORTANT NATURAL OR BUILT FEATURES

The Project Area is located at Puggoon Road, Beryl and covers approximately 553 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 at the centre of the Project Area, near to Puggoon Siding Road. An existing 330 kV overhead transmission line running in a northeast-southwest alignment traverses the south and east portion of the Project Area. The site is located west of the Slapdash Creek and is primarily used for small scale agricultural and grazing purposes (**Figure 3-1**).

Vegetation on the Project Area is scarce and randomly dispersed within the site. The undulating terrain of the Project Area is steepest in the northwest portion with a maximum height of 475 metres Australian Height Datum (m AHD), and slopes downwards in the southeast. Rural and agricultural activities, including grazing of livestock, are prominent land uses surrounding the site.

Access to the Project Area will be provided via Castlereagh Highway and Puggoon Road or via Barneys Reef Road and Jacksons Lane. The Castlereagh Highway intersects the Puggon Road to the south of the Project Area and runs north-south connecting Gulgong to Dunedoo. Barneys Reef Road runs parallel to Castlereagh to the east of the Project Area and also connects Gulgong Town with Golden Highway to the north. This will be subject to assessment in the EIS phase.

3. THE PROJECT

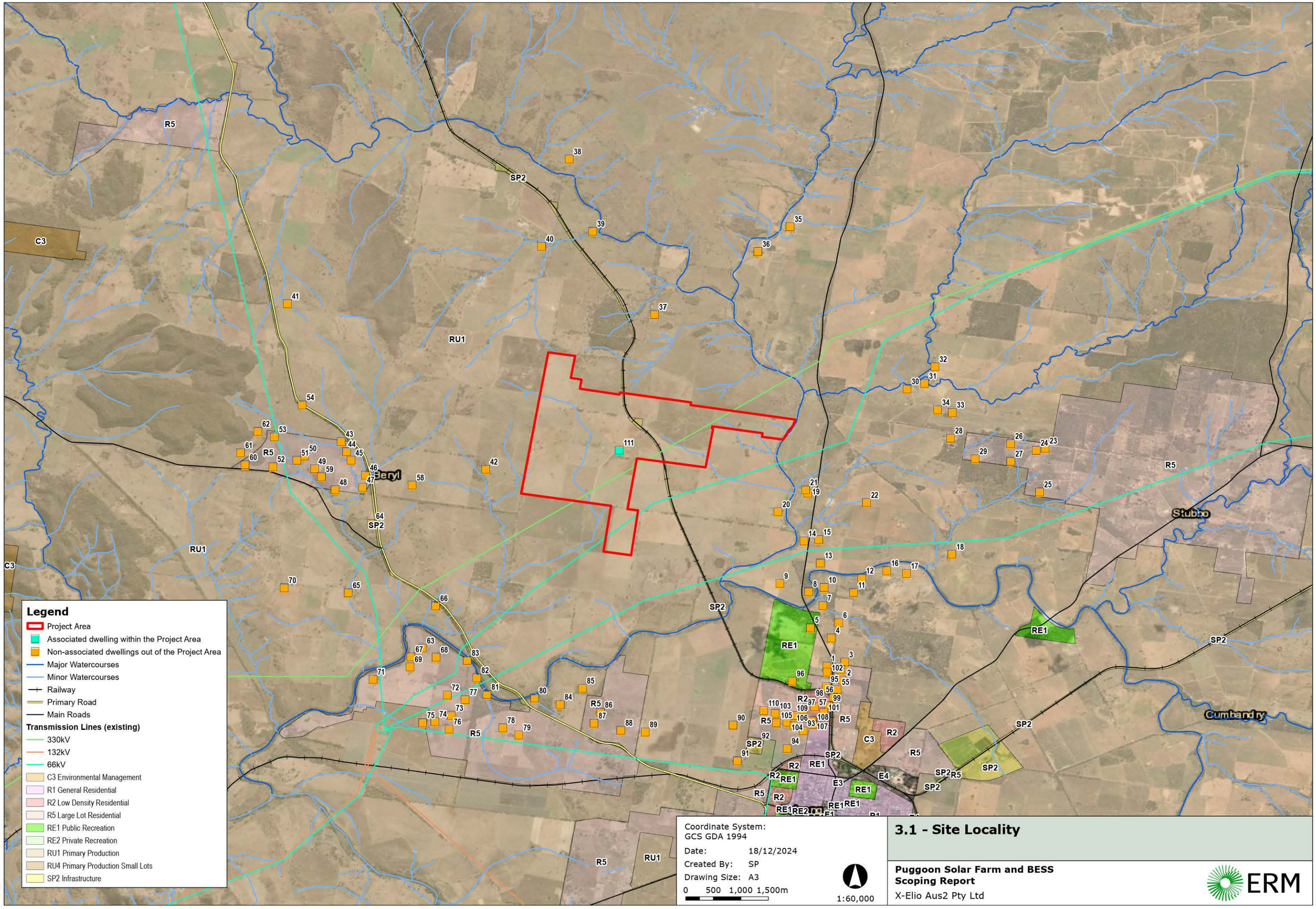
3.1 PROJECT AREA

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 553 ha at Puggoon Road, Beryl. The Project Area is mainly zoned as *RU1 – Primary Production* with land zoned *SP2 - Infrastructure* associated with the existing rail corridor under the Mid-Western Regional Local Environmental Plan 2012 (Mid-Western Regional LEP) (NSW Government, 2012).

A map of the Site Locality is provided in **Figure 3-1**. The allotments within which the Project Area is located are outlined in **Table 3-1** and illustrated in **Figure 3-2**.

TABLE 3-1 LAND CADASTRES

Lot	Deposit Plan	Title
1	433484	FREEHOLD
2	433484	FREEHOLD
2	528667	FREEHOLD
61	750762	FREEHOLD
65	750762	FREEHOLD
73	750762	FREEHOLD
103	750762	FREEHOLD
215	750762	FREEHOLD
217	750762	FREEHOLD
218	750762	FREEHOLD
219	750762	FREEHOLD
222	750762	FREEHOLD
3	1078822	FREEHOLD
4	1078822	FREEHOLD
1	1145586	FREEHOLD
4329	1216544	NSW GOVERNMENT
4330	1216545	FREEHOLD



3.1 - Site Locality

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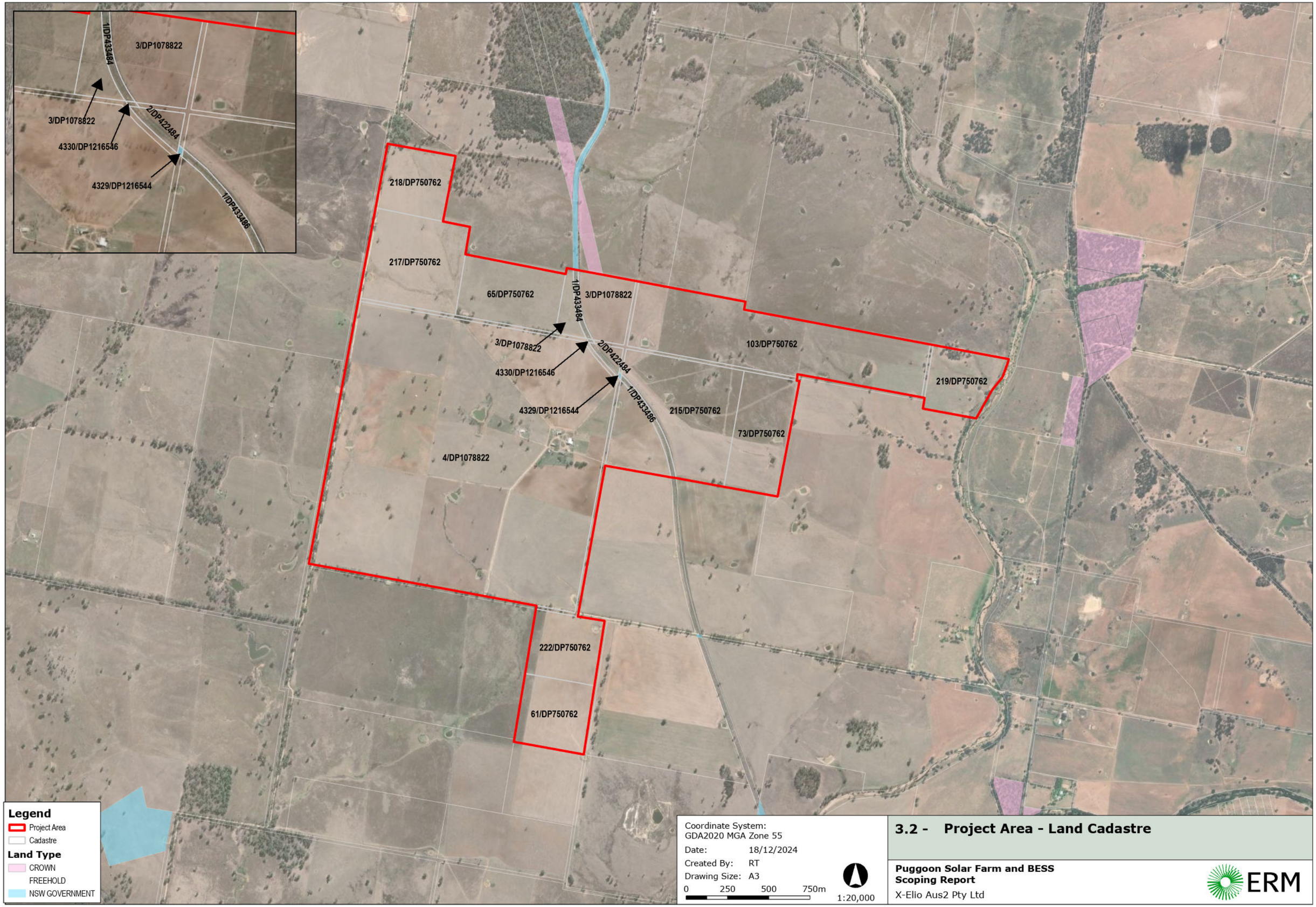

3.2 - Project Area - Land Cadastre

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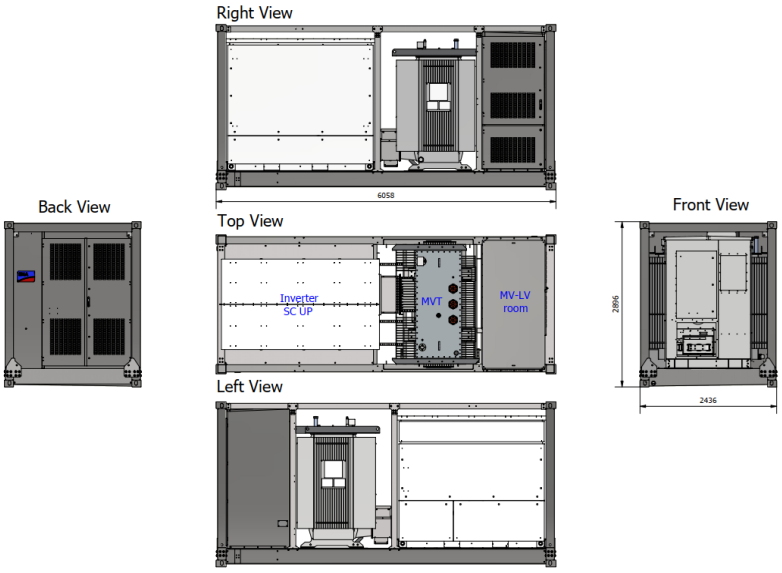
3.2 PROJECT DESCRIPTION AND LAYOUT

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

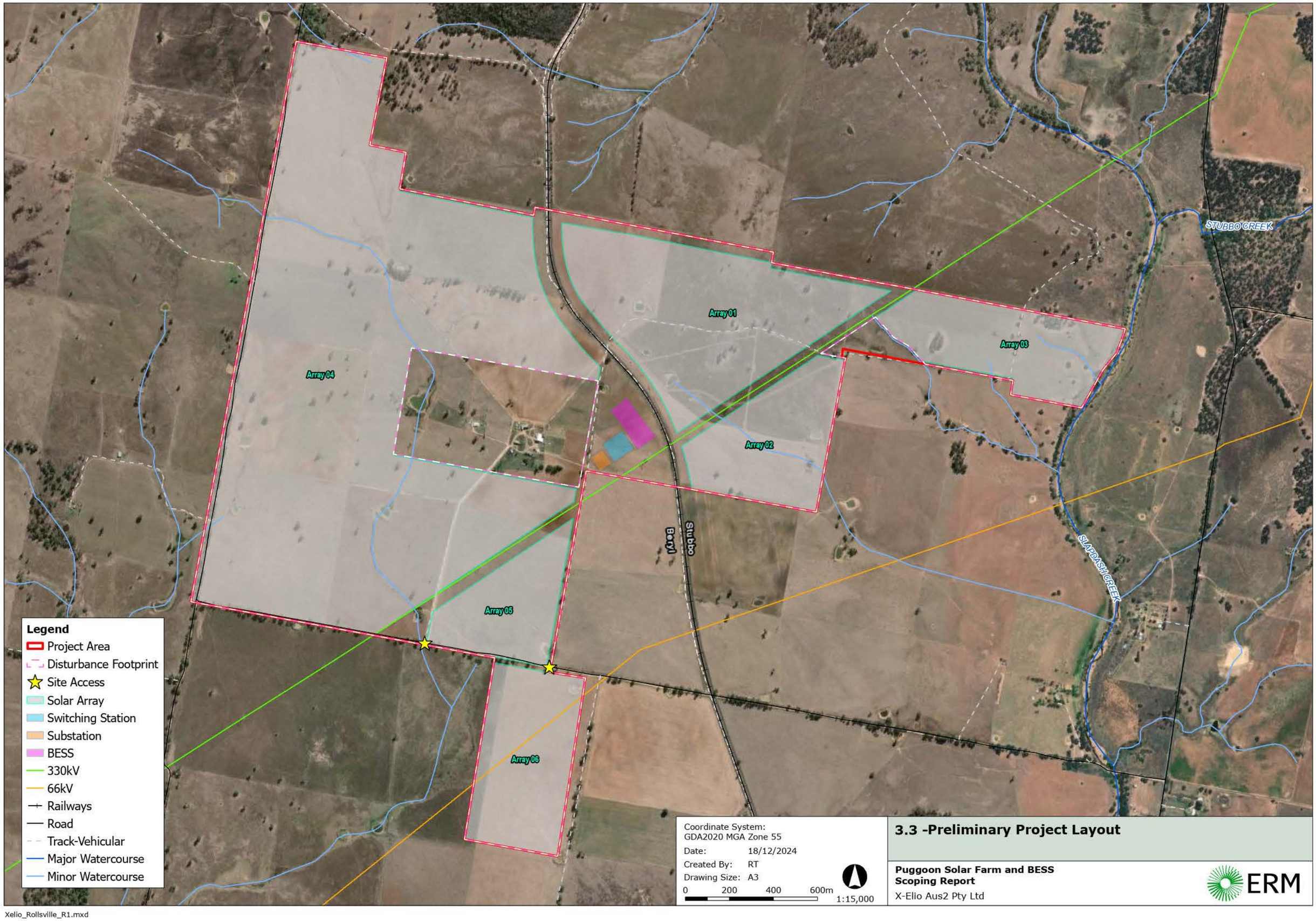
TABLE 3-2 INDICATIVE PROJECT DESIGN - COMPONENTS AND SPECIFICATION

Component	Feature	Specification
Energy generation	Solar Arrays	Up to 264 MWp capacity solar array across approximately 453 ha.
Power conversion unit	Power Station (inverter, DC-AC transformer and associated equipment	Up to 60 Power Conversion System (PCS) units for the solar farm and 35 PCS for the BESS Plant with the same brand and technology, measuring approximately 6058 millimetres (mm) / 2896 mm / 2436 mm (W / H / D). Refer to the basic closed door configuration below. 
Electrical Reticulation Network	On-site substation	New high voltage substation (70 m x 80 m) proposed near the intersection of the existing 330 kV transmission line within the boundary next to the existing train line.
	Internal electrical reticulation network (Medium Voltage)	Electrical reticulation will generally follow rows of panels and internal access routes to reach the step-up substation (33 / 330 kV) for the Project. The Project will connect into the substation (33 / 330 kV) on-site directly via underground MV cables (33 kV, internal reticulation voltage). The Project will be connected to the Grid by Switching Station (330 kV) located on-site boundary.
	Switchyard / BESS	Battery energy storage system with a capacity of 110 MW / 440 MWh. Switch and other electrical equipment providing connection to the existing 330 kV transmission network.
Access Roads	Access to site	Access to the Project Area will be from Castlereagh Highway and Puggoon Road and/ or via Barneys Reef Road and Jacksons Lane. This will be subject to assessment in the EIS phase.

Component	Feature	Specification
Ancillary activities and infrastructure	Construction compound, temporary laydown areas, concrete batching plant, O&M building, temporary accommodation camp	Proposed to be located within overall proposed solar farm Disturbance Area, to be confirmed during EIS preparation.

The indicative Project Area is displayed in **Figure 3-3**, which shows the proposed Disturbance Area for the solar farm, including solar panels, BESS, substation 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.



3.3 -Preliminary Project Layout

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3.2.1 SOLAR ARRAYS

The Project is a proposed solar farm consisting of a maximum installed capacity of up to 264 MWp. The solar arrays will be mounted to steel structures and utilize single axis tracking systems, with relatively little soil disturbance required. **Figure 3-4** shows the indicative tracking system.

FIGURE 3-4 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 (MWp)	263.71 MWp
Power Stations (contains inverter)	up to 4400 kW
Approximate Solar Array Disturbance Area (ha)	452.8 ha
Estimated height of panels when horizontal (m)	1.52 m at 0 degrees
Distance to ground at max tilt (to lower edge) (m)	0.4 – 0.5 m
Estimated height (to higher edge) when at max tilt (m)	2.7 m
Rotational axis elevation	+/- 55 degrees for rotation angle in the solar trackers
Estimated Development Cost (EDC)	Approximately $510 million

3.2.2 BATTERY ENERGY STORAGE SYSTEM

A centralised large-scale battery energy storage is proposed for the Project. The BESS has a storage capacity of 110 MW / 440 MWh. The BESS will be located within the Project Area near the intersection of the existing 330 kV transmission line with the existing train line.

3.2.3 OTHER INFRASTRUCTURE AND ASSOCIATE WORKS

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

- Solar panel array;
- Battery components and associated infrastructure;
- Substation and connection via 330 kV transmission line;
- Underground electrical layouts connecting panels;
- Internal access and perimeter roads to connect panels and ancillary infrastructure;
- Associated buildings for operations and maintenance facilities; and
- Perimeter security fencing.

