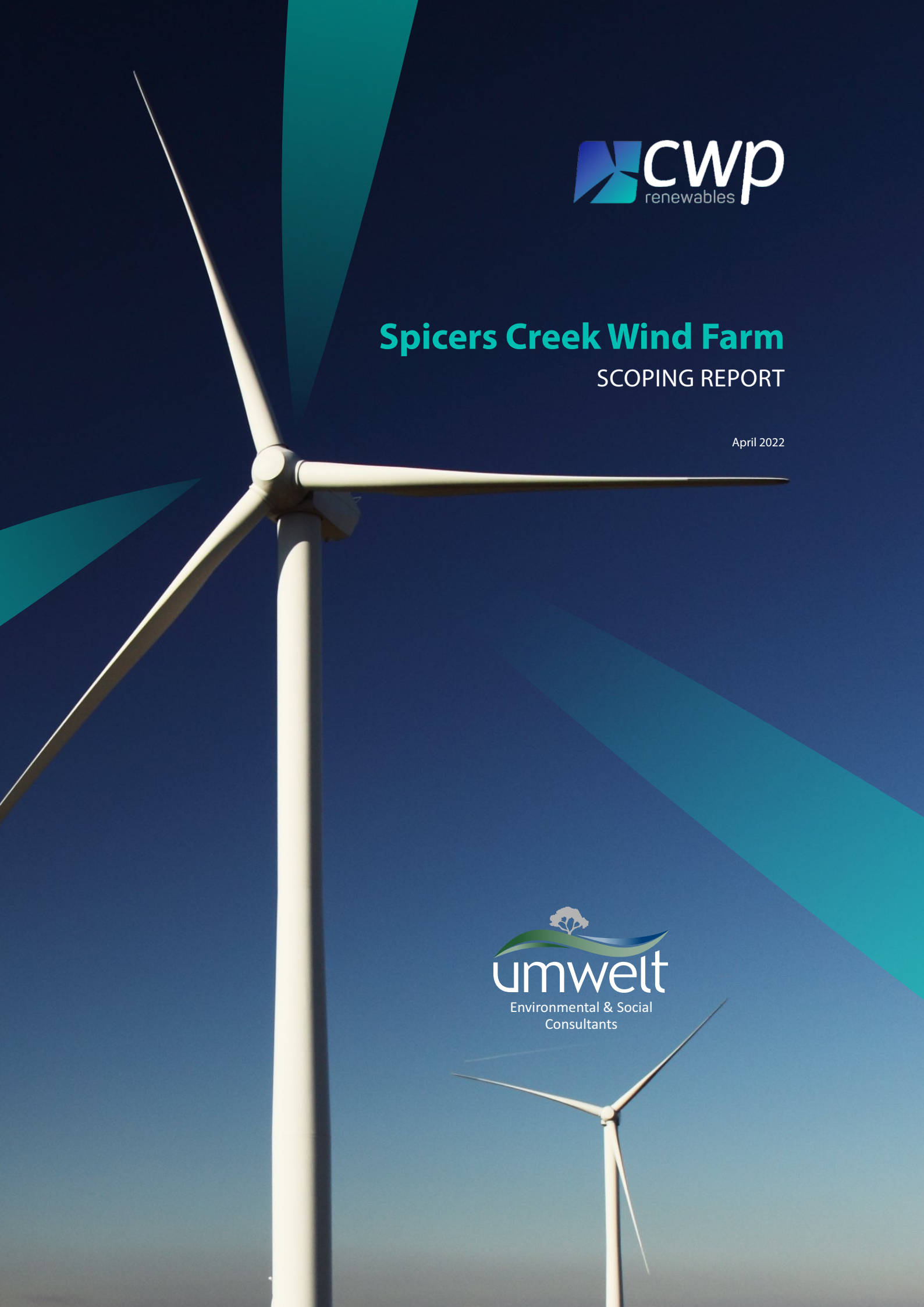

# Spicers Creek Wind Farm

## SCOPING REPORT

April 2022

umwelt
Environmental & Social
Consultants

# SPICERS CREEK WIND FARM

Scoping Report

## FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
CWP Renewables Pty Limited

| | |
|---|---|
| Project Director: | John Merrell |
| Project Manager: | Kirsty Davies |
| Report No. | 21380/R02 |
| Date: | April 2022 |

Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

***Acknowledgement of Country***

*Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.*



Document Status

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| | Name | Date | Name | Date |
| FINAL | John Merrell | 7 April 2022 | John Merrell | 7 April 2022 |

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| Abbreviation | Description |
|---|---|
| ABS | Australian Bureau of Statistics |
| ACHA | Aboriginal Cultural Heritage Assessment |
| AEMO | Australian Energy Market Operator |
| AIA | Aviation Impact Assessment |
| BAM | Biodiversity Assessment Method |
| BBUS | Bird and Bat Utilisation Survey |
| BC Act | Biodiversity Conservation Act 2016 |
| BCS | Biodiversity, Conservation and Science |
| BDAR | Biodiversity Development Assessment Report |
| BOM | Bureau of Meteorology |
| BSAL | Biophysical Strategic Agricultural Land |
| CASA | Civil Aviation Safety Authority |
| CCC | Community Consultative Committee |
| CEEC | Critically Endangered Ecological Community |
| CLM Act | Contaminated Land Management Act 1997 |
| Crown Land Act | Crown Land Management Act 2016 |
| CWO REZ | Central-West Orana Renewable Energy Zone |
| CWOR Plan | Central West and Orana Regional Plan 2036 |
| CWPR | CWP Renewables Pty Limited |
| DAWE | Department of Agriculture, Water and Environment |
| dB(A) | A-weighted noise or sound power level in decibels |
| DC | Direct Current |
| DPE | Department of Planning and Environment [current] |
| DPIE | Department of Planning, Industry and Environment [former] |
| EEAP | NSW Energy Efficiency Action Plan |
| EEC | Endangered Ecological Community |
| EIS | Environmental Impact Statement |
| EL | Exploration License |
| EMF | Electromagnetic Field |
| EMI | Electromagnetic Interference |
| EnergyCo | Energy Corporation of NSW |
| EP&A Act | NSW Environmental Planning and Assessment Act 1979 |
| EPBC Act | Environment Protection and Biodiversity Conservation Act 1999 |
| EPL | Environment Protection Licence |
| GHG | Greenhouse Gas |
| GIS | Geographic Information System |

| Abbreviation | Description |
|---|---|
| GW | Gigawatts |
| Ha | Hectares |
| HHA | Historical Heritage Assessment |
| IAIA | International Association for Impact Assessment |
| KV | Kilovolt |
| LALC | Local Aboriginal Land Council |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| LVIA | Landscape and Visual Impact Assessment |
| MNES | Matter of National Environmental Significance |
| MP | Member of Parliament |
| MW | Megawatt |
| MWh | Megawatt Hour |
| MWRC | Mid-Western Regional Council |
| MWTT | Multiple Wind Turbine Tool |
| NDC | Nationally Determined Contributions |
| NEM | National Electricity Market |
| NPfI | Noise Policy for Industry 2017 |
| NSW | New South Wales |
| NSW EPA | NSW Environment Protection Authority |
| NSW REAP | NSW Renewable Energy Action Plan |
| OSOM | Over-size, over-mass vehicle |
| PCT | Plant Community Type |
| POEO Act | Protection of the Environment Operations Act 1997 |
| RAAF | Royal Australian Air Force |
| REZ | Renewable Energy Zone |
| RFS | NSW Rural Fire Service |
| Roads Act | Roads Act 1993 |
| SAT | Spot Assessment Technique |
| SEARs | Secretary's Environmental Assessment Requirements |
| SEP | Stakeholder Engagement Plan |
| SIA | Social Impact Assessment |
| SISR | Social Impact Scoping Report |
| SSD | State Significant Development |
| TBDC | Threatened Biodiversity Data Collection |
| TEC | Threatened Ecological Community |

| Abbreviation | Description |
|---|---|
| TfNSW | Transport for NSW |
| TTIA | Traffic and Transport Impact Assessment |
| Umwelt | Umwelt (Australia) Pty Ltd |
| VPA | Voluntary Planning Agreement |
| WM Act | Water Management Act 2000 |
| WSIA | Water and Soils Impact Assessment |
| WSP | Water Sharing Plan |
| WTG | Wind Turbine |

# 1.0 Introduction

CWP Renewables Pty Ltd (CWPR) propose to develop the Spicers Creek Wind Farm (the Project) to provide a reliable and affordable source of energy for the people of NSW and contribute to reducing greenhouse gas (GHG) emissions associated with energy generation. The Project is located approximately 25 km north west of Gulgong and 30 km north east of Wellington in the Central West Orana region of New South Wales (NSW), within the Dubbo Regional and Warrumbungle Shire Local Government Areas (LGA) (refer to **Figure 1.1**).

The NSW Government's Electricity Strategy and Electricity Infrastructure Roadmap (Electricity Strategy) set out a plan to deliver the state's first five Renewable Energy Zones (REZs). These REZs will play a vital role in delivering affordable, reliable energy generation to help replace the State's existing power stations as they come to their scheduled end of operational life. The NSW Government is in the development phase for the State's first REZ in the Central-West Orana region. The Central-West Orana Renewable Energy Zone (CWO REZ) was formally declared on 5 November 2021.

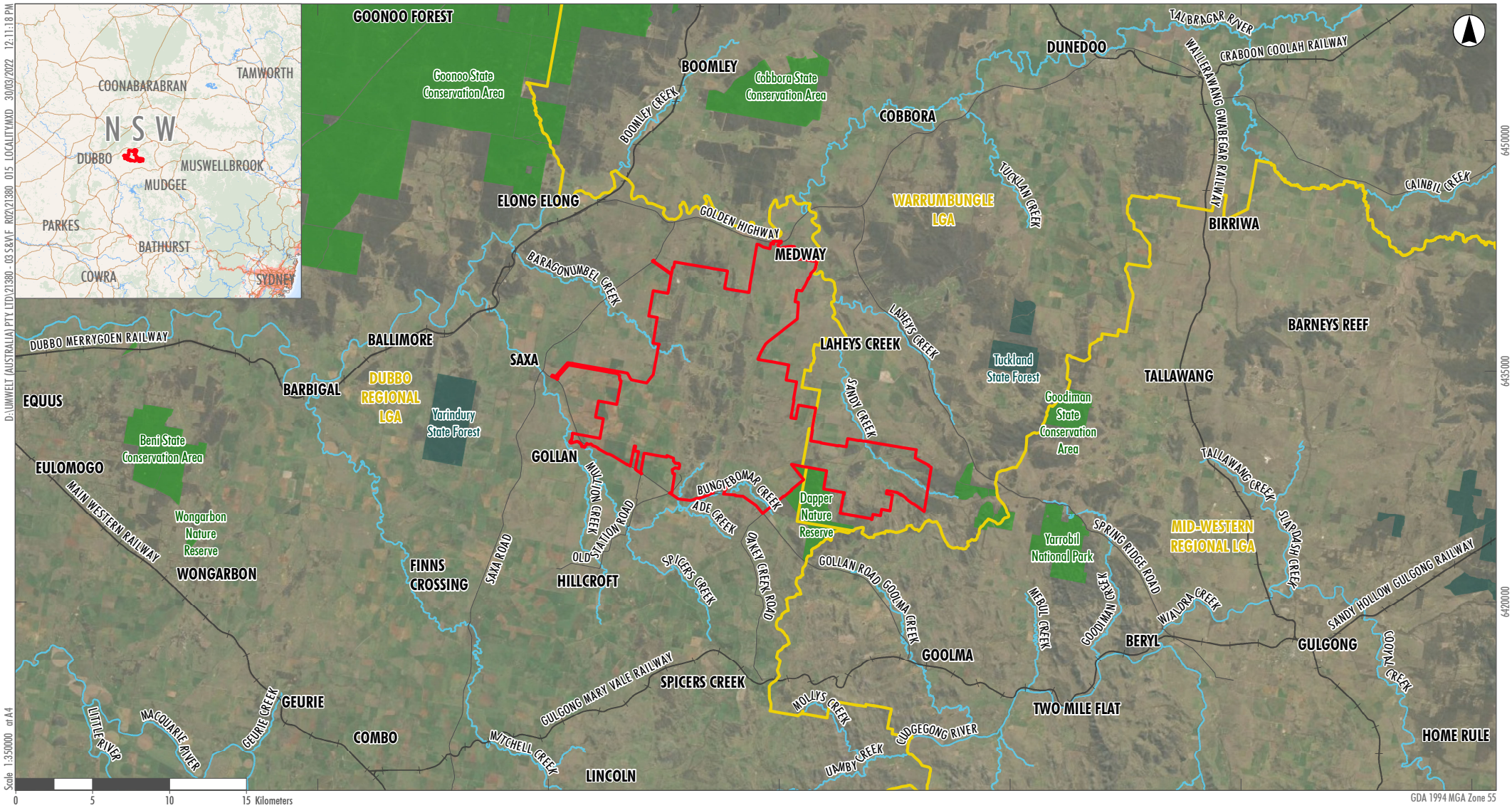
The Project is located within the CWO REZ which is expected to play a vital role in delivering affordable energy to the community across NSW (NSW Government 2022). The Project is therefore strategically located in an area identified as suitable for renewable energy projects and will assist the NSW government in delivering on the objectives for the CWO REZ.

The Project proposes the installation, operation, maintenance and decommissioning of up to 122 wind turbine generators (WTGs), battery storage facilities and associated infrastructure, ancillary infrastructure and temporary facilities. The associated infrastructure proposed includes operation and maintenance buildings, roads, civil works and electrical infrastructure necessary to connect to the electricity transmission network. A more detailed description of the Project is provided in **Section 3.0**.

The Project is planned to have an installed generating capacity of approximately 730 megawatts (MW), with the potential to power approximately 300,000 homes once fully operational. The inclusion of the battery storage will allow for the Project to store and dispatch scheduled and reliable energy to and from the Project and the National Electricity Market (NEM) at the times it is needed.

The Project has been conceived and developed through a comprehensive process that incorporates community and stakeholder feedback to maximise positive social, economic and environmental outcomes while minimising adverse impacts and unintended consequences. CWPR has already undertaken extensive engagement with residents in the area and other stakeholders and this will continue throughout the project planning and assessment process.

The Project is State Significant Development (SSD) as defined under *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and will require development consent under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).




Legend

- Project Site
- Local Government Area
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 1.1
Project Locality

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

## 1.1 Project Objectives

The objectives of the Project are to:

- contribute to the achievement of CWPR's goal which is to improve the environment for current and future generations by leading Australia's transition to renewable energy
- establish a reliable and affordable source of energy for NSW customers and help reduce greenhouse gas (GHG) emissions
- positively contribute to State and Commonwealth renewable energy goals
- align with the NSW Government's emissions reduction targets and electricity strategy
- contribute to achieving the target of 3 GW of renewable energy generation from the CWO REZ
- create employment opportunities during Project construction and operations
- maintain partnerships with stakeholders and the community to minimise environmental and social impacts and maximise benefits
- ensure that the highest safety and environmental standards are met during construction and operation of the Project.

## 1.2 The Proponent

The Proponent for the Project is Spicers Creek Wind Farm Pty Ltd, a wholly owned subsidiary of CWPR. CWPR develops, operates and owns renewable energy assets in Australia. The company began as a joint-venture between renewable energy developers Continental Wind Partners and Wind Prospect Group. In 2018, CWPR partnered with global private markets investment manager Partners Group to form the Grassroots Renewable Energy Trust, with the ambition to create the largest renewable energy portfolio in Australia.

In 2020 CWPR and Grassroots Renewable Energy Trust merged, forming an integrated renewables company under the CWPR name.

CWPR currently generates enough electricity to power approximately 200,000 homes. CWPR aims to more than double its current portfolio to more than 2 gigawatts (GW) within the next five years.

**Table 1.1** presents the key details of the Proponent.

**Table 1.1 Proponent Details**

| Requirement | Details |
|---|---|
| **Full Name/s** | Spicers Creek Wind Farm Pty Ltd |
| **Postal Address** | PO Box 1708, Newcastle NSW 2300 |
| **Street Address (Project Site)** | Sweeneys Lane, off Golden Highway, Elong Elong NSW 2831 |
| **ABN** | 83 648 166 269 |
| **Nominated Contact** | Trish McDonald |

A schedule of lands for the Project Site is provided in **Appendix 1**.

## 1.3 Purpose of this Document

As a SSD, an Environmental Impact Statement (EIS) will be prepared to accompany the development application for the Project. This Scoping Report has been prepared to provide a description of the Project to key regulatory agencies and to identify the key environmental and social matters of relevance to the Project to inform the preparation of the Secretary's Environmental Assessment Requirements (SEARs) for the EIS. The SEARs will identify specific assessment considerations relevant to the Project that must be addressed in the EIS.

## 1.4 Structure of this Report

This document has been prepared in consideration of the following guidelines:

- *NSW Wind Energy Guideline for State significant wind energy development* (DPE, 2016a), including:
    - *Wind Energy: Visual Assessment Bulletin*
    - *Wind Energy: Noise Assessment Bulletin*
- *State significant development guidelines – preparing a scoping report* (Appendix A to the state significant development guidelines), July 2021 (DPIE, 2021a) and referred to hereafter as the DPE Scoping Guideline
- *Social Impact Assessment Guideline for State Significant Projects*, July 2021 (DPIE, 2021c)
- *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2021d) (Engagement Guidelines).

This report has the following sections:

- **Section 1.0** introduces the Project, the Proponent and provides an outline of the structure of the document.
- **Section 2.0** outlines the strategic context for the Project, including the justification for the Project, a summary of the locality in which the Project is undertaken and an overview of the environmental and social context.
- **Section 3.0** contains a description of the Project, including an overview of alternatives considered.
- **Section 4.0** summarises the relevant State and Commonwealth statutory context applicable to the approval process for the Project.
- **Section 5.0** describes the stakeholder engagement program for the Project and identifies the environmental and social matters identified during the scoping phase for further consideration in the EIS.

- **Section 6.0** contains an analysis of the environmental and social matters relevant to the Project and the assessments proposed to be completed as part of the EIS.
- **Section 7.0** References.

# 2.0 Strategic Context

## 2.1 Project Justification

The development of renewable energy projects aligns with both Commonwealth and NSW commitments to increase renewable energy generation and reduce carbon emissions across the NSW and Australian economies.

The State's five existing coal fired power stations will progressively close from 2022-23. These power stations currently provide around three quarters of NSW's electricity supply and two thirds of the firm capacity required during summer heat waves. The NSW Government is taking action to lead investment in new renewable generation to ensure an orderly transition away from coal (Energy Corporation, 2022).

The proposed location of this Project is within the CWO REZ, being an area identified by the NSW government to be targeted for renewable energy development. The NSW Government has indicated that REZs will play a vital role in delivering affordable energy generation to help prepare the State for the expected retirement of thermal power stations over the coming decades.

The NSW Government has also indicated that the REZs are expected to unlock a significant pipeline of large-scale renewable energy and storage projects, while supporting private sector investment and jobs throughout regions. The NSW Government expects the CWO REZ to bring up to $5.2 billion in private investment to the Central-West Orana region by 2030. At its peak, the CWO REZ is expected to support around 3,900 construction jobs in the region.

The Project will contribute to meeting these Commonwealth and NSW Government objectives and will provide significant renewable energy generation capacity within an area planned for renewable energy development by the NSW Government.

Further, the Project will contribute capital investment, generate jobs during the construction and operational phases, provide indirect benefits to local services throughout the life of the Project, deliver additional income to associated landowners, and provide benefits to the local community through the implementation of a proposed community benefit fund.

Further details regarding Project benefits are provided in the following section.

### 2.1.1 Strategic and Regional Context

#### 2.1.1.1 Commonwealth Policy

Australia is one of the 192 countries from around the world signed to the international climate change agreement (The Paris Agreement). The Paris Agreement aims to:

- hold the increase in the global average temperature to below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels
- increase the ability (of nations) to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production

- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.

The Paris Agreement seeks to meet its objectives by developing programs and mechanisms that:

- require participating Parties to prepare and communicate greenhouse gas mitigation contributions. Parties were expected to set mitigation targets for 2020, and then develop new targets every five years. Each successive target is expected to represent a larger mitigation effort than the previous target
- promote climate change resilience and adaptation
- provide mitigation and adaptation funding to developing countries
- foster mitigation and adaptation technology transfer between Parties
- require participating Parties to report progress towards their mitigation contributions on an annual basis.

Australia signed The Paris Agreement on 22 April 2016. The obligations under The Paris Agreement are driving national greenhouse gas policy between 2020 and 2030. Australia's commitment to The Paris Agreement includes reducing greenhouse gas emissions by 26% to 28% on 2005 levels by 2030 (Commonwealth of Australia, 2021). Australia's Nationally Determined Contribution (NDC) prescribes an unconditional economy-wide target to reduce greenhouse gas emissions, and states that future policies will target emissions generated from energy use, industrial processes, agriculture, land-use, land-use change and forestry and waste.

The Project, as a large-scale renewable energy project, will contribute to achieving Australia's greenhouse gas emission reduction targets through reducing emissions from energy production in NSW.

#### 2.1.1.2 NSW Policy

**NSW Climate Change Policy Framework**

The NSW Government has developed its NSW Climate Change Policy Framework, which aims to deliver net zero emissions by 2050, and a State that is more resilient and responsive to climate change (NSW Government, 2016).

Under the NSW Climate Change Policy Framework, NSW has committed to both follow the Paris Agreement and to work to complement national action.

The policy framework is being delivered through:

- the Climate Change Fund
- developing an economic appraisal methodology to value greenhouse gas emissions mitigation
- embedding climate change mitigation and adaptation across government operations
- building on NSW's expansion of renewable energy
- developing action plans and strategies.

In 2013 the NSW Government released the Renewable Energy Action Plan (REAP) and the NSW Energy Efficiency Action Plan (EEAP).

The REAP aimed to increase the generation, storage and use of renewable energy in NSW, at least cost to customers and with maximum benefits to NSW. The three core goals of the REAP were to attract renewable energy investment, build community support for renewable energy and attract and grow expertise in renewable energy. Based on the implementation of the REAP, renewable energy is now well-placed to play a leading role in meeting NSW's energy needs into the future.

**NSW Electricity Strategy and Electricity Infrastructure Roadmap**

Current and future electricity development in NSW is supported though the NSW Government's Electricity Strategy (NSW Government, 2020a) and the NSW Electricity Infrastructure Roadmap which builds on the framework set out in the Electricity Strategy taking an integrated approach to all demand and supply options, including action by households and small businesses, demand management and investment in large-scale, affordable and reliable generation. The Project is consistent with the objectives of the Electricity Strategy and Infrastructure Road Map, in aiming to provide large-scale renewable electricity generation that is affordable and reliable.

The NSW Electricity Strategy is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The NSW Government's Electricity Strategy and Electricity Infrastructure Roadmap set out a plan to deliver the state's first five REZs in the Central-West Orana, New England, South-West, Hunter-Central Coast and Illawarra regions. This builds on the NSW Transmission Infrastructure Strategy and supports the implementation of the Australian Energy Market Operator's Integrated System Plan (NSW Government 2022). The NSW Government expects that REZs will deliver multiple benefits to NSW, including:

- more reliable energy from significant amounts of new energy supply
- energy bill savings from reduced wholesale electricity costs
- emissions reduction from a cleaner energy sector
- community partnership from strategic planning and best practice engagement and benefit sharing.

The Energy Corporation of NSW (EnergyCo) is the NSW-Government-controlled statutory authority that will lead the delivery of NSW REZs. EnergyCo will coordinate REZ transmission, generation, firming and storage projects to deliver efficient, timely and coordinated investment. EnergyCo has been appointed as the Infrastructure Planner for the CWO REZ and will lead development of the CWO REZ.

The Project Site is located within the CWO REZ as identified within the NSW Government's Electricity Strategy (NSW Government, 2020) (refer to **Figure 2.1**). A target of up to 3 GW of renewable energy generation has been assigned to the CWO REZ (NSW Government, 2020b). The transmission corridor being developed for the CWO REZ could create capacity to deliver up to 11 GW of renewable energy from the zone (Parkinson, 2022). The Project, if approved, will make a meaningful contribution to achievement of this target.

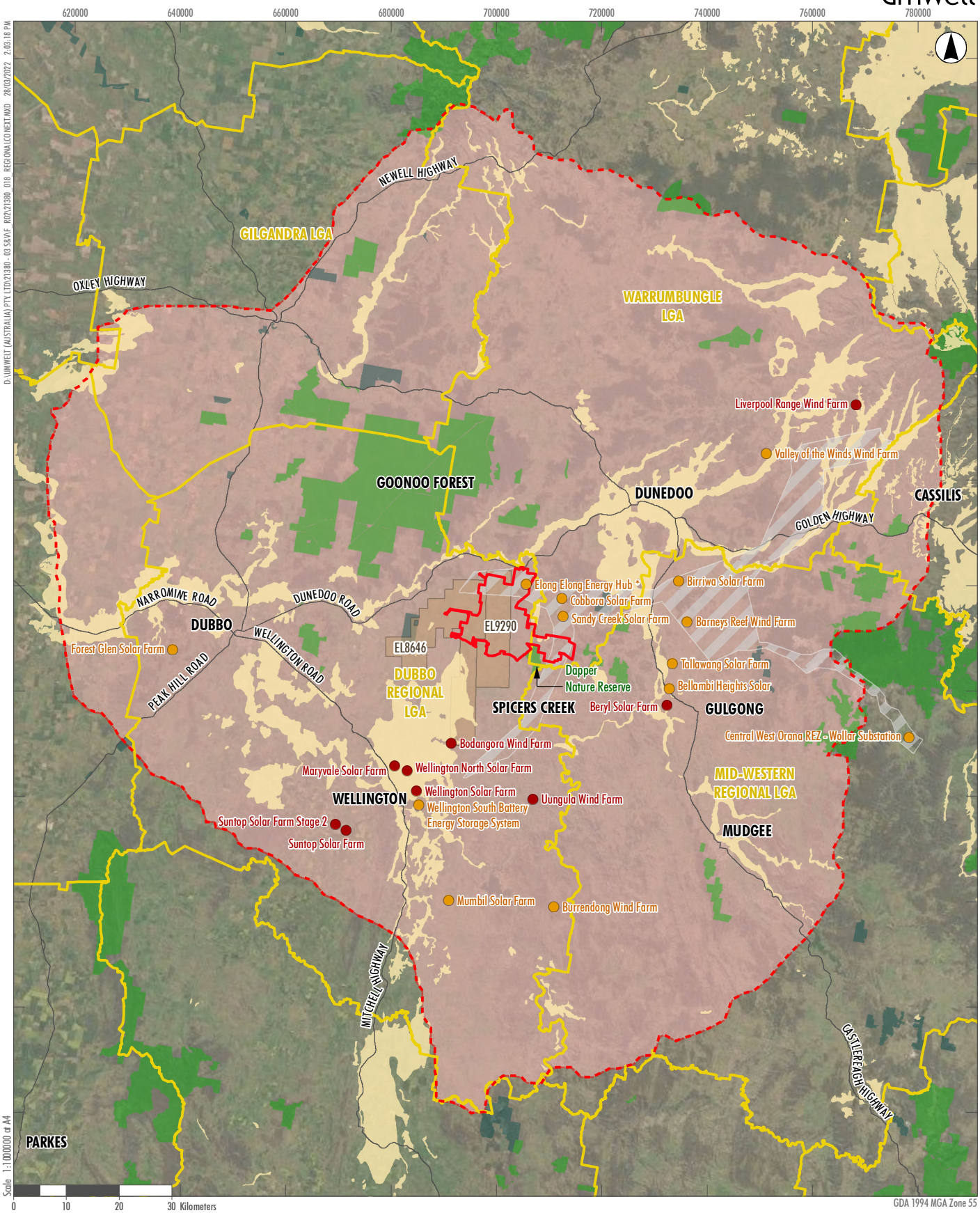
The Project Site is mapped as an area with high wind renewable energy source potential under the NSW REAP. The Renewable Energy Resource Mapping (DPIE, 2019) is reproduced in **Figure 2.2** which indicates the existing wind resources applicable to the Project Site. This high wind resource makes the location suitable for a productive wind farm.

As shown on **Figure 2.2**, there are a number of approved and proposed renewable energy projects surrounding the Project Site within the CWO REZ. **Table 2.1** provides an overview of renewable energy projects surrounding the Project Site.

**Table 2.1 Renewable Energy Projects Surrounding the Project Site**

| Project | Status | Generation Capacity (MW) | Potential Construction Start Date |
|---|---|---|---|
| Beryl Solar Farm | Approved | 87 | Operating |
| Bodangora Wind Farm | Approved | 113 | Operating |
| Liverpool Range Wind Farm | Approved | 960 | Unknown |
| Maryvale Solar Farm | Approved | 125 | Unknown |
| Suntop Solar Farm | Approved | 189 | Unknown |
| Suntop Solar Farm Stage 2 | Approved | 170 | Unknown |
| Uungula Wind Farm* | Approved | 400 | 2022 |
| Wellington Solar Farm | Approved | 174 | 2019 |
| Wellington North Solar Farm | Approved | 300 | Unknown |
| Barneys Reef Wind Farm | Proposed | 350 | Unknown |
| Bellambi Heights Solar | Proposed | 200 | Unknown |
| Birriwa Solar Farm | Proposed | 600 | Unknown |
| Burrendong Wind Farm | Proposed | 400 | Unknown |
| Central West Orana REZ - Transmission Line and associated Elong Elong Energy Hub | Proposed | N/A | 2023 |
| Central West Orana REZ - Wollar Substation | Proposed | N/A | 2023 |
| Cobbora Solar Farm | Proposed | 700 | 2023 |
| Forest Glen Solar Farm | Proposed | 110 | 2022 |
| Mumbil Solar Farm | Proposed | 150 | Unknown |
| Sandy Creek Solar Farm | Proposed | 840 | Unknown |
| Tallawang Solar Farm | Proposed | 500 | Unknown |
| Valley of the Winds Wind Farm | Proposed | 800 | Unknown |
| Wellington South Battery Energy Storage System | Proposed | N/A | 2023 |

* CWPR owned




Legend

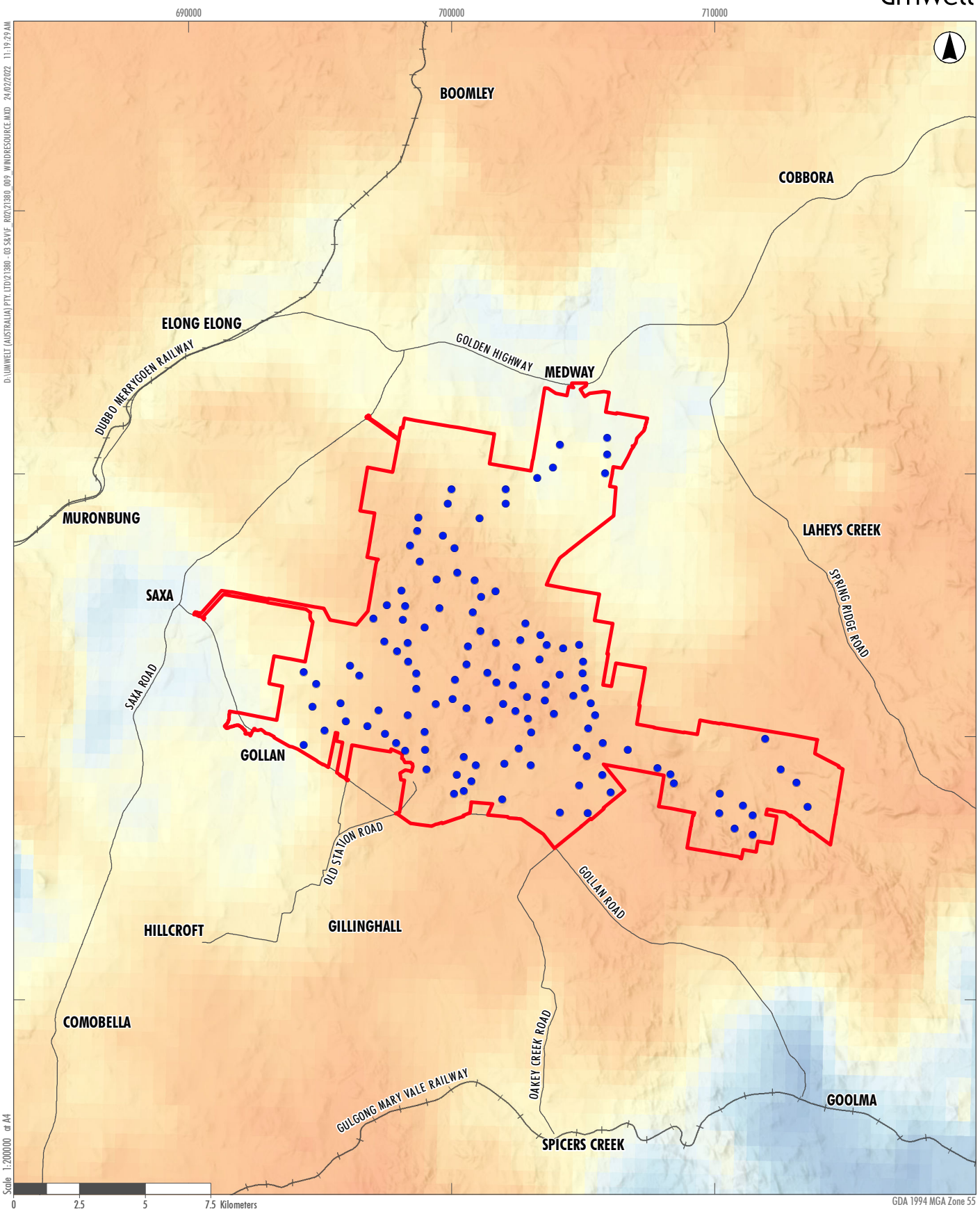
- Project Site
- Central-West Orana Renewable Energy Zone
- Indicative REZ Transmission Corridor
- Approved Renewable Project
- Proposed Renewable Project
- Biophysical Strategic Agricultural Land
- Mining Titles
- Local Government Area
- State Forest
- NPWS Estate
- Road

FIGURE 2.1

Regional Context

*Not part of Project. Location is approximate. Sourced from Energy Corporation of NSW (2022), Central-West Orana Renewable Energy Zone Project Overview.

