



Kerr's Creek Wind Farm

Scoping Report

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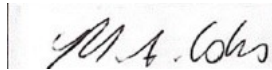
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Scoping Report



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1. INTRODUCTION

This section introduces the Project and the Applicant. It provides an overview of and relevant background to the Project. Related development, objectives of the Project and the purpose of this report are described in this section.

1.1. Introduction

RES Australia Pty Ltd ('RES' or 'Applicant') proposes to construct, operate, maintain, and decommission the Kerr's Creek Wind Farm (Project), located north of Kerr's Creek in NSW.

The Project is a wind farm with a generating capacity of up to 441 megawatts (MW) and estimated Capital Investment Value (CIV) of \$710 million.

The Applicant seeks State Significant Development (SSD) consent under Part 4, Division 4.7 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) for the Project.

Environmental Resources Management Australia Pty Ltd (ERM) has prepared this Scoping Report on behalf of the Applicant to support a request for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will guide the preparation of the Environmental Impact Statement (EIS) for the Project to support the development application (DA).

This Scoping Report also supports an application under Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

1.2. Applicant

RES Group was first established in the United Kingdom in 1981 and expanded into the Australian market in 2004, operating as RES Australia Pty Ltd. RES provides multiple renewable energy solutions, including wind (onshore and offshore), solar, energy storage and transmission and distribution services, with a total global project portfolio of 23 GW, and 10 GW of operational assets supported. RES develops, constructs and operates its projects across 11 countries, focusing on the development of sustainable energy solutions and affordable zero carbon energy.

The core focus of RES Group is to provide affordable renewable energy across the world. RES is passionate about meeting client needs to deliver projects that meet the needs of the modern energy market. The core focus of RES is to build a culture that provides affordable zero carbon energy to everyone, with sustainability a core focus of business activity and values. RES aims to incorporate sustainability into business, environment and social strategic objectives to align with the UN Sustainable Development Goals (SDGs) for sustainable development and incorporate these goals into day-to-day activities.

RES has successfully delivered a portfolio of 3 GW of renewable energy assets in Australia. Recent key Australian renewable energy projects delivered by or currently being developed by RES include:

- Taralga Wind Farm (Taralga, NSW), 107 MW (51 turbines);
- Ararat Wind Farm (Ararat, Victoria), 240 MW (75 wind turbines);
- Murra Warra Stage I & II Wind Farms (Horsham, Victoria), 435 MW (99 turbines);
- Dulacca Wind Farm (Dulacca, Queensland), 180 MW (43 turbines);
- Twin Creek Wind Farm (Kapunda, South Australia), 185 MW (51 turbines) with 215 MW battery energy storage system (BESS);
- Barney's Reef Wind Farm (Gulgong, NSW), 440 MW (65 turbines);
- Tallawang Solar Farm (Tallawang, NSW), 500 MW (1,136,400 PV solar panels);

- Emerald Solar Farm, 72 MW, 250,000 solar panels;
- Avonlie Solar Farm (Narrandera, NSW), 143.5 MW, 450,000 solar panels;
- Columboola Solar Farm (Western Downs, QLD), 162 MW, 407,000 solar panels (construction and asset management); and
- Pallamana Solar Farm (Murray Bridge, South Australia), 176 MW with BESS.

In addition to the above, RES has signed 1.6 GW of Power Purchase Agreements (PPAs) with the following organisations:

- Snowy Hydro (for Murra Warra Stage II Wind Farm); and
- Telstra (for Emerald Solar Farm).

In 2018, RES became a founding signatory to the Clean Energy Council's "Best Practice Charter", which committed building a competitive renewable energy market and help to transition Australia's energy system to one that is cleaner and smarter.

RES' Australian Business Number (ABN) and address are listed below:

- **ABN:** 55 106 637 754; and
- **Address:** Suite 6.01, Level 6/165 Walker St, North Sydney NSW 2060.

1.3. Project Overview

The Project is located approximately 26 kilometres (km) north of Orange, between the towns of Kerr's Creek and Euchareena. The entire Project Area is within the Dubbo Regional Local Government Area (LGA) in the Central West region of NSW; however, the Project Area borders the Cabonne Shire LGA boundary. The land is predominantly used for agricultural purposes (sheep and cattle grazing).

The Project Area covers approximately 8,918 hectares (ha) and encompasses 7 freehold properties. These properties consist of 155 individual lots/DPs as shown in **Table 2-3**.

The regional locality of the Project Area is shown in **Figure 1-1**.

The Project includes the in-perpetuity construction, operation and maintenance of wind turbines and associated infrastructure, which will include operation and maintenance buildings, internal access tracks, civil works, and electrical infrastructure (including one substation). The project generating capacity is anticipated to be up to 441 MW, with the potential to power approximately 265,000 homes. At the minimum, the Project will include the following elements:

- Up to 63 wind turbine generators (WTG), each consisting of:
 - Three blades mounted on a rotor hub on a tubular steel tower, with a combined maximum height of 280 m, including a hub height of approximately 198 m and a maximum blade length of 82 m;
 - A gearbox and generator assembly housed in a nacelle;
- Electrical reticulation network comprising of:
 - One 33/330 kV electrical substation including transformers, insulators, switchyard and other ancillary equipment;
 - Underground and/or overhead 33 kV electrical reticulation and fiberoptic cabling connecting the WTGs to the onsite substation (designed to follow site access tracks where possible);
 - A 330 kV single or double circuit, three-phase, twin conductor bundles overhead line, connecting the onsite substation to a new switchyard (located within the Project Area) to connect to the existing 330 kV Wellington to Mount Piper overhead transmission line, enabling the Project to connect to the national grid;

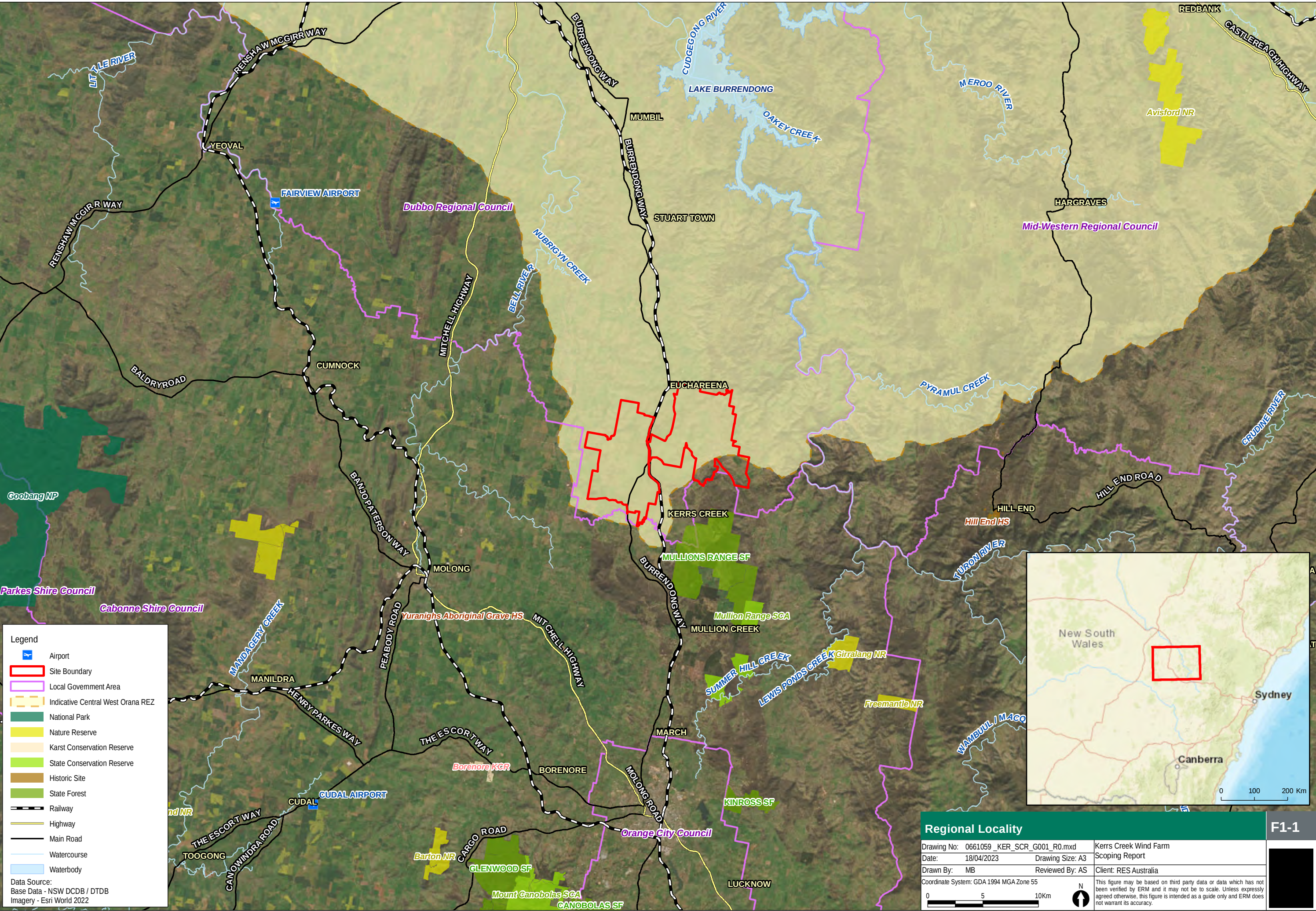
- An internal private access road network;
- An operations and maintenance facility;
- Commissioning and decommissioning of temporary and/or permanent meteorological masts (met masts); and
- Upgrades of public roads and crossings where required to facilitate the delivery of wind turbine components and associated infrastructure.

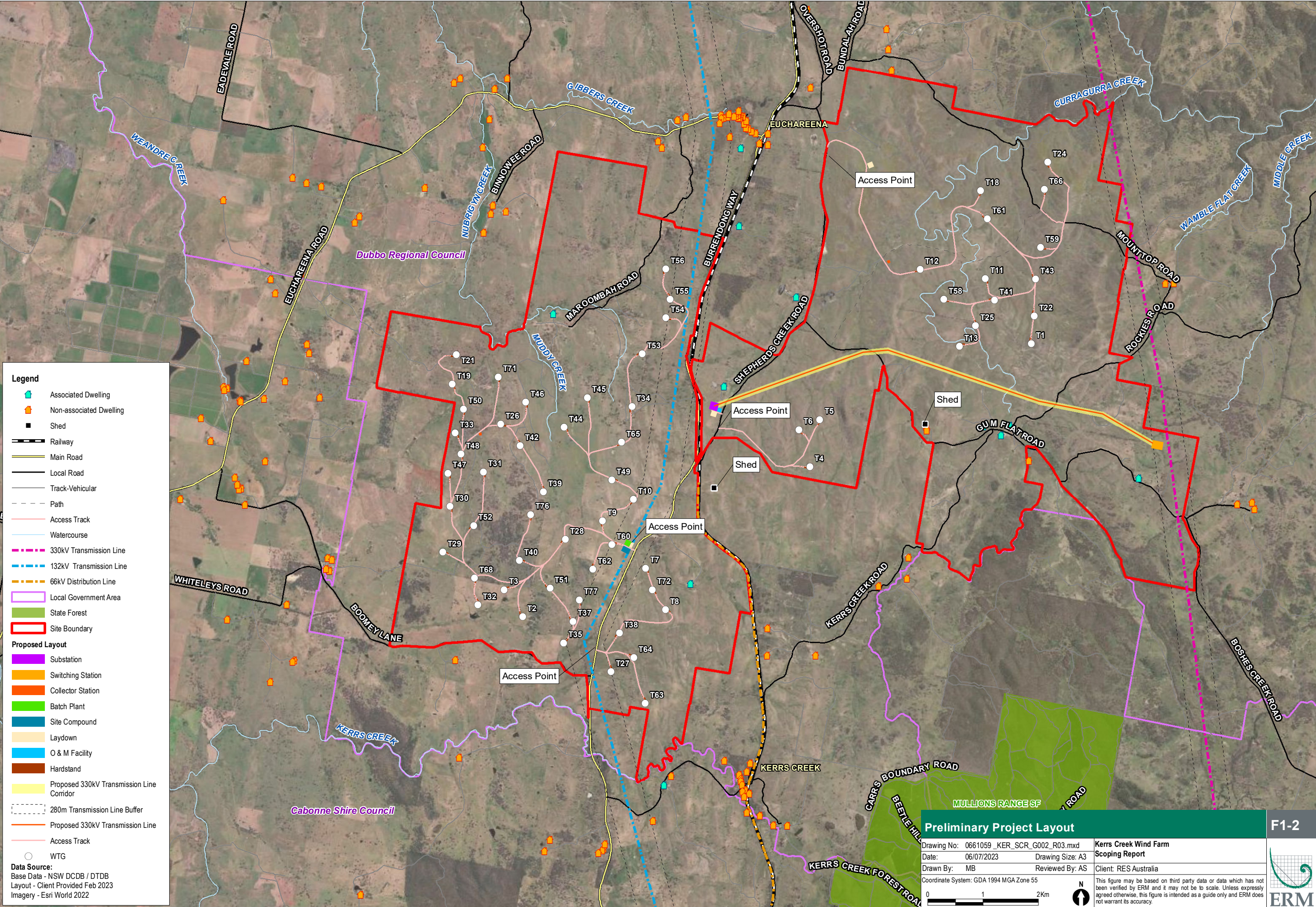
Temporary elements required during construction will include:

- Site construction compound and facilities, including site offices, car parking and amenities;
- Mobile concrete batching plant to supply concrete for WTG foundations and substation construction works;
- Earthworks to facilitate construction of access tracks and WTG foundations;
- Potentially rock crushing facilities for the generation of aggregate suitable for concrete batching, and/or for access tracks and hardstand construction;
- Additional hardstand areas for the temporary storage of construction materials, plant and equipment;
- External water supply for use in concrete batching and construction activities;
- Transport, storage and handling of fuels, oils and other hazardous materials used during construction and operation of the wind farm; and
- Beneficial reuse of materials won from the development footprint during construction.

The preliminary Project layout is shown in **Figure 1-2**. Aspects not shown in **Figure 1-2**, but mentioned above will be located within a Survey Area to be defined at a later stage.

The Project design and elements are described in further detail in **Section 3**.





1.4. 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 from energy production;
- 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;
- Contribute to NSW and Commonwealth targets for renewable energy;
- Provide both direct and indirect employment opportunities during construction and operation;
- Provide broader financial benefits to the community;
- 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.

1.5. Purpose

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:

- 'State Significant Development Guidelines' (DPIE, 2022) (SSD Guidelines);
- 'State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines' (DPIE, 2021a) (Scoping Report Guideline);
- 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2021b) (SIA Guideline);
- 'Cumulative Impact Assessment Guidelines for State Significant Projects' (DPIE, 2021c) (Cumulative Impact Guideline);
- 'Undertaking Engagement Guidelines for State Significant Projects' (DPIE, 2021d) (Engagement Guideline);
- 'Wind Energy Guideline for State Significant Wind Energy Development' (DPIE, 2016a) (Wind Energy Guideline);
- 'Wind Energy: Visual Assessment Bulletin for State Significant Wind Energy Development' (DPIE, 2016b) (Visual Bulletin); and
- 'Wind Energy: Noise Assessment Bulletin for State Significant Wind Energy Development' (DPIE, 2016c) (Noise Bulletin).

2. STRATEGIC CONTEXT

This section identifies the key strategic issues that are relevant to the assessment of the Project. It also describes the key features of the site and surrounds, existing land use and land ownership. Relevant future developments in the area that could affect or be affected by the Project have also been summarised.

2.1. Alignment with Policy and Strategic Goals

Increased adoption of renewable energy generation will assist Australia to transition away from traditional fossil fuel energy production, which is linked to anthropogenic climate change, atmospheric pollution, water pollution, land pollution and human health impacts. Critically, reducing carbon emissions through replacement of traditional fossil-fuel energy sources with renewable energy will assist to minimise the effects of climate change, benefitting current and future generations in line with the principles of Ecologically Sustainable Development (ESD).

In addition to achieving the objectives outlined in **Section 1.4**, the Project will assist to achieve objectives of the following International, Federal Government, and State Government policies strategic goals as described below.

2.1.1. Contributing to the National Electricity Market

The National Electricity Market (NEM) operates on one of the world's longest interconnected power systems, stretching around 5,000 km from Far-north Queensland to Port Lincoln in South Australia, and across Bass Strait to Tasmania (AEMO, 2021). Once constructed the Project aims to connect to the NEM, through the TransGrid's 330 kV Wellington to Mount Piper transmission line. The Australian Energy Market Operator (AEMO) provides annual reports relating to the NEM. The 'Electricity Statement of Opportunities' (ESOO) provides updated forecasts for demand and supply of electricity (AEMO, 2022b). The 'Integrated System Plan' (ISP) is a whole-of-system plan that provides an integrated roadmap for the efficient development of the NEM over the next 20 years and beyond (AEMO, 2022a).

Traditionally, across Australia, coal-fired generation and some gas peaking power plants have met electricity needs. Over the past decade, this trend has started to shift. In 2021, coal-fired generation supplied 71% of the total electricity generated in Australia (-5% compared to 2020) and renewables supplied 29% of Australia's total electricity generation (+5% compared to 2020) (DCCEEW, 2022).

Over the past several years, the operators of most of eastern Australia's coal-fired power stations have brought forward the retirement dates for these assets. Across the NEM, it is expected that a significant amount of thermal energy generation capacity will retire in the next decade. In NSW this is closer to 86% and includes 1,260 MW Liddell Power Station (closed in 2023), the 2,922 MW Eraring Power Station (scheduled to close in 2025), the 1,320 MW Vales Point Power Station (scheduled to close in 2029), the 2,640 MW Bayswater Power Station (scheduled to close between 2030 and 2033), and the 1,400 MW Mount Piper Power Station (scheduled to close in 2040).

The ISP states that given the imminent retirement of a significant portion of NSW coal fired power generation, and the relative lower capacity factors of wind and solar compared to coal, almost 9-fold renewable energy generation and three times the firming capacity is needed to replace coal fired power stations (AEMO, 2022a). As such, the ES00 forecasts that the renewable share of total annual generation would need to rise across the NEM from 29% in 2020-21 to (forecast) 83% in 2030-31, to 96% by 2040, and 98% by 2050 (AEMO, 2022a). The ES00 notes the substantial pipeline of future projects in various stages of development. These projects are in total 177 GW and are spread across all regions, including NSW where the majority of those proposed are wind energy developments (AEMO, 2022b).

The Project will help meet the projected nine-fold increase in utility-scale variable renewable energy required to meet the optimal development pathway for the NEM. The Project will therefore augment the security and reliability of the electricity system in the NEM, through renewable energy generation, and transmission to the existing TransGrid's 330 kV Wellington to Mount Piper transmission line.

2.1.2. International

2.1.2.1. United Nations Sustainable Development Goals

The *United Nations 2030 Agenda for Sustainable Development* includes global Sustainable Development Goals (SDG) to build a more sustainable and resilient future. The 17 SDG and 169 individual targets cover measures towards improvements to economic, social and environmental sustainability. All Member States of the United Nations agreed to work towards achieving the SDGs by 2030. Of relevance to the Project are:

- Goal 7: 'Ensure access to affordable, reliable and sustainable modern energy for all', Target 7.2 states 'By 2030, increase substantially the share of renewable energy in the global energy mix';
- Goal 8: 'Promote inclusive and sustainable economic growth, employment and decent work for all', Target 8.4 states: 'Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation'; and
- Goal 11: 'Sustainable Cities and Communities, Target 11.6 states: 'By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management'.

The Project will provide a source of renewable energy, increasing the proportion of renewable energy generation in Australia. Further, it will assist to reduce reliance on fossil fuels for energy generation, resulting in the reduction of GHG emissions and improved air quality.

2.1.2.2. United Nations Framework Convention on Climate Change Conference of Parties (COP26) – Glasgow 2021

COP26 was held in Glasgow in late 2021. A key outcome of COP26 was agreement to 'revisit and strengthen ...2030 targets (Paris Agreement targets) in nationally determined contributions...by the end of 2022' (UNFCCC, 2021). The Federal Government committed to achieving net zero GHG emissions by 2050 ahead of the G20 Summit in Rome and the Glasgow United Nations climate discussions (COP26).

The Project will contribute to meeting Australia's commitments through the generation of renewable wind energy and resultant annual reduction in GHG emissions.

2.1.2.3. 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 193 countries that signed the Paris Agreement.

On 16 June 2022 the Australian Government lodged an updated Nationally Determined Contribution (NDC) committing to a GHG emissions reduction of 43% below 2005 levels by 2030, which is a 15% increase on Australia's previous 2030 target (Australian Government, 2022).

The Project will contribute to meeting Australia's commitments under the Paris Agreement through the generation of renewable wind energy and resultant annual reduction in GHG by approximately 700,000 tonnes carbon dioxide equivalent (tCO₂^e) per annum.

2.1.3. Federal

2.1.3.1. Government's Renewable Energy Target

The Renewable Energy Target (RET) is a Federal Government scheme which has been in operation since 2001. It is designed to reduce emissions of GHG in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

The RET operates as two schemes – small- and large-scale renewable projects, of which the Large-scale Renewable Energy Target (LRET) is relevant for the Project. The LRET encourages investment in large-scale renewable energy projects and incentivises the development of renewable energy power stations through a market for the creation and sale of Large-scale Generation Certificates (LGCs) to achieve 33,000 gigawatt hours of additional renewable electricity generation (Clean Energy Regulator, 2022).

This is relevant for the Project as, once constructed, it will contribute toward the LRET target and will be an eligible large-scale generator under the RET. The Project will have an electricity generation capacity of approximately 441 MW, with the potential to power 265,000 homes. The Project will deliver renewable, low-cost energy to the national grid, offsetting the generation that will be lost with the closure of coal-fired power stations and contributing to the NSW Government's net-zero emissions target by 2050.

2.1.3.2. Climate Change Act 2022

The Federal Government *Climate Change Act 2022* outlines Australia's greenhouse gas emissions reduction targets of a 43% reduction from 2005 levels by 2030 and reducing Australia's net greenhouse gas emissions to zero by 2050. The Project will assist in meeting this target by contributing to a reduction in GHG emissions from electricity generation.

The Project approvals pathway should allow construction and the commencement of Project operation to occur before 2030, which is the year by which the Government has pledged to significantly reduce GHG emissions.

2.1.4. NSW Government's Commitments

2.1.4.1. Net Zero Plan Stage 1: 2020-2030

The 'NSW Government Net Zero Plan Stage 1: 2020–2030' (DPIE, 2020a) (Net Zero Plan) sets the foundation for action on climate change and how the NSW Government will deliver on its objective to achieve net zero emissions by 2050, as outlined in the 'NSW Climate Change Policy Framework' (OEH, 2016). The Net Zero 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 targets to reduce emissions by 50% below 2005 levels by 2030 (DPIE, 2021). In December 2022, the NSW Government announced additional emissions reduction targets of 70% of 2005 levels by 2035.

The Project will assist to give effect to the Net Zero Plan, including the NSW Government's updated 2030 and 2035 targets.

2.1.4.2. NSW Electricity Strategy

The NSW Electricity Strategy (DPIE, 2019a) is the NSW Government's plan to achieve reliability, affordability, and sustainability for the NSW electricity system, and will support an estimated \$8 billion of private investment in NSW's electricity system over the next decade.

An aim of the strategy is to improve the efficiency and competitiveness of the NSW electricity market by reducing risk, cost, and government-caused delays, and to encourage investment in new price-reducing generation and energy saving technologies.

The strategy identifies the NSW Government's commitment to energy security, including additional capacity increases via interconnector projects and the rolling out of Renewable Energy Zones (REZs). The Strategy aligns closely with the NSW Government's Net Zero Plan.

The Project is consistent with the strategy as it provides renewable energy generation that, together with other renewable generation projects, is expected to result in lower cost of energy in the NEM. The Project Area is within the Central West Orana REZ as shown in **Figure 1-1**.

2.1.4.3. NSW Transmission Infrastructure Strategy

The 'NSW Transmission Infrastructure Strategy' (DPE, 2018) (Transmission 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. The Transmission Strategy forms part of the government's broader plan to make energy more affordable, secure investment in new power generation and network infrastructure and ensure new technologies deliver benefits for consumers.

The Transmission 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 use an existing 330 kV transmission line located within the Project Area (TransGrid Wellington to Mount Piper line) to supply energy to the electricity transmission grid.

2.1.4.4. NSW Electricity Infrastructure Roadmap

The NSW Electricity Infrastructure Roadmap (DPIE, 2020d) is the NSW Government's plan to transform the NSW electricity sector into one that is clean, cheap, and reliable. The roadmap builds on the NSW Electricity Strategy (DPIE, 2019a) and the NSW Transmission Infrastructure Strategy (DPE, 2018). It sets NSW on a plan to replace its ageing coal-fired power stations with a coordinated portfolio of generation, storage, and network investment.

The roadmap emphasises the need to transition to renewable energies, noting four of the State's five coal fired power stations are expected to close within the next 15 years. These power stations currently provide over four fifths of NSW electricity supply and two thirds of firm capacity needed during heat waves (DPIE, 2020d).

Enabled by the *Electricity Infrastructure Investment Act 2020*, the roadmap sets out a coordinated framework to support \$32 billion in private investment in at least 12 GW of renewable energy generation infrastructure and 2 GW of long-duration storage infrastructure by 2030 (DPIE, 2020d).

The roadmap seeks to reduce GHG emissions from NSW electricity generation by 90 million tonnes by 2030, helping deliver on NSW's emissions targets (DPIE, 2020d).

The Project will provide a significant amount of renewable energy annually to help offset the retirement of coal-fired power stations in NSW and will contribute significantly towards reduction of GHG emissions.

2.1.4.5. Central West Orana Renewable Energy Zone

The 'NSW Electricity Strategy' (DPIE, 2019a) and Electricity Infrastructure Roadmap (DPIE, 2020d) establish the framework to deliver the state's first five REZ in strategic areas across the state, which aim to replace the existing coal fired power plants with the cheapest available technology. Each REZ will play a significant role in delivering renewable energy generation and storage to help replace existing fossil fuel power stations as they come to their end of operational life.

The Central-West Orana region has been identified as the first of the five REZ to be created in NSW, with others being declared/proposed in the New England, Illawarra, South-West and Hunter-Central Coast regions of NSW (NSW Government, 2022).

REZ combine wind, solar, hydroelectric and energy storage, and high-voltage transmission lines to generate and deliver clean, renewable energy. By connecting multiple generators and storage in the same area, REZs capitalise on economies of scale to deliver cheap, reliable and clean electricity for homes and businesses in NSW.

The objectives of REZ are to:

- Deliver affordable energy into the future;
- Diversify the NSW energy mix;
- Expand electrical transmission capabilities; and
- Open new parts of the NEM for energy generation in locations that can benefit from diverse weather patterns.

The Project is strategically located within the Central-West Orana REZ as shown on **Figure 1-1** (however, not connecting to new CWO network infrastructure), which already has around 4,500 MW of renewable projects approved or in planning. The Project will deliver affordable energy, contribute to the diversification of the NSW energy sector, and facilitate the expansion of electrical transmissions capabilities and the opening of new parts of the NEM for energy generation. The Project also aligns with the Central-West Orana REZ Transmission Project (expected completion July 2027), which aims to support the increase of renewable energy generation in the REZ.

2.1.5. Land Use Planning

2.1.5.1. Dubbo Regional Local Environmental Plan 2022

The Project is located within the Dubbo Regional LGA and is therefore subject to the relevant provisions of the 'Dubbo Regional Local Environmental Plan 2022' (Dubbo LEP) 2022.

The Dubbo LEP aims to "encourage development that complements and enhances the unique character and amenity of the Dubbo Regional Government Area" (Clause 1.2(2)(c)), "to conserve and protect the environmental and cultural heritage of the Dubbo Regional Government Area" (Clause 1.2(2)(e)), "to implement ecologically sustainable development to conserve environmental resources for the benefit of current and future generations" (Clause 1.2(2)(k)) and "to improve resilience to the effects of climate change" (Clause(1.2)(2)(n)).

The Project Area is zoned as *RU1- Primary Production* (**Figure 2-1**). The objective of the RU1 zoning is to "encourage sustainable primary industry production by maintaining and enhancing the natural resource base, maintain the rural landscape character of the land and to provide for a range of compatible land uses, including extensive agriculture" (Land Use Table, Dubbo LEP).

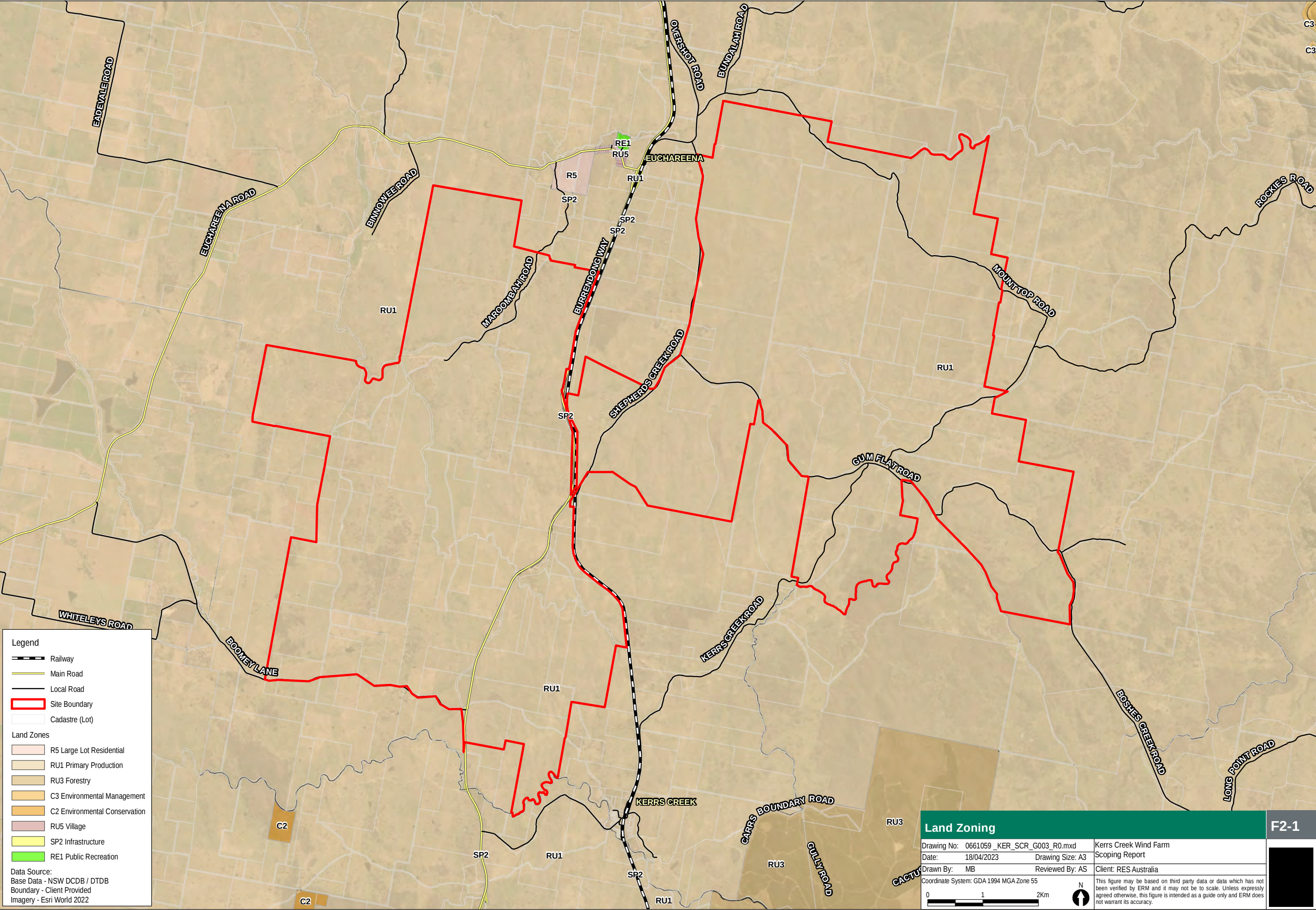
The Project is consistent with the objectives of the Dubbo LEP, and land use zone RU1. The Project has the additional benefits of creating jobs during the construction and operational phases.

2.1.5.2. *Cabonne Regional Local Environmental Plan 2022*

The Project is located immediately north and east of the Cabonne Council LGA, and although is not subject to the relevant provisions of the 'Cabonne Regional Local Environmental Plan 2012', due to proximity of Cabonne Council LGA to the Project Area, the Project has been assessed against the relevant provisions.

The Cabonne LEP aims to "to provide for a range of development opportunities that contribute to the social, economic and environmental resources of Cabonne in a manner that allows present and future generations to meet their needs by implementing the principles of ecologically sustainable development" (Clause 1.2 (2)(b)), "to facilitate and encourage sustainable growth and development that" [...] "contributes to continued economic productivity, including agriculture, business, tourism, industry and other employment opportunities" Clause 1.2(2)(c)(i) and "lows for the orderly growth of land uses while minimising conflict between land uses within the relevant zone and land uses within adjoining zones" Clause 1.2(2)(c)(ii).

The Project is consistent with the objectives of the Cabonne LEP and will provide community benefit through job creation during construction and operational phases. However, it is considered that impacts of the Project to Cabonne Council LGA will be limited to traffic and transport.



2.1.5.3. Towards 2040: Community Strategic Plan

The 'Towards 2040: Community Strategic Plan' identifies six key themes, objectives and supporting strategies to outline and support high level aspirations of the future of Dubbo Regional Council. The Project aligns closely with 'Theme 6 – Environmental Sustainability', which aims to achieve net zero emissions, mitigate the impacts of climate change, sustain and improve the built and natural environment.

The Project will contribute to investment in renewable energy opportunities, and hence the ability to use the renewable energy within buildings in the area. The project will also indirectly support and facilitate development and employment opportunities (Theme 3 – Economy).

2.1.5.4. Local Strategic Planning Statement 2020

The Dubbo Regional Council Draft Local Strategic Planning Statement (LSPS) identifies twenty planning themes and priorities for the Dubbo Regional Council Area. The planning themes and priorities that are relevant to the Project are outlined in **Table 2-1**.