3.2.4 ELECTRICAL RETICULATION SYSTEM AND GRID CONNECTION

The Project will include underground and overhead electrical reticulation network to connect to the substation. The interconnection infrastructure will then connect to the existing 330 kV transmission line within the Project Area.

3.2.5 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 and perimeter roads.

3.2.6 DISTURBANCE AREA

The Disturbance Area represents the maximum potential area of impact associated with the construction and operation of the Project. For the purposes of this Scoping Report the indicative Disturbance Area is approximately 505 ha, consisting of:

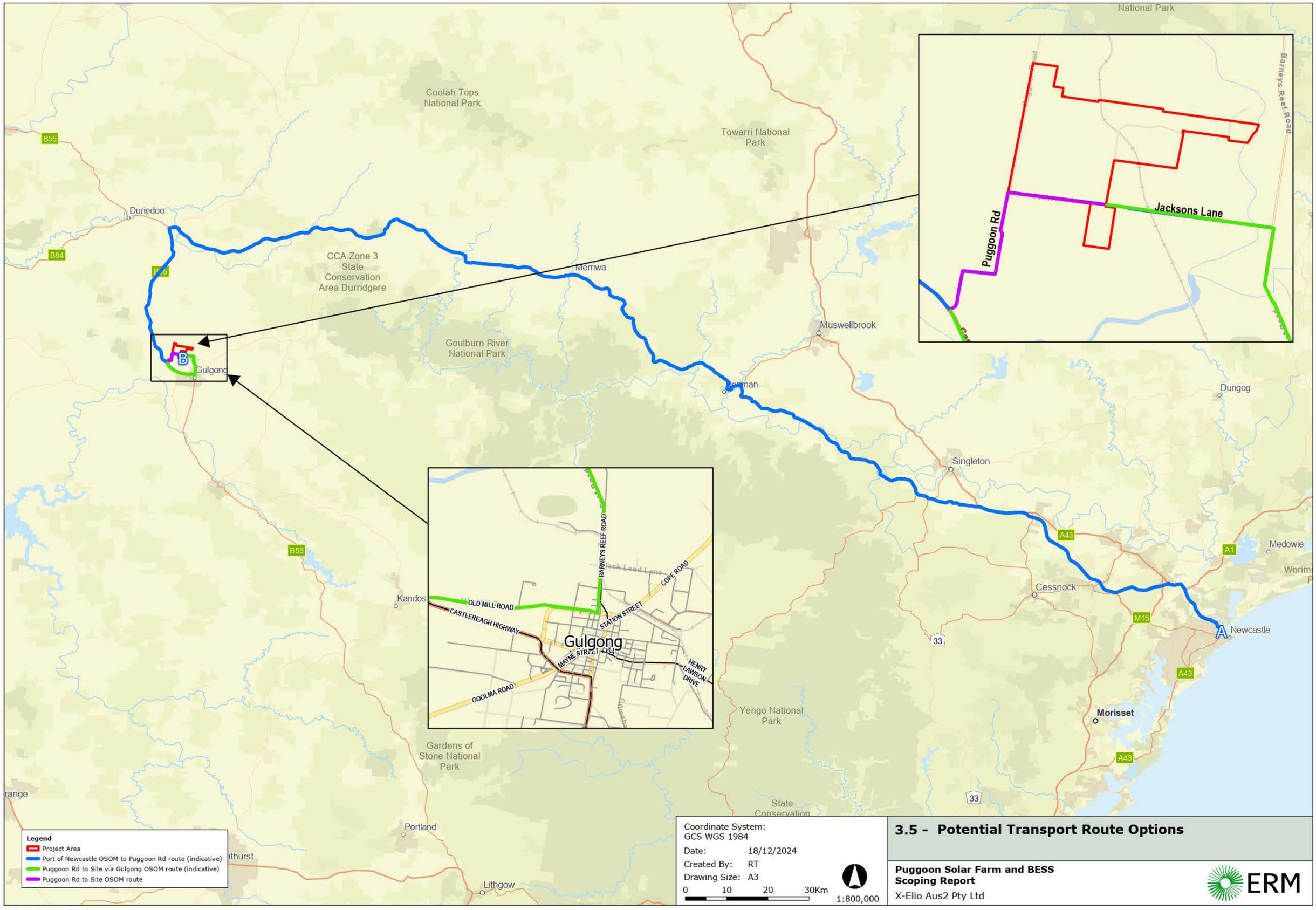
- Temporary Disturbance Area: the area of land that will be temporarily disturbed during construction of the Project with areas to be rehabilitated following construction; and
- Permanent Disturbance Area: the area of land that will remain disturbed throughout the operational life of the Project and will not be suitable for agricultural use. This will include infrastructure areas such as the solar panel array, BESS, switchyard, substation and associated facilities.

Further refinements and changes to the project layout may be proposed in the EIS as well as strategies to minimise and mitigate potential impacts from the Project.

3.2.7 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 Castlereagh Highway and Puggoon Road or via Barneys Reef Road and Jacksons Lane. This will be subject to assessment in the EIS phase.

The Port of Newcastle has been identified as the preferred port for the delivery of solar farm BESS equipment and plant. 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.



3.5 - Potential Transport Route Options

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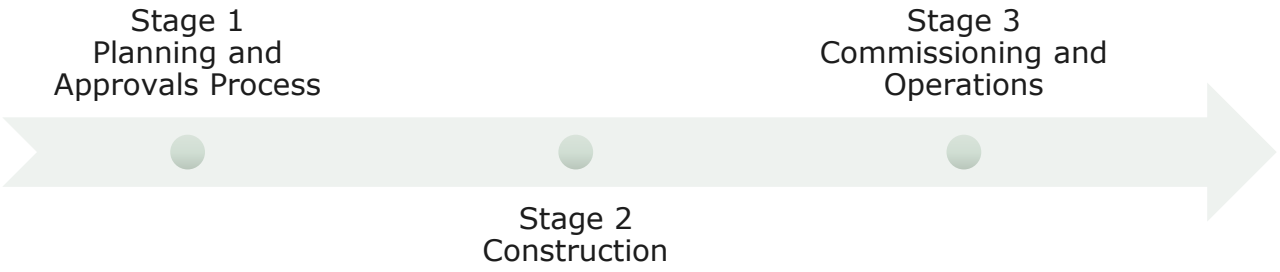
3.3 STAGING

The anticipated staging of the Project is summarised in **Table 3-4** and presented in **Figure 3-6**. 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 early 2026, with operations commencing in 2028.

TABLE 3-4 PROJECT STAGING

Stage of Project	Estimated Date of Completion
Planning and Approvals Process	Early 2025
Construction	Late 2028
Commissioning and Operations	2028 onwards

FIGURE 3-6 PROJECT STAGING MAP



3.4 PHASES

3.4.1 CONSTRUCTION

Construction of the Project is anticipated to begin in early 2026 with design and procurement activities leading into groundworks commencing. Construction if 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 full time equivalent (FTE) employees will be required. Temporary construction workers accommodation may be sited within the Project Area or may be located off site (off site would be subject to a separate development application). This will be explored and assessed further in the EIS phase, including consultation with the local councils.

3.4.2 OPERATIONS

The operational phase of the Project is currently planned to commence in 2028 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.

3.4.3 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.

3.5 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.

3.5.1 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.

3.5.2 DO NOTHING

The Project Area is currently used for agricultural and grazing 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. In addition, the local area and wider region would not benefit from the Project outcomes including:

- The economic benefits to the local and regional community provided directly and indirectly by the employment associated with the Project;
- A capital investment creating direct and indirect employment during construction and operations; and
- Contributions to local community facilities and infrastructure through the Community Benefit Fund.

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: Appendix A to the State Significant Development Guidelines* (DPE, 2022b).

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 an estimated development cost (EDC) 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 Mid-Western Regional Council LGA. the Project Area is subject to the provisions of the Mid-Western Regional LEP.

The Project Area is mainly zoned as *RU1 – Primary Production* under the Mid-Western Regional LEP. There is a portion of the Project Area, associated with the existing rail corridor, which is zoned *SP2 – Infrastructure*.

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 following purposes, but does not include a solar energy system —*

> *(a) making or generating electricity,*
>
> *(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, whilst SP2 - Infrastructure is also a non-residential zone, the Project is permissible with consent under the provisions of Section 2.36 (1) of the Transport and Infrastructure SEPP.

4.3 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*	The Project will require consent from the appropriate road authority under Section 138 of the *Roads Act 1993* for any works undertaken on public roads. The impacts of the Project on roads and traffic will be assessed within the EIS.
Native Title	*Native Title Act 1993* (NT Act)	Under Section 13 of the NT Act, an individual can apply to the Federal Court for a determination of native title. A detailed review of the potential for native title will be undertaken for the Project in the EIS, however the Native Title Vision (NTV) online mapping tool (NNTT, 2022) currently indicates there is an active claim over the Project Area.
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 Matters of National Environmental Significance (MNES).

Approval Category	Legislation	Requirement
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.
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.

4.4 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: *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,* *(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,* *(c) to promote the orderly and economic use and development of land,* *(d) to promote the delivery and maintenance of affordable housing,* *(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,* *(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),* *(g) to promote good design and amenity of the built environment,* *(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,* *(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,* (j) *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.

Statutory Reference	Mandatory Consideration
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.
Mid-Western Regional Local Environmental Plan 2012	The EIS will address relevant components of the Mid-Western Regional LEP, including the land use objectives for the 'RU1 – Primary Production' and 'SP2- Infrastructure' zones.

5. COMMUNITY AND STAKEHOLDER ENGAGEMENT

A Community Engagement Plan (the Plan) has been compiled for this project to guide delivery of clear and consistent community engagement activities up until project determination. The content of this chapter is consistent with the Plan.

Given the rapidly evolving context this project is being delivered in, it is highly likely the Project and community context can and will evolve over time, and this Plan also needs to be agile and responsive to community needs and opportunities that arise. It is intended that the Plan will be revised and refined at each project milestone to reflect current on-the-ground context and inform continuous improvement.

5.1 OBJECTIVES

The community and stakeholder engagement objectives for the Project are to:

- Undertake meaningful and genuine engagement with community and stakeholders that is open and inclusive;
- Ensure engagement opportunities are easy to access, available in a variety of formats and forums and offered in a timely fashion;
- Engage respectfully with Traditional Owners of the land, to seek their views and input before submitting a development application or finalising designs;
- Build a reputation as a trusted, credible information source and an organisation that is welcoming and responsive to community feedback;
- Build positive, trusted, and open relationships with local community and stakeholders;
- Plan the Project in a way that is sensitive to the impacts on highly productive agricultural land and areas of high biodiversity, cultural and landscape value;
- Integrate relevant feedback and engagement outcomes into Project decision-making; and
- Seek opportunities to support the community for mutual benefit by working with local communities to identify, design and deliver beneficial outcomes.

5.2 ENGAGEMENT PRINCIPLES

The Project will align with best practice engagement principles, including:

- Clean Energy Council, Best Practice Charter for Renewable Energy Projects;
- Clean Energy Council and KPMG, Leading Principles: First Nations and Renewable Energy Projects;
- IAP2 Quality Assurance Standard and Public Participation Spectrum;
- National Farmers Federation, Industry Engagement Guidelines for On-farm Activities;
- NSW Government, Undertaking Engagement Guidelines for State Significant Projects; and
- NSW Government, First Nations Guidelines: Central-West Orana

Engagement principles for the Project include:

- The Project will take a collaborative approach to information sharing between the various proponents of renewables projects in the area. Understanding other project timelines, how they will engage and when, will help the Project reduce its contribution to engagement fatigue, which is a real and documented issue in the area;
- Similarly, the Project will aim to ensure engagement is targeted and relevant so that it does not unnecessarily add to the known engagement fatigue;
- The project will seek early and close involvement of local Indigenous people, noting the local area's relatively high Indigenous population;
- The team will produce and offer print alternatives to digital communications and surveys, given the large population of older people in Beryl and to a lesser degree the region; and
- In line with X-Elio's commitment to the community, local engagement activities will focus on identifying and delivering ways X-Elio can provide a genuine and long-lasting commitment to the local community.

5.3 STAKEHOLDER IDENTIFICATION

Mapped stakeholders are broadly defined as the people and groups who are interested in or affected by the Proponent's proposal. Key groups identified are provided in **Table 5-1**.

TABLE 5-1 STAKEHOLDER MAPPING

Stakeholder group	Stakeholders	Potential interests/concerns
Adjacent landholders	• Five landholders across seven land packages.	• Visual amenity and potential impact to property values/insurance; • Construction and operational impacts including traffic management; • Individual consultation; and • Compensation/neighbour benefits.
Neighbours (within 4km)	• Twenty-two residential neighbours; and • Six neighbouring businesses.	• Visual amenity and cumulative impacts of multiple renewable energy projects; • Potential impacts to property values/insurance; • Construction impacts including road access, noise and dust; • Consultation with local community; and • Neighbour benefits.
Traditional Owners and Indigenous groups	• First Nations Outcomes Group; • Wiradjuri, Wailwan and Kamilaroi Peoples; • Mudgee Local Aboriginal Land Council; and • Traditional Owner business/ community groups	• Economic benefits including Aboriginal participation through training, jobs and procurement; • Impact on Aboriginal social, historical, scientific and aesthetic objects or values; and • Construction impacts.

Stakeholder group	Stakeholders	Potential interests/concerns
Local government – elected officials and executive staff	• Mid-Western Regional Council; • Mayor and elected councillors; • Key executive staff; and • Relevant council departments.	• Community consultation and impact on local residents and businesses; • Cumulative impact of projects in the region; • Local roads and infrastructure; and • Services such as utilities, accommodation and tourism.
State representatives (local Members of Parliament)	• The Hon Dugald Saunders MP, State Member for Dubbo Electorate (NP).	• Community consultation and impact on local residents and businesses; • Cumulative impact of projects in the region; and • Community wellbeing including visual amenity, economic benefits (including jobs, tourism, local procurement), tourism industry, local skill requirements, local accommodation requirements.
State government agencies	• State Government agencies with interest and influence on the project including: • NSW Department of Planning, Housing and Infrastructure (DPHI); • NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW); • Aboriginal Affairs NSW; • Department of Regional NSW; • EnergyCo NSW; • Fire and Rescue NSW; • Mining, Exploration and Geoscience; • Department of Primary Industries; • Local Land Services (Central Tablelands region); • Telco Authority; • Transgrid; • Transport for NSW (TfNSW); and • Emergency service organization.s	• Meeting renewable energy and emissions targets; • Project approval, regulatory compliance, environmental impact, meeting requirements of CWO REZ; • Traffic management and transport routes; and • Decommissioning.
Federal representatives and agencies	• The Hon Andrew Gee MP, Federal Member for Calare (NP); and • Federal Government agencies with relevant oversight such as Airservices Australia; Australian Energy Infrastructure Commissioner; Civil Aviation Safety Authority (CASA); Department of Defence; National Indigenous Australians Agency; Regional Development Australia (RDA).	• Community consultation and cumulative impact of projects; and • Community wellbeing including visual amenity.
Business organisations	• Business Mudgee (COC); • Gulgong Chamber of Commerce; • NSW Farmers – Mudgee Branch; • Western NSW Business Chamber; and • Mudgee Wine Grape Growers Association.	• Business and procurement opportunities (during construction with influx of workers and ongoing operations); and • Social and economic impact.

Stakeholder group	Stakeholders	Potential interests/concerns
Local community organisations	• Local groups such as: • Club Mudgee (hospitality/entertainment); • Community Power Agency; • Country Women's Association Mudgee; • Gulgong Arts Council; • Gulgong Pensioners and Suppernauts; • Gulgong RSL; • Gulgong Historical Society Inc; • Library (Gulgong, Mudgee); • Lions & Rotary Clubs; • Mudgee Scouts; • Re-Alliance; and • Tourism organisations, i.e., Visit Mudgee, Mudgee Region Tourism.	• Impact on local services (eg accommodation) during construction; • Partnership opportunities; • Community benefit and educational opportunities; • Environmental impacts; and • Local Aboriginal and European heritage objects and values.
Environment and action groups	• Including: • Glanmire Action Group (near Bathurst); Gulgong Community Action Group; Gulgong Community Group; Gulgong/Beryl Solar Farm Action Group (circa 2017); Mudgee Region Action Group; and • Central Tablelands Regional Landcare Network; Mudgee Urban Landcare Group, Watershed Landcare Inc. (Gulgong).	• Environmental benefits of project; • Protection of biodiversity values; and • Information sharing.
Local schools, religious organisations, clubs	• Beryl and Gulgong Public School; Gulgong High School; All Hallows Catholic Primary School; • Country Universities Centre Mudgee; • TAFE NSW; • Saint John the Baptist Anglican Church; Gulgong Presbyterian Church; Saint Luke Anglican Church; Saint Paul's Presbyterian Church; and • Gulgong Bowling and Sporting Club; Gulgong Junior Rugby League; Gulgong Lions FC; Gulgong Netball Club; Gulgong Pony Club; Gulgong Showground PCYC Mudgee; Gulgong Turf Club; Cugegong Soaring Club.	• Community wellbeing; • Local skills development opportunities; • Impact on local services (eg accommodation) during construction; • Partnership opportunities; • Community benefit and educational opportunities; and • Environmental impacts.
Nearby renewable energy and infrastructure projects (proposed and operational)	• Bellambi Heights BESS (determination) - Vena Group; • Beryl Solar Farm (operational) - RES Australia; • Beryl BESS (in planning) - Ratch Australia; • Birriwa Solar Farm (approved for construction); • Mavis Solar Farm (in EIS) - Metka-EGN Australia; • Mayfair Solar Farm (in EIS) - Elgin Energy; • Narragamba Solar Farm (in planning) - ACEN Australia; • Orana Wind Farm (in planning) - Acciona Energy; • Stubbo Solar Farm (in construction) - ACEN Australia; • Tallawang Solar Farm (in SEARS) - RES Australia; and	• Cumulative impacts of concurrent construction projects; • Community consultation and messaging; • Aligning interfacing activities, planning and permits; and • Economic impacts/benefits programs (shared) and worker accommodation.