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)




Legend

- Project Site
- Proposed Wind Turbine Generator

Wind speed (metres per second)

- High : 10.2
- Low : 2.4

FIGURE 2.2

Wind Resource Mapping

Image Source: ESRI Basemap, Data source: DFSI (2020),

## 2.1.2 Regional and Local Plans

**Central West and Orana Regional Plan 2036**

The *Central West and Orana Regional Plan 2036* (CWOR Plan) is the NSW Government's strategy for guiding land use planning decisions for the Central West and Orana Region over the next 14 years. The vision of the CWOR Plan is to 'create a leading and diverse regional economy in NSW, with a vibrant network of centres building on the opportunities of being at the heart of NSW' (DPE, 2017).

The supporting goals of the CWOR Plan are to create:

- the most stunning environment in NSW
- a thriving, interconnected economy
- vibrant and engaged communities
- great housing choice and lifestyle options.

The CWOR Plan promotes further development of renewable energy across the Central West and Orana, through Direction 9 being 'Increase renewable energy generation'. The region is seen as having significant potential for renewable energy industries with vast open spaces and higher altitude tablelands with potential for wind power generation, large-scale solar energy and bioenergy generation. The CWOR Plan indicates that renewable energy generation will also create a more sustainable energy future for the region.

The Project is considered to be consistent with the vision of the CWOR Plan, particularly in light of the proposed development of renewable energy generation.

**Dubbo Local Strategic Planning Statement**

Adopted on 22 June 2020, the *Dubbo Local Strategic Planning Statement* (Dubbo Regional Council, 2020) is a 20-year vision for land use planning for Dubbo and Wellington and provides an overarching strategic direction for future land use planning in the Dubbo Regional Council LGA.

Planning themes and priorities of the Local Strategic Planning Statement are around infrastructure, economy, housing, liveability and sustainability. Specifically, Dubbo Regional Council aims to increase renewable energy generation in order to diversify the regional economy and promote a sustainable future.

The Project is considered to be consistent with the vision and intent of the Local Strategic Planning Statement, specifically in relation to the proposed development of renewable energy generation.

**Warrumbungle Shire Council Strategic Planning Statement**

The *Warrumbungle Shire Council Strategic Planning Statement* (Warrumbungle Shire Council, 2019) sets the framework for Warrumbungle Shire's economic, social and environmental land use needs over the next 20 years.

The plan identifies the main priorities and aspirations for future land use within the LGA and establishes objectives and strategies to achieve those objectives. These objectives address social, environmental, economic and civic leadership issues as identified by the Warrumbungle Shire Community Strategic Plan.

The Project is considered to be consistent with the vision and intent of the Local Strategic Planning Statement as it provides for economic diversity and allows the co-location of complementary industry alongside agricultural enterprises.

## 2.2 Project Location Context

The Project Site is situated predominately within the Dubbo Regional Council LGA and partly in the Warrumbungle Shire Council LGA. The nearest population centre to the Project is the rural community of Goolma (population approximately 100), located approximately 13 km south-east of the Project Site. Other nearby population centres in the vicinity of the Project Site include:

- Gulgong, approximately 25 km south-east
- Wellington, approximately 30 km south-west
- Dubbo, approximately 40 km west
- Dunedoo, approximately 22 km north-east.

The indicative CWO REZ transmission corridor runs along the north and east of the Project Site, intersecting with the Project Site (refer to **Figure 2.1**).

The majority of land within the Project Site is privately owned with small areas of Crown land reserves and roads present. Within the Project Site, there are 32 private landholdings.

Further discussion regarding local community and other stakeholders is provided in **Section 5.0** and the Social Impacts Scoping Report provided as **Appendix 2**.

Agriculture is the primary land use both within and surrounding the Project Site, including sheep and cattle grazing and dry land cropping, with scattered rural residences and agricultural structures. The land within the Project Site is largely cleared, undulating terrain with some ridgelines. Areas of native vegetation are present generally in the form of paddock trees, with areas of intact vegetation on ridgelines, along local roads and drainage lines.

The Golden Highway is located to the north of the Project Site and acts as primary connection between the Hunter and Orana regions of NSW. Other key routes in the locality include the Castlereagh Highway and Mitchell Highway (refer to **Figure 2.1**).

The Project Site has an elevation ranging from 360 m Australian Height Datum (AHD) to 540 m AHD, comprising of hills and ridgelines with intervening valleys. The closest national park, state park or nature reserve is the Dapper Nature Reserve which is adjacent to part of the southern boundary of the Project Site (refer to **Figure 2.1**).

The Project Site is located within the Macquarie-Bogan water catchment, located within the Murray-Darling Basin. There are a number of minor creeks that traverse the Project Site (refer to **Section 6.2.8**).

Minor sections of the south-east part of the Project Site are identified as Biophysical Strategic Agricultural Land (refer to **Figure 2.1**). There are two existing mineral exploration licences that apply to the western portion of the Project Site, held by Orange Minerals (NSW) Pty Ltd (EL9290), and Monzonite Metals Pty Ltd (EL8646) (refer to **Figure 2.1**).

No flood prone land or flood management areas are identified within the Project Site.

With areas of remnant or plantation vegetation, bushfire presents a potential hazard for the Project Site. The EIS will include an assessment of potential hazards associated with the Project.

## 2.3 Cumulative Impact Considerations

A key component of environmental impact assessment is the consideration of cumulative impacts. The Project will be assessed in accordance with the requirements of the *Cumulative Impact Assessment Guidelines for State Significant Project* (DPIE, 2021b), which sets clear expectations and requirements for assessing project-level cumulative impacts related to SSD projects. The EIS will consider relevant other construction, industrial and employment generating projects within the locality.

The Project is located within the CWO REZ identified in the NSW Government's Electricity Strategy (NSW Government, 2021a) (refer to **Figure 2.1**). There are a number of renewable energy projects within and in the vicinity of the CWO REZ, at different stages of the approval process (refer to **Figure 2.1**). It is anticipated that there will be additional renewable energy projects proposed in the vicinity of the Project that are not publicly known at the time of preparing this report. Potential cumulative impacts will be assessed in the EIS.

## 2.4 Planning and Other Agreements

Should the Project be approved, CWPR will enter into a voluntary planning agreement (VPA) in accordance with the requirements of the EP&A Act. The VPA will be negotiated with the relevant Council(s) for the provision of infrastructure or other items to support local communities.

CWPR is committed to continuing to work with the host and nearby landholders in relation to project design and potential impacts associated with the Project. Agreements will be in place between CWPR and the host landholders, and where appropriate with nearby landholders regarding the Project. Where landholder agreements are in place that are relevant to environmental assessment outcomes, these will be considered in the EIS.

## 2.5 Project Benefits

The Project will provide long-term, strategic benefits to the state of NSW, including:

- renewable energy supply to assist with fulfilling the current obligations under State and Commonwealth renewable energy targets
- providing for cleaner reliable electricity generation, assisting with meeting current load demand while reducing greenhouse gas emissions and the impacts of climate change
- providing regional investment in the NSW renewable energy sector
- the Project will also provide direct financial benefits to the regional and local community, including:
    - infrastructure investment of approximately $1.4 billion
    - employment generation creating over 250 jobs during the construction phase and approximately 12 jobs during the operational phase

- flow on economic benefits to local services through the construction and operation phases
- additional landowner income to associated landowners resulting in financial contributions to the local community.

CWPR is focussed on sharing the benefits of its projects by supporting communities over the long term. Benefit sharing is achieved by CWPR through a range of opportunities such as community benefits funds, VPAs, community sponsorship and grant initiatives.

CWPR recognises that each community is different, and aims to tailor benefits at each project and make positive lasting contribution to each region. Each project has a community sponsorship program, which provides funds or in-kind support to community organisations and events in the local area. This program will be implemented for the Project.

Key areas for the program include:

- education and training initiatives
- community development programs
- health and wellbeing
- environmental initiatives.

The Spicers Creek Wind Farm community sponsorship program launched in July 2021. Initiatives supported to date include:

- assisting the Goolma Amenities Committee with contributing to a new ride-on mower to maintain community grounds
- supporting Geurie Lions Club with new catering van equipment
- contributing to the refurbishment of the Spicers Creek Community Church buildings
- sponsoring the Gollan Hall Christmas function.

# 3.0 The Project

## 3.1 Project Summary

The Project includes the installation, operation, maintenance and decommissioning of up to 122 WTGs, battery storage facilities, ancillary infrastructure and temporary facilities associated with construction of the Project. The key components of the Project include:

- approximately 122 (3 blade) WTGs with a total height (tip height) of approximately 300 metres (m)
- electrical connections between the proposed WTGs and substations consisting of a combination of underground cables and overhead powerlines
- substations and transmission connections to connect the proposed WTGs to the proposed REZ transmission line
- two battery storage facilities (400 MW, one-hour battery)
- other associated infrastructure including access roads and tracks, operation and maintenance buildings and construction facilities (all facilities subject to further detailed design)
- temporary on-site concrete batching plant during the construction phase
- targeted road network upgrades to facilitate delivery of wind turbine components to the site as required.

The conceptual Project layout is shown on **Figure 3.1**. The indicative Project components are provided in **Table 3.1**, noting that these will be subject to further design and refinement as part of the ongoing design and EIS process.

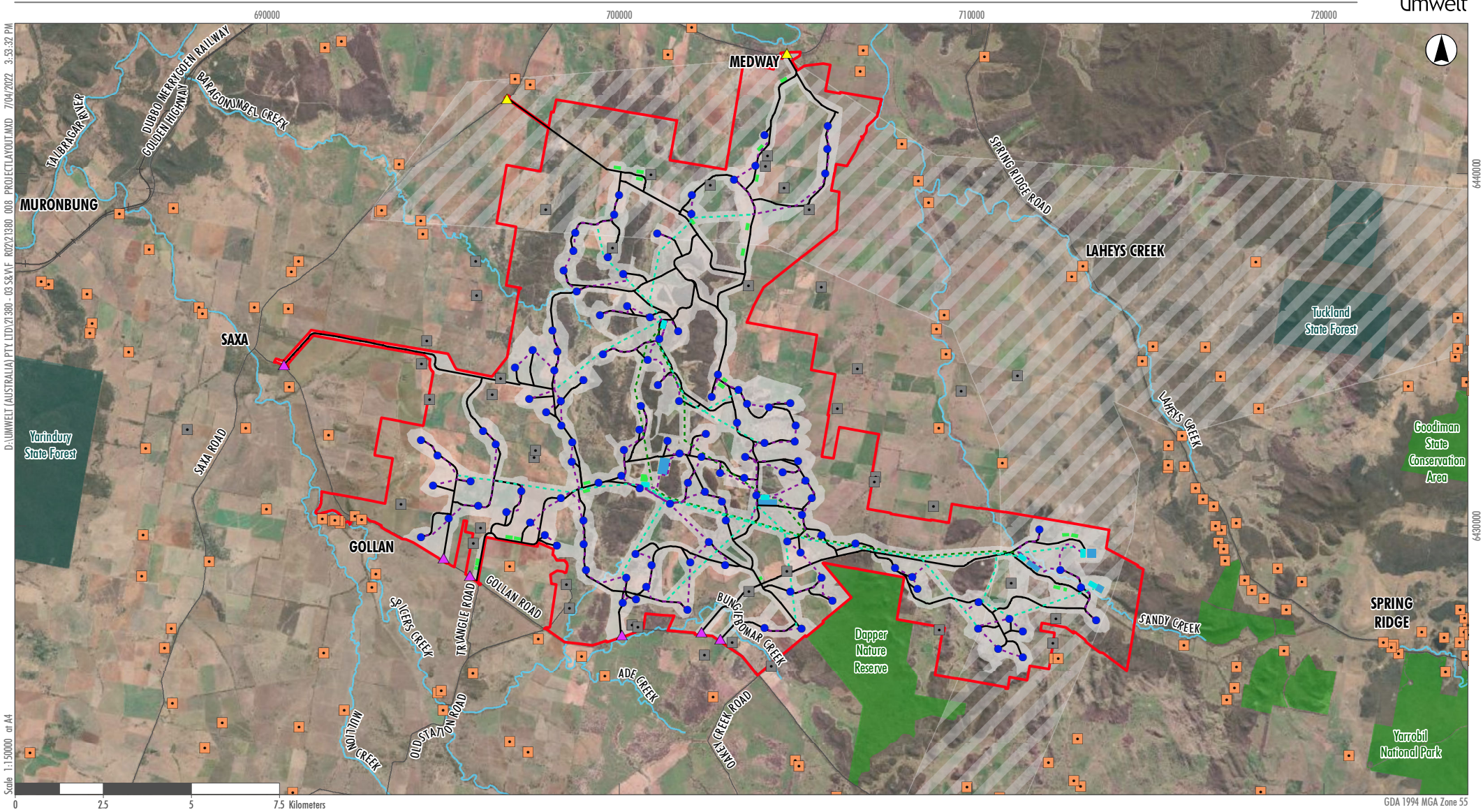
**Table 3.1 Indicative Project Components and Approximate Dimensions**

| Project component(s) / infrastructure | Approximate dimensions | Quantity |
|---|---|---|
| **WTGs** | | |
| WTG height | Up to 300 m | 122 |
| Rotor diameter | Up to 227 m | |
| Uppermost blade tip | 300 m | |
| Lowermost blade tip | 40-100 m | |
| Tower (hub) height | 125-200 m | |
| WTG foundations (excavation size) | 30 m x 30 m | |
| **Battery Storage** | | |
| Compound | 250 x 250 m | 2 |
| **Ancillary Infrastructure** | | |
| Hardstands for turbine construction | 70 x 75 m | 122 |
| Internal Roads and drainage | 155 km | N/A |
| Substations | Up to 250 x 250 m | Up to 3 |

| Project component(s) / infrastructure | Approximate dimensions | Quantity |
|---|---|---|
| Site Compounds, including construction laydown areas for equipment and supplies, concrete batching plant, construction compounds, site office, etc. | 150 x 150 m | 23 |
| Overhead transmission lines (high voltage) | 24 km external overhead cables (i.e. high voltage transmission lines from the Substation to the grid connection point) with easement width approximately 45-60 m. | N/A |
| Overhead transmission lines (medium to low voltage) | 57 km internal overhead cables of easement width approximately 30 m. | N/A |
| Underground transmission cables (medium to low voltage) | 100 km | N/A |
| Permanent Meteorological Masts | 125 to200 m high | 4 |
| **Temporary Construction Facilities** | | |
| Concrete batching plants | 50 x 100 m | Included in Site Compounds under Ancillary Infrastructure |
| Rock crushing facilities | 50 x 100 m | |
| Site compound and office | 300 x 200 m | |
| Stockpiles and materials storage compounds | Subject to construction requirements | |
| Temporary Field Laydown Areas | Subject to construction requirements | |
| Temporary Meteorological Masts | 125 to 200 m high | 4 |

The proposed infrastructure would be contained within the Project Site boundary including turbine blades. The proposed layout will allow for micro-siting and will be subject to further detailed design as the environmental and social impact assessments progress. The conceptual design for the EIS will include a Proposed Development Area (refer to **Figure 3.1**) within which infrastructure and WTGs will be placed, providing the necessary flexibility for the detailed design of the Project whilst also allowing a detailed environmental assessment process to be completed.

It is anticipated that works will commence within one year of project approval. The timing of construction will be driven by additional permits and authorisations, contractor selection, detailed design and procurement processes and a final investment decision. The construction phase of the Project is anticipated to be 24 to 30 months. The Project has an estimated operational life of 30 years after which it will be decommissioned.




Legend

- Project Site
- Proposed Development Area
- Proposed Wind Turbine Generator
- Proposed Underground Powerline
- Proposed Overhead Powerline (33kV)
- Proposed Overhead Powerline (HV)
- Proposed Access Track
- Proposed Site Compound
- Potential Battery Storage
- Potential Substation
- Indicative REZ Transmission Corridor
- Proposed Main Site Entry
- Proposed Secondary Site Entry
- Associated Dwelling
- Non-associated Dwelling
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 3.1

Spicers Creek Wind Farm
Preliminary Project Layout

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

## 3.2 Wind Turbines Generators

The Project is designed to accommodate WTGs of up to 300 m in height. This allows for a conservative worst case assessment allowing for WTG advances between the time of assessment for the Project and the commencement of construction.

The WTGs will be three-bladed with the rotor and nacelle mounted on a tower with an internal ladder or lift. The WTGs would be installed at final locations to be confirmed within a 100 m micro-siting buffer of the proposed locations identified in the EIS, with the current conceptual locations shown on **Figure 3.1**.

## 3.3 Battery Storage

Battery Storage forms part of the Project to allow for the storage and discharge of energy. Storage of energy can add significant benefits to renewable generation because it allows for the dispatch of energy in accordance with market demand and overcomes potential issues associated with intermittency of output from the WTGs. The indicative electrical capacity of the battery storage is 400 MW / 400 MWh, (alternatively known as a 400 MW, one-hour battery) but this is not intended as an upper limit and will be subject to further design work.

A range of technologies are being considered, including lithium-ion, lead acid, sodium sulphur, sodium or nickel hydride, electrochemical technology (i.e. flow batteries), cryogenic storage and compressed air. The final design of the battery storage will depend on the technology selected. The storage will be connected to the WTGs and substations via underground and/or overhead cables. Potential locations are shown on **Figure 3.1**, however, these locations are subject to further design work and the storage facilities may be co-located with other compounds shown on **Figure 3.1**.

## 3.4 Ancillary Infrastructure

Ancillary infrastructure for the Project includes, but is not limited to:

- substations
- switching stations
- permanent offices and site compounds
- underground and overhead electricity transmission lines
- wind monitoring masts
- permanent meteorological masts
- communication cables (includes control cables and earthing)
- water storage tanks
- hardstands
- internal roads.

Temporary facilities will include site offices and compounds, rock crushing facilities, concrete batching plants, stockpiles and materials storage compounds, temporary laydown areas, minor construction access roads and temporary meteorological masts. All temporary facility sites will be rehabilitated once they are no longer required.

## 3.5 Site Access

### 3.5.1 Project Site Access

The Project Site will be accessed from the public road network at the following locations during construction and operation:

- The proposed main site entry locations will be off Sweeneys Lane (accessed directly off the Golden Highway) and Tallawonga Road (accessed from the Golden Highway followed by Saxa Road). The Project is approximately 28 km west of Dunedoo (by road). These will be the main access points for over-size, over-mass (OSOM) vehicles and heavy and light vehicles.
- Secondary intersections and cross-over locations on Gollan Road to provide for the routes of internal roads throughout the Project Site required for construction and operational vehicles.

**Figure 3.2** depicts the indicative locations of the Project Site access points which would be gated and secured, and appropriate warning signs erected. To limit impacts to road users and the surrounding community, it is proposed that the main Project Site entries on Sweeneys Lane and Tallawonga Road will only be accessed from the Golden Highway as shown in **Figure 3.2**.

The public road network surrounding the Project (i.e. Gollan Road, Binginbar Road, Bald Hill Road, Sandy Creek Road, Dapper Road, Spring Ridge Road) is not currently planned to be used by construction vehicles, except to allow local service and/or resource suppliers the opportunity to participate in the Project.

The Project will seek to allow heavy and light vehicles to use other public roads not discussed above, but only to:

- undertake pre-construction minor works
- construct necessary intersection upgrades off Gollan Road
- undertake dust suppression
- utilise the secondary intersections and cross overs identified above to facilitate construction and operational vehicles
- procure resources from licensed operators which are located along these roads.

### 3.5.2 Over-sized, over-mass Vehicle Transport Routes

OSOM vehicle transport to the Project Site from the Port of Newcastle is the subject of ongoing route analysis study. This includes an assessment of a 110 m blade allowing for a conservative assessment in relation to route upgrades potentially required for the Project.

The preferred road transport route (refer to **Figure 3.2**) from the Port of Newcastle to the Project Site for all components, including OSOM and standard construction vehicles that do not exceed 5.6 m in overall height, would be via:

- Selwyn street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway (to Dunedoo).

The preferred road transport route (refer to **Figure 3.2**) from the Port of Newcastle to the Project Site for components that exceed 5.6 m in overall height, except the WTG blades, would be via:

- Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway, Denman Road, Bengalla Road, Wybong Road, Golden Highway (to Dunedoo).

From the Golden Highway at Dunedoo, there are two proposed site access options to the Project Site (refer to **Figure 3.2**):

- **Site Access A:** Golden Highway, Sweeneys Lane
- **Site Access B:** Golden Highway, Saxa Road, Tallawonga Road.

These preliminary OSOM route options will but subject to further investigation as part of the EIS and may be subject to revision. This will include consultation with relevant roads authorities and Council(s).

## 3.6 Development Footprint

The Project Site covers approximately 18,085 ha.

The Proposed Development Area associated with the Project is approximately 8,609 ha based on the current concept design which will be subject to further design refinement as the Project progresses. The proposed disturbance area for the Project will be within the Proposed Development Area and subject to further detailed design as the environmental assessment process progresses. It is noted that the Proposed Development Area is a conservative area for early assessment purposes and the proposed disturbance area will likely be significantly smaller, subject to further detailed assessments and design.

## 3.7 Project Alternatives

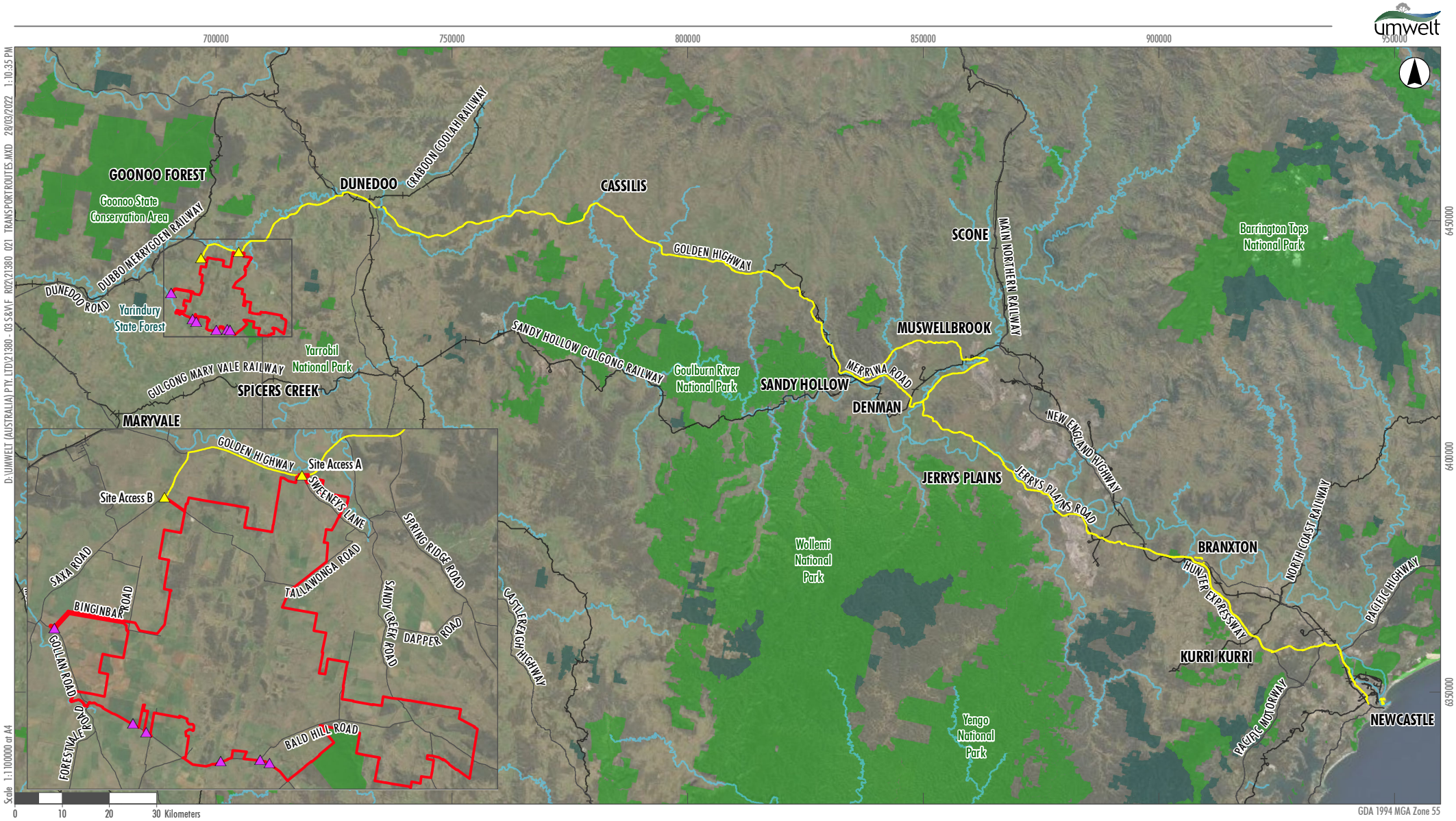
The Project location was selected due to a reliable wind resource, low density of rural residential dwellings, position within the CWO REZ, proximity to the proposed transmission infrastructure and existing road network, and in consideration of environmental values (much of the site has been historically cleared).

CWPR identified the Spicers Creek area for a potential wind farm development, prior to the designation of the CWO REZ. Consultation with potential associated landholders started in September 2019 via phone calls and face to face meetings conducted by CWPR employees. Wind monitoring commenced on site in March 2020, to further understand the local wind resource and assess the feasibility of the Project.

Prior to settling on the Project Site, a broader area was investigated, including to the south of Gollan Road. Based on community feedback obtained through ongoing discussions and a Community Drop-In Session in May 2021, as well as a range of feasibility investigations (biodiversity, transportation routes, visual analysis, and civil engineering constraints), a staged approach has been adopted for the development of Spicers Creek Wind Farm. Investigations into the area to the south of Gollan Road will continue, however this area will take longer to plan and is likely to be developed as a second stage of the wind farm, subject to a separate approval process.

The current Project Site with indicative WTG placement and infrastructure design has been informed by discussions with landowners and neighbours, and subject to a number of iterations to incorporate feedback. Where landowners did not wish to be involved in the Project, these areas have been removed from the currently proposed Project layout and a buffer area applied.

The Project layout will be subject to further refinement and revision as more information is obtained through the proposed environmental studies and ongoing feedback from the consultation processes.




Legend

- Project Site
- Proposed Main Site Entry
- Proposed Secondary Site Entry
- Primary Delivery Route
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 3.2

Site Access and Transport Routes

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

# 4.0 Statutory Context

The relevant statutory requirements for the Project are summarised in the following sections.

## 4.1 NSW Approval Pathway

The EP&A Act is the primary instrument which regulates the environmental impact assessment and approval process for development in NSW.

The Project will require development consent under Part 4 of the EP&A Act. Being development for the purpose of electricity generation with a capital investment value of more than $30 million, the Project is declared to be SSD under the provisions of the Planning System SEPP. The development application will be lodged with the NSW Department of Planning and Environment (DPE).

Section 4.15 of the EP&A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, planning agreements and statutory regulations. The assessment of SSD must also consider the likely impacts of the development, suitability of the site, any submissions received and the public interest.

### 4.1.1 Consent Authority

Under Section 4.5(a) of the EP&A Act the consent authority for SSD is the Independent Planning Commission (IPC) (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind).

In accordance with clause 2.7(1) of the Planning System SEPP if any of the criteria identified below are exceeded the (IPC) is the consent authority.

- Dubbo Regional and/or Warrumbungle Shire Councils object to the application.
- 50 submissions (other than from the Councils noted above) are made objecting to the Project.
- CWPR discloses a reportable political donation of $1,000 or greater.

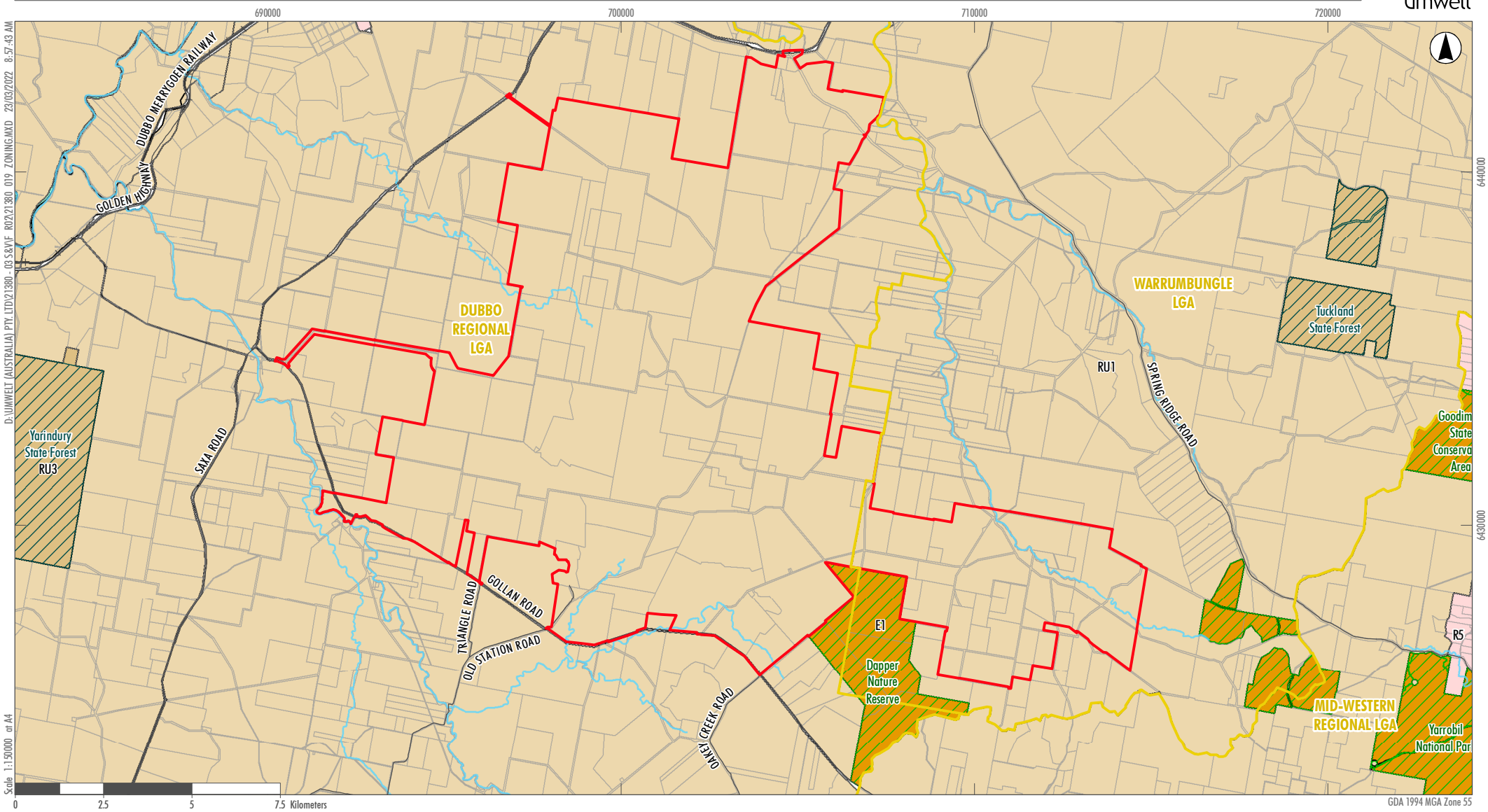
If these criteria are not triggered, DPE will determined the development application on behalf of the Minister.