Table 2-1 LSPS Strategic Themes and Planning Priorities Relevant to the Project

Planning Theme	Planning Priority	Relevant Actions
Infrastructure	Planning Priority 3: Promote renewable energy generation	■ Collaborate with State agencies and key landowners to deliver key infrastructure projects. ■ Collaborate with State agencies and key landowners to deliver key infrastructure projects. ■ Council will work with State Government and private industry in the delivery of the Central West Renewable Energy Zone Pilot.
Sustainability	Planning Priority 18: Develop resilience to climate change	■ Promote and support investment in renewable energy opportunities, including the Central West Renewable Energy Zone Pilot

The Project aligns with the planning priorities and actions that are stated in **Table 2-1** above. As part of the Central-West REZ, the Project enables Dubbo Regional Council to align the region strategic plans with the NSW Government Commitments to the 2015 Paris Agreement through the development of new renewable energy facilities.

2.1.5.5. Central West and Orana Regional Plan 2036

The *Central West and Orana Regional Plan 2036* was developed in consultation with Councils, stakeholders and the wider community to guide local and regional land use planning priorities and development over a 20-year period (2016 - 2036). In the short term, the plan aims to focus on the growth of the renewable energy sector, among others.

The Project aligns with Goal 1: The most diverse regional economy in NSW, Directive 9 – Increase renewable energy generation, which identifies areas in the Central West as suitable for wind energy generation. The Project has identified a suitable location with generation potential and access to the electricity framework and will provide community benefits through job creation and allowing for a more diverse community.

2.1.5.6. Draft Central West and Orana Regional Plan 2041

The Draft *Central West and Orana Regional Plan 2041* has been updated to incorporate new areas of focus, including the potential for Renewable Energy Development within the region from the Central-West Orana REZ. Within the updated plan, the Project is consistent with several objectives, as listed in **Table 2-2**:

Table 2-2 Project Alignment with the Draft Central West Orana Regional Plan 2041

Plan Objective	Project Alignment
Objective 12: Leverage existing industries and employment areas and support new and innovative enterprises	The Project will provide approximately 340 jobs during construction, and approximately 10 jobs during the operational phase of the wind farm. As some areas of the Project surrounds are small with limited opportunities, the Project provides a more diverse job offering to the region. The Project will also have the additional benefit of diversifying the industries within the area and contribute to allowing the development of energy generation technologies.
Objective 20: Leverage the Central West and Orana Renewable Energy Zones to provide economic benefit to communities	The Project will collaborate with local stakeholders to provide increased employment opportunity within the region. The Project will also provide local community benefits through development contributions that will invest in local community and initiatives to provide a direct and targeted local benefit.

2.1.5.7. Energy Strategy and Implementation Plan 2020-2025

One of the purposes of the Dubbo Regional Council Energy Strategy and Implementation plan is to support and guide the council in “increasing the use and adoption of renewable energy resources”.

The Energy Strategy and Implementation Plan outlines Dubbo Regional Council's strategies for the reduction of energy consumption, increased energy efficiency and the continued adaptation to and use of renewable energy”.

The Project is consistent with the objectives of Strategy Area 2: Renewable Energy, with the goal of “Council obtaining 50% of its predicted electricity consumption by 2025 from renewables, directly or by purchasing renewable energy.”

2.2. Site Setting and Features

2.2.1. Regional Context

The Project Area is located within the rural localities of Euchareena and Kerr's Creek, NSW, approximately 26 km north of Orange (by road), 288 km north-west of Sydney (by road), and within the Central-West region of NSW. The Project Area is to the east of the Mitchell Highway, and to the west of the Castlereagh Highway. The Castlereagh Highway is a State Highway stretching over 640 km from the Queensland border at Hebel to Great Western Highway at Lithgow. The Mitchell Highway is a National Highway, and its primary route is via Bathurst, Orange, Dubbo, Nyngan and Bourke to South-Western Queensland.

The Project Area is situated within the Dubbo Regional LGA which covers a total area of 735,600 ha and has a population of 52,000 (Dubbo Regional Council , 2020). The key land uses and economic activities within the region are agriculture, forestry and fishing. Other key industries within the region include health, retail, education, government services, tourism, manufacturing, construction, business services and transport (Dubbo Regional Council , 2020).

The Project Area is located near the villages of Kerr's Creek (2.1 km south of the closest wind turbine generator (WTG) 63), and Euchareena (2.6 km north-west of the closest WTG 56). Kerr's Creek and Euchareena have populations of 58 and 170 people (ABS, 2021) respectively. The Project is also located near the following areas:

- Mullion Creek – 12 km south-east of WTG 63 (population 561);
- Stuart Town – 15 km south of WTG 45 (population 241);
- Molong – 17 south-west of WTG 13 (population 1,621);
- Mumbil – 26 km north-west of WTG 21 (population 298);
- Cumnock – 27km west of WTG 19 (population 491);
- Orange – 26 km north-east WTG 66 (population 40,493);
- Yeoval – 44 km north-west of WTG 21 (population 330);
- Wellington – 47km north-west of WTG 55 (population 4,096); and
- Mudgee – 56 km north-east of WTG 24 (population 11,457).

The local context of the Project Area is displayed in **Figure 1-1**.

2.2.2. Natural Features

The Project Area is located within the Macquarie-Castlereagh Catchment of the Murray Darling Basin. At the closest points, the Project Area is located approximately 6 km south-west of the Macquarie River, and approximately 17 km south of Burrendong Dam. The Macquarie-Castlereagh Catchment covers an area of 75,000 km². The Macquarie-Castlereagh catchment is in the central-west of NSW and supports a range of water users including local councils, water utilities, dryland agriculture, livestock grazing and some irrigated agriculture, such as cotton. Multiple watercourses traverse the Project Area, including Muddy Creek, Curragurra Creek, Shepherd Creek, Nubrigyn Creek, Coppers Creek and Gibbers Creek and associated tributaries.

The Project Area and its surrounds are characterised by generally undulating topography with scattered vegetation along the hills. The Project Area elevation ranges from 580 m to 750 m AHD.

There is one nearby nature reserve which is zoned RU3 Forestry under the Cabonne LEP 2022. These include:

- The Mullions Range State Forest is located approximately 3.8 km north-west of the Project Area and covers an area of about around 4,100 ha.

Key features of the local context of the Project are shown on **Figure 1-1**.

2.2.3. Built Features

Major transport corridors in proximity to the Project include:

- Burrendong Way: located through the centre of the site and connects Orange to Wellington (and the Mitchell Highway);
- Mitchell Highway: A32 National Highway corridor, connecting Sydney to Adelaide via Dubbo and Broken Hill. The highway is located 12 km west of the Project Area and can be accessed via Burrendong Way; and
- Main Western Railway – traverses the centre of the Project Area and connects Bourke to Sydney.

Various airports are in the vicinity of the Project, including Orange, Wellington and Fairview Airports. Fairview Airport is the closest, located 35 km north-west of the Project Area, and is used for private charter flights.

Additional aviation activities known to occur in the area include aerial applications of fertiliser, pest and crop spraying on agricultural lands. Aviation facilities within the Project Area are included in **Figure 1-1**.

The Project Area is within proximity to several SSD electricity generation projects, which are identified as proposed, under construction, or operational. These include wind farms, solar farms, BESS facilities, and a pumped hydro energy storage project. See further detail at **Section 2.5**, which provides a relevant discussion of the cumulative impacts of the Project in accordance with the Cumulative Impact Guideline.

There are two major transmission lines running through the Project Area, one 132 kV that traverses the centre of the Project area and one 330 kV line that traverses an eastern portion of the Project Area. A search of Before You Dig (BYD) (BYD, 2022) records determined that a major fibre optic cable runs through the Project Area, but no gas or water utilities are located within proposed development footprint.

2.2.4. Project Area and Land Ownership

The Project Area covers a total area of 8,918 hectares (ha), as identified in **Table 2-3** below. Most of the land parcels within the Project Area are zoned RU1 – Primary Production under the Dubbo LEP, with small sections classified as Crown Lands (**Table 2-3**). The area surrounding the Project Area is predominately RU1 – Primary Production, with small areas of Crown Land, RU - Villages and SP2 - Infrastructure.

There are 8 freehold landholders within the Project Area, encompassing 155 lots. Land ownership within and surrounding the Project Area are shown in **Table 2-3**.

Table 2-3 Project Area Lot and DP

Lot	DP	Type
Project Area		
1, 2, 3, 4	DP1002019	Freehold Property
1, 3, 5, 7, 8, 9, 10	DP113368	Freehold Property
2, 3, 4, 5	DP1151028	Freehold Property
1	DP120509	Freehold Property
1	DP1213961	Freehold Property
100, 101	DP1235368	Freehold Property
2	DP1262473	Freehold Property
1	DP137017	Freehold Property
1	DP413708	Freehold Property
1, 2	DP536318	Freehold Property
1	DP536319	Freehold Property
1, 2	DP541039	Freehold Property
1, 2	DP635076	Freehold Property
35	DP661983	Freehold Property
49	DP662039	Freehold Property
2	DP707956	Freehold Property
22, 23, 29, 33, 34, 53, 54, 57, 59, 62, 63, 64, 69, 70, 73, 74, 84, 108	DP756874	Freehold Property
5	DP756879	Freehold Property
1, 24, 46, 48, 60, 61	DP756912	Freehold Property
4, 12, 15, 17, 20, 21, 22, 23, 24, 25, 32, 33, 34, 40, 41, 42, 44, 48, 49, 50, 51, 54, 55, 56, 58, 60, 63, 69, 78, 80, 82, 84, 85, 86, 88, 96, 97, 98, 101, 103, 104, 106, 107, 111, 115, 117, 131, 132, 133, 138, 139, 145, 148, 167, 177	DP756916	Freehold Property
1	DP822475	Freehold Property
21, 22, 23, 24,	DP824124	Local Government Authority
49, 50		Freehold Property
15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47	DP847593	Freehold Property
A, 1	DP923235	Freehold Property
7012	DP1210829	NSW Government
7300	DP1142072	Crown Land

The Great Western Railway line runs through the centre of the Project Area; however, it is not included within the Project Area.

2.2.5. Land Use

The primary land uses within the Dubbo Regional LGA is agriculture, including sheep and cattle grazing (modified and native pastures) and cropping. Dubbo Regional LGA also consists of large areas of National Parks, State Forests and Nature Reserves. Land uses in the villages of Kerr's Creek and Euchareena are classified as rural residential and farm infrastructure agriculture and recreational and cultural uses (DPE, 2017).

The grazing pastures are typically modified pastures on the flatter topography and slopes, with remnant native grass cover along ridges. The vegetation within the area is typically derived native grasses across majority of the site area, and majority of the higher ridgelines contain remnant vegetation and rocky outcrops. Dense remnant forest vegetation containing high quality habitat features occurs towards the southern end of the Project Area.

There are currently three exploration licences within the Project Area:

- EL 8901 held by Godolphon Tenements Pty Ltd. The EL applies to Group 1 minerals (metallic minerals). It was renewed on 21 October 2019 and is due to expire on 21 October 2024;
- EL 8556 held by Godolphon Tenements Pty Ltd. The EL applies to Group 1 minerals (metallic minerals). It was renewed on 12 August 2020 and is due to expire 5 May 2026; and
- EL 8632 held by Orange Minerals (NSW) Pty Ltd. The EL applies to Group 1 minerals (metallic minerals). It was renewed on 21 October 2021 and is due to expire on 26 July 2026.

Engagement by the Applicant with the exploration lease holders will occur during the EIS stage.

2.3. Agreements with Other Parties

Each freehold landowner of a property on which Project infrastructure is to be installed has signed an Exclusivity Agreement. These landowners are referred to as associated or host landowners.

2.4. Risks and Hazards

Given the nature of wind farms, areas of land are required for the construction of WTGs and ancillary infrastructure. Due to this, impacts to biodiversity are typically unavoidable. In the EIS phase, detailed assessment will be undertaken to avoid highly sensitive areas, minimise the geographic extent of impacts, and provide management measures to minimise residual indirect impacts.

Risks and hazards of the Project would be associated with construction and operation activities, with potential to impact on cultural heritage items, visual, noise, airspace, etc.

Key potential risks of the Project on environmental and social aspects are investigated in **Section 6**.

2.5. Cumulative Impacts

The 'Cumulative Impact Guideline' (DPIE, 2021c) provides a framework for assessing and managing project-level cumulative impacts. The cumulative impact assessment will be considered within each applicable area of assessment (**Section 6**).

Proposed, approved or operational projects within 100 km of the Project, including wind farms, solar farms and other State Significant developments, are listed in **Table 2-4**. Consideration of the cumulative impact is provided in the Scoping Summary Table (**Appendix A**).

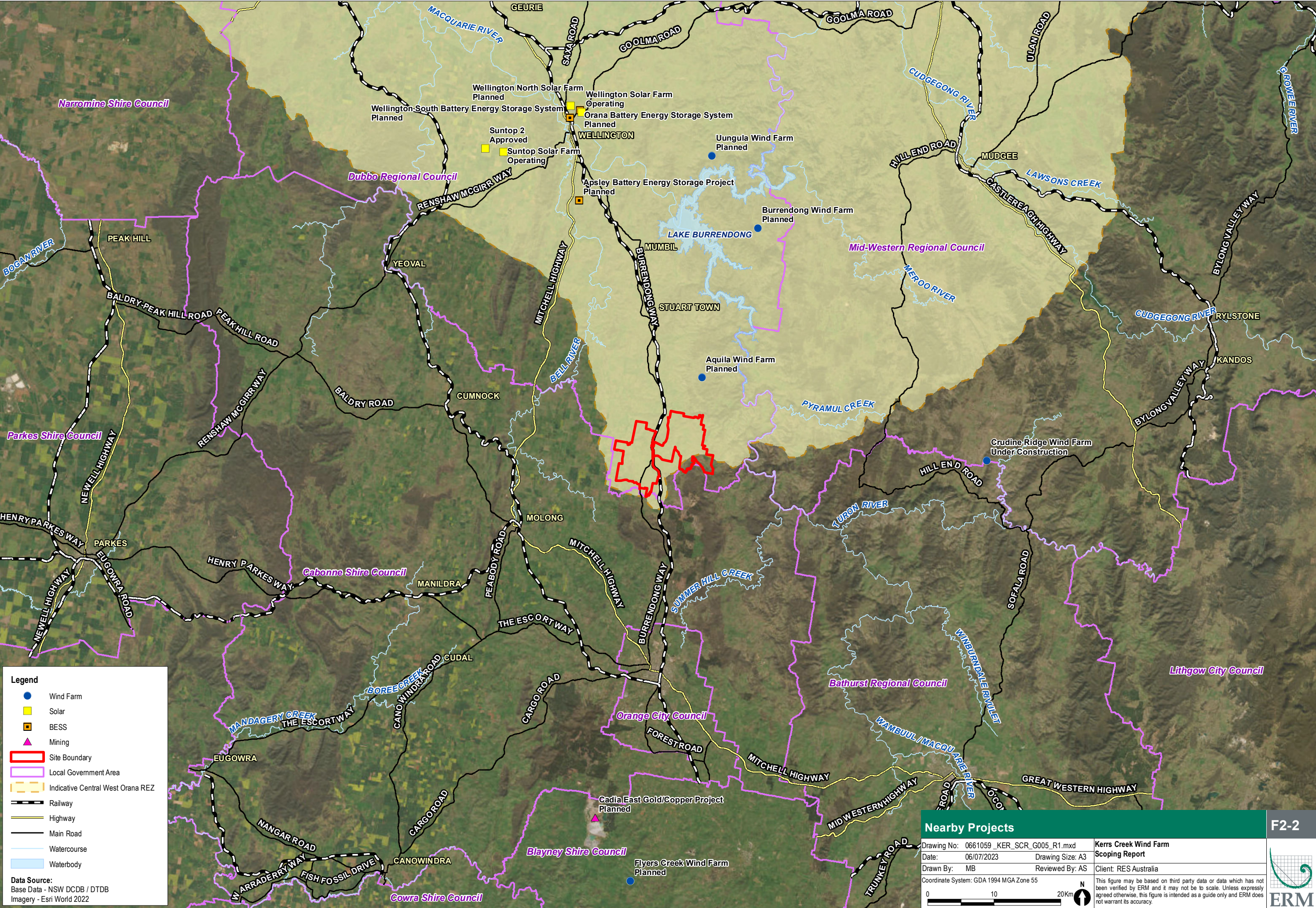
The high concentration of renewable energy projects within the region exists in relation to the proposed Central-West Orana REZ. The location of the Central-West Orana REZ is displayed in **Figure 1-1**.

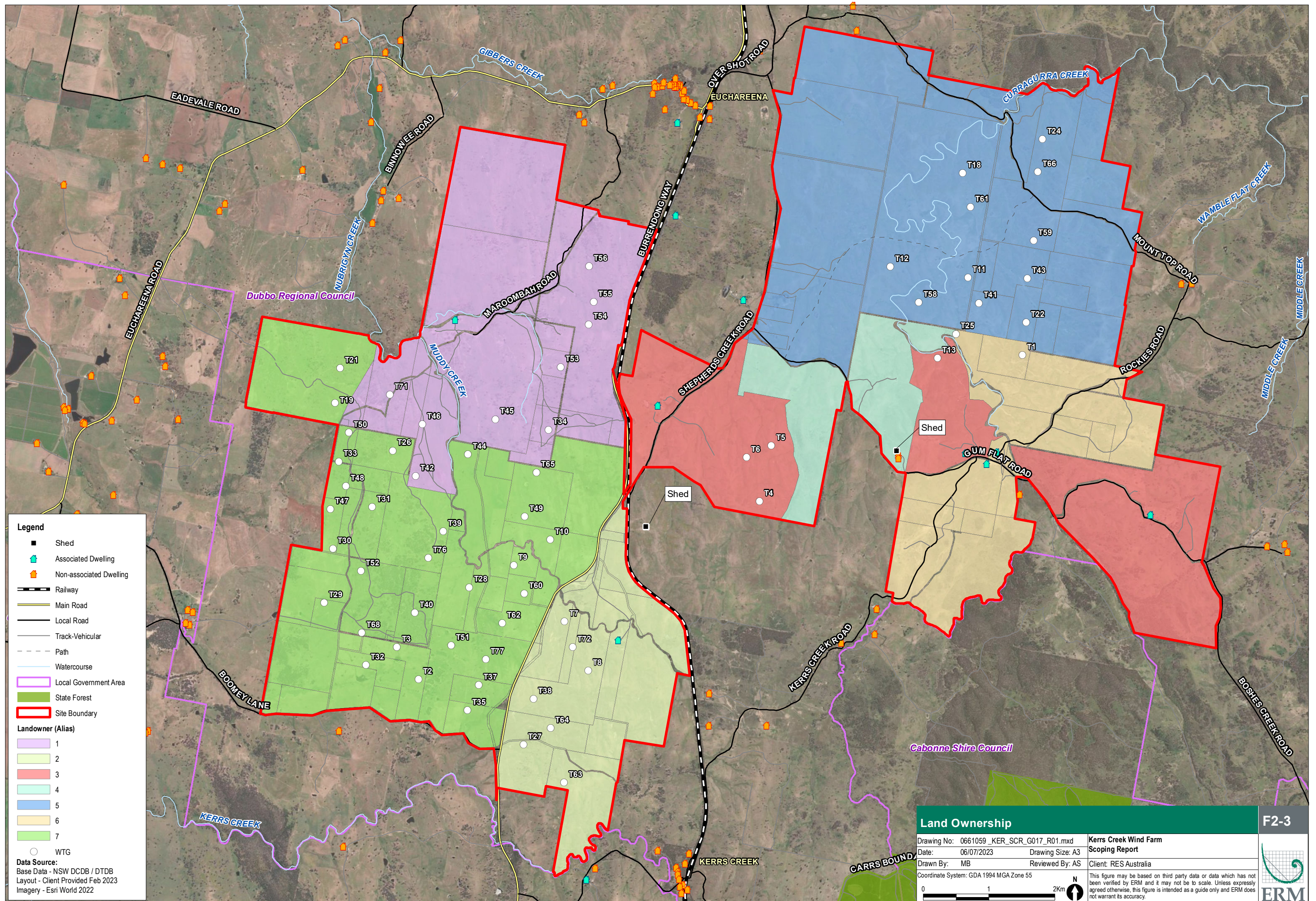
Table 2-4 Nearby State Significant Development Projects

Project	Description	LGA	Proximity to the Project ¹	Current Status
Aquila Wind Farm	Development of a 350 MW wind farm, with up to 60 ETGs, and associated infrastructure.	Dubbo Regional	~1 km	■ In Planning (Scoping Phase)
Burrendong Wind Farm	Development of a 400 MW wind farm, with up to 105 WTGs, and associated infrastructure	Dubbo Regional; Mid-Western Regional	32 km	■ In Planning (Prepare EIS) ■ Construction and Operation timing unknown.
Apsley Battery Energy Storage System (BESS)	Development of a 120 MW / 240 MWh battery energy storage facility with associated infrastructure.	Dubbo Regional	35 km	■ Approved (timing unknown) ■ Construction predicted to take 5 months.
Crudine Ridge Wind Farm	Construction and operation of a 37-turbine wind farm, with a capacity to generate up to 135 MW of electricity, plus ancillary infrastructure (including substation, grid connection, access tracks and road upgrades along the project transport route).	Bathurst Regional, Mid-Western Regional	42 km	■ Operational (since 2020). ■ Expected lifespan of 30 years.
Uungula Wind Farm	Development of a 400 MW wind farm, with up to 97 WTGs and associated infrastructure	Dubbo Regional	45 km	■ Approved (timing unknown) ■ Construction period of approximately 30 months.
Wellington South Battery Energy Storage System (BESS)	Development of a 500 MW / 1000 MWh battery energy storage facility with associated infrastructure.	Dubbo Regional	47 km	■ In Planning (submission response) ■ Construction to occur over a period of 12-18 months.
Flyers Creek Wind Farm	Construction and operation of an 88-132 MW wind farm, with up to 44 turbines and associated infrastructure at Flyers Creek, approximately 26 kilometres south of Orange.	Blayney Shire	47 km	■ Operational (early 2022) ■ Estimated lifetime of 30 years.
Cadia East Gold/Copper Project	To develop an open cut mine and associated infrastructure to extract approximately 562 million tonnes of gold and copper ore until 2031.	Cabonne Shire	47 km	■ Operational. ■ Estimated lifetime of 30 years.

¹ refers to approximate distance from the closest part of the Project Area boundary.

Project	Description	LGA	Proximity to the Project ¹	Current Status
Orana Battery Energy Storage System (BESS)	Development of a standalone 200-400 MW battery energy storage system and ancillary infrastructure.	Dubbo Regional	48 km	■ In Planning (EIS preparation)
Suntop Solar Farm	Development of a 170 MW solar farm and associated infrastructure. Currently modification for Battery Energy Storage System (BESS) in preparation.	Dubbo Regional	48 km	■ Operational. ■ Estimated lifetime of 30 years.
Wellington Solar Farm	Development of a 174 MW solar farm and associated infrastructure	Dubbo Regional	49 km	■ Under construction. ■ Expected construction period 12-24 months.
Wellington North Solar Farm	Development of a 300 MW solar farm and associated infrastructure.	Dubbo Regional	49 km	■ Operational. ■ Estimated lifetime of 30 years.





Legend

- Shed
- Associated Dwelling
- Non-associated Dwelling
- Railway
- Main Road
- Local Road
- Track-Vehicular
- Path
- Watercourse
- Local Government Area
- State Forest
- Site Boundary

Landowner (Alias)

- 1
- 2
- 3
- 4
- 5
- 6
- 7

WTG

Data Source:
Base Data - NSW DCDB / DTDB
Layout - Client Provided Feb 2023
Imagery - Esri World 2022

Land Ownership		F2-3
Drawing No: 0661059_KER_SCR_G017_R01.mxd	Kerrs Creek Wind Farm	
Date: 06/07/2023	Drawing Size: A3	Scoping Report
Drawn By: MB	Reviewed By: AS	Client: RES Australia
Coordinate System: GDA 1994 MGA Zone 55		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 1 2Km N		

2.6. Project Justification

Australia and the world are in the process of transitioning from traditional fossil fuel energy generation. Wind energy is a clean and inexhaustible resource that generates zero pollution or carbon emissions during operation (U.S. Energy Information Administration, 2021). Wind energy is now cheaper than new energy generation from coal and natural gas, and together with solar and other renewable energy technologies, wind energy is helping to drive down the cost of wholesale electricity (CSIRO, 2021).

Compared to traditional energy sources such as coal and gas, wind farms:

- Require no invasive mining, extraction or burning of fossil fuels;
- Emit no greenhouse gases during operations;
- Emit no fine particle pollution, sulphur dioxide, or oxides of nitrogen;
- Require no water during operation; and
- Have limited environmental impacts from construction (in comparison to coal mining).

The Australian Wind Alliance (AWA) prepared the report, *Building Stronger Communities: Wind's growing role in regional Australia* (November 2019) (AWA, 2019), which outlines ways in which wind farms deliver significant financial and social benefits to their host communities. The report also investigates how income and investment from wind farms flow to local communities, from payments to host landowners and more broadly through community benefit funds, or through community co-ownership and co-investment.

Some key notes from the AWA report have been summarised below:

- At the time the report was published, the construction of wind farms had delivered an economic boost to regional Australia; and the construction of new wind farms is expected to provide a further economic boost as renewable electricity generation methods become more commonly used;
- Host communities are expected to benefit from economic returns across the 25-year life span of wind farm projects, including currently operational wind farms and those currently under construction;
- Regional communities benefit each year from wind farm projects through payments to associated landowners and wind farm Community Enhancement Funds (CEFs); and
- From 2021 onwards, CEFs will make annual contributions to community projects.

The benefits of the Project include:

- Providing a source of renewable energy to supplement NSW and national energy requirements, supporting the transition currently underway in the energy sector away from large fossil fuel energy generation, toward a more decentralised system of renewable energy production;
- Assisting in reducing GHG emissions produced from energy generation;
- Improving security and resilience of the NEM;
- Increasing competition and driving the price of electricity down, benefiting NSW consumers;
- Provide a guaranteed additional income stream for associated landholders;
- Attracting growth and expertise in renewable energy to the local community;
- Attracting renewable investment into regional communities, which will aid in diversifying industry sectors and opportunities to workers;
- Creating opportunities for local contractors and businesses;

- Development of new skilled labour in the region within the growing renewable energy industry; and
- 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.

The Project will also provide direct financial benefits to the regional and local community, including:

- Infrastructure investment of approximately \$710 million;
- Generation of up to 340 full time equivalent (FTE) jobs during construction and approximately 10 FTE jobs during operation;
- Indirect benefits to local services and businesses throughout construction and operation; and
- Local community benefits through the implementation of a 'Community Benefit Fund' that will provide direct and targeted local benefits.

The Project Area is considered suitable for the Project as:

- It is located within the Central West Orana REZ;
- The wind resource is sufficient to support the operation of a wind farm (average wind speed to date across the project Area was calculated to be 7.10 m/s. Note that this will be subject to change pending further data monitoring);
- It is in proximity to existing Mount Piper - Wellington TransGrid 330 kV transmission line;
- It has excellent accessibility via Burrendong Way;
- It is consistent with the RU1 Primary Production zoning objectives;
- Compatible with the existing land uses of the Project Area and surrounding areas, as wind farms have a relatively small footprint, it would allow for existing grazing activities to continue; and
- Host landholders have expressed strong interest in being involved in a renewable energy project.

3. THE PROJECT

This section provides a preliminary description of the Project and its indicative design, layout and features. It also describes the Project's preliminary Disturbance Footprint and indicative staging.

3.1. Project Area

The Project Area encompasses 8,918 ha and is located between the regional localities of Kerr's Creek and Euchareena NSW. The Project is within the Dubbo Regional LGA area. Under the Dubbo LEP the Project Area is zoned as *RU1 – Primary Production*, comprising 155 land parcels, as described in **Section 2.2.4**.

The Project Area is defined as the area of land corresponding to property boundaries on which the Project is located. It includes the WTGs and ancillary infrastructure (refer to **Figure 1-2**). Once constructed, the proposed footprint of the WTGs and all ancillary infrastructure is approximately 143 ha.

3.2. Project Description and Layout

The Project includes the in-perpetuity approval for construction, operation, maintenance and decommissioning of a wind farm with a nominal generation capacity of approximately 441 MW and included associated infrastructure and ancillary activities.

The Project consists of the following elements:

- Up to 63 (3 blade) Wind Turbine Generation System (WTGs);
- One (1) Substation
- Internal electrical reticulation;
- Switchyards;
- Operations and Maintenance (O&M) facility;
- Temporary construction infrastructure;
- Temporary and/or permanent meteorological masts; and
- Internal access tracks and Project Area access.

The preliminary Project layout is shown in **Figure 1-2**.

Aspects not shown in **Figure 1-2** but which are described in **Table 3-1** will generally be located within the Study Area that will be determined and assessed in the EIS.

The final design and location of the components of the Project (including infrastructure) will be subject to further detailed design and assessment, including consideration of the outcomes of technical and environmental assessments as part of the EIS. Disturbance areas for 'cut and fill' batters as well as asset protection zones will also be considered during this process. The preliminary Project design components and specifications are summarised in **Table 3-1**.

Table 3-1 Preliminary Project Design Summary

Element	Feature	Specification
Energy generation	Wind turbine generators	- Up to 63 WTGs, each with: - Hub height of 198 m - Maximum tip height 280 m - Maximum blade length of 82 m.
Electrical Reticulation Network	Substations	- One on-site substation 330/33 kV 200/100 MVA transformers, switch rooms and power quality and reactive plant (SynCon, STATCOM, and filter bank) (location subject to change during detailed design).
	Transmission line easement	Point of connection into the grid will be to 330 kV overhead transmission line running from Wellington to Mount Piper. The transmission line runs across the eastern boundary of the Project Area.
	Internal electrical reticulation network	33 kV underground and overhead electrical reticulation connecting the WTGs to the substations
	Switchyard	- One switchyard to feed to the existing transmission network (location subject to change during detailed design). - Other electrical equipment providing connection to the existing 330 kV distribution network
Other Infrastructure	Operations and Maintenance (O&M) facility	- Construction and operational compounds - Permanent O&M facility (including on-site office and maintenance and storage facilities) - Car parking
	Construction and operational infrastructure	- Up to 3 temporary and 3 permanent meteorological masts, in addition to the permanent meteorological mast currently on-site. - Hardstands - Mobile concrete batching plants - Crushing facilities - Borrow pits. - Construction laydown areas - Visual screening and landscaping as necessary to minimise impacts. - Security fencing, security lighting and security devices
Ancillary Activities	Temporary and Permanent Ancillary Activities	- Sourcing of materials for construction - Sourcing of water for construction - Subdivision and boundary adjustments relating to lease arrangements. - Temporary power and other utilities - Associated minor works
Access	Internal access tracks	Internal access tracks and road turning head connecting Project infrastructure
	To Project	- Project Access will be predominantly via Burrendong Way and Shepherd's Creek Road. - Targeted local road network upgrades to facilitate construction vehicles.
	From Port	Project related materials will be transported via Port of Newcastle.

3.2.1. Electricity Generation

The Project will consist of up to 63 WTGs, with each having a generating capacity of up to 7 MW, a maximum blade length of approximately 82 m, a hub height up to 198 m, and a maximum tip height of 280 m (to the top of the vertical blade). Each WTG has a design life of approximately 30 years. The WTGs will be fixed to a concrete footing (WTG foundations) and mounted on tubular steel towers, with adjacent hardstand area to facilitate WTG installation and maintenance.

3.2.2. Electrical Reticulation Network

Electrical reticulation infrastructure includes one substation (inclusive of associated transformers), two collector substations, power quality and reactive plant (e.g., SynCon, STATCOM and filter bank), switchgear, protection, communications equipment, and a control room. A network of underground and overhead electrical reticulation will connect the WTGs to the substation. The substation will be located toward the centre of the Project Area.

One on-site substation and two collector stations (located on the western and eastern sides of the Project Area) will connect to a switchyard and then to the existing TransGrid 330 kV Wellington to Mount Piper transmission line, which runs through the eastern edge of the Project Area, to the existing electricity distribution network.

3.2.3. Other Infrastructure

The Project will comprise various supporting infrastructure and associated works including hardstands to allow crane activities, temporary and permanent meteorological masts, mobile concrete batching plant/s, rock crushing facilities (for the generation of suitable aggregates for mobile concrete batching, hardstand construction and/or for access track), borrow pits (and associated access track), construction laydown areas, construction and operational compounds (including site office, maintenance and storage facilities, car parking, and security fencing) will also be required.

3.2.4. Ancillary Activities

The Project may also include (but not be limited to) the following ancillary activities:

- Sourcing of gravel, rock and other materials for construction (e.g., cut and fill activities and borrow pits within the Project Area);
- Sourcing of water for construction (e.g., offsite or on-site water sourcing, including the construction of bores and / or nest dams on-site);
- Subdivision and boundary adjustments, if required for the substation and switchyard;
- Associated ancillary works.

3.2.5. Site Access

3.2.5.1. Internal Access Tracks

The construction and maintenance of the Project will require construction of new internal access tracks within the Project Area. The tracks will provide ongoing access to the WTGs and other Project infrastructure including the transmission line. Where practicable, the internal access track network will be aligned along the route of existing farm tracks to reduce impacts to biodiversity and to provide upgraded access for ongoing agricultural activities. These tracks will then connect to the existing Council roads.

To Project

Access during construction and operation will be via the existing road network:

- Access to both north and south portions of the Project Area via Burrendong Way and Shepard's Creek Road; and
- Access to the Burrendong Way via Mitchell Highway, either from Orange or Wellington.

If upgrades are required to sections of these roads, these will be identified in the EIS.

From Port

Whilst the transport route for WTG components has not been determined, potential routes will be subject to further consideration in the EIS. These include:

- From Port of Newcastle via:
 - Maitland Road, The Pacific Motorway, Great Western Highway, Mitchell Highway, Burrendong Way and Shepherds Creek Road; or
 - Newcastle Link Road, Hunter Expressway / M15 to Ulan Road, Cope Road and Goolma Road, Mitchell Highway, Burrendong Way and Shepherds Creek Road.

3.3. Disturbance Footprint

For the purposes of the Scoping Report and associated technical assessments, a preliminary Disturbance Footprint of about 143 ha has been assessed.

The disturbance footprint is the area of land that will be subject to alteration during the operation of Project infrastructure through to decommissioning. This will comprise (but not be limited to):

- WTG foundations;
- Internal access tracks;
- Transmission line poles/towers and transmission line permanent access roads;
- Overhead electrical reticulation;
- Meteorological masts;
- Substation, switching stations, O&M and control facilities;
- Public road upgrades;
- WTG hardstands and laydown areas (subject to detailed design); and
- Borrow pit.

In addition to the above, temporary disturbance will occur during construction of the Project and rehabilitated, and will comprise (but not be limited to):

- WTG hardstands and laydown areas (subject to detailed design);
- Access road construction batters;
- Excavation of underground electrical reticulation;
- Mobile concrete batching plants;
- Construction office compound;
- General laydown areas; and
- Transmission line temporary access roads.