Stakeholder group	Stakeholders	Potential interests/concerns
	• Wollar Solar Farm (in construction) – BJCE.	
Transport	• Mudgee Airport and Fly Pelican airline; • Australian Rail Track Corporation; • Gwabegar Railway Line – through Site; and • Sandy Hollow–Gulgong railway line ('*Ulan Line*') – through Gulgong.	• Transport routes; and • Approval of work in rail corridor (seek ARTC's consent for any work in the rail corridor prior to lodging the EIS).
State Emergency Services	• NSW RFS - Cudgegong District, Beryl served by Gulgong Brigade; • Gulgong and Mudgee Police Stations; • Gulgong, Mudgee and Dunedoo Ambulance stations; and • NSW VRA - Gulgong Rescue Squad.	• Emergency management plans; • Fire safety; • Traffic management; and • Construction impacts (on road safety, road use, etc).
Utilities	• Beryl substation; • APA (Gas); • Essential Energy (Power); and • Water NSW (Water).	• Planning and permits (relating to utilities).
Media	• Print: Australian Community Media (ACM/ACM Agri); Community News (run by Council); Gulgong Advertiser; Gulgong Gossip; Mid-Western Mail (By Business Mudgee); NSW Aboriginal Land Council news; The Daily Liberal (Dubbo region); The Mudgee Guardian; The Land; WIN News Central West; and • Radio: 2MG Radio; ABC Western Plains 95.9 FM; Real FM Mudgee; Magic 87.6 FM.	• Community consultation and consultation fatigue • Community wellbeing and benefits. • Project milestones and updates. • Local employment. • Community involvement and events. • Environment or heritage impacts. • Renewable energy targets and carbon emission reductions.
Social media	• Facebook pages: Mid-western Regional Council [Link]; • Facebook Communities (no. members): • Gulgong Community Group (11k) [Link]; • Gulgong Business Directory, Events and Community Page (2k) [Link]; • Mudgee Community Group (20k) [Link]; • Mudgee Area Community Group (24k) [Link]; • Meanwhile in Mudgee (5.5k) [Link]; and • Glanmire Action Group (147) [Link].	• Community consultation and consultation fatigue; • Project transparency and messaging; • Community wellbeing and benefits; • Project milestones and updates; • Local employment; • Community involvement and events; • Environment or heritage impacts; and • Renewable energy targets and carbon emission reductions.

5.4 ENGAGEMENT TOOLS AND CHANNELS

The engagement tools and channels used encompass a range of traditional and digital channels as described in **Table 5-2**.

TABLE 5-2 ENGAGEMENT TOOLS AND CHANNELS

Tools	Tools and channels
In person	• Face-to-face and online meetings and briefings; • Community information sessions; and • Pop-up stalls.
Print	• Community newsletter (print); • Letterbox drop (including community newsletter); • Community survey (printed); • Advertisements (print media); and • Contact cards.
Digital	• Project website: www.x-elio.com/projects-archive/rollsville-solar-farm/; • Email enquiry address: rollsville.community@x-elio.com; • Frequently Asked Questions; • Community newsletter (email); • Online community survey; • Advertisements (social media); and • Stakeholder database and mailing list.

5.5 CURRENT CONTEXT

The proposed Project is in the Central-West Orana REZ, which was relatively recently established (late 2022), and has experienced an influx of proposed renewable energy projects in recent years. Aligning with this, there has been significant work undertaken with local communities to prepare for the changes to take place in the region.

This includes consultation to prepare the '*Mid-Western Regional Community Plan – Towards 2024'*, which was conducted between June 2021 – March 2022. As part of this process, local residents and ratepayers identified economic diversity as being an important priority for the region. Another goal was to 'work with key stakeholders to minimise the impacts of state significant development in the region'. Residents and landowners also contributed to the development of the '*Central-West Orana REZ transmission project*' with EnergyCo between 2022 and 2024.

Concerns previously raised by local people regarding other proposed renewable energy projects in the area are mostly typical for these types of projects and include:

- impact on visual amenity;
- loss of productive agricultural land;
- construction impacts (traffic and transport, noise, dust);
- skilled worker and accommodation shortages; and
- concerns around localised climate changes.

The Mid-Western Regional Council commissioned a report by PwC, which found the anticipated workforce required to build renewables projects in the region will be approximately 9,000 by 2026 (including families), which represents a 40 per cent population increase over three years.[1]

Beryl currently has one operational solar farm operated by Benpu Energy. As the energy transition momentum gathers speed, workers' needs for accommodation and access to local services (including health, schools, water, and waste infrastructure) is increasingly becoming an issue at the front of the community's mind.

On a national scale, the recent review[2] into engagement within the renewables industry published by the Energy Infrastructure Commissioner cites that poor engagement on energy projects has led to a material distrust of project developers. In this context, it is likely shifting expectations of project developers relating to community engagement is likely to further impact project delivery.

The Central-West Orana Working Group has been established by EnergyCo to support proponents of renewable energy projects in their engagement with First Nations communities in the region. In addition, proponents are expected to develop an Industry and Aboriginal Participation Plan (IAPP). This provides a strong framework for First Nations communities to be involved in the development of renewable energy projects in the region.

[1] https://www.midwestern.nsw.gov.au/files/assets/public/v/1/council-meetings/2023/14.-13-december-2023/report-council-meeting-13-december-2023-item-8.4-impacts-of-state-significant-development-report.pdf

[2] https://www.dcceew.gov.au/sites/default/files/documents/community-engagement-review-report-minister-climate-change-energy.pdf

5.6 CURRENT STAGE ENGAGEMENT ACTIVITIES

Engagement for the Project is in its early stages and is aimed at providing a broad perspective on the proposed project, building rapport, and establishing trusting relationships with communities impacted by the proposed Project.

The summary in the table below outlines the early engagement activities carried out by the Project to date as part of the preparation of this Scoping Report. The activities listed in **Table 5-3** were delivered in the second half of 2024.

It is noted engagement commenced while the Project was named Rollsville Solar Farm and BESS. The Project was renamed for geographic relevance, and future engagement will refer to the Project as Puggoon Solar Farm and BESS.

TABLE 5-3 SUMMARY OF ENGAGEMENT CARRIED OUT TO DATE

Activity	Engagement activity	Date of engagement
Meetings/briefings with key stakeholders		
Immediate neighbours	• Conversations with neighbours immediately adjacent to the proposed project site. It is noted that all but one of these neighbours is also in the planning stages of hosting solar farms. Aim to establish initial lines of communication with their developers with a view to collaborating in the future, particularly during planning for the construction phase, and opportunity to share community benefit initiatives.	October 2024

Activity	Engagement activity	Date of engagement
Mid Western Regional Council	• Initial briefing meeting (26 June), followed by update meeting (11 October); • Met with the Director Development and Economic Development Manager; and • The discussions aimed to provide initial project information such as location, technology, and expected construction impacts (including the number of construction workers). They also sought to understand local council priorities and their understanding of feedback and sentiment from the local community.	26 June and 11 October 2024
State Member Hon Dugald Saunders MP	• A meeting to introduce the Project and understand local concerns and issues related to the broader context of renewables in the region; and • Included his experience with community sentiment, transmission, and concerns from the community from renewables infrastructure.	11 October 2024
First Nations Outcomes Team	• Introductory meeting with Energy Co's First Nations Outcomes Team to understand initial feedback and advice; and • Additional engagement and Project information provided via email.	17 July 2024
Cudgegong Rural Fire Service (NSW RFS)	• Submitted a pre-Development Application (DA) advice form and introductory letter to Cudgegong District RFS; and • Received Pre-DA advice summary from Supervisor of Development Assessment and Planning (22 July).	25 June 2024
Community engagement		
Project update newsletter	• Introducing project, inviting attendance at community drop-in sessions, and providing QR code for completion of community survey; • Distributed via mailout to approximately 2,000 letterboxes in the Gulgong/Beryl area surrounding proposed project site during week commencing 30 September; and • Printed copies handed out to community members during the drop-in community information sessions in October.	30 September 2024
Local advertisement	• Advertisement placed in the Gulgong Gossip (October edition) and Mudgee Guardian (28 September 5 October, 12 October and 19 October editions) inviting attendance at community sessions and completion of survey.	From 21 September 2024

Activity	Engagement activity	Date of engagement
Community survey	• Online community survey to capture initial feedback on community values, sentiment towards solar/BESS projects and perceived project benefits; • Survey was open between 21 September to 23 October; • Promoted via QR code and web link in the project update newsletter and local advertisements; and • Print copies and access via iPads was available during the community drop-in sessions.	21 September - 23 October 2024
Community drop-in sessions	• The project team was available to discuss the project, answer questions and understand initial project concerns and priorities during drop-in sessions at: ° Bill Cox Square in Mudgee on Saturday 19 October; and ° Gulgong Market at The Bowlo in Gulgong on Sunday 20 October.	19 and 20 October 2024
Media liaison	• Initial contact made with local media advising project media representative; and • Included contact with Gulgong Gossip, Mudgee Guardian, local community radio, WIN news, ABC radio.	Week commencing 14 October 2024

5.7 COMMUNITY AND STAKEHOLDER FEEDBACK

This section summarises the feedback from targeted stakeholders and the wider community during the engagement period.

5.7.1 COMMUNITY INTERACTIONS

In addition to the targeted stakeholder meetings outlined in Tabel 53 above, verbal and written community feedback was captured at in-person community drop-in sessions and via an online survey. There were 64 unique interactions, with verbal comments recorded by Project staff at the in-person events.

Community Drop-in Sessions

- Mudgee (Saturday 19 October) - 28 people provided feedback via individual interaction with Project staff (22 people) or handwritten completion of the survey in person (6 people); and
- Gulgong (Sunday 20 October) - 21 people provided feedback via individual interaction with Project staff (15 people) or handwritten completion of the survey in person (6 people).

Online Survey

An additional 15 people completed the online survey using the QR code in the project update newsletter or the advertisement.

The community survey asked specifically what the respondents value most in their region to understand what drives their perspective and priorities. **Table 5-4** shows the highest-valued priorities.

TABLE 5-4 COMMUNITY VALUES (FROM ONLINE SURVEY)

What do you value about the region	What do you value about renewables projects in general
• Community and family; • The natural environment; and • Farming.	• Clean energy; and • Employment and supplier opportunities

5.7.2 GENERAL COMMUNITY TOPICS AND SENTIMENT

Examples of topics considered to indicate **positive, neutral or negative sentiment** are described in **Table 5-5** below:

TABLE 5-5 OVERVIEW OF TOPICS RAISED BY THE COMMUNITY

Sentiment	Positive
Positive	• General support for renewable energy to support and protect the environment; • Increased employment and supplier opportunities for locals; • Increased income for host farmers; • Flow-on effect of increased spending in the local economy by contingent workers; and • An abundance of suitable land in the region.
Neutral	• Support for protecting the environment but concerned about the implications for housing, cost of living and the burden on local services; and • Supportive as long as real community benefits are realised for the local host communities.
Negative	• The speed at which projects are entering the region and the lack of coordination from EnergyCo; • Cumulative impact of renewable development in the area generally, especially during construction; • The CWO REZ has been declared in an area with the highest fire danger rating and will increase the likelihood of fires; • The benefits of cleaner energy will be felt in the cities and not locally where they are hosted; • Burden on local services (housing, health, education) and infrastructure (local roads, water and waste); • Perception there will be a loss of good agricultural land; and • Lack of engagement with local business to promote employment and supply chain opportunities.

From each interaction at the in-person events, a general assessment of the person's perception of the proposed project and/or renewable energy projects was assigned. The online survey asked participants to self score their sentiments themselves.

Table 5-6 below is a breakdown of the perceived and self-assessed sentiments, which are shown by location and method of interaction.

TABLE 5-6 GENERAL COMMUNITY SENTIMENT IN-PERSON AND ONLINE

Method	Location	Positive	Neutral	Negative	Total
	Mudgee	12	2	8	**22**

Method	Location	Positive	Neutral	Negative	Total
Verbal comments (collected in person during community sessions)	Gulgong	6	3	6	**15**
Written feedback (via survey completed in person)	Mudgee	2	2	2	**6**
	Gulgong	3	1	2	**6**
Written feedback (via survey completed online)	Online	5	2	8	**15**
	Total	**28**	**10**	**26**	**64**

5.7.3 KEY STAKEHOLDER FEEDBACK

Themes and feedback from engagement with key stakeholders during the scoping phase is summarised in **Table 5-7** below. This includes comments and advice from landowners adjacent to the site, the Mid-Western Regional Council, the State Member for Dubbo the Honorable Dugald Saunders MP, the First Nations Outcomes Team and the Cudgegong Rural Fire Service (NSW RFS).

TABLE 5-7 THEMES - KEY FEEDBACK AND CONSIDERATIONS

Theme	Feedback to be addressed in the EIS Report	Sphere of influence
Engaging with the community		
Community engagement priorities	• The Mid-Western Regional Council emphasised the importance of transparent and clear communication of information, including: ◦ Use and update webpages, record and publish webinars, and provide clear maps that denote the proposed project's location in relation to other projects in the area; ◦ In-person engagement scheduled around working hours is important; ◦ Using (including advertising in) the right media channels is critical; ◦ Identifying who is delivering what project is very confusing for the community. Consider collaboration with other proponents to reduce engagement fatigue; ◦ The engagement space is very congested, with many proponents reaching out to the community for feedback. Aim to minimise stakeholder fatigue and capture stakeholders as best you can; and ◦ Even if participation and involvement can't be achieved, practicing due diligence by providing information/ updates is important.	Regional
Traditional Owner engagement	• Noted the importance of building relationships; and • Recommendation to reach out to the LALC and Aboriginal community-controlled organisations in the region.	Regional
Adjacent landowners	• All but one of the adjacent neighbours are hosting solar and BESS projects; • All are generally supportive of the Puggoon project; • Opportunities for collaboration were identified with neighbours also hosting projects, including for worker accommodation; and	Local

Theme	Feedback to be addressed in the EIS Report	Sphere of influence
	• Concerns included visual impact, insurance costs, potential impact on school bus routes, and the need for community support.	
Cumulative impact of projects	• Both the Mid-Western Regional Council and the State MP discussed the renewable energy projects proposed in the region as a crowded space, and the Mid-Western Regional Council confirmed that there is no established mechanism for proponents to connect and collaborate.	Local
Opportunities in the region		
Community benefits	• The Mid-Western Regional Council reported that funding for sports teams and facilities is oversaturated; investments should be well-managed and based on sufficient background work; and • The State MP recommend providing local people with direct benefit to energy production from projects as compensation for things like visual amenity.	Local
	• The Mid-Western Regional Council outlined the NSW Government's Transmission Acceleration Fund, launched for CWO REZ in July 2024, aims to accelerate community benefits before infrastructure is constructed; and • The Mid-Western Regional Council is interested in being involved in discussions of further opportunities for community benefits and is willing to assist us connect to relevant parties.	Local
Challenges in the region		
Dwindling local medical services	• Both Mid-Western Regional Council and the State MP expressed the severity of the issue that medical services are already severely stretched - Gulgong no longer has a doctor, and four doctors in Mudgee are about to retire; and • Support to help bring a doctor to town would be a huge community win, and the Mid-Western Regional Council, in particular, expressed that they expect to see provisions included in any proposal.	Regional
Capacity of local accommodation	• Both the Mid-Western Regional Council and the State MP talked about local accommodation being limited, and with so many projects, it is important that proponents consider how they will house any temporary workforce; • Mid-Western Regional Council advised that three worker accommodation camps have been decided for the sites adjacent to the Project; and • The State MP advised that housing is becoming an issue for the tourist industry who has seen significant reduction in accommodation options.	Regional
Capacity of local infrastructure	• The Mid-Western Regional Council advised that upgrades to the road adjacent to the site may be required; • Both the Mid-Western Regional Council and the State MP reiterated that the Project will need to outline standalone arrangements for the provision of water, sewerage, and waste; and • The State MP has concerns that private industry should be required to contribute to the upgrade of infrastructure.	Local
Safety		
Fire safety	• Preliminary advice that a bush fire report needs to be prepared by a suitably qualified bushfire consultant; • Requirement for solar farms are recommended for BESS; and	Local

Theme	Feedback to be addressed in the EIS Report	Sphere of influence
	• The State MP highlighted initial concerns being raised about the potential impact on private property obtaining insurance.	

The sphere of influence column describes the likely geographic extent of the particular feedback raised, eg: Local: < 5 km from the site; Regional: 5-100 km from the site; State: > 100 km from the site

5.7.4 COMMUNITY BENEFITS

Some community members provided specific ideas about what the local community would welcome as community benefits. X-ELIO will continue to work with the community and investigate how it might realise some of the ideas. The suggestions included:

Region-level benefits include subsidising energy costs for locals or providing community BESS infrastructure to those with solar panels, providing healthcare personnel and services, or building worker camps that can be repurposed upon completion of construction.

Localised benefits include supporting local businesses and groups in Gulgong, such as the pony club and RSL, building a cinema in Gulgong, supporting local schools, building an aquatic centre in Mudgee, providing support for the elderly, such as meals on wheels, and providing additional bus services.

5.7.5 PLANNED COMMUNICATION AND ENGAGEMENT ACTIVITIES

Following the lodgment of this Scoping Report and the issue of the SEARs, the project intends to undertake further stakeholder engagement to support the preparation of the EIS. This engagement will progress work to consider the initial issues, priorities and concerns raised in all technical and social areas. It will also seek to ensure the change in name from Rollsville to Puggoon is clear and well understood, with communication channels such as the project email and website also being updated.

The Project intends to refine the Project's design in response to stakeholder and community feedback, including identifying new issues in response to design developments. **Table 5-8** presents future engagement activities to be undertaken as part of the Project.

TABLE 5-8 PROPOSED COMMUNICATIONS AND ENGAGEMENT ACTIVITIES

Activity	Description
Following lodgment of the Scoping Report	
Update project webpage	Update project webpage on X-ELIO website with newly published information to ensure stakeholders can access the latest project information.
Community newsletter #2 (EDM)	Inform of the lodging of the Scoping Report. Summarise engagement events, provide Project updates, and preview coming stages and events. Reinforce the communications channels available and the next steps for engagement with the community.
Following SEARS issue and review of Project design	
Review SEARS and update CE Plan	Update the strategy based on the issued SEARs and engagement phase responses.

Activity	Description
Update project collateral	Update the project website, FAQs, and key messages to reflect current project stage and approval process.
Community newsletter #3 (EDM)	Advise that the SEARs have been issued. Summarise previous engagement events, provide Project updates, and preview coming stages and events. Reinforce the communications channels available; advise next steps for community engagement.
Further stakeholder meetings and conversations	Additional in-person and online meetings with stakeholders to provide an update on the project and permitting process. Will include conversations with: • ICN Network regarding work packages issued for the area; • Indigenous groups such as Mudgee Local Aboriginal Land Council; • Business groups such as Gulgong Chamber of Commerce; and • Potential support for medical services in the region.
EIS Exhibition Engagement Delivery	
Community newsletter #4 (EDM)	Announce date/s of community session/s. Outline how and when people can participate Promote the expected timeframe for the EIS exhibition period and advise how to contribute to the EIS process.
Advertisement of in-person drop in sessions	Advertise the community drop-in sessions and online survey Promote the exhibition period on public notice boards and social media channels.
EIS drop-in information session/s	Drop-in sessions to provide the community with an opportunity to ask questions and receive answers about the project and EIS from the project team. To maximise awareness of the proposal, drop-in sessions should again coincide with existing community events or occur in collaboration with community activities.
Advertisement of exhibition period	Advertise X-ELIO's intention for the EIS to be on exhibition as required by DPHI. Promote the exhibition period on public notice boards and social media channels.
Submissions Report input	Collate and consider issues raised via stakeholder submission and develop submission report for DPHI. Inputs include the stakeholder engagement outcomes as part of the EIS exhibition process, drawing on results of engagement.