### 4.1.2 Permissibility

As outlined in **Section 2.2**, the Project Site is situated predominately within the Dubbo Regional Council LGA and partly in the Warrumbungle Shire Council LGA. The Project Site is zoned as RU1 Primary Production within both the Dubbo Local Environment Plan (LEP) 2011 and Warrumbungle LEP 2013 (refer to **Figure 4.1**). Electricity generating works are not permitted within the RU1 zoning in either LEP.

Clause 2.36(1)(b) of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Infrastructure SEPP) states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Under Clause 2.7(1) of the Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other Environmental Planning Instruments (EPIs), including LEPs.

Due to the operation of Clause 2.36(1)(b) of the Infrastructure SEPP the Project is permissible with development consent.




Legend

- Project Site
- Local Government Area
- State Forest
- NPWS Estate
- Property Boundaries
- Road
- Railway
- Waterway
- E1 National Parks and Nature Reserves
- R5 Large Lot Residential
- RU1 Primary Production
- RU3 Forestry
- W2 Recreational Waterways

FIGURE 4.1

**Zoning Map**

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

### 4.1.3 Other Approvals

In addition to development consent under the EP&A Act, a number of other NSW Acts or planning policies are applicable or potentially applicable to the Project. **Table 4.1** identifies the other NSW legislation and policies and their applicability to the Project.

**Table 4.1 NSW Legislation**

| State Legislation | Description |
|---|---|
| **Biodiversity Conservation Act 2016 (BC Act)** | Under the BC Act, biodiversity assessment in accordance with the Biodiversity Assessment Method (BAM) is required for any SSD project. The Project (as SSD) triggers the need to prepare a Biodiversity Development Assessment Report (BDAR) in accordance with the BAM.<br>The EIS will include a BDAR. |
| **Protection of the Environment Operations Act 1997 (POEO Act)** | The POEO Act regulates pollution to the environment and requires licences for environment protection including waste, air, water and noise pollution control. Wind farms are a scheduled activity under the POEO Act and require an Environment Protection Licence (EPL).<br>An EPL would be sought in relation to the construction and operation of the Project. |
| **Water Management Act 2000 (WM Act)** | Any water extractions (take) from water sources (surface and groundwater) regulated by a Water Sharing Plan (WSP) required for construction or operational purposes will require licensing under the WM Act.<br>The potential water requirements during construction and operation will be assessed as part of the Water and Soil Impact Assessment prepared as part of the EIS. Any necessary licences would be obtained for the Project. |
| **Roads Act 1993 (Roads Act)** | A consent is required under section 138 to work on or above a road or to connect a road to a classified road. Consents under section 138 will be required for proposed road works. |
| **Crown Land Management Act 2016 (Crown Land Act)** | The Crown Land Act provides for the administration and management of Crown Land in NSW. Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved or otherwise dealt with unless authorised by the Crown Land Act.<br>There are some areas of Crown Land (e.g. Crown road reserves) within the Project Site and should any works be proposed in these areas an approval would be obtained. |
| **Contaminated Land Management Act 1997 (CLM Act)** | The CLM Act establishes the process for investigating and if required, remediating land that the NSW EPA considers to be contaminated significantly enough to require regulation.<br>The Project Site does not contain land listed on the Contaminated Lands Register. Relevant mitigation and management measures would be incorporated as part of the Project to address potential contamination issues. |

## 4.2 Commonwealth Legislation

#### 4.2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a framework for protection of the Australian environment, including its biodiversity and its natural and culturally significant places.

Any action which will or is likely to have a significant impact on a matter of national environmental significance (MNES) must be referred to the Minister for the Environment, MNES includes:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- A water resource, in relation to coal seam gas development and large coal mining development.

The Project Site is not within a world heritage property or place, does not have wetlands of international importance, is not within either a Commonwealth marine area or the Great Barrier Reef Marine Park, and does not relate to a nuclear action, coal seam gas or coal mining development.

There is potential for the Project to impact on listed threatened species and ecological communities, and migratory species.

A Referral will be lodged to determine whether the Project requires formal assessment and approval under the EPBC Act as a Controlled Action. If deemed a controlled action, it is proposed that the Project would be assessed under the bilateral agreement between the NSW and Commonwealth governments.

#### 4.2.1.2 Civil Aviation Regulations 1988

Reporting of tall structures to the Royal Australian Air Force (RAAF) is required under the Civil Aviation Regulations 1988. A detailed assessment in accordance with the regulations and consultation with the relevant agencies will be undertaken as part of the preparation of the EIS.

#### 4.2.1.3 Heavy Vehicle National Law

Approvals would be required for the transport of wind turbines and associated infrastructure by OSOM vehicles. The requirements for such OSOM transport will be assessed via a route analysis study as part of the EIS.

## 4.3 Statutory Requirements Summary

This section provides an overview of the key statutory requirements for the Project. These statutory requirements are categorised as per the DPE Scoping Guideline.

**Table 4.2 Statutory Requirements Summary**

| Matter | Detail | Comment |
|---|---|---|
| **Power to grant consent** | The legal pathway under which consent is to be sought, why the pathway applies, and who the consent authority is likely to be. | As outlined in **Section 4.1.1**, the Project requires approval under Part 4 of the EP&A Act being SSD.<br>The consent authority will be the IPC or DPE based on the number and type of any objections to the Project or any political donations made by CWPR or related entities. |
| **Permissibility** | The relevant provisions affecting the permissibility of the Project, including any land use zones.<br>Any provisions or actions being taken that would allow the Project to be considered on its merits, where the Project would otherwise be partly or wholly prohibited. | As outlined in **Section 4.1.2**, the Project Site is zoned RU1 Primary Production within both the Dubbo LEP 2011 and Warrumbungle LEP 2013. Electricity generating works are not permitted within the RU1 zoning in either LEP.<br>Clause 2.36(1)(b) of the Infrastructure SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Under Clause 2.7(1) of the Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other EPIs, including LEPs. Therefore the Project is permissible with development consent. |
| **Other approvals** | Other approvals that are required to carry out the Project and why they are required. | **Section 4.1.3** provides a list of other NSW approvals required or that may be required for the Project.<br>**Section 4.2** discusses potential Commonwealth approvals that may be required for the Project. |
| **Pre-conditions to exercising the power to grant consent** | Pre-conditions to exercising the power to grant consent for the Project that may be relevant to setting the SEARs. | An EIS will be prepared in accordance with relevant legislative requirements and guidelines.<br>No pre-conditions to exercising the power to grant consent for the Project are currently envisaged. |
| **Mandatory matters for consideration** | Matters that the consent authority is required to consider in deciding whether to grant consent to any development application for the Project that may be relevant to setting the SEARs. | As outlined in **Section 4.1**, Section 4.15 of the EP&A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, planning agreements and statutory regulations. The assessment of SSD must also consider the likely impacts of the development, suitability of the site, any submissions received and the public interest.<br>All relevant mattes will be addressed in the EIS based on the outcomes of environmental assessments to be undertaken (refer to **Section 6.0**). |

# 5.0 Stakeholder Engagement

CWPR is committed to genuine and meaningful engagement with the community, developing long-term relationships and maintaining open lines of communication. In developing wind farm projects, CWPR recognises that early and meaningful consultation with the local community and other stakeholders is fundamental to obtain feedback that can be incorporated into the design of the Project.

CWPR is also a signatory to the Clean Energy Council's Community Engagement Best Practice Charter for Renewable Energy Developments. This involves a voluntary set of commitments that will be upheld by CWPR when developing and operating clean energy projects, including to engage respectfully with the communities in which they plan and operate projects, to be sensitive to environmental and cultural values, and to make a positive contribution to the regions in which they operate.

CWPR has prepared a Stakeholder Engagement Plan (SEP) for the Project to outline the objectives and approach to community engagement throughout the life of the Project from development through construction to operation.

Stakeholder engagement for the Project will be undertaken in accordance with the NSW Government's Engagement Guidelines (DPIE, 2021d).

The following section provides a summary of the SEP, the consultation undertaken to date and key issues raised.

## 5.1 Stakeholder Engagement Plan

The SEP identifies the stakeholder engagement approach and objectives for the Project and the surrounding communities.

Through the implementation of the SEP, CWPR aims to:

- keep the community informed about the Project, its likely impacts and likely benefits, through the provision of accurate and timely information
- provide multiple opportunities and mechanisms for meaningful information exchange with stakeholders
- ensure that the team developing the Project fully understands the local context, including any local impacts that it may have or opportunities that it could provide
- integrate feedback received into the Project planning and design as far as possible
- build and maintain positive, trust-based relationships with the local community.

The SEP provides an overview of CWPR's approach to stakeholder engagement throughout all stages of the Project, outlines the Project and the relevant stakeholders, provides detail on the consultation undertaken to date and outlines various community benefits.

The SEP and engagement undertaken to date for the Project is consistent with the requirements of the Engagement Guidelines (DPIE, 2021d).

## 5.2 Stakeholder Engagement

Engagement with local landowners commenced in 2019 and has predominantly been undertaken by the Spicers Creek Wind Farm Project team of three CWPR staff. The Project team are based in CWPR's Newcastle office, but spend time in the Project area regularly engaging with the local community to build and maintain genuine, trusting relationships with stakeholders. The overall approach to consultation with local community is to be flexible, inclusive, open and responsive.

Stakeholder and community engagement has been undertaken early in the scoping phase:

- to proactively inform Project design and development
- to identify perceived issues/impacts to be addressed in the assessment process
- to establish stakeholder relationships with hosts, near neighbours and key stakeholders for the Project.

The key stakeholders identified for the Project within each stakeholder group are outlined in **Table 5.1**.

**Table 5.1 Identified Stakeholders**

| Stakeholder Group | Stakeholders |
|---|---|
| Host Landholders | • Landholders with the potential to host WTGs and/or Project infrastructure |
| Neighbouring Landholders | • Neighbouring dwellings within 6 km of the potential WTG locations |
| Community within the Social Locality | • Proximal / local communities / localities, including Goolma, Gollan, Spicers Creek, Geurie, Wongarbon, Elong Elong<br>• Regional towns, including Dubbo, Wellington, Gulgong, Mudgee<br>• Regional community, including Dubbo, Warrumbungle and Mid-Western Regional LGAs |
| Government – State | • Crown Lands<br>• Department of Finance, Services and Innovation – Telco Authority<br>• Department of Planning and Environment, including:<br>  ○ Biodiversity, Conservation and Science (BCS)<br>  ○ Energy Corporation<br>  ○ Water Group<br>• Department of Primary Industries – Agriculture and Fisheries (DPI)<br>• Energy Corporation<br>• Environment Protection Authority (EPA)<br>• Fire and Rescue NSW<br>• Heritage NSW<br>• NSW Rural Fire Service |

| Stakeholder Group | Stakeholders |
|---|---|
| | • Regional NSW – Mining, Exploration and Geoscience (MEG)<br>• Transport for NSW (TfNSW) |
| Government – Federal | • Department of Agriculture, Water and Environment (DAWE)<br>• Airservices Australia<br>• Bureau of Meteorology (BOM)<br>• Civil Aviation Safety Authority (CASA)<br>• Department of Defence |
| Local Council | • Dubbo Regional Council<br>• Warrumbungle Shire Council<br>• Mid-Western Regional Council (neighbouring LGA) |
| Government - Elected Representatives | • Federal Member for the Calare<br>• Federal Member for the Parkes<br>• Member for Dubbo<br>• Member for Barwon |
| Community Interest Groups and Community Services | • Dunedoo Lions Club<br>• Mid Macquarie Landcare<br>• Wellington Lions Club<br>• Geurie Lions Club<br>• Mudgee District Environment Group<br>• Central West Environment Group<br>• Regional Development Australia, Orana |
| Schools | • Goolma Public School |
| Aboriginal Groups | • NSW Aboriginal Land Council<br>• Registered Aboriginal Parties (to be confirmed during the formal notification process) |
| Industry and Local Business | • Wellington Business Chamber<br>• Gulgong Chamber of Commerce |
| Other Stakeholders | • Wellington Correctional Centre |

### 5.2.1 Community Engagement

CWPR has commenced stakeholder engagement as part of the initial Project design phase. The community consultation undertaken to date is summarised in **Table 5.2**.

**Table 5.2 Community Engagement**

| Engagement | Details |
|---|---|
| Face to face meetings | Face to face meetings, phone calls and emails have been (and continue to be) undertaken with potential hosts and near neighbours. A total of 157 landholders have been consulted to date in relation to the Project.<br>Meetings have been held over the periods of:<br>• September 2019 to May 2021 – meetings to discuss wind farms, feasibility investigations, appropriate buffer distances and potential involvement in the wind farm<br>• May 2021 – meetings to hear community perspectives and obtain feedback on the proposed Project<br>• May to November 2021 – meetings as required to obtain feedback, discuss the studies being undertaken, next steps and answer questions<br>• November 2021 – discussion of project layout with host landowners<br>• January 2022 – discussion of project layout with neighbouring landowners within 4km of a proposed WTG location. |
| Community Drop-in Session | A community drop-in session was held on 20 May 2021 at the Goolma Community Hall. The session provided updates on the next steps of the process and provided community members an opportunity to provide perspectives and feedback. The community drop-in session was attended by 61 people.<br>An additional two community drop-in sessions will be held on 11 April 2022 at the Gollan Hall and 12 April 2022 at the Goolma Community Hall. |
| Community Survey | A community survey was distributed in May 2021 to understand community perceptions on the Project and obtain feedback on the key landscape features and values. A total of 23 responses were provided to CWPR. |
| Newsletters | Community newsletters were distributed in May 2021, September 2021 and March 2022 to introduce the Project, CWPR, invite community members to community drop-in sessions and provide updates on the Project. The newsletters were distributed to landowners (hosts and neighbours), community members and other stakeholders. |

It is noted that the formal notification process for the Aboriginal Cultural Heritage Assessment will commence following receipt of the SEARs. Once commenced, detailed consultation will be undertaken with the Registered Aboriginal Parties (RAPs) for the Project. Consultation will be undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010b). Further details on the proposed heritage assessment is provided in **Section 6.2.4**.

### Community Views

As discussed in the Social Impact Scoping Report (SISR), the following key community views were identified in engagement conducted for the social scoping phase.

When stakeholders and community members were asked directly about potential negative impacts of the Project, both prompted and unprompted, the top issues raised included:

- impacts on surrounds, and in particular the potential for the Project to impact on the visual amenity of the social locality

- impacts relating to traffic and conditions on local roads
- impacts relating to changing land uses and the associated impacts on how people sustain their livelihoods.

When community members were asked directly to identify potential positive impacts of the Project, the most frequently cited response related to:

- the potential for the Project to benefit accessibility through upgrades to road infrastructure
- the provision of renewable energy to the national electricity market
- the sharing of Project benefits through direct investment in the local community.

**Continued Engagement**

CWPR will continue to implement the SEP throughout the Project assessment phase. Key consultation mechanisms and activities will include:

- one-on-one meetings and phone calls
- email/letter updates and Project newsletters
- the maintenance of a Project website
- community information sessions
- the establishment of a Community Consultative Committee (CCC)
- community surveys.

## 5.3 Agency and Elected Official Stakeholder Engagement

Agency and elected official consultation undertaken to-date in relation to the Project is provided in **Table 5.3**.

**Table 5.3 Agency Consultation**

| Agency | Date | Mechanism | Details |
|---|---|---|---|
| Dubbo Regional Council | 9 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |
| Mid-Western Regional Council | 10 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |
| Warrumbungle Shire Council | 11 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |

| Agency | Date | Mechanism | Details |
|---|---|---|---|
| Roy Butler MP, Member for Barwon | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Dugald Saunders MP, Member for Dubbo | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Andrew Gee MP, Federal Member for Calare | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Mark Coulton MP, Federal Member for Parkes | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Dubbo Regional Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Mid-Western Regional Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Warrumbungle Shire Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Roy Butler MP, Member for Barwon | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Dugald Saunders MP, Member for Dubbo | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Andrew Gee MP, Federal Member for Calare | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Mark Coulton MP, Federal Member for Parkes | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Dugald Saunders MP, Member for Dubbo | 13 May 2021 | Meeting | Meeting to introduce the Project. |
| Murray Wood, CEO Dubbo Regional Council | 16 July 2021 | Meeting | Introduction to the Project in conjunction with update on Uungula Wind Farm. |
| Civil Aviation Safety Authority (CASA) | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |
| Airservices Australia | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |

| Agency | Date | Mechanism | Details |
|---|---|---|---|
| Department of Defence | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |
| Energy Corporation | 13 October 2021 | Meeting | Introduction to the Project. |
| Transport for NSW | 13 October 2021 | Meeting | Overview of CWPR portfolio, including Project route studies undertaken. |
| Transport for NSW & Energy Co | 19 October 2021 | Meeting | Overview of CWPR portfolio, including Project route studies undertaken. |
| Dubbo Regional Council | 19 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Mid-Western Regional Council | 20 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Warrumbungle Shire Council | 22 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Biodiversity Conservation and Science (BCS) | 24 November 2021 | Meeting | Introduction to the Project, summary of fieldwork and results to date, and discussion on Category 1 land assessment methodology. |
| AEMO Services & EnergyCo | 11 February 2022 | Meeting | Meeting to provide an overview of roles of AEMO Services and Energy Corporation, confirmation of REZ tender timing and update on the Project. |
| Airservices Australia | 24 February 2022 | Email | Approximate location of mast SPC02 for preliminary assessment. |
| Dubbo Regional Council | 25 February 2022 | Email | Offer to provide a Project update to Council. |
| Warrumbungle Shire Council | 25 February 2022 | Email | Offer to provide a Project update to Council. |
| Dubbo Regional Council | 4 March 2022 | Email | Provision of community newsletter and potential meeting with Councillors. |
| Roy Butler MP, Member for Barwon | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Dugald Saunders MP, Member for Dubbo | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Andrew Gee MP, Federal Member for Calare | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Mark Coulton MP, Federal Member for Parkes | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |

| Agency | Date | Mechanism | Details |
|---|---|---|---|
| DPE | 22 March 2022 | Meeting | A Scoping pre-lodgement meeting was held with DPE to introduce the Project and the proposed assessment approach prior to lodging the Scoping Report. |
| Crown Lands (Dubbo) | 23 March 2022 | Meeting | Introduction to the Project and discussion of key contacts, review processes and timeframes. |
| Dubbo Regional Council | 24 March 2022 | Meeting | Project presentation to Councillors. |
| Warrumbungle Shire Council | 24 March 2022 | Email | Provision of community newsletter and follow-up offer to present to Councillors. |

Consultation with agencies and elected officials to date has been primarily to commence engagement, introduce the Project and key Project team members.

Dubbo Regional Council and Warrumbungle Shire Council indicated that they appreciated the introduction to the Project and subsequent updates, noting that further discussions would be held as the design of the Project evolved. At the most recent Project update provided to Dubbo Regional Council on 24 March 2022, Council noted the successful discussions with CWPR on the VPA for the Uungula Wind Farm and indicated they would commence discussions on the VPA for the Project shortly. The same Project update presentation will be provided to Warrumbungle Shire Council on 12 April 2022.

Consultation with BCS aimed to confirm the Category 1 land assessment methodology. Outcomes of the consultation are further discussed in **Section 6.2.3**.

Consultation with further agencies will be undertaken throughout the assessment process, in accordance with the SEARs for the Project.

# 6.0 Proposed Assessment of Impacts

## 6.1 Key Environmental and Social Matters

A review of the environmental and social matters relevant to the Project have been conducted to determine which issues need to be assessed as part of the EIS and the level of assessment that is required. This review has been undertaken with reference to the categories of assessment matters identified by the DPIE Scoping Guideline (DPIE, 2021a), with the key issues and the proposed level and scope of assessments discussed in the following sections.

The environmental and social matters relevant to the Project are identified and have been characterised (in accordance with DPIE, 2021a) as follows:

- matters requiring further assessment in the EIS (refer to **Section 6.2**)
- matters requiring no further assessment in the EIS (refer to **Section 6.3**).

For the matters requiring further assessment in the EIS, **Section 6.2** identifies whether detailed or standard assessment is required (as defined by *Appendix D* of DPIE Scoping Guideline). **Appendix 3** presents a Scoping Table Summary showing the outcome of the scoping stage review of matters as required by DPE (2021a).

## 6.2 Matters Requiring Further Assessment in the EIS

The environmental, social and economic matters discussed in this section have been identified as key issues requiring further assessment as part of the EIS to fully understand the potential impacts and identify project-specific mitigation measures and/or alternatives. The relevant assessments will be undertaken in consideration of the *Wind Energy Guideline for State significant wind energy development* (DPE 2016a) (Wind Energy Guideline).

### 6.2.1 Visual Amenity

A preliminary visual impact assessment (PVIA) has been undertaken by Moir Landscape Architecture Pty Ltd (Moir) in accordance with the requirements of the Visual Bulletin. This section provides a summary of the outcomes of the PVIA with the full report attached in **Appendix 4**.

As outlined in **Section 5.0**, CWPR undertook community consultation during the scoping phase with landholders within and surrounding the Project Site. The likely visual changes to the landscape were identified as an issue through community consultation.

An increase of built infrastructure and associated changes to the rural character of the landscape was described as an issue by some respondents. In particular, it was noted that the Project could impact upon natural features of the landscape that have high community value, or upon people's continued ability to access these areas. Key landscape features identified during consultation included the Warrumbungle National Park and Dapper Nature Reserve.

The community consultation completed to date indicates that visual impacts associated with the Project were noted as a key issue for some proximal landholders. The visual impact issues of some proximal landholders include how WTGs will impact the views from their properties and in some instances that the nature of large, built structures is contrary to the natural values of the social locality. It is also noted that there were many landowners that were interested in WTGs being considered at their properties.

The Project Site is located adjacent to the Golden Highway which will be a public viewpoint of the Project. Extensive areas within and surrounding the Project Site have been cleared for agricultural purposes, with areas of remnant vegetation scattered across the Project Site. The Project will be visible from both associated and non-associated landholders which will be a key focus of the detailed Landscape and Visual Impact Assessment (LVIA).

#### 6.2.1.1 Visual Magnitude Assessment

Visual magnitude is a key visual parameter in the preliminary assessment tool within the Visual Bulletin. The visual magnitude is determined by a ratio of turbine height and distance, determining the visual extent of WTGs relative to dwellings and key public viewpoints. This visual extent assists with identifying viewpoints that may require further assessment during the preparation of the EIS.

The Visual Bulletin provides a graph which provides an indication of where proponents should give detailed consideration to the visual impacts on dwellings or key public viewpoints from WTGs. In accordance with the Visual Bulletin, proposed WTGs below the 'black line' must be identified along with the dwellings or key public viewpoints. The proposed WTGs are based on a worst-case scenario with a tip height of 300 metres. As shown on **Figure 6.1**, the 'black line' intersects at a distance of 4,000 metres and the 'blue line' intersects at 5,900 metres.

Within Zone 1 (0 – 4,000 m) there are 69 dwellings, of which 40 are associated and 29 are non-associated dwellings. Within Zone 2 (4,000 – 5,900 m) there are 62 dwellings, of which 2 are associated and 60 are non-associated dwellings. The visual magnitude assessment indicates that 30 of the proposed WTGs are located within 4,000 m of a dwelling (below the black line).

**Figure 6.2** illustrates the Visual Zone of Influence Analysis, which indicates the theoretical number of WTGs that will be visible within the landscape. It should be noted the Visual Zone of Influence Analysis is preliminary only and is generated from topography mapping and does not take into consideration other factors that would restrict views such as orientation, vegetation, distance, perspective, etc. It should also be noted that the Visual Bulletin preliminary assessment tools are not determinative, and rather provide early indication of where placement of WTGs will require further detailed assessment and justification. Further detailed assessment and justification will be completed in the LVIA.

# Visual Magnitude

## Spicers Creek Wind Farm

**LEGEND:**

- Project Site
- Proposed WTG Location
- Associated Dwelling
- Non-associated Dwelling
- Community Building (Hall, RFS, Church)
- 4,000 m from turbine
- 5,900 m from turbine
- 8,000 m from turbine
- Main Road
- Minor Road

**Zone 1** = Dwellings within 4,000 m (Black Line)

**Zone 2** = Dwellings between 4,000 m - 5,900 m (Blue Line)

**Zone 3** = Dwellings between 5,900 m (Blue Line) and 8,000 m

### Note:

Preliminary Assessment Tool 1: Visual Magnitude is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

N

0 2 4 6 8 10km

Figure 6.1 Preliminary Assessment Tool: Visual Magnitude

# Zone of Visual Influence
# Blade Tip Height 300m

## Spicers Creek Wind Farm

**LEGEND**

- Project Site
- Proposed Turbine Location
- Associated Dwelling (TBC)
- Non-associated Dwelling (TBC)

**ZVI Legend (Number of visible turbines):**

- 0
- 1-10
- 10-25
- 25-50
- 50-75
- 75-100
- 100-122

**Note:**

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

0 2 4 6 8 10km

Figure 6.2 Zone of Visual Influence

#### 6.2.1.2 Multiple Wind Turbine Analysis

The Visual Bulletin outlines the requirements for the multiple wind turbine assessment which provides a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple WTGs, the proponent must map into six sectors of 60° any proposed WTGs, and any existing or approved WTGs within eight kilometres of each dwelling or key public viewpoint.

**Figure 6.3** provides an overview of the number of 60º sectors visible from each of the dwellings identified within 8 km. This gives an indication of the number of WTGs visible across the landscape, however, it should be noted that this is based on topography alone and does not take into consideration other factors such as orientation, vegetation, distance, perspective etc which would restrict views of the WTGs. This may result in the WTGs being either completely screened from view or only partially visible (i.e. only the tip of the WTG may be visible). It is noted that the PVIA does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

The PVIA notes that there are 12 non-associated dwellings that will have WTGs in more than two 60° sectors. Of the 12 dwellings identified:

- eight dwellings have WTGs in three 60º sectors (up to 180º)
- four dwellings in four 60º sectors (up to 240º).

The Multiple Wind Turbine Tool (MWTT) also considers WTGs associated with Bodangora Wind Farm, which is located approximately 13 km to the south-west of the Project.

The MWTT identified three dwellings within 8 km of WTGs associated with the Project Site and Bodangora Wind Farm. All three dwellings have WTGs within up to two 60º sectors which is deemed acceptable as per the Visual Bulletin. Further detailed assessment of the potential cumulative visual impact resulting from the two projects will be undertaken during the detailed LVIA Phase.

Consultation with these landholders will continue through the development of the detailed LVIA.

# Multiple Wind Turbine Tool

## Spicers Creek Wind Farm

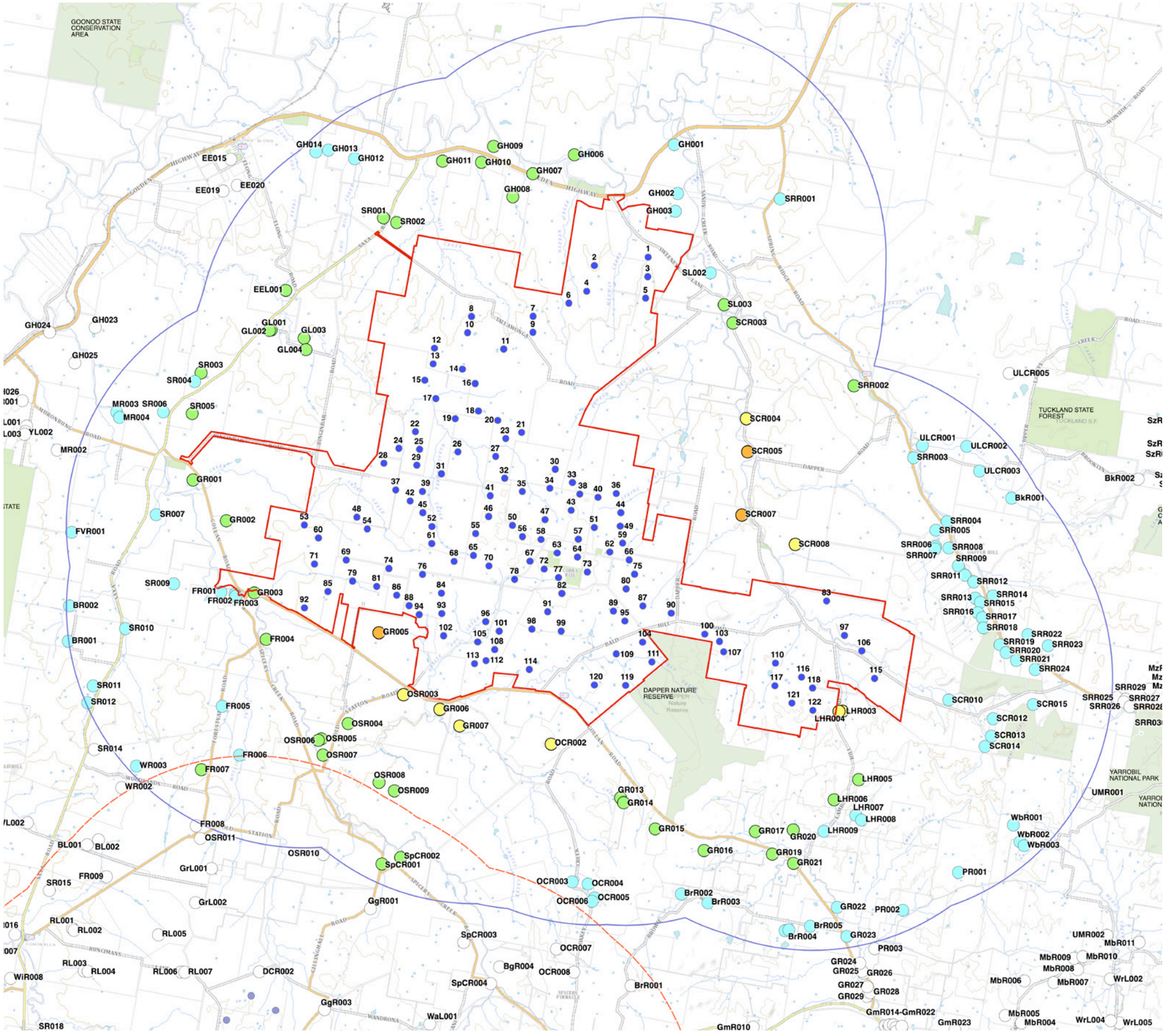



Figure 6.3 Multiple Wind Turbine Tool

**LEGEND:**

- Project Site
- Proposed WTG Location
- 8000m from turbine

Number of turbines within 60 degree sector:

- Dwelling in excess of 8 kilometres
- One 60° Sector (60°)
- Up to 2 60° Sectors (120°)
- Up to 3 60° Sectors (180°)
- Up to 4 60° Sectors (240°)

**Note:**

Preliminary Assessment Tool 2: Multiple Wind Turbine Tool is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing multiple turbines.

N

0 2 4 6 8 10km

#### 6.2.1.3 Landscape Visual Impact Assessment

The detailed LVIA will be prepared in accordance with the requirements of the Visual Bulletin which comprises three main steps:

- preparation of visual baseline study inputs, including consulting the community on aspects of the baseline study
- establishing visual influences zones from viewpoints using data collected in the baseline study
- visual performance evaluation requiring application of visual performance objectives to the proposed WTG layout.

The detailed LVIA will also include:

- a detailed assessment of the Project layout with consideration to all influencing factors such as topography, relative distance, perspective, orientation and existing vegetation that may obscure views of the Project
- consultation with potentially impacted landholders
- ground truthing, photography and photomontages of the Project
- a description of the proposed mitigation measures to reduce visual impacts.

Potential mitigation measures to reduce visual impacts may include, but will not necessarily be limited to:

- deletion of WTGs from the Project or repositioning of WTGs
- screening and/or supplementary planting
- night lighting of ancillary infrastructure being limited to low-level lighting for security, night time maintenance and emergency purposes
- consideration of WTG and Project infrastructure colour and design during final commercial tender process to minimise visibility and contrast
- entering into impact agreements with impact landholders.

### 6.2.2 Noise and Vibration

A preliminary noise assessment has been undertaken by Sonus Pty Ltd (Sonus) in accordance with the Noise Bulletin. In addition to the assessment of WTG noise, the noise from ancillary infrastructure, comprising the battery energy storage and substation equipment, has been assessed in accordance with the NSW *Noise Policy for Industry 2017* (NPfI) (EPA, 2017).

The results of the preliminary noise assessment are summarised below, with the full report provided in **Appendix 5**.

#### 6.2.2.1 Potential Noise and Vibration Impacts

The Noise Bulletin provides a baseline noise criterion of 35 dB(A) or 5 dB(A) above the background noise level at each integer wind speed for non-associated residences (whichever is greater). The Noise Bulletin enables the baseline criteria to be higher for associated dwellings. It is noted that background noise level monitoring conducted as part of the detailed EIS process may result in an increase in the noise assessment criteria for the Project above that of the 35 dB(A) baseline noise criterion.