The EIS will consider both the temporary and permanent disturbance footprint areas, noting the temporary impacted areas will be rehabilitated post construction completion.

3.4. Staging

The anticipated development staging for the Project is summarised in **Table 3-2**.

Table 3-2 Indicative Project Staging

Stage of Project	Estimated Date of Completion
Site Selection	2020
Project Feasibility	2021-22
Planning and Approvals Process	2023 – 2024
Construction	Construction Years 1 – 3 (from 2026)
Commissioning and Operations	Operational Years 1 – in-perpetuity
Decommissioning, Rehabilitation or Repowering	>30 years from commencement of operation

3.4.1. Construction

The Project will commence with design and procurement activities, the progressing into earthworks commencing in Construction Year 1. All on-site construction activities and erection of WTGs is estimated to a further 2 years, which includes commissioning. The construction period is expected to take up to 28 months. Peak construction will occur from approximately months 7-14.

The project will need a construction workforce of up to 340 FTE employees across the 3-year procurement, construction and commissioning period.

3.4.2. Operations

The operational workforce will consist of up to 10 FTE employees. Wind farms are designed to operate largely without intervention, with each wind turbine capable of operating independently of all other WTGs. Most of the maintenance undertaken will be preventative maintenance based on a schedule, which will cycle through all WTGs to ensure service intervals are met.

Preventative maintenance will occupy the majority of FTE operational staff time. Some unscheduled repair work may be required (i.e., should breakdowns occur). In these circumstances, priority works would be undertaken as soon as possible to ensure all WTGs are operational.

The wind farm will have a nominal operating period of at least 30 years.

3.4.3. Decommissioning, Rehabilitation or Repowering

The EIS will discuss the options associated with the decommissioning of the Project. WTGs will be maintained, replaced or re-powered within the description and impacts described within the EIS.

After the operational life of the Project, a decision will be made whether the site could be decommissioned, the WTGs removed, and site rehabilitated or repowered.

This process of decommissioning will be undertaken in accordance with relevant legal requirements, regulations and conditions of Development Consent. The Project will remove above-ground infrastructure specified in the Development Consent; however, some infrastructure may be retained subject to landowner agreement.

3.5. Alternatives Considered

Alternatives to the Project have been explored, including alternative sourcing of energy, alternate site location, alternate site layouts, the 'do nothing' approach, and the Preferred Project option for the Project. Each is discussed below.

3.5.1. Alternative Sourcing of Energy

The alternative to using wind energy is the continued use of fossil fuels, including coal and natural gas. The reliance on these energy sources results in the release of GHG emissions such as CO₂ and contributes to the harmful effects of climate change.

The LRET discussed in **Section 2.1.3** outlines the commitment by Australia and NSW in reducing GHG emissions and have set targets for increasing the generation of renewable energy.

Other forms of large-scale renewable energy accounted for in the LRET include hydro, biomass, solar and tidal energy. Except for solar energy, these alternative sources are not feasible for the proposed site. Additionally, they are in the early stages of development and are generally neither 'market ready' nor as viable as wind energy in Australia.

Due to the favourable wind resource and sparsely populated locality, it is considered that large-scale wind technology is the optimum renewable energy technology form of energy generation.

The NSW Government has also proposed that the area between Dubbo and Dunedoo is declared as a REZ – the "Central-West Orana Renewable Energy Zone". The Project is located within the area that was formally declared in 2021 (see **Section 2.1.4.5** and **Section 2.2**).

Considering the Project location and the benefits of the NSW REZs alternative forms of energy generation would not be aligned with the stated rationale behind REZ policy.

The Project is at a scale that will provide significant renewable energy generation over a 30-year period. Large-scale wind technology is now one of the cheapest forms of new energy generation, reducing cost pressures on consumers and reducing emissions.

The Applicant is a long-term owner and operator of renewable assets globally and rarely sells these assets. This long-term approach means that community partnership is vital to the RES approach to the development, construction and operation of its assets.

3.5.2. Alternative Site Location

A project of this magnitude requires significant land area, proximity to existing or proposed transmission or distribution networks and available network capacity. Alternative sites may be limited in providing these critical elements.

During the site selection process for the Project, the Applicant investigated over 30 areas of investigation (AOIs) in the Central-West region. These AOIs were ranked according to wind resource, as well as other aspects including:

- Proximity and access to existing grid infrastructure;
- Accessibility to the Project via a major road;
- An area that would minimise the need to remove high value native vegetation or impact on other environmental values;
- A site with topographical features that would require minimal earthworks / soil disturbance;
- A site not subject to flooding or bushfire impacts;
- Minimal impact on surrounding privately or publicly owned land; and
- Minimal environmental impacts.

3.5.3. Site Layout Changes

The Project layout shown in this Scoping Report has been determined based on the topography, wind resource, electricity generation optimisation, site access, preliminary consultation outcomes and preliminary environmental assessments.

The Project layout has evolved significantly over the past four (4) years. Numerous field surveys and assessments have been undertaken and the findings from these assessments have been used to inform the design proposed within this Scoping Report. These layout changes include:

- Reduction of the Project Area from 14,610 ha to 8,918 ha to avoid and minimise impacts;
- Reduction of the number of access points on Burrendong Way from five (5) to two (2) to avoid impacts to traffic and roads; and
- Relocation of several turbines to minimise noise and visual impacts at receivers to the north of the Project Area.

Based on the above, the layout presented in this Scoping Report has located infrastructure to minimise impacts to these environmental and social aspects. The layout has also been designed in consideration of the principles of Ecologically Sustainable Development (ESD).

3.5.4. Do Nothing

The Project Area is currently used for seasonal farming and grazing. Although the 'do nothing' scenario would allow for continued use of the Project Area for agricultural production, it will also lead to a missed opportunity to generate additional renewable energy, provide income to host landowners and to reduce Australia's dependency on fossil fuels for energy generations and the consequential emissions of GHGs.

The Project is expected to result in annual savings of approximately 700,000 tonnes of GHG, and the electricity generated could supply up to 265,000 NSW households with energy.

In addition, the local area and wider region would not realise the benefits of the Project including:

- The economic benefits to the local and regional community provided directly and indirectly by the employment associated with the Project;
- A capital investment of approximately up to \$710 million creating direct and indirect employment during construction and operations; and
- Contributions to local community facilities and infrastructure through the Community Benefit Program.

4. STATUTORY CONTEXT

This section outlines the key statutory requirements for the Project under the EP&A Act and other relevant NSW and Commonwealth legislation. It describes the power to grant approval, permissibility, the any post approvals required under other relevant acts.

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 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.”

Relevant SEPPs include *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and *State Environmental Planning Policy (Transport and Infrastructure) 2007* (Transport and Infrastructure SEPP).

Under the provisions of Clause 2.6(1) of the Planning Systems SEPP, a development is classified as SSD if:

- “(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and
- (b) the development is specified in Schedule 1 or 2.”

Schedule 1, Clause 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”.

Section 2.6 demonstrates that the Project meets the definition of electricity generating works, which are defined in Clause 2.35 of the Transport and Infrastructure SEPP:

“Electricity generating works means a building or place used for the purpose of—

- (a) making or generating electricity, or
- (b) electricity storage.”

The Project involves development for the purpose of electricity generating works using wind power which will have a capital investment value of more than \$30 million. Therefore, the Project is classified as SSD under Part 4 of the EP&A Act. Under Section 4.12 of the EP&A Act a DA for SSD is to be accompanied by an EIS.

4.2. Permissibility

4.2.1. Transport and Infrastructure SEPP

The permissibility of wind farm developments in NSW is determined by the Transport and Infrastructure SEPP.

Clause 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.

The Project Area is zoned in its entirety as *RU1 – Primary Production* under the Dubbo LEP 2010 as shown on **Figure 2-1**. As RU1 is a prescribed rural zone, the Project is permissible with consent under the provisions of Clause 2.36 (1) of the Transport and Infrastructure SEPP.

4.2.2. Electricity Infrastructure Investment Act (2020)

Clause 23 of the *Electricity Infrastructure Investment Act (2020)* identifies Renewable Energy Zones (REZ) in NSW. The Project Area is in proximity to the Central-West Orana REZ as illustrated in **Figure 1-1**. The Project will result in an overall increase to NSW's energy capacity and will add to the regional growth and investment in regional NSW.

4.3. Post Approval

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

Table 4-1 Post-DA Required Approvals

Approval Category	Legislation	Requirement
Consistent Approvals Section 4.42 of the EP&A Act outlines seven areas where additional approvals cannot be refused if necessary for carrying out an approved SSD and are to be consistent with the terms of the SSD approval.	<i>Roads Act 1993</i>	Consent from the appropriate roads' authority under Section 138 of the Roads Act is required for any works undertaken on or under public roads. An approval for works on public roads will be required for the Project.
	<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	Under the provisions of Schedule 1, Clause 17 of the POEO Act as activities requiring an environment protection licence (EPL include "electricity works (wind farms)". Accordingly, an EPL will be required for the Project.
	<i>Fisheries Management Act 1994</i> (FM Act)	The Project will not require an aquaculture permit under Section 144.
	<i>Coal Mine Subsidence Compensation Act 2017</i> (CMS Act)	The Project is not within a mine subsidence district. Therefore, under Part 3 of the <i>Mine Subsidence Compensation Act 2017</i> the Project will not require approval.
	<i>Mining Act 1992</i>	The <i>Mining Act 1992</i> aims to encourage and facilitate the discovery and development of mineral resources in NSW, having regard to the need to encourage ecologically sustainable development (ESD). There are three exploration licences within the Project Area (further detail is provided in Section 2.2.5).
	<i>Petroleum (Onshore) Act 1991</i>	The <i>Petroleum (Onshore) Act 1991</i> aims to encourage and facilitate the discovery and development of petroleum resources in NSW, having regard to the need to encourage ESD. There are no existing petroleum exploration licences in the Project Area.
	<i>Pipelines Act 1967</i>	The <i>Pipeline Act 1967</i> controls pipeline construction, operation, and licensing in NSW. The Project will not involve the construction and operation of water pipelines and as such, licensing will not be required.

Approval Category	Legislation	Requirement
Native Title (Cwlth)	<i>Native Title Act 1993</i> (NT Act)	Under Section 13 of the NT Act, an individual can apply to the Federal Court for a determination of native title. Preliminary crown land is shown on Figure 1-2 . A review of the potential for native title will be undertaken for the Project, however the Native Title Vision (NTV) online mapping tool (NNTT, 2022) currently indicates there are no Native Title claims over the Project Area.
EPBC Act Approval (Cwlth)	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Approval from the Minister for the Commonwealth 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). The findings of the Preliminary Biodiversity Assessment (Appendix E) confirmed the presence of threatened species listed under the EPBC Act within the Project Area. As such, a Referral under the EPBC Act will be made. A referral under the EPBC Act referral will be made to the Federal Minister for the Environment
Other Approvals	<i>Water Management Act 2000</i> (WM Act)	The Project may require water access licences under the <i>Water Management Act 2000</i> . The Project is within the WSP for the <i>Macquarie-Bogan Unregulated Rivers Water Sources 2012</i> and the <i>Murray-Darling Basin Fractured Rock Groundwater Sources 2011</i> . The EIS will assess and identify any requirement for water access licences for the Project
	<i>Conveyancing Act 1919</i> (Conveyancing Act)	The Project will require a lease from the owners of the affected land. Lease of a wind farm site is treated as a lease of premises regardless of whether the lease will be for more or less than 25 years. Subdivision consent is not required under Section 23G of the <i>Conveyancing Act 1919</i> . However, Section 23G of the Conveyancing Act 1919 may apply if subdivision for the purpose of construction, operation and maintenance of a substation is required. The EIS will consider this requirement.
	<i>Biodiversity Conservation Act 2016</i> (BC Act)	The Biodiversity Development Assessment Report (BDAR) which will be prepared to accompany the EIS will provide a discussion of the management and protection of listed threatened species of native flora and fauna and threatened ecological communities (TECs) and assess biodiversity offsets consistent with the Biodiversity Offset Scheme. Given the Project is SSD, entry into the Biodiversity Offset Scheme is automatically triggered.
	<i>Local Land Services Act 2013</i> (LLS Act)	The LLS Act regulates the management of vegetation on rural land. The amendments to the LLS Act have resulted in a change to the criteria for native vegetation clearing.

Approval Category	Legislation	Requirement
		There are different land categories for clearing on rural land including: ■ Category 1 – 'Exempt land' which will not be subject to clearing approval; ■ Category 2 – 'Regulated Land' on which clearing of native vegetation may be carried out with or without approval in accordance with an 'allowable activity' or 'code' under the LLS Act, and ■ 'Excluded Land' – Land not categorised in the Regulatory Maps and to which the LLS Act does not apply. A land category assessment will be prepared and areas that are confirmed as Category 1 land will be excluded from assessment (and subsequently offset in NSW) under the Biodiversity Assessment Method (BAM) in consultation with relevant regulators.
Approvals not required under SSD. Section 4.41 of the EP&A Act states five areas where additional approvals are not required for an approved SSD.	<i>Fisheries Management Act 1994</i> (FM Act)	The FM Act provides for the conservation, protection and management of fisheries, aquatic systems and habitats in NSW. Like the BC Act, the FM Act lists threatened species, populations and ecological communities of fish and marine vegetation. While permits under sections 201, 205 or 219 will not be required, the EIS demonstrates the avoidance or mitigation of impacts.
	<i>Heritage Act 1977</i> (Heritage Act)	The Heritage Act is administered by Heritage NSW and aims to protect the natural and cultural heritage of NSW. It provides blanket protection for surface and sub-surface relics and for heritage items of state significance listed on the State Heritage Register. The Heritage Act defers to local planning instruments under the EP&A Act for the protection of items of local significance. 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. The EIS will consider historic heritage values.
	<i>National Parks and Wildlife Act 1974</i> (NPW Act)	The objective of the NPW Act is to consolidate and amend the law relating to the establishment, preservation and management of national parks, historic Project Areas, certain other area, and the protection of certain fauna, native plants and Aboriginal objects. The EIS will assess Aboriginal cultural heritage values of the Project Area. Under the provisions of Section 4.4.1 of the EP&A Act, a Section 90 Aboriginal heritage impact permit is not required for the Project.
	<i>Rural Fires Act 1997</i> (RF Act)	The RF Act aims to prevent, mitigate and suppress bush and other fires in local government areas of the NSW. Section 63(2) of the RF Act requires the owners of land to prevent the ignition and spread of bushfires on their land.

Approval Category	Legislation	Requirement
		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.
	<i>Water Management Act 2000</i> (WM Act)	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 of the WM Act is not required for the Project.

In addition to the requirements stated in **Table 4-1** when deciding whether to grant consent for the Project, the consent authority is required to consider a range of mandatory matters, as identified in **Table 4-2**. The EIS will explore how the Project is consistent with these requirements.

Table 4-2 Mandatory Considerations – Planning

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) <i>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,</i> (b) <i>to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i> (c) <i>to promote the orderly and economic use and development of land,</i> (d) <i>to promote the delivery and maintenance of affordable housing,</i> (e) <i>to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</i> (f) <i>to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i> (g) <i>to promote good design and amenity of the built environment,</i> (h) <i>to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,</i> (i) <i>to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i> (j) <i>to provide increased opportunity for community participation in environmental planning and assessment.</i> The EIS will consider and confirm the Project's concurrence with the Objects of the Act.
Section 4.15 - Evaluation	Pursuant to 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 (EPI) including: – <i>State Environmental Planning Policy (Resilience and Hazards) 2021;</i> – Transport and Infrastructure SEPP; and – Dubbo LEP. ■ 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. The EIS will consider and confirm the Project's concurrence with these considerations.

Statutory Reference	Mandatory Consideration
Considerations under relevant EPIs	
<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> (Hazards SEPP)	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 Clause 3.7 of the Hazards SEPP, consideration will be given to current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, including: ■ Hazardous Industry Advisory Paper No 4 – 'Risk Criteria for Land Use Safety Planning' (DoP, 2011); and ■ Hazardous Industry Planning Advisory Paper No 6 - 'Hazard Analysis' and 'Multi-level Risk Assessment' (DoP, 2011). Under Section 4.6 of the Hazards SEPP, a consent authority is required to consider whether a development is affected by soil or other contaminants before granting consent. Each of a hazards and contamination assessment will be prepared as part of the EIS.
<i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i> (Biodiversity and Conservation SEPP)	Chapter 3 Koala Habitat Protection 2020 of the Biodiversity and Conservation SEPP provides a framework for councils to prepare a strategic koala plan of management that would apply to the whole or part of an LGA. The Project Area is not located in an LGA (Dubbo Regional) listed in Schedule 2 of the Biodiversity and Conservation SEPP, or in Schedule 1 of the 'Koala Habitat Protection SEPP 2021'. However, the Project Area is located on the border of the Cabonne Shire LGA, which is listed in both Schedule 1 of the 'Koala Habitat Protection SEPP' and Schedule 2 of the 'Biodiversity and Conservation SEPP'. The Project Area is located within the Northern Tablelands Koala Management Area. Due to the proximity of the Cabonne Shire LGA, Koalas will be considered during the preparation of the EIS BDAR and EPBC Act Referral.
Dubbo Regional Local Environmental Plan 2012	The EIS will address relevant components of the Dubbo LEP, including: ■ Section 1.2 – Aims of Plan; and ■ Land Use Table - Objectives and permissible uses of the RU1 – Primary Production zone, with consideration of overriding permissible uses identified in the Transport and Infrastructure SEPP.
Considerations under Local Strategic Planning Statements	
Dubbo Regional Local Strategic Planning Statements 2020	Local Strategic Planning Statements (LSPS) outline the 20-year vision for an LGA, demonstrate how change will be managed and identifies local priorities for updating council LEPs. The LSPS identifies the strategic planning work and sets short, medium, and long-term actions to deliver the priorities for the community's future vision. The LSPS applicable to the Project is the 'Dubbo Regional Local Strategic Planning Statement 2020' (Dubbo LSPS). The EIS will address this requirement.

Statutory Reference	Mandatory Consideration
Considerations under Development Control Plans	
Wellington Development Control Plan 2013 (Wellington DCP)	The Wellington DCP is the relevant DCP that supports the controls contained within the Dubbo LEP under the provisions of Division 3.6 of the EP&A Act. Under Section 2.10 of the Planning Systems SEPP, DCPs do not apply to SSD projects: “11 Exclusion of application of development control plans Development control plans (whether made before or after the commencement of this Policy) do not apply to— (a) <u>State significant development</u>, or (b) development for which a relevant council is the consent authority under section 4.37 of the Act.” The Project will be classified as SSD. As such, the Wellington DCP does not apply and is not a mandatory consideration for the Project.

5. STAKEHOLDER ENGAGEMENT

This section provides an overview of the preliminary stakeholder engagement undertaken by RES for the Project. It provides an overview of the proposed engagement process for the EIS.

5.1. Introduction

Engagement with the community and stakeholders is a key element of any major development. Stakeholder engagement has been and will continue to be undertaken with community members, local landholders (neighbouring and proximate included), relevant Government agencies and other key stakeholders (infrastructure and mining lease holders).

Engagement with the community regarding the Project commenced in 2021, and engagement with stakeholders commenced in 2022. Community engagement has been undertaken using a variety of techniques, including face to face events, phone calls, letters and online platforms. The most recent of which was a drop-in style information session held at Euchareena Hall in January 2023. Through continued, targeted engagement, RES is committed to ensuring public concerns and comments are considered, and that attempts are made to avoid, minimise or mitigate potential impacts where possible.

5.2. Community Engagement Plan

Community Engagement will be undertaken in accordance with the Community Engagement Plan (CEP) prepared by RES. The objectives of the CEP are to:

- Identify stakeholders and community groups that may have an interest in or influence on the Project;
- Establish targeted communication tools and channels to facilitate two-way engagement;
- Provide clear, consistent and compelling key messages, to ensure stakeholders are informed and educated about:
 - The purpose or need for the Project;
 - Benefits for the community;
 - Channels to raise questions or concerns and provide feedback;
 - How RES will consider their input;
- Facilitate early engagement with identified Traditional Owners to maximise opportunity for the project to be developed in a culturally sensitive way, considering any tangible and intangible heritage values relevant to the project site and to support a focus on the avoidance of potential impacts to Aboriginal and Torres Strait Islander cultural heritage;
- Identify opportunities to build positive sentiment within local media, community and broader stakeholders;
- Ensure compliance with consultative requirements under the SEARs, Undertaking Engagement Guidelines for State Significant Projects (NSW Government, 2022), and other relevant planning instruments and guidelines;
- Codesign local benefit sharing opportunities with local community and stakeholders to ensure they meet local needs and are appropriately targeted; and
- Identify opportunities to reduce the risk of community resistance.

The CEP also incorporates the 'International Association of Public Participation' (IAP2) engagement spectrum (International Association of Public Participation, 2018), which aims to design engagement activities that 'inform', 'consult' and 'involve' the identified stakeholders.

The CEP has facilitated engagement with relevant stakeholders which is proactive and ensure all Project information is timely, transparent, accessible and easy to understand. The CEP also demonstrates RES' commitment to continuously evaluate community engagement and modify when needed, to ensure that RES meets stakeholder expectations.

5.3. Scoping Phase Engagement

The strategy adopted for the community engagement has been designed to enable community members to be part of the Project planning and development process and to provide them with the opportunity to engage in a meaningful way.

5.3.1. Stakeholder Identification

Stakeholder identification was undertaken as part of the scoping phase for the Project. **Table 5-1** maps the relevant stakeholders that have been identified and the potential interest and concerns of the different stakeholders identified.

Table 5-1 Stakeholder Identification, Interests and Concerns

Stakeholder Group	Stakeholders	Potential Interests and Conflicts
Host landowners	Landowners with the potential to host infrastructure, have already been engaged regarding infrastructure hosting options, or have agreed to host infrastructure	Individual consultation, access to private land, noise, visual amenity, health and safety, construction disruption, remuneration
Immediate neighbours	Neighbouring dwellings within a 5 km radius of a potential turbine location	Individual consultation, noise, visual amenity, property values, health and safety, impact of construction, traffic
Indigenous communities	Wiradjuri Traditional Owners, registered Aboriginal Parties and Aboriginal groups, Local Aboriginal Land Councils, NSW Aboriginal Land Council, Aboriginal Affairs NSW and Native Title Service Provider for Aboriginal Traditional Owners	Community consultation, impact on Aboriginal social, historical, scientific and aesthetic objects or values, economic benefits / impacts, impacts of construction traffic, health and safety
Surrounding communities	Community members who live outside the 5 km radius of a potential turbine site	Community consultation, community wellbeing, economic benefits / impacts, impacts of construction traffic, health and safety, visual amenity, land use
Local community organisations and businesses	Dubbo Chamber of Commerce, Wellington Business Chamber, Orange Business Chamber, local business (especially tourism or agriculture), NSW Farmers Association, Country Women's Associations, Lions and Rotary Clubs, local action groups and tourism organisations	Community consultation, community wellbeing, business opportunities, social and economic impacts, environmental impacts, local Indigenous and European heritage objects and values
Local council, state and federal elected members	Dubbo Regional Council: Cr Matthew Dickerson, Mayor, Murray Wood, CEO, and elected councillors; Orange Council: Kevin Beatty, Mayor, David Waddell, CEO; and elected councillors,	Community consultation, community wellbeing, impact on local residents and businesses, economic benefits, impacts on local roads and infrastructure

Stakeholder Group	Potential Stakeholders	Potential Interests and Conflicts
	Cabonne Council: Executive and elected councillors; Hon. Dugald Saunders, MP, State Member for Dubbo; Mr Philip Donato MP, Member for Orange; Hon Mark Coulton, MP, Federal Member for Parkes.	
State and federal agencies	TfNSW, DPE, NSW Local Land Services, EPA, National Parks and Wildlife Service, Department of Primary Industries, Civil Aviation and Safety Authority, Regional Development Australia, Australian Energy Infrastructure Commissioner, emergency service departments, Office of the Registrar of the Aboriginal Land Rights Act, National Native Title Tribunal	Community consultation, project approval, regulatory compliance, environmental impact
Local media	Dubbo Daily Liberal, Wellington Times, Central Western Daily	Community wellbeing, local employment, project updates, project budget, and community involvement and events
Local schools, religious organisations, clubs	Euchareena Public School	Community wellbeing, economic benefits, community involvement and events, local sponsorship
National / state / local media	National and state newspapers, radio and television	Community discontent / protests, safety concerns, environment or heritage impacts, project milestones
Utilities	Electricity and gas, WaterNSW, Macquarie River Catchment, Telecommunications providers, NBN	Stakeholder consultation, project approval, regulatory compliance, environmental impact, signal interference.
Industry	Construction industry, freight industry, agriculture, retail, transport	Stakeholder consultation, environmental impact, impact of construction, traffic

5.3.2. Engagement Methods

A variety of methods have been or will be implemented to facilitate community and stakeholder engagement, and to ensure that the sentiment of each stakeholder is being recorded and actions taken to address their needs.

Throughout the duration of the Project, the approach to stakeholder consultation methods will change and adapt to accommodate for the identification of new stakeholders, or if key contacts for stakeholders change.

Key methods of consultation include:

- Community information sessions and events;
- Letters and newsletters;
- Feedback surveys;
- Face to face meetings;
- Presentations to stakeholder groups;
- Project briefings;
- Newspaper advertising/ invitation and flyers to promote information session;
- Emails and Phone calls;
- Project phone line: 0428163657, Development Project Manager, direct mobile number;
- Project Website: <https://www.kerrscreek-renewableenergy.com>; and
- Project email: info@kerrscreek-windfarm.com.

5.3.3. Engagement Conducted

The Applicant has been conducting engagement with the relevant stakeholders since 2021. Early phase engagement involved engaging face to face with landholders, direct neighbours, and community groups. The engagement that has been conducted with the relevant stakeholders during the Scoping Phase of the Project is summarised in **Table 5-2** below.

Table 5-2 Stakeholder Engagement to Date

Stakeholder	Date	Engagement Activity and Key Outcomes
Community	2020-2021	■ Project set up and initial communication with stakeholders ■ Introductory letters sent to neighbouring landowners ■ Gathered phone numbers, addresses and emails ■ Established a project database ■ Phone calls with neighbouring landowners ■ Door knock and face to face meetings ■ First Community Information Session
	2022	■ Establishment of Project website, phone number and email inbox.
	January 2023	■ Letters sent directly to community members ■ Local newspaper advertising of the Project ■ Promotion of pop-up events on Council website ■ Community information session - Key concerns include visual and noise impacts from the Project, land devaluation, fire risk, energy output from the Project and the allocation of the Community Benefit Fund.
	April 2023	■ Visual impact letter sent to Project neighbours at risk of visual impact ■ Contents included an outline of the risk of visual impact and to open communication for potential visual impact field work at the residence if required. Contact details were also included. ■ Visual photomontage work completed to assess visual impact with more details.
	May - July 2023	■ Continuation of face-face consultation with community members.
Cabonne Council	May 2023	■ Meeting with Cabonne Council 11 May 2023 - Raised the concerns about the availability of worker accommodation in the area - Visual impact to project neighbours in the Cabonne Shire Council

Stakeholder	Date	Engagement Activity and Key Outcomes
Dubbo Regional Council	May 2023	■ Consultation with Dubbo Regional Council - Phone call requesting cadastral information. - Council email to RES with initial feedback about the planning agreement and the traffic/ engineering scope of works. - Dubbo Regional Council has outlined that the Community Benefit Fund would be administered and assessed by RES and the Council with the final determination on allocation to be made by Councilors at a formal meeting of Council. All payments will be made public. Council has encouraged consultation with their Manager for Growth Mr Steven Jennings.
DPE	February 2023	■ Meeting with DPE 13 February 2023 - Key concerns raised by DPE include; consultation with landowners in high risk areas, TransGrid, Rail operators, updated layout options being made available to DPE, visual impactsn and meetings with MOIR visual consultants prior to fieldwork.
Transport for NSW (TfNSW)	May 2023	■ Email correspondence with TfNSW on 23 May 2023 - Key concerns raised include: existing and proposed road geometry, road drainage, access routes, speed zones, vegetation, and swept paths.

The stakeholder engagement completed to date has identified the key areas of concern. These are detailed in **Table 5-3**

Table 5-3 Key Issues Summary

Topic	Where Address
Worker Accommodation	This is to be addressed in the Social Impact Assessment prepared as a part of the Project EIS
Transport Route, Road Upgrades, Traffic Access points	This is to be addressed in the Traffic and Transport Impact Assessment, which will include transport route options, prepared as a part of the project EIS.
Visual Impact	This is to be addressed in the Visual Impact Assessment prepared as a part of the Project EIS
Noise Impact	This is to be addressed in the Noise and Vibration Impact Assessment prepared as a part of the Project EIS
Land Devaluation	This is to be addressed in the Social Impact Assessment prepared as a part of the Project EIS
Allocation of Community Benefit fund	The Community Benefit Fund will be allocated following engagement with local councils and the community.

5.3.3.1. Key Community Concerns

The stakeholder engagement completed to date has identified three (3) main areas of concern from the community. This includes the visual impact to nearby dwellings, the noise impact from construction and operation of the wind farm, and the allocation of the community benefit fund. These issues are to be addressed through the preparation of the EIS for the project.

5.3.4. Identified Risks and Mitigation Measures

The CEP has identified the key risks from the Project to the community, and the relevant mitigation and implementation options for these risks are presented in **Table 5-4**.

Table 5-4 Identified Project Risks and Relevant Mitigation Measures

Risk	Mitigation	Recommended Implementation Options
Visual and audible amenity	■ Early engagement with residents and community members to provide open and honest information on the operational and visual impact of wind turbines ■ A Visual Impact Assessment will be prepared as a part of the EIS to address the visual impact to neighbouring landowners. Mitigation measures are to be included in this assessment.	■ Project website ■ Fact sheets ■ Targeted emails ■ Newsletters ■ In-person meetings ■ Information sessions ■ Complaints and feedback channels ■ Visual Impact Assessment as a part of the EIS
Organised community activist campaign	■ Provide extensive information on the benefits of the project. ■ Develop collateral to counter false or misleading information. ■ Ensure media responses are prepared in advance to counter potential issues	■ Project website ■ Newsletters ■ Media releases ■ Information sessions ■ Fact sheets
Access to information	■ Provide extensive, clear and easy-to-understand information across a range of readily accessible mediums	■ Project website ■ Social media ■ Fact sheets ■ Media releases ■ Newsletters ■ Targeted mail and emails. ■ Information sessions ■ Sponsorships
Approval process and timing	■ Ensure that project teams provide an accurate forecast on the planning and construction of turbines and update affected parties if variations occur	■ Project website ■ Fact sheets ■ Media releases ■ Newsletters ■ Targeted mail and emails ■ Complaints and feedback channels

Risk	Mitigation	Recommended Implementation Options
Impact of construction on the community	■ Provide proactive updates to the community on upcoming construction work, its potential impacts and duration. ■ Provide avenues for complaints and feedback. ■ Seek to continually improve processes and show community where we have responded to their concerns. ■ Build positive culture within the project team to show respect to the community and build goodwill	■ Project website ■ Newsletters ■ Targeted emails ■ Construction notices ■ Complaints and feedback channels ■ Project inductions that reinforce positive behaviour and respect for the community
External influence	■ Ensure engagement can continue online if face-to-face engagement is not possible. ■ All communications will direct audiences to the project website for more information	■ Project website ■ Newsletters ■ Targeted mail and emails

5.4. Planned Engagement Measures

Table 5-5 outlines the planned engagement measures that are to be conducted as a part a part of the Project lifecycle.

Table 5-5 Planned Engagement Measures

Method	Description and Purpose	Stakeholder Engaged by Method
Letters	■ Letter of introduction ■ Letters to impacted residents (immediate neighbours and surrounding community) ■ Invitations to town halls, pop-ups and other meetings	■ Host Landholders ■ Neighbours (within 5 km)
Project updates	■ Project introduction and overview ■ Regular updates about project development and construction	■ Traditional Owners ■ Host Landholders ■ Neighbours (within 5 km)
Fact sheets	■ Draft and publish series of fact sheets, potentially covering: ■ Wind energy ■ Wind farms and renewable energy ■ Wind farms and the electricity grid ■ Wind farm visual and noise impacts ■ Wind farm health and safety ■ Wind farm construction ■ FAQs	■ Community Groups ■ Wider Community ■ Local Businesses ■ Local Media
Media releases	■ Major project milestones ■ Holding statement/s based on key messages addressing relevant issue or concern	■ Traditional Owners ■ Neighbours (within 5 km) ■ Community Groups ■ Wider Community ■ Local Businesses ■ Local Media
Emails	■ Email database compiled during early community engagement and scoping phase (updated regularly) ■ Targeted project update emails ■ Upcoming impacts (construction) ■ E-newsletters and invitations to events	■ State and Local Government ■ Traditional Owners ■ Host Landholders ■ Neighbours (within 5 km)

Method	Description and Purpose	Stakeholder Engaged by Method
Website	■ Platform for the wider community engagement may include: ■ Project documentation, as relevant to the development application ■ Project overview ■ Interactive map ■ News stories and videos of project in the community ■ Construction updates ■ Fact sheets ■ Community Consultative Committee information and minutes, if applicable ■ Opportunities (e.g., employment, community benefits, etc) ■ Contact details ■ Feedback and complaint form	■ Community Groups ■ Wider Community ■ Local Businesses ■ Local Media
Advertisements / flyers	■ Invitations to community information sessions ■ Promote project opportunities such as community benefits. ■ Notify of upcoming construction impacts	■ Traditional Owners ■ Neighbours (within 5 km) ■ Community Groups ■ Wider Community ■ Local Businesses ■ Local Media
Project briefings	■ Formal project briefings to key stakeholders and government agencies, including branded project PowerPoint deck	■ Local and State Governments ■ Traditional Owners ■ Community Groups
Personal meetings / interviews	■ Introduce the project and team. ■ Listen to individual concerns, interests, issues and gather preliminary feedback, scope potential impacts and opportunities – including sensitivities – to inform mitigation strategies, key messages and engagement approach and build understanding of engagement preferences	■ Traditional Owners ■ Host Landowners ■ Neighbours (within 5km) ■ Local Businesses
Community information and feedback sessions	■ Drop in/pop-up sessions to provide information, engage with community, answer questions. ■ Information booth/stall at local events (e.g., field days, shows)	■ Traditional Owners ■ Host Landholders ■ Neighbours (within 5 km) ■ Community Groups ■ Wider Community ■ Local Businesses

6. ASSESSMENT OF IMPACTS

This section outlines matters requiring further assessment in the EIS and the level of assessment that will be undertaken for each aspect.