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, 2022b):

- 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 A**.

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 – First Nations; and • Access - Traffic and Transport.
Standard	• Amenity – Noise and vibration; • Heritage – Historic; • Hazards and Risks – bushfire and environmental hazards; • Social – surroundings, livelihoods; • Water Resources – hydrology and surface water management; • Land Resources - Land capability; • Air Quality; and • Waste Management.

The EIS will be prepared in accordance with the SEARs to be issued by the DPHI 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 is a summary of the results and findings of the Preliminary Visual Impact Assessment (PVIA) prepared by Moir LA and contained as **Appendix B** to this Scoping Report.

The PVIA was undertaken by Moir LA in June 2024 and was prepared in accordance with the:

- Large-Scale Solar Energy Guideline (DPE, 2022a);
- Large-Scale Solar Energy Guideline – Technical Supplement: Landscape and Visual Impact Assessment (Technical Supplement 2022) developed by the DPHI (DPHI, 2022a); and
- State Significant Development Guidelines- Preparing a Scoping Report (DPE, 2022b).

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 4 km from the Project Area has been defined in accordance with the Technical Supplement 2022. The Study Area is characterized by randomly dispersed and scarce vegetation throughout the site.

The undulating terrain of the Project Area is steepest in the northwest portion with a maximum height of 475 meters Australian Height Datum (m AHD), and slopes downwards in the southeast running in a general northeast- southwest alignment and an existing active trainline running in a north-south alignment also traverses the Project Area (**Figure 1-1**).

There is an existing associated-dwelling within the Project Area located at 340 Jackson Lane, Beryl, and a total of 110 non-associated dwellings are identified within 4 km of the Project Area (refer to **Table 6-2**).

6.2.2 ASSESSMENT APPROACH

PRELIMINARY ASSESSMENT TOOL

The preliminary assessment tool identifies viewpoints from public roads and rail lines within 2.5 km and public and private viewpoints within 4 km of the Project Area that will require a detailed assessment in Stage 2. Application of the preliminary assessment tool identified 110 non-associated dwellings within 4 km of the Project Area. Viewshed mapping indicates that the majority of the Project will be visible to the immediate south and east of the Project due to the undulating terrain.

Intermediate assessment wireframe analysis was undertaken to determine the visual magnitude of the project more accurately, involving 3D modelling and consideration of intervening topography. As a result of the wireframe analysis, it was determined detailed assessments would be required for five (5) non-associated dwellings as part of the Landscape and Visual Impact Assessment (LVIA) during the EIS (**Table 6-2**).

TABLE 6-2 NON-ASSOCIATED DWELLINGS LOCATED WITHIN 4 KM OF THE PROJECT AREA

ID	Viewpoint type	Distance from nearest panel (m)	Detailed Assessment Required
1	Residential	3,613 m	NO
2	Residential	3,959 m	NO
3	Residential	3,808 m	NO
4	Residential	3,418 m	NO
6	Residential	3,411 m	NO
7	Residential	3,076 m	NO
8	Residential	2,758 m	NO
9	Residential	2,337 m	NO
10	Residential	2,760 m	NO
11	Residential	2,985 m	NO
12	Residential	2,794 m	NO
13	Residential	2,320 m	NO
14	Residential	1,877 m	NO
15	Residential	1,905 m	NO
16	Residential	2,869 m	NO
17	Residential	3,085 m	NO
18	Residential	3,330 m	NO
19	Residential	1,058 m	**YES**
20	Residential	1,326 m	**YES**
21	Residential	990 m	**YES**
22	Residential	1,725 m	NO
23	Residential	3,874 m	NO
25	Residential	3,977 m	NO
28	Residential	2,413 m	NO
29	Residential	2,856 m	NO
30	Residential	1,800 m	NO
31	Residential	2,085 m	NO
32	Residential	2,342 m	NO
33	Residential	2,415 m	NO
34	Residential	2,191 m	NO
35	Residential	3,405 m	NO
36	Residential	2,885 m	NO
37	Residential	1,421 m	**YES**

ID	Viewpoint type	Distance from nearest panel (m)	Detailed Assessment Required
38	Residential	3,484 m	NO
40	Residential	1,897 m	NO
42	Residential	604 m	**YES**
49	Residential	3,198 m	NO
50	Residential	3,386 m	NO
52	Residential	3,838 m	NO
53	Residential	3,900 m	NO
57	Residential	3,934 m	NO
58	Residential	1,678 m	NO
59	Residential	3,079 m	NO
62	Residential	4,166 m	NO
64	Residential	2,364 m	NO
68	Residential	3,213 m	NO
69	Residential	3,578 m	NO
70	Residential	4,022 m	NO
72	Residential	3,545 m	NO
73	Residential	3,785 m	NO
74	Residential	4,030 m	NO
75	Residential	4,169 m	NO
76	Residential	4,002 m	NO
77	Residential	3,428 m	NO
78	Residential	3,554 m	NO
79	Residential	3,578 m	NO
80	Residential	2,867 m	NO
84	Residential	2,859 m	NO
85	Residential	2,507 m	NO
86	Residential	2,895 m	NO
87	Residential	3,102 m	NO
88	Residential	3,186 m	NO
89	Residential	3,217 m	NO
90	Residential	3,457 m	NO
91	Residential	4,068 m	NO
95	Residential	3,828 m	NO
96	Residential	3,365 m	NO

ID	Viewpoint type	Distance from nearest panel (m)	Detailed Assessment Required
97	Residential	3,851 m	NO
98	Residential	3,821 m	NO
99	Residential	4,078 m	NO
100	Residential	3,827 m	NO
101	Residential	4,103 m	NO
102	Residential	3,680 m	NO
103	Residential	3,623 m	NO
104	Residential	3,858 m	NO
105	Residential	3,772 m	NO
110	Residential	3,476 m	NO

Additionally, 15 public receptors within the Study Area were assessed, two (2) of which are representative of The People's Park (VPA15) and Gulgong Turf Club (VPA14), and the remaining are public road and rail receptors. Views along Castlereagh Highway and Barneys Reef Road are limited to areas in proximity of the Project due to topography. The wireframe analysis determined that no detailed assessments would be required for any of the public receptors as part of the LVIA **Table 6-3**.

TABLE 6-3 PUBLIC VIEWPOINTS/RECEPTORS

ID	Viewpoint type	Distance from nearest panel (m)	Detailed Assessment Required
VPA01	Residential	560.65 m	NO
VPA02	Residential	701.91 m	NO
VPA03	Residential	494.21 m	NO
VPA04	Residential	519.96 m	NO
VPA05	Residential	1756.64 m	NO
VPA06	Residential	2237.71 m	NO
VPA07	Residential	1560.37 m	NO
VPA08	Residential	2505.17 m	NO
VPA09	Residential	2205.09 m	NO
VPA10	Residential	1138.13 m	NO
VPA11	Residential	2450.34 m	NO
VPA12	Residential	2014.49 m	NO
VPA13	Residential	2400.06 m	NO
VPA14	Residential	3650.27 m	NO
VPA15	Residential	4835.74 m	NO

POTENTIAL CUMULATIVE VISUAL IMPACTS

In accordance with the Cumulative Impact Assessment Guidelines (DPE, 2022c), 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, 2022c).

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 Mayfair Solar Farm, Mavis Solar Farm and Tallawang Solar Farm, and six (6) additional renewable energy projects are located within 10 km. The EIS will consider the cumulative visual impacts of the Project and all nine (9) large-scale renewable developments within 10 km. Other renewable energy projects within the Central-West Orana REZ (such as the Ulan Solar Farm, Orana Wind Farm and Birriwa Solar Farm) are located more than 10 km from the Project Area, and unlikely to be visible simultaneously with the project and therefore do not require detailed assessment in the EIS.

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 the *Large-Scale Solar Energy Guideline* (DPE, 2022a).

Specialized modelling tools and visualizations (including photomontages) will be developed to illustrate potential views of the Project from key public and private 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 associated-dwelling within the Project Area located at 340 Jackson Lane, Beryl, and six 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.

Noise and vibration at all receptors will be further assessed during the noise and vibration assessment for the EIS. It will be developed in accordance with the following standards, policies and guidelines:

- NSW Environment Protection Authority (EPA), *Noise Policy for Industry (NPI) 2017* (NSW EPA, 2017);
- NSW Department of Environment and Climate Change (DECC), *Interim Construction Noise Guideline 2009* (ICNG) (NSW DECC, 2009);
- Australian Standards (AS) 1055:2018 *Acoustics – Description and measurement of environmental noise* (Standards Australia, 2018);
- NSW Department of Environment and Conservation (DEC) *Assessing Vibration: A Technical Guideline 2006* (NSW DEC, 2006);
- NSW Department of Environment, Climate Change and Water (DECCW), *Road Noise Policy* (NSW DECCW, 2011);
- Transport for NSW (TfNSW), Road Noise Criteria Guideline (RNCG) 2022 (TfNSW, 2022a);
- Transport for NSW (TfNSW), Noise Mitigation Guideline (NMG) 2022 (TfNSW, 2022b); and
- NSW Environment Protection Authority (EPA), *Noise Guide for Local Government (NGLG) 2013* (NSW EPA, 2013).

6.4 BIODIVERSITY

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

The objective of the PBR was to assess potential ecological constraints that may occur within the Project Area. The results of this assessment are based on desktop reviews and biodiversity field surveys undertaken in May 2024. The PBR allows preliminary recommendations to be provided in terms of avoidance, mitigation and/or additional assessment of ecological values.

6.4.1 EXISTING ENVIRONMENT

Native vegetation and landscape features within the locality are summarised in the PBR (refer **Appendix C**). The Project Area is located entirely within the Inland Slopes subregion of the NSW South Western Slopes Interim Biogeographic Regionalisation for Australia (IBRA) bioregion.

The South Western Slopes Bioregion is characterised by a sub-humid climate with hot summers and consistent rainfall throughout the year. Mean annual rainfall varies from 400 mm in the west to 1,200 mm in the east and mean annual temperatures between 11 and 17°C. In the east where rainfall is highest, White Box (*Eucalyptus albens*) woodlands and open woodlands are dominant and to the north and west this transitions into Grey Box (*Eucalyptus microcarpa*) and White Cypress Pine (*Callitris glaucophylla*) (NPWS, 2003).

The Inland Slopes (also referred to as the Upper Slopes) subregion is characterised by open forests and woodlands on steep, hilly and undulating ranges and granite basins. Canopy species that frequently occur in the subregion include Red Stringybark (*Eucalyptus macrorhyncha*) on the upper slopes and Black Cypress Pine (*Callitris endlicheri*), Kurrajong (*Brachychiton populneus* subsp. *populneus*), Red Ironbark (*Eucalyptus sideroxylon*), White Gum *(Eucalyptus dalrympleana*), White Box *(Eucalyptus albens*), Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum (*Eucalyptus blakelyi*) on the lower slopes (NPWS, 2003).

No major corridors of habitat connectivity occur through the Inland Slopes subregion. The subregion provides a low level of connectivity between the Cope State Forest, Munghorn Gap Nature Reserve and Durridgere State Conservation Area in the east to Yarrobil National Park, Cobbora State Conservation Area and Goonoo State Conservation Area in the west. Approximately 2.28% of the of the South Western Slopes IBRA Bioregion consists of conservation tenures.

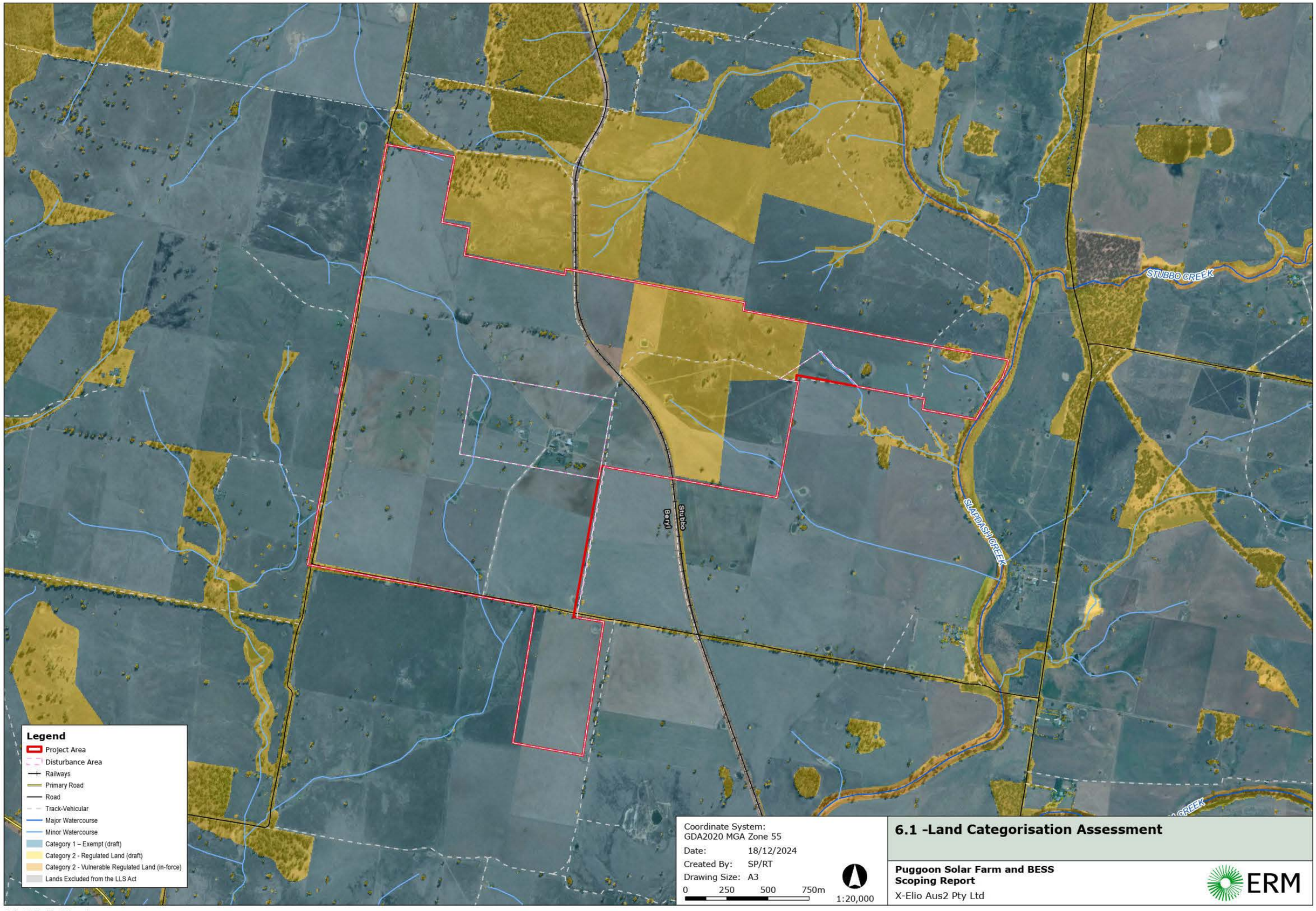
Large portions of land within the Project Area have been disturbed and are characterised by grazed native and modified grasslands resulting from vegetation clearing, cropping and livestock grazing. Scattered trees remain throughout the Project Area as paddock trees providing shelter to stock and play an important role to local wildlife. Areas of remnant woodland across the Project Area is consistent with the communities known to commonly occur in the Bioregion and subregion, including *Eucalyptus microcarpa* open woodland, *Eucalyptus melliodora* and *Eucalyptus blakelyi* co-dominant communities and frequent occurrence of *Angophora floribunda*.

6.4.2 LAND CATEGORISATION

The development of the solar farm and BESS will require assessment using the Biodiversity Assessment Method 2020 (BAM) and the preparation of a BDAR to support the submission of the EIS. Part 6, Division 2, Section 6.8 (3) of the NSW BC Act determines that the BAM is to exclude the assessment of the impacts of clearing of native vegetation on Category 1 - exempt land (within the meaning of Part 5A of the NSW *Local Land Services Act 2013* (LLS Act)), other than prescribed impacts (e.g., impacts on the habitat of threatened species). This determination is repeated in Section 1.5 (1)(d) of the BAM.

BAM accredited assessors may establish a reasonable approximation of land categorisation for the Environment Agency Head to consider. An outline of an evidence-based approach to identifying NVR map land categorisation, and the biodiversity assessment requirements in relation to Category 1 – exempt land, is provided in the guide *Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme* (DPE, 2023b).

An LCA Report will be prepared separately to this PBR, and will include the full details for the reasonable approximation of land categorisation for the Subject Land of the Project. Initial surveys, including LCA transects, have informed the proposed field verified Plant Community Type (PCT) mapping, with proposed Category 1 – exempt land mapped as PCT 0, Non-native (**Figure 6-1**).