The 35 dB(A) noise contour and the associated and non-associated dwellings are shown in **Figure 6.4** for the scenario of every WTG in the preliminary Project layout concurrently producing its maximum sound power level. As outlined in **Appendix 5**, the preliminary assessment assumes a sound power level of 108 dB(A), being 107 dB(A) with a 1 dB(A) uncertainty factor, which is a conservatively high assumed level for a modern WTG.

The preliminary prediction indicates that the noise at receivers shown outside of the 35 dB(A) contour achieves the baseline criterion and the noise at receivers inside of the 35 dB(A) contour do not achieve the baseline criterion (refer to **Figure 6.4**). Based on the preliminary modelling, there are four non-associated residences that exceed 35dBA, being GR005, GR006, LHR003 and LHR004 (refer to **Figure 6.4**). This preliminary analysis and the further detailed assessment to be undertaken as part of the EIS will further inform the detailed design of the Project to seek to minimise any significant noise impacts. This may include measures such as modifications to the WTG layout or the development of a mitigation strategy for affected non-associated dwellings.

The assessment will also assess construction phase noise impacts including on-site construction noise sources and road traffic noise impacts.

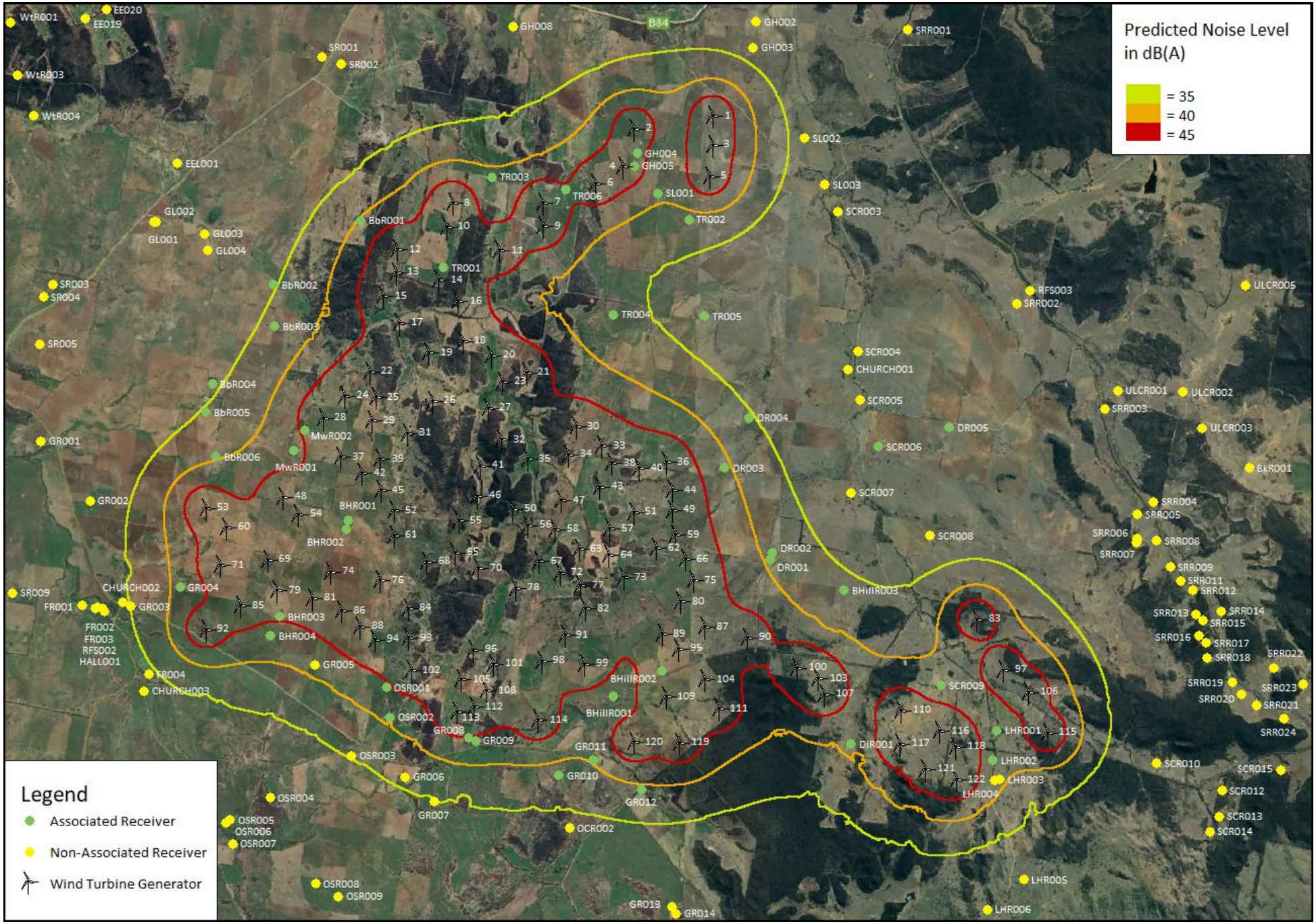



**Figure 6.4: Noise sensitive receivers**

#### 6.2.2.2 Noise and Vibration Impact Assessment Methodology

A detailed Noise and Vibration Impact Assessment (NVIA) will be prepared as part of the EIS following the Noise Bulletin (DPE, 2016c), NPfI (EPA, 2017), *Interim Construction Noise Guideline* (DECC, 2009), *NSW Road Noise Policy* (DECCW, 2011) and *Assessment Vibration: A technical Guideline* (DECC, 2006).

The NVIA will:

- establish the relevant level of background noise
- provide predictive noise modelling of the Project's construction and operational activities
- assess the road traffic noise during construction and operational activities
- assess any vibration impacts at sensitive receptors, and
- identify any reasonable and feasible mitigation and management measures.

Reasonable and feasible mitigation and management measures for noise will be considered as part of the NVIA process and may include, but will not necessarily be limited to:

- deletion of WTGs from the Project or repositioning of WTGs
- fixed construction noise sources such as concrete batching plant, generators and compressors being located at the maximum practicable distance to the nearest non-associated dwellings, where practicable
- investigate alternative construction processes where feasible and reasonable to reduce noise
- implement a Construction Environmental Management Plan (CEMP), including regular updates to the local community
- entering into impact agreements with impacted landholders.

### 6.2.3 Biodiversity

A detailed biodiversity assessment will be prepared for the Project following the NSW BAM. Biodiversity is a key consideration in the Project design and assessment work commenced in 2021 aiming to progressively gather information to inform the Project design process, assisting to avoid and minimise impacts.

A preliminary biodiversity assessment was undertaken in March/April 2021 incorporating desktop analysis and supplementary site inspection. This assessment identified potential ecological constraints present within the Project Site listed under the BC Act and the EPBC Act including threatened species, populations or threatened ecological communities (TECs) (ELA, 2021).

Following this, Umwelt commenced the biodiversity survey for the Project in September 2021, in accordance with the requirements of the BAM and to gather site specific information to inform Project design and the BDAR. The surveys are ongoing, however, a summary of the aims, methods and survey effort undertaken to date is provided in **Table 6.1**.

**Table 6.1 Biodiversity Survey Effort to Date**

| Survey Aim | Method | Survey Effort |
|---|---|---|
| **Preliminary biodiversity assessment (ELA, 2021)** | • Desktop analysis of biodiversity constraints within the Project Site<br>• Rapid vegetation points, floristic, topographical and soil data taken, along with preliminary mapping of plant community types (PCTs) within the Project Site<br>• Recording of incidental threatened species | • Rapid vegetation points and subsequent ground truthing PCT mapping (28 March - 1 April 2021) (ELA, 2021) |
| **General Ecological Survey** | • Rapid vegetation points, floristic and topographical data taken to validate and expand current PCT mapping within the Project Site<br>• Meandering transects (including walked and driven) throughout the Project Site | • Rapid vegetation points throughout the Project Site during other survey events<br>• General ecological surveys have been undertaken September, October and November 2021, January and February 2022 |
| **Collect data to use in the BAM Credit Calculator** | • BAM Vegetation Integrity Plots | • 13 BAM Vegetation Integrity Plots have been undertaken to date in September, October and November 2021, January and February 2022 |
| **Threatened species surveys** | • Targeted spring and summer threatened flora surveys, conducted using the grid-based systematic survey method.<br>• Koala SAT surveys<br>• Recording of hollow bearing trees<br>• Remote Survey Cameras deployed | • Three rounds (15 days) of spring threatened flora species surveys were conducted across September, October and November 2021. Two rounds (10 days) of summer threatened flora surveys was conducted in January and February 2022. The large habitat area survey methodology from the NSW threatened flora survey guidelines has been undertaken on all targeted flora surveys<br>• 4 koala SAT surveys have been undertaken, January 2022<br>• Remote survey cameras were deployed in the September 2021 survey program and collected in the October 2021 survey program<br>• Hollow bearing trees have been recorded opportunistically on all survey programs, being September, October and November 2021, January and February 2022 |

| Survey Aim | Method | Survey Effort |
|---|---|---|
| **Understand bird and bat site utilisation** | • Bird and Bat Utilisation Surveys (BBUS)<br>• Bird utilisation survey points, recording all bird species observed in 360 degrees, noting flight behaviour, flight orientation and estimating flight height<br>• Recording the location and behaviour of any raptor species observed at any point during the survey<br>• Bat utilisation survey points, installing Anabat units (microbat echolocation call detectors), at/near ground level as well as on an existing metrological mast | • 9 sites, each comprising bird and bat utilisation surveys<br>• Bird utilisation points each surveyed 3 times, once in the morning, once at midday and once in the afternoon (not on the same day)<br>• Anabat call detectors installed at/near ground height were deployed for 3 nights at the same 6 sites, while detectors installed on the existing meteorological mast were deployed from December 2021 to February 2022<br>• 2 detectors were deployed on the meteorological mast; one at approximately 30 metres (between the anchoring guy wires) and one at approximately 70 metres (on the meteorological mast tower) off the ground |
| **Aquatic habitat assessment** | • Assessment of riparian areas throughout the Project Site, this includes an assessment of abiotic and biotic factors contributing to aquatic habitat features | • Aquatic habitat surveys were conducted across three days in February 2022 |

#### 6.2.3.1 Preliminary Survey Results

The Project Site is comprised primarily of disturbed agricultural land (with varying degrees of biodiversity value) and mixed in-tact and modified woodlands/forests and grasslands. The extensive ecological field survey undertaken to date has currently identified six PCTs within the Project Site (refer to **Table 6.3**). Three of the PCTs are identified as having potential associations with TECs listed under the BC Act and EPBC Act.

We note that the PCT and condition zone mapping is not yet finalised and will be refined as further survey is completed through autumn, winter and spring of 2022.

Biodiversity surveys to date have resulted in the identification of two threatened fauna species-credit species within the Project Site, the superb parrot (*Polytelis swainsonii)* listed under the BC Act and EPBC Act, and the glossy black-cockatoo *(Calyptorhynchus lathami)* listed under the BC Act. An additional four threatened fauna species have been recorded through biodiversity surveys to date, being grey-crowned babbler (*Pomatostomus temporalis temporalis*), speckled warbler (*Chthonicola sagittata*), brown treecreeper eastern subspecies (*Climacteris picumnus victoriae*) and varied sitella (*Daphoenositta chrysoptera*), all listed as Vulnerable under the BC Act. As these are ecosystem-credit species and do not require targeted surveys or offsetting in accordance with BAM (DPIE, 2020).

Targeted threatened flora surveys have identified one threatened flora species, the pine donkey orchid (*Diuris tricolor*) listed under the BC Act. Stands of weeping myall (*Acacia pendula*) have been recorded within the Project Site, however all individuals recorded have clearly been identified as planted individuals. No natural recruitment of the species has been recorded to date. Planted individuals are not considered part of a threatened species or endangered population unless natural regeneration is occurring. Weeping myall is a characteristic of an endangered population under the BC Act and TECs under both the BC Act and EPBC Act. In the absence of natural regeneration being recorded, these entities have currently not been considered as part of the endangered population. A summary of the threatened flora and fauna species recorded in the Project Site is provided below in **Table 6.2**.

**Table 6.2 Threatened Flora and Fauna Species Recorded in the Project Site**

| Species | Credit Type | BC Act Status | EPBC Act Status |
|---|---|---|---|
| **Flora Species** | | | |
| pine donkey orchid *Diuris tricolor* | Species Credit | Vulnerable | - |
| weeping myall *Acacia pendula* | Species Credit | Endangered Population | - |
| **Fauna Species** | | | |
| superb parrot *Polytelis swainsonii* | Species Credit | Vulnerable | Vulnerable |
| glossy black-cockatoo *Calyptorhynchus lathami* | Dual Credit | Vulnerable | - |
| grey-crowned babbler *Pomatostomus temporalis temporalis* | Ecosystem Credit | Vulnerable | - |
| speckled warbler *Chthonicola sagittata* | Ecosystem Credit | Vulnerable | - |
| brown treecreeper eastern subspecies *Climacteris picumnus victoriae* | Ecosystem Credit | Vulnerable | - |
| varied sitella *Daphoenositta chrysoptera* | Ecosystem Credit | Vulnerable | - |

**Table 6.3 Preliminary Plant Community Types and their Extent in the Project Site**

| PCT | Preliminary Area (ha) |
|---|---|
| **81 - Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion*** | **17** |
| **267 - White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion*** | **60** |
| 272 - White Box - Black Cypress Pine - red gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes | 743 |

| PCT | Preliminary Area (ha) |
|---|---|
| **281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion*** | **168** |
| 467 - Blue-leaved Ironbark - Black Cypress Pine shrubby sandstone open forest in the southern Brigalow Belt South Bioregion (including Goonoo) | 9 |
| 468 - Narrow-leaved Ironbark - Black Cypress Pine - Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo) | 626 |
| Derived Native Grasslands[1] | 711 |
| Planted Vegetation[1] | 22 |
| Non-native including non-vegetated areas, cropped/grazing areas, roads and areas of infrastructure. | 287 |
| Category 1 – Exempt Land Mapping[2] | 5,967 |
| **Total (ha)** | **8,610** |

**Notes:**

***** Potential TECs, refer to **Section 6.2.3.2** .

[1] The Derived Native Grasslands and Planted Vegetation preliminarily mapped within the Project Site are yet to be further analysed and assigned to a PCT(s).

[2] Refer to **Section 6.2.3.6** for discussion regarding preliminary Category 1 – Exempt Land mapping.

Possible TECs located within the Project Site, subject to further analysis, include:

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (EEC - BC Act & CEEC - EPBC Act)
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (EEC – EPBC Act).

### 6.2.3.2 Potential Threatened Ecological Communities

A list of TECs that have the potential to occur within the Project Site has been prepared based on the results of the desktop assessments and ecological surveys completed to date. These are listed below in **Table 6.4**. An assessment of the likelihood of the Project being able to avoid impact on the identified TECs is also included. It is noted that this preliminary assessment is based on preliminary survey results and mapping, and on the preliminary layout of the Project which is subject to change.

**Table 6.4 Potential Threatened Ecological Communities in the Project Site**

| Threatened Ecological Community | BC Act Status | EPBC Act Status | Preliminary area of extent (ha) [1] | Likelihood of Avoidance |
|---|---|---|---|---|
| Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions | EEC | EEC | 17 | Moderate |
| White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland | CEEC | CEEC | 228 | Moderate |

[1] Based on preliminary PCT mapping presented in **Table 6.3**
EEC – Endangered Ecological Community
CEEC – Critically Endangered Ecological Community

#### 6.2.3.3 Species-Credit Species Survey Requirements

A preliminary BAM calculator assessment was completed to help guide the survey requirements for the Project. The candidate species-credit species considered to have the potential to occur within the Project Site and likely require targeted surveys are identified in **Table 6.5**. The darkened cells indicate suitable survey months as identified in the Threatened Biodiversity Data Collection (TBDC) (DPIE, 2022).

**Table 6.5 Species Credit Species Likely to Require Survey within the Project Site**

| Scientific Name | Common Name | Credit Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Amphibians** | | | | | | | | | | | | | | |
| ***Litoria booroolongensis*** | Booroolong frog | Species | | | | | | | | | | | | |
| ***Crinia sloanei*** | Sloane's froglet | Species | | | | | | | | | | | | |
| **Birds** | | | | | | | | | | | | | | |
| ***Anthochaera phrygia*** | regent honeyeater | Dual | | | | | | | | | | | | |
| ***Burhinus grallarius*** | bush stone-curlew | Species | | | | | | | | | | | | |
| ***Callocephalon fimbriatum*** | gang-gang cockatoo | Species | | | | | | | | | | | | |
| ***Calyptorhynchus lathami*** | glossy black-cockatoo | Species | | | | | | | | | | | | |
| ***Haliaeetus leucogaster*** | white-bellied sea-eagle | Dual | | | | | | | | | | | | |
| ***Hieraaetus morphnoides*** | little eagle | Dual | | | | | | | | | | | | |
| ***Lathamus discolor*** | swift parrot | Dual | | | | | | | | | | | | |
| ***Lophochroa leadbeateri*** | Major Mitchell's cockatoo | Species | | | | | | | | | | | | |
| ***Lophoictinia isura*** | square-tailed kite | Dual | | | | | | | | | | | | |
| ***Ninox connivens*** | barking owl | Dual | | | | | | | | | | | | |
| ***Ninox strenua*** | powerful owl | Dual | | | | | | | | | | | | |
| ***Polytelis swainsonii*** | superb parrot | Dual | | | | | | | | | | | | |
| ***Tyto novaehollandiae*** | masked owl | Dual | | | | | | | | | | | | |
| **Invertebrate** | | | | | | | | | | | | | | |
| ***Synemon plana*** | golden sun moth | Species | | | | | | | | | | | | |
| **Mammals** | | | | | | | | | | | | | | |
| ***Cercartetus nanus*** | eastern pygmy-possum | Species | | | | | | | | | | | | |
| ***Chalinolobus dwyeri*** | large-eared pied bat | Species | | | | | | | | | | | | |
| ***Miniopterus schreibersii oceanensis*** | large bent-winged bat | Species | | | | | | | | | | | | |

| Scientific Name | Common Name | Credit Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Petaurus norfolcensis*** | squirrel glider | Species | | | | | | | | | | | | |
| ***Petrogale penicillata*** | Brush-tailed Rock-wallaby | Species | | | | | | | | | | | | |
| ***Phascolarctos cinereus*** | koala | Species | | | | | | | | | | | | |
| ***Pteropus poliocephalus*** | grey-headed flying-fox | Species | | | | | | | | | | | | |
| **Reptiles** | | | | | | | | | | | | | | |
| ***Aprasia parapulchella*** | pink-tailed worm-lizard | Species | | | | | | | | | | | | |
| ***Delma impar*** | striped legless lizard | Species | | | | | | | | | | | | |
| ***Hoplocephalus bxitorquatus*** | pale-headed snake | Species | | | | | | | | | | | | |
| **Plants** | | | | | | | | | | | | | | |
| ***Acacia ausfeldii*** | Ausfeld's wattle | Species | | | | | | | | | | | | |
| ***Ammobium craspedioides*** | Yass daisy | Species | | | | | | | | | | | | |
| ***Androcalva procumbens*** | | Species | | | | | | | | | | | | |
| ***Cullen parvum*** | small scurf-pea | Species | | | | | | | | | | | | |
| ***Dichanthium setosum*** | bluegrass | Species | | | | | | | | | | | | |
| ***Diuris tricolor*** | pine donkey orchid | Species | | | | | | | | | | | | |
| ***Euphrasia arguta*** | - | Species | | | | | | | | | | | | |
| ***Homoranthus darwinioides*** | - | Species | | | | | | | | | | | | |
| ***Indigofera efoliata*** | leafless indigo | Species | | | | | | | | | | | | |
| ***Lepidium monoplocoides*** | winged peppercress | Species | | | | | | | | | | | | |
| ***Pomaderris queenslandica*** | scant pomaderris | Species | | | | | | | | | | | | |
| ***Prasophyllum petilum*** | Tarengo leek orchid | Species | | | | | | | | | | | | |
| ***Prasophyllum sp. Wybong*** | | Species | | | | | | | | | | | | |
| ***Swainsona recta*** | small purple pea | Species | | | | | | | | | | | | |
| ***Swainsona sericea*** | silky swainson-pea | Species | | | | | | | | | | | | |
| ***Tylophora linearis*** | | Species | | | | | | | | | | | | |

| Scientific Name | Common Name | Credit Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Zieria ingramii*** | Keith's zieria | Species | | | | | | | | | | | | |
| ***Zieria obcordata*** | granite zieria | Species | | | | | | | | | | | | |

#### 6.2.3.4 Bird Utilisation

Two rounds of bird utilisation surveys have been conducted as part of the summer survey program. Surveys were undertaken across December 2021 and February 2022.

A total of 61 bird species were recorded during the December 2021 survey program. Three species recorded were raptor species, being wedge-tailed eagle, brown falcon and nankeen kestrel, the first two of which are known to be susceptible to WTG strike due to their foraging behaviours (Marchant and Higgins, 1993), their flight height during foraging in particular. Four threatened bird species were recorded during this survey, being grey-crowned babbler, brown treecreeper, varied sitella and speckled warbler, all of which are Ecosystem Credit species in accordance with BAM (that is they do not require targeted survey under the BAM and do not require generation of species credits for any impacts as they are covered by the ecosystem credits generated). No Species Credit species in accordance with BAM were recorded during the December 2021 bird utilisation surveys. In general, bird diversity was considered to be characteristic of a landscape dominated by intensive agricultural land use with remnant patches of vegetation throughout. Furthermore, abundance and activity was noted as being low during this field survey.

A total of 55 bird species were recorded during the February 2022 survey program. Four species recorded were raptor species, being wedge-tailed eagle, brown falcon, nankeen kestrel and Australian hobby, the first two of which are known to be susceptible to WTG strike due to their foraging behaviours. Three threatened bird species were recorded during this survey, being superb parrot, grey-crowned babbler and speckled warbler. The superb parrot is a Species Credit species in accordance with BAM, while the remaining threatened species recorded are Ecosystem Credit species. In general, bird diversity, abundance and activity was observed to be substantially increased compared to the earlier survey in December 2021.

#### 6.2.3.5 Bat Utilisation

Two rounds of bat utilisation surveys have been conducted as part of the summer survey program across December 2021 and February 2022. Echolocation results are currently being processed by a suitably qualified and trained expert in the field.

Based on the results in **Table 6.4**, the following three bat species (two microbat species) have been identified as having the potential to occur in the Project Site based on a combination of desktop assessment and field surveys. These three species are species-credit species and require targeted surveys in accordance with BAM (DPIE, 2020).

- Large-eared pied bat
- Large bent-winged bat
- Grey-headed flying-fox.

The following additional three microbat species have also been identified as having the potential to occur in the Project Site on a combination of desktop assessment and field surveys. These three species are ecosystem-credit species and do not require targeted surveys in accordance with BAM (DPIE 2020).

- Little pied bat
- Corben's long-eared bat

- Yellow-bellied sheathtail bat.

Following completion of the echolocation call analysis, the list of microbat species requiring consideration and assessment will be validated.

#### 6.2.3.6 Biodiversity Development Assessment

Umwelt has prepared Preliminary mapping of Category 1 – Exempt Land for the Project. The GIS files of this mapping product and the associated short report documenting the methodology of the assessment and results was provided to BCS for review on 7 December 2021. On 13 January 2022, Umwelt received written feedback of the review of the mapping which endorsed the method use to categorise the land, with some minor changes which have been adopted (refer to **Appendix 6**).

As provided for by the BAM, all Category 1 – Exempt Land mapped land has been excluded from biodiversity surveys, including BAM Vegetation Integrity Plots and targeted surveys for flora and fauna species-credit surveys.

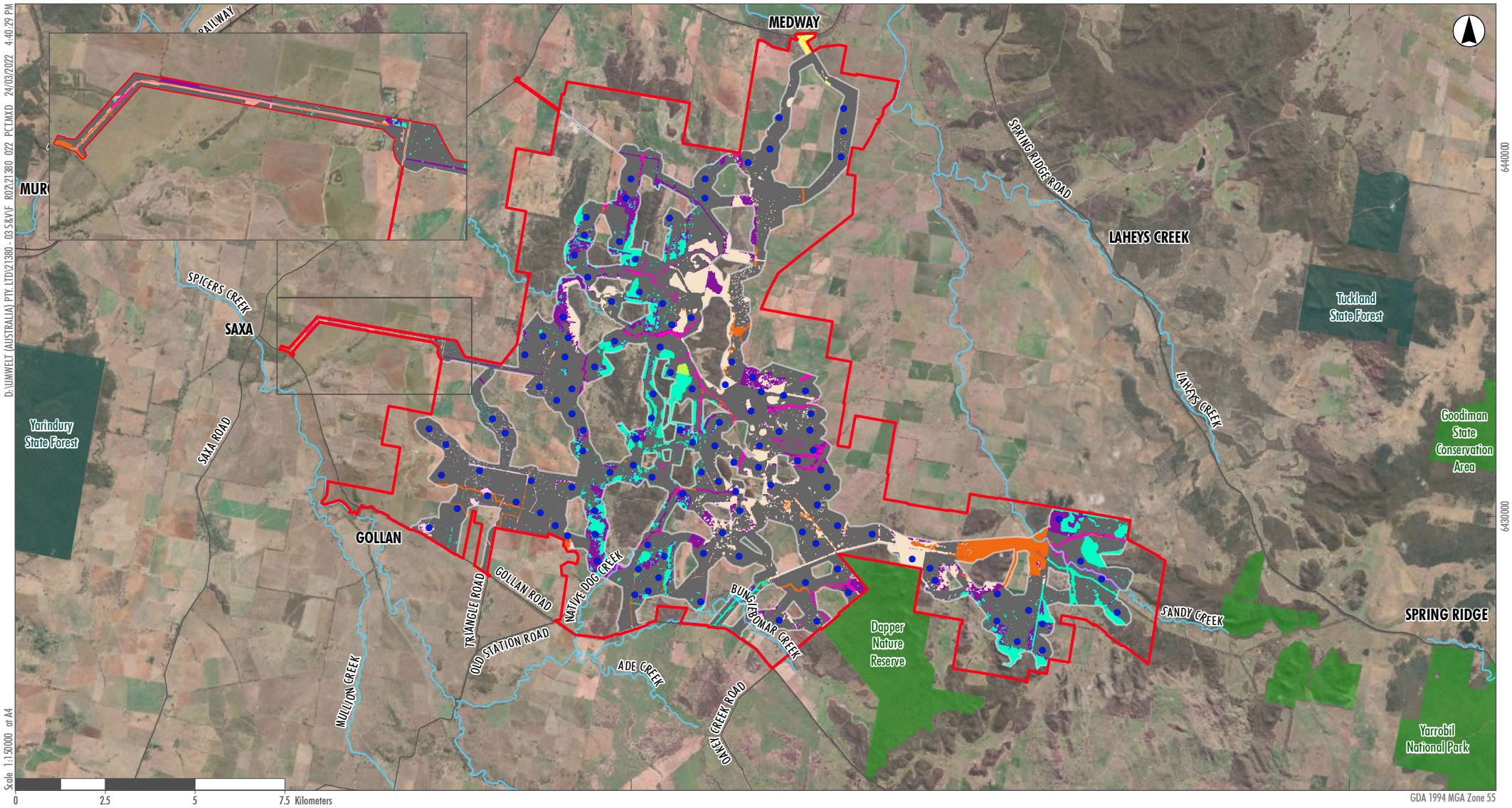
Additional detailed biodiversity surveys will be undertaken within the Project Site with a focus on the proposed development area and in the vicinity of proposed WTG and infrastructure locations. Following the completion of the surveys, a BDAR will be prepared. The BDAR will include:

- field surveys and GIS mapping:
    - PCT survey and GIS mapping
    - targeted species-credit survey
    - bird and bat utilisation survey
- results of the literature review
- methods and results of vegetation surveys including a vegetation community map (based on PCTs and including TECs)
- methods and results of surveys targeting species-credit species
- assessment of prescribed impacts
- outcomes of the calculator assessment identifying the credits generated by the PCTs (and ecosystem-credit species) and species-credit species
- relevant data and mapping for Agency submission including field sheets, figures and associated GIS files.

Potential mitigation measures to reduce biodiversity impacts may include, but will not necessarily be limited to:

- avoiding areas of high value native vegetation (including TECs) as far as practicable

- implementation of a comprehensive biodiversity mitigation and management strategy to minimise the unavoidable impacts of the Project on biodiversity values, including:
    - salvage of biodiversity features, including habitat resources (e.g. hollow logs, tree hollows, fallen timber and rocks/boulders) from areas to be cleared
    - implementation of a pre-clearing procedures
    - weed management
    - bushfire management
    - erosion and sedimentation control
- a biodiversity offset strategy.



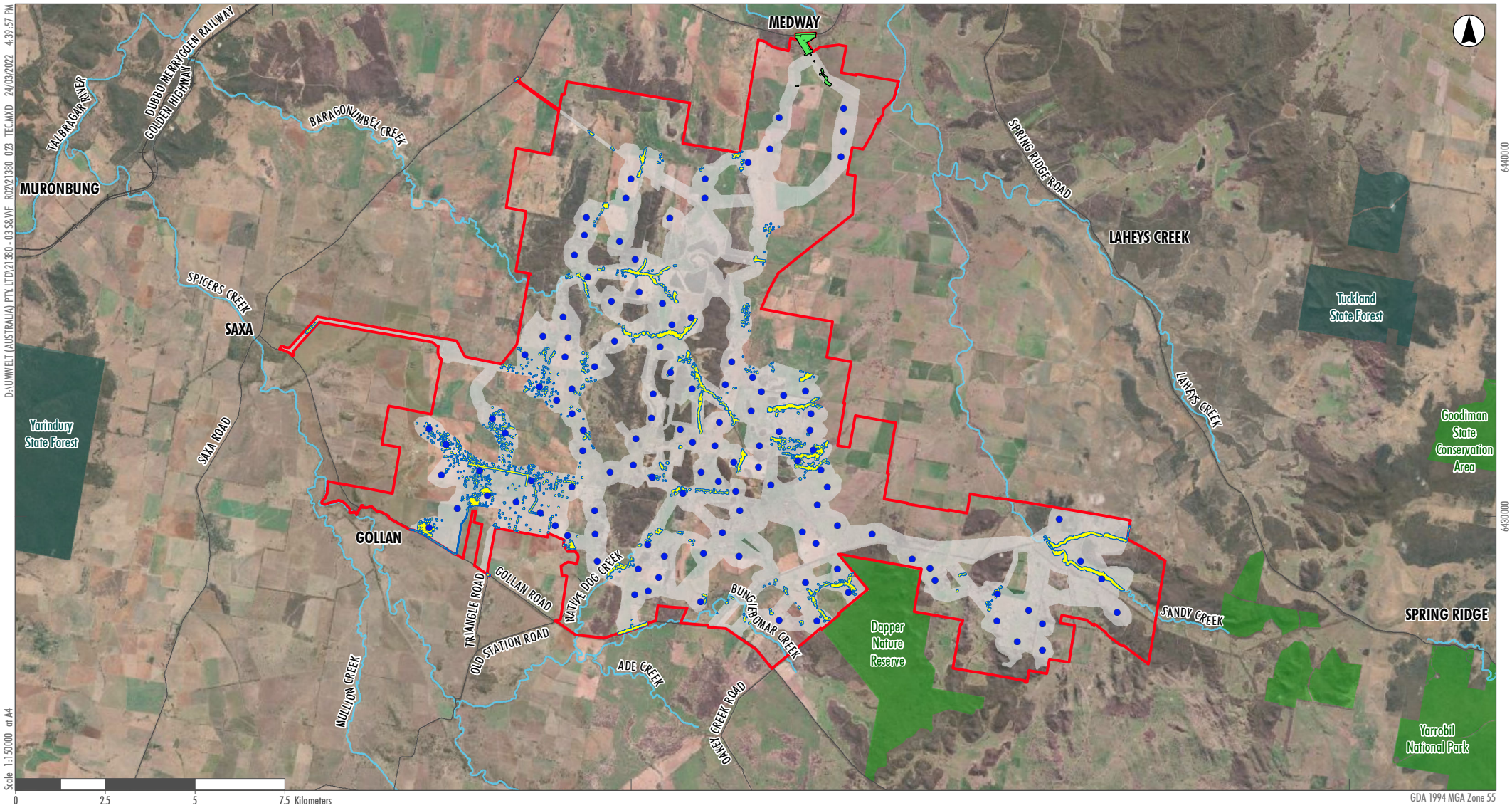

Legend

- Project Site
- Proposed Development Area
- Proposed Wind Turbine Generator
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway
- PCT: 081
- PCT: 267
- PCT: 272
- PCT: 281
- PCT: 467
- PCT: 468
- PCT: DNG
- PCT: TBD Planted
- Non-Native
- Land Category 1 - Exempt Land

FIGURE 6.5

**Preliminary Vegetation Communities within the Project Site**

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)




Legend

- Project Site
- Proposed Development Area
- Proposed Wind Turbine Generator
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

**BC Act**

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions EEC
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

**EPBC Act**

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions EEC
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

FIGURE 6.6

## Threatened Ecological Communities within the Project Site

## 6.2.4 Heritage

### 6.2.4.1 Aboriginal Heritage

The Project Site falls on the land of the Wiradjuri people within the Dubbo Local Aboriginal Land Council (LALC) area. There are no known native title claims over the Project Site. Three registered Aboriginal open camp sites are located within the Project Site (refer to **Figure 6.7**) and preliminary analysis indicates that the Project design can accommodate the avoidance of these registered sites. It is expected that additional Aboriginal sites and values will be present in the Project Site and a detailed Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken to assess potential impacts in accordance with the registered Aboriginal parties for the Project.