6.1. Categorisation of Assessment Matters

A preliminary environmental assessment was undertaken to identify the potential matters associated with the Project. The following were considered in the identification of matters requiring further assessment:

- 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 when considered in conjunction with other relevant future projects in the area (refer to **Section 2.5**);
- 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 is identified in **Table 6-1**, with further discussion provided in the following sections. Detailed assessments will include the 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.

The EIS will be prepared in accordance with the SEARs and in consideration of engagement with stakeholders, industry best practice guidelines, and experiences from other wind farm projects.

A scoping summary table is presented in **Appendix A**.

Table 6-1 Proposed Level of Assessment

Level of Assessment	Aspect
Detailed	Visual Noise and Vibration Biodiversity Aboriginal Cultural Heritage Traffic and Transportation (including route assessment) Aviation Telecommunications
Standard	Historic Heritage Flooding and Hydrology Water and Soils Economic Social Hazards – Preliminary Hazard Analysis Hazards – Bushfire Hazards – Blade Throw Hazards– Electromagnetic Field Air Quality and Greenhouse Gas Waste Management

6.2. Visual

6.2.1. Background

A preliminary Landscape and Visual Impact Assessment (LVIA) was undertaken and is presented in full in **Appendix B**. The preliminary LVIA was prepared in accordance with the NSW 'Visual Assessment Bulletin for State Significant Wind Energy Development Guidelines' (DPIE, 2016b).

The Study Area, as referred to in the preliminary LVIA and within this section, is generally defined as the Project Area and surrounding land up to 8,000 m from the nearest turbine.

The following scope of works was undertaken in the preparation of the preliminary LVIA:

- **Desktop Assessment:** Application of Preliminary Assessment Tools to determine receptors with potential sensitivity; preparation of a preliminary Zone of Visual Influence (ZVI) to establish a theoretical zone of visibility of the Project and identification of key viewpoints and landscape features using available mapping and background documents;
- **Site Inspection:** Photographic survey work for the assessment was undertaken to allow a preliminary assessment of the existing landscape character from publicly accessible land within the Study Area. The findings of the site inspection are included in the preliminary LVIA and will form the basis for discussion with the community in the EIS Phase of the Project;
- **Photomontages:** Preliminary photomontages and wireframe diagrams have been conducted as part of additional dwelling assessments to assess visual impact to sensitive receivers. These photomontages provide an overview of the vegetation and topography surrounding the Project Area. The wireframe diagrams present potential visual impact of turbines to selected dwellings; and
- **Community Engagement:** Community engagement has been undertaken through the scoping phase of the Project through face-to-face meetings and an online questionnaire. Results of the community consultation have also been utilised to gain perspective on the landscape values held by the community to inform the preliminary LVIA.

6.2.2. Preliminary Assessment

The Visual Bulletin Preliminary Assessment Tools were applied to both dwellings and key public viewpoints within the Study Area. The tools provide an early indication of where placement of turbines will require further assessment and justification, and where consultation with potentially affected landowners needs to be focused, including consideration of landholder agreements where necessary.

Preliminary community consultation for the Project involved face to face meetings (through two community information sessions in Euchareena) and an online questionnaire. Results from the consultation indicated that community perception towards the Project was generally positive, with the following proportion of respondents regarding the following as benefits:

- 80% of respondents identified clean energy generation and road upgrades as a positive benefit to the Project;
- 40% of respondents appreciated investment into the local community; and
- 20% of respondents saw job creation as a benefit.

The main concerns raised during the consultation sessions include the perceived potential long-term devaluation of neighbouring properties because of the presence of the wind farm and disruption of natural landscape scenic views, including of unfettered hills and creeks, that are considered by some community members as a key part of the lifestyle of the area.

Four landscape character units (LCU) were identified for the Project Area. Three of the LCUs were assessed to have a preliminary scenic quality rating of low-to-moderate, and one LCU as moderate. A summary of the LCUs is provided in **Table 6-2**.

Table 6-2 Landscape Character Units

Landscape Character Unit	General Character	Preliminary Scenic Quality Rating
Kerrs Creek Slopes	Undulating low hills making up the Kerrs Creek village area. Land is mostly cleared grazing pastures.	Low - Moderate
Forested Ranges	Generally uncleared, densely forested conservation areas with steep to sloping topography. Vegetation is a mix of plantation forestry, production forestry and nature conservation.	Moderate
Mullion Creek Pastures	Undulating low hills and mostly cleared land for grazing and some dryland cropping.	Low - Moderate
Molong Pastures	Molong Pastures is characterised as the flat, cleared pastureland to the west of the Project Area	Low - Moderate

Dwellings identified through the application of the Preliminary Assessment tools have been assessed in detail in Appendix A of the preliminary LVIA (**Appendix B**).

Application of the Preliminary Assessment Tools to the Project identified dwellings which require further assessment in accordance with the Visual Bulletin.

6.2.2.1 Visual Magnitude

The Visual Magnitude Threshold is based on the height of the proposed wind turbines to the tip of the vertical blade and distance from dwellings or key public viewpoints. For the preliminary LVIA, a maximum tip height of 280 m was assumed, for which the visual magnitude thresholds for visual assessment according to the Visual Bulletin are 3,750 m ('black line') and 5,500 m ('blue line').

Non-associated dwellings identified within 3,750 m and between 3,750- 5,500 m of the nearest proposed turbine are shown on Figure 11 of preliminary LVIA, and include:

- 74 non-associated dwellings were identified within 3,750 m of a WTG; and
- 26 non-associated dwellings were identified within 3,750 m and 5,500 m of a WTG. The majority of these are in the west of the Project Area and are associated with the rural locality of Boomey.

Examples of preliminary assessment tools applied to 15 representative non-associated dwellings within 3,750 m of a WTG have been included in Appendix B of the preliminary LVIA (**Appendix B**). The preliminary assessment identifies existing vegetation surrounding many of the dwellings which would reduce the potential visual impacts. The preliminary visual magnitude is displayed in **Figure 6-1**.

6.2.2.2 Multiple Wind Turbine Tool

The Multiple Wind Turbine Tool provides a preliminary indication of potential cumulative impacts to dwellings or key public viewpoints arising from the Project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60-degrees any proposed turbines within 8 km of each dwelling or key public viewpoint.

When applied to the Project, the 2D Multiple Wind Turbine Tool identified 37 non-associated dwellings with potential views of turbines in more than two (2) 60-degree sectors. No public viewpoints were identified within 8,000 m of the nearest turbine. Of the 37 non-associated dwellings identified;

- 9 non-associated dwellings have the potential to view turbines in up to three (3) 60-degree sectors (up to 180°); and

- 28 non-associated dwellings have the potential to view turbines in up to four (4) 60-degree sectors (up to 240°).

Further assessment, and 3D topographic mapping, is likely to reduce the number of turbines visible from the 25 non-associated dwellings near Euchareena. Vegetation is likely to reduce potential visibility of turbines from dwelling near Kerrs Creek and it is expected the number turbines visible within 60-degree sectors would be reduced for many of these dwellings.

Dwellings located to the north of the Study Area have the potential to view turbines associated with the Project as well as the proposed Aquila Wind Farm. The proposed Aquila Wind Farm would be located directly north of the Project. The LVIA found that a total of 36 non-associated dwellings were identified within 8,000 m of both these wind farms. Of these, five (5) non-associated dwellings were assessed to have views of turbines in up to two (2) 60-degree sectors which is deemed acceptable. The remaining thirty-one (31) non-associated dwellings are assessed to have views of turbines in up to three (3) or more 60-degree sectors.

6.2.2.3 *Zone of Visual Influence*

The ZVI represents the area over which a development can theoretically be seen and is based on a Digital Terrain Model (DTM). The ZVI usually presents a bare ground scenario, i.e., a landscape without screening, structures or vegetation, and is usually presented on a base map.

The ZVI has been determined using digital topographic information and 3D modelling software WindPro. The ZVI has been assessed to approximately 20 km from the Project Boundary. Although it is possible for the development to be visible from further than 20 km away, it is generally accepted that beyond 10 km visibility is diminished.

Based on the findings of preliminary ZVI (see **Figure 6-2**), the following conclusions were made:

- Due to the undulating topography that characterises the landscape, topography is likely to screen views from many low-lying areas;
- Generally, the surrounding townships and villages (Molong, Mullion Creek, Belgravia, Euchareena and Kangaroobie) are situated on lower elevations associated with creeklines. Topography surrounding these settlements is likely to assist in screening the Project;
- Views from Euchareena are likely to be limited to a very small number of turbines due to the rise in topography to the south of the village;
- Topography is likely to limit the extent of visibility from large areas of land to the east of the Project Area;
- Views to the Project would be limited from the south of the Project (Mullion Creek) due to ridgeline that follows Burrendong Way; and
- Views to the Project are likely to be experienced from residences associated with Euchareena Road to the west of the Project.

6.2.2.4. Preliminary Dwelling Assessments

Preliminary dwelling assessment tools were applied to fifteen representative non-associated dwellings (refer Appendix B of the preliminary LIVA). These assessments accounted for the visual impact of both the Project and the neighbouring Aquila Wind Farm. The preliminary assessment identified that existing vegetation would reduce the potential for visual impacts that were identified using other assessment tools as discussed in the sections above. The results from the preliminary dwelling assessments are included in **Table 6-3**.

Table 6-3 Preliminary Dwelling Assessment Results

Dwelling ID	Distance to Nearest Turbine	Number of Potentially Visible Turbines within black line (3.75 km)	Number of Theoretical 60° sectors (based on 2D assessment)	Number of Potentially Visible Turbines (based on topography alone)
Non-associated Dwellings within 2 km of the Nearest WTG				
8	1.76 km	6	2 sectors (Kerrs Creek)	43 (Kerrs Creek)
105	1.87 km	10	3 sectors (Kerrs Creek)	52 (Kerrs Creek)
23	2.00 km	7	3 sectors (Kerrs Creek)	57 (Kerrs Creek)
Non-associated Dwellings outside of 2 km of the nearest WTG				
35	2.32 km	8	1 sector (Kerrs Creek) 1 sector (Kerrs Creek and Aquila)	16 (Kerrs Creek) 9 (Aquila)
26	2.67 km	3	3 sectors (Kerrs Creek)	23 (Kerrs Creek)
5	2.73 km	2	2 sectors (Kerrs Creek)	36 (Kerrs Creek)
6	2.32 km	2	1 sector (Kerrs Creek)	38 (Kerrs Creek)
93	6.48 km	0	1 sector (Kerrs Creek)	16 (Kerrs Creek)
135	3.30 km	1	2 sectors (Kerrs Creek)	42 (Kerrs Creek)
89	4.07 km	0	2 sectors (Kerrs Creek)	41 (Kerrs Creek)
77	3.00 km	4	2 sectors (Kerrs Creek)	37 (Kerrs Creek)

Dwelling ID	Distance to Nearest Turbine	Number of Potentially Visible Turbines within black line (3.75 km)	Number of Theoretical 60° sectors (based on 2D assessment)	Number of Potentially Visible Turbines (based on topography alone)
73	3.08 km	1	2 sectors (Kerrs Creek)	38 (Kerrs Creek)
42	2.89 km	2	2 sectors (Kerrs Creek) 1 sector (Aquila) 1 sector (Kerrs Creek and Aquila)	22 (Kerrs Creek) 21 (Aquila)
36	2.70 km	3	2 sectors (Kerrs Creek) 2 sectors (Aquila)	20 (Kerrs Creek) 29 (Aquila)
80	3.29 km	1	2 sectors (Kerrs Creek)	44 (Kerrs Creek)

6.2.2.5. Additional Dwelling Assessments

Additional dwelling assessment tools were applied to nineteen representative non-involved dwellings within 3,750 m of the nearest wind turbine. Wireframe diagrams were created (refer Appendix D of the Preliminary LVIA in **Appendix B**).

The results of the additional dwelling assessments are provided in **Table 6-4**.

Table 6-4 Additional Dwelling Assessment Results

Dwelling ID	Distance to Nearest Turbine	Number of Potentially Visible Turbines within 8km	Notes
6	3.00 km	38 Turbines All at hub height	Views to turbines to the north. Intervening vegetation may assist in reducing extent of visibility.
5	2.73 km	36 Turbines All at hub height	Views to turbines to the north. Intervening vegetation may assist in reducing extent of visibility.
8	1.76 km	43 Turbines 37 at hub height 6 at blade tip	A desktop assessment indicates that the dwelling has the potential to view turbines up to two (2) 60-degree sectors within 8,000 m of the nearest turbine. Views to turbines to the north/northwest. Intervening vegetation may assist in fragmenting views towards the turbines in these directions. A rise in topography to the northeast will screen most turbines in this direction.
26	2.67 km	23 Turbines 6 at hub height 17 at blade tip	Topography screens majority of turbines from this dwelling. Intervening vegetation surrounding the dwelling is likely to assist in screening the views towards the turbines.
35	2.32 km	15 Turbines 8 at hub height 7 at blade tip	Topography assists in screening turbines from this dwelling. Intervening vegetation may assist in reducing extent of visibility.
36	2.70 km	20 Turbines 9 at hub height 11 at blade tip	Topography assists in screening turbines to the south/southeast. Views to distant turbines to the south/southwest.
38	3.37 km	20 Turbines All at hub height	No turbine within black line and seven (7) turbines within black and blue line. Views to turbines to the south. Intervening vegetation may assist in fragmenting views towards the turbines.
61	2.65 km	44 Turbines 29 at hub height 15 at blade tip	Views to turbines to the east and south/southwest. Intervening vegetation is likely to screen views to turbines
42	2.89 km	22 Turbines 13 at hub height 9 at blade tip	Topography assists in screening turbines to the south/southeast. Views to turbines to the southwest. Intervening vegetation may assist in reducing extent of visibility.

Dwelling ID	Distance to Nearest Turbine	Number of Potentially Visible Turbines within 8km	Notes
62	2.77 km	30 Turbines 22 at hub height 3 at blade tip	Two (2) turbines within the black line and two (2) turbines within the black and blue line. Topography assists in screening turbines to the southeast. Intervening vegetation may assist in reducing extent of visibility to the southwest.
72	4.93 km	23 Turbines All at hub height	No turbines within the black line and one (1) within the black and blue line. Views to turbines to the south/southeast.
73	3.08 km	38 Turbines All at hub height	Views to turbines to the southeast. Intervening vegetation surrounding the dwelling is likely to assist in screening the views towards the turbines.
75	3.00 km	37 Turbines All at hub height	One (1) turbine within the black line and eight (8) turbines within the black and blue line. Views to turbines to the east/southeast. Limited screening factors.
77	3.00 km	37 Turbines 23 at hub height 14 at blade tip	Views to turbines to the east/southeast. Intervening vegetation surrounding the dwelling is likely to assist in fragmenting the views towards the turbines.
80	3.29 km	44 Turbines All at hub height	Views to turbines to the east. Limited screening factors.
84	3.66 km	41 Turbines All at hub height	No turbines within the black line and 14 within the black and blue line. Views to turbines to the east. Intervening vegetation may assist in reducing extent of visibility to the southwest.
87	2.08 km	34 Turbines 19 at hub height 15 at blade tip	Views to turbines to the east/southeast. Intervening vegetation surrounding the dwelling is likely to assist in screening the views towards the turbines.
89	4.07 km	41 Turbines All at hub height	No turbines within the black line and seven (7) within the black and blue line. Views to turbines to the east/southeast. Intervening vegetation may assist in reducing extent of visibility.
105	1.87 km	52 Turbines 49 at hub height 3 at blade tip	A desktop assessment indicates that the dwelling has the potential to view turbines up to three (3) 60 degree sectors within 8,000 m of the nearest turbine. Views to turbines to the north, northwest, west and southwest. Intervening vegetation may assist in fragmenting views towards the turbines in these directions. A rise in topography to the northeast will screen the majority of views in this direction.
23	2.00	57 Turbines 50 at Hub height 7 at Blade tip	A desktop assessment indicates that the dwelling has the potential to view turbines up to three (3) 60 degree sectors within 8,000 m of the nearest turbine. Views to turbines to the north, northwest, west and southwest. Intervening vegetation to the north and southwest may assist in fragmenting views towards the turbines in these directions. A rise in topography to the northeast will screen turbines in this direction.

6.2.3. EIS Assessment Approach

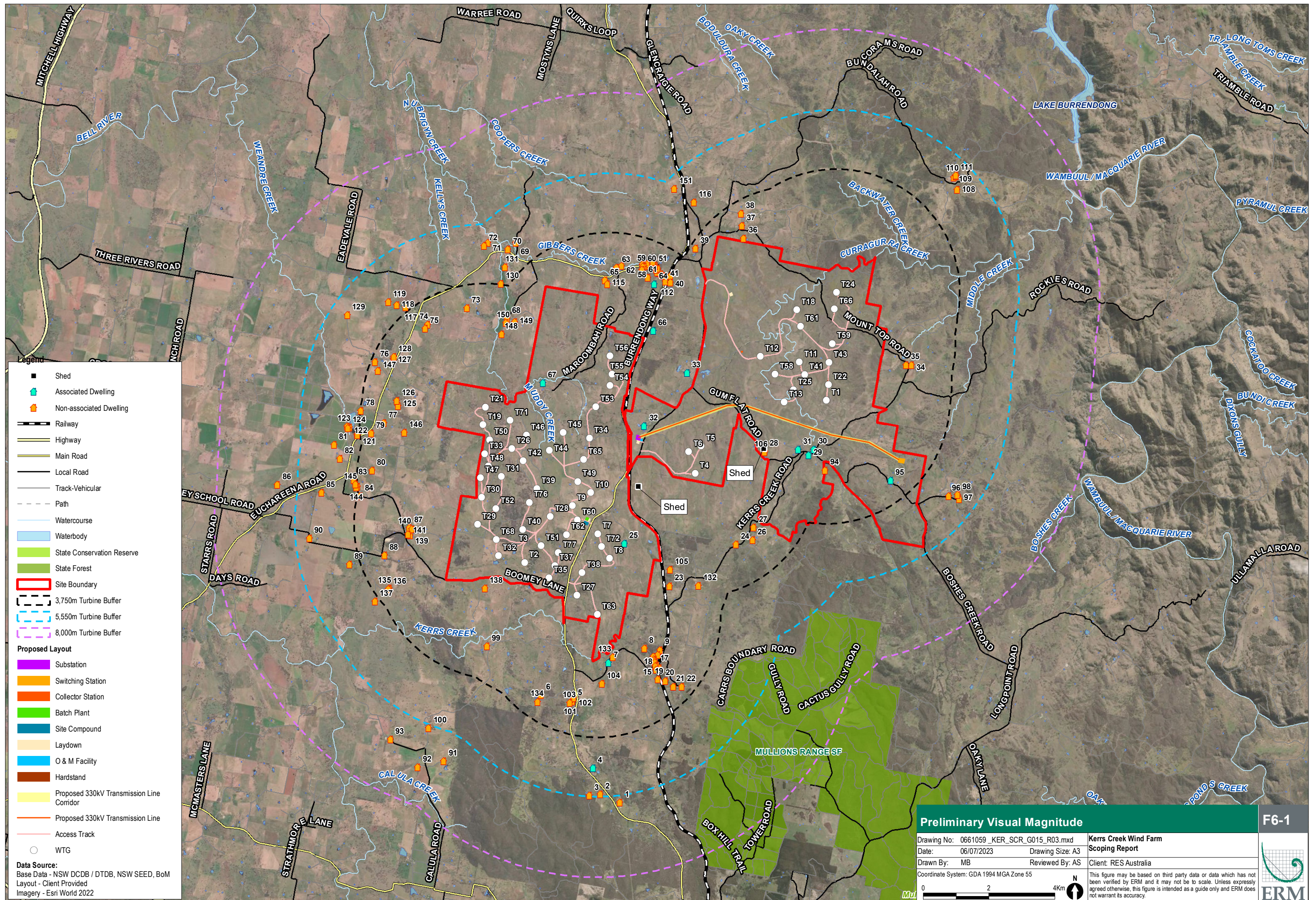
The preliminary LVIA report (**Appendix B**):

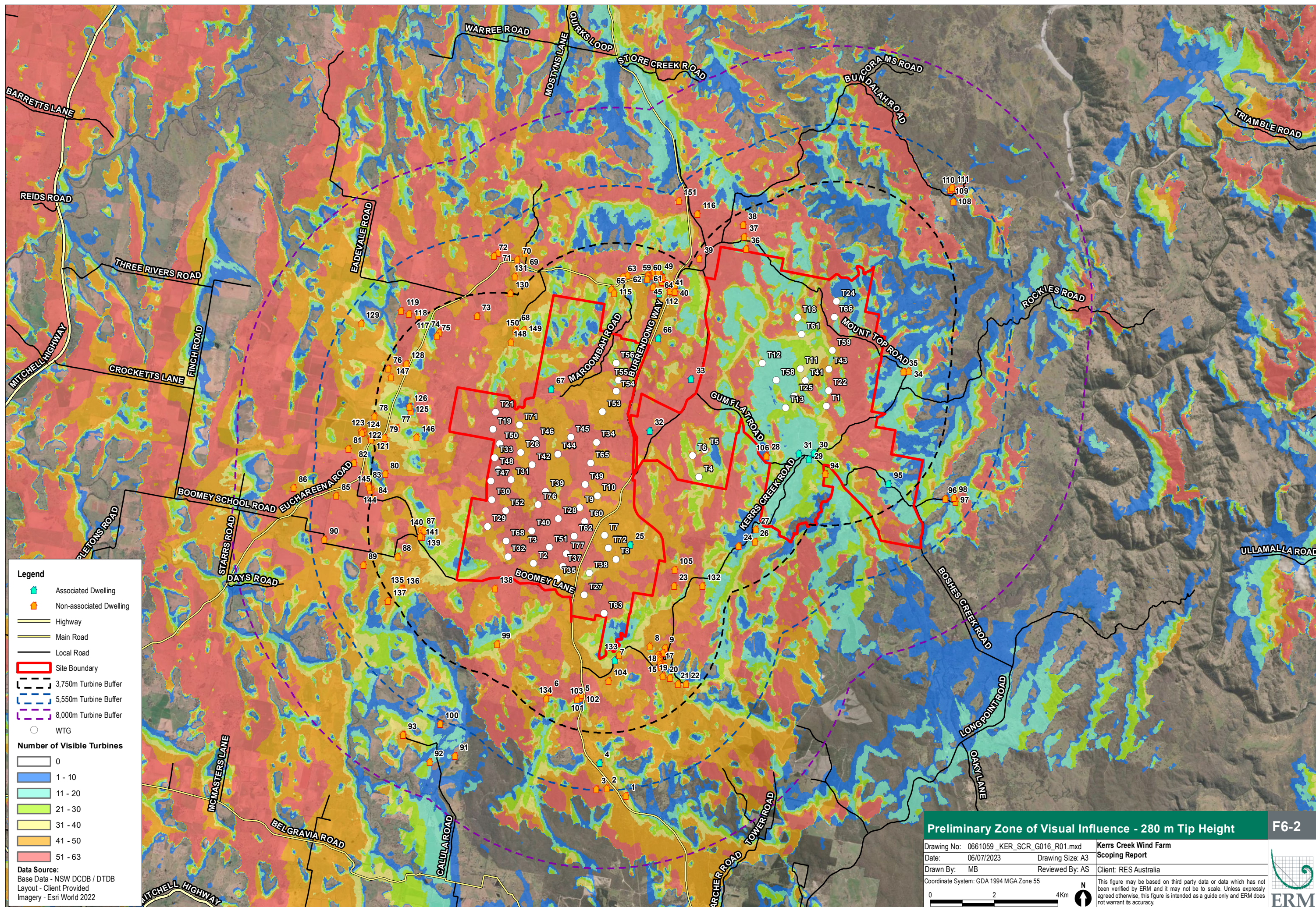
- Outlined the community consultation undertaken by Moir and identified the key landscape features and characteristics that were found within and surrounding the Project Area;
- Noted the landscape features and locations of concern to the community and will further consider these within the EIS assessment; and
- Applied the preliminary assessment tools (magnitude and multiple wind turbines) to the preliminary wind turbine layout.

Further assessment and justification for the project with respect to landscape and visual impacts will be detailed in the EIS, along with a description of the mitigation and management measures that may be required to minimise impacts. This assessment will consider factors such as topography, relative distance and existing vegetation, which are likely to minimise the impacts of the project on nearby associated and non-associated residences.

The scope of the LVIA that will be prepared to support the EIS will include:

- Document review and desktop study;
- Shadow Flicker Assessment to further identify and assess the sensitive receptors, duration and impact;
- Detailed dwelling assessment at non-associated dwellings to assess 'sensitive receptors', accounting for screening factors such as topography, vegetation; and determine mitigation measures to reduce visual impacts;
- Wire Frame Diagram from dwellings as required;
- Development of a 3D model to identify viewpoint photomontages of the Project Area;
- Visual Baseline Study to further identify and assess landscape features and viewpoints; and
- Public viewpoint assessment and rating of key viewpoints within the visual catchment.





6.3. Noise and Vibration

A preliminary Noise Impact Assessment (NIA) was undertaken in accordance with the NSW 'Wind Energy: Noise Assessment Bulletin for State Significant Wind Energy Development' (DPIE, 2016c) (**Appendix C**). The Noise Bulletin provides advice about how noise impacts are assessed for large-scale wind energy development projects. It applies to all new SSD wind energy proposals (such as the Project) seeking to obtain SEARs. The Noise Bulletin provides practical guidance to Applicants, planners, regulatory authorities, acoustic specialists, and the broader community on how to measure and assess environmental noise impacts from wind energy projects.

As stated in the Noise Bulletin, the NSW Government has adopted the 2009 South Australian document 'Wind farms – Environmental Noise Guidelines' (EPA SA, 2009), which forms the basis of the regulatory noise standard and assessment methodology that will apply to the Project.

6.3.1. Background

The existing noise environment of the Project Area was assessed based on publicly available aerial imagery. It was determined as likely to be that of a typical rural area, dominated by natural noise sources such as foliage and birdsong. The Project is in an area of relatively low population density and, therefore, receivers that may be impacted by noise from the project are primarily rural residential dwellings. As part of the EIS, background noise monitoring will be conducted at dwellings selected based on the outcomes of preliminary noise modelling. The noise monitoring will be used to ascertain the existing ambient noise levels in the area.

Noise impacts from the WTGs were modelled and assessed based on applicable assessment standards and guidelines. The preliminary assessment considered the worst-case noise propagation conditions based on a preliminary WTG layout and WTG specifications.

6.3.2. Preliminary Assessment

6.3.2.1 Methodology

The preliminary NIA was completed based on the WTG locations and residence locations as depicted in Figure 1 of **Appendix D**. The assessment also considered local topographic contours, noise level data for an indicative WTG and assumed that the WTG is free of any excessive levels of tonality or other special noise characteristics at the residences.

Noise predictions were made using the CONCAWE noise propagation model and SoundPLAN noise modelling software. The sound propagation model considered sound power levels and WTG locations, separation distances between WTG and residences, topography of the area, influence of the ground, air adsorption and meteorological conditions. **Table 6-5** outlines the inputs that were assumed for the model. These inputs are conservative to model conditions that assist with noise propagation, low levels of noise absorption from the atmosphere and low shielding provided by topography.

Predicted L_{eq} noise levels from the noise model were then compared to the NSW base noise criteria of L_{Aeq} (10 min) 35 dB(A) for non-associated receivers.

Table 6-5 Modelling Parameters

Modelling aspect	Parameter
Software	SoundPLAN 8.2 & CONCAWE
Ground Absorption Factor	Acoustically soft (representing pastoral nature of ground)
Relative Humidity	80%
Temperature	10°C
Topographical contours	Maximum barrier attenuation from topography of 2 dB(A)
Wind direction	All directions to the receiver under consideration, even in circumstances where sources are in opposite directions from the residence (representing the worst-case noise propagation due to wind).
Wind Speed	10 m/s at hub height

6.3.2.2 Predicted Noise Levels

Preliminary L_{Aeq} (10 min) noise levels in dB(A) are presented in **Table 6-6**.

Table 6-6 Predicted Noise Levels at Receptors

Receptor ID	GPS Co-ordinates (UTM Zone 55S)		Associated (Yes/No)	Closest WTG	Distance to Closest WTG (m)	Predicted Noise Level, $L_{Aeq,10\text{ min}}$ dBA
	Easting	Northing				
25	694655	6345187	Associated	T8	649	44
29	700252	6347871	Non-associated	T1	1740	35
30	700411	6348044	Associated	T1	1528	36
31	699934	6348032	Associated	T13	1506	36
32	695259	6348759	Associated	T6	1558	39
33	696563	6350363	Associated	T5	2251	35
67	692176	6350059	Associated	T71	1507	39
105	696040	6344392	Non-associated	T8	1875	35
106	698914	634795	Associated	T13	1629	35

6.3.2.3 Summary of Findings

Noise modelling (**Table 6-6**) predicted that noise associated with the wind farm operations does not exceed relevant noise criteria at non-associated dwellings. The Noise Bulletin enables the baseline criteria for associated landholder to be increased if a commercial agreement with the developer is formed.

6.3.2.4 Noise Modelling Limitations

Noise levels from WTG's increase as the wind speed increases. However, an increase in wind speed typically results in an equal or greater increase in background noise due to aerodynamic and foliage noise which may mask turbine noise (NSW DPE, 2016). Accordingly, compliance to relevant noise criterion at individual dwellings may change when project-specific wind speeds are used to verify the modelling. Background noise is also affected by factors other than wind speed, such as road traffic noise.

6.3.3. EIS Assessment Approach

This preliminary NIA has focused on operational noise emissions from the wind farm. The EIS noise impact assessment will provide further assessment of this factor as well as other noise related aspects of the Project, as listed below:

- A baseline noise monitoring campaign to quantify existing noise conditions (and meteorological conditions) at select non-associated landholders. From this data, wind speed-based noise levels and limits would be established. A site survey will be conducted to assess ground conditions near affected receptors and verify a suitable ground factor for noise modelling;
- Detailed noise modelling of the Project's construction and operational phases;
- Consideration of:
 - General construction and operational (including ancillary infrastructure) noise impacts to receptors within the potential area of influence of the Project;
 - Road traffic noise impacts (construction and operational phases, with a focus on construction) to receptors within the potential area of influence of the Project;
 - Vibration impacts (construction and operational phases, with a focus on construction) at receptors within the potential area of influence of the Project;
 - Cumulative operational noise impacts associated with other nearby wind farms or surrounding industry (as relevant); and
- Recommendations for noise and vibration reducing mitigation, management measures, safeguards and/or provisions for monitoring.

6.4. Biodiversity

6.4.1. Background

A Preliminary Biodiversity Assessment was undertaken to inform the Scoping Report (**Appendix E**). This assessment has identified and described biodiversity values associated with the Project Area. Where necessary, the preliminary assessment results have been used to refine the Project layout to avoid or minimise impacts to biodiversity values. The assessment was informed by a desktop literature review, as well as field surveys conducted in 2020, 2021, and 2023 (NGH, 2021; NGH, 2021b).

6.4.2. Preliminary Assessment

6.4.2.1 Overview

The desktop review undertaken to inform this assessment included the following resources:

- Online Threatened Biodiversity Data Collection (TBDC), including NSW BioNet Atlas, Vegetation Information System (VIS) and threatened biodiversity profiles (State of New South Wales (DPE), 2022a);
- DCCEEW Protected Matters Search Tool (PMST) identifying threatened species and communities with the potential to occur within the locality (10 km buffer around the Project Area). (DCCEEW, 2022a);
- Species Profile and Threats Database (SPRAT) providing information on threatened species and communities listed under the EPBC Act with the potential to occur within the locality (DCCEEW, 2022b);

- NSW SEED Portal to visualise mapping layers available for the locality, including but not limited to mapped PCTs, TECs, threatened species records, Mitchell Landscapes and Interim Biographic Regionalisation of Australia (IBRA) version 7 bioregions and sub-regions (State of NSW and DPE, 2022b);
- NSW eSPADE Soil and Land Information (State of NSW and DPE, 2022c);
- NSW Department of Primary Industries Fisheries Spatial Data Portal for mapping of key fish habitat and threatened freshwater species with the potential to occur within the locality (NSW DPI, 2022);
- Bureau of Meteorology (BOM) Groundwater Dependent Ecosystem (GDE) Atlas (Commonwealth Bureau of Meteorology, 2022) and NSW GDE mapping (State of NSW and DPE, 2022d);
- NSW BAM and supporting manuals, Biodiversity Offsets and Agreement Management System (BOAMS) and BAM Calculator (BAM-C) (accessed via login) (State of NSW and DPE, 2022e);
- Weeds of National Significance (Centre for Invasive Species Solutions, 2021) and Priority Weeds within Dubbo Regional LGA (NSW DPI, 2022a);
- Nature Advisory's Kerrs Creek Wind Farm Bird and Bat Risk Assessment. Report prepared for iCubed Consulting Pty Ltd. on behalf of RES (Nature Advisory, 2021);
- NGH's draft Updated Scoping Report: Biodiversity Chapter for Kerr's Creek Wind Farm. Report prepared for iCubed Consulting Pty Ltd. on behalf of RES (NGH, 2021);
- Spatial Collaboration Portal to analyse NSW spatial datasets including topographic data, waterways, waterbodies and infrastructure (NSW Spatial Services (DCS SS), a business unit in the Department of Customer Service, 2022);
- Atlas of Living Australia (CSIRO, 2022); and
- Local government databases.

Field surveys have been undertaken by NGH, Nature Advisory and ERM. A summary of the survey effort that has been completed is provided in **Table 6-7**.

Table 6-7 Field Survey Summary

Company	Survey Date	Description
NGH	Autumn 2020	■ Preliminary site surveys from 12-15 May 2020. ■ Rapid assessment of vegetation communities (80 assessment points). ■ Observations of landscape and habitat features, such as rocky outcrops, when encountered.
	Autumn/Winter 2020	■ Diurnal and nocturnal surveys across three (3) days and nights in May 2020. ■ Surveys targeted potential threatened bird species with an optimal seasonal survey requirement during the late autumn and winter months.
	Spring 2020	■ Field surveys were undertaken between 12 and 16 October 2020 and involved detailed mapping of the boundaries of all PCTs and their associated vegetation management zones. ■ Fauna surveys, included rock rolling, nocturnal and diurnal surveys, call playback, scat surveys, Koala Spot Assessment Technique (SAT) surveys, and camera trapping.
Nature Advisory	Autumn 2020	■ Song Meters were deployed at four (4) sites over 34 consecutive nights from 19 April – 23 May 2020, totalling an equivalent of 136 survey detector nights.