Coordinate System:
GDA2020 MGA Zone 55

Date: 18/12/2024

Created By: SP/RT

Drawing Size: A3

0 250 500 750m

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6.1 -Land Categorisation Assessment

Puggoon Solar Farm and BESS
Scoping Report

X-Elio Aus2 Pty Ltd

ERM

Xelio_Rollsville_R1.mxd

6.4.3 PLANT COMMUNITY TYPES

The State Vegetation Mapping (SVTM) identified three (3) candidate PCTs as occurring in the Project Area:

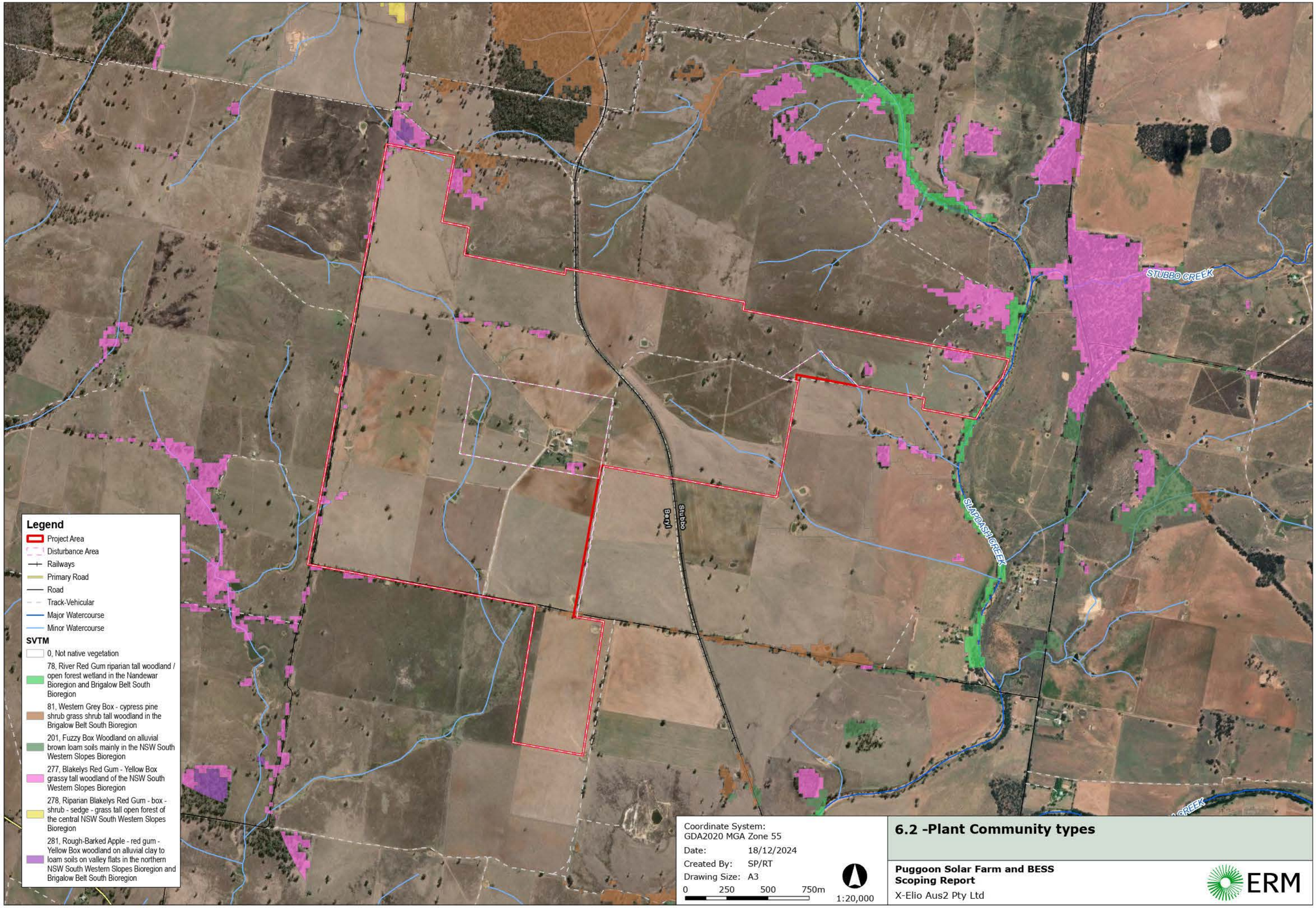
- PCT 78 – River Red Gum riparian tall woodland / open forest wetland in the Nandewar Bioregion and Brigalow Belt South Bioregion;
- PCT 81 – Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion; and
- PCT 277 – Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion.

As a result of ground-truthing efforts conducted during the field survey, four (4) field verified PCTs were found to occur within the Project Area as detailed in **Table 6-4** and displayed in **Figure 6-2**.

TABLE 6-4 PLANT COMMUNITY TYPES WITHIN THE PROJECT AREA

PCT ID	PCT Name	Vegetation Zones (VZ)	Area within Project Area (ha)[1]
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	• VZ1: Woodland	• VZ1: 0.40
201	Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	• VZ2: Woodland • VZ3: Scattered Trees	• VZ2: 1.55 • VZ3: 0.07
277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	• VZ4: Woodland • VZ5: Grassland • VZ6: Scattered Trees	• VZ4: 2.77 • VZ5: 5.39 • VZ6: 1.33
278	Riparian Blakely's Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion	• VZ7: Woodland	• VZ7: 0.51

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



6.2 -Plant Community types

Puggoon Solar Farm and BESS
Scoping Report
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Xelio_Rollsville_R1.mxd

6.4.4 THREATENED ECOLOGICAL COMMUNITIES

Threatened ecological communities (TECs) identified through desktop searches including the Protected Matters Search Tool (PMST) and through associated PCTs within the Project Area were reviewed to identify any potential occurrence. The results are presented in **Table 6-5**. Further detail regarding the assessment of TECs within the Project Area can be found in Section 4.2 of the PBR (**Appendix C**).

TABLE 6-5 TECS IDENTIFIED ON THE SUBJECT LAND

TEC	EPBC Act	BC Act	Likelihood to occur within Project Area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland/White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	CE	CE	**Likely** This community is being assessed against Vegetation Zones 4, 5 and 7. Refer to Section 4.2.1 of **Appendix C** for further discussion. Additional BAM plots and vegetation assessments required to determine presence.
Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	-	E	**Known** This community is being assessed against Vegetation Zone 2 and was found to confirm. Refer to Section 4.2.2 of **Appendix C** for further discussion.
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia/Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	E	E	**Known** This community is being assessed against Vegetation Zone 1 and was found to conform to both listed communities. Refer to Section 4.2.3 of **Appendix C** for further discussion.
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions/Coolibah - Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions	E	E	**Unlikely** Diagnostic canopy species (*Eucalyptus coolabah* subsp. *coolabah* and/or *Eucalyptus largiflorens*) are not present in the Project Area.
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	CE	-	**Unlikely** Project Area is not within the IBRA bioregions where the community occurs.
Weeping Myall Woodlands/Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	E	E	**Unlikely** Diagnostic canopy species (*Acacia pendula*) is not present in the Project Area.

6.4.5 THREATENED AND MIGRATORY SPECIES

The following sections identify the ecosystem credit species, species credit species and dual credit species as well as species listed under the EPBC Act and additional species relevant to the Project Area as identified through threatened species records.

No threatened and/or migratory flora or fauna species were detected during the field survey. A desktop assessment of the likelihood of occurrence of preliminary candidate species, MNES species and listed species recorded within the locality of the Project Area was conducted.

6.4.6 CANDIDATE SPECIES

Review of the BAM-C completed as part of the PBR in **Appendix C** concluded that there are 31 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 and no candidate species were observed during the field survey.

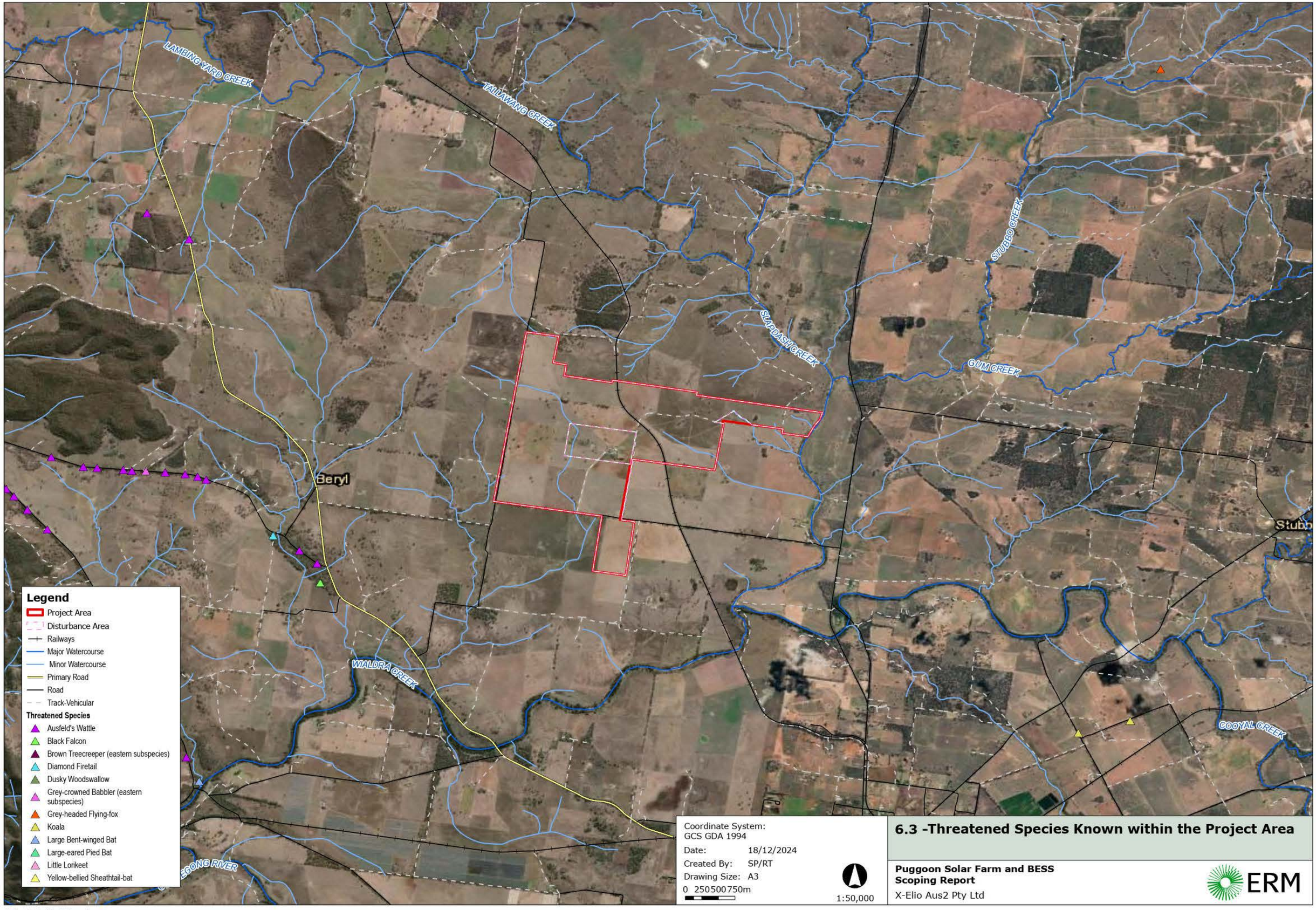
In accordance with the requirements of Section 5.2 of the BAM, the BDAR will identify the habitat suitability for threatened species within the Project Area. Species that meet all the relevant criteria will be automatically populated in the BAM-C (BAM Calculator) to be assessed either for ecosystem credits 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** and illustrated in **Figure 6-3**.

TABLE 6-6 PRELIMINARY LIST OF CANDIDATE SPECIES

Common Name	Scientific Name
Flora	
Ausfeld's Wattle	*Acacia ausfeldii*
Yass Daisy	*Ammobium craspedioides*
A Spear-grass	*Austrostipa wakoolica*
Sand-hill Spider Orchid	*Caladenia arenaria*
Small Scurf-pea	*Cullen parvum*
Bluegrass	*Dichanthium setosum*
Pine Donkey Orchid	*Diuris tricolor*
-	*Euphrasia arguta*
Tumut Grevillea	*Grevillea wilkinsonii*
Leafless Indigo	*Indigofera efoliata*
Tarengo Leek Orchid	*Prasophyllum petilum*
-	*Prasophyllum sp. Wybong*
Small Purple-pea	*Swainsona recta*
Silky Swainson-pea	*Swainsona sericea*

Common Name	Scientific Name
Fauna	
Regent Honeyeater (Breeding)	*Anthochaera phrygia*
Pink-tailed Legless Lizard	*Aprasia parapulchella*
South-eastern Glossy Black-Cockatoo (Breeding)	*Calyptorhynchus lathami lathami*
Sloane's Froglet	*Crinia sloanei*
Striped Legless Lizard	*Delma impar*
White-bellied Sea-Eagle (Breeding)	*Haliaeetus leucogaster*
Key's Matchstick Grasshopper	*Keyacris scurra*
Swift Parrot (Breeding)	*Lathamus discolor*
Booroolong Frog	*Litoria booroolongensis*
Pink Cockatoo	*Lophochroa leadbeateri*
Large Bent-winged Bat (Breeding)	*Miniopterus orianae oceanensis*
Squirrel Glider	*Petaurus norfolcensis*
Brush-tailed Phascogale	*Phascogale tapoatafa*
Koala	*Phascolarctos cinereus*
Superb Parrot (Breeding)	*Polytelis swainsonii*
Grey-headed Flying-fox (Breeding)	*Pteropus poliocephalus*
Golden Sun Moth	*Synemon plana*



6.3 -Threatened Species Known within the Project Area

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ERM

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6.4.7 ECOSYSTEM CREDIT SPECIES

Review of the BAM-C completed as part of the PBR in **Appendix C** concluded that there are 20 Candidate Species that have the potential to occur within the Project Area. Ecosystem credit species, also referred to as 'predicted species' are threatened species whose occurrence can generally be predicted by vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. The Threatened Biodiversity Data Collection (TBDC) identifies the threatened species assessed for ecosystem credits. A targeted survey is not required to identify or confirm the presence of ecosystem credit species.

The ecosystem credit species predicted to occur on or use the Project Area as advised by the BAM-C are listed in **Table 6-7**.

TABLE 6-7 PRELIMINARY LIST OF ECOSYSTEM CREDIT SPECIES

Common Name	Scientific Name
Regent Honeyeater (Foraging)	*Anthochaera phrygia*
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*
South-eastern Glossy Black-Cockatoo (Foraging)	*Calyptorhynchus lathami lathami*
Speckled Warbler	*Chthonicola sagittata*
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*
Spotted-tailed Quoll	*Dasyurus maculatus*
Black Falcon	*Falco subniger*
Little Lorikeet	*Glossopsitta pusilla*
White-bellied Sea-Eagle (Foraging)	*Haliaeetus leucogaster*
White-throated Needletail	*Hirundapus caudacutus*
Swift Parrot (Foraging)	*Lathamus discolor*
Pink Cockatoo (Foraging)	*Lophochroa leadbeateri*
South-eastern Hooded Robin	*Melanodryas cucullata cucullata*
Large Bent-winged Bat (Foraging)	*Miniopterus orianae oceanensis*
Scarlet Robin	*Petroica boodang*
Flame Robin	*Petroica phoenica*
Superb Parrot (Foraging)	*Polytelis swainsonii*
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*
Grey-headed Flying-fox (Foraging)	*Pteropus poliocephalus*
Diamond Firetail	*Stagonopleura guttata*

6.4.8 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Matters of National Environmental Significance (MNES) relevant to the Project Area are provided in **Table 6-8**. 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 (DCCEEW). 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. The PMST report is attached as Appendix A of the PBR (**Appendix C**).

TABLE 6-8 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

MNES	Relevance to the Project Area
World Heritage Properties	No World Heritage Properties are mapped within or are adjacent to the Project Area.
National Heritage Places	No National Heritage Places are mapped within or are adjacent to the Project Area.
Wetlands of International Importance (Ramsar Wetlands)	Ramsar wetlands identified by the PMST are more than 200 km from the Project Area.
Listed Threatened Ecological Communities (TECs)	The PMST identified five TECs with the potential to occur within the Project area. One (1) EPBC Act TEC is confirmed to occur within the Project Area: • Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (0.40 ha). One (1) EPBC Act TEC is considered likely to occur within the Project Area: • White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Additional survey effort is required to determine the presence of this community.
Listed Threatened Species	The PMST identified 46 threatened species listed under the EPBC Act that have the potential to occur within the Project area. No EPBC Act listed threatened species are known to occur within the Project area. Five (5) EPBC Act listed threatened species are considered likely to occur within the Project area, including: • Regent Honeyeater (*Anthochaera phrygia*) – Critically Endangered; • Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*) – Vulnerable; • Superb Parrot (*Polytelis swainsonii*- Vulnerable; • Diamond Firetail (*Stagonopleura guttata*) – Vulnerable; and • Grey-headed Flying-fox (*Pteropus poliocephalus*) – Vulnerable. 18 EPBC Act listed threatened species are considered to have the potential to occur within the Project Area, including: • Sharp-tailed Sandpiper (*Calidris acuminata*) – Vulnerable, Migratory;

MNES	Relevance to the Project Area
	• South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) – Vulnerable; • White-throated Needletail (*Hirundapus caudacutus*) – Vulnerable, Migratory; • Swift Parrot (*Lathamus discolor*) – Critically Endangered; • Malleefowl (*Leipoa ocellata*) – Vulnerable; • South-eastern Hooded Robin (*Melanodryas cucullata cucullata*) – Endangered; • Blue-winged Parrot (*Neophema chrysostoma*) – Vulnerable; • Large-eared Pied Bat (*Chalinolobus dwyeri*) – Endangered; • Spot-tailed Quoll (*Dasyurus maculatus maculatus*) – Endangered; • Koala (*Phascolarctos cinereus*) – Endangered; • Pink-tailed Legless Lizard (*Aprasia parapulchella*) – Vulnerable; • *Androcalva procumbens* – Vulnerable; • Bluegrass (*Dichanthium setosum*) – Vulnerable; • *Homoranthus darwinioides* – Vulnerable; • *Ozothamnus tesselatus* – Vulnerable; • Tarengo Leek Orchid (*Prasophyllum petilum*) – Endangered; • A Leek-orchid (*Prasophyllum sp. Wybong*) – Critically Endangered; and • Small Purple-pea (*Swainsona recta*) – Endangered.
Listed Migratory Species	The PMST identified 10 migratory species with the potential to occur within the Project Area. None of these species are considered known or likely to occur within the Project Area. Two (2) EPBC Act listed migratory species are considered to have the potential to occur within the Project Area, including: • White-throated Needletail (*Hirundapus caudacutus*) – Vulnerable, Migratory; and • Fork-tailed Swift (*Apus pacificus*) – Migratory.
Great Barrier Reef Marine Park	Not applicable

6.4.9 ASSESSMENT APPROACH

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.

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 initial surveys, to be followed by seasonal surveys to meet the anticipated survey requirements in accordance with the BAM. 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 in force at the time of this PBR include:

- Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide (DPE 2022);
- 'Species credit' threatened bats and their habitats, NSW survey guide for the Biodiversity Assessment Method (OEH, 2018);
- Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft) (Department of Environment and Conservation (DEC), 2004);

- Survey Guidelines for Australia's Threatened Mammals (Department of Sustainability, Environment, Water, Population & Communities (DSWP&C), 2011);
- NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method (DPIE, 2020b);
- Surveying Threatened plants and their habitats - NSW survey guide for the Biodiversity Assessment Method (DPIE, 2020c); and
- Threatened reptiles Biodiversity Assessment Method survey guide (DPE, 2022).