The ACHA will be undertaken in accordance with the following key guidelines:

- the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011)
- the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010a).

The ACHA will include consultation with the registered Aboriginal parties for the Project in determining and assessing impacts, developing and selecting options and mitigation measures, having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010b).

A range of management strategies may be available in relation to the Project that include varying levels of mitigation of identified sites or potential harm to Aboriginal cultural heritage. The micro-siting of infrastructure will allow for some flexibility in the management of Aboriginal cultural heritage. When impacts to sites or areas of archaeological potential are unavoidable, a strategy will be developed that involves implementing appropriate measures to manage and mitigate these impacts with reference to the archaeological and Aboriginal cultural significance of the sites/areas of potential.

### 6.2.4.2 Historic Heritage

There are no Commonwealth or World listed heritage places located within or in proximity to the Project Site. There are also no State listed or locally listed heritage places or items located within the Project Site.

There are a number of local heritage sites located in the broader area surrounding the Project Site, generally located in the vicinity of townships. None of these identified local heritage sites are anticipated to be impacted by the Project.

The EIS will be supported by a historical heritage assessment (HHA) which will be prepared with regard to the NSW Heritage Manual, relevant Heritage Council of NSW guidelines and with consideration of the principles contained in *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* (ICOMOS, 2013).

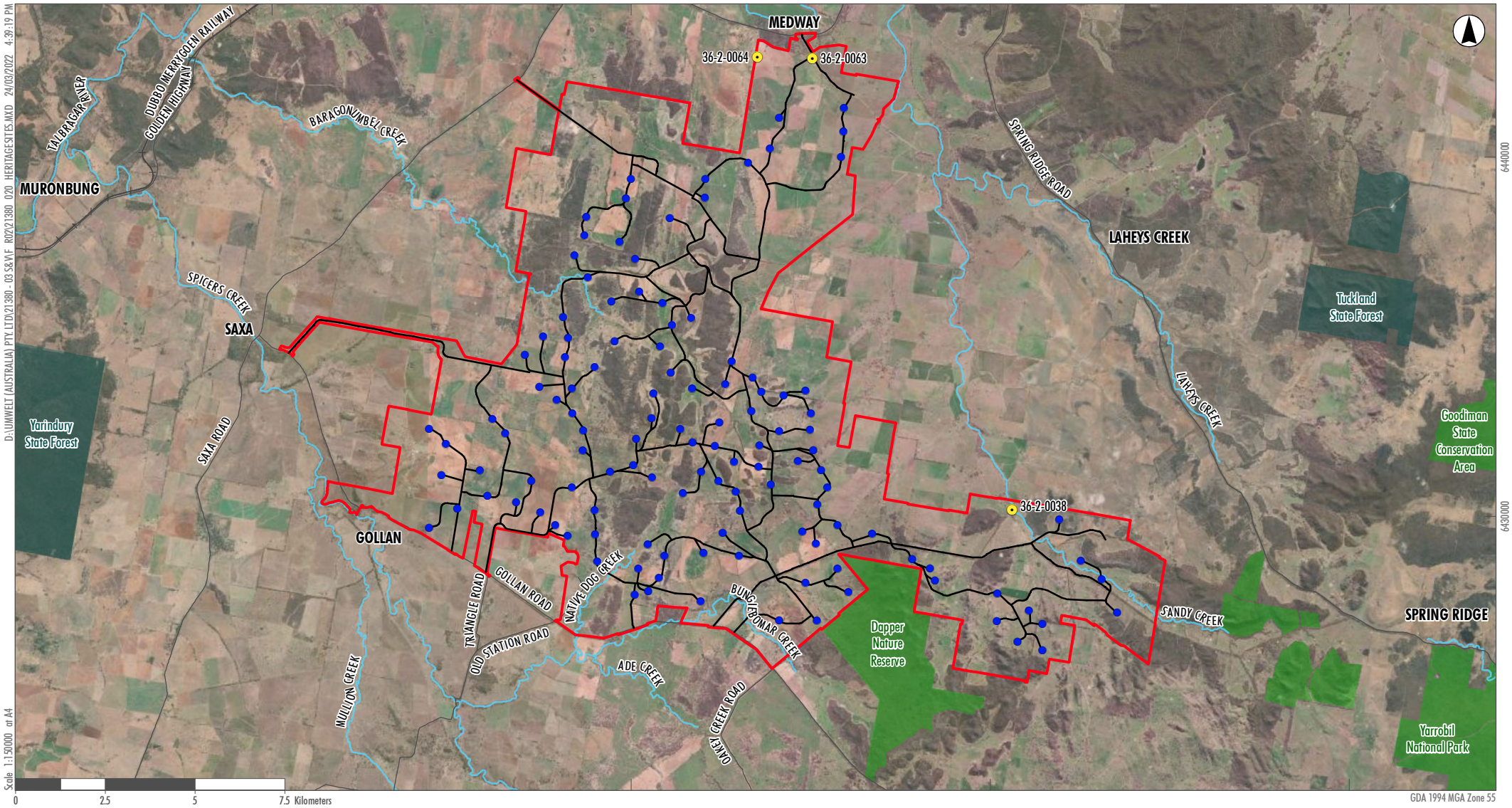



FIGURE 6.7

Known Heritage Sites

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022); AHIMS (2022)

### 6.2.5 Traffic and Transport

The construction phase of the Project will result in increased traffic movements by both light vehicles transporting construction personnel and minor light construction materials, and also heavy vehicle movements (including OSOM vehicles) transporting the WTGs, blades and other heavy-duty equipment required for construction purposes. Traffic increases associated with the operational phase of the Project will be minimal and will generally only involve the movement of light vehicles transporting operational staff around the site intermittently.

Major WTG components will be delivered to the Port of Newcastle and transported to the Project Site by OSOM vehicles via the Hunter Expressway and the Golden Highway (refer to **Section 3.5.2** for further detail on the proposed transport routes). Access tracks will be constructed on site to provide access to the proposed WTG locations (refer to **Figure 3.2**). The proposed delivery route, access tracks and level of construction/maintenance required will be confirmed and assessed during the preparation of the EIS.

It is expected that upgrades to local roads (secondary access routes) will be required to allow access for heavy vehicles (where considered suitable) prior to any deliveries occurring as part of the construction phase of the Project. There may also be some minor works required along the primary transport route from the Port of Newcastle to facilitate the path of OSOM vehicles, however, it is noted that this same route is being used by other preceding wind farm projects and the required works may be completed prior to this Project commencing. Existing access tracks within the Project Site will also be upgraded (where appropriate) to facilitate delivery of the WTGs and other heavy-duty equipment. All access tracks will be maintained during the construction phase of the Project.

A Traffic and Transport Impact Assessment (TTIA) and route assessment will be undertaken to assess the potential transport routes required for the construction of the Project and any potential impact to the road network. The assessments will be undertaken following relevant NSW Government guidelines and assessment standards including Guide to Traffic Generating Developments (RTA, 2002), Road Design Guide and relevant Austroads Standards and Austroads Guide to Traffic Management.

The TTIA will be include:

- a review and assessment of the existing road network
- a review of any previous traffic impact assessments undertaken for the surrounding area
- traffic counts in selected areas along the proposed traffic routes (if data is not readily available)
- a detailed assessment of the likely Project-alone and cumulative traffic impacts during the construction and operational phases of the Project (including intersection performance, capacity, safety and site, and
- identification of any mitigation and management measures that may be required.

Potential mitigation measures to reduce traffic impacts may include, but will not necessarily be limited to:

- preparation of a Construction Traffic Management Plan that will outline the controls required during the construction phase and will be prepared in consultation with relevant roads authorities

- undertaking any necessary road upgrade works to facilitate access to the site and along the proposed transport route
- undertake consultation with relevant Councils regarding an infrastructure or maintenance agreement to cover any required mitigation works to manage the expected pavement impacts of the Project on the lower order, local government-controlled road links.

### 6.2.6 Socio-Economic Impacts

A SISR has been undertaken by Umwelt in accordance with the scoping phase requirements of the NSW Social Impact Assessment Guideline for State Significant Projects (DPIE 2021c). The SISR appears in full in **Appendix 2** and this section provides a summary of the key findings.

The Project Site is located within the Central West Orana Region in NSW, within the Dubbo Regional and Warrumbungle Shire LGAs, and in proximity to the localities of Goolma, Gollan, Spicers Creek, Geurie, Wongarbon and Elong Elong (refer to **Figure 1.1**).

The townships of Gulgong, Wellington, and Dunedoo are considered communities of interest for the SIA given their proximity to the Project Site. Gulgong, is home to approximately 2,521 people (as at the 2016 census), can be characterised by its history and heritage buildings and streetscapes that act as a tourist attraction in the region. Dunedoo is a smaller town by comparison with a population of 1,221 across the Dunedoo state suburb. In contrast, Wellington is home to approximately double the number of residents as Gulgong (4,519) and acts as a centre for the surrounding rural community.

The closest larger town is Dubbo with a population of 38,943 (as at the time of the 2016 census). It serves as a large regional centre for the surrounding localities and contains a wide range of services and facilities to support the surrounding population.

The Central West Orana Region is a diverse and productive region with good connectivity to Sydney, Canberra and Newcastle. The population of the region is expected to reach 300,000 people by 2036, and as such, there has been a strong focus from the NSW Government to develop the region into 'the most diverse regional economy in NSW with a vibrant network of centres leveraging the opportunities of being at the heart of NSW' (NSW Government, 2016).

As outlined in **Section 4.0** , land within and surrounding the Project Site has been subject to extensive vegetation clearing associated with historic agricultural land uses and is predominately utilised for grazing activities, with some cropping and horticulture. The primary agricultural industries in the Dubbo Regional LGA are wool ($28.5 million), cereal crops (worth $27.4 million), and cattle and calves ($23.2 million). The key agricultural pursuits are similar in the Warrumbungle Shire LGA, with cattle and calves the largest industry ($46.2 million) followed by cereal crops ($23.5 million) and wool ($16.9 million) (NSW Government, 2016). In the Dubbo Regional LGA, the 'Food Product Manufacturing' sector was the largest exporter, with goods valued at $401.06 million (Dubbo Regional Council, 2019).

Feedback from the community and other stakeholders at the community drop-in sessions and survey discussed in **Section 5.0** identified perceived social impacts from the Project. These social categories and perceived impacts are summarised in **Table 6.6** and will be subject to assessment as part of the SIA.

**Table 6.6 Perceived Social Impacts**

| Category | Perceived Social Impact |
|---|---|
| Way of Life | Changing land use and how people work |
| Community | Change in community character and composition |
| Accessibility | Access to property |
| Health and Wellbeing | Stress and anxiety |
| Surroundings | Impacts on flora and fauna<br>Noise impacts during operational phase<br>Visual amenity |
| Livelihoods | Changing use impacting on ability to maintain land-based livelihoods<br>Property values |
| Decision Making Systems | Inability to meaningfully influence decision making process |
| Cumulative | Changed caused by multiple concurrent projects |

A key part of addressing the perceived social impacts identified in **Table 6.6** will be the stakeholder engagement program. CWPR will continue to implement the stakeholder engagement program to engage the community throughout the environmental assessment and approval process and the operational life of the Project. This early engagement will inform the assessment of the social and economic impacts associated with the Project. The program has been designed in line with the following objectives:

- keep the community informed about the Project, its likely impacts and likely benefits, through the provision of accurate and timely information
- provide multiple opportunities and mechanisms for meaningful information exchange with stakeholders
- ensure that the team developing the Project fully understands the local context, including any local impacts that it may have or opportunities that it could provide
- integrate feedback received into the Project planning and design as far as possible
- build and maintain positive, trust-based relationships with the local community.

An SIA will be submitted with the EIS and will be prepared in accordance with the NSW *Social Impact Assessment Guideline for State Significant Projects* (DPIE, 2021c).

To minimise potential negative social impacts and enhance social benefits for the community, there have been a number of Project design changes based on the outcomes of community engagement to date, and a range of management measures are proposed for the Project. These may include:

- designing the Project to seek to avoid and minimise impacts on environmental values and the surrounding community where practicable
- entering into agreements with the most affected near neighbours to the Project including commitments to appropriate mitigation and management measures where appropriate

- ongoing Community Sponsorship Program which provides funding or in-kind support to community organisations and/or community-based activities, events, initiatives and projects
- developing a VPA with host Councils
- employment and training opportunities for local community
- use of local contractors and suppliers (including use of expression of interest form on Project website)
- ongoing engagement with local community and key stakeholders as the Project progresses.

Further mitigation and management measures will be considered as part of the SIA for the Project.

### 6.2.7 Hazards and Safety

The following section addresses the proposed approach to assessing potential hazards and safety impacts associated with the Project including aviation safety, electromagnetic fields (EMF), impacts to telecommunications, blade throw, shadow flicker, blade glint and bushfire threat.

#### 6.2.7.1 Aviation Safety

The Project, like all wind farms, will need to consider the potential for interaction with air services. WTG height and placement will consider potential safety hazards for aircraft including intrusion into the airspace and potential for effects on navigation instruments. The Dubbo City Regional Airport is located approximately 55 km north-west of the Project Site. There are also a number of small private airstrips and runways located within the vicinity of the Project Site which will be considered in the assessment.

The EIS will include an Aviation Impact Assessment (AIA) which will include the following specific requirements as advised by Airservices Australia:

- Aerodromes:
    - specify all registered/certified aerodromes that are located within 30 nautical miles (55.56 km) of the Project Site
    - nominate all instrument approach and landing procedures at these aerodromes
    - review the potential effect of the Project on the operational airspace of the aerodromes.
- Air Routes:
    - nominate published air routes which are located near/over the Project Site and review potential impacts of the Project on aircraft using those air routes.
- Airspace:
    - nominate the airspace classification where the Project Site is located.
- Navigation/Radar:
    - nominate radar navigation systems with coverage overlapping the Project Site.

A risk assessment in relation to night lighting of the WTGs will also be undertaken in accordance with Australian Standard AS/NZS ISO 31000:2018 Risk Management – Guidelines.

During the development of the AIA, consultation will be undertaken with Airservices Australia, the Department of Defence, relevant local Councils and aerodrome operators.

#### 6.2.7.2 Electromagnetic Fields

EMF are present where electric current flows, including overhead and underground transmission lines and substations and electrical appliances. The standard SEARs for wind farm developments require proponents to *"consider and document any health issues having regard to the latest advice of the National Health and Medical Research Council, and identify potential hazards and risks associated with electric and magnetic fields and demonstrate the application of the principles of prudent avoidance."*

The EIS will include an EMF assessment which will consider potential health issues and risks associated with EMF produced by the wind farm and associated electrical infrastructure within the Project Site in accordance with the ICNIRP Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1998).

#### 6.2.7.3 Telecommunications

Telecommunications and radar services (civil and meteorological) can be impacted by WTGs through electromagnetic interference (EMI).

As part of the preliminary constraint assessments undertaken to inform the design of the Project, a review of telecommunications services in the area was undertaken. This included point to point microwave links, meteorological radar, mobile voice-based communications, wireless and satellite internet services, broadcast and digital radio, and broadcast, digital and satellite television.

Appropriate buffer distances have been applied in the current Project layout to avoid potential interference from WTGs with these communication links.

The EIS will include an EMI Assessment which will address any impact to radiocommunication services within and surrounding the Project Site as a result of the Project and identify any required mitigation measures.

#### 6.2.7.4 Blade Throw

Blade throw typically involves the failure of the turbine rotor which has the potential to result in the turbine blade becoming detached from the turbine. This risk is addressed by the WTG design, however, an assessment will be undertaken for the Project. The blade throw assessment will consider the potential risk of blade throw associated with the proposed WTG layout. The assessment will include:

- general review and assessment of the likelihood of blade throw occurring and typical blade throw distances
- calculation of the separation distance between WTGs and neighbouring dwellings and property boundaries

- consideration of mechanisms to reduce the likelihood of blade throw occurring, including:
    - relevant standards against which WTGs should be certified
    - typical overspeed and failsafe protection mechanisms
    - management and maintenance procedures, including regular inspections
    - provisions for blade replacement.

#### 6.2.7.5 Shadow Flicker and Blade Glint

Shadow flicker is a moving shadow cast by the blades of a WTG from the sun which can cause a nuisance at surrounding dwellings and in rare cases can cause health impacts such as photosensitive epilepsy or motion sickness. Blade glint can result from sunlight reflecting off the white components of the WTGs. The risk of blade glint from WTG is low given majority of manufacturers treat the WTGs with non-reflective finishes to reduce the risk of this occurring.

The EIS will include a Shadow Flicker Assessment which will:

- review sensitive receiver locations
- estimate the annual hours of shadow flicker received at each dwelling
- identify any dwellings where there is potential for the shadow flicker duration to exceed the limits specified in the relevant guidelines
- identify the specific WTGs contributing to the shadow flicker for each dwelling
- assess the likely reduction in shadow flicker duration due to WTG orientation and cloud cover
- generate maps of theoretical and predicted actual shadow flicker duration
- consider the potential sources of conservatism in the assessment.

The Shadow Flicker Assessment will also include an assessment of blade glint.

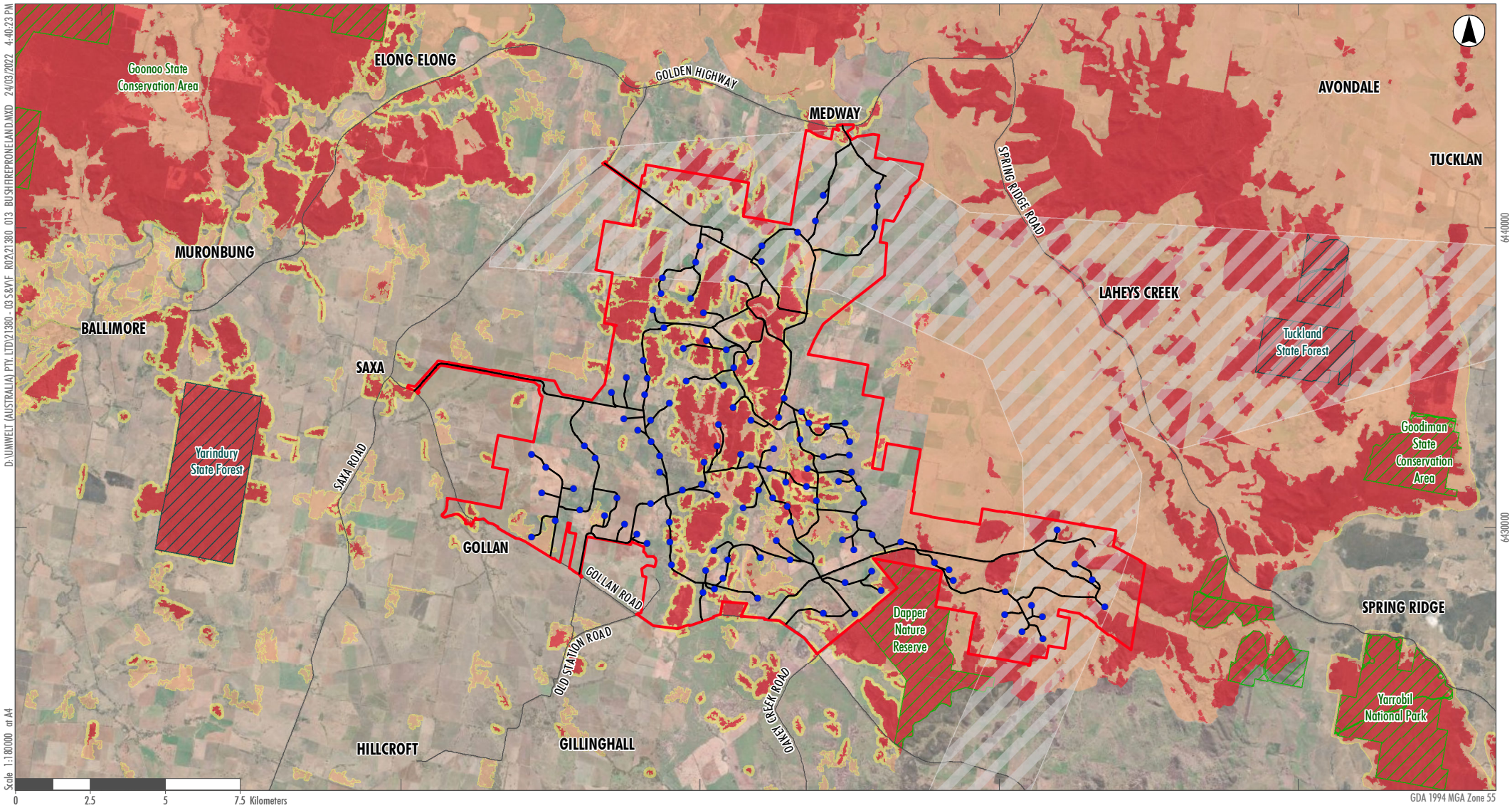
As discussed in **Section 6.2.1**, a number of visual mitigation measures will be considered for the Project.

#### 6.2.7.6 Bushfire Hazard

The Project Site is identified as bushfire prone land by Dubbo Regional Council and Warrumbungle Shire Council Bushfire Prone Land Mapping (refer to **Figure 6.8**).

Although the Project Site has been subject to extensive clearing associated with agricultural land use there are areas of remnant vegetation, which form a potentially significant fuel load capable of sustaining and spreading bushfire. Areas of vegetation within the Project Site also represent a potential linkage between vegetated areas within and adjoining the Project Site, with the potential to support the spread of bushfire.

A bushfire threat assessment will be undertaken in accordance with the requirements of Planning for Bushfire Protection (PBP) 2019 (NSW Rural Fire Service, 2019). Consultation with the NSW Rural Fire Service (RFS) will also be undertaken during the preparation of the EIS.




Legend

- Project Site
- Proposed Wind Turbine Generator
- Proposed Access Track
- Indicative REZ Transmission Corridor
- State Forest
- NPWS Estate
- Road

**Bushfire Prone Land Vegetation Category Mapping**

- Vegetation Buffer (100m to Category 1 Vegetation and 30m to Category 2 Vegetation)
- Vegetation Category 1 (High Risk)
- Vegetation Category 2 (Medium Risk)

FIGURE 6.8

Bushfire Prone Land

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

### 6.2.8 Water and Soil Resources

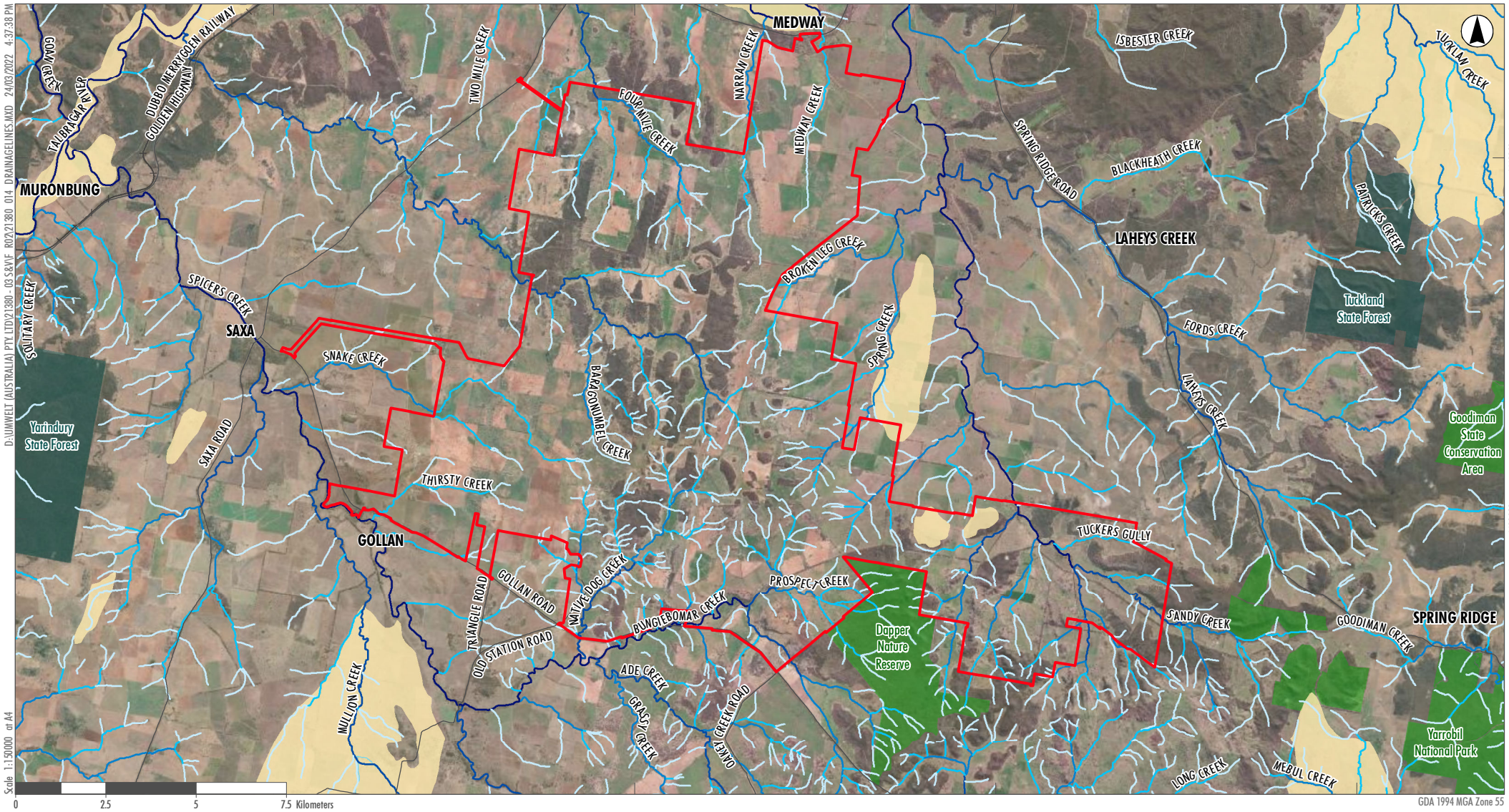
The Project Site falls within the Macquarie-Bogan Catchment. There are a number of minor creeks that traverse the Project Site (refer to **Figure 6.9**). The Project Site is not mapped as flood prone. The key potential for impacting on water is therefore associated with construction works, in particular the potential for erosion and sedimentation during civil works, and the potential impacts on flows associated with the site access road crossings of minor drainage lines on the sites. These risks can be readily addressed through standard design and construction techniques, however, further assessment of these issues will be undertaken as part of the EIS.

The land within the Project Site is Class 3, 5, 6 and 7 under the Land and Soil Capability Assessment Scheme (LSC) (refer to **Figure 6.10**). There is approximately 7,356 ha of Class 3 land located within the Project Site, with approximately 3,460 ha within the Proposed Development Area. It is noted that the Proposed Development Area is a conservative area for early assessment purposes and the proposed disturbance area will likely be significantly smaller, subject to further detailed assessments and design. Where practicable, the proposed disturbance area for the Project will seek to minimise disturbance to areas of Class 3 land as far as practicable. Small portions of the south-east section of the Project Site are identified as Biophysical Strategic Agricultural Land (BSAL) (refer to **Figure 6.9**). The Project has been designed to avoid BSAL within the Project Site. Agricultural activities will be ongoing within the Project Site, co-existing with the Project.

A Water and Soils Impact Assessment (WSIA) will be undertaken as part of the EIS that will consider potential impacts on water resources and the catchment, including flooding, erosion and sediment control, water quality, water users, water sourcing and licence, and any required management and mitigation measures to minimise the potential impacts of the Project on water and soil resources.

Potential mitigation measures to reduce water and soil impacts will include, but will not necessarily be limited to:

- minimising works within protected lands along waterways
- appropriate construction of waterway crossings to minimise impacts on flows and maintain fish passage in accordance with relevant guidelines
- implementation of appropriate erosion and sediment control measures, developed in accordance with relevant guidelines
- minimising the disturbance footprint and rehabilitating areas impacted during the construction phase that are not required for ongoing operations.




Legend

- Project Site
- Biophysical Strategic Agricultural Land
- State Forest
- NPWS Estate
- Road
- Railway

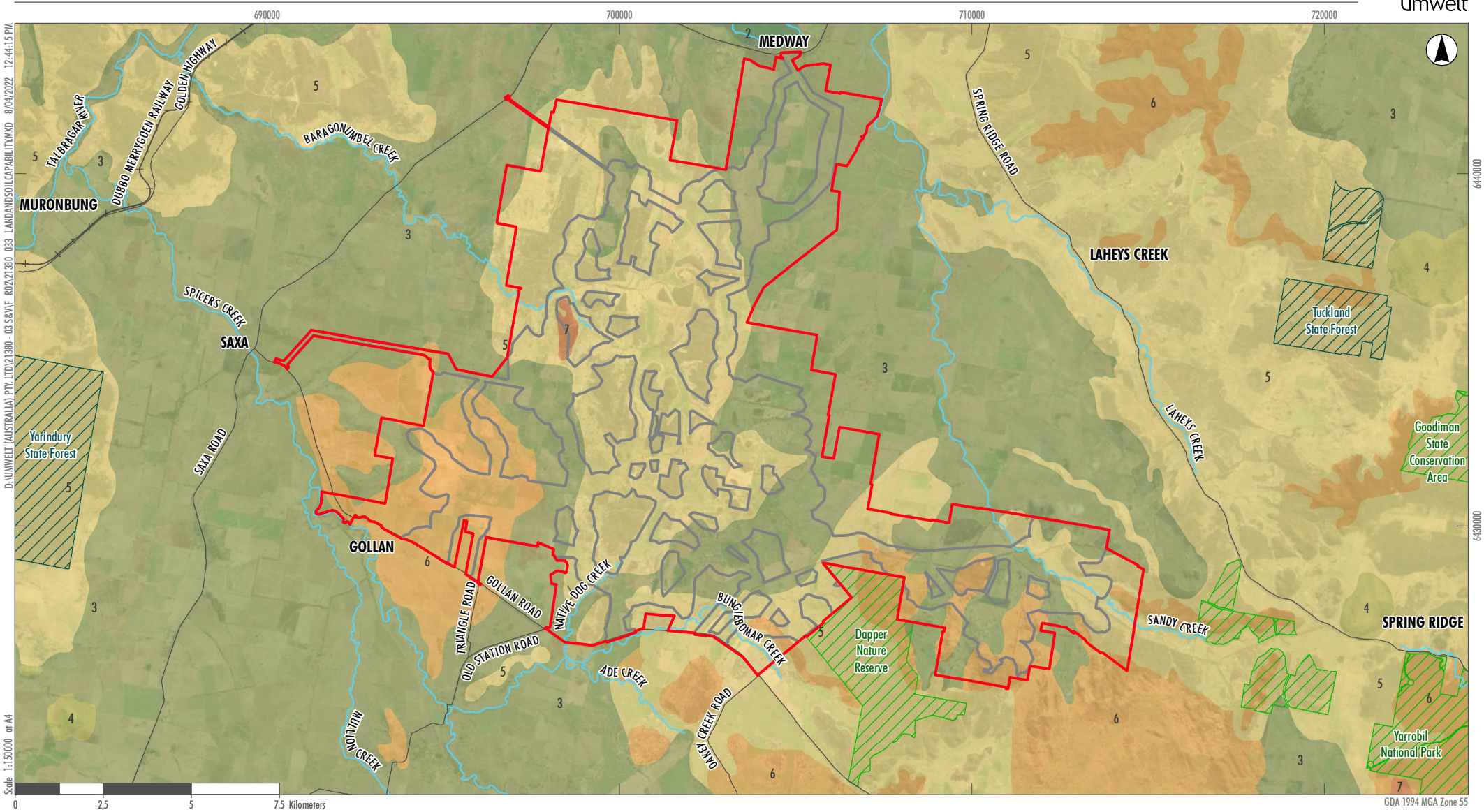
Strahler Stream Order

- 1
- 2
- 3
- 4
- 5 and greater

FIGURE 6.9

Drainage and Biophysical Strategic Agricultural Land

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)




Legend

- Project Site
- Proposed Development Area

**Land and Soil Capability Classification**

- 2 - Slight but significant limitations
- 3 - Moderate limitations
- 4 - Moderate to severe limitations
- 5 - Severe limitations
- 6 - Very severe limitations
- 7 - Extremely severe limitations

- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 6.10

## Land and Soil Capability

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022), OEH (2021)

### 6.2.9 Cumulative Impacts

The NSW Wind Energy Guideline (DPE, 2016a) identifies the requirement to address cumulative impacts in relation to any other proposed, approved or operating wind energy projects in the vicinity particularly with regard to landscape, noise, biodiversity and traffic impacts. The *NSW Cumulative Impact Assessment (CIA) Guidelines for State Significant Projects* (DPIE, 2021b) are also applicable to the Project.