Company	Survey Date	Description
		■ Bird utilisation surveys were undertaken between 21 to 26 May 2020.
	Spring 2020	■ Eight (8) Song Meters were deployed at eight sites from 22 October to 23 November 2020. ■ An additional three (3) were deployed from 24 November to 7 / 8 December 2020.
	Summer/Autumn 2021	■ Song Meters to detect bat species were deployed at eight (8) sites over 42 consecutive nights from 24 February to 6 April 2021. ■ Song Meters to detect bat species were deployed at six (6) sites over 24 nights from 7 April to 3 May 2021.
ERM	Summer 2023	■ Field surveys were undertaken between 6 and 10 March 2023 and involved 25 rapid vegetation assessments and 10 fauna habitat assessments to identify areas of potential fauna utilisation. ■ Song meters to detect bat species were deployed at five (5) sites over four (4) consecutive nights from 6 to 10 March 2023. ■ 24 Bird Utilisation Surveys were conducted across 12 points (two (2) surveys per point). ■ Targeted flora transects were completed by two (2) people for four (4) hours, totalling eight (8) survey effort hours.

6.4.2.2 Likelihood of Occurrence

A likelihood of occurrence assessment was completed for the Project Area, informed by desktop information sources (e.g., PMST and NSW BioNet search results within 10 km), entry of site-specific data into the BAM Calculator, and the previous field survey results. Database interrogation identified several fauna and flora species listed under the EPBC Act and BC Act that have been previously recorded or are predicted to occur within a 10 km radius of the Project Area. The preliminary likelihood of occurrence assessment is provided in Appendix C of the Preliminary Biodiversity Assessment (**Appendix E**).

6.4.2.1. Native Vegetation and Landscape Features

The Project Area falls within two (2) Interim Biogeographic Regionalisation for Australia (IBRA) bioregions and sub-regions - Southern Eastern Highlands IBRA bioregion, Hill End sub-region and NSW Southwestern Slopes IBRA bioregion, Inland Slopes sub-region. Parts of the Project Area have been subject to extensive clearing for agricultural purposes including cropping and modified pastures for livestock grazing. Large areas of the lower slopes and flats have had the overstorey removed, except for riparian areas. Most of the higher ridgelines contain remnant vegetation and rocky outcrops that provide connectivity throughout the fragmented landscape; however, some of these areas have also been subject to historic woody vegetation clearing, albeit not as extensively as the lower slopes.

Mapped creek lines, drainage lines and natural waterbodies are present across the Project Area. Although largely ephemeral or semi-permanent, these creeks are likely to provide habitat for several amphibians and turtle species and provide an important water resource for fauna. Habitat for the threatened Southern Purple Spotted Gudgeon (*Mogurnda adspersa*), and Key Fish Habitat is mapped within the Project Area associated with Weandre Creek, Muddy Creek, Nubrigyn Creek, Curragurra Creek and Shepherd Creek (NSW DPI, 2022).

6.4.2.2. Plant Community Types (PCTs)

Based on the results of NSW State Vegetation Type Mapping and field surveys to date, 15 PCTs have been identified within the Project Area (refer to **Table 6-8**). Of these, eight (8) PCTs are associated with a TEC, as discussed in **Section 6.4.2.3**.

6.4.2.3. Threatened Ecological Communities (TECs)

Three (3) EPBC Act TECs were identified in the PMST as having the potential to occur within the Project Area. These TECs include:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia;
- Natural Temperate Grassland of the Southeastern Highlands; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Field surveys undertaken to inform the Scoping Report (**Table 6-7**), and subsequent analysis of PCT plot data identified eight (8) PCTs associated with TECs, namely:

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (PCTs 266, 277, 347, 3373, 3387, 3399 and 3406); and
- Mt Canobolas Xanthoparmelia Lichen Community (PCT 3370).

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is listed as critically endangered under both the BC Act and EPBC Act. Based on BioNet VIS, this community has potential to be associated with PCTs 266, 277, 347, 3373, 3387, 3399 and 3406 mapped within the Project Area.

Varying condition states of this TEC occur within the Project Area. It occurs as woodland and is variously present in a derived state (i.e., treeless grasslands) where floristics supports its occurrence (i.e., predominantly native and comprises characteristic species). Current vegetation mapping indicates that the operational footprint (including buffers to account for potential direct construction impacts) contains 2.31 ha of potential White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC community.

Further surveys will be required during the EIS stage to confirm the impact extent of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland by condition type, and the presence or absence of the remaining potential TECs across the Project Area. In particular, the treeless grasslands are subject to further refinement through the Land Category Assessment process and vegetation integrity plots, to determine if criteria are met to confirm association with the TEC as a derived native grassland.

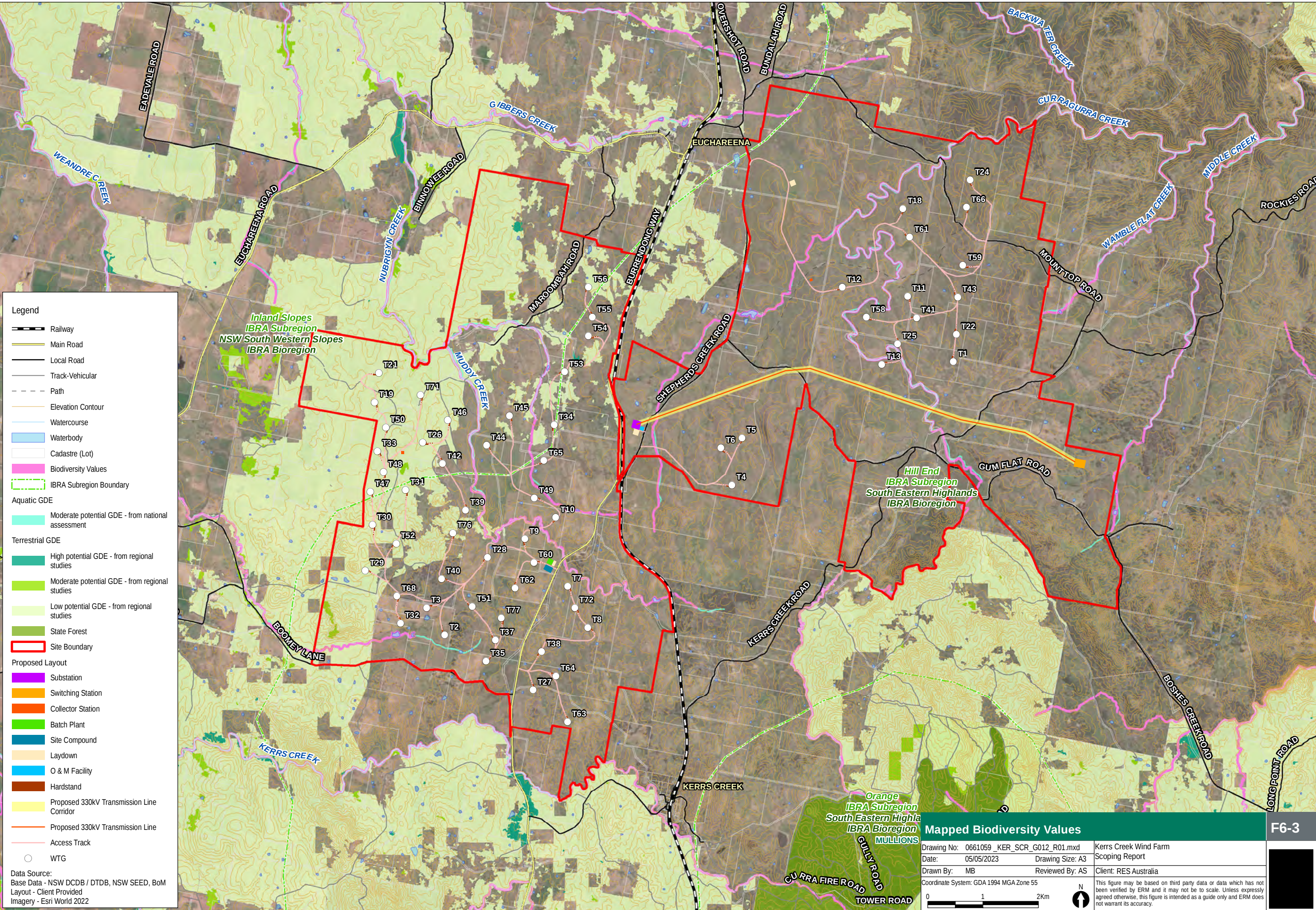
In addition, PCT 3370, mapped in the south-east of the Project Area is associated with the TEC Mt Canobolas Xanthoparmelia Lichen Community. The Mt Canobolas Xanthoparmelia Lichen Community is listed as an endangered ecological community (EEC) under the BC Act. The presence of Mt Canobolas Xanthoparmelia Lichen Community has yet to be verified.

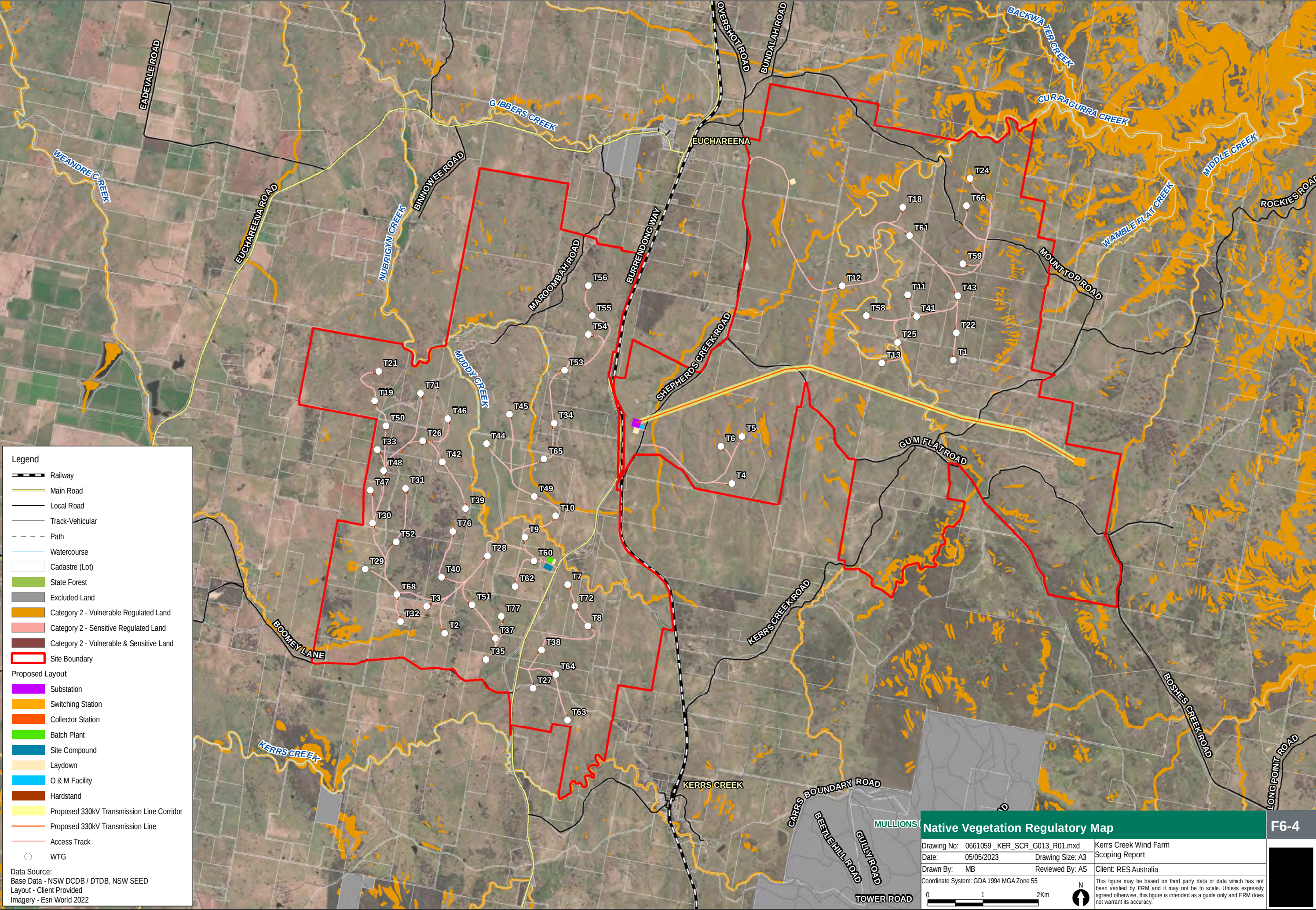
Table 6-8 PCTs within the Project Area Boundary

PCT No.	PCT Name	Vegetation Class	Threatened Ecological Community	Project Area (ha)	Notes
0	Not native vegetation	-	-	1,252.20	-
266	White Box grassy woodland in the upper slopes sub-region of the NSW Southwestern Slopes Bioregion	Western Slope Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	56.83	Mapped as PCT 266 (in some areas)
277 (woodland)	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW Southwestern Slopes Bioregion	Western Slopes Grassy Woodland	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	156.57	Mapped as PCT 277
277 (grassland)	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW Southwestern Slopes Bioregion	Western Slopes Grassy Woodland	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	4,208.32	Mapped as PCT 797 - Derived grassland of the Southeastern Highlands Bioregion and Southeast Corner Bioregion
277 (scattered trees)	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW Southwestern Slopes Bioregion	Western Slopes Grassy Woodland	Scattered trees will not meet the listing criteria (BC Act) or condition thresholds (EPBC Act) for the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	6.52	Mapped as paddock trees
347	White Box – Blakely's Red Gum shrub/grass woodland on metamorphic hillslopes in the mid-southern part of the upper slopes sub-region of the NSW Southwestern Slopes Bioregion	Western Slopes Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	44.86	Lineage PCT 347

PCT No.	PCT Name	Vegetation Class	Threatened Ecological Community	Project Area (ha)	Notes
3368	Central Tableland Limestone Woodland	Southern Tableland Grassy Woodlands	-	0.23	Lineage PCT 651
3369	Central Tableland Ranges Peppermint-Gum Grassy Forest	Southern Tableland Grassy Woodlands	-	1.19	Lineage PCT 742
3370	Central Tableland Red Stringybark Grassy Forest	Southern Tableland Grassy Woodlands	Mt Canobolas Xanthoparmelia Lichen Community	33.46	Lineage PCT 649
3373	Goulburn Tableland Box-Gum Grassy Forest	Southern Tableland Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	211.22	Mapped as PCT 1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, Southeastern Highlands Bioregion
3387	Central West Creekflat Grassy Woodland	Western Slopes Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	21.20	Lineage PCT 649
3399	Southwest Hills White Box-Blakely's Red Gum Forest	Western Slopes Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	10.91	Lineage PCT 278
3406	Southwest Ranges White Box Woodland	Western Slopes Grassy Woodlands	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	72.89	Mapped as PCT 266 (in some areas). Lineage PCT 278.
3451 (forest)	Far South Sheltered Monkey Gum Forest	Southern Hinterland Dry Sclerophyll Forests	-	274.20	Mapped as PCT 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW Southwestern Slopes Bioregion

PCT No.	PCT Name	Vegetation Class	Threatened Ecological Community	Project Area (ha)	Notes
3451 (grassland)	Far South Sheltered Monkey Gum Forest	Southern Hinterland Dry Sclerophyll Forests	-	289.21	Mapped as PCT 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW Southwestern Slopes Bioregion
3534 (forest)	Central West Stony Hills Stringybark-Box Forest	Upper Riverina Dry Sclerophyll Forests	-	29.96	Lineage PCT 345
3534 (grassland)	Central West Stony Hills Stringybark-Box Forest	Upper Riverina Dry Sclerophyll Forests	-	2,051.96	Lineage PCT 345
3541	Southwest Ranges Stringybark Exposed Forest	Upper Riverina Dry Sclerophyll Forests	-	79.33	Mapped as PCT 957 - Mugga Ironbark - Red Stringybark - Long-leaved Box dry grass forest of the NSW Southwestern Slopes Bioregion
3734	Central Tableland Dry Slopes Stringybark-Box Forest	Southern Tableland Dry Sclerophyll Forests	-	65.10	Lineage PCT 649
4063	Central and Southern Tableland River Oak Forest	Eastern Riverine Forests	-	21.46	Mapped as lineage PCT 85 - River Oak Forest and woodland wetland of the NSW Southwestern Slopes and Southeastern Highlands Bioregion
Total				8,918.25	





Legend

Railway

Main Road

Local Road

Track-Vehicular

Path

Watercourse

Cadastre (Lot)

State Forest

Excluded Land

Category 2 - Vulnerable Regulated Land

Category 2 - Sensitive Regulated Land

Category 2 - Vulnerable & Sensitive Land

Site Boundary

Proposed Layout

Substation

Switching Station

Collector Station

Batch Plant

Site Compound

Laydown

O & M Facility

Hardstand

Proposed 330kV Transmission Line Corridor

Proposed 330kV Transmission Line

Access Track

WTG

Data Source:

Base Data - NSW DCDB / DTDB, NSW SEED

Layout - Client Provided

Imagery - Esri World 2022

Native Vegetation Regulatory Map

F6-4

Drawing No: 0661059_KER_SCR_G013_R01.mxd

Date: 05/05/2023

Drawn By: MB

Coordinate System: GDA 1994 MGA Zone 55

Drawing Size: A3

Reviewed By: AS

Kerrs Creek Wind Farm

Scoping Report

Client: RES Australia

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

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6.4.2.4. Threatened Fauna Species Identified within the Project Area

Field surveys to date have identified the presence of 23 threatened species within the Project Area. Initial surveys were undertaken across both the current and previous project areas and therefore results may be conservative. Additional targeted threatened fauna surveys will be completed to inform the EIS.

Table 6-9 Threatened Species Recorded within the Project Boundary during Field Surveys

Scientific Name	Common Name	BC Act Status	EPBC Act Status
<i>Artamus cyanopterus</i> ¹	Dusky Woodswallow	Vulnerable	Not listed
<i>Calyptorhynchus lathamii</i> ²	Glossy Black-cockatoo	Vulnerable	Vulnerable
<i>Chalinolobus dwyeri</i> ³	Large-eared Pied Bat	Vulnerable	Vulnerable
<i>Circus assimilis</i> ¹	Spotted Harrier	Vulnerable	Not listed
<i>Climacteris picumnus victoriae</i> ¹	Brown Treecreeper (Eastern subspecies)	Vulnerable	Not listed
<i>Daphoenositta chrysoptera</i> ¹	Varied Sittella	Vulnerable	Not listed
<i>Dasyurus maculatus</i> ¹	Spotted-tailed Quoll	Vulnerable	Endangered
<i>Epthianura albifrons</i> ¹	White-fronted Chat	Vulnerable	Not listed
<i>Falco subniger</i> ¹	Black Falcon	Vulnerable	Not listed
<i>Falsistrellus tasmaniensis</i> ¹	Eastern False Pipistrelle	Vulnerable	Not listed
<i>Glossopsitta pusilla</i> ¹	Little Lorikeet	Vulnerable	Not listed
<i>Melanodryas cucullata cucullata</i> ¹	Hooded Robin (South-eastern form)	Vulnerable	Endangered
<i>Miniopterus orianae oceanensis</i> ²	Large Bent-winged Bat	Vulnerable	Not listed
<i>Neophema pulchella</i> ¹	Turquoise Parrot	Vulnerable	Not listed
<i>Ninox connivens</i> ²	Barking Owl	Vulnerable	Not listed
<i>Petaurus norfolcensis</i> ³	Squirrel Glider	Vulnerable	Not listed
<i>Phascolarctos cinereus</i> ³	Koala	Endangered	Endangered
<i>Polytelis swainsonii</i> ²	Superb Parrot	Vulnerable	Vulnerable
<i>Pyrrholaemus sagittatus</i> ¹	Speckled Warbler	Vulnerable	Not listed
<i>Saccolaimus flaviventris</i> ¹	Yellow-bellied Sheath-tail Bat	Vulnerable	Not listed
<i>Scoteanax rueppellii</i> ¹	Greater Broad-nosed Bat	Vulnerable	Not listed
<i>Stagonopleura guttata</i> ¹	Diamond Firetail	Vulnerable	Vulnerable
<i>Tyto novaehollandiae</i> ²	Masked Owl	Vulnerable	Not listed

¹Ecosystem credit species only

²Species is both an ecosystem credit species and a species credit species

³Species credit species only

6.4.2.5. Threatened Flora

No threatened flora species have been observed during surveys undertaken to date for the Project. A review of relevant databases identified the potential for 20 threatened flora species to occur within or near the Project Area. This list has been refined through a likelihood of occurrence assessment. Four (4) threatened flora species are considered likely to occur within the Project Area (**Table 6-10**). Targeted threatened flora surveys will be completed to inform the EIS.

Table 6-10 Threatened Flora Likely to occur within Project Area

Common Name	Scientific Name	BC Act Status	EPBC Act Status
-	<i>Acacia meiantha</i>	E	E
Robert's Peppermint	<i>Eucalyptus robertsonii</i> subsp. <i>Hemisphaerica</i>	V	V
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-
Small Purple-pea	<i>Swainsona recta</i>	E	E

6.4.2.3 Bird and Bat Utilisation

Prescribed impacts related to wind farm development apply not only to threatened species but also to microchiropteran bat species, resident raptor species, and nomadic or migratory species whose flight paths are likely to cross the Project Area (Section 6.1.5 of the BAM).

A Bird and Bat Risk Assessment was undertaken to identify significant risks to avifauna and bats utilising the proposed Project Area, including impact pathways for turbine collision and indirect effects (for both disturbance and barrier effects) (Nature Advisory, 2021). For most species assessed, the risks associated with wind turbine collision and indirect effects within the Project Area was rated as negligible. The Project was considered to present some risk to the following species:

- Dusky Woodswallow (*Artamus cyanopterus*);
- Spotted Harrier (*Circus assimilis*);
- Black Falcon (*Falco subniger*);
- White-Throated Needletail (*Hirundapus caudacutus*);
- Grey-crowned Babbler (*Pomatostomus temporalis* Protostomes);
- Other raptor species recorded on site;
- Large-eared Pied Bat (*Chalinolobus dwyeri*);
- (Eastern) Large Bent-wing Bat (*Miniopterus orianae oceanensis*);
- Grey-headed Flying-fox (*Pteropus poliocephalus*);
- Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*); and
- Wedge-tailed eagle (*Aquila audax*).

6.4.2.4 Matters of National Environmental Significance

Based on the results of the desktop assessment and the field surveys, a preliminary assessment of Matters of National Environmental Significance (MNES) within the project boundary has been provided in **Table 6-11** below.

Table 6-11 Known or Likely MNES within the Project Boundary

MNES	Relevance to the Project Area
World Heritage Properties	Not identified within the Project Area or within 50 km radius
National Heritage Places	
Wetlands of International Importance	
Threatened Ecological Communities	The following EPBC Act listed TECs are known to occur within the Project Area: ■ White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – present in two condition states, woodland and derived native grassland The following EPBC Act listed TECs have the potential to occur within the Project Area: ■ Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia ■ Natural Temperate Grassland of the Southeastern Highlands
Threatened Species	Eight (8) EPBC Act listed threatened species were identified within the Project Area during the field surveys. These include: ■ Koala (<i>Phascolarctos cinereus</i>), listed as endangered under the EPBC Act; ■ Brown Treecreeper (Eastern subspecies) (<i>Climacteris picumnus victoriae</i>), listed as vulnerable under EPBC Act; ■ Diamond Firetail (<i>Stagonopleura guttata</i>), listed as vulnerable under the EPBC Act; ■ Hooded Robin (South-eastern form) (<i>Melanodryas cucullata cucullata</i>), listed as Endangered under the EPBC Act; ■ Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>), listed as vulnerable under the EPBC Act; ■ South-eastern Glossy Black-cockatoo (<i>Calyptorhynchus lathami lathami</i>), listed as vulnerable under the EPBC Act; ■ Spotted-tailed Quoll (<i>Dasyurus maculatus</i>), listed as endangered under the EPBC Act; and ■ Superb Parrot (<i>Polytelis swainsonii</i>), listed as vulnerable under the EPBC Act.
Migratory Species	No birds listed as Migratory under the EPBC Act were identified during the field surveys or were considered known or likely to occur within the Project Area.
Commonwealth Marine Area	Not identified within the Project Area or within 50 km radius
The Great Barrier Reef Marine Park	Not identified within the Project Area or within 50 km radius

6.4.3. MNES Significant Residual Impact

Significant impact assessments in accordance with the *Significant Impact Guidelines 1.1- Matters of National Environmental Significance* (Department of the Environment, 2013) have been completed for the following MNES:

- *Acacia meiantha*, listed as endangered under the EPBC Act;
- Brown Treecreeper (Eastern subspecies) (*Climacteris picumnus victoriae*), listed as vulnerable under EPBC Act;
- Diamond Firetail (*Stagonopleura guttata*), listed as vulnerable under the EPBC Act;

- Hooded Robin (South-eastern form) (*Melanodryas cucullata cucullata*), listed as Endangered under the EPBC Act;
- Grey-headed Flying-fox (*Pteropus poliocephalus*), listed as vulnerable under the EPBC Act;
- Koala (*Phascolarctos cinereus*), listed as endangered under the EPBC Act;
- Large-eared Pied Bat (*Chalinolobus dwyeri*), listed as vulnerable under the EPBC Act;
- Regent Honeyeater (*Anthochaera phrygia*), listed as critically endangered under the EPBC Act;
- Robertson's Peppermint (*Eucalyptus robertsonii* subsp. *hemisphaerica*); listed as vulnerable under the EPBC Act;
- Small Purple-pea (*Swainsona recta*), listed as endangered under the EPBC Act;
- South-eastern Glossy Black-cockatoo (*Calyptorhynchus lathami lathami*), listed as vulnerable under the EPBC Act;
- Spotted-tailed Quoll (*Dasyurus maculatus*), listed as endangered under the EPBC Act;
- Superb Parrot (*Polytelis swainsonii*), listed as vulnerable under the EPBC Act; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC (Critically Endangered).

The current design indicates a potential impact of 49.21 ha on White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC in a woodland state. An estimated 647.7 ha of treeless grasslands mapped as candidate derived grasslands is also within the impact area, although the full extent of impacts on this condition class is yet to be accurately discerned. Further amendments to design will consider options for avoiding and minimising impacts to this TEC.

The assessments are presented in Appendix E of the Preliminary Biodiversity Assessment (**Appendix E**). The assessments concluded that the Project would have no significant impact on six (6) of the species; however, the following entities were assessed as having the potential to be significantly impacted - Robertson's Peppermint, *Acacia meiantha*, Glossy Black-cockatoo, Grey-headed Flying-fox, Regent Honeyeater, Small Purple-pea, Superb Parrot, and the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC.

6.4.4. EIS Assessment Approach

The construction and operation of the Project has the potential to cause impacts to threatened species and communities listed under the BC Act and/or the EPBC Act, as well as avifauna. These will need to be assessed in detail as part of the EIS. As there are recorded biodiversity values within the Project Area, application of the BAM and the preparation of a BDAR will be required.

Candidate species will be selected for further assessment by considering how they and their habitat might be affected by the project. Refinement of the project design will be examined following receipt of accurate vegetation and habitat mapping and targeted survey results. The Project design will consider all opportunities to avoid impacts on biodiversity values, with notable focus on entities listed as critically endangered (e.g., box gum woodland CEEC). Where unavoidable, efforts will be made to minimise impacts by aligning the Project to areas with lower vegetation and habitat integrity.

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

- Clearing of TECs;
- Loss of extant native vegetation communities and associated fauna habitat and the subsequent impacts to local population of native species, particularly threatened and migratory species;
- Loss of and impact to resident raptor nesting sites;

- Increased habitat fragmentation;
- Mortality and injury of avian and microchiropteran species from turbine strike;
- Mortality and injury from vehicle strike and vegetation clearing; and
- Mortality and injury from barotrauma.

Candidate species will be subject to further targeted surveys to determine how they and their habitat might be affected by the Project.

Mitigation measures relevant to threatened species, TECs, native vegetation communities, species vulnerable to turbine strikes, and construction impacts will be addressed within the EIS. There is also a risk that weeds may be transported within and off-site. Mitigation measures to reduce the chance of the spread of weeds will be considered within the EIS.

Based on the preliminary biodiversity findings, the following steps are required to adequately assess biodiversity values:

- Prepare and submit a BDAR in accordance with the BAM;
- Prepare and submit an EPBC Act referral to the Australian Government DCCEE for projects;
- Prepare a detailed assessment of MNES; and
- Conduct further targeted seasonal fauna and flora surveys for candidate species considered likely or potentially occurring within the Project Area in accordance with relevant Federal or State survey guidelines.

6.5. Aboriginal Heritage

6.5.1. Existing Environment

The Project Area is located within the Southwestern Slopes IBRA Bioregion and the South-eastern Highlands IBRA Bioregion of New South Wales. The western half of the Project Area is situated within the Inland Slopes Subregion. The area is geologically dominated by Ordovician to Devonian folded and faulted sedimentary sequences with inter-bedded volcanics and intrusive granites. The soils in the subregion tend to be shallow and stony forming on steep slopes. The soils grade from red subsoils on upper slopes to yellow subsoils on the lower slopes which are comprised of alluvial sands, loams and clays (NSW NPWS 2003). The eastern half of the Project Area is situated within the Hill End Subregion. Soils within the Hill End subregion are characterised by red and yellow contrast soils. Geology of the region is comprised of sandstone and volcanic geologies. These geologies are interspersed by quartz veins and are associated with basalt caps close to main streams.

The Project Area can also be delineated into distinctive landscapes utilising the Mitchell Landscape model. Landscapes mapped within the Project Area include the Mullion Slopes; the Ophir- Hargraves Plateau located towards the northeast corner; the Wellington- Molong Karst within the southeast corner; and small patches of Canobolas sheet basalts along the western boundary. The geology of the region is used to inform aspects of the Aboriginal cultural heritage assessment.

The Project Area was traditionally Wiradjuri country, the largest Aboriginal language group in NSW. The Wiradjuri nation is reported to be bound by the Lachlan, Macquarie and Murrumbidgee Rivers. The Wiradjuri people are well known for travelling long distances, and significantly as part of an annual summer feast of Bogong Moths that was undertaken in the Australian Alpine region (HO and DUAP 1996).

A variety of Aboriginal site types have previously been found throughout the Kerrs Creek area including artefact sites, potential archaeological deposits (PADs), stone quarries and Culturally Modified Trees (CMTs). Artefact sites dominate known records with quartz as the main material type used followed by siliceous volcanic, and tuff with artefact sites often associated with areas of exposure and erosion. The patterning of the site locations appears to relate to the presence of resources with modelling suggesting that Aboriginal sites may be expected throughout all landscapes; however, the most sensitive archaeological areas are in proximity to water, with slope and terraced landforms most common to include artefactual material. Scarred trees may be present throughout the Project Area where old growth native trees remain. Ridgelines and crest could have also been the target of quarrying activities and travel areas which are less likely to be as intensively used. Both have been mapped (**Figure 6-5**). The most likely site type to be encountered within the Kerrs Creek Wind Farm Project Area would be stone artefacts and CMT's where old growth native trees remain.

6.5.2. Preliminary Assessment

The Aboriginal Heritage Information Management System (AHIMS) database provides information concerning previously recorded Aboriginal sites in NSW. A review of the AHIMS database was undertaken on 24 November 2022 to develop an understanding of any Aboriginal sites which may have been registered within or in the vicinity of the Project Area. The search was conducted utilising the parameters provided in

Table 6-12. Full AHIMS search results are included in **Appendix F**.

Table 6-12 AHIMS Database Search Details

Parameter	Description
Client Service ID	735250
Latitude	██████████
Longitude	██████████
Buffer	1,000 m
Number Sites	96

A total of 96 sites were identified during the AHIMS search, five of which were registered as restricted sites. None of these restricted sites were identified to be within the Project Area boundary. A total of six sites were identified within or on the Project boundary. These are listed as open sites containing artefacts and two stone quarries. Details of these sites are included in **Table 6-13**.

Table 6-13 AHIMS Registered Site Details

AHIMS Site ID	Site Name	Site Feature	Location
44-2-0085	Sawmill 1	Stone Quarry, Artefact	██████
36-5-0021	Middle Creek; Middle Creek 5	Artefact	██████
36-5-0022	Middle Creek; Middle Creek 4	Artefact	████████████████████ ██████████
36-5-0023	Middle Creek; Middle Creek 3	Artefact	████████████████████ ██████████
36-5-0024	Middle Creek; Middle Creek 1	Artefact	████████████████████ ██████████
44-2-0064	Sawmill 2	Stone Quarry, Artefact	██████

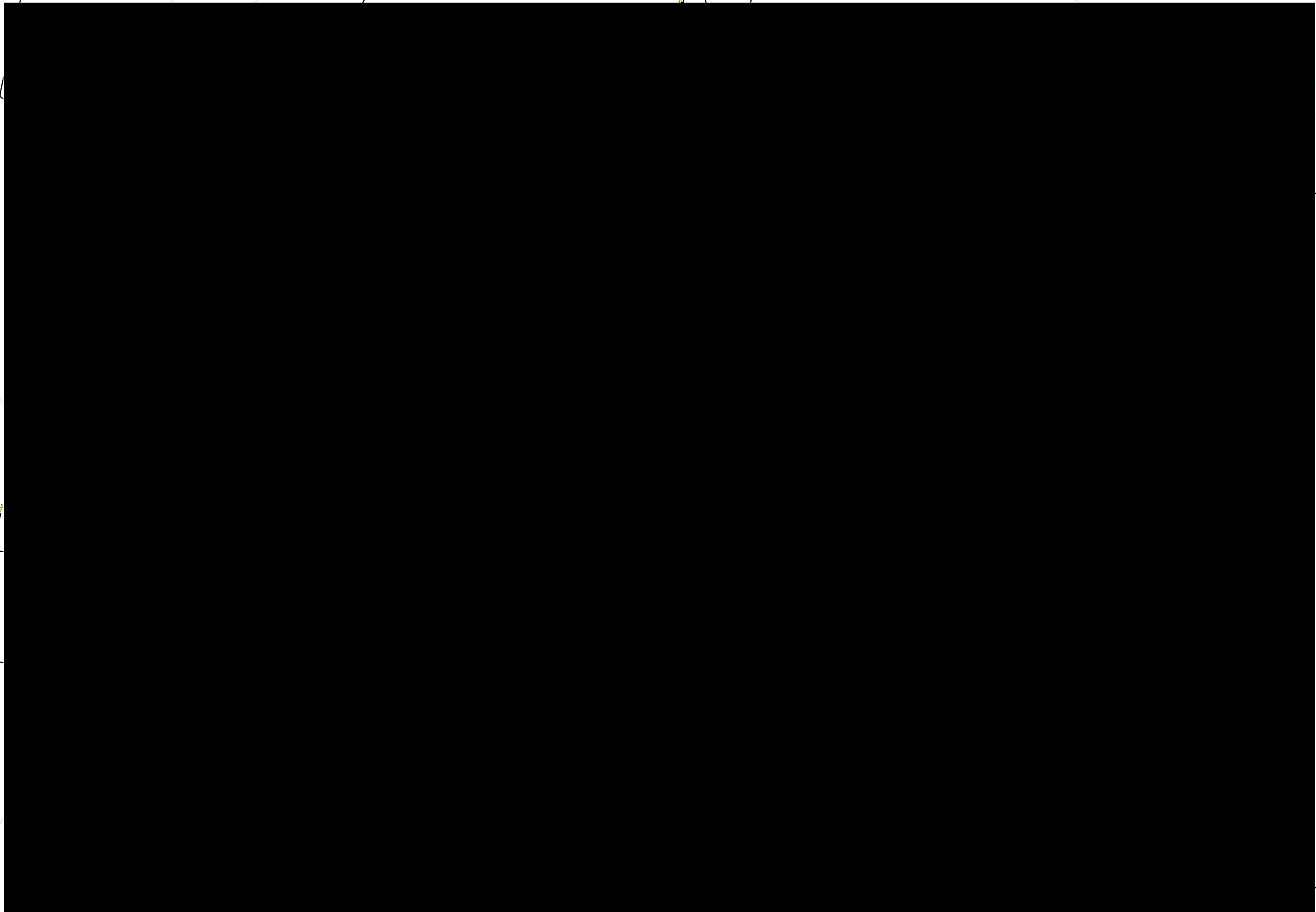
6.5.3. EIS Assessment Approach

Based on the results of the preliminary assessment, it is understood that the Project Area contains known Aboriginal archaeological resources, and it is considered likely that portions of the Project Area not previously subject to survey would also 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 EIS will consider the following.