Remaining investigations include the following:

- 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 and MNES species likely to occur.

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.

APPLICATION OF THE MITIGATION HIERARCHY

This Preliminary Biodiversity Report has identified the biodiversity constraints on the proposed Puggoon 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 a priority. The following principles are to be considered in the application of the mitigation hierarchy:

Avoid:

- Areas of mapped TECs;
- Areas that contain identified biodiversity values such as habitat features; and
- Areas of mapped native vegetation.

Minimise:

- The risk for weed and pest incursion on the Project Area; and
- The risk of injury to fauna.

Mitigate:

- Any residual impacts to biodiversity. This should be achieved through conservation and improvement of existing native vegetation on the Project Area.

OFFSET STRATEGY

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

- Retirement of suitable ecosystem and species credits registered in the Biodiversity Offset Scheme (BOS) including payment into the Biodiversity Conservation Trust fund;
- Contribution to a conservation initiative; and/or
- Implementation of a voluntary planning agreement (s7.18 of the BC Act).

The Minister may also consider Ancillary Rules in lieu of retiring biodiversity credits as well as any additional and appropriate measures that will minimize those impacts if consent or approval is to be granted for impacts on entities at risk of serious and irreversible impacts (s7.16(3) of the BC Act).

PREPARATION OF A BDAR

A BDAR prepared in accordance with the BAM is expected to be provided as a part of the EIS and will have regard for the PCTs and BAM-C generated Candidate species identified in this PBR. 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 an assessment of impacts associated with the Project. It will also outline the offset strategy for any residual impacts as a result of the Project.

6.5 FIRST NATIONS CULTURAL HERITAGE

6.5.1 EXISTING ENVIRONMENT

The Project Area is located in Beryl, entirely within the Inland Slopes subregion of the NSW South Western Slopes IBRA bioregion. The South Western Slopes bioregion is comprised of foothills and ranges on the western edge of the Great Dividing Range to the Riverina bioregion. Alluvial sands and loams are found more commonly in the landscape than clays, but alluvial clays are found closer to the Riverina Plain. The bioregion lies within the eastern part of the Lachlan Fold Belt which consists of a complex series of north to north-westerly trending folded bodies of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Granites are common, mostly found within large scale upfolded bodies of rock (NPWS, 2003).

The South Western Slopes bioregion is dominated by a sub-humid climate characterised by hot summers and no dry season. The South Western Slopes was traditionally Wiradjuri country, the largest Aboriginal language group in NSW (NPWS, 2003). The Wiradjuri people travelled to the alpine regions of the South Eastern Highlands and Australian Alps bioregions for the annual summer feasts of bogong moths (HO and DUAP, 1996). Wiradjuri means "people of the three rivers", these rivers being the Macquarie, Lachlan and Murrumbidgee (HO and DUAP, 1996). For the Wiradjuri people, the three rivers were their livelihood and supplied a variety of consistent and abundant food provisions including shellfish and fish such as Murray cod (HO and DUAP, 1996). In dry seasons the food from the rivers was supplemented with kangaroos and emus hunted for their meat, as well as fresh food gathered from the land between the rivers, including fruit, nuts, yam daisies, wattle seeds and orchid tubers (HO and DUAP, 1996).

PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

Synthetic archaeological studies are limited to the Beryl region, though works do exist for the neighbouring Upper Macquarie River region (Pearson, 1981) and Dubbo area (Koetigg, 1985).

Pearson surveyed a number of sites and excavated three rock shelters. His thesis explored human settlement in the Upper Macquarie River region and its environmental zoning, difference in economic systems and evolving perceptions of the regional landscape. Excavations established that the region has been occupied for at least 7000 years. Pearson found that settlement patterns were partly determined by the nature of sub-regions, with harsher climates and poor resourced areas avoided and more fertile areas preferred for settlement. He found that site location related to the availability of food and water as well as slope, dampness, aspect, and cold air drainage. Pearson developed the following predictive model for site location:

- Open camp sites varied from 10 m to 500 m from water sources (generally the closer to the water source the larger the site), with sites having good drainage and views of watercourses favoured;
- Burial sites and grinding grooves were found close to open camp sites;
- Ceremonial sites (earth rings and bora grounds) and stone arrangements were found away from open camp sites; and
- Quarry sites were found in areas with desirable stone sources with good accessibility.

Koetigg (1985) undertook a comprehensive study of the Dubbo region, investigating all topographic landforms and creek orders. The study found that First Nations sites might be found throughout all landscape types, while artefact scatters, culturally modified trees and grinding grooves were the most common site types in the region. The location and size of sites was largely determined by proximity to water, geological formations, and the availability of food resources. The larger sites occupied for longer periods of time tended to occur along permanent watercourses, while smaller sites, reflecting more sporadic occupation, occurred mostly along ridge tops or temporary watercourses (NGH, 2017a).

A recent Aboriginal Cultural Heritage Assessment undertaken for a proposed solar farm site in Beryl involved undertaking a study of regional archaeological investigations to develop a predictive model for site location in the area (NGH, 2017a). The authors developed the following predictions regarding site occurrences:

- Stone artefact scatters occur across the landscape, though are usually located in proximity to resources of specific landscape units;
- Burials are mostly located in elevated sandy contexts or in proximity to major watercourses;
- Culturally modified trees are likely found near major watercourses and swamp areas;
- Hearths/ovens have not been recorded in the district but could occur in association with other sites and often are found near resource locations; and
- Isolated artefacts may occur across the entire landscape, in varying densities (NGH, 2017a, pp. 22-23).

Soil mapping (Murphy & Lawrie, 2010) indicates the Project Area is found within the Home Rule soil landscape. This landscape contains siliceous sands, earth sands, yellow solodic soils/soloths and bleached sands. Several archaeological surveys and reports have been conducted within the Project Area and the surrounding landscape for renewable energy projects and other land management programs. These are outlined below.

A 35 km survey was undertaken between Beryl and Ulan by Cubis (1981) for a 132 kV transmission line. The survey recorded 10 sites, including isolated finds and artefact scatters. Brayshaw (1987) surveyed a 125 m^2 area in Beryl on the banks of the Cudgegong River, 9 km west of Gulgong, part of a proposed hard rock basalt quarry. The survey recorded 6 open sites and an isolated find, including quartz, chert, mudstone, and basalt artefacts. All sites were within 240 m of the river, with two located on ridge tops and the others on river flats and adjacent slopes. Smith (1987) also surveyed land as part of the proposed quarry site. Surveying recorded six open sites and a quartz quarry site, all located within 500 m of the Cudgegong River. As with Brayshaw's finds, the dominant stone was quartz.

In 2005, OzArk undertook surveying of corridor options for the Wollar to Wellington Transmission Line as part of the Director General's Environmental Report (DPE, 2006) OzArk's 2005 survey area ran through the current Project Area that is the focus of this report (OzArk, 2005). OzArk's surveys identified 28 sites, 19 of which were classified as open sites. Nine (9) of these 19 open sites were also identified as having a potential archeological deposit. Of the remaining nine sites, seven were isolated finds and two were stand alone potential archaeological deposits.

OzArk also conducted a survey for a duplication of powerlines from Beryl substation to Dunedoo substation in 2012. The footprint assessed was 40 km in length and 15 m wide. OzArk noted that proximity to permanent water sources appeared to be the primary factor in predicting the location of campsites in the area. Two (2) previously recorded sites, both already legally impacted, were confirmed as no longer existing. Two (2) new sites were also recorded near the headwaters of Limestone Creek, both artefact scatters with potential archaeological deposit (NGH, 2017a, p. 20)**.**

NGH Environmental (2017a) prepared an ACHAR for a proposed solar farm in Beryl, approximately 6 km west of Gulgong, NSW. Surveying covered an area of 46 ha, though due to visibility restrictions the effective survey coverage was 6.9 ha. While no previously recorded sites were known within their Project Area, five new sites were recorded, including four isolated finds and an artefact scatter. The site locations reflected the predictive model the authors developed, with sites located within 100-400 m of a water source. NGH Environmental noted that the absence of scarred trees from their assessment was likely due to clearing activities, with few mature trees remaining in the surveyed area.

6.5.2 AHIMS SEARCH RESULTS

Heritage NSW managed the Aboriginal Heritage Information Management System (AHIMS) database, which holds information on previously recorded Aboriginal sites in NSW. An extensive search of the AHIMS database was conducted on 20 June 2024, using the details provided in **Table 6-9**.

TABLE 6-9 AHIMS DATABASE SEARCH DETAILS

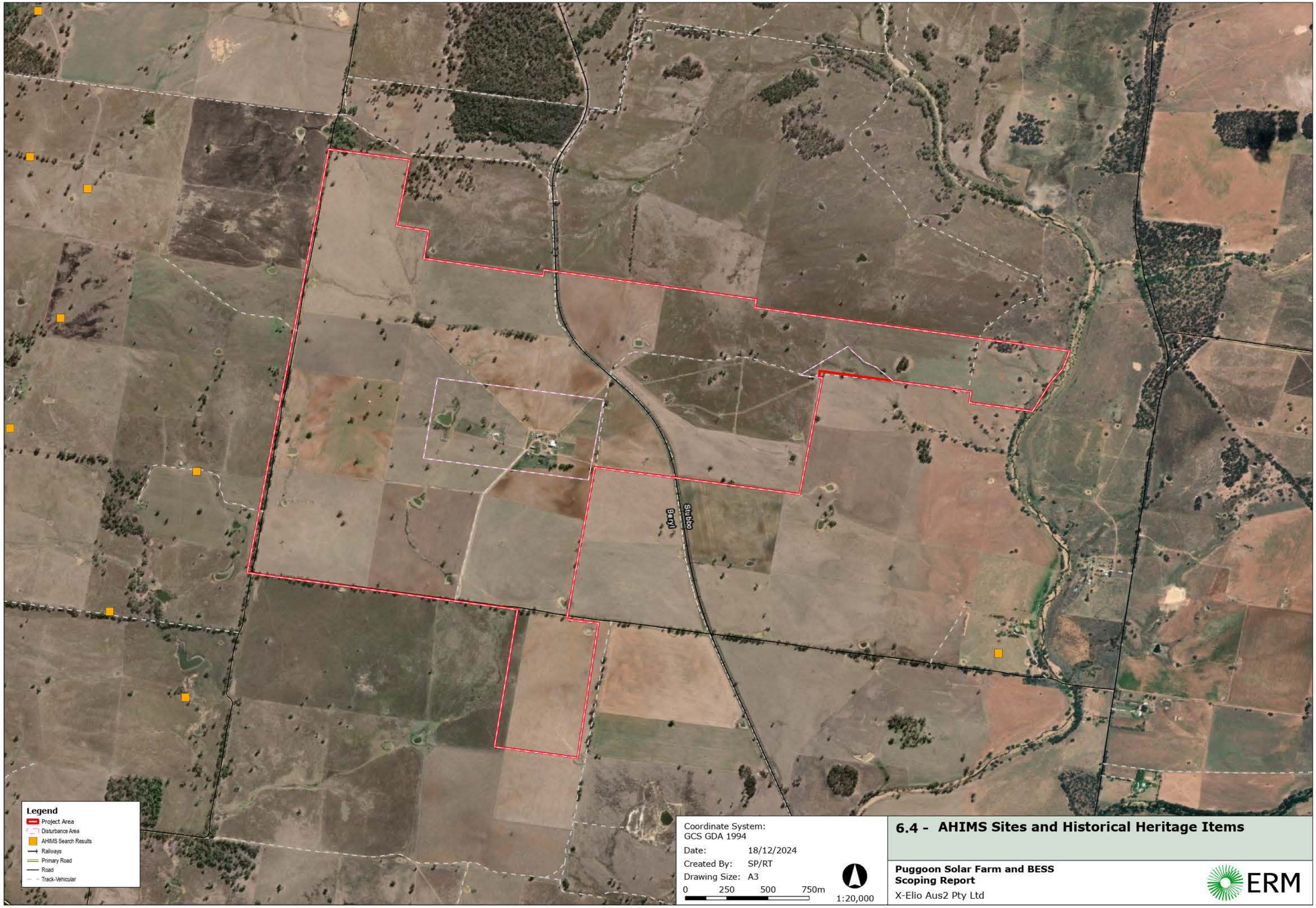
Item	Detail
Client Service ID	902768
Datum	GDA Zone 55
Latitude	-32.3482 to -32.2757
Longitude	149.44 to 149.5636
Number Sites	36

A total of 36 sites were identified during the search, with most of the sites located to the west of the Project Area (**Figure 6-4**). No registered sites are located within the boundary of the Project Area however the lack of sites does not indicate that no sites are present but rather that a lack of, or limited archaeological survey has occurred to date within the Project Area. Of the 36 sites listed in the AHIMS search results, the most common site feature was artefacts. The other site features are varied in type, consisting of Potential Archaeological Deposits (PAD), Artefacts and PADs, a Burial, a Modified Tree, Artefact with PAD, Modified Tree and PAD with Modified Tree. Many of the registered sites contain multiple site types in one location (e.g. Artefact, PAD and Modified Tree). Three (3) of the sites are listed as destroyed (AHIMS 36-2-0469, 36-2-0470 and 36-2-0471), all of which are Artefact site types. Cultural heritage and landform sensitivity mapping and the results from previous archaeological reports from the region demonstrate that areas of high and moderate potential exist within the Project Area.

The results of the full AHIMS search are summarised in **Table 6-10** and located in **Appendix D**.

TABLE 6-10 AHIMS REGISTERED SITE TYPES

Site Type	Total Number
Artefact	28
Potential Archaeological Deposit (PAD)	2
Artefact, PAD	2
Artefact, PAD, Modified Tree	1
PAD, Modified Tree	1
Modified Tree	1
Burial	1
Total	**36**



Coordinate System:
GCS GDA 1994

Date: 18/12/2024

Created By: SP/RT

Drawing Size: A3

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6.4 - AHIMS Sites and Historical Heritage Items

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STUBBO CREEK

Stubbo

Beryl

SLAPDASH CREEK

WIALDRA CREEK

Legend

- Project Area
- Disturbance Area
- Railways
- Primary Road
- Road
- Track-Vehicular
- Major Watercourse
- Minor Watercourse

Accumulated impact (Estimated loss)

High : 517792

Low : 0

Coordinate System:
GDA2020 MGA Zone 55

Date: 18/12/2024

Created By: SP/RT

Drawing Size: A3

0 250 500 750m

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F6.5- Cultural Heritage Sensitivity (ASDS Modelled Results)

Puggoon Solar Farm and BESS Scoping Report

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ERM

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6.5.3 ASSESSMENT APPROACH

Based on the results of soil mapping, AHIMS mappings and the results of previous reports, this preliminary desktop assessment has determined that it is likely that areas within the Project Area 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. The following recommendations are therefore provided:

- 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 Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010a), and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010b);
- Results of the investigations are to be detailed in an Aboriginal Cultural Heritage Assessment Report (), in accordance with the Code of Practice for Archaeological Investigation of Aborigi ACHAR nal Objects in NSW (DECCW, 2010a); and
- Upon completion of the ACHAR, a Cultural Heritage Management Plan (CHMP) should be prepared to ensure appropriate management of any identified cultural heritage throughout the construction process.

6.6 HISTORICAL HERITAGE

6.6.1 EXISTING ENVIRONMENT

Early colonial settlement of the Gulgong region occurred from the 1820s, but the gold rush of the 1870s led to rapidly increasing growth. The central tablelands had seen significant exploration and mining for gold, but the Gulgong boom was particularly productive, with the mines around the town producing twice as much gold in a single year, 1872, then Meroo field (50 km south) produced in half a century. Gold mining declined in Gulgong after 1877, though gold was produced here for another 20 years (HO and DUAP, 1996). Following the gold rush of the 1870s, wheat and wool became the focus of the local economy in the 1880s (NGH Environmental, 2017b, p. 141). The railway reached Gulgong in 1909.

The railway line running through the Project Area was surveyed as early as the 1880s. Gulgong was, along with Mudgee, as important market town for the surrounding farms, considered an important stop on the proposed railway (Mudgee Guardian, 1899, p. 18). The line was finally extended from Mudgee to Gulgong in 1909, and onto Dunedoo in 1910 – the latter section running through the Project Area. Early Parish Maps indicate the properties making up the Project Area were owned by various landholders by the 1880s. Historical aerial photography shows that the homestead and dam in the centre of Lot 4 DP1078822 were present by the mid-1960s. The area continues to be used for agricultural purposes.

6.6.2 STATUTORY HERITAGE REGISTER SEARCHES

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 for the Environment as having one or more Commonwealth Heritage values. There are no Commonwealth Heritage listed places within or in proximity to the Project Area.

National Heritage List

The National Heritage List contains natural, historic, and Indigenous places deemed to be of outstanding heritage significance to Australia. Before a site is included on the list, a nominated place is assessed against nine criteria by the Australian Heritage Council. There are no National Heritage listed places within or in proximity to the Project Area.

State Heritage Register

A search of the NSW State Heritage Register (SHR) was conducted on 18 June 2024. The search indicates that there are no SHR-listed items within or in close proximity to the Project Area. Gulgong Railway Bridge over Wialdra Creek is a SHR listed item that is located approximately 2km from the Project Area, as detailed in (NGH Environmental, 2017b)**.**

Mid-Western Regional Local Environmental Plan 2012

A search of the Mid-Western Regional LEP 2013 was conducted on 18 June 2024. The search identified no locally heritage listed sites within the Project Area. The search noted one (1) locally listed heritage item located approximately 2.5 km from the Project Area, as detailed in **Table 6-11.**

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 18 June 2024. There are no Section 170 heritage places located within or in close proximity to the Project Area.

6.6.3 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. The RNE compiled between 1976 and 2003 by the Australian Heritage Commission.

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 an archive of a non-statutory information on the Australian Heritage Database.

A search of the Australian Heritage Database was undertaken on 18 June 2024. This search identified no RNE listed places within or in close proximity to the Project Area.

National Trust of Australia (NSW) 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 21 June 2024 indicated there are no National Trust listed properties within or near the Project Area.

6.6.4 HISTORIC HERITAGE SUMMARY

Table 6-11 provides an overview of the statutory and non-statutory heritage listings identified within or near the Project Area.

TABLE 6-11 NON-INDIGENOUS HERITAGE SITES SUMMARY

Site Name	Register	Item ID	Description	Distance to Project Boundary	Significance Level
The Lagoon Homestead	Mid-Western Regional LEP 2012	I391	Count home built in the 1950s.	~2.5 km	Local
Gulgong Railway Bridge over Wialdra Creek	State Heritage Register	01038	Railway bridge	~2km	N/A

It is noted that heritage register searches provide a limited understanding of potential historical archaeological resources within the Project Area, rather providing information about standing structures of importance to the community.