As discussed in **Section 1.0**, the Project Site is located within the CWO REZ and therefore there are a number of other existing and proposed renewable energy projects within the region (refer to **Figure 2.1**). The relevant detailed environmental assessments will include an assessment of the potential cumulative impacts associated with the Project and will follow the relevant guidelines.

**Appendix 3** outlines where a cumulative impact assessment (CIA) will be undertaken for the relevant matters including the level of assessment and engagement. **Table 6.7** provides a summary of the key considerations in relation to CIA for the Project.

**Table 6.7 Cumulative Impact Assessment Considerations**

| Scoping Cumulative Impact Assessment | Detail |
|---|---|
| What to assess? | As outlined in **Appendix 3**, the following key matters will require consideration of CIA:<br>• visual amenity<br>• noise and vibration<br>• biodiversity<br>• traffic and transport<br>• socio-economic. |
| What study area? | The study area will vary depending on the specific characteristics of the assessment matter and the scale and nature of the potential impacts on the matter resulting from the Project with other relevant future projects. Each CIA will be undertaken in accordance with the relevant guidelines, where applicable, and broad enough to capture all relevant cumulative impacts. |
| Over what time period? | Life of the Project including construction, operation and decommissioning. |
| What projects to include? | The effects of past developments and actions, as well as currently operating projects will be captured in the baseline environmental studies for the Project.<br>The CIA will consider the cumulative impacts of the Project on key matters with other proposed developments, including those outlined in **Table 2.1**, as relevant. This includes changes to existing projects, approved projects or projects under assessment. |
| What is the approach to assessment? | All CIAs will be undertaken in accordance with approved assessment methods for relevant matters, e.g. the NPfI and the BAM. |

| Scoping Cumulative Impact Assessment | Detail |
|---|---|
| What are the key uncertainties? | Key uncertainties to undertaking the CIAs will include availability and quality of data on proposed future projects at the time of preparation of assessments.<br>Relevant CIAs will identify realistic development scenarios with the relevant future projects over the life of the Project. |

### 6.2.10 Other Matters

The EIS will also address other issues relating to:

- Land use – the EIS will assess the potential interactions of the Project with other land uses, including agricultural land uses. This assessment will draw on the findings of other related assessments including impacts on visual amenity, water, soil, noise, air quality, traffic, hazards and safety.
- Waste – the EIS will describe the likely waste streams to be generated during construction and operation and describe measures to manage, reuse, recycle and dispose of this waste in accordance with relevant guidelines.
- Air quality – in accordance with relevant NSW guidelines in relation to construction via a qualitative assessment, including specifying relevant construction phase air quality controls.
- Decommissioning and rehabilitation.

Whilst these matters will be appropriately assessed in the EIS, detailed assessments are not proposed as the issues can be readily defined, assessed and mitigated using well recognised approaches.

## 6.3 Matters Requiring No Further Assessment in the EIS

**Table 6.8** outlines the matters that are considered to not require further assessment in the EIS based on the scoping phase assessment along with a comment justifying why no further assessment is required.

**Table 6.8 Matters Requiring No Further Assessment in the EIS**

| Issue | Comment |
|---|---|
| Greenhouse gas and energy | As the Project will generate renewable energy, the emissions resulting from the construction, operation or decommissioning will be readily offset by the reduction in energy generation emissions. Greenhouse gas emissions will be addressed in the justification for the Project as part of the EIS. |
| Port and airport facilities | The Project does not result in any change to port or airport facilities. Other than the delivery of Project components to the port, the transportation of Project components to the Project Site will be assessed as part of the TIA. |
| Rail facilities | The Project does not propose to utilise any rail facilities. |
| Odour | The Project is not anticipated to cause any odour. |
| Coastal hazards | The Project is not located within a coastal zone and will not result in any impacts to coastal zones. |
| Dam safety | The Project does not require the construction or maintenance of a dam. |
| Land movement | The Project is not anticipated to result in any land movement. The Project results in relatively minor excavation works only. |

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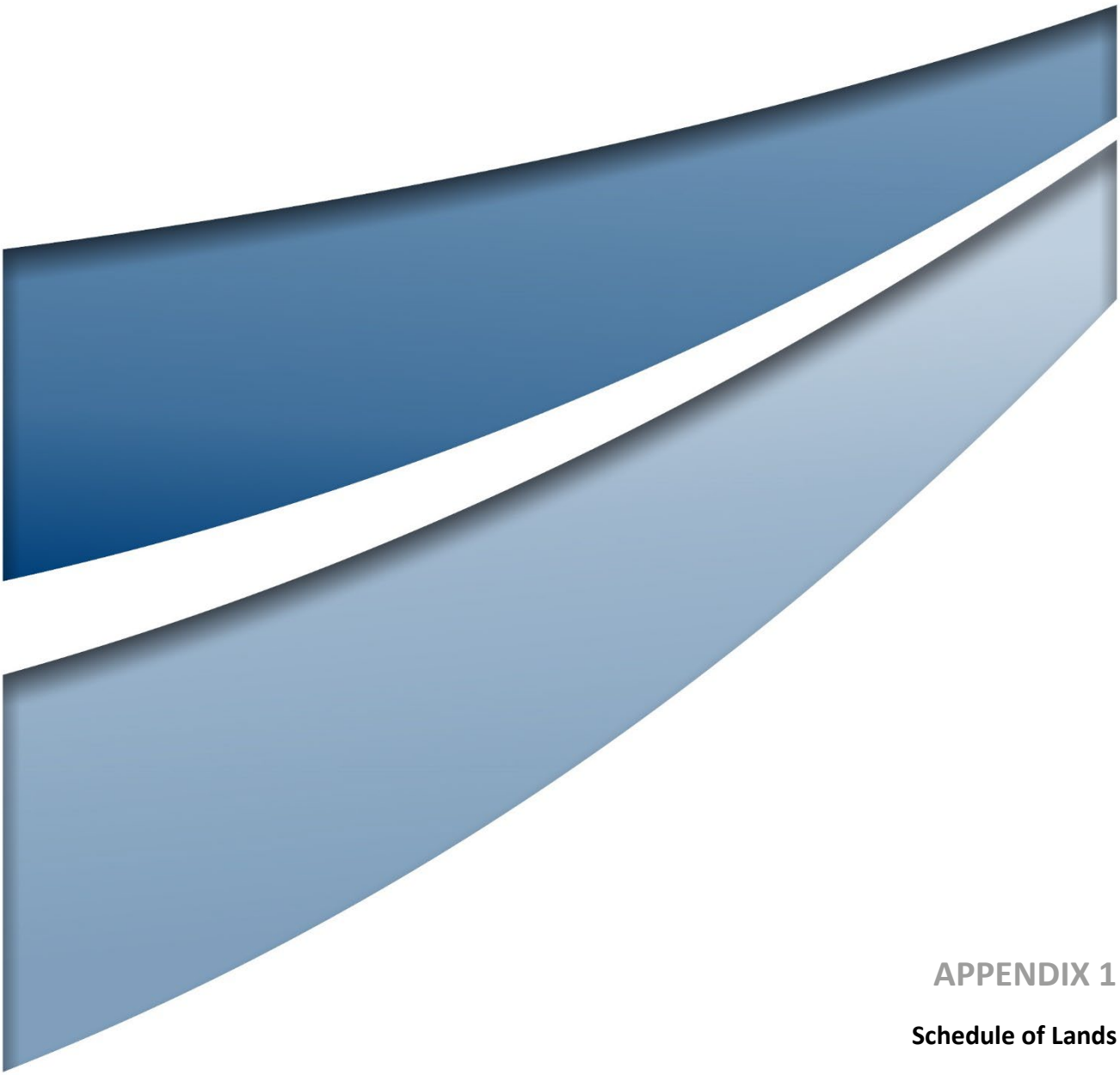


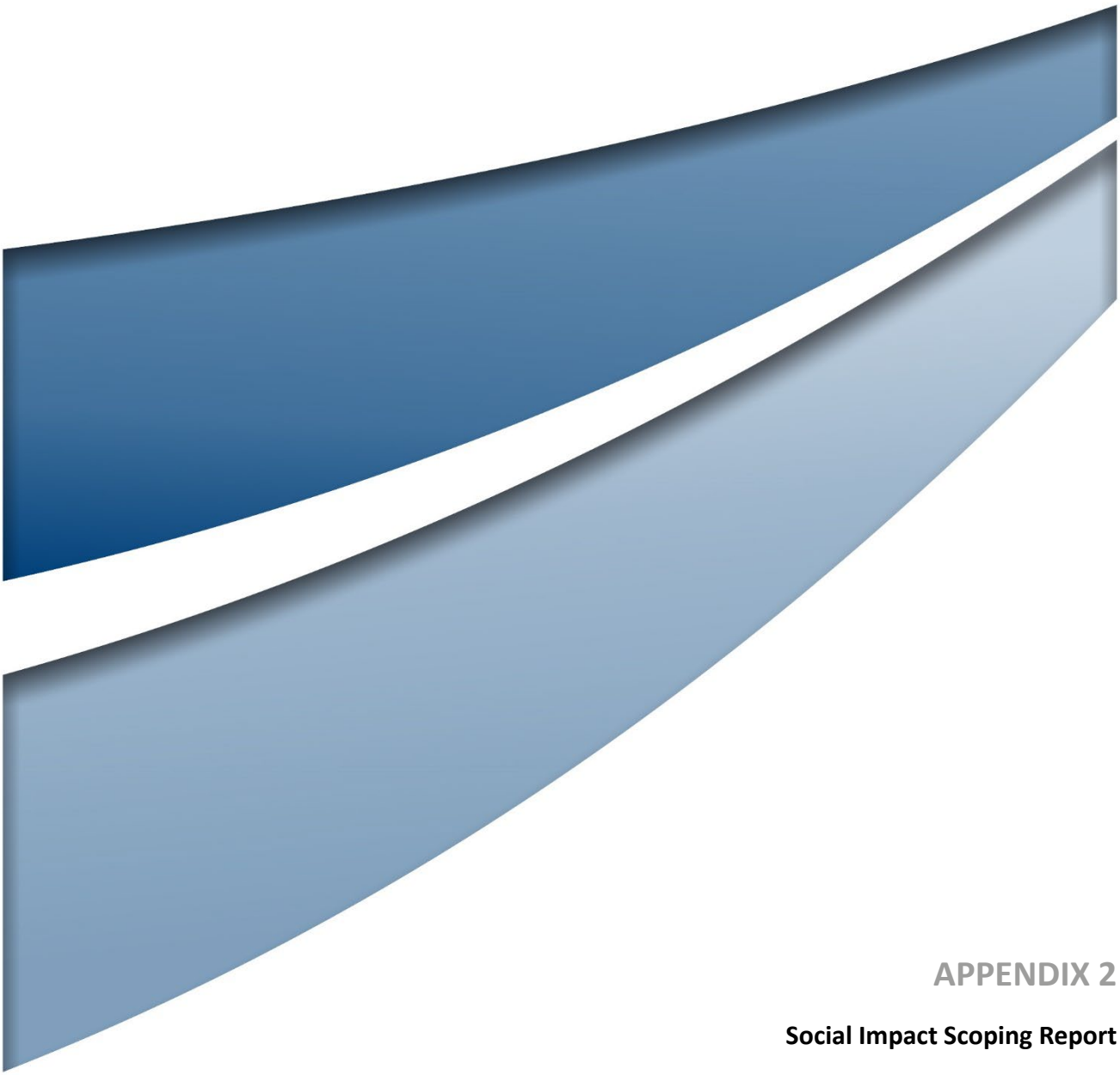
# APPENDIX 1

**Schedule of Lands**

# Appendix 1 – Schedule of Lands

| Lot | DP | Lot | DP |
|---|---|---|---|
| 26/754299 | 754299 | 12 | 754302 |
| 51 | 754310 | 39 | 754302 |
| 16 | 754310 | 27 | 754302 |
| C | 365839 | 24 | 754302 |
| 2 | 1236084 | 53 | 754317 |
| 41 | 754310 | 28 | 754302 |
| 72 | 754323 | 26 | 754302 |
| 33 | 754310 | 54 | 754302 |
| 19 | 1030615 | 1 | 605613 |
| 39 | 754317 | 30 | 754302 |
| 9 | 754310 | 45 | 754302 |
| 42 | 754310 | 53 | 754302 |
| 52 | 754299 | 46 | 754302 |
| 29 | 754310 | 34 | 754302 |
| 55 | 754310 | 33 | 754302 |
| 46 | 754317 | 2 | 842496 |
| 38 | 754310 | 49 | 754317 |
| 1 | 130777 | 25 | 754302 |
| 20 | 1030615 | 44 | 754302 |
| 21 | 1030615 | 43 | 754302 |
| 2 | 130777 | 59 | 754317 |
| 8 | 722852 | 40 | 754302 |
| 36 | 754302 | 3 | 754302 |
| 3 | 439991 | 7001 | 93310 |
| 41 | 754302 | 31 | 754302 |
| 1 | 254329 | 51 | 754302 |
| 14 | 754302 | 70 | 754323 |
| 54 | 754299 | 35 | 754302 |
| B | 403026 | 65 | 754317 |
| 37 | 754302 | 2 | 605613 |
| 49 | 754302 | 1 | 1190968 |
| 1 | 1001922 | 6 | 754302 |
| 56 | 754310 | 5 | 1201640 |
| 35 | 754310 | 3 | 1201640 |
| 23 | 754302 | 4 | 1201640 |
| 311 | 734310 | 1 | 1138425 |
| 48 | 754302 | 1 | 1191013 |
| 32 | 754310 | 7008 | 93442 |

| Lot | DP | Lot | DP |
|---|---|---|---|
| 17 | 754302 | 7003 | 93111 |
| 47 | 754302 | 4 | 252422 |
| 7 | 754302 | 3 | 252422 |
| 57 | 754310 | 3 | 252424 |
| 16 | 754302 | 4 | 252424 |
| 55 | 754302 | 2 | 1233468 |
| 2 | 1107830 | 28 | 754329 |
| 1 | 1107830 | 1 | 130937 |
| 1 | 1169948 | 1 | 130858 |
| 68 | 754323 | 77 | 754305 |
| 1 | 1173895 | 83 | 754305 |
| 8 | 754310 | 80 | 754305 |
| 26 | 754310 | 70 | 754305 |
| 1 | 597838 | 81 | 730841 |
| 2 | 1169948 | 71 | 754305 |
| 1 | 1231764 | 61 | 754305 |
| 3 | 1236084 | 72 | 754305 |
| 1 | 722859 | 67 | 754305 |
| 2 | 180421 | 68 | 754305 |
| A | 394380 | 79 | 754305 |
| 71 | 754323 | 76 | 754305 |
| 2 | 867623 | 69 | 754305 |
| 12 | 619254 | 59 | 754305 |
| 64 | 754317 | 90 | 754305 |
| 2 | 726827 | 78 | 754305 |
| 1 | 726827 | 94 | 754305 |
| B | 394380 | 75 | 754305 |
| 47 | 754317 | 108 | 754305 |
| 104 | 754323 | 64 | 754305 |
| 7002 | 93231 | 89 | 754305 |
| 3 | 1060420 | 32 | 754329 |
| 1 | 1060420 | 46 | 754305 |
| 1 | 842496 | 91 | 754305 |
| 2 | 1060420 | 93 | 754305 |
| 4 | 1060420 | 92 | 754305 |
| 50 | 754302 | Various road reserves | |
| C | 394127 | | |
| 156 | 135461 | | |
| 38 | 754302 | | |
| 42 | 754302 | | |
| 32 | 754302 | | |



# APPENDIX 2

**Social Impact Scoping Report**

umwelt
Environmental & Social Consultants

cwp renewables

# SPICERS CREEK WIND FARM

Social Impact Scoping Report

**FINAL**

**March 2022**

# SPICERS CREEK WIND FARM

Social Impact Scoping Report

## FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
CWP Renewables

| | |
|---|---|
| Project Director: | John Merrell |
| Project Manager: | Kirsty Davies |
| Technical Director: | Dr Sheridan Coakes |
| Technical Manager: | Dr Sarah Bell |
| Report No. | R04 |
| Date: | March 2022 |

***Acknowledgement of Country***

*Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.*



**Document Status**

| Rev No. | Reviewer | | Approved for Issue | |
|---|---|---|---|---|
| | Name | Date | Name | Date |
| FINAL | John Merrell / Dr Sheridan Coakes | 25 March 2022 | John Merrell | 31 March 2022 |

# Table of Contents

# Figures

# Tables



# Appendices

# Abbreviations

| Abbreviation | Description |
|---|---|
| ABS | Australian Bureau of Statistics |
| ASR | Age Standardisation Rate |
| BSAL | Biophysical Strategic Agricultural Land |
| SEP | Stakeholder Engagement Plan |
| CWO REZ | Central-West Orana Renewable Energy Zone |
| CWPR | CWP Renewables Pty Limited |
| DC | direct current |
| DPE | Department of Planning and Environment [current] |
| DPIE | Department of Planning, Industry and Environment [former] |
| EIS | Environmental Impact Statement |
| EL | Exploration License |
| EP&A Act | NSW *Environmental Planning and Assessment Act 1979* |
| GHG | Greenhouse gas |
| GP | General Practitioner |
| GW | Gigawatts |
| the Guideline | NSW DPIE Social Impact Assessment Guideline (2021) |
| Ha | Hectares |
| Hwy | Highway |
| IAIA | International Association for Impact Assessment |
| KV | Kilovolt |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| MP | Member of Parliament |
| MW | Megawatts |
| MWRC | Mid-Western Regional Council |
| NSW | New South Wales |
| REZ | Renewable Energy Zone |
| SEARs | Secretary's Environmental Assessment Requirements |
| SEIFA | Socio-Economic Indexes for Areas |
| SIA | Social Impact Assessment |
| SSC | State Suburb |
| SSD | State Significant Development |
| Umwelt | Umwelt (Australia) Pty Ltd |

| Abbreviation | Description |
|---|---|
| VPA | Voluntary Planning Agreement |
| WTG | Wind Turbine |

# 1.0 Introduction

This Social Impact Scoping Report documents the process and outcomes of the scoping phase of the Social Impact Assessment (SIA) undertaken by Umwelt for the Spicers Creek Wind Farm (the Project). The Report forms part of the Project's application for the Secretary's Environmental Assessment Requirements (SEARs) lodged with the NSW Department of Planning and Environment (DPE) by CWP Renewables (CWPR). The Project is considered a State Significant Development (SSD) requiring approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Report has been prepared in accordance with the scoping phase requirements of the NSW Social Impact Assessment Guideline for State Significant Projects (DPIE 2021) or 'the Guideline'. An Environmental Impact Statement (EIS) will be prepared for the Project and will include a Social Impact Assessment (SIA) of which this report forms the foundation.

## 1.1 Project Overview

The Project is located approximately 25 km north west of Gulgong and 30 km north east of Wellington in the Central West Orana region of New South Wales (NSW), within the Dubbo Regional and Warrumbungle Shire Local Government Areas (LGA) (refer to **Figure 1.1)**.

The Project consists of the installation, operation, maintenance and decommissioning of up to 122 wind turbine generators (WTGs), a battery storage facility and associated infrastructure and temporary facilities. The associated infrastructure proposed includes operation and maintenance buildings, roads, civil works and electrical infrastructure necessary to connect to the electricity transmission network.

The Project is estimated to have an installed generating capacity of approximately 730 megawatts (MW), with the potential to power approximately 300,000 homes once fully operational. The inclusion of the battery storage will allow for the Project to store and dispatch scheduled and reliable energy to and from the Project and the National Electricity Market (NEM) at the times it is needed.

The Project Site is located within the Central West Orana Renewable Energy Zone (CWO REZ) identified in the NSW Governments Electricity Strategy (refer to **Section 3.2.2**). The CWO REZ is expected to play a vital role in the delivery of affordable energy to the community across NSW.

The Project Area encompasses 32 private landholdings and covers approximately 18,085 hectares (ha). These properties are primarily utilised for cattle and sheep grazing and cropping activities. The preliminary layout for the Project (refer to **Figure 1.2**) will be subject to further review and refinement as the community engagement program continues and further feedback is obtained, and the environmental and social impact assessment progresses.

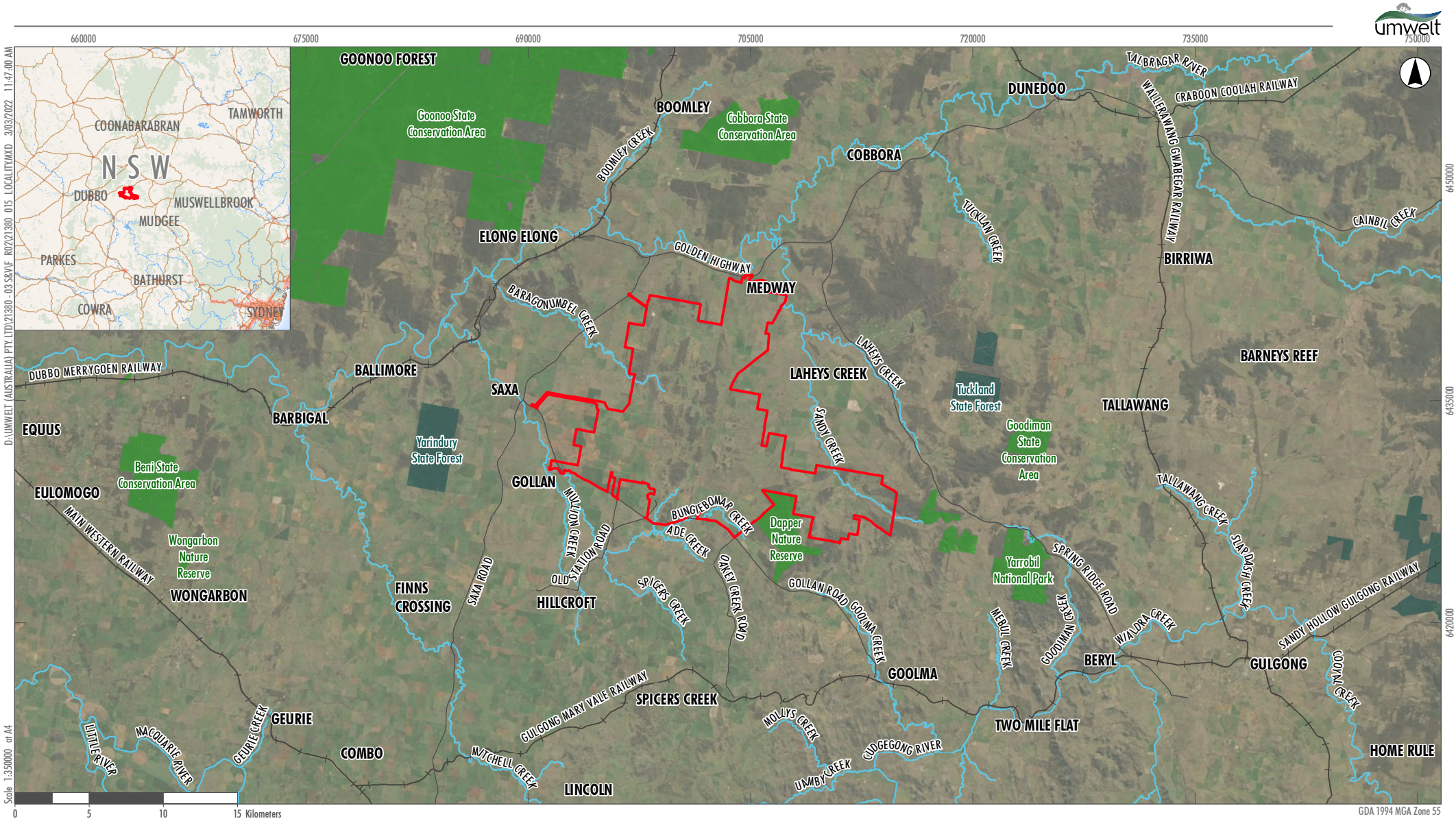
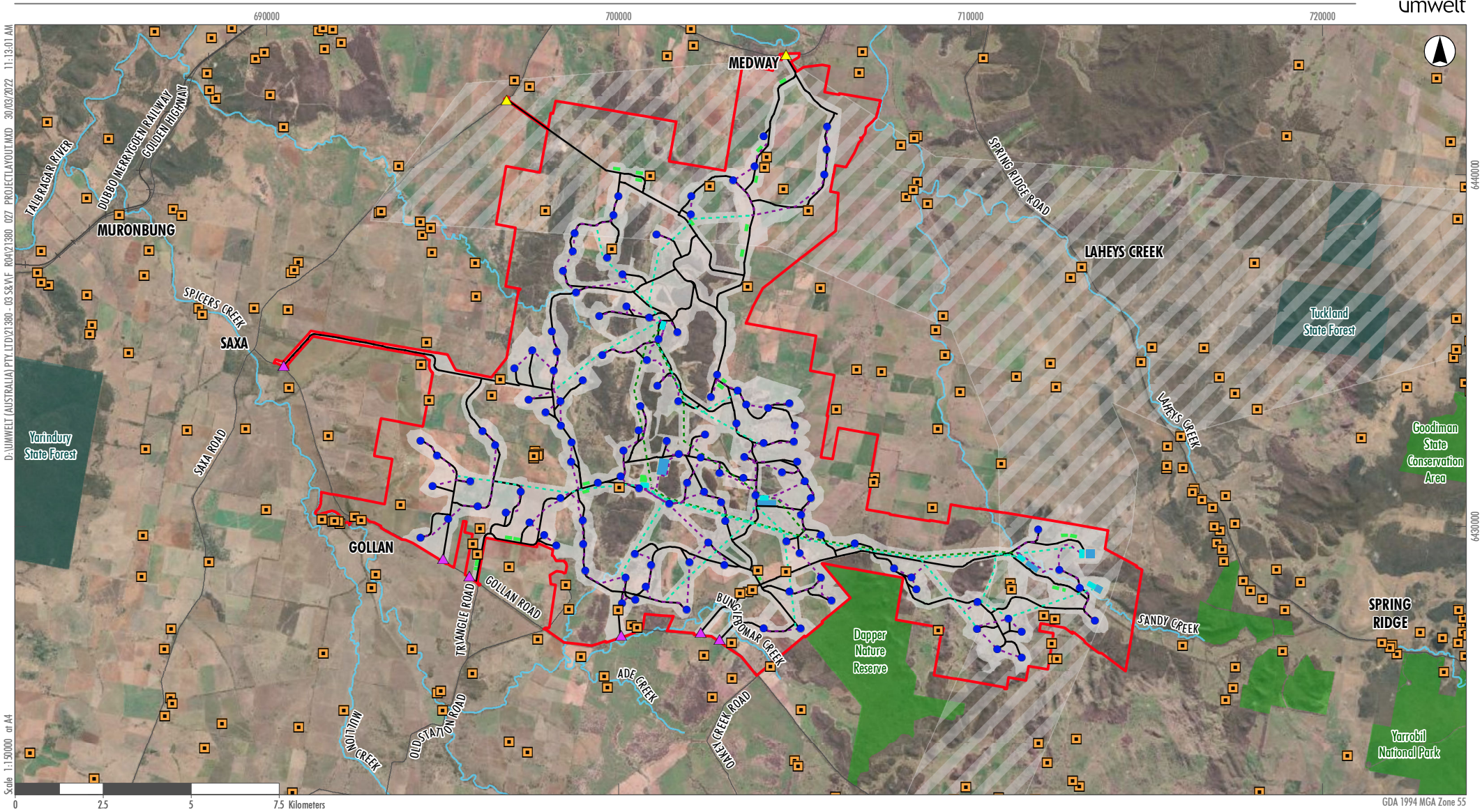



FIGURE 1.1
Project Locality

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)




Legend

- Project Site
- Proposed Development Area
- Proposed Wind Turbine Generator
- Proposed Underground Powerline
- Proposed Overhead Powerline (33kV)
- Proposed Overhead Powerline (HV)
- Proposed Access Track
- Proposed Site Compound
- Potential Battery Storage
- Potential Substation
- Indicative REZ Transmission Corridor
- Proposed Main Site Entry
- Proposed Secondary Site Entry
- Residence
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 1.2

Spicers Creek Wind Farm Layout

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

## 1.2 The Proponent

The Proponent for the Project is Spicers Creek Wind Farm Pty Ltd, a wholly owned subsidiary of CWPR. CWPR develops, operates and owns renewable energy assets in Australia. The company began as a joint-venture between renewable energy developers Continental Wind Partners and Wind Prospect Group. In 2018, CWPR partnered with global private markets investment manager Partners Group to form the Grassroots Renewable Energy Trust, with the ambition to create the largest renewable energy portfolio in Australia.

In 2020 CWPR and Grassroots Renewable Energy Trust merged, forming an integrated renewables company under the CWPR name.

CWPR currently generates enough electricity to power approximately 200,000 homes. CWPR aims to more than double its current portfolio to more than 2 gigawatts (GW) within the next five years.

## 1.3 Project Objectives

The objectives of the Project are to:

- contribute to the achievement of CWPR's goal which is to improve the environment for current and future generations by leading Australia's transition to renewable energy
- establish a reliable and affordable source of energy for NSW customers and help reduce greenhouse gas (GHG) emissions
- positively contribute to State and Commonwealth renewable energy goals
- align with the NSW Government's emissions reduction targets and electricity strategy
- contribute to achieving the target of 3 GW of renewable energy generation from the CWO REZ
- create employment opportunities during Project construction and operations
- maintain partnerships with stakeholders and the community to minimise environmental and social impacts and maximise benefits
- ensure that the highest safety and environmental standards are met during construction and operation of the Project.

## 1.4 Report Purpose

Pursuant to the objectives of the Guideline, the purpose of the SIA Scoping Report is to:

- obtain an understanding of the Project's social locality, including the community's socio-economic and demographic characteristics
- identify stakeholder groups that may have an interest in, or be affected by, the Project
- document outcomes from community consultation undertaken during the scoping phase
- identify issues or opportunities that the Project presents within the social locality

- provide an initial evaluation of predicted social impacts associated with the Project
- consider potential Project refinements in response to identified social impacts
- describe the approach for undertaking the remaining phases of the SIA.

# 2.0 Methodology

SIA is an approach to predicting and assessing the likely social consequences of a proposed action and developing options and opportunities to improve outcomes for people. Best practice SIA is participatory and involves understanding impacts from the perspectives of those involved in a personal, community, social or cultural sense, to provide a complete picture of potential impacts, their context, and implications.

## 2.1 Assessment Requirements

This Report has been prepared in accordance with the Guideline (DPIE, 2021), as part of the scoping phase, as illustrated in **Figure 2.1.**

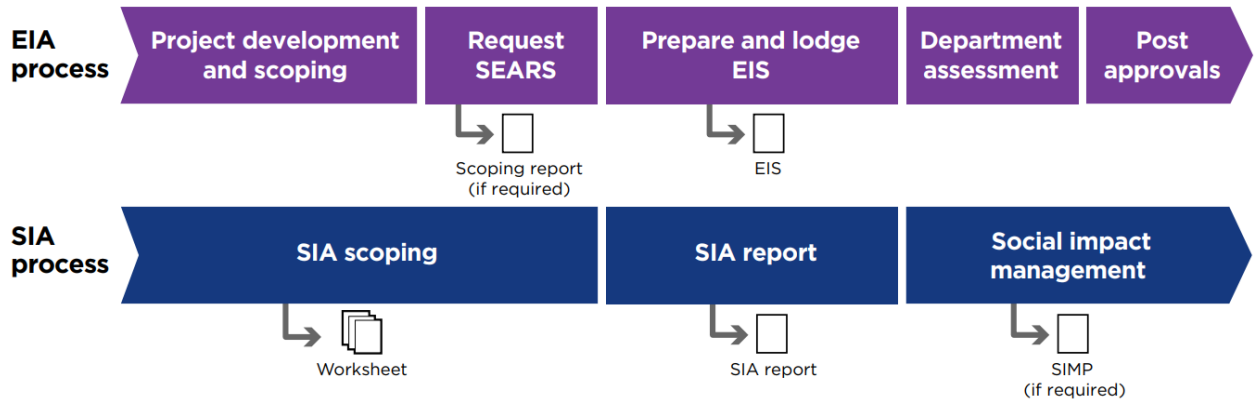



**Figure 2.1 SIA and EIA Process Alignment**

*Source: DPIE, 2021*

This Report forms part of the Scoping Report, and the accompanied request for SEARs, and includes the following key components:

- **Social baseline profiling** – to define the baseline social context in which the Project is situated and area of social influence.
- **Issues scoping** – preliminary identification and evaluation of social impacts and issues relevant to the Project, to determine the level of assessment required for the EIS, proportionate to the scale of the Project and the matters of importance to the community.