- Comprehensive investigation, to include pedestrian field survey, consultation with Aboriginal stakeholders, sensitivity mapping, and archaeological test excavation (if required) should be undertaken to support the Project EIS.

Heritage 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, 2010b), and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010c);

- Results of the investigations are to be detailed in an Aboriginal Cultural Heritage Assessment Report (ACHAR), in accordance with the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011); and
- If required, 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. Historic Heritage

6.6.1. Background

The South-eastern Highlands IBRA Bioregion was first explored between 1817-20 by Hamilton Hume, Charles Throsby, James Meehan and John Oxley who indicated that the area showed clear potential for grazing and agriculture (HO and DUAP 1996). The Project Area is primarily located within the Parish of Warne and Parish of Trudgett, with a small overlap of the Parish of Curragurra and Parish of Cooper.

The Project Area is located along the pathway that was utilised by soldiers and convicts travelling between Bathurst and Wellington during early exploration. It is also within the boundary of land that was dedicated to part of the Macquarie Gold Field, which saw large movements of gold seekers between 1851-1871.

Historical parish maps of the Project Area indicate that by the 1890s large portions of the Project Area had been leased for pastoral or mining purposes. Occupation was associated with a variety of landholders of varying sizes. Agricultural activity increased once the railway to Orange opened, improving transport and the ability to move the produce off the land and to market more rapidly (Orange Regional Museum, n.d). The village of Kerrs Creek was established when the railway line was built in 1880. The district, however, had been settled at Caleula (on the main road, now Burrendong Way) by CF Warne in 1838. By 1843, HH Kater had established a flourmill at Caleula which is approximately 3.5 km southwest of Kerrs Creek and the Project boundary. Farmers, miners and innkeepers had also come to the district by this date. The village of Kerrs Creek grew with the operation of the railway and increase in farm workers living there and it was proclaimed a village on 8 November 1890. By the 1950s and 60s, small holdings had already been incorporated into larger properties and employment on these and in the railways declined.

A review of historic aerials suggests that the Project Area has been subject to relatively low levels of historic development over the past decades with land use primarily associated with low to moderate levels of land clearance and grazing activities. The potential for historical archaeological remains to be present within the Project Area associated with the former agricultural or grazing activities is considered low.

6.6.2. Preliminary Assessment

6.6.2.1 Heritage Register Searches

A search of online heritage databases was undertaken on 20 June 2022.

The following online databases were reviewed:

- Australian Heritage Database;
- NSW State Heritage Inventory (SHI);
- NSW State Heritage Register; and
- Schedule 5 of the Dubbo LEP 2022.

The search identified that there were no listed historic heritage items within the Project Area, although one State Heritage Register site is located within 2 km of the Project:

- Nubrygyn Inn and Cemetery (2531 Euchareena Road, Euchareena).

There were several locally (within an LEP) listed heritage items within 2 km of the Project Area, as displayed in **Table 6-14**.

Table 6-14 Locally Listed Historical Heritage Items

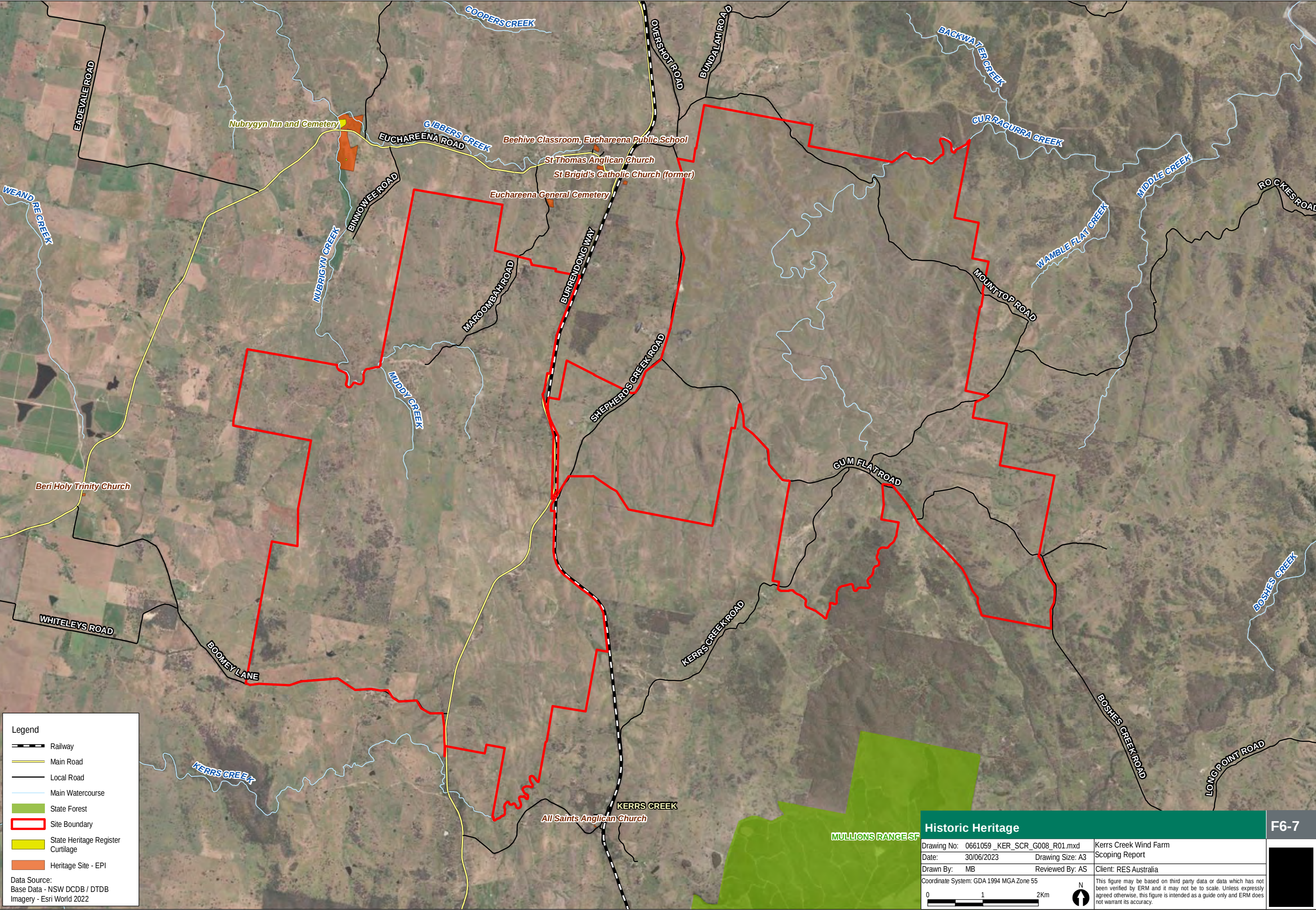
LEP	Item Name and ID	Address	Approximate Distance to the Project Area
Caboone LEP	Boomey Cemetery - I4	1370 Euchareena Road	Within 2 km of Project Area
Caboone LEP	Beri Holy Trinity Church - I5	1662 Euchareena Road	Within 2 km of Project Area
Dubbo LEP	St Brigid's Catholic Church (former) - I22	8 Euchareena Tip Road	Within 2 km of Project Area
Dubbo LEP	Euchareena General Cemetery - I23	65 Maroombah Road	Within 2 km of Project Area
Dubbo LEP	St Thomas Anglican Church - I24	7 Nubrigyn Street	Within 2 km of Project Area
Dubbo LEP	Beehive Classroom, Euchareena Public School - I25	2 Walter Street	Within 2 km of Project Area
Dubbo LEP	All Saints Anglican Church - I46	331 Kerrs Creek Road	Within 2 km of Project Area

6.6.3. EIS Assessment Approach

Although preliminary research has not identified that the Project Area contains a registered historic heritage item, there is potential for additional heritage values to be present across the Project Area, therefore a Statement of Heritage Impact (SoHI) will be prepared as part of the EIS.

The SoHI will consider known and potential heritage values, and potential impacts to built heritage features and areas of historical archaeological sensitivity across the Project Area. The SoHI will also consider any intangible (social) values held by the community or relevant stakeholders.

Preparation of the SoHI will involve detailed historical research, including analysis of historical aerial imagery, and physical inspection of the relevant areas within the Project Area. The preparation of this report would ensure compliance with all statutory obligations and best practice guidelines and would assist in the management of risk associated with inadvertent impact to heritage values.



Legend

Railway

Main Road

Local Road

Main Watercourse

State Forest

Site Boundary

State Heritage Register
Curtilage

Heritage Site - EPI

Data Source:
Base Data - NSW DCDB / DTDB
Imagery - Esri World 2022

Historic Heritage

F6-7

Drawing No: 0661059_KER_SCR_G008_R01.mxd		Kerrs Creek Wind Farm
Date: 30/06/2023		Scoping Report
Drawn By: MB	Reviewed By: AS	Client: RES Australia
Coordinate System: GDA 1994 MGA Zone 55		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
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6.7. Traffic and Transport

6.7.1. Background

The Project is serviced by a road network which includes the Mitchell Highway and Burrendong Way, accessed via the Great Western Highway or the Golden Highway. Access to the Project land will be via Burrendong Way and Shepherds Creek Road, which traverses the Project Area. Burrendong Way can be accessed via the Northern Distributor from Orange or via the Mitchell Highway from Wellington.

The Golden Highway and Mitchell Highway are major highways that have the capacity to carry Oversize and Overmass (OSOM) vehicles to and from the Project Area. These highways have previously been used as OSOM routes for other Central-West Orana REZ wind farm projects and are expected to be able to accommodate blade transport vehicles.

Existing consultation to date with Dubbo Regional Council has indicated the following:

- Upgrades will be required for short sections at either end of Shepherds Creek Road and the section of Overshot Road that connects to Burrendong Way to facilitate access to the Project;
- The access points to the Project off Burrendong Way will be conditioned with suitable access layouts; and
- Further evaluation and confirmation of access plans will be required to determine which local roads will be used for access to turbines west of Burrendong Way.

Early phase engagement with TfNSW indicated that further assessment of traffic impacts will occur following submission of this Scoping Report.

6.7.2. Preliminary Assessment

It is anticipated that over-size wind farm components will be imported to the Port of Newcastle (expected delivery port due to limitations in associated routes from other ports) and transported by road to the Project site. However, the transport route of WTG components and other Project-related materials are subject to a Transport Route Assessment as part of the EIS, the outcomes of which will be incorporated into the Traffic and Transport Impact Assessment (TTIA). This will identify the preferred transport route from port to the Project site, as well as any required road upgrades.

The details and specifications of these upgrades will be dependent on the size of the vehicles and infrastructure required to be delivered to the Project site and are subject to assessment in a Transport Route Assessment to be undertaken during the EIS.

Upgrades will likely be required to intersections at Burrendong Way and Shepherd's Creek Road to provide the required turn treatments in accordance with the Austroads Guide. Burrendong Way is classified as a Regional Road with some sections of the road rated to accommodate B-Doubles and some sections unrated. The TTIA to be undertaken during the EIS will assess the entire route, but particularly sections of the route that are not rated to confirm whether the road can accommodate B-Double vehicles. It is also recommended that dilapidation surveys be undertaken during construction to ensure that the road is maintain in a suitable manner.

6.7.3. EIS Assessment Approach

A detailed TTIA (including a Transport Route Assessment) will be prepared. It will consider potential transportation routes for construction traffic and potential impacts of the size, loads, and volumes of vehicles on the road network.

The TTIA will generally be prepared in accordance with the 'Guide to Traffic Generating Developments' (RTA, 2002), 'Austroads Guide to Road Design' (Austroads, 2022) and 'Austroads Guide to Traffic Management' (Austroads, 2020).

The scope of the TTIA will involve:

- Assessment of haulage routes, access points, and swept paths through intersections to determine potential risks and impacts from the largest vehicles;
- Assessment of likely Project-alone and cumulative traffic impacts during the construction and operational phases of the Project (including intersection performance, capacity, safety and site access);
- Review of any previous traffic impact assessments undertaken for the surrounding area and traffic counts in selected areas;
- Identification of mitigation and management measures if required, including in relation to traffic volumes and sight lines;
- Identification of any road upgrades required and associated clearing, and disturbance works; and
- Assessment of the potential impacts of the proposed works on residences and access ways.
- Determination of required mitigation measures.

6.8. Aviation

6.8.1. Background

Operation of wind farms may cause aviation safety impacts; therefore, the Project will require an aviation impact assessment. The assessment will consider relevant requirements of air safety regulations and procedures and include consultation with relevant aviation authorities and stakeholders.

6.8.2. Preliminary Assessment

A preliminary review of aircraft landing areas (ALAs) within 30 nautical miles (NM) (55.56 km) of the Project Area was undertaken, with the following ALAs identified:

- Fairview Airport (YFVW) approximately 33 km northwest;
- Orange Airport (OAG) approximately 40 km southeast; and
- Wellington Airport (YWEL) approximately 55 km northwest.

6.8.3. EIS Assessment Approach

An Aviation Impact Assessment (AIA) will be undertaken for the EIS, which will assess any potential impacts to aviation safety associated with the Project. The assessment will include consideration of:

- Potential impacts to aviation safety including wake / turbulence issues;
- The need for aviation safety lighting;
- Air traffic routes, heights procedures, radar and communications systems and navigation aids;
- Potential impacts on aerial emergency services, aerial firefighting, and aerial agricultural operations; and
- Required mitigation.

The assessment will address any aviation concerns raised during consultation with the community and key stakeholders and identify relevant mitigation strategies to be implemented where required. Consultation with the Civil Aviation Safety Authority (CASA), Royal Australian Air Force, Air services Australia, and other relevant regulators will also be undertaken to determine relevant aviation safety lighting requirements, notification and reporting requirements, and the potential marking of turbines, wind monitoring towers, and overhead transmission lines and poles.

6.9. Telecommunications

6.9.1. Background

The operation of a wind farm has the potential to interfere with the electromagnetic signals associated with telecommunication services. Existing telecommunication services in the vicinity of the Project Area include mobile phone services, radio communication services, television and radio broadcast services, and aircraft navigation services, which residents and local towns (including Euchareena, Mullion's Creek and Kerr's Creek) are reliant upon.

6.9.2. Preliminary Assessment

A search of the Australian Communication and Media Authority (ACMA) database on 13 December 2022 identified 13 sites within 20 km of the centre of the Project Area.

6.9.3. EIS Assessment Approach

A Telecommunications (Electromagnetic Interference (EMI)) assessment will be undertaken to inform the EIS, which will consider the potential impacts of the Project on telecommunications services. It will involve the preparation of a detailed desktop assessment of existing proximal electromagnetic services to the Project Area, and recommended measures to avoid or minimise potential impacts to telecommunications services during construction and operation of the Project.

Consultation with operating services that may be impacted by the Project will be undertaken where necessary to understand potential EMI-related impacts to operations and services.

6.10. Water Resources

6.10.1. Preliminary Assessment

Potential impacts to water resources are largely associated with erosion and sedimentations during construction works. Operational and maintenance activities, and subsequent soil disturbance, may also result in impacts to downstream watercourse in the absence of management and mitigation measures. Operational and maintenance activities may also lead to impacts on water resources in the absence of management and mitigation measures.

The Project Area is located within the Macquarie River Catchment that forms part of the Murray-Darling Basin in central-western NSW. The Macquarie River Catchment covers about 75,000 km² and represents 4 percent of the Murray-Darling Basin (DPE, 2017).

The Project Area is located within the area covered by the Water Sharing Plan (WSP) for the Macquarie Bogan Unregulated and Alluvial Water Sources 2012 (Macquarie Bogan Unregulated and Alluvial Water Sources WSP). Under the *Water Management Act 2000*, water access licences and controlled activity approvals are required for certain activities. The Project may require water access licences; however, approval for controlled activities is not required for SSD projects.

Multiple watercourses traverse the Project Area, including Nubrigyn Creek, Curragurra Creek, Weandre Creek, Shepherd Creek, Muddy Creek, Coppers Creek and Gibbers Creek and associated tributaries. The Macquarie River, located to the north of the Project, is a major perennial river that flows into Burrendong Dam (located to the north of the Project), which is a water supply dam for Wellington township.

There are no wetland areas or lakes (other than small farm dams) within the Project Area.

The Project Area topography is characterised by undulating hills, ranging from approximately 580 m to 750 m above sea level (ASL). The Project Area does not cover any flood prone land.

6.10.2. EIS Assessment Approach

The assessment of water resources and potential impact from the Project that will be undertaken during the EIS will include:

- Flooding and Hydrology Assessment - A flooding assessment will be undertaken which 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 Boundary 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 for the Project, which will include:
 - A review of standard construction environmental management plans to ensure that impacts during excavation, road works, transport of machinery, etc. are adequately mitigated through avoidance, minimisation and management;
 - The assessment will consider the potential impacts of the Project on hydrology and groundwater and will determine the need for further hydrological investigations. The assessment will also identify and quantify sources of water required during construction and operation of the Project and determine whether any water access licences under the *Water Management Act 2000* are likely to be required;
 - Under the *Water Management Act 2000*, water access licences and controlled activity approvals are required for certain activities. The Project may require water access licences, however approval for controlled activities is not required for SSD projects; and
 - An assessment of the likely impacts on surface water and groundwater resources, including local waterbodies and groundwater dependent ecosystems (GDEs) and propose measures to monitor, reduce and mitigate the impacts of the Project.

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

- 'Managing Urban Stormwater: Soils and Construction' (Landcom, 2004);
- 'Managing Urban Stormwater; Soils & Construction' (Landcom, 2004);
- 'Managing Urban Stormwater; Installation of Services' (DECC, 2008);
- 'Managing Urban Stormwater; Unsealed Roads' (DECC, 2008);
- 'Controlled Activities on Waterfront Land - Guidelines for riparian corridors on waterfront land' (DPI, 2018);
- 'Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings' (DPI 2003);
- 'Policy & Guidelines for Fish Habitat Conservation & Management' (DPI, 2013);
- 'Relevant Water Sharing Plans' (DPI Water); and
- 'Guidelines for Watercourse Crossings on Waterfront Land' (DPI Water, 2012).

6.11. Land Resources

6.11.1. Background

Soils will be subject to disturbance during construction activities associated with site establishment, installation of infrastructure and replacement of soils for revegetation. Operational and maintenance activities may also lead to impacts on land resources of the Project Area.

6.11.2. Preliminary Assessment

A preliminary review of the Soil and Land Capability Mapping data for NSW (OEH, 2012) suggests that there are four LSC classes within the Project Area:

- Scattered areas across the eastern portion of the Project are classified as LSC Class 7 (Extremely severe limitations): land has extremely severe limitations for most land uses, it is unsuitable for high-impact land management uses, as any type of cropping or grazing because of its limitations;
- The Eastern portion and scattered areas across the central and western portions of the Project and scattered areas classified as LSC Class 6 (very severe limitations); land has very severe limitations for a wide range of land uses and few management practices are available to overcome these limitations;
- Scattered areas across the central and western portion of the Project are classified as LSC Class 5 (Severe limitations): land has high limitations for high-impact land uses; and
- A small western portion of the Project is classified as LSC Class 3 (Moderate limitations): land has moderate limitations for more intensive uses other than grazing and cropping with cultivation, and suitability for a variety of land uses can be maintained if carefully managed to prevent long-term degradation.
- There is no Class 1, 2 or 4 soils within the Project Area.

A preliminary map of land and soil capability classes in the vicinity of the Project Area is provided in **Figure 6-8**.

A search of the 'Australian Soil Classification (ASC) Soil Type Map of NSW' (OEH, 2017) shows that the Project Area has the following soil orders:

- Kandosols (KA) in the western and central portion of the Project Area;
- Kurosols - natric (KUn) across majority of the Project Area;
- Rudosols (RU) in small portions of the north-eastern and south-eastern section of the Project Area; and
- Sodosols (SO) in portions of the western section of the Project Area.

A map of the Australian soil classification in the vicinity of the Project Area is provided in **Figure 6-9**.

A review of BSAL and CIC data showed that there are no areas of BSAL, or CIC mapped within, or near the Project Area (refer **Figure 6-8**).

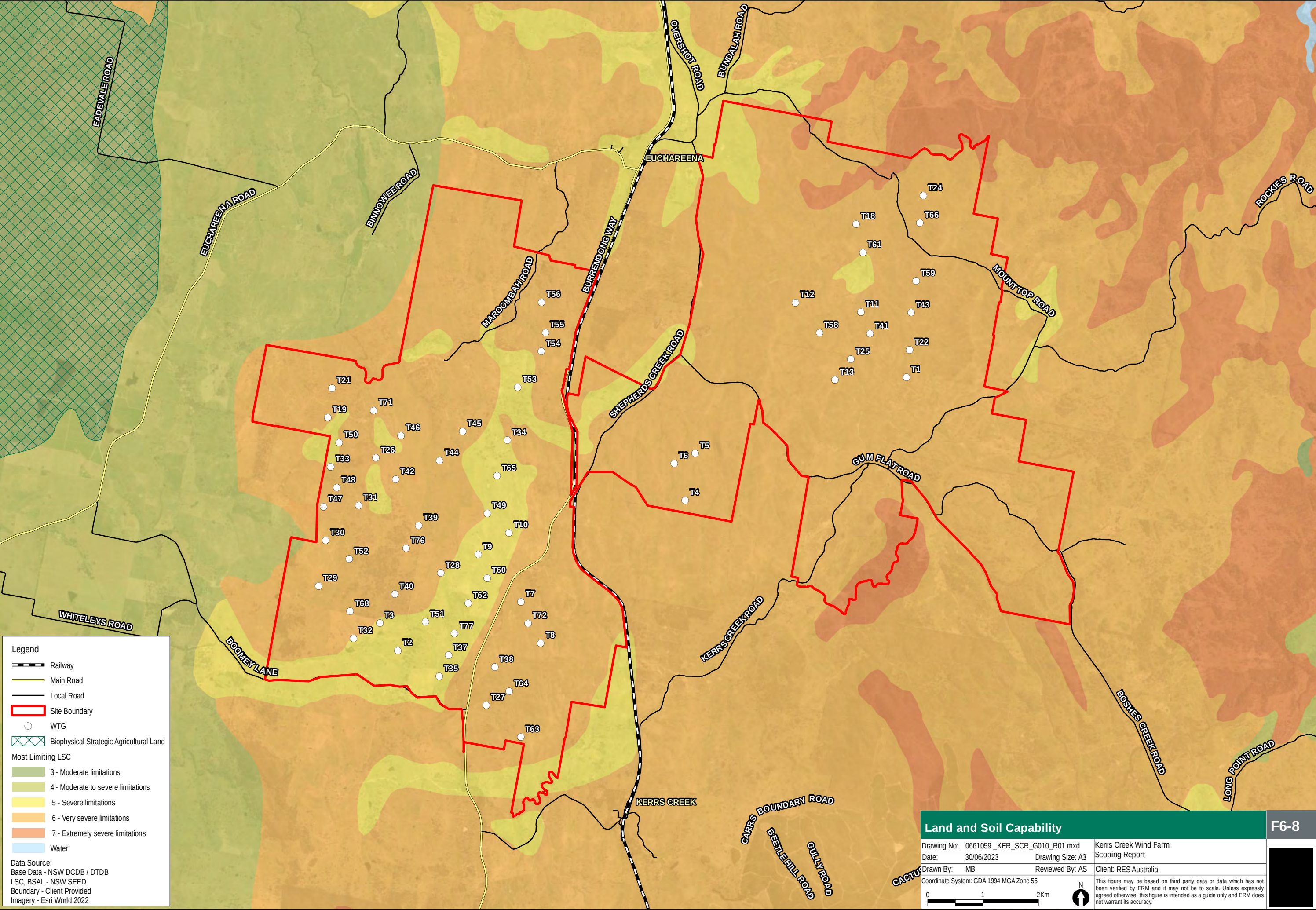
A preliminary LUCRA (**Appendix G**) assessment was conducted, the potential for land use conflict is manageable, considering the mitigation/management measures and environmental management plans that will be implemented to manage amenity and other off-site impacts.

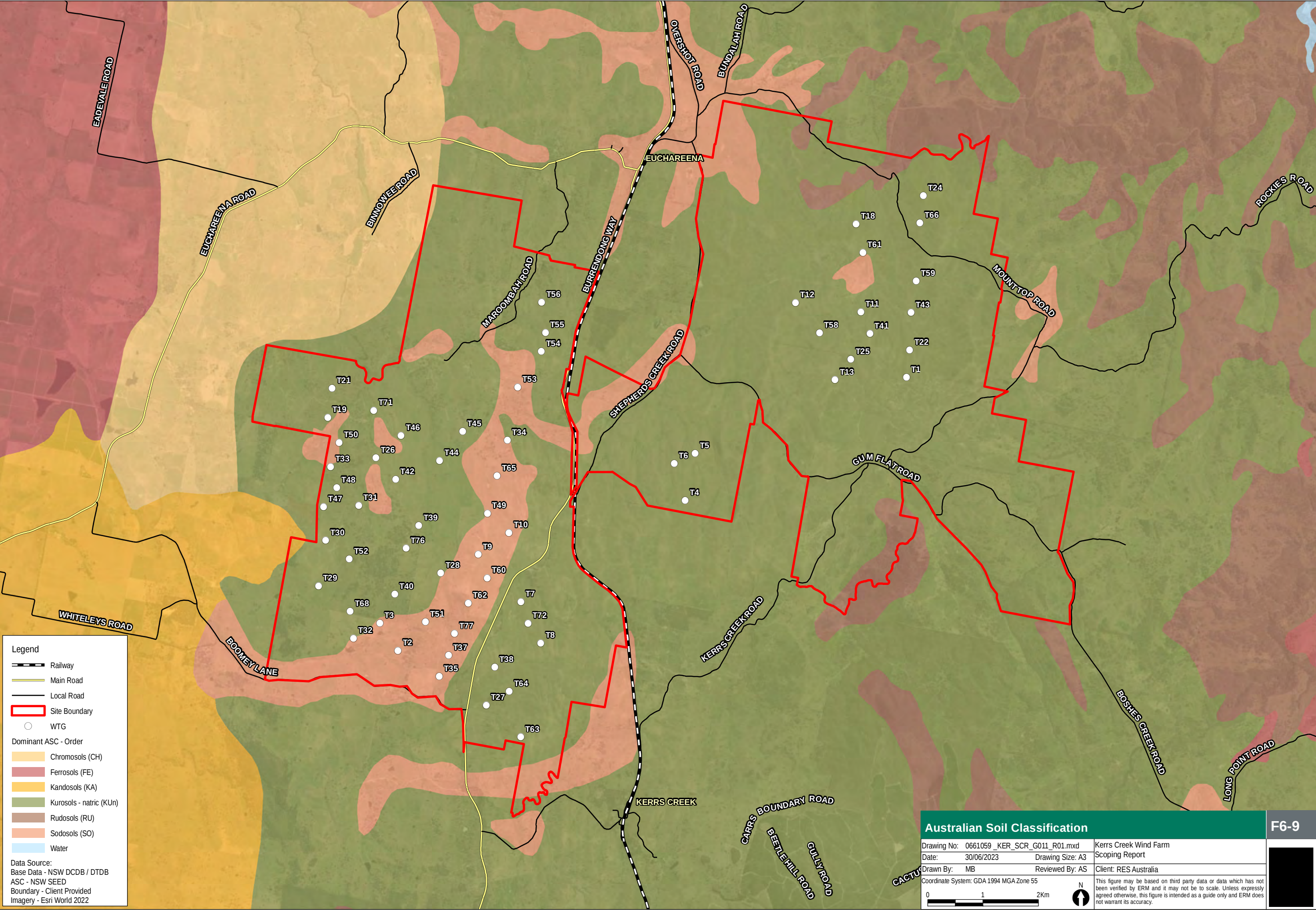
6.11.3. *EIS Assessment*

A LUCRA Assessment will be undertaken for the EIS, which will primarily focus on assessing the impacts on the soil, water, geology and LSC of the Project Area because of the Project, as well as the likely impacts on agricultural resources, enterprises and industries, at the scale of the Project Area and surrounding locality. The assessment will also propose appropriate mitigation measures during construction and operation of the Project.

The Agricultural and Soil Assessment will generally consider the requirements included in the following:

- 'Soil and Landscape Issues in Environmental Impact Assessment' (OEH, 2000);
- 'Land Use Conflict Risk Assessment Guide' (LUCRA Guide) (DPI, 2011);
- 'Landslide Risk Management Guidelines' (AGS, 2007);
- 'Site Investigations for Urban Salinity' (OEH, 2002);
- 'Guidelines for surveying Soil and Land Resources' (NJ McKenzie, 2008);
- 'The Australian Soil Classification' (Isbell N. C., 2016);
- 'Australian Soil and Land Survey Field Handbook' (NCST, 2009);
- 'The land and soil capability assessment scheme' (Office of Environment and Heritage, 2012);
- 'Interpreting Soil Test Results – What do all the numbers mean?' (Hazelton, 2007); and
- 'Concepts and Rationale of the Australian Soil Classification' (Isbell, 1997).





Legend

- Railway
- Main Road
- Local Road
- Site Boundary
- WTG

Dominant ASC - Order

- Chromosols (CH)
- Ferrosols (FE)
- Kandosols (KA)
- Kurosols - natric (KUN)
- Rudosols (RU)
- Sodosols (SO)
- Water

Data Source:
Base Data - NSW DCDB / DTDB
ASC - NSW SEED
Boundary - Client Provided
Imagery - Esri World 2022

Australian Soil Classification		F6-9
Drawing No: 0661059_KER_SCR_G011_R01.mxd	Date: 30/06/2023	Kerrs Creek Wind Farm Scoping Report
Drawn By: MB	Reviewed By: AS	Client: RES Australia
Coordinate System: GDA 1994 MGA Zone 55		
0 1 2Km		
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.		

6.12. Economics

6.12.1. Background

Dubbo Regional LGA currently supports 26,650 jobs, with an unemployment rate of 3.3% (REMPLAN, 2022). In Cabonne Shire, 6,532 people are employed, of which 61% worked full-time and 33% worked part time, and an unemployment rate of 2.5% (.id Community, 2022). Overall, the employment rate in both Dubbo Regional and Cabonne Shire Council were 96.7% and 97.5% respectively.

Key industry sectors in Dubbo Regional Council for employment are Health Care and Social Assistance (20.2%), Construction (10.4%) and Retail (9.7%) (REMPLAN, 2022). In Cabonne, key employment sectors are Agriculture and Forestry (17.3%), Health Care (13.5%) and Education (8.7%) (.id Community, 2022).

6.12.2. Preliminary Assessment

During construction, the Project would involve the procurement of a broad array of equipment, products and services, some of which may be procured from within the Cabonne, Orange and Dubbo LGAs and broader NSW. Construction supplies and construction-related services, including local civil, labouring and electrical businesses in particular are likely to benefit from the Project. Additionally, because of the inter-linkages between sectors, many indirect businesses would also benefit through increased economic activity.

The presence of the construction workforce would also increase demand for food, accommodation and other consumables in the local region. This would deliver a positive impact for existing retail, beverage, food and accommodation service providers in towns such as Orange, Molong and Wellington.

During operations, the Project would provide a long-term benefit to the local economy through employment and business opportunities, that would service the Project. Additional benefits of the Project include economic stimulus to the region from a large workforce during the construction phase.

6.12.3. EIS Assessment

An Economic Assessment will be undertaken for the EIS, which will review the impacts or benefits of the Project for the region and State as a whole.

It will consider any increase in demand and impact on local and regional economy during construction and operation of the Project, as well as reduction in agricultural activity because of the Project development, and other economic issues such as potential impact on land values and regional wages, house prices, tourism, and cumulative impacts.

6.13. Social²

6.13.1. Background

6.13.1.1. Introduction

This section provides the first phase Social Impact Assessment (SIA) for the Project, undertaken in accordance with DPE's *Social Impact Assessment Guideline* (the Guideline) (DPE 2023a) and DPE's *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects* (Technical Supplement) (DPE 2023a).

The first phase SIA involves scoping and preliminary assessment, 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 2021a, p. 12). Accordingly, the first phase SIA includes:

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

6.13.1.2. Social Locality

The Social Locality for the project is defined through understanding the nature of the project, the characteristics of the surrounding communities, and how potential positive and/or negative impacts will be experienced by different community members/groups.

In determining the Social Locality, the following aspects were taken into consideration:

- The number of wind turbines and their locations across the Project Area, and the layout of the access tracks, substation and transmission line;
- The location of these components within the overall Project Area relative to sensitive land uses. This includes proximity to environmental values and topographical features;
- Construction and operation phase activities, such as:
 - Land clearing and ongoing access for maintenance;
 - Workforce requirements, including skills required and accommodation arrangements;
 - Goods and services required by the Project; and
 - Haulage routes to and from the Project Area.