6.6.5 ASSESSMENT APPROACH

Preliminary assessment has shown there are no registered historic heritage items within the Project Area listed on National, State or Local statutory heritage registers. The closest registered historic heritage item is the local heritage item 'The Lagoon Homestead' (Mid-West Regional LEP ID I391) located approximately 2.5 km south of the Project Area.

While no registered historic heritage items are located within the Project Area, several historic structures have been identified within historic aerials. 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 non-Indigenous (Historical) heritage due diligence assessment be prepared as part of the EIS. The non-Indigenous heritage assessment report should consider any intangible values held by the community or relevant stakeholders. Preparation of the non-Indigenous heritage report would involve detailed historical research, including analysis of historical aerial imagery, physical inspection of the relevant areas of the Project Area.

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

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 not currently recognised as being bushfire prone (refer to **Figure 6-6**). However, it is recognized that Category 3 Vegetation (including but not limited to grasslands and freshwater wetlands) will likely be added to the bushfire prone land mapping at some stage to align with the requirements of the NSW RFS Guide for Bush Fire Prone Land Mapping (RFS, 2015).

The Project Area is characterized by an agricultural landscape with a generally flat topography. The Site contains sparse vegetation whilst tree lines along the roads maintain connectivity to surrounding lands.

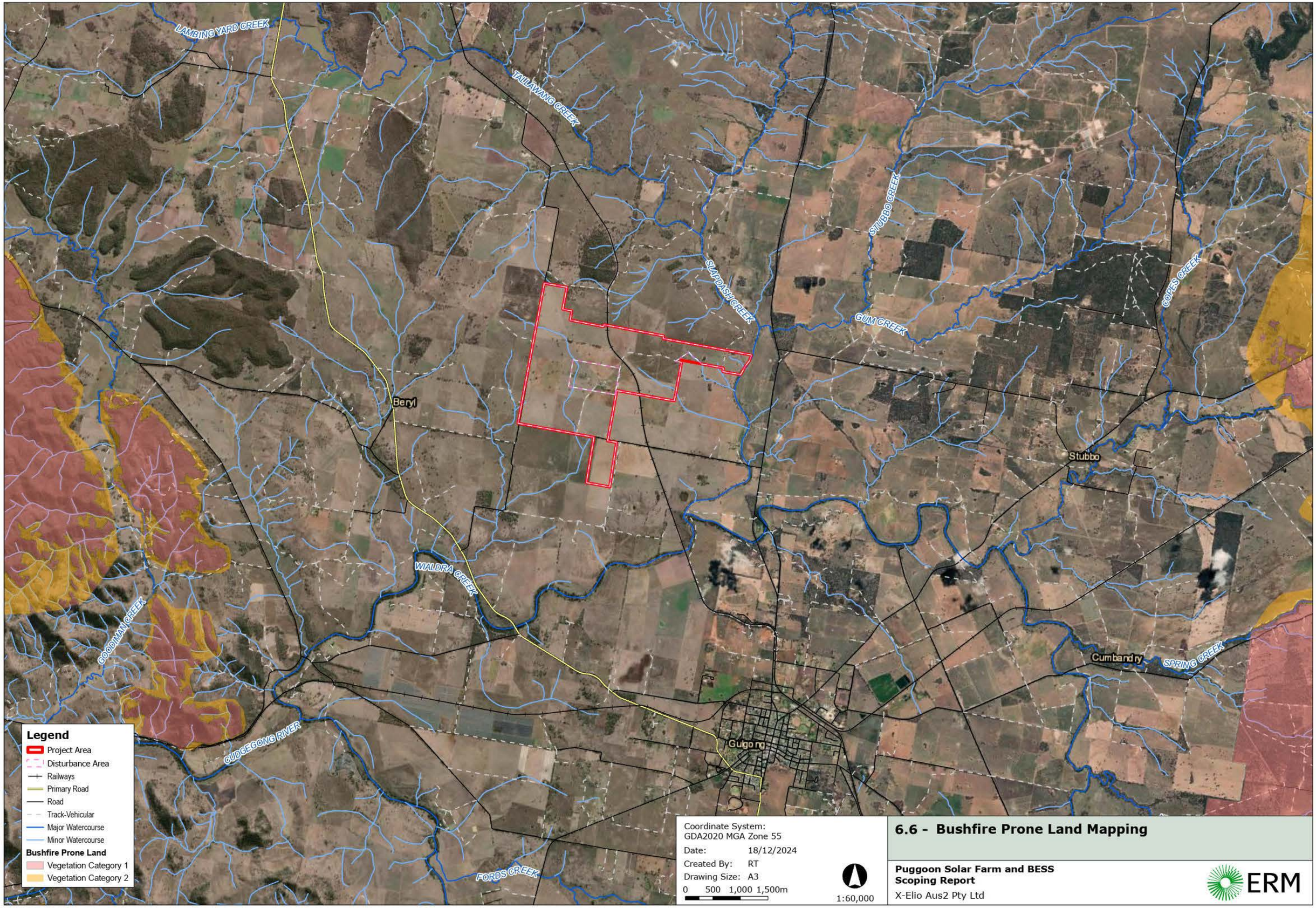
ASSESSMENT APPROACH

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.



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6.6 - Bushfire Prone Land Mapping

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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 existing transmission lines and proposed 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.

6.8 MINING AND EXPLORATION TITLES

6.8.1 EXISTING ENVIRONMENT

The Mid-Western Regional LGA is strongly supported by the mining industry due to the abundance of minerals and natural resources in the region. A large proportion of mining titles are found to the north of Gulgong and Ulan within the Sydney Basin. The mining industry is the largest contributor to the region's economic value, providing over $100 million per annum to the overall economic growth. Approximately 17.6% of the community were employed in the mining industry in 2020, making it the largest contributor to the regions' employment market (Mid-Western Regional Council, 2020a).

Coal mining within the region began at Ulan, approximately 20 km west of the Project Area, in the early 1920's and small scale, sporadic mining supplied the Ulan Power Station until the 1960's. The Ulan Coal Mine, developed in 1982, has expanded over time and is presently approved to mine up to 20 million tonnes of coal per annum until 2032. Since the beginning of the 21st Century, the Mid-Western LGA has seen the development of two large coal mines, Wilpinjong Coal Mine and Moolarben Coal Mine (MDEG, 2017). The region has active mining development and extraction operations underway, with existing mines expanding and new mines currently in development.

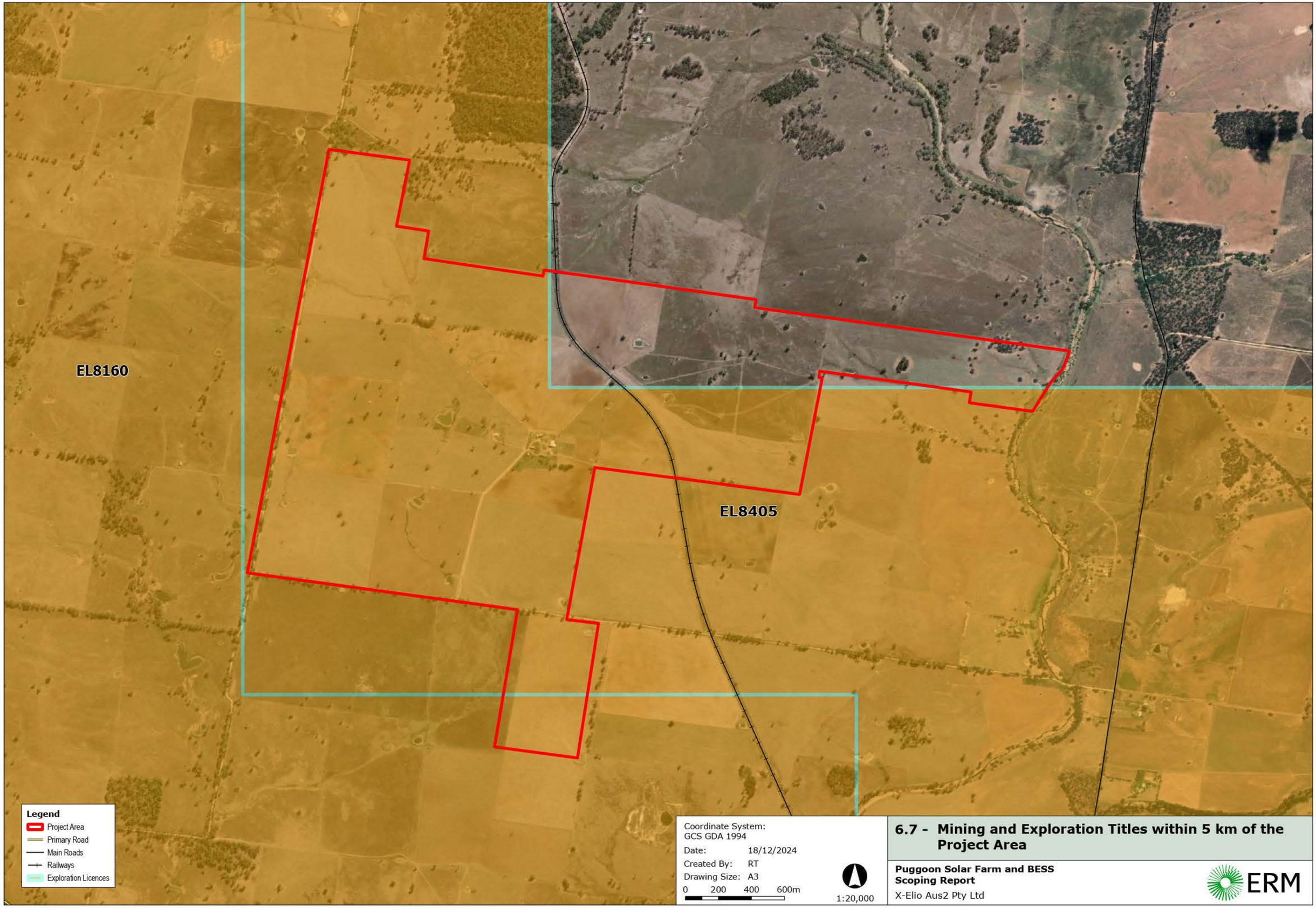
There is one (1) exploration title within the Project Area, and one (1) additional exploration title within 5 km of the Project Area as shown in **Table 6-12** and **Figure 6-7**.

TABLE 6-12 MINING AND EXPLORATION TITLES WITHIN 5 KM OF THE PROJECT AREA

ID	Application Number	Applicant	Operation	Resource	Distance to Project Area
28665	EL8405	BOWDENS SILVER PTY LIMITED	Exploration	Group 1 Minerals	Overlaps with Project Area
27945	EL8160	BOWDENS SILVER PTY LIMITED	Exploration	Group 1 Minerals	Overlaps southern portion of the Project Area

6.8.2 ASSESSMENT APPROACH

The EIS will include consultation with the license holders that overlap the site prior to development.



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6.7 - Mining and Exploration Titles within 5 km of the Project Area

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6.9 TRAFFIC AND TRANSPORT

6.9.1 EXISTING ENVIRONMENT

The Project Area is located approximately 302 km northwest from Sydney, NSW, and approximately 10 km northwest of Gulgong, NSW (by road). Access to the Project Area during construction and operation is expected via the regional council road network, Puggoon Road and/or Jacksons Lane.

Puggoon Road is a municipal local road that runs in a general north-south alignment between Castlereagh highway and its termination near Tallawang Creek approximately 5 km north of the Project Area. Jacksons Lane is a local municipal road running in east-west alignment between Pugggon and Barneys Reef Road. Both Puggoon Road and Jacksons Lane both have an unsealed carriageway, 4.5 m width, 100 km/hr speed limit in vicinity of the Project Area, accomodating low volumes of traffic in each direction.

Barney's Reef Road is anticipated to service commuting to the Project Area from Gulgong and the broader road network to and from the south. Barneys Reef road is also a municipal local road that runs in a north-south alignment between its continuations as Merotherie Road and Medley street in Gulgong. The road has a sealed carriageway, 5 m width and 100 km/hr speed limit in vicinity of the Project Area, accommodating low volumes of traffic in each direction.

There are no public transport services provided within vicinity of the Project Area and no traffic volume data available for the immediate local road network.

It is anticipated that major solar farm and BESS components will be delivered via Port of Newcastle and the construction material and equipment generally are to be sourced from the surrounding areas where practicable.

6.9.2 ASSESSMENT APPROACH

As part of the Scoping Report, a Preliminary Transport Assessment (PTA) (**Appendix E**) was prepared by Amber in June 2024 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 (Austroads, 2021);
- Austroads Guide to Traffic Management (Austroads, 2020); and
- The Port of Newcastle has been identified as the preferred port for the delivery of solar and BESS equipment and plant. A route assessment from the Port of Newcastle, representing the worst-case scenario, was undertaken as part of the PTA and identified that the entire route is currently approved within the NSW Class 1 Oversize Overmass (OSOM) load carrying vehicles network map (**Figure 3-5**). The transport route for OSOM vehicles will be confirmed as part of the EIS.

Vehicle access to the Project Area is proposed by Jacksons Lane and/or Puggoon Road, via the surrounding local road network consisting of Ulan Road, Main Street, Cope Road, Rouse Street and Barneys Reef Road currently approved for 26-metre B-Double vehicles. Jacksons Lane and Puggoon Road are both unsealed and currently unrated for B-Double access and would require further assessment and B-Double approval as part of the EIS.

Although the precise location of proposed site access is yet to be determined, it is anticipated that the site access points will be located to achieve compliance with the required Safe Intersection Sight Distance (SISD), as per Austroads Requirements. An assessment of the required turning treatments will be undertaken as part of the EIS.

There is no traffic volume data available for Barneys Reef Road, Puggoon Road or Jacksons Lane, it is anticipated that all roads would carry a low level of traffic based on the surrounding agricultural land use. 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 a tube count survey is undertaken along Barneys Reef Road to the support any future analysis.

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.

6.10 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 DPHI, Social Impact Assessment Guideline for State Significant Projects (SIA Guideline) (DPE, 2023a) and DPHI's Technical Supplement: Social Impact Assessment Guideline for State Significant Projects (SIA Technical Supplement) (DPE, 2023c).

The first phase SIA involves the scoping and preliminary assessment of the Project, identifies the level of assessment to be applied, and sets further parameters for the second phase SIA (the assessment report to be appended to the EIS) (DPE, 2023a). Accordingly, this first phase SIA includes:

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

6.10.1 EXISTING ENVIRONMENT

As depicted in **Figure 6-8**, the Project Area is situated in Beryl, New South Wales (NSW), approximately 4 km northwest of the town of Gulgong in the Mid-Western Regional Local Government Area (LGA). The Project Area is approximately 302 km (by road) northwest from Sydney, NSW. Gulgong is the closest community to the Project Area that has the potential to provide goods and services (including accommodation) to support the construction and operation (e.g. ongoing maintenance) phases of the Project, along with the smaller town of Dunedoo and the larger communities of Mudgee, Wellington. The closest major regional city is Dubbo.

6.10.2 COMMUNITY PROFILE

The first phase SIA is primarily based on Australian Bureau of Statistics (ABS) 2021 Census data (i.e. latest available) for the purposes of providing a socio-economic baseline analysis. The ABS Socio-Economic Indexes for Areas (SEIFA) data outlined in Table 1-3 of **Appendix F** highlights that the Gulgong Suburbs and Localities (SAL) has a much lower SEIFA index of 12, compared to the surrounding SALs of Beryl and Tallawang (both with a score of 46) and the Stubbo SAL with a score of 37. The Mid-Western Regional LGA has a SEIFA score of 41. Based on this data, the Gulgong SAL appears to be more disadvantaged compared to its neighbouring SALs and the LGA.

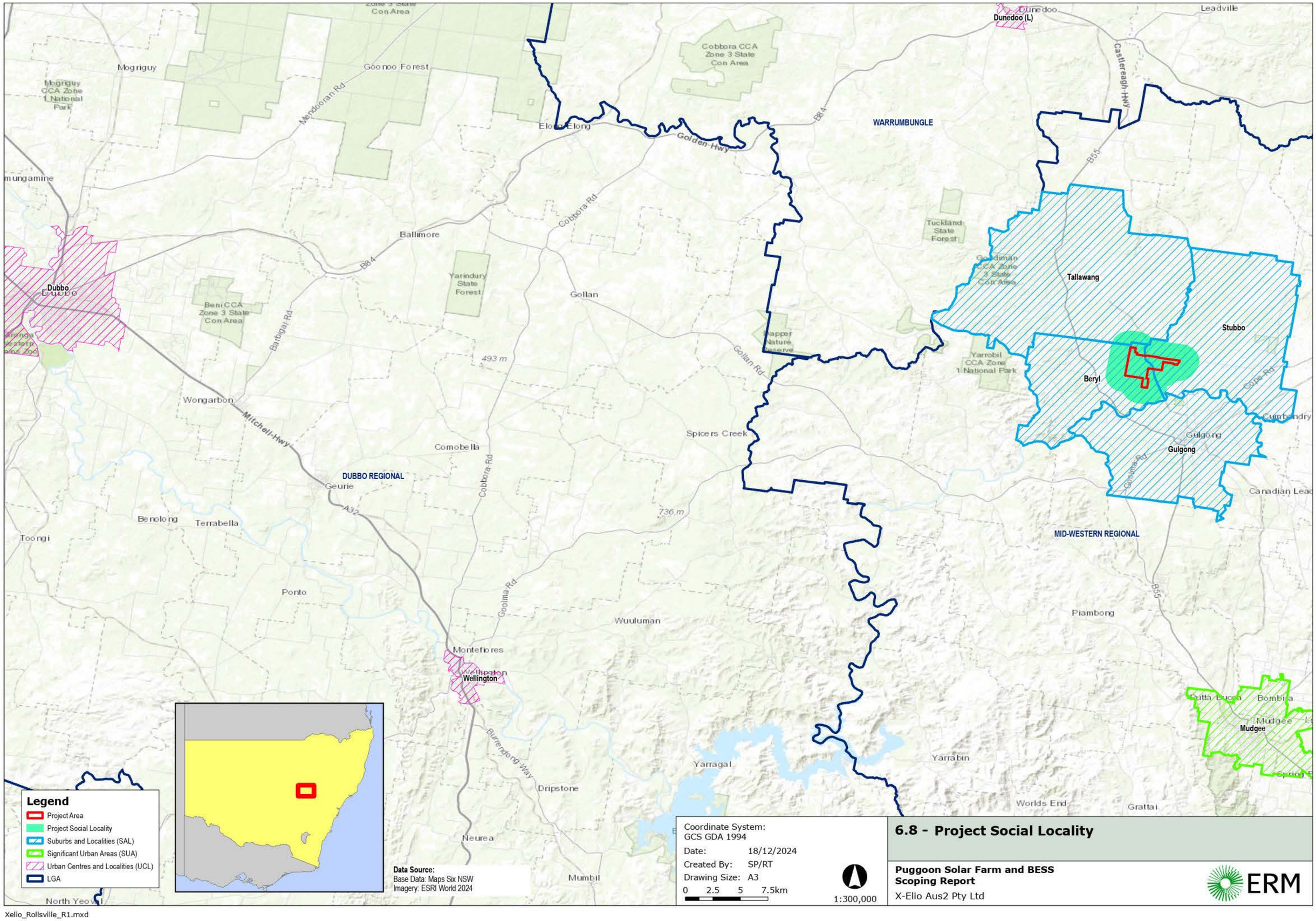
6.10.3 SOCIAL INFRASTRUCTURE OVERVIEW

The regional centres that are likely to provide social infrastructure for the Project are Gulgong, Dunedoo, Mudgee, Wellington and Dubbo. Due to their size, proximity and accessibility to the Project, Mudgee, Wellington and Dubbo may provide more social infrastructure for the Project compared to the small communities. Social infrastructure comprises schools and other education institutions, medical services, emergency services, recreational facilities, and community organisations. Some commercial services are also listed under social infrastructure, such as childcare facilities.