Commencement of SIA early in the Project, informed by community and stakeholder consultation, affords opportunities to effectively assess and integrate social outcomes within the detailed Project planning, design, and assessment phase.

As is the case with any type of change, some individuals or groups within the community may benefit, while others may experience negative impacts. If negative impacts are predicted, it is the role of the SIA to determine how such impacts may be addressed effectively to reduce the degree of disruption to those affected. If positive impacts are predicted, the aim of the SIA is to maximise these opportunities and identify how they might be further enhanced and realised.

**Figure 2.2** provides an overview of the Key SIA program phases, with this report relevant to the scoping phase.

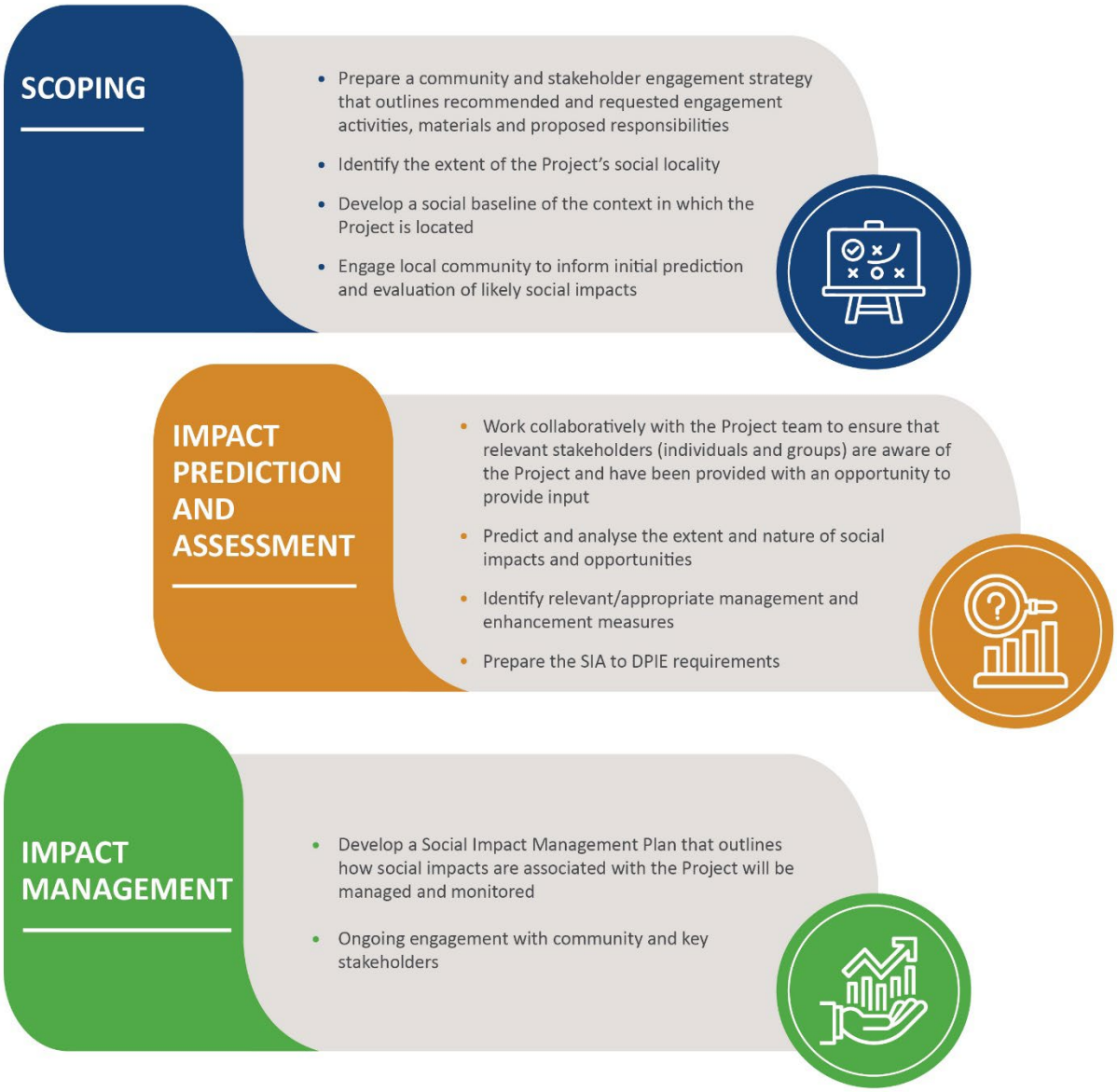



**Figure 2.2 SIA Program Phases**

*© Umwelt, 2021*

According to the Guideline, and as outlined in **Figure 2.3**, social impacts can be grouped according to several different categories and may involve impacts and changes to people's way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.


**Figure 2.3 Social Impact Categories**

*Source: DPIE 2021*

## 2.2 Defining the Social Locality

The term 'social locality' is like 'area of social influence' commonly used in SIA practice. There is no fixed meaning or predefined geographic boundary to a social locality (e.g., the local suburb, or 'within 500 m'). Instead, the scale of the social locality should be established on a case-by-case basis, having regard to the nature of the project and its impacts (DPIE, 2021). For further direction, the Guideline states that the social locality is defined by:

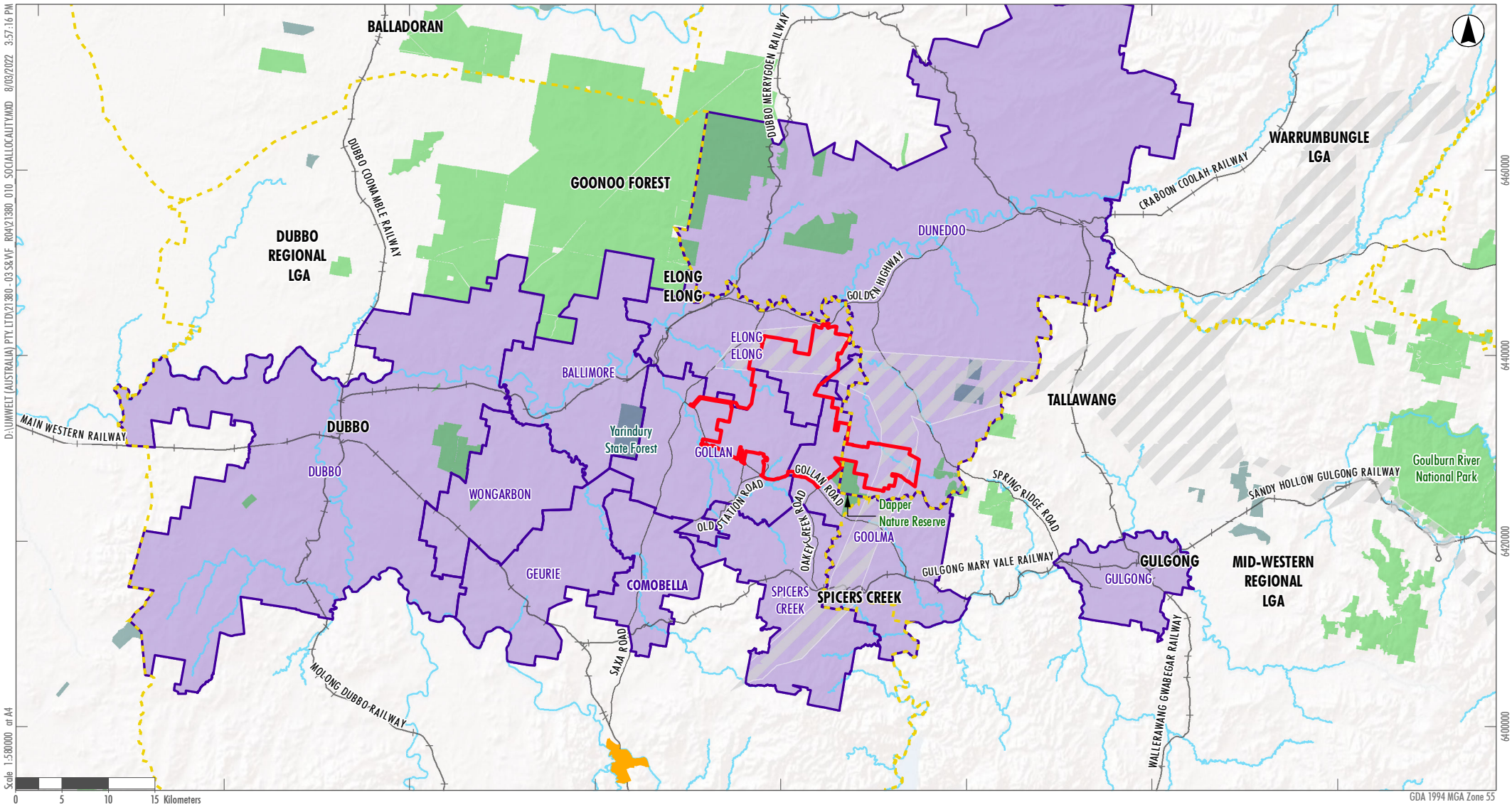
- **the scale and nature of the project**; its associated activities including ancillary works and infrastructure; potential direct and indirect impacts (for example, transport and logistics corridors or property acquisitions); and potential cumulative impacts
- **who may be affected by the project**; how they may be affected; their social, cultural and demographic characteristics; their relevant interests and values; the things that differentiate groups (such as cultural diversity) as well as things that they have in common; and the broader community and public interest
- **whether any vulnerable or marginalised people may be affected by the project**; including people on low incomes; people living with disabilities, chronic medical conditions or in poor health requiring access to services; culturally and linguistically diverse communities; people who are homeless or in insecure housing; people who are unable to represent themselves or other vulnerable people such as elderly people, children or single-parent households
- **built or natural features on or near the project that could be affected, and the intangible values** that people may associate with these features, such as a sense of place or belonging, rural character, community cohesion and connection to Country and value of stories within the cultural landscapes, community cohesion, and use of natural areas and resources
- **relevant social, cultural, demographic trends or social change processes** occurring now or in the past near the project site and in the broader region, including how people have felt or experienced these changes; community resilience; different trends and patterns around issues like rental affordability, employment, shifting land uses, or population and demographic; or experiences of extreme weather and natural hazards
- **the history of the proposed project and the area**, and any similar experiences people near the project have had, including change prior to, or created by, the planning assessment process; how people reacted to early discussions; and how these discussions and other experiences affected the broader community; and the traditional Aboriginal use of the place, recent history of the place and people and any ongoing traumas.

In defining the social locality for Project, statistical areas prescribed by the Australian Bureau of Statistics (ABS), as well as the land tenure composition of properties in or nearby the Project Site have also been used to determine the social locality (or 'area of social influence'). The primary communities of interest that comprise the social locality for the purpose of this assessment are outlined in **Table 2.1,** with **Figure 2.4** visually representing the area of social influence.

**Table 2.1 Communities of interest in the Social Locality**

| Community of interest and purpose | Statistical area |
|---|---|
| **Localities proximate to the Project** | • Elong Elong<br>• Spicers Creek<br>• Bodangora<br>• Ballimore<br>• Wuuluman<br>• Goolma<br>• Gollan<br>• Comobella<br>• Two Mile Flat<br>• Piambong<br>• Twelve Mile<br>• Maryvale |
| **Key townships proximate to the Project** | • Dubbo<br>• Dunedoo<br>• Wellington<br>• Gulgong<br>• Geurie<br>• Wongarbon |
| **Local Government Areas (LGAs)** | • Dubbo Regional<br>• Warrumbungle Shire<br>• Mid-Western Regional (neighbouring LGA) |
| **Region** | • Central West Orana |
| **State** | • NSW |

The extent of influence of a project, its impacts, and associations may change as projects and communities develop and evolve over time. Consequently, the social locality may be adapted, minimised, or extended beyond the parameters identified in **Table 2.1** at subsequent stages of Project planning and assessment, to include locations where construction workforces may be based and where suppliers and/or materials may be sourced for the Project.




Legend

- Project Site
- Indicative REZ Transmission Corridor
- Local Government Area
- Wellington UCL
- State Suburb (SSC)
- State Forest
- NPWS Estate
- Road
- Railway
- Waterway

FIGURE 2.4
Social Locality

Data source: NSW DFSI (2021), CWP Renewables (2022)

## 2.3 Social Baseline Profile

The development of a baseline social profile gathers knowledge from both primary and secondary data sources to increase understanding of the existing social environment in which a project is proposed, and of potentially affected communities. The social baseline profile is a foundational component of a scoping SIA, as it provides the basis from which social impacts associated with the Project may be identified and predicted.

As previously noted, the following key components should be considered in developing a social baseline:

- the scale and nature of the project
- who may be affected, including any vulnerable or marginalised groups
- any built or natural features on or near the project
- relevant social, cultural, and demographic trends and other change processes
- the history of the proposed project and/or development in the area, including community response to previous change.

### 2.3.1 Sustainable Livelihoods Approach

To better understand the communities of interest to the Project and to evaluate their resilience and adaptive capacity to change, the social baseline has utilised the Sustainable Livelihoods Approach (U.K. Department for International Development (DFID, 2001), and the community capitals outlined in the International Association for Impact Assessment (IAIA) SIA Guidance (IAIA, 2015).

According to the Sustainable Livelihoods framework, people seek to maintain their livelihood within a context of vulnerability (Coakes & Sadler, 2011). Specifically, threats to their livelihood including shocks (such as sudden onsets of natural disasters, health problems, conflicts, and economic crises), trends (for instance, those relating to the economy, health, resources, and governance) and seasonality (such as cyclical fluctuations in prices or employment) with people drawing on these assets to build and maintain their livelihood. Consequently, a livelihood is considered sustainable '…*when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base'* (DFID, 2001).

The DFID approach draws on broad categories of community capitals as a fundamental basis to identifying and further enhancing community capacity and resilience and has been used in many SIA studies (Coakes & Sadler, 2011; IAIA, 2015). The vulnerability in each capital area can be assessed through the selection of a suite of indicators selected to assess a community's vulnerability to change, or conversely, their adaptive capacity. Elements of each capital area are further outlined in **Figure 2.5.**

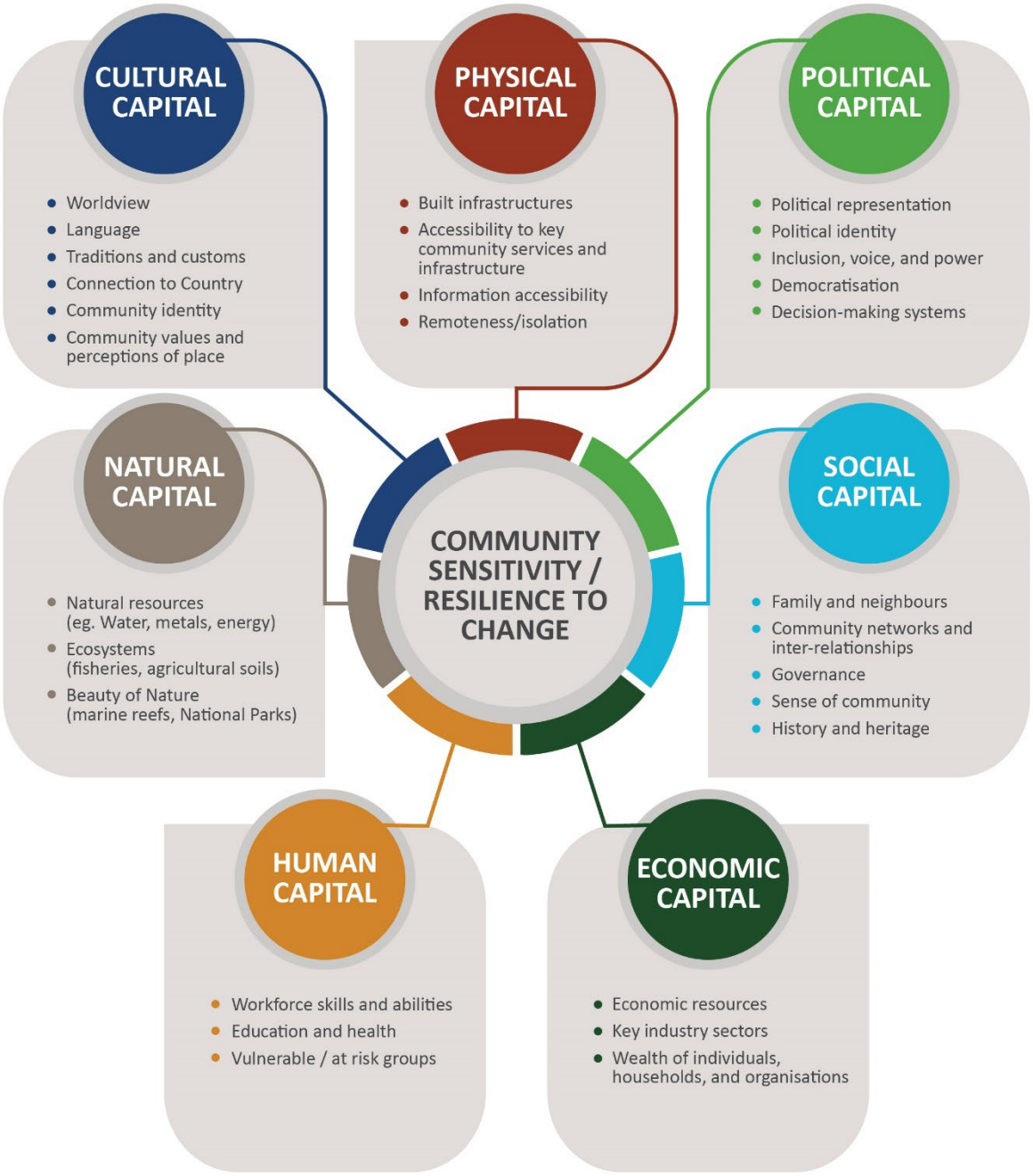



**Figure 2.5 Community Capitals Framework**

*Source: Coakes & Sadler, 2011*

## 2.3.2 Data Sources

The social baseline within this report has made use of a range of data sources to understand the socio-economic, cultural, and demographic characteristics of the communities within the Project's locality. The social profile is used as a basis to determine how the Project may affect different aspects of people's lives - the Project's social impacts (refer to **Figure 2.3**).

Data for the social baseline profile has been gathered and summarised from publicly available secondary datasets, including the most recent Australian Census (2016), as well as through a review of local media, government plans and strategies and other literature as it relates to the social locality.

Statistical and comparative analysis using ABS data has been undertaken at the LGA level to capture key characteristics and trends across local communities. State Suburb (SSC) and Township (UCL) level data has also been utilised, with key indicators compiled and data sources utilised outlined in **Table 2.2.**

**Table 2.2 Social Baseline Profile Indicators and Data Sources**

| Capital | Indicator | Data Source |
|---|---|---|
| **Political** | • Existing political and governance structures at local, state, and federal levels<br>• Representation and governance of Aboriginal and Torres Strait Islander people<br>• Existing public participation systems<br>• Existence of Project-specific community consultation strategy and feedback and response mechanisms | • State representative and electoral information (Parliament of New South Wales, n.d.; Electoral Commission NSW, 2020)<br>• Divisions in New South Wales (NSW) (Australian Electoral Commission, 2019) |
| **Natural** | • Land use profile<br>• Vulnerability to natural disaster or severe climate events<br>• Rate of tourism and recreation based on natural resources<br>• Community values associated with natural or built environment<br>• Measures of access to and level of dependency on natural assets (e.g., agricultural production, water supply, mineral resources) | • NSW Land Use 2017 (DPIE, 2020)<br>• Regional Statistics by LGA (ABS, 2018)<br>• LGA Council Strategic Planning Documents |
| **Human** | • Population size by gender, and by age<br>• Population trends and projections<br>• Median age<br>• Aboriginal population size and proportion<br>• Population diversity (proportion of population born overseas / languages spoken at home)<br>• Highest level of formal education attainment<br>• Socio-Economic Indexes for Areas: Index of Education and Occupation<br>• Public health status including self-assessed fair or poor health, level of psychological stress, rate of hospital admissions, life expectancy | • ABS Community Profiles (2006, 2011, 2016)<br>• DPIE population projections (2019)<br>• Social Health Atlas of Australia (PHIDU, 2021) |

| Capital | Indicator | Data Source |
|---|---|---|
| Social | • Household size and composition<br>• Volunteering rates<br>• Incidents and rates of selected crimes and top crimes committed<br>• Population mobility/stability (proportion of population with a different address 1 and 5 years ago)<br>• Index of Relative Advantage and Disadvantage (SEIFA) | • SEIFA Indexes for Australia (ABS, 2018)<br>• NSW Bureau of Crime (2021) |
| Economic | • Proportion (%) of the labour force that are: employed full-time, part-time, unemployed, and trends<br>• Key industries of employment<br>• Median household income<br>• Median mortgage repayment<br>• Median weekly rent<br>• Level of housing stress (median housing costs as a proportion of median household income)<br>• Indices of economic resources (SEIFA) | • ABS Community Profiles (2016)<br>• Rental vacancy rates (REINSW, 2021)<br>• SEIFA Indexes for Australia (ABS, 2018)<br>• Herfindahl Index (ABS Tablebuilder Pro, 2016)<br>• Tourism Research Australia Local Government Area Profiles (2016) |
| Cultural | • Native Title claims and/or determinations<br>• Aboriginal ethnography and histories<br>• Aboriginal heritage places<br>• European heritage places<br>• Cultural values<br>• Language, dialect, and belief-systems | • ABS Community Profiles (2006, 2011, 2016)<br>• Register of Native Title Claims (National Native Title Tribunal, 2021)<br>• Local Government Areas Council Strategic Planning Documents<br>• Heritage Management Systems (Heritage NSW, 2021) |
| Physical | • Housing typology – proportion of occupied private dwellings that are: owned with/without a mortgage, rented, public housing<br>• Number of dwellings by type (housing stock)<br>• Private-car dependency (car ownership by household)<br>• Availability of health and education facilities<br>• Availability of short-term accommodation<br>• Health services and infrastructure (proximity of health services, resident to GP ratio, availability of specialist services)<br>• Access to Internet from dwelling | • ABS Community Profiles (2006, 2011, 2016)<br>• SEIFA Indexes for Australia (ABS, 2018)<br>• Central West and Orana Regional Plan 2036 (NSW Government, 2016)<br>• Local Government Areas Council Strategic Planning Documents<br>• NSW State Tourism Statistics (Destination NSW, 2016, 2020)<br>• Census of Population and Housing: Commuting to Work (ABS, 2016) |

## 2.4 Stakeholder Identification

SIA involves the participation and collaboration of people that may have an interest in, or those that are affected by, a project. As (Burdge, 2004) outlines, stakeholders may be affected groups or individuals that:

- live, work, or recreate near the project
- have an interest in the proposed action or change

- use or value a resource associated with the project
- are affected by the project e.g., may be required to relocate because of the project.

To identify key stakeholders, a stakeholder identification process was undertaken during the scoping phase for the Project to support the planning and delivery of community consultation and stakeholder consultation to inform the SIA. This process involved identifying stakeholders with an interest in the Project, or those directly and indirectly affected, to identify potential issues or opportunities.

Further detail of the stakeholders consulted is outlined in **Section 2.5**.

Key stakeholders who were consulted or engaged during the scoping phase (which commenced in 2019) are outlined in **Figure 2.6.** Subsequent phases of the SIA will seek broader involvement across the stakeholder groupings identified and will include wider community involvement.


**Figure 2.6 Key Stakeholder Groups**

*Source: CWPR, 2022*

## 2.5 Stakeholder and Community Engagement

CWPR has undertaken early community and stakeholder engagement to build relationships with host landowners, near neighbours, landowners in the local area and other key stakeholders in relation to the Project, as well as to inform Project design and development. This has assisted in identifying and understanding the perceived issues and impacts early in the planning and assessment process. CWPR has led all consultation activities to date, with the objective of ensuring direction interaction with the company, and affording the company the opportunity to hear stakeholder issues firsthand. As will be further discussed in **Section 4.1,** the outcomes of this engagement and feedback from the community has

contributed to the iterative Project design process, including revisions to the layout in terms of the number and location of WTGs and the location of Project infrastructure.

For the purposes of this scoping report, consultation data has been compiled, collected, and supplied by CWPR and subsequently analysed for the purposes of this scoping report by Umwelt.

As outlined in the Stakeholder Engagement Plan for the Project, a variety of consultation mechanisms have been utilised to obtain the input of various stakeholder groups during the scoping phase, and to inform the development of this Report and Project design and development. Information provision and consultation activities that have been undertaken are outlined in **Table 2.3**.

**Table 2.3 Stakeholder Consultation and Engagement Undertaken During Scoping Phase**

| Stakeholder | Date | Mechanism | Details |
|---|---|---|---|
| **Community Stakeholders** | | | |
| Proximal landholders | 2019 – 2022 | Various | Face to face meetings, phone calls and emails have been (and continue to be) undertaken with potential hosts and near neighbours. A total of 157 landholders have been consulted to date in relation to the Project.<br>Meetings have been held over the periods of:<br>• September 2019 to May 2021 – meetings to discuss wind farms, feasibility investigations, appropriate buffer distances and potential involvement in the wind farm<br>• May 2021 – meetings to hear community perspectives and obtain feedback on the proposed Project<br>• May to November 2021 – meetings as required to obtain feedback, discuss the studies being undertaken, next steps and answer questions<br>• November 2021 – discussion of project layout with host landowners<br>• January 2022 – discussion of project layout with neighbouring landowners within 4km of a proposed WTG location. |
| Local Community | 21 May 2021<br>11-12 April 2022 | Community Drop-in Sessions | A community drop-in session was held on 20 May 2021 at the Goolma Community Hall. The session provided updates on the next steps of the process and provided community members an opportunity to provide perspectives and feedback. The community drop-in session was attended by 61 people.<br>An additional two community drop-in sessions will be held on 11 April 2022 at the Gollan Hall and 12 April 2022 at the Goolma Community Hall. |
| Local Community | May 2021 | Community Survey | A community survey was distributed in May 2021 to understand community perceptions on the Project and obtain feedback on the key landscape features and values. A total of 23 responses were provided to CWPR. |

| Stakeholder | Date | Mechanism | Details |
|---|---|---|---|
| Local Community | May 2021<br>September 2021<br>March 2022 | Newsletters | Community newsletters were distributed in May 2021, September 2021 and March 2022 to introduce the Project, CWPR, invite community members to community drop-in sessions and provide updates on the Project. The newsletters were distributed to landowners (hosts and neighbours), community members and other stakeholders. |
| **Agency Stakeholders** | | | |
| Dubbo Regional Council | 9 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |
| Mid-Western Regional Council | 10 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |
| Warrumbungle Shire Council | 11 March 2021 | Meeting | Introduction to the Project, overview of CWPR portfolio, stages in the windfarm project cycle, activities to date and to come and community engagement commitments. |
| Roy Butler MP, Member for Barwon | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Dugald Saunders MP, Member for Dubbo | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Andrew Gee MP, Federal Member for Calare | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Mark Coulton MP, Federal Member for Parkes | 6 April 2021 | Letter | Introduction to the Project and the offer for further consultation. |
| Dubbo Regional Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Mid-Western Regional Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Warrumbungle Shire Council | 11 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Roy Butler MP, Member for Barwon | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Dugald Saunders MP, Member for Dubbo | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |

| Stakeholder | Date | Mechanism | Details |
|---|---|---|---|
| Andrew Gee MP, Federal Member for Calare | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Mark Coulton MP, Federal Member for Parkes | 12 May 2021 | Email | Provision of community newsletter and invite to the Community Drop-In Session. |
| Dugald Saunders MP, Member for Dubbo | 13 May 2021 | Meeting | Meeting to introduce the Project. |
| Murray Wood, CEO Dubbo Regional Council | 16 July 2021 | Meeting | Introduction to the Project in conjunction with update on Uungula Wind Farm. |
| Civil Aviation Safety Authority (CASA) | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |
| Airservices Australia | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |
| Department of Defence | 11 October 2021 | Email | Notification regarding the construction of SPC01 monitoring mast. |
| Energy Corporation | 13 October 2021 | Meeting | Introduction to the Project. |
| Transport for NSW | 13 October 2021 | Meeting | Overview of CWPR portfolio, including Project route studies undertaken. |
| Transport for NSW & Energy Co | 19 October 2021 | Meeting | Overview of CWPR portfolio, including Project route studies undertaken. |
| Dubbo Regional Council | 19 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Mid-Western Regional Council | 20 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Warrumbungle Shire Council | 22 October 2021 | Meeting | Project update including activities since the last meeting, Project location, transportation routes and next steps. |
| Biodiversity Conservation and Science (BCS) | 24 November 2021 | Meeting | Introduction to the Project, summary of fieldwork and results to date, and discussion on Category 1 land assessment methodology. |
| AEMO Services & EnergyCo | 11 February 2022 | Meeting | Meeting to provide an overview of roles of AEMO Services and Energy Corporation, confirmation of REZ tender timing and update on the Project. |
| Airservices Australia | 24 February 2022 | Email | Approximate location of mast SPC02 for preliminary assessment. |

| Stakeholder | Date | Mechanism | Details |
|---|---|---|---|
| Dubbo Regional Council | 25 February 2022 | Email | Offer to provide a Project update to Council. |
| Warrumbungle Shire Council | 25 February 2022 | Email | Offer to provide a Project update to Council. |
| Dubbo Regional Council | 4 March 2022 | Email | Provision of community newsletter and potential meeting with Councillors. |
| Roy Butler MP, Member for Barwon | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Dugald Saunders MP, Member for Dubbo | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Andrew Gee MP, Federal Member for Calare | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| Mark Coulton MP, Federal Member for Parkes | 7 March 2022 | Email | Provision of community newsletter and invitation to attend Community Drop-In Session in April 2022. |
| DPE | 22 March 2022 | Meeting | A Scoping pre-lodgement meeting was held with DPE to introduce the Project and the proposed assessment approach prior to lodging the Scoping Report. |
| Crown Lands (Dubbo) | 23 March 2022 | Meeting | Introduction to the Project and discussion of key contacts, review processes and timeframes. |
| Dubbo Regional Council | 24 March 2022 | Meeting | Project presentation to Councillors. |
| Warrumbungle Shire Council | 24 March 2022 | Email | Provision of community newsletter and follow-up offer to present to Councillors. |

Quantitative and qualitative information collected through these consultation activities has been analysed to inform the preliminary analysis of social impacts associated with the Project, as outlined in **Section 4.0.**

Proposed consultation activities undertaken during Round 2 will be focused on responding to questions, concerns or issues that arose during the scoping phase with ongoing negotiations resolved and Project refinements to be integrated where practicable. This round of consultation is an opportunity to further explore and validate the social issues, interests, and impacts, that were identified during the scoping phase. The SIA program and findings gathered through the various technical studies will also be further communicated during this phase, to assist in gathering feedback from key stakeholders and the wider community, on predicted Project impacts.

Further consultation to be undertaken as part of the Project, in subsequent phases of the SIA, is outlined in the SEP.

## 2.6 Issues Scoping and Preliminary Impact Evaluation

Quantitative and qualitative information collected through consultation activities has been compiled and analysed to inform the identification of potential perceived social impacts associated with the Project (refer to **Section 4.0**), from the perspectives of affected parties, and to afford the preliminary evaluation of social impacts.

The Social Scoping Worksheet (DPIE, 2021) is a decision support tool to consider the social impacts of a project and is used to demonstrate how issues scoping will inform the level of assessment undertaken for each identified impact in the SIA.

Each project activity is assessed by its potential impacts on people, whether previous investigation of the impact has been undertaken, the potential for cumulative impacts, and possible mitigation or enhancement measures to reduce negative impacts and enhance positive impacts. Social impact characteristics that have been considered in this preliminary evaluation include:

- **extent** – geographical area and stakeholders identified that are affected directly, indirectly, or cumulatively by the impact
- **duration** – the timeframe over which the impact occurs
- **severity or scale** – likely scale or degree of change from the existing condition because of an impact (e.g., mild, moderate, severe)
- **intensity or importance** – sensitivity susceptibility or vulnerability of people, receivers or receiving environments to adverse changes caused by the impact, including value or importance to the community, the extent to which it is tied to their identity and their capacity to cope with or adapt to change.