Considering these aspects, the Project's Social Locality was determined to include the Project Area, the area surrounding the Project Area where noise, visual and other impacts may occur, the haulage routes where similar amenity impacts may be experienced, and the communities and larger population centres that may provide workers or goods and services to the Project.

The Project is located approximately 26 km north of Orange, in between the towns of Euchareena and Kerrs Creek and accessed via Burrendong Way and Shepherds Creek Road. The Project Area is within the Dubbo Regional Council of New South Wales (NSW), approximately 110 km from Dubbo. The regional centre of Orange is therefore more likely to provide goods and services to support the construction and operation phases of the Project, but goods and services may also be procured from elsewhere.

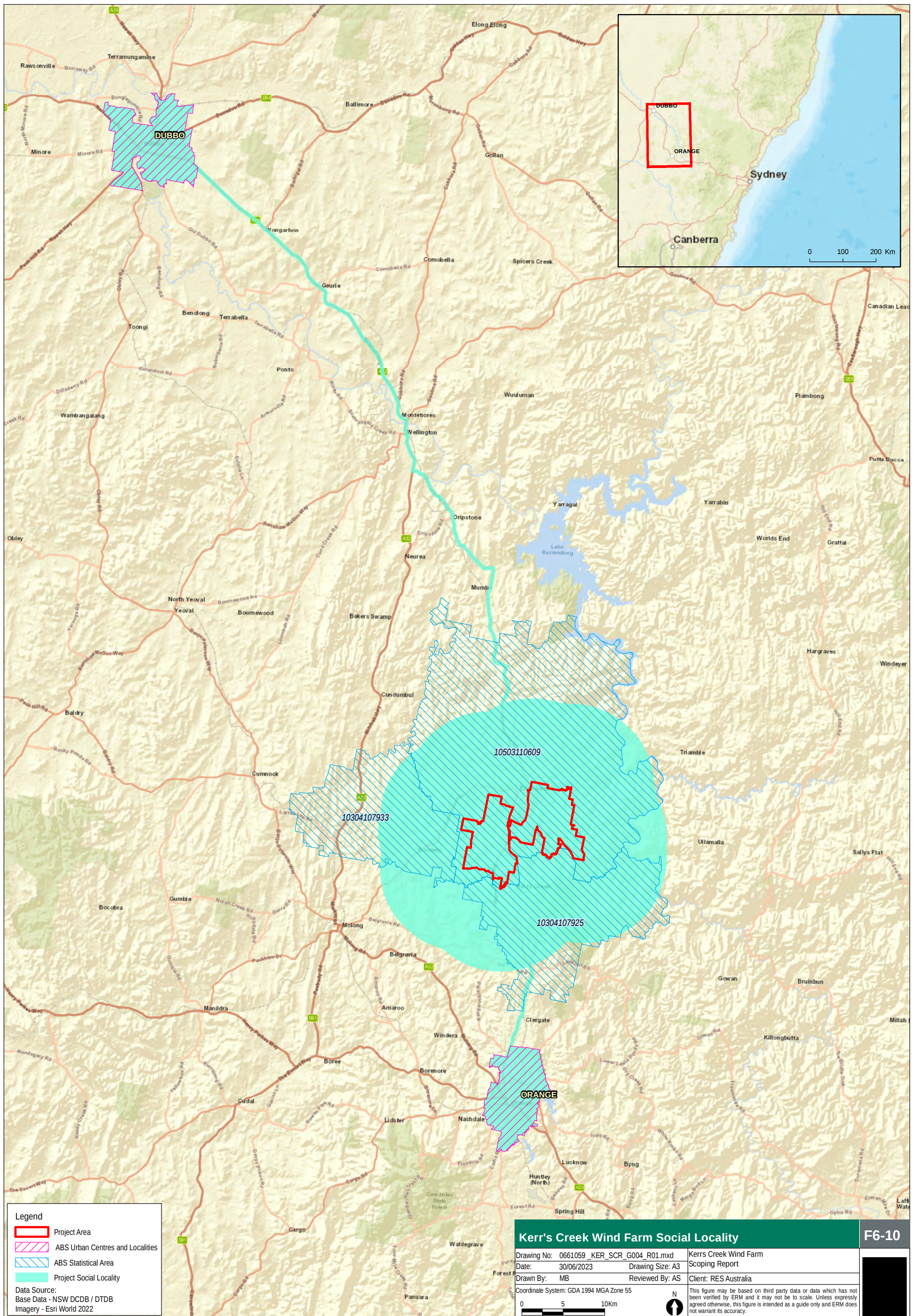
² The first phase SIA Report, included in the Scoping Report, was completed by Dr Rene Provis, lead author, and contains all relevant information. The lead author holds a PhD in development anthropology from the University of New South Wales and is a member of the International Association for Impact Assessment (IAIA) and the Australian Anthropological Society (AAS). The Report was completed in good faith in accordance with the relevant ethical frameworks, and to the lead author's knowledge does not contain any false or misleading information.

The Project's Social Locality has been defined for the purposes of the Scoping SIA and is depicted in **Figure 6-10**. It comprises of the following:

- The Project Area and immediate surrounding areas, located within the Australian Bureau of Statistics (ABS) Statistical Area Level 1 (SA1) Nos.: 10503110609 (containing the Project Area), 10304107925 (adjacent south to the Project Area and containing Kerrs Creek township), and 10304107933 (adjacent west of the Project Area). SA1 data has been used to identify key baseline indicators for the Social Locality, where applicable. Additionally, LGA level data for the Dubbo Regional Council LGA (LGA) and State level data for NSW were used to provide an understanding of the broader and comparative social context within the Project is located.
- The likely transportation and haulage routes to larger town centres via Burrendong Way. Project Area access will occur via Burrendong Way and Shepherds Creek Road, with wind farm components transported from the Port of Newcastle to the Project Area. Indicative travel distance from the Project Area to nearby town centres are provided in **Table 6-15**.
- The surrounding towns and regional centres of Orange and Dubbo, which may provide goods and services to support the construction phase of the Project. ABS Urban Centres and Localities (UCLs) data were used to provide baseline information for Orange and Dubbo.

Table 6-15 Approximate Distances to the Project Area

Town/Regional Centre	Travel Distance
Orange	26 km
Dubbo	110 km



6.13.1.3. Community Profile

The community profile presented in this section will inform the social baseline in the second phase SIA (as part of the EIS) and draws on the latest available ABS data (2021 census).

Table 6-16 outlines the primary ABS datasets used to provide key demographic data across the Project's Social Locality. For the purposes of the first phase SIA, only 2021 ABS datasets were considered; however, in the second phase SIA, relevant 2016 ABS data will also be used for the purposes of trend analysis.

Table 6-16 Summary of Relevant ABS Datasets

Location	2021 ABS Data Reference (Census)
Dubbo Regional Council LGA	LGA12390
SA1 (containing the Project Area)	10503110609 (SA1)
SA1 (adjacent south to the Project Area and containing Kerrs Creek township)	10304107925 (SA1)
SA1 (adjacent west of the Project Area)	10304107933 (SA1)
Orange	UCL112016
Dubbo	UCL112006
NSW	Code 1 (STE)

In addition to the above listed ABS datasets, the second phase SIA will be informed by a desktop review of sources including from public health advisory bodies, principally NSW Health and local hospitals (i.e., regarding physical and mental health issues prevalent in the local community), and educational institutions, principally the NSW Department of Education and local schools. Information relating to the economic profile of the Project is also provided by ABS 2021 Census data, while information on developmental priorities and challenges in the region will be provided by local and State government planning documents, such as the Dubbo Regional Council's *Towards 2040: Community Strategic Plan* (Dubbo Regional Council n.d.).

Table 6-17 draws on the ABS datasets listed in **Table 6-16** to provide a demographic overview of the Project's Social Locality. As outlined above, the Project Area is located within SA1 Nos.: 10503110609, 10304107925, and 10304107933. These are the primary sources providing details of the impacted community's defining characteristics and are used to provide an understanding of vulnerable groups within the Project's immediate Social Locality. The SA1 data is complemented with relevant LGA and UCL data also as outlined above.

Table 6-17 also includes the ABS' Socio-Economic Indexes for Areas (SEIFA)³ based on 2021 census to provide an indication of comparative socio-economic advantage and disadvantage (ABS, 2023). The ABS broadly defines socio-economic advantage and disadvantage in the SEIFA as, "...people's access to material and social resources, and their ability to participate in society" at an area rather than individual level (ABS 2018b, p. 6). Of the indexes reported in the SEIFA, the Index of Relative Socio-economic Disadvantage (ISRDI), the Index of Relative Socio-economic Advantage and Disadvantage (ISRAD) and the Index of Education and Occupation (IEO) are reported here for their coverage of relevant census variables (further explained in ABS 2018b and ABS 2023). The definitions used in the SEIFA remain unchanged from the previous census (i.e., 2016 and 2011), allowing for trend analysis. The latest SEIFA data based on the 2021 census was released on the 27th of April 2023.

³ The SEIFA are available at: <https://www.abs.gov.au/statistics/people/people-and-communities/socio-economic-indexes-areas-seifa-australia/latest-release#data-downloads>.

Table 6-17 Key Indicators for all ABS Datasets across the Project's Social Locality

	ABS Statistical Area	Dubbo Regional Council LGA (12390)	SA1 Project Area (10503110609)	SA1 Adjacent south (10304107925)	SA1 Adjacent west (10304107933)	Orange UCL (UCL112016)	Dubbo UCL (UCL112006)	NSW (1)
Population & Education	Population	54,922	466	616	150	40,127	38,783	8,072,163
	Median age	36	48	40	40	36	35	39
	Population under 15 / over 65	21% / 17.3%	15.4% / 22.8%	21.4% / 16.5%	33.3% / 18.4%	21.7% / 17.7%	21.6% / 16.5%	18.2% / 17.7%
	Indigenous population	16.6%	10.3%	4.5%	0.0%	8.0%	16.7%	3.4%
	Households where a non-English language is used	9.2%	1.7%	4.5%	0.0%	8.9%	11.3%	29.5%
	Highest educational attainment vocational, university or equiv.	44.5%	35.8%	54.4%	55.4%	49.3%	46.3%	52.1%
Income & Housing	Household Income median weekly	\$1,597	\$947	\$1,735	\$1,937	\$1,622	\$1,632	\$1,829
	Unemployment rate	3.6%	5.4%	1.2%	0.0%	3.6%	3.6%	4.9%
	Housing tenure Owned / mortgaged / rented	20.3% / 33.9% / 31.5%	51.1% / 28.7% / 12.9%	40.7% / 50.8% / 5.5%	43.2% / 22.7% / 18.2%	29.6% / 33.2% / 34.3%	26.5% / 32.9% / 36.6%	31.5% / 32.5% / 32.6%
	Households where rental / mortgage repayments are > 30% of household income	26.2% / 9.5%	17.4% / 9.8%	0.0% / 9.9%	55.6% / 40.0%	29.7% / 9.6%	26.2% / 9.1%	35.5% / 17.3%

	ABS Statistical Area	Dubbo Regional Council LGA (12390)	SA1 Project Area (10503110609)	SA1 Adjacent south (10304107925)	SA1 Adjacent west (10304107933)	Orange UCL (UCL112016)	Dubbo UCL (UCL112006)	NSW (1)
	Unoccupied private dwellings # / %	1,623 / (7.8%)	32 / (15.5%)	10 / (4.6%)	8 / (14.8%)	1,414 / (8.6)	994 / (6.6%)	299,524 / (9.4%)
	*SEIFA ISRD / ISRAD Percentiles in NSW	57 th / 53 rd	22 nd / 17 th	77 th / 58 th	83 rd / 68 th	**	**	**
	*SEIFA IEO Percentile in NSW	48 th	17 th	42 nd	72 nd	**	**	**
Health	Count of selected long-term health conditions: one condition / two conditions / three or more conditions	19.7% / 6.9% / 4.0%	18.2% / 8.2% / 4.7%	20.3% / 7.3% / 2.3%	8.0% / 0.0% / 0.0%	21.4% / 7.3% / 3.9%	20.2% / 6.9% / 4.0%	18.3% / 5.7% / 3.0%

Notes:

*SEIFA data provided in ABS 2023.

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

Table 6-18 outlines the key industries and areas of employment for the Dubbo Regional Council LGA, the SA1 containing the Project Area, SA1s surrounding the Project Area, nearby UCLs included in the Project's Social Locality, and NSW.

Table 6-18 Key Industries for Select ABS Statistical Areas (2021 Census Data)

Location	Key Occupation and Industries
Dubbo Regional Council LGA (LGA12390)	60.7% of the LGA's residents reported being in the workforce. - The top occupations reported in the LGA were Professionals (18.3%), Labourers (14.0%), Community and Personal Service Workers (15.1%), Technicians and Trades Workers (14.0%), Clerical and Administrative Workers (12.4%), Managers (12.3%), Labourers (10.9%), Sales Workers (9.1%), and Machinery Operators and Drivers (6.2%). - Of the employed people in the LGA, the top industries of employment were Hospitals (5.4%), Other Social Assistance Services (3.8%), Aged Care Residential Services (3.0%), Primary Education (2.8%), and State Government Administration (2.4%).
SA1 containing the Project Area (10503110609)	51.1% of the SA1's residents reported being in the workforce. - The top occupations reported in the SA1 were Managers (20.8%), Labourers (15.6%), Community and Personal Service Workers (13.5%), Professionals (9.4%), Clerical and Administrative Workers (8.9%), Technicians and Trades Workers (8.3%), Sales Workers (7.3%), Machinery Operators and Drivers (4.7%). - Of the employed people in the SA1, the top industries of employment were Sheep Farming (Specialised) (13.0%), Sheep-Beef Cattle Farming (5.2%), Hospitals (4.7%), Other Social Assistance Services (4.7%), and Primary Education (3.6%).
SA1 adjacent south to the Project Area and containing Kerrs Creek township (10304107925)	69.6% of the SA1's residents reported being in the workforce. - The top occupations reported in the SA1 were Managers (17.6%), Professionals (17.6%), Technical and Trades Workers (15.8%), Clerical and Administrative Workers (12.7%), Community and Personal Service Workers (9.4%), Machinery Operators and Drivers (9.4%), Sales workers (7.6%), and Labourers (6.7%). - Of the employed people in the SA1, the top industries of employment were Gold Ore Mining (3.9%), Hospitals (3.6%), Primary Education (3.3%), Takeaway Food Services (2.7%), and Other Social Assistance Services (2.4%).
SA1 adjacent west of the Project Area (10304107933)	74.5% of the SA1's residents reported being in the workforce. - The top occupations reported in the SA1 were Managers (38.6%), Clerical and Administrative Workers (15.7%), Professionals (14.3%), Labourers (7.1%), Technicians and Trades Workers (5.7%), and Machinery Operators and Drivers (5.7%). - Of the employed people in the SA1, the top industries of employment were Sheep-Beef Cattle Farming (15.7%), Beef Cattle Farming (11.4%), Sheep Farming (10.0%), Gold Ore Mining (4.3%), Accounting Services (4.3%).
Orange UCL (UCL112016)	61.7% of the UCL's residents reported being in the workforce. - The top occupations reported in the UCL were Professionals (22.5%), Technicians and Trades Workers (14.5%), Community and Personal Service Workers (13.3%), Clerical and Administrative Workers (12.4%), Managers (10.5%), Labourers (10.0%), Sales Workers (8.3%), and Machinery Operators and Drivers (6.9%). - Of the employed people in the UCL, the top industries of employment were Hospitals (7.2%), Gold Ore Mining (4.8%), Other Social Assistance Services (4.4%), State Government Administration (3.7%), and Primary Education (2.6%).
Dubbo UCL (UCL112006)	62.8% of the UCL's residents reported being in the workforce. - The top occupations reported in the UCL were Professionals (19.4%), Community and Personal Service Workers (16.0%), Technicians and

Location	Key Occupation and Industries
	Trades Workers (13.9%), Clerical and Administrative Workers (12.5%), Labourers (10.4%), Managers (10.3%), Sales Workers (9.8%), and Machinery Operators and Drivers (5.9%). ■ Of the employed people in the UCL, the top industries of employment were Hospitals (5.9%), Other Social Assistance Services (4.4%), Aged Care Residential Services (3.1%), Primary Education (2.8%), and State Government Administration (2.5%).
NSW Code 1 (STE)	■ 55.2% of the State's residents reported being in the workforce. ■ The top occupations reported in NSW were Professionals (25.8%), Managers (14.6%), Clerical and Administrative Workers (13.0%), Technicians and Trades Workers (11.9%), and Community and Personal Service Workers (10.6%), Labourers (8.2%), Sales Workers (8.0%), and Machinery Operators and Drivers (6.0%). ■ Of the employed people in NSW, the top industries of employment were Hospitals (4.2%), Supermarket and Grocery Stores (2.5%), Other Social Assistance Services (2.4%), Computer System Design and Related Services (2.3%), and Aged Care Residential Services (2.2%).

6.13.2. Preliminary Assessment

6.13.2.1. Social Infrastructure Overview

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 nearest localities to the Project Area are Kerrs Creek and Euchareena. However, given the small population of both localities, social services are limited to a primary school (Euchareena Public School) and fire station (Euchareena Rural Fire Station).

The nearest regional centre is Orange, approximately 26 km south of the Project. Orange Health Service is a public hospital with an emergency department open 24/7. Orange also hosts two private hospitals: Dudley Private Hospital and Orange Private Hospital, although these do not have emergency departments. All other emergency services are also based in Orange including Fire and Rescue NSW, NSW police, Ambulance NSW, the NSW Rural Fire Service, and the NSW State Emergency Service. Orange has several primary and secondary schools, churches, a variety of social services, and several retail services including grocery and specialty stores, post offices, hardware stores, service stations and other professional services.

6.13.2.2. Potential Social Impacts

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

The scoping of potential social impacts was initially facilitated through consideration of the updated SIA Scoping Tool that complements the Guideline (DPE 2021a, 2021c). The scoping tool identifies the social impacts that are considered likely to occur, and the corresponding level of assessment for each social impact. Use of the updated SIA Scoping Tool allows for the level of assessment for the potential social impacts to be identified, which in this case was determined to be 'detailed assessment'.

The social impact assessment approach utilised follows DPE's Technical Supplement guidance on evaluating the likely significance of both potential positive and negative social impacts (DPE 2021b).

An outline of the methodology of the second phase SIA that will follow is provided in this section. The second phase SIA will elaborate potential cumulative impacts in view of recent and proposed wind farm and other large-scale projects in the Social Locality.

As this is a first phase SIA, this impact assessment is preliminary in nature and makes assumptions based on the desktop assessment and prior wind farm SIA experience. The identified potential impacts listed in **Table 6-19** will be ground-truthed, through detailed assessment, and supplemented by key stakeholder feedback, and reviewed against any changes associated with further design development after issuing the SEARs. Further development of this assessment in the second phase SIA will include application of DPE's social impact significance matrix and an assessment of both pre and post mitigation scenarios.

As per **Table 6-19**, a key consideration for wind farm projects in regional NSW is the accommodation of the large construction workforce and that such social impacts are appropriately managed. Accordingly, the second phase SIA will provide a review of local accommodation options, including existing housing stock, and short-term accommodation providers.

Table 6-19 Preliminary Social Impact Assessment

Description of Impact	Impact Type and Categories	Project Phase
Increased demand/pressures on housing and accommodation (potential shortage and increased cost of living).	Negative: Way of life	Construction
Disruption of agricultural activities such as limited access and interruptions to cropping/grazing activities.	Negative: Livelihoods	Construction
Increased vehicular movement from workers engaged on the Project, and the transportation of materials and equipment.	Negative: Health and Wellbeing	Construction
Increased demand and pressure on social, emergency, and recreational services and/or facilities, and infrastructure.	Negative: Way of life	Life of the Project
Increased demands for goods and services (local businesses benefit from increased economic activity).	Positive: Livelihoods	Construction
Increased demand for labour in the local area (generation of employment opportunities).	Positive: Livelihoods	Construction
Increased demand for labour in the local community may reduce labour availability for local services and/or businesses.	Negative: Livelihoods	Construction
Diversification of income streams for involved landowners.	Positive: Way of life, Livelihoods	Operation
General community benefits through community investment programs.	Positive: Way of life	Operation
Interruptions to daily life, such as traffic changes causing diversions for school buses, road closures, utilities interruptions, etc.	Negative: Way of life	Construction

Description of Impact	Impact Type and Categories	Project Phase
Construction impacts associated noise, dust, vibration which may cause impacts to community health.	Negative: Health and Wellbeing, surroundings	Construction
Perceived impacts on land/property values.	Negative: Livelihoods	Operation
Perceived health impacts, linked to a range of aspects including electromagnetic interference, shadow flicker, blade throw, and noise.	Negative: Way of life, Community, Culture, Health and Wellbeing	Operation
Increased demands for goods and services (local businesses benefit from increased economic activity).	Positive: Livelihoods	Operation
Direct and indirect jobs will be created due to the Project.	Positive: Livelihoods	Operation
Alteration to the landscape that may potentially impact tangible and intangible Aboriginal heritage.	Negative: Culture	Life of the Project
Cumulative impacts with an additional renewable energy project in the region.	Negative: Way of life, Community, Culture, Health and Wellbeing	Life of the Project

6.13.3. EIS Assessment Approach

This section outlines the plan for developing the second phase SIA, in accordance with the requirements of the Guideline and Technical Supplement (DPE 2021a, 2021b). Accordingly, the second phase SIA will be structured according to the following sections:

1. Introduction, Project Description, Regulatory Context

This section will provide a detailed overview of the project locale, components, stages, and history. It will also provide a detailed review of the legislative and regulatory framework applicable to the SIA, considering relevant company policies.

2. Social Locality and Stakeholder Identification

This section will elaborate on the preliminary outline of the Project's Social Locality. The update will incorporate regulator and client feedback on the preliminary identification and provide an updated stakeholder list as the SIA moves into the second phase and more information becomes available.

3. Methodology

The impact assessment methodology to be applied to the second phase SIA follows DPE's (2021b, pp 12-13) Social Impact Significance matrix, as depicted in **Table 6-20**. In this matrix, the likelihood level refers to the probability of a social impact's occurrence because of the Project while the magnitude is considered in terms of the following elements:

- **Extent:** Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any potential vulnerable people? Which location(s) and people are affected? (e.g., near neighbours, local, regional).
- **Duration:** When is the social impact expected to occur? Will it be time-limited (e.g., over particular Project phases) or permanent?
- **Severity:** What is the likely scale or degree of change? (e.g., mild, moderate, severe).

- **Intensity:** How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change.
- **Level of Concern/Interest:** How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or severity. Concern itself can lead to negative impacts, while interest can lead to expectations of positive impacts.

The characteristics of the magnitude of impact combine with the likelihood of its occurrence to yield a rating of social impact significance, as indicated in **Table 6-20**. The social impact significance matrix will be applied to yield the initial evaluation of social impacts that are likely to be experienced by different groups within the Project's Social Locality.

Table 6-20 Adapted DPE Social Impact Significance Matrix

		Magnitude level				
		1 Minimal	2 Minor	3 Moderate	4 Major	5 Transformational
Likelihood level	A Almost certain	Medium	Medium	High	Very High	Very High
	B Likely	Low	Medium	High	High	Very High
	C Possible	Low	Medium	Medium	High	High
	D Unlikely	Low	Low	Medium	Medium	High
	E Very unlikely	Very Low	Low	Low	Medium	Medium
	F Positive	P1	P2	P3	P4	P5

*Where impacts are positive the following colour scheme will be used to indicate significance:

4. Stakeholder Engagement for SIA

This section will provide a summary of stakeholder engagement relevant to the SIA. Key stakeholder interviews specific to the SIA will be conducted as part of wider stakeholder engagement activities. SIA tailored questions and discussion topics will guide semi-structured interviews with key informants in a manner designed to elicit honest responses underpinned by free, prior informed consent of the participants. The broad categories of stakeholders to be targeted for the SIA include host landowners, neighbouring landowners, Traditional Owner groups, local governments, local businesses and representative groups, social and community service providers, and the wider community. More extensive details of stakeholder engagement activities will be included in appendices, where relevant.

5. Social Baseline

This section will update and expand on the Community Profile outlined in **Section 6.13.1.3**. The preliminary desktop assessment will be supplemented and ground-truthed with data obtained during fieldwork, including from stakeholder engagement activities.

6. Social Impact Assessment and Management

This section addresses potential social impacts providing an impact assessment informed by stakeholder engagement. This section also provides a summary of all the impact assessment mitigations which have applied to the Project through all phases, including earlier phases of planning and development. Two ratings will be provided in the impact assessment table covering pre- and post-mitigation/management levels of impact significance, including residual impacts.

7. Monitoring and Management Framework

This section will provide an overview of the recommended monitoring and social impact management measures that are to be put in place covering both the construction and operation phases of the Project. For the post-mitigation impact significant levels to be achieved, the social impact mitigations outlined in this section will need to be implemented according to the plan outlined in this section.

8. References

List of all documents and other resources cited in the SIA.

9. Appendices

Appendices will include community profiles and other supporting information such as summaries of stakeholder engagement and primary research.

6.14. Hazards

This section provides a preliminary assessment of environmental hazards and risks that could arise during the construction and operation of the Project. Specifically, it considers hazards and risks associated with hazardous materials, bushfire, blade throw, EMI and Electromagnetic Field (EMF).

6.14.1. Preliminary Hazard Assessment

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

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 wind farms or energy storage facilities.

No BESS facility is proposed for the Project and as such no *Class 9 - Miscellaneous dangerous goods* are to be assessed (under the SEPP 33 screening test, and associated hazards considered in accordance with the 'Applying SEPP 33 Guidelines').

In addition to small quantities of paints, cleaning agents, degreasers, motor fluids, the Project may store hazardous materials such as diesel, petrol, gear oils, (e.g., polyalphaolefin), and transformer oils (e.g., mineral oil). No potentially hazardous or offensive development in quantities greater than the relevant screening thresholds are anticipated for the Project and as such PHA is not required.

6.14.2. *Bushfire*

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 contains land recognised as being bushfire prone as shown in **Figure 6-11**. Scattered areas within the Project Area are mapped as Vegetation Category 1, and Vegetation Category 2 and 3.

The boundary of Vegetation Category 1 land is about 1.14 km south of the Kerrs Creek Road and Gum Flat Road intersection. This Vegetation Category 1 area extends from the Mullions Range State Forest to the Kinross State Forest, south of the Project area.

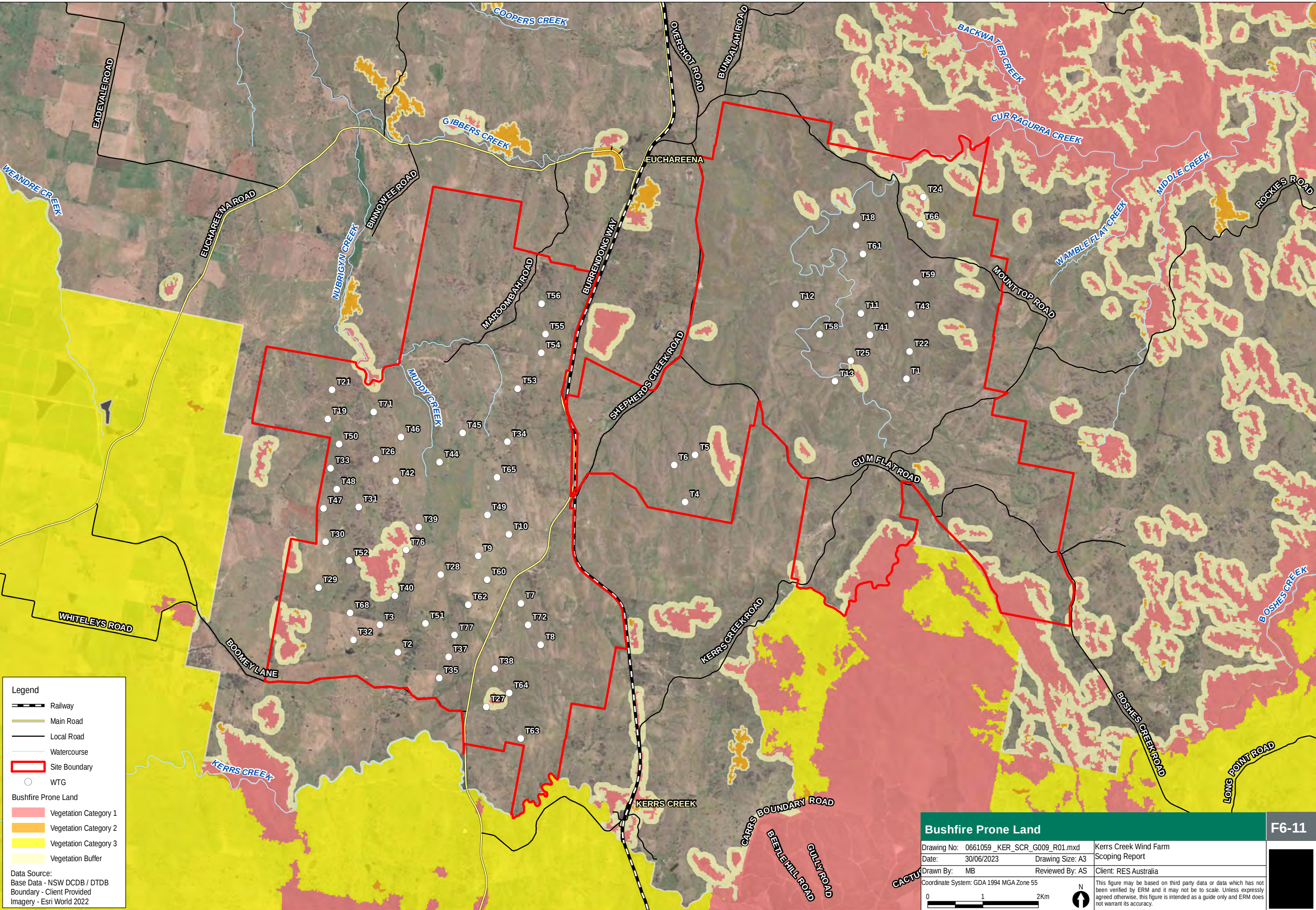
Extensive scattered Vegetation Category 1 areas were identified northeast of the Project Area, and Vegetation Category 3 land extend to the west of the Project Area.

The EIS will include a Bushfire Risk Assessment and will aim to identify potential hazards and risks associated with bushfires / use of bushfire prone land. The assessment will aim to demonstrate that the proposed windfarm 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' (NSW Rural Fire Service, 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 Project and the community.



Legend

- Railway
- Main Road
- Local Road
- Watercourse
- Site Boundary
- WTG
- Bushfire Prone Land
- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer

Data Source:
Base Data - NSW DCDB / DTDB
Boundary - Client Provided
Imagery - Esri World 2022

Bushfire Prone Land			F6-11
Drawing No: 0661059_KER_SCR_G009_R01.mxd		Kerrs Creek Wind Farm	
Date: 30/06/2023		Scoping Report	
Drawn By: MB		Reviewed By: AS	
Client: RES Australia			
Coordinate System: GDA 1994 MGA Zone 55		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	
012Km		N	

6.14.3. Blade Throw

Blade throw refers to the risk of wind turbine blades breaking during operation, which may result in human injury or potential damage to infrastructure. Blade throw is generally considered to be a low risk during the operation phase of the Project, which will utilise wind turbine technology that has been proven to be both safe and reliable. Further, the nearest non-associated dwelling (Dwelling ID 138) is located over 1 km from the turbine (WTG 32).

A Blade Throw Risk Assessment will be prepared as part of the EIS, which will describe the potential impacts associated with blade throw to nearby residential receptors during operation of the Project. The assessment will be undertaken having consideration of applicable international standards concerning the design of wind turbine components.

The Blade Throw Risk Assessment will likely include the following scope of works:

- Assessment of the likelihood of occurrence for a blade throw event;
- Assessment of theoretical distance radii for a blade throw event;
- Review of distances between turbines and nearby dwellings;
- Review of historical blade throw occurrences in Australian wind farms; and
- Provision of relevant mitigation measures for Project implementation.

6.14.4. Electromagnetic Field

EMF is potentially 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 transmission lines and substations. Over the past 50 years, concerns have been expressed that the EMFs associated with electrical equipment might have adverse health effects. There are well-known health effects where there are very high levels of EMFs and health standards have been established to protect against these effects.

However, the WHO (WHO, 2020) recognises that no adverse health effects from long-term exposure to Extremely Low Frequency (ELF) EMF have been confirmed.

An EMF assessment will be prepared as a component of the EIS and will consider and document the potential impacts and risks to human health associated with the EMF generated by the WTGs and associated electrical infrastructure. While adverse health effects from exposure to ELF 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.

6.15. Air Quality and Greenhouse Gas

6.15.1. Background

Land uses in the areas surrounding the Project Area are predominantly agricultural, and this is likely to influence the local air quality. Air quality in the region is generally expected to be of good quality and typical of what is expected in a rural setting, due to factors including low population density and low traffic volumes.

Existing sources of air pollution are likely sourced from dust, vehicle, and machinery from agricultural production, and vehicle exhaust emissions from traffic along Burrendong Way.

The nearest air quality monitoring stations are in Orange as part of the Rural NSW air quality monitoring network (DPE, 2021a). It is situated approximately 26 km south of the Project Area and lies at an elevation of 871 m Australian Height Datum (AHD). The following air pollutants and meteorological variables are measured at this station:

- Fine particles as PM₁₀;
- Fine particles as PM_{2.5};
- Wind speed, wind direction and sigma theta;
- Ambient temperature;
- Relative humidity; and
- Rainfall.

This station provides hourly pollutant concentrations data, as well as 24-hour summary and air quality category ratings (AQC). During the Black Summer bushfires 2019–20 summer season, the station recorded daily Air Quality Index (AQI) levels as “hazardous”. However, past this season the region has reached “good” AQI levels (DPE, 2022).

The nearest weather station is at Orange Airport (Station No. 95726), located 47 km south-east which lies at an elevation of 948 m AHD. A review of the Australian Bureau of Meteorology (BOM) climatic records from 1996 - 2022 indicate a mean summer maximum temperature of 27.4 °C in January, and a mean winter minimum temperature of 0.5 °C in July. Additionally, rainfall records from this same station indicate a mean annual rainfall of 924.2 mm, with the highest monthly maximum occurring in November (94.1 mm) and the lowest monthly maximum occurring in April (45.3 mm).