The preliminary desktop assessment has determined that the social infrastructure provided by Gulgong, Dunedoo, Mudgee, Wellington and Dubbo will likely be sufficient to the meet and demands during 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.

6.10.4 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.



6.8 - Project Social Locality

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6.11 WATER RESOURCES

6.11.1 EXISTING ENVIRONMENT

SURFACE WATER

The Project Area is located within the Macquarie-Bogan Catchment which covers an area of 74,800 km^2. Elevations across the catchment vary from over 1,300 meters in the mountains south of Bathurst, to less than 100 meters near Brewarrina to Catchment's far north. The catchment supports a range of water users including local councils, water utilities, dryland agriculture, livestock grazing and some irrigated agriculture, such as cotton.

The largest water storage in the catchment area is the Burrendong Dam, located on the Macquarie River with a capacity of 1,190,110 megaliters. Windemere Dam is the second largest dam, with a capacity of 353,000 megaliters. These dams provide storage for irrigation, town water, stock as well as domestic use for the town. There are also smaller dams within the catchment area providing town water supplies.

The Macquarie-Bogan catchment contains several sites of international ecological significance, including the RAMSAR listed Macquarie Marshes are located on the Macquarie River between Warren and Carindale. Castlereagh, Hunter, Hawkesbury, Upper Darling, and Lachlan Catchments are the surrounding catchments of Macquarie-Bogan catchment.

The Burrendong Dam is the largest water storage from the site that is 35 km southwest of the Project area. The Macquarie River is joined by the Cudgegong River, to form Burrendong dam which rises in the Great Dividing Range above Rylstone. Slapdash Creek is the closest water course that flows adjacent to the eastern Project Boundary, and merges into Wialdra Creek 1.5 km to the south and diverges as Tallawang Creek 2 km up towards the north of the site.

The Slapdash River adjacent to the Project area and the surrounding creeks are associated with known suitable habitat of the threatened freshwater fish species, Southern Purple Spotted Gudgeon (*Mogurnda adspersa*), listed as endangered under the *Fisheries Management Act 1994*.

There are no wetlands of international importance, nationally important wetlands, or large waterbodies within the Project Area. The watercourses present within the Project Area and the surroundings are presented in **Figure 6-9**.

GROUND WATER AND GROUND WATER DEPENDENT ECOSYSTEMS

Review of the Australian Groundwater Explorer revealed there are no groundwater bores within the Project Area. The closest borehole to the Project Area is approximately 500 m east with a depth of approximately 51 m below ground level.

The southeastern portion of the Project Area is mapped as 'Groundwater Vulnerability' under the Mid-Western Regional LEP. Groundwater investigations are suggested further during the EIS for groundwater impact assessments. A water management plan is also required to be submitted in the EIS stage.

Groundwater Dependent Ecosystems (GDEs) rely on access to groundwater to maintain water requirements for plants and animals. The probability of GDEs within the Project Area is nil on the west portion of site, and low in the east. The Slapdash Creek that lies adjacent to the eastern Project Boundary, outside of the Project Area, has a high probability of containing GDEs. Further assessment and investigation of GDEs will be considered during the EIS.

A map of the local hydrology present within the Project Area and its surroundings is provided in **Figure 6-9**.

FLOODING

The Project Area is generally low lying, with some localized rises. There is only one major watercourse, Slapdash Creek located along the eastern project boundary, and some other smaller creeks and a river closer to the Project Area. The built components of the Project Area include farming infrastructure and isolated buildings such as sheds.

A review of the NSW Flood Data Portal managed by the DPHI and the NSW State Emergency Service (SES) determined that there were no available flood maps or flood studies for the immediate project area. There are no current flood maps available in the Mid-Western Regional LEP which incorporates the Project Area, however, flood studies have been undertaken in Mudgee, 30 km southeast from the Project Area.

WATER USE

The Project will require water for construction purposes (e.g. concrete mixing and standard dust suppression measures) and can be sourced from groundwater bores or purchased from associated landowners, adjacent landowners or Mid-Western Regional LGA. Water use may be subject to licenses under the *Water Management Act 2000*.

6.11.2 ASSESSMENT APPROACH

The Flooding and Hydrology Assessment will assess:

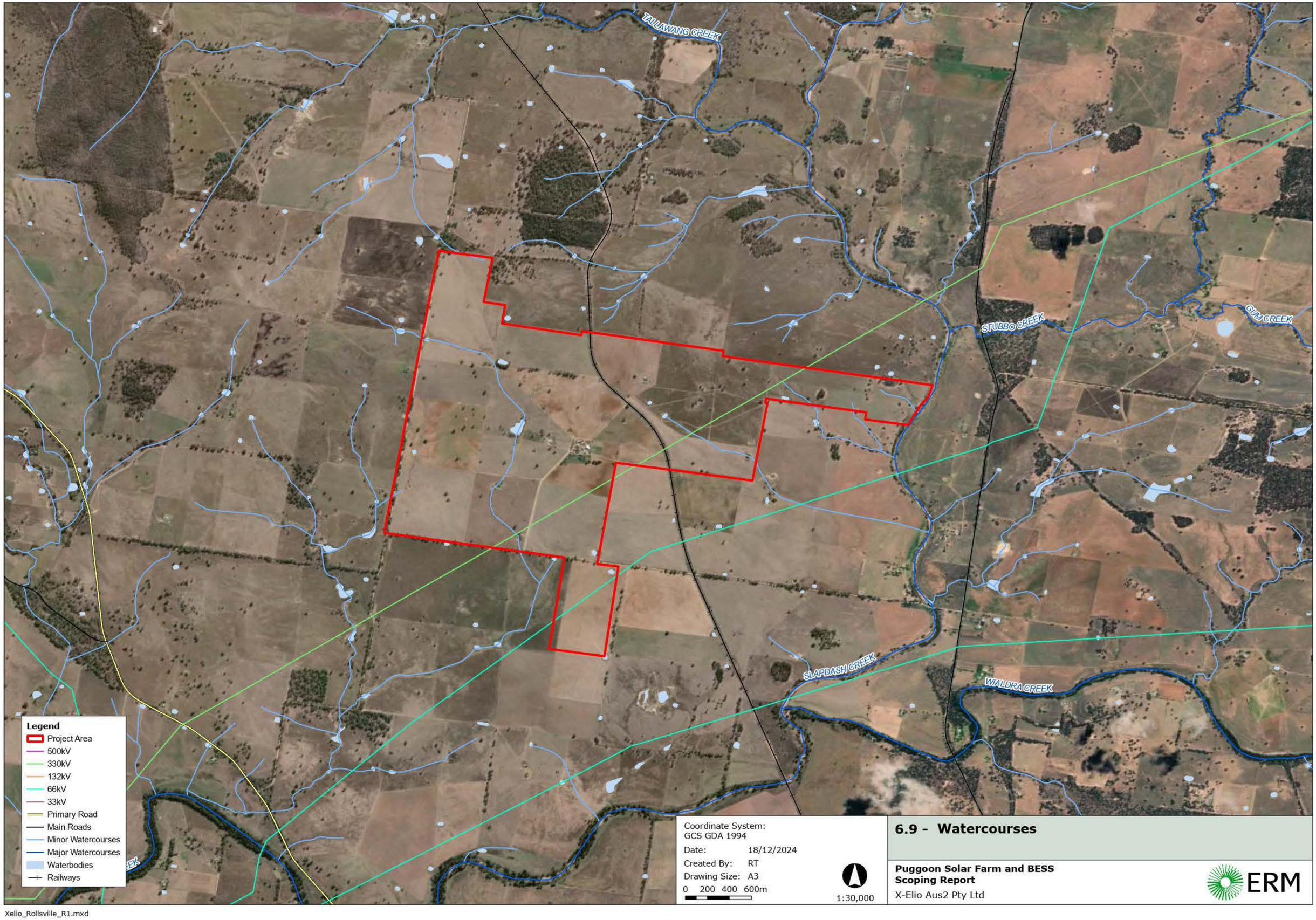
- Existing flood behaviour through review of existing available data, developing computer models and defining flood levels, depths, velocities and flood hazard category for the Project Area for existing topographic conditions; and
- Post development flood behaviour, including quantifying flood levels, 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, minimization 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 licenses under the *Water Management Act 2000* will be required. All required licenses 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);
- Relevant Water Sharing Plans (DPI Water); and
- Controlled Activities - Guidelines for Watercourse Crossings on Waterfront Land (DPE, 2022e).



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6.9 - Watercourses

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6.12 LAND RESOURCES

6.12.1 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, 2020c) suggests that the entirety of the Project Area is within LSC *Class 5 – Severe limitations*. The LSC Class 5 has 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 6-10**.

A search of the Australian Soil Classification (ASC) Soil Type Map of NSW (DPE, 2017) reveals that the site is dominated by Sodosols (SO) soils, which are texture-contrast soils with impermeable subsoils, having a very low agricultural potential with presence of sodium leading to high erodibility and poor structure.

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.

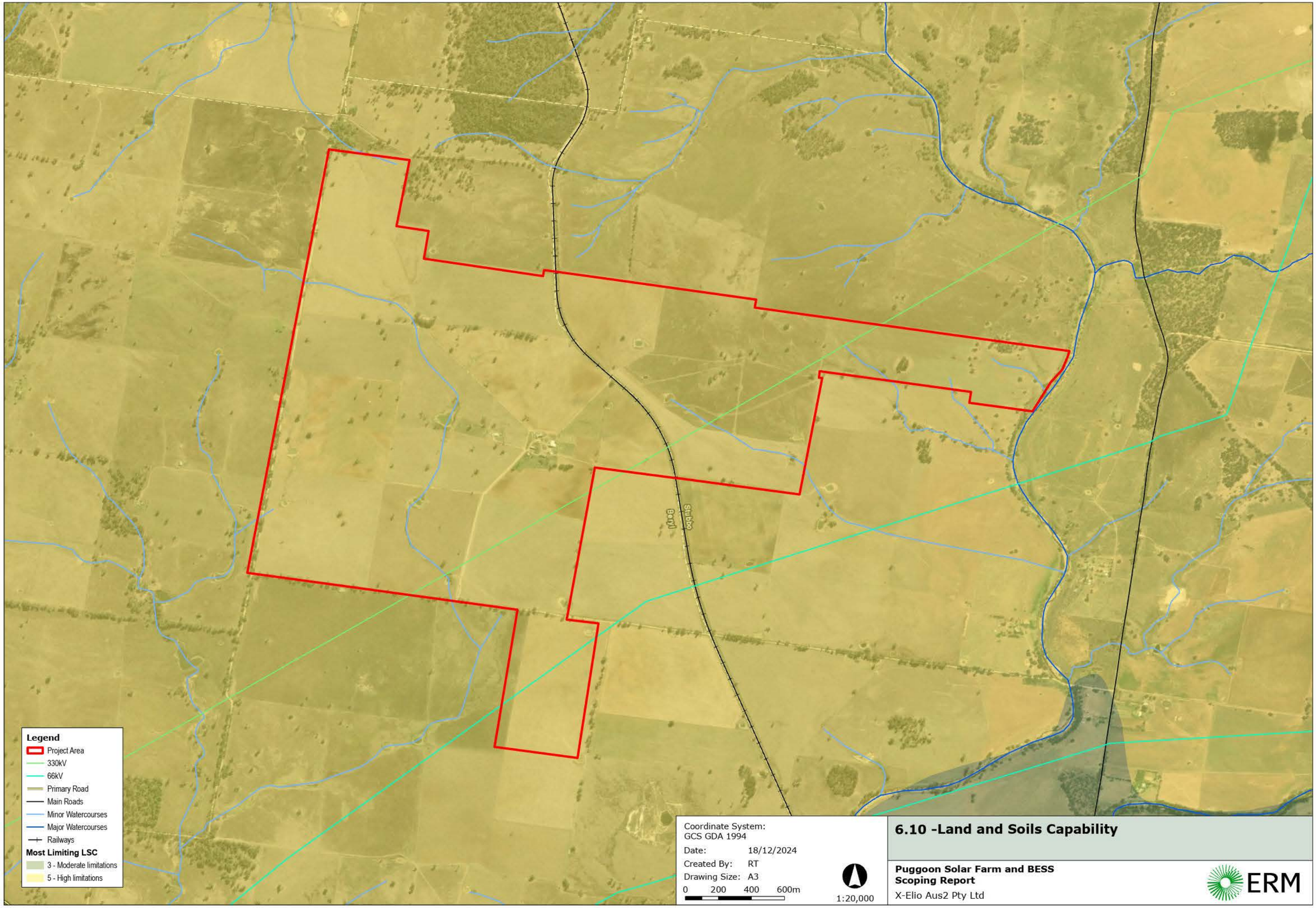
6.12.2 ASSESSMENT APPROACH

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, 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.



6.10 -Land and Soils Capability

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6.13 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).

6.14 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).

6.15 CUMULATIVE IMPACTS

The Cumulative Impact Assessment Guidelines (CIA Guidelines) for State Significant Projects (DPE, 2022c) provides a framework for assessing and managing project-level cumulative impacts. A Cumulative Impact Assessment will be undertaken as a component of the EIS in accordance with the CIA Guidelines. The cumulative impact assessment scoping summary is contained in **Appendix G**.

6.15.1 SCOPE

In accordance with the CIA Guidelines, the Project has considered past, present and reasonably foreseeable future SSD projects, and only included the types of development specified in Section 3.4 of the CIA Guidelines.

The Cumulative Impact Assessment will focus on the construction and operational impacts of the Project in conjunction with other nearby projects, including traffic routes, noise and visual amenity, and social impacts such as availability of workforce, workers accommodation, goods and services, and health and wellbeing.

6.15.2 STUDY AREA

The initial Study Area encompassed a 50 km radius of the Project Area (refer **Section 2.3**), however, the scale of cumulative impacts exists at different scales. The Study Area for traffic related cumulative impacts will consider surrounding developments with potentially overlapping construction periods that would utilise Denman Road between Muswellbrook and the Golden Highway. Social and economic cumulative impacts will focus on developments that rely on the workforce and accommodation within the Muswellbrook Shire Council LGA and surrounding LGAs.

A Study Area of 2-4 km radius of the Project Area will be adopted to assess the potential noise and visual amenity cumulative impacts associated with nearby projects, while other aspects such as ecology, heritage, hydrology and hazards will be limited within the Project Area.

6.15.3 TIME PERIOD

The Project is proposed to commence construction in 2026, and commissioning and operation is anticipated from 2028 onwards (refer **Section 3.3**). The potential cumulative impacts associated with the staging of the Project are outlined in **Table 6-13**.

TABLE 6-13 CUMULATIVE IMPACTS ASSOCIATED WITH THE PROJECT STAGING

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	No cumulative impacts anticipated
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 – noise Social – community health and wellbeing
Decommissioning	Post 2058	Moderate	Temporary	Social – community health Amenity – air quality and noise Transport and traffic

6.15.4 PROJECTS TO ASSESS

The relevant proposed, approved, under construction and operational SSDs known at the time of finalisation of this Scoping Report that will be assessed as part of the Cumulative Impact Assessment include several nearby renewable energy projects.

The specifications of these nearby SSDs and the potential overlap with the Project have been outlined in Table 1 of **Appendix G**.

6.15.5 ASSESSMENT APPROACH

The assessment type required for cumulative impacts associated with surrounding renewable energy SSDs and the Project is outlined in Table 2 of **Appendix G**. Consideration of cumulative impact is also provided in the Scoping Summary Table (**Appendix A**). As per the DPE Cumulative Impact Assessment Guidelines, Table 3 of **Appendix G** provides a summary of the cumulative impacts to be assessed.

Further assessment of potential cumulative impacts associated with traffic, noise, visual and social matters will be undertaken as part of the EIS and will inform the Cumulative Impact Assessment. The environmental management and monitoring measures associated with the Project during the EIS will minimise cumulative impacts.

6.15.6 KEY UNCERTAINTIES

The key uncertainties associated with the cumulative impact assessment are the timeframes of the nearby SSDs, and the potential for overlap of the construction phases. For a well-rounded approach to the cumulative impacts of the Project, the Cumulative Impact Assessment will assume all the projects could be in construction simultaneously.

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, 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 Central-West Orana 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 can be accessible via Castlereagh Highway and Puggoon Road or via Barneys Reef Road and Jacksons Lane;
- 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. This 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 – First Nations; and • Access - Traffic and Transport.
Standard	• Amenity – Noise and vibration; • Heritage – Historic; • Hazards and Risks – bushfire and environmental hazards; • Social – surroundings, livelihoods; • Water Resources – hydrology and surface water management; • Land Resources - Land capability; • Air Quality; and • Waste Management.

The EIS will be prepared in accordance with the SEARs to be issued by DPHI 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 wind farm projects.

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APPENDIX A SCOPING SUMMARY TABLE

APPENDIX B PRELIMINARY VISUAL IMPACT ASSESSMENT

APPENDIX C PRELIMINARY BIODIVERSITY REPORT

APPENDIX D AHIMS RESULTS

APPENDIX E PRELIMINARY TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

APPENDIX F PRELIMINARY SOCIAL IMPACT ASSESSMENT

APPENDIX G CUMULATIVE IMPACT ASSESSMENT SCOPING SUMMARY

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