The wind speed and direction in the Orange region is highly variable and dependent upon the local topography. The average hourly wind speed experiences mild seasonal variation over the course of the year. The windier part of the year is from August to mid-March, with average wind speeds of more than 10.2 km per hour (km/h), and the calmer time of the year is from mid-May, with an average hourly wind speed of 9.2 km/h (Spark, 2022).

6.15.2. Preliminary Assessment

The Project is not expected to have significant impacts on air quality in the region.

Emissions to the atmosphere from the Project are predominantly associated with construction phase activities which will be temporary and limited to:

- Localised dust emissions generated by land disturbance; and
- Exhaust emissions of civil construction and vehicle, plant and machinery.

During the temporary construction phase, dust particles and other air quality emissions could potentially be released from activities including:

- Construction of new / upgraded access tracks and roads;
- Vegetation clearing and creation of open exposed areas;
- Excavation works and stockpile management;
- Mobile concrete batching plants;
- Rock crushing;
- Transport of material and equipment;
- Processing and handling of material;
- Construction activities and associated earthmoving and construction equipment;
- Transfer points;

- Loading and unloading of material; and
- Haulage activities along unsealed roads.

During the operations, the Project will generate electricity without directly emitting air pollutants that are known to affect the climate and human health. The Project will contribute to the improvement of air quality through the displacement of emissions that would otherwise be generated through the burning of fossil fuels used to generate electricity from traditional coal fired power stations.

6.15.3. EIS Assessment Approach

The EIS will qualitatively consider the potential impacts to air quality and stipulate appropriate management and mitigation measures during the construction, operations and decommissioning 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);
- 'NSW Climate Change Policy Framework' (Office of Environment and Heritage, 2016); and
- 'Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales' (DECC, 2005).

6.16. Waste Management

The EIS will quantify and classify the likely waste streams to be generated during construction, operation and decommission phases of the Project.

The EIS will consider the following guidelines and strategies to ensure resources are used effectively and impacts to the environment because of waste generation from the Project are minimised:

- 'NSW EPA Waste Classification Guidelines – Part 1: classifying waste' (NSW EPA, 2014a) and Addendum (NSW EPA, 2016);
- 'NSW EPA Waste Avoidance and Resource Recovery Strategy 2014-2021' (WARR Strategy) (NSW EPA, 2014b); and
- 'NSW EPA Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012' (NSW EPA, 2012).

Relevant management and mitigation will be identified as required.

7. ACRONYMS AND ABBREVIATIONS

This section includes terminologies and abbreviations consistently used in this Scoping Report. It describes key terms specific to the Project and EIS; and provides consistent abbreviations for Acts; Guidelines, Manuals and Policies; Management Plans; and general renewables' industry terms.

7.1. Terminologies

Terminology	Description
Applicant	RES Pty Ltd
Project Area	Red boundary to which the Application applies as shown on Figure 1-1 .
Project	The development to which the Application applies generally as described in Section 2.6 of the Scoping Report.
Application	Application for Development Consent under section 4, Division 4,7 of EP&A Act and Section 75 of EPBC Act
Disturbance Footprint	The area of land that is directly impacted by the Project including: all temporary and permanent disturbance areas; and all areas where vegetation may be removed during project construction and operations (as utilised in the BDAR).
Temporary Disturbance	The area of land that will be temporarily disturbed during construction of the Project, and later rehabilitated.
Permanent Disturbance	The area of land that will be subject to permanent alteration because of construction and operation of the Project's infrastructure until decommissioning.
Study Area	The area which applies to all field studies including Disturbance Footprint and up to 100 m buffer (within which all Project disturbance will occur unless otherwise stipulated in the Project Description). The BDAR includes a 100 m buffer in addition to the Disturbance Footprint.
Assessment Area	Ecology only – as Guidelines require some specific terms. Includes all land within a 1,500 m buffer of the Project Area, as appropriate for non-linear developments under the BAM, for which landscape features such as native vegetation cover, bioregions, waterways and other features are described.
Subject Land	Ecology only – as Guidelines require some specific terms. The Subject land is the area in which Stage 1 of the BAM has been applied to assess the biodiversity values of the land where direct and indirect impacts may occur.
Host Landholder	Landholder where physical project elements are to be located on their land.
Associated	Affected residence where an agreement is in place between an applicant and a landholder/s, as per Large-Scale Solar Energy Guideline (DPE, 2022)
Non-Associated	Affected residence where an agreement is not in place between an applicant and a landholder/s, as per Large-Scale Solar Energy Guideline (DPE, 2022)

7.2. Acts

Abbreviation	Title
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
CMS Act	<i>Coal Mine Subsidence Compensation Act 2017</i>
Conveyancing Act	<i>Conveyancing Act 1919</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FM Act	<i>Fisheries Management Act 1994</i>
Heritage Act	<i>Heritage Act 1977</i>
LLS Act	<i>Local Land Services Act 2013</i>
NP&W Act	<i>National Parks and Wildlife Act 1974</i>
NT Act	<i>Native Title Act 1993</i>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RF Act	<i>Rural Fires Act 1997</i>
WM Act	<i>Water Management Act 2000</i>
WAF	<i>Workforce Accommodation Facility</i>

7.3. Guidelines, Manuals Policies and Plans

Abbreviation	Title
CHMP	Cultural Heritage Management Plan
Cumulative Impact Guidelines	Cumulative Impact Assessment Guidelines for State Significant Projects
Engagement Guidelines	Undertaking Engagement Guidelines for State Significant Projects
Hazards SEPP	<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>
LUCRA Guide	Land Use Conflict Risk Assessment Guide
Noise Bulletin	<i>Wind Energy: Noise Assessment Bulletin for State significant wind energy development (2016)</i>
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems) 2021</i>
Regional Plan	New England Northwest Regional Plan 2036
SIA Guidelines	Social Impact Assessment Guideline: For State Significant Projects
SIA Technical Supplement	Technical Supplement: Social Impact Assessment Guideline for State Significant Projects
Scoping Report Guideline	State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines
Transport and Infrastructure SEPP	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
Visual Bulletin	<i>Wind Energy: Visual Assessment Bulletin for State significant wind energy development 2016</i>
Wind Energy Guideline	Wind Energy Guideline for State Significant Wind Energy Development

Abbreviation	Title
SEPP 33	Applying SEPP 33 Guidelines
Road Design Guide	Austrorads Guide to Road Design
Traffic Management Guide	Austrorads Guide to Traffic Management
Heritage Manual	NSW Heritage Manual – Assessing Heritage Significance

7.4. Abbreviations – General

Abbreviation	Description
ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACMA	Australian Communications and Media Authority
AEMO	Australian Energy Market Operator's
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AIA	Aviation Impact Assessment
ALA	Aircraft Landing Area
AOI	Areas of Investigation
AQI	Air Quality Index
ASC	Australian Soil Classification
ASL	Above Sea Level
AWA	Australian Wind Alliance
BAM	Biodiversity Assessment Method
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BoM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
BYD	Before You Dig
CASA	Civil Aviation Safety Authority
CIC	Critical Industry Cluster
CIV	Capital Investment Value
CEF	Community Enhancement Funds
CEP	Community Engagement Plan
CHMP	Cultural Heritage Management Plan
CMT	Culturally Modified Trees
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water

Abbreviation	Description
dB	Decibel
dB(A)	A-weighted Decibels
DCP	Development Control Plan
DP	Deposited Plan
DPE	Department of Planning and Environment (NSW)
DTM	Digital Terrain Model
EIS	Environmental Impact Statement
EL	Exploration Licence
ELF	Extremely Low Frequency
EMF	Electromagnetic Field
EMI	Electromagnetic Interference
EPI	Environmental Planning Instrument
EPL	Environmental Protection Licence
ERM	Environmental Resources Management Australia Pty Ltd
ESD	Ecologically Sustainable Development
ESO	Electricity Statement of Opportunities
FTE	Full Time Equivalent
GDE	Groundwater dependent ecosystems
GHG	Greenhouse Gas
GW	Gigawatts
ha	Hectares
IBRA	Interim Biographic Regionalisation of Australia
IEO	Index of Education and Occupation
ISRAD	Index of Relative Socio-economic Advantage and Disadvantage
ISRD	Index of Relative Socio-economic Disadvantage
ICNIRP	International Commission on Non-Ionizing Radiation Protection
KA	Kandosols
km	Kilometre
Km/h	Kilometres per hour
KUn	Kurosols - natric
kV	Kilovolt
LEP	Local Environmental Plan
LGA	Local Government Area
LGC	Large-scale Generation Certificate
LRET	Large-scale Renewable Energy Target
LSC	Land and Soil Capability

Abbreviation	Description
LSPS	Local Strategic Planning Statement
LVIA	Landscape Visual Impact Assessment
m	Metres
MNES	Matters of National Environmental Significance
MVA	Mega Volt Ampere
MW	Megawatt
MWh	Megawatt hour
NEM	National Electricity Market
NIA	Noise Impact Assessment
NM	Nautical Miles
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NTV	Native Title Vision
O&M	Operation and Maintenance
OSOM	Oversize and Overmass
PAD	Potential archaeological deposits
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
PMST	Protected Matters Search Tool
PPA	Power Purchase Agreement
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	NSW Rural Fire Service
Roadmap	NSW Electricity Infrastructure Roadmap
RU	Rudosols
SDG	Sustainable Development Goals
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Index for Areas
SEPP	State Environmental Planning Policy
SHI	NSW State Heritage Inventory
SA	Statistical Area
SAT	Spot Assessment Technique
SIA	Social Impact Assessment
SO	Sodosols
SoHI	Statement of Heritage Impact
SSD	State Significant Development

Abbreviation	Description
SVTM	State Vegetation Type Map
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Communities
TTIA	Traffic and Transport Impact Assessment
Transmission Strategy	NSW Transmission Infrastructure Strategy
UCL	Urban Centres and Localities
V	Volts
VIS	Vegetation Information System
VPA	Voluntary Planning Agreement
WHO	World Health Organisation
WSP	Water Sharing Plan
WTG	Wind turbine generator
ZVI	Zone of Visual Influence

8. REFERENCES

- .id Community. (2022, December 20). *Cabonne Council*. Retrieved from Central West Regional Libraries: <https://economy.id.com.au/armidale>
- ABS. (2021). *2016 Census Community Profiles*. Retrieved from Australian Bureau of Statistics: https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/communityprofile/036?opendocument
- ABS. (2023). *Socio-Economic Indexes for Areas (SEIFA), Australia*. Retrieved from <https://www.abs.gov.au/statistics/people/people-and-communities/socio-economic-indexes-areas-seifa-australia/latest-release#data-downloads>
- AEMO. (2021). *Draft 2022 Integrated System Plan: December 2021*. Australian Energy Market Operator. Retrieved from <https://aemo.com.au/-/media/files/major-publications/isp/2022/draft-2022-integrated-system-plan.pdf?la=en>
- AEMO. (2021). *The National Electricity Market*. Australian Energy Market Operator.
- AEMO. (2022). *2022 Integrated System Plan*. Australian Energy Market Operator. Retrieved from <https://aemo.com.au/-/media/files/major-publications/isp/2020/final-2020-integrated-system-plan.pdf?la=en&hash=6BCC72F9535B8E5715216F8ECDB4451C>
- AEMO. (2022a). *2022 Electricity Statement of Opportunities: A report for the National Electricity Market*.
- AEMO. (2022a). *2022 Integrated Systems Plan For the National Electricity Market*. Australian Energy Market Operator.
- AEMO. (2022b). *2022 Electricity Statement of Opportunities: A report for the National Electricity Market*.
- AEMO. (2022b). *2022 Integrated Systems Plan For the National Electricity Market*. Australian Energy Market Operator.
- AGS. (2007). *Guidelines for Landslide Risk Management 2007*
- Australian Energy Regulator. (2020). *State of the Energy Market 2020*. Melbourne: Australian Competition and Consumer Commission 2020.
- Australian Energy Regulator. (2021). *State of the Energy Market 2021*. Australian Competition and Consumer Commission.
- Australian Government. (2022). *Australia submits new emissions target to UNFCCC*. Retrieved from <https://www.industry.gov.au/news/australia-submits-new-emissions-target-to-unfccc>
- Austroroads. (2020). *Guide to Traffic Management*.
- Austroroads. (2022). *Austroroads Guide to Road Design*.
- AusWind. (2005). *Wind Farms and Birds: Interim Standards for Risk Assessment*. Australian Wind Energy Association Report.
- AWA. (2019). *Building Stronger Communities: Wind's Growing Role in Regional Australia (Second Edition)*. Australian Wind Alliance.
- BYD. (2022, 12 12). Retrieved from Before You Dig: <https://www.byda.com.au/>
- CEC. (2018). *Best Practice Guidelines for Implementation of Wind Energy Projects in Australia*. Clean Energy Council. Retrieved from <https://assets.cleanenergycouncil.org.au/documents/advocacy-initiatives/community-engagement/wind-best-practice-implementation-guidelines.pdf>
- CEC. (2018). *Best Practise Guidelines for Implementation of Wind Energy Projects in Australia*.
- CEC. (2018). *Community Engagement Guidelines - For the Australian Wind Industry*.
- CEC. (2018). *Community Engagement Guidelines for Building Powerlines for Renewable Developments - A guide for proponents, landholders and communities*.
- Centre for Invasive Species Solutions. (2021). *Weeds of National Significance (WONS)*. Retrieved December 15, 2022, from Weeds Australia: <https://weeds.org.au/weeds-profiles/>
- CER. (2018). *Large-scale Renewable Energy Target*. Retrieved from Clean Energy Regulator: <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/How-the-scheme-works/Large-scale-Renewable-Energy-Target>

- CER. (2020). *Large-scale Renewable Energy Target market data*. Clean Energy Regulator. Retrieved from <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data#progress>
- Charman, P. E. (2007). *Soils : their properties and management : a soil conservation handbook for New South Wales 2nd edition*.
- Clean Energy Regulator. (2022, November 15). *Large-scale Renewable Energy Target market data*. Retrieved from Clean Energy Regulator: <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target/Large-scale-Renewable-Energy-Target-market-data#progress>
- Commonwealth Bureau of Meteorology. (2022). *Groundwater Dependent Ecosystems Atlas*. Retrieved November 29, 2022, from <http://www.bom.gov.au/water/groundwater/gde/>
- CSIRO. (2021). *CSIRO report confirms renewables still cheapest new build power in Australia*. Retrieved from <https://www.csiro.au/en/news/news-releases/2021/csiro-report-confirms-renewables-still-cheapest-new-build-power-in-australia>
- CSIRO. (2022). *Atlas of Living Australia*. Retrieved November 28, 2022, from <https://www.ala.org.au/>
- DCCEEW. (2022, November 2). *Australian Energy Statistics, Table O Electricity generation by fuel type 2020-21 and 2021*. Retrieved from <https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2020-21-and-2021>
- DCCEEW. (2022a). *Protected Matters Search Tool*. Retrieved November 29, 2022, from <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>
- DCCEEW. (2022b). *Species Profile and Threats Database*. Retrieved December 19, 2022, from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>
- DECCW. (2010a). *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW*.
- DECCW. (2010b). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
- DECCW. (2010b). *Code of Practice for archaeological investigation of Aboriginal Objects in New South Wales*.
- DECCW. (2010c). *Aboriginal cultural heritage consultation requirements for proponents 2010*.
- Department of Industry, Science, Energy and Resources. (2021). *Australian Energy Statistics, Table O Electricity generation by fuel type 2019-20 and 2020*. Retrieved from [energy.gov.au: https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2019-20-and-2020](https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2019-20-and-2020)
- Department of the Environment. (2013). *Matters of National Environmental Significance: Significant Impact Guidelines 1.1*. Canberra: Commonwealth of Australia.
- DoP. (2011). *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33*. Department of Planning. Retrieved from <https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/hazardous-and-offensive-development-application-guidelines-applying-sepp-33-2011-01.pdf?la=en>
- DPE. (2017). *Central West and Orana Regional Plan 2036*. NSW Department of Planning and Environment.
- DPE. (2017, April). *Macquarie-Bogan*. Retrieved from Water in New South Wales: <https://www.industry.nsw.gov.au/water/basins-catchments/snapshots/macquarie-bogan#:~:text=Catchment%20area,the%20Barwon%20River%20near%20Brewarrina>.
- DPE. (2018). *NSW Transmission Infrastructure Strategy*. Department of Planning and Environment. Retrieved from <https://www.energy.nsw.gov.au/media/1431/download>
- DPE. (2018). *NSW Transmission Infrastructure Strategy*. Department of Planning and Environment.
- DPE. (2021a). *Rural NSW air quality monitoring network*. Retrieved from <https://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/regional-and-rural-nsw/rural-monitoring-stations>
- DPE. (2021b). *Draft Large-Scale Solar Energy Guideline*.
- DPE. (2022, November 2). *Air quality monitoring station*. Retrieved from Air quality concentration data - updated hourly: <https://www.dpie.nsw.gov.au/air-quality/air-quality-concentration-data-updated-hourly>
- DPE. (2022). *Large-Scale Solar Energy Guidelines*.
- DPI. (2011). *Land Use Conflict Risk Assessment Guide*.

- DPIE. (2016a). *Wind Energy Guideline for State Significant Wind Energy Development*. Department of Planning, Industry and Environment.
- DPIE. (2016b). *Wind Energy: Visual Assessment Bulletin for State Significant Wind Energy Development*. Department of Planning, Industry and Environment.
- DPIE. (2016c). *Wind Energy: Noise Assessment Bulletin for State Significant Wind Energy Development*. Department of Planning, Industry and Environment.
- DPIE. (2019). *NSW Electricity Strategy*. Department of Planning, Industry and Environment. Retrieved from <https://www.energy.nsw.gov.au/media/1926/download>
- DPIE. (2019a). *NSW Electricity Strategy*. NSW Department of Planning, Industry and Environment.
- DPIE. (2020a). *Net Zero Plan Stage 1: 2020-2030*. Department of Planning, Industry and Environment. Retrieved from <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/net-zero-plan-2020-2030-200057.pdf?la=en&hash=D65AA226F83B8113382956470EF649A31C74AAA7>
- DPIE. (2020a). *Net Zero Plan Stage 1: 2020-2030*. Parramatta: Environment, Energy and Science.
- DPIE. (2020b). *NSW electricity Infrastructure Roadmap*. Department of Planning, Industry and Environment. Retrieved from <https://www.energy.nsw.gov.au/sites/default/files/2020-12/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Detailed%20Report.pdf>
- DPIE. (2020d). *NSW Electricity Infrastructure Roadmap*. NSW Department of Planning, Industry and Environment.
- DPIE. (2021). *Net Zero Plan Stage 1: 2020-30 Implementation Update*.
- DPIE. (2021a). *State Significant Development Guidelines - Preparing a Scoping Report: Appendix A to the State Significant Development Guidelines*. Department of Planning, Industry and Environment.
- DPIE. (2021b). *Social Impact Assessment Guideline for State Significant Projects*. Department of Planning, Industry and Environment.
- DPIE. (2021c). *Cumulative Impact Assessment Guidelines for State Significant Projects*. Department of Planning, Industry and Environment.
- DPIE. (2021d). *Undertaking Engagement Guidelines for State Significant Projects*. Department of Planning, Industry and Environment.
- DPIE. (2021e). *Social Impact Assessment Guideline - For State Significant Projects*.
- DPIE. (2021e). *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects*. Department of Planning, Industry and Environment.
- DPIE. (2021f). *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects*. Department of Planning, Industry and Environment.
- DRC. (2020). *Dubbo Regional Council Local Strategic Planning Statement*. Dubbo Regional Council.
- Dubbo Regional Council. (2020). *Dubbo Regional Local Strategic Planning Statement*. Dubbo, NSW 2830: Dubbo Regional Council. Retrieved from https://www.narromine.nsw.gov.au/_media_downloads/Narromine%20Shire%20LSPS.pdf
- Energy Corporation of NSW. (2022). *Central West Orana Renewable Energy Zone Project Overview*. NSW Government. Retrieved from <https://www.energy.nsw.gov.au/sites/default/files/2022-02/february-2022-cwo-rez-project-overview.pdf>
- Energy NSW. (2021). *Renewable Energy Zones*. Retrieved from NSW Government: <https://www.energy.nsw.gov.au/renewables/renewable-energy-zones>
- EPA SA. (2009). *Wind Farms Environmental Noise Guidelines*. Adelaide: Environment Protection Authority South Australia.
- Hazelton, P. a. (2007). *Interpreting Soil Test Results – What do all the numbers mean?*.
- International Association of Public Participation. (2018). *IAP2 Spectrum of Public Participation*.
- Isbell. (1997). *Concepts and Rationale of the Australian Soil Classification*. CSIRO Publishing.
- Isbell, N. C. (2016). *The Australian Soil Classification*. CSIRO PUBLISHING.
- Landcom. (2004). *Managing Urban Stormwater: Soils and Construction - Volume 1, 4th Edition*. NSW: Landcom.
- Lane, T. H. (2014). *Best Practice Community Engagement in Wind Development*.
- Nature Advisory. (2021). *Bird and Bat Risk Assessment*. Hawthorn East, Victoria: Nature Advisory.

- NCST, N. C. (2009). *Australian Soil and Land Survey Field Handbook: Committee on Soil and Terrain - Third Edition*. CSIRO .
- NGH. (2021). *Draft Biodiversity Constraints Report: Kerrs Creek Wind Farm*. Unpublished.
- NGH. (2021b). *Draft Land Category Assessment: Kerrs Creek Wind Farm*. Unpublished.
- NJ McKenzie, M. G.-V. (2008). *Guidelines for surveying Soil and Land Resources*. CSIRO.
- NNTT. (2022). *Native Title Vision*. Retrieved from National Native Title Tribunal:
<http://www.nntt.gov.au/assistance/Geospatial/Pages/NTV.aspx>
- NPWS. (2003). *The Bioregions of New South Wales - their biodiversity, conservation and history*. National Parks and Wildlife Service.
- NSW DPE. (2016). *Wind Energy: Noise Bulletin For State Significant Wind Energy Development*.
- NSW DPI. (2022). Fisheries Spatial Data Portal. Retrieved December 15, 2022, from
https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal
- NSW DPI. (2022a). *NSW WeedWise*. Retrieved November 29, 2022, from
<https://weeds.dpi.nsw.gov.au/>
- NSW EPA. (2012). *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities*.
- NSW EPA. (2014). *Waste Classification Guidelines* .
- NSW EPA. (2014a). *Waste Classification Guidelines*.
- NSW EPA. (2014b). *Waste Avoidance and Resource Recovery Strategy 2014-2021* .
- NSW EPA. (2016). *Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste* .
- NSW Government . (2022). *Central-West Orana Renewable Energy Zone*. Retrieved from
<https://www.energyco.nsw.gov.au/cwo-rez#:~:text=The%20Central%2DWest%20Orana%20was,investment%20across%20the%20regional%20economy.>
- NSW Land Registry Services. (2022, September 16). *Registrar General's Guidelines - Windfarm Leases*. Retrieved from https://rg-guidelines.nswlrs.com.au/deposited_plans/lease_plans/lease_of_premises/windfarms
- NSW Rural Fire Service. (2019). *Planning for Bushfire Protection* .
- NSW Spatial Services (DCS SS), a business unit in the Department of Customer Service. (2022). *Spatial Collaboration Portal*. Retrieved November 29, 2022, from
<https://portal.spatial.nsw.gov.au/portal/apps/sites/#/homepage>
- OEH. (2011). *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in New South Wales*.
- OEH. (2011). *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW Office of Environment and Heritage*. Retrieved from
<https://www.environment.nsw.gov.au/research-and-publications/publications-search/guide-to-investigating-a>
- OEH. (2016). *NSW Climate Change Policy Framework*. Office of Environment and Heritage. Retrieved from <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf>
- OEH. (2016). *NSW Climate Change Policy Framework*. Sydney, NSW 2000: State of NSW and Office of Environment and Heritage. Retrieved from <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-climate-change-policy-framework-160618.pdf>
- Office of Environment and Heritage. (2012). *The land and soil capability assessment scheme: second approximation – A general rural land evaluation system for NSW*.
- Orange Regional Museum. (n.d). *A Short History of Orange*. Retrieved from Orange Regional Museum: <https://www.orange.nsw.gov.au/wp-content/uploads/2018/08/Short-History-of-Orange.pdf>
- Percival, Quinn and Glen. (2011). *A review of Cambrian and Ordovician stratigraphy in New South Wales, Quarterly Notes*. Geological Survey of New South Wales, September, No 137. Retrieved from https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/415948

- PoA. (2017). *Paris climate agreement: a quick guide*. Retrieved from Parliament of Australia: <https://www.pmc.gov.au/domestic-policy/taskforces-past-domestic-policy-initiatives/united-nations-framework-convention-climate-change-unfccc>
- REMLAN. (2022). *Economy, Jobs and Business Insights*. Retrieved from <https://app.remlan.com.au/dubboregionalcouncil/economy/industries/employment?state=7w29UI!E024CMm0ah2BLWEf8d40viwFbHn5MuvjMj2cNMZMocLHkoFKHBljm4iprz>
- RFS. (2015). *Guide for Bush Fire Prone Land Mapping*. NSW Rural Fire Service. Retrieved from https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0011/4412/Guideline-for-Councils-to-Bushfire-Prone-Area-Land-Mapping.pdf
- RTA. (2002). *Guide to Traffic Generating Developments*.
- Sherwin and Healy 1972. (n.d.). *Narromine 1: 250 000 geological map, Geological Survey of New South Wales*.
- Spark, W. (2022, December 19). *Climate and Average Weather Year Round in Orange*. Retrieved from <https://weatherspark.com/y/144450/Average-Weather-in-Orange-Australia-Year-Round>
- Standards Australia. (1996). *ISO 9613-2:1996 Acoustics - Attenuation of Sound during Propagation Outdoors*.
- State of New South Wales (DPE). (2022a). *NSW BioNet*. Retrieved November 29, 2022, from <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet>
- State of NSW and DPE. (2022b). *NSW SEED Portal*. Retrieved November 29, 2022, from <https://www.seed.nsw.gov.au/>
- State of NSW and DPE. (2022c). *eSPADE: NSW Soil and Land Information*. Retrieved November 29, 2022, from <https://www.environment.nsw.gov.au/eSpade2Webapp/#>
- State of NSW and DPE. (2022d). *Groundwater dependent ecosystems (GDEs)*. Retrieved December 19, 2022, from <https://water.dpie.nsw.gov.au/science-data-and-modelling/surface-water/environmental-outcomes-monitoring-and-research-program/groundwater-dependent-ecosystems>
- State of NSW and DPE. (2022e). *The Biodiversity Assessment Method 2020*. Retrieved November 29, 2022, from <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/accredited-assessors/biodiversity-assessment-method-2020>
- U.S. Energy Information Administration. (2021). *Wind explained: Where wind power is harnessed*. Retrieved from <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php>
- UNFCCC. (2021). *Glasgow Climate Pact*. United Nations Framework Convention on Climate Change. Retrieved from https://unfccc.int/sites/default/files/resource/cma3_auv_2_cover%20decision.pdf
- WHO. (2020). *What are electromagnetic fields?* Retrieved May 15, 2020, from World Health Organisation: <https://www.who.int/peh-emf/about/WhatisEMF/en/index1.html>

APPENDIX A SCOPING SUMMARY TABLE

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
Detailed	Visual and Lighting	High	Direct Cumulative Perceived	Sensitive (Receptors, townships, communities)	Likely	Yes	Specific	■ NSW Wind Energy: Visual Assessment Bulletin (DPE, 2016)	Section 6.2
Detailed	Noise and Vibration	Moderate	Direct Cumulative Perceived	Sensitive (receptors)	Likely	Yes	General	■ NSW Wind Energy: Noise Assessment Bulletin (EPA/DPE, 2016) ■ NSW Noise Policy for Industry (EPA, 2017) ■ 'Interim Construction Noise Guidelines' (DECC, 2009) ■ NSW Road Noise Policy (DECCW, 2011) ■ 'Assessing Vibration: A Technical Guideline' (DECC, 2006)	Section 6.3
Detailed	Biodiversity	High	Direct Indirect Cumulative	Sensitive (High ecological values of species / biodiversity present)	Likely	Yes	General	■ Biodiversity Conservation Act 2016 (NSW) ■ Fisheries Management Act 1994 ■ Biodiversity Assessment Method (BAM) (DPIE, 2020) ■ 'Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance' (Commonwealth of Australia, 2013)	Section 6.4

⁴ Scale of Impacts – based on the severity of the impact, the geographical location and the duration of the impact as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPIE, 2021).

⁵ Nature of Impact - type of impact, i.e., direct, indirect, cumulative, perceived, as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPIE, 2021).

⁶ Sensitivity of the receiving environment – expressed in legislation, societal values, or vulnerability to change, as detailed in Appendix C of State Significant Development Guidelines – Preparing a Scoping Report (DPIE, 2021).

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
								■ 'Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species' (various)	
Detailed	Aboriginal Heritage	Moderate	Direct Indirect Cumulative Perceived	Sensitive (Cultural values, archaeological resources)	Likely	Yes	Specific	■ 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' (OEH, 2011) ■ 'Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW' (DECCW, 2010) ■ 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010' (DECCW, 2010)	Section 6.5
Standard	Historic Heritage	Low	Direct Indirect	Sensitive (Heritage values)	Likely	No	Specific	■ 'NSW Heritage Manual – Assessing Heritage Significance' (NSW Heritage Office, 2001) ■ 'Historical Archaeology Code of Practice' (Heritage Council, 2006)	Section 6.6
Detailed	Traffic and Transport	Moderate	Direct Indirect Cumulative	Sensitive (Disturbance to other road users)	Likely	Yes	Specific	■ 'Guide to Traffic Generating Developments' (RTA, 2002) ■ 'Austroads Guide to Road Design' (various) ■ 'Austroads Guide to Traffic Management' (various)	Section 6.7

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
Detailed	Aviation	Moderate	Direct	Sensitive (Impacts to aviation and agricultural activities)	Likely	No	Specific	■ Civil Aviation Regulation 1988 ■ Civil Aviation Safety Regulations 1998 ■ 'National Airports Safeguarding Framework Guideline D: Managing Wind Turbine Risk to Aircraft' (NASAG, 2012)	Section 6.8
Detailed	Telecommunications	Moderate	Direct	Sensitive (safety)	Likely	No	General	■ 'NSW Wind Energy Guideline for State Significant Wind Development' (DPIE, 2016) ■ Australian Radio and Communications Act 1992 ■ 'The Clean Energy Council Best Practice Guidelines' (CEC, 2018)	Section 6.9
Standard	Water Resources (Flooding and hydrology)	Low	Direct Indirect	Sensitive (Local hydrology and water quality)	Likely	No	General	■ 'Guidelines for Controlled Activities on Waterfront Land' (DPI Water, 2018) ■ 'Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings' (DPI, 2003) ■ Policy & Guidelines for Fish Habitat Conservation & Management (DPI, 2013) ■ 'Managing Urban Stormwater: Soils and Construction' (Landcom, 2004) ■ 'Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales' (DECC, 2005)	Section 6.10

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
								■ Relevant Water Sharing Plans (DPI Water) ■ 'Floodplain Risk Management Guidelines' (Department of Environment and Climate Change, 2016) ■ 'Floodplain Development Manual: The management of flood liable land' (NSW Government, 2005)	
Standard	Agriculture and Land Resources	Low	Direct Indirect	Sensitive (Agricultural land use)	Likely	No	General	■ Land Use Conflict Risk Assessment Guide ■ 'Soil and Landscape Issues in Environmental Impact Assessment' (OEH, 2000) ■ 'Landslide Risk Management Guidelines' (AGS, No Date) ■ 'Site Investigations for Urban Salinity' (OEH, 2002) ■ 'Revised Large Scale Solar Guidelines' (DPE, 2022)	Section 6.11
Standard	Social and Economic	Moderate	Direct Indirect Cumulative Perceived	Sensitive (Social, environmental and economic values)	Likely	Yes	Specific	■ 'Social Impact Assessment Guideline for State Significant Projects' (DPIE, 2021b) ■ 'Technical Supplement: Social Impact Assessment Guideline for State Significant Projects' (Technical Supplement) (DPIE, 2021e)	Section 6.12 & 0

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
Standard	Hazards and Risks – Preliminary Hazard Assessment	Very Low	Direct Indirect Perceived	Sensitive (safety)	Likely	No	General	■ State Environmental Planning Policy (Resilience and Hazards) 2021 ■ Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis' and Multi-level Risk Assessment (DoP, 2011) ■ Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011) ■ Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (DoP, 2011)	Section 6.14.1
Standard	Hazards and Risks – Bushfire	Low	Direct Indirect	Sensitive (safety)	Likely	No	General	■ 'Planning for Bushfire Protection 2019 – NSW Rural Fire Service' (RFS, 2019)	Section 6.14.2
Standard	Hazards and Risks – Blade Throw	Low	Direct	Sensitive (safety)	Likely	No	General	■ Relevant international studies and standards for design of wind turbine components and blade throw risk	Section 6.14.3
Standard	Hazards and Risks – Electromagnetic Field	Low	Direct Perceived	Sensitive (safety)	Likely	No	General	■ 'International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines - for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields' (ICNIRP, 1998) ■ National Health and Medical Research Council advice	Section 6.14.4

Level of Assessment	Matter	Scale of Impact ⁴	Nature of Impact ⁵	Sensitivity of receiving environment ⁶	Mitigation Measures Required	Cumulative Impact Assessment	Engagement	Relevant government plans, policies and guidelines	Ref
Standard	Air Quality and Greenhouse Gas	Low	Direct Indirect	Sensitive (Local air quality)	Likely	No	General	■ 'National Greenhouse Accounts Factors' (Australian Government, 2021) ■ <i>NSW Climate Change Policy Framework</i> (Office of Environment and Heritage, 2016)	Section 6.15
Standard	Waste Management	Low	Direct Indirect	Sensitive (environmental values, safety)	Likely	No	General	■ 'Waste Classification Guidelines' (DECCW, 2009)	Section 6.16

APPENDIX B COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN

Note: Provided as a separate file.

APPENDIX C PRELIMINARY VISUAL IMPACT ASSESSMENT

Note: Provided as a separate file.

APPENDIX D PRELIMINARY NOISE ASSESSMENT

Note: Provided as a separate file.

APPENDIX E PRELIMINARY BIODIVERSITY ASSESSMENT

Note: Provided as a separate file.

APPENDIX F AHIMS SEARCH RESULTS

Note: Provided as a separate file.

APPENDIX G PRELIMINARY TRAFFIC AND TRANSPORT ASSESSMENT

Note: Provided as a separate file.

APPENDIX H PRELIMINARY LUCRA ASSESSMENT

Note: Provided as a separate file.

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