Based on an assessment of these impact characteristics, the likelihood and magnitude of the potential impact (positive or negative) and its occurrence across differing stakeholder groups is determined making use of the impact significance matrix in the Guideline (DPIE, 2021).

| | | Magnitude level | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Likelihood level | | Minimal | Minor | Moderate | Major | Transformational |
| A | Almost certain | Low | Medium | High | Very High | Very High |
| B | Likely | Low | Medium | High | High | Very High |
| C | Possible | Low | Medium | Medium | High | High |
| D | Unlikely | Low | Low | Medium | Medium | High |
| E | Very unlikely | Low | Low | Low | Medium | Medium |

**Figure 2.7 Social Impact Significance Matrix**

*Source: DPIE, 2021*

A key objective of the scoping phase SIA is to identify the level of assessment required for each impact in the assessment phase, as per the SIA Guideline. The level of assessment determines the extent of effort and data required to assess the impact and will fall into one of four categories as outlined **Table 2.4.**

**Table 2.4 Guide to Determining Levels of Assessment for Each Social Impact**

| Level of assessment of the impact | Meaning |
|---|---|
| Detailed Assessment | The project may result in significant social impacts, including cumulative impacts. |
| Standard Assessment | The project is unlikely to result in significant social impacts, including cumulative impacts. |
| Minor Assessment | The project may result in minor social impacts. |
| Not Relevant | The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration. |

*Source: NSW DPIE (2021)*

## 2.7 Assessment Limitations

This report comprises the issues scoping phase of the broader SIA process framework. Matters identified hereafter are based on preliminary identification and evaluation of social impacts and issues relevant to the Project only, to determine the level of assessment required for the EIS, proportionate to the scale of the Project and the matters of importance to the community.

Due to its nature, this report does not (and cannot) offer a full treatment of all ideas, perspectives, and nuances in the rich and wide-ranging opinions and perspectives of potentially affected stakeholders. Instead, this report highlight's themes that have emerged through consultation to date and in consideration of the interrelationships, complementary and contradictory insights which will be explored in detail in subsequent SIA Phases.

Additionally, limitations in the current scoping report that may affect assessment outcomes include:

- Consultation data has been sourced, compiled, and supplied by the client, for compilation and analysis in the preparation of this report. The independent authenticity and integrity of the data supplied has therefore not been validated by Umwelt. Meetings have been held between CWPR and Umwelt to provide an understanding of the engagement process that has been undertaken and the outcomes of engagement to help inform the development of this report.
- Consultation has focussed primarily on affected landholder (host and proximal), Local Councils, and selected elected representatives. Additional consultation with the broader community, including service providers and businesses in the local area and other community organisations will likely provide more diverse perspectives on the Project.

- Consultation with the local and broader community during the scoping phase has included:
    - Early and ongoing communications and one-on-one meetings with local landholders including potential hosts and neighbours to provide information on the Project and discuss their feedback on Project design elements including Project layout. Those interested landholders have also been involved in discussions regarding involvement in the Project as host landholders. CWPR has taken on board feedback from landholders which has been used to inform preliminary Project design (which are outlined in **Section 4.1**).
    - Mechanisms to engage more generally with the broader community in the Spicers Creek area have included the community survey undertaken by CWPR and the information session in May 2021 (with additional information sessions planned for April 2022).
- CWPR will continue to engage the local community and key stakeholders throughout the development of the Project, however additional targeted SIA consultation with additional stakeholder groups and the broader community will be undertaken throughout the next phase of the SIA and likely provide a more diverse perspective on the Project.
- Additional consultation using robust data collection and identification methods with host and proximal landholders will likely provide more diverse perspectives on the Project.

# 3.0 Social Baseline Profile

This section describes the profile of the communities in the social locality/social area of influence. It provides a compilation of the defining characteristics of the communities considering a range of indicators as outlined in **Table 2.2**.

The social baseline is a critical component of SIA as it provides the foundation from which social impacts associated with the Project may be assessed and predicted, with the following components considered:

- **geographic and spatial** – identification of communities of interest and relevant stakeholders in the social locality and their respective socio-economic and demographic characteristics and values
- **governance** – an understanding of the relevant governance structures including those of traditional owners and local, State and Federal government jurisdictions
- **development context** – a review of the other major projects and other development factors, as well as previous experiences with comparable projects, to ascertain the response of local communities to potential change processes
- **key community values, challenges, and priorities** – identification of community values through both primary and secondary sources, documentation of current community needs or issues, and goals or priorities, as identified in key strategic planning documents, regional plans or studies as well as within local and regional media
- **level of vulnerability or resilience** across the communities of interest and people's capacity to cope with change.

The following section outlines the strategic planning and regional development context of the Project.

## 3.1 Energy Policy In NSW

The current Project is well-aligned with current policy priorities of both the Federal and State Governments.

Australia's commitment at the international level to the 2015 Paris Climate Accord has influenced the growth of and investment in the renewable energy sector across the country in recent years, with further commitments to reduce national greenhouse gas emissions by 26-28%, below 2005 levels by 2030, and achieve net zero emissions by 2050 committed to as part of the 2021 UN Climate Change Conference (Department of Industry, Science, Energy and Resources, 2022).

In 2013, the NSW Government released the NSW Renewable Energy Action Plan (NSW Now, 2013) outlining the State Government's intention to work with communities and the renewable energy industry to increase renewable energy generation across the State. The Plan was implemented alongside the Energy Efficiency Action Plan (NSW Now, 2013), with the successful implementation of the Plan completed in December 2018.

The NSW Government's Electricity Strategy and Electricity Infrastructure Roadmap (Electricity Strategy) set out a plan to deliver the State's first 5 REZs.

In November 2020, the Electricity Infrastructure Roadmap was also released, enabled by the *Electricity Infrastructure Investment Act 2020* (NSW). The roadmap builds on the foundations of the Electricity Strategy released in 2019, and is expected to attract up to $32 billion of private investment in regional energy infrastructure by 2030 (NSW Energy, 2020); with investment generating around 6,300 construction jobs and 2,800 ongoing jobs, along with $1.5 billion in lease payments for landowners, especially in regional NSW, as a result of the development of wind and solar farms.

In late September 2021, the NSW Government announced its Net Zero Plan Stage 1: 2020-2030 that outlines an objective to achieve net zero emissions by 2050 by *'creating new jobs, cutting household costs and attracting investment'* (NSW Department of Planning, Industry and Environment, 2021). The document outlines the following priorities:

- drive uptake of proven emissions reduction technologies that grow the economy, create new jobs, or reduce the cost of living
- empower consumers and businesses to make sustainable choices
- invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030
- ensure the NSW Government leads by example.

### 3.1.1 Central West Orana Renewable Energy Zones

The proposed location of this Project is within the CWO REZ, being the State's first pilot REZ, and one of five REZs being implemented by the NSW government. REZs co-locate renewable energy generation, energy storage, and transmission lines with the aim of providing affordable, reliable and low-emissions electricity to the grid. REZs aim to install the transmission infrastructure required to attract private investment, and to enable the transition to an electricity network powered by renewable energy sources. The recent establishment of the CWP REZ is already attracting significant interest from renewable energy and storage developers (Energy NSW, 2020).

The REZ is anticipated to unlock up to 3 gigawatts of new network capacity by the mid-2020s, enough to power 1.4 million homes. New transmission infrastructure will enable generators (such as solar and wind farms) participating in the REZ to export electricity to the rest of the network. It is expected to bring up to $5.2 billion in private investment to the Central West Orana region by 2030. At its peak, the CWO REZ is expected to support around 3,900 construction jobs within the region.

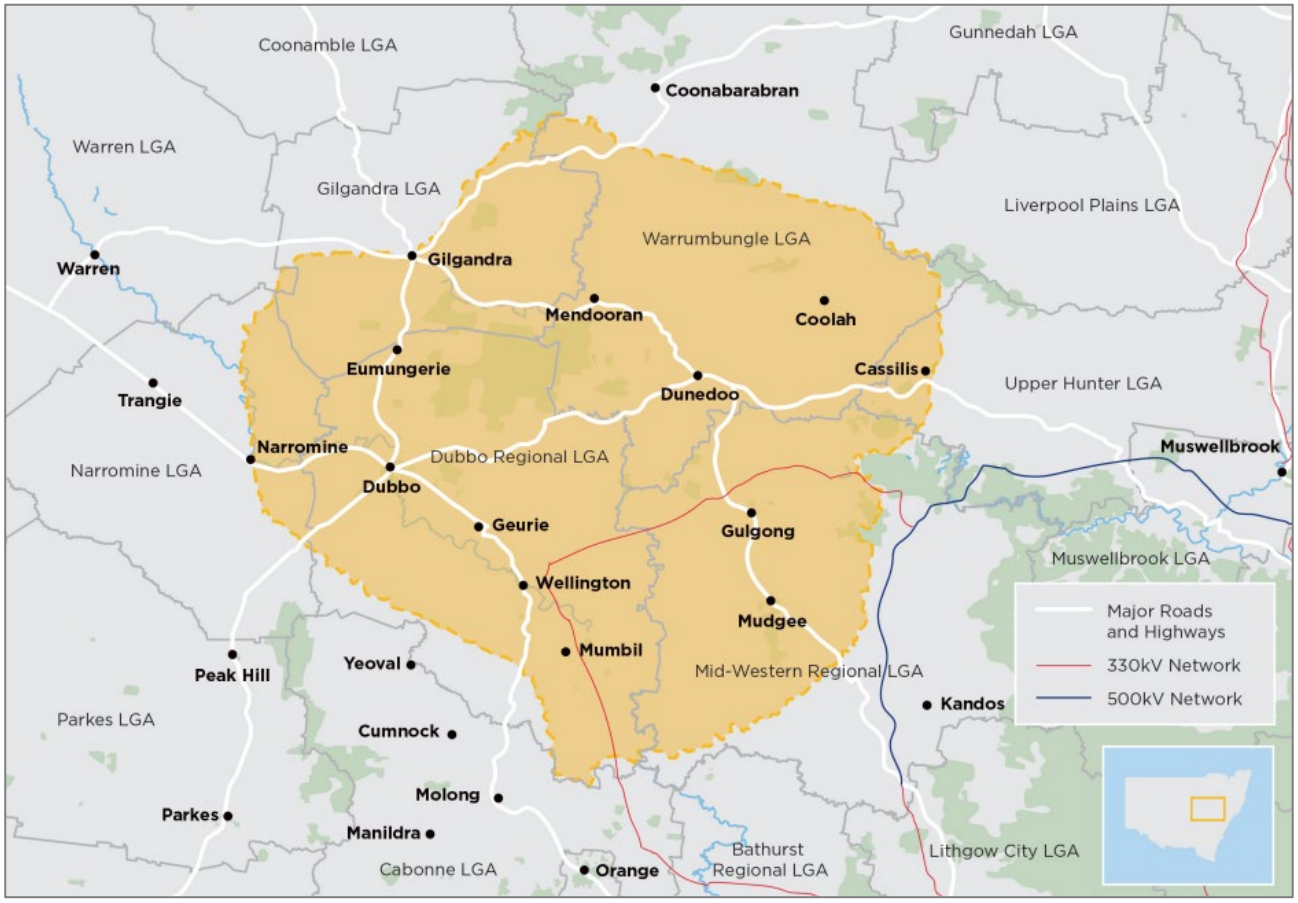



**Figure 3.1 Geographic Area of the Central-West Orana REZ**

*Source: Energy NSW, 2020*

## 3.2 Regional Development Context

The Project Site is located within the Central West Orana Region in NSW, a diverse and productive region with good connectivity to Sydney, Canberra, and Newcastle. Key regional cities include Bathurst, Orange and Dubbo, with the increasingly popular centres of Lithgow, Mudgee and Cowra.

The population of the region is expected to reach 300,000 people by 2036, and as such, there has been a strong focus from the NSW Government to develop the region into '*the most diverse regional economy in NSW with a vibrant network of centres leveraging the opportunities of being at the heart of NSW*' (NSW Government, 2016).

The NSW Government's Central West and Orana Regional Plan (2017) notes in their vision for the region 'landmark solar, wind and bioenergy projects that distinguish the region as a leader in renewable energy development.' The Plan outlines the role renewable energy will play in creating a sustainable future for the region, particularly by promoting local jobs and development opportunities for associated industries. Specifically, Direction 9 of the Plan is aimed at increasing renewable energy generation across the region.

**Appendix C** contains an overview of local and regional strategic plans relevant to the social locality to inform an understanding of the development priorities and interests for the region.

### 3.2.1 Comparable Developments

This section draws on several data sources to build an understanding of the renewable energy development context of the region, to capture any ongoing social change processes in the area of social influence, and to identify how local communities have responded to change over time.

Given the location of the Project Site, in the CWO REZ, there have been several other renewable energy projects that are operating, under construction, or are currently being planned. These projects are summarised in **Appendix B** and inform an understanding of cumulative development in the region, and potential cumulative effects that multiple nearby projects may have on the community.

A select number of comparable projects in the region have been reviewed to identify how relevant stakeholders and communities have responded to these proposed developments, and to inform an understanding of the potential concerns and community perceptions in relation to the Project. These projects are outlined below:

- The **Barneys Reef Wind Farm** and adjacent **Tallawang Solar Farm** are proposed in the Central West region, approximately 12 km north of the town of Gulgong. Both projects are currently in the project planning phase, with scoping reports submitted in July 2021. The reports indicate mixed community perceptions.
- The **Valley of the Winds Wind Farm** in the Warrumbungle Shire in proximity to the communities of Coolah, Dunedoo, and Leadville. The project is currently in the project planning phase, having submitted a scoping report in May 2020. The report indicates general community support for the 175-turbine wind farm.
- The **Uungula Wind Farm** within the Dubbo Regional Council LGA approximately 14 km east of Wellington. The Project was approved in May 2021 and involves the construction of 97 turbines. The Response to Submissions (RTS) report also indicated mixed perceptions for the development, with 13 submissions in support and 11 opposing development.
- The **Bodangora Wind Farm** secured SSD approval in August 2013 and has been operational since 2019. The Community Consultative Committee (CCC) annual reporting indicates some issues raised in relation to the administration of the Community Fund. There was also opposition to the project during the SSD assessment, with 142 of 151 public submissions (94%) opposing the project.
- The **Liverpool Range Wind Farm** in the Warrumbungle Shire and Upper Hunter Shire LGAs, secured SSD approval in March 2018, having received a mix of opposition (20 respondents), support (10) and commentary (5) during the public submission phase. During the assessment process, the number of proposed turbines and substations was reduced, and the transmission line alignment was amended to address stakeholder concerns.

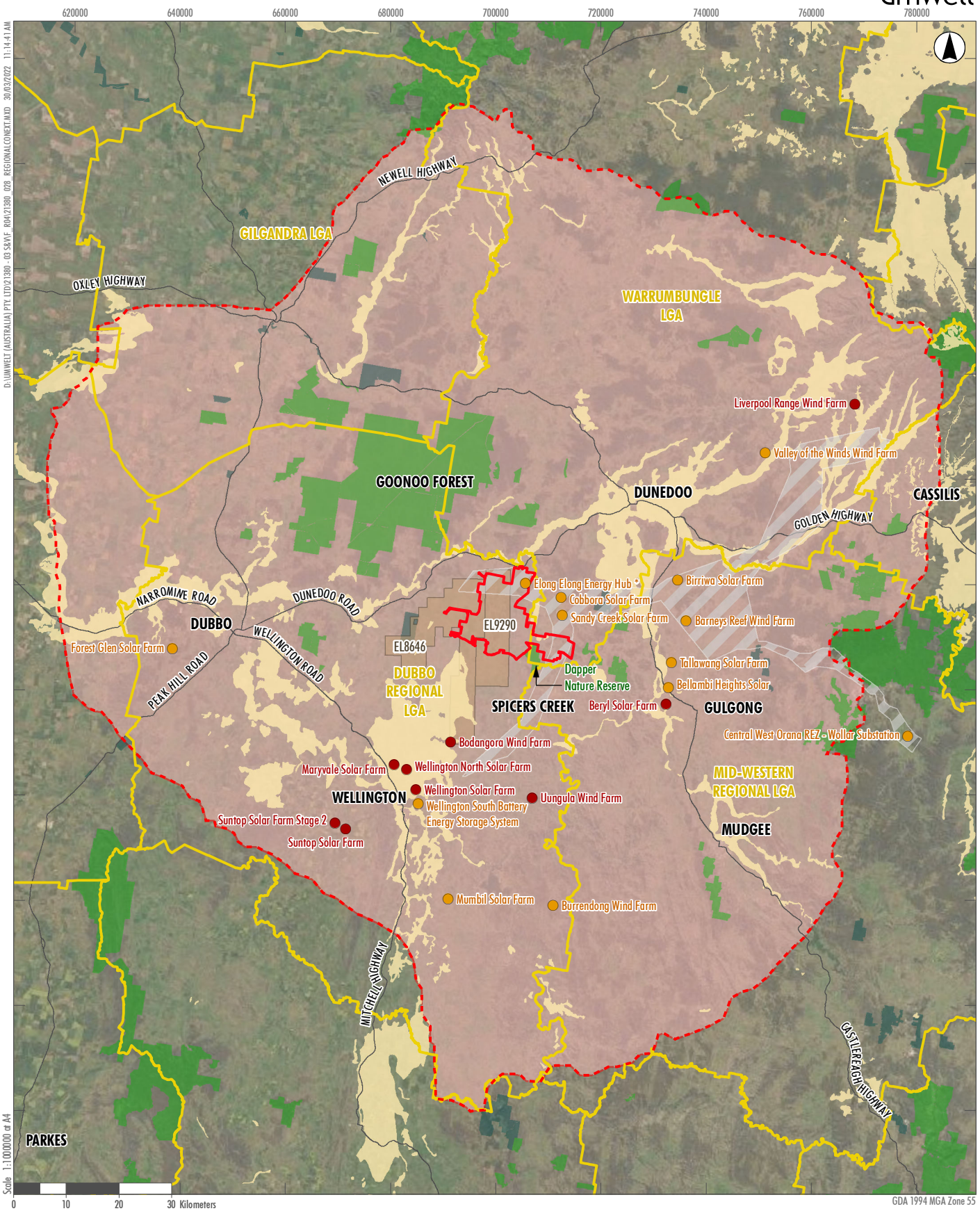
A review of publicly available documentation, and media coverage of these projects, has highlighted key community sentiments that relate to:

- unequal distribution of benefits between host landholders and nearby or proximal residents
- disruption to agricultural activity including aerial activities (e.g. crop spraying)
- concern about the potential for land devaluation on host and proximal land sites

- loss of accessible agricultural land due to movement limitations and potential fragmentation of rural land
- potential for increased bushfire risk, concerns relating to site access for fire-fighting activities and public safety
- local road disruptions and decrease in road safety during construction
- noise disturbance from construction, traffic, and the operation of the wind farm
- visual impacts to the landscape's amenity, including shadow flicker, increase in built infrastructure and construction activities causing light pollution
- change in rural and landscape aesthetic resulting in a loss of sense of connection to place and identity
- concern for the harm caused to wildlife, particularly birds.

These sentiments are consistent with some of the early feedback provided by community members in relation to the current Project, which are summarised in **Section 4.0**.

An overview of major proximal renewable energy projects reviewed in understanding potential cumulative effects is also outlined in **Appendix B**, with proximal developments illustrated in **Figure 3.2**.




Legend

- Project Site
- Central-West Orana Renewable Energy Zone
- Indicative REZ Transmission Corridor
- Approved Renewable Project
- Proposed Renewable Project
- Biophysical Strategic Agricultural Land
- Mining Titles
- Local Government Area
- State Forest
- NPWS Estate
- Road

FIGURE 3.2

Central West-Orana Renewable Energy Zone and Proximal Developments

*Not part of Project. Location is approximate. Sourced from Energy Corporation of NSW (2022), Central-West Orana Renewable Energy Zone Project Overview.

Image Source: ESRI Basemap Data source: NSW DFSI (2021), CWP Renewables (2022)

### 3.2.2 Other Major Projects in the Region

There are several other projects which are recently developed, or currently being considered within the region, which could result in changes to the community, or which may have further cumulative effects across the region, particularly in relation to impacts associated with concurrent construction activities.

Major projects in other sectors that may result in social impacts and influence social change processes include:

**Dubbo Regional LGA**

- **Dubbo Gas Energy Storage System,** comprised of a 60-Megawatt (MW) Gas fired power station, 17.5MW Hydrogen generation plant, and associated infrastructure to provide grid firming / stability to electricity supplied by the Central West Orana REZ. Project is currently in the EIS Preparation and planning phase.
- **Dubbo Hospital Redevelopment,** a $150 million to support the growing healthcare needs of communities in western NSW (Health Infrastructure, 2022; NSW Health, 2021).
- **Dubbo Quarry Continuation Project,** located south of Dubbo, to allow for an extension to the quarry life of up to 25 years. Project is currently in the assessment phase of an SSD approvals process (NSW Government, 2022).

**Warrumbungle Shire LGA**

- The **Narromine to Narrabri Rail Project** in mid-north western NSW is Inland Rail's longest section of track. This 306 km of new track is a crucial part of delivering our fast and reliable freight rail service between Melbourne and Brisbane. The project is in the Response to Submission phase in the approvals process (ARTC; Inland Rail, 2022).

**Mid-Western Regional LGA**

- A $70.7 million **Mudgee Hospital upgrade** to support the growing healthcare needs of communities in western NSW (Health Infrastructure, 2022; NSW Health, 2021).
- A $1.3 million **upgrade to the Castlereagh Highway** near Capertee to improve road safety (Lithgow Mercury, 2020).
- **Melbourne-Brisbane Inland Rail Project**, traversing the Mid-Western Regional LGA (NSW Government, 2016).
- An **extension to Glencore's Ulan Coal Mine** in the small community of Ulan – currently in preparation.
- The **Bowdens Silver Mine** - a proposed greenfield open cut open cut mine to recover mineralised rock (ore) containing silver and small percentages of zinc and lead, located approximately 2 km from Lue, in the Mid-Western Regional LGA. The project is expected to have a construction workforce of 320 and an operational workforce between 190-228. The project is currently being assessed by DPE with an EIS being submitted in May 2020.

Such project developments, in combination with the number of renewable projects approved or in the planning phase, may further intensify impacts experienced by local communities across the region.

## 3.3 Local Setting

The Project Site is located approximately equidistant to the surrounding towns of Dunedoo (32 km north east), Gulgong (25 km south east), Wellington (30km south west). The nearest larger population centres are Dubbo, and Mudgee which are located approximately 49 km west, and 58 km south east of the Project Site.

The Project Site is within the Dubbo Regional and Warrumbungle Shire LGAs, and is adjacent to the Mid-Western Regional LGA. The towns of Dubbo and Wellington are located in the Dubbo Regional LGA, the town of Dunedoo is located in the Warrumbungle Shire LGA, and the towns of Gulgong and Mudgee are located in the Mid-Western Regional LGA.

The townships of Gulgong, Wellington, and Dunedoo are key communities of interest for the Project given their proximity to the Project Site. Gulgong, is home to approximately 2,521 people (as at the 2016 census), can be characterised by its history and heritage buildings and streetscapes that act as a tourist attraction in the region. Dunedoo is a smaller town by comparison with a population of 1,221 across the Dunedoo SSC. In contrast, Wellington is home to approximately double the number of residents as Gulgong (4,519) and acts as a centre for the surrounding rural community.

The closest larger town is Dubbo with a population of 38,943 (as at the time of the 2016 census). It serves as a large regional centre for the surrounding localities and contains a wide range of services and facilities to support the surrounding population.

The Project Site is adjacent to the Golden Highway, which connects Dubbo with Dunedoo, the road is also host to the main transportation and access routes planned for the Project. Other key routes in the social locality include the Castlereagh Highway and Mitchell Highway. These provide access to the Hunter region, Sydney, as well as inland road links to south-east Queensland.

### 3.3.1 Land Use and Tenure

Land within and surrounding the Project Site has been subject to extensive vegetation clearing associated with historic agricultural land uses and is predominately utilised for grazing activities. Agriculture (primarily sheep grazing with some cattle grazing) is the main land use in the Project Site.

There are 32 private landholdings within the Project Site.

## 3.4 Political Capital

Political capital refers to the individuals, institutions, and systems that contribute to a community's ability to maintain a governance structure. Political capital can determine the extent to which people are able to participate in decisions that affect their lives, the level of democratisation within a community, and the resources provided for this purpose. A summary of the political capital relating to the social locality is provided below.

The Project is located within the Australian Commonwealth Electoral Division of Calare. Andrew Gee, Nationals Member of Parliament (MP) was elected to the House of Representatives for Calare in 2016. Andrew Gee MP is the Minister for Veterans' Affairs & Defence Personnel.

The Project Site is represented at the State level under the Legislative Assembly District of Dubbo. Dugald Saunders of the National Party is the incumbent Member for Dubbo, assuming office in 2019. Dugald Saunders is the Minister for Agriculture.

The Project is largely located within the Dubbo Regional LGA, with part also within the Warrumbungle Shire LGA. The Project is also located adjacent to the Mid-Western Regional LGA. The following provides a summary of current and recent political representation:

- The towns of Dubbo and Wellington are represented by the Dubbo Regional Council, consisting of nine Councillors and Mayor Mathew Dickerson of the Labour Party, who was elected in December 2021.
- The towns of Mudgee and Gulgong are represented by the Mid-Western Regional Council, consisting of eight Councillors and Mayor Des Kennedy. Mayor Kennedy was re-elected in 2021.
- The town of Dunedoo is represented by the Warrumbungle Shire Council, consisting of eight Councillors and Mayor Ambrose Doolan, who was re-elected in December 2021.

The Project Site is located within the traditional lands of the Wiradjuri nation. Wiradjuri means '*the people of the three rivers'*, and the nation's traditional and modern-day connections to Country extend over a large area of NSW encompassing the Macquarie, Lachlan and Murrumbidgee Rivers, bounded by the Murray River in the south (Three Rivers Regional Assembly, 2021).

The Project Area is located in the modern-day NSW Local Aboriginal Land Council (LALC) of Dubbo. The current Councillor of the Central Regional is Grace Toomey, a Wiradjuri woman from Dubbo who is Secretary of the Dubbo Aboriginal Community Working Party of the Three Rivers Regional Assembly.

There are no registered native title claims in or surrounding the Project Site.

## 3.5 Natural Capital

Natural capital refers to the natural assets and resources that contribute to community sustainability. Natural capital can include resources such as minerals, land, forests, and waterways, which provide benefit to the community, as well as environmental assets that provide social, cultural, or recreational value. A summary of the natural capital in the area of social influence is provided below.

Land within and surrounding the Project Site has been subject to extensive vegetation clearing associated with historic agricultural land uses and is predominately utilised for grazing activities, with some cropping. The Project Site encompasses 32 private landholdings, including 27 residences, with the land primarily utilised for cropping, and sheep and cattle grazing.

The Project Site is zoned as RU1 Primary Production under the Dubbo Local Environment Plan (LEP) 2011 and Warrumbungle LEP 2013.

There are two existing mineral exploration licences that apply to the western portion of the Project Site, held by Orange Minerals (NSW) Pty Ltd (EL9290) and Monzonite Metals Pty Ltd (EL8646).

The primary agricultural industries in the Dubbo Regional LGA are wool ($28.5 million), cereal crops (worth $27.4 million), and cattle and calves ($23.2 million). The key agricultural pursuits are similar in the Warrumbungle Shire LGA, with cattle and calves the largest industry ($46.2 million) followed by cereal crops ($23.5 million) and wool ($16.9 million) (NSW Government, 2016). In the Dubbo Regional LGA, the

'Food Product Manufacturing' sector was the largest exporter, with goods valued at $401.06 million (Dubbo Regional Council, 2019). The top three contributors to agricultural production in the Mid- Western Regional LGA include wool (worth $28.4 million), cereal crops (worth $27.4 million), and cattle and calves (worth $16.3 million).

The Central West region is rich in minerals, with mining (predominantly coal mining) contributing over $1 billion to the regional economy (Minerals Council of NSW, 2021).

Within the region, there is a strong history of viticulture, with winemaking dating back to the 1850s. Mudgee is a well-known food and wine destination amongst tourists and features an annual Food and Wine Festival.

The Goulburn River National Park east of Mudgee, and Warrumbungle National Park west of Coonabarabran are also popular tourist destinations. The Warrumbungle National Park is home to the internationally significant Siding Spring Observatory which is a critical piece of national infrastructure that provides employment and attracts tourists. The region provides habitat for approximately 200 threatened species. The Warrumbungle Mountains are a hot-spot for rare plants within the bio-region, with a total of 779 plant species found within the park, the highest yet found for a reserve on the North Western Slopes (NSW National Parks & Wildlife Service, 2012). In addition, there are a range of parks and conservation areas proximal to the Project Site including the Yarrabill National Park, Cobbora, Beni, Goodman and Goonoo State Conservation Areas, Tuckland State Forest, Dapper and Wongarbon Nature Reserve and Yarindury State Forest (refer to **Figure 1.1**).

Water supply deficiencies (of more than 50% by 2036) are forecast for the Dubbo Regional and Mid-Western Regional LGAs. New water security projects and water management initiatives, such as stormwater harvesting and innovative water management approaches, are currently being employed to improve water security (NSW Government, 2016). Above-average rainfall in March 2021 has eased long-term rainfall deficiencies and encouraged optimism in agricultural communities in the region. Extended drought conditions and large-scale bushfires have negatively affected agricultural communities in recent years. The rate of warming in the region has accelerated since 1960, and in the mid- to long-term, there is projected decreases in winter rainfall and harsher fire weather with high confidence (OEH, 2014; Bureau of Meteorology, 2021).

## 3.6 Human Capital

The level of human capital within a community is assessed by considering population size, age distribution, education and skills, general population health, and the prevalence of vulnerable, marginalised, or at-risk groups within the community. The following provides a summary of the key characteristics of the study areas from a human capital perspective (refer to **Appendix A**).

The population has increased in the Dubbo Regional and Mid-Western Regional LGAs since 2006 and is expected to rise until 2041, particularly in the age group of 75 years and over (refer to population trends in **Appendix A**).

In contrast, the Warrumbungle Shire LGA population has decreased in the same timeframe and is expected to continue to decrease in the coming years with the only age groups projected to rise being those 75 years and over (refer to **Appendix A**)**.**

Warrumbungle Shire LGA and Mid-Western Regional LGA have median ages over the NSW average (42 and 49 years respectively, compared to 38 years for NSW). In comparison, Dubbo Regional LGA has a comparable median age to the State Average (37 years, compared to 38 years for NSW). The suburb with the highest median age is Elong Elong (55 years), and the lowest median age was recorded in Wongarbon (35 years).

The local population has a low rate of Year 12 completion compared to the NSW average (44% in Dubbo Regional, 35% in Warrumbungle Shire LGA, and 39% in Mid-Western Regional LGA, compared to 59% in NSW), with a higher percentage of certificate level qualifications rather than Bachelor level qualifications in all study communities (23% hold certificates and 10% hold bachelor's degrees in Dubbo Regional LGA; 20% hold certificates and 7% hold bachelor's degrees in Warrumbungle Shire LGA; and, 25% certificates, 8% bachelor's degrees in Mid-Western Regional LGA, compared to 18% certificates and 16% bachelor's degrees in NSW).

The proportion of the population completing Year 12 and tertiary education has increased in all LGAs since 2006 (an increase of 6-10% across all LGAs).

Health data (PHIDU, 2020) suggests that when compared to NSW, Dubbo Regional LGA has higher rates of obesity (30.9 and 44 ASR per 100 respectively), heart, stroke and vascular disease (4.9 and 5.2 ASR per 100 respectively), and mental and behavioural problems (18.8 and 24.9 ASR per 100 respectively). The LGA also has higher rates of behaviours that are considered to increase risk of several lifestyle diseases such as smoking (14.4 and 18.7 ASR per 100 respectively) and are more likely to die a premature death (238.4 and 317.4 ASR per 100,000 respectively).

By way of summary, **Figure 3.3** outlines the Socio-Economic Indexes for Areas (SEIFA), prepared by the ABS. A low score indicates a greater degree of disadvantage, with the lowest 10% of areas receiving a decile of one, and the highest, a ten. It should be noted that no comparison can be made between LGAs and state suburbs on ranking, as rankings are only comparative within each geographic classification.

The SEIFA Index of Education and Occupation (IEO) for each of the SSCs reflects the general level of education and occupation-related skills of people within an area, indicative of relative disadvantage compared to other areas in NSW. The highest IEO index across the communities is within the 5$^{th}$ decile, indicating that approximately half of the other SSCs and LGAs in NSW have a higher level of education and occupation-related skills in comparison.

Specifically, Gulgong has the lowest level of education and occupation-related skills compared to the other study communities, and is within the lowest 10% of NSW, with Warrumbungle Shire having a higher level than Mid-Western Regional LGA, though still relatively low within NSW broadly. In comparison Spicers Creek, and Elong Elong are ranked in the 9$^{th}$ decile, and Gollan is ranked in the 10$^{th}$ decile, indicating a high level of relative education and occupation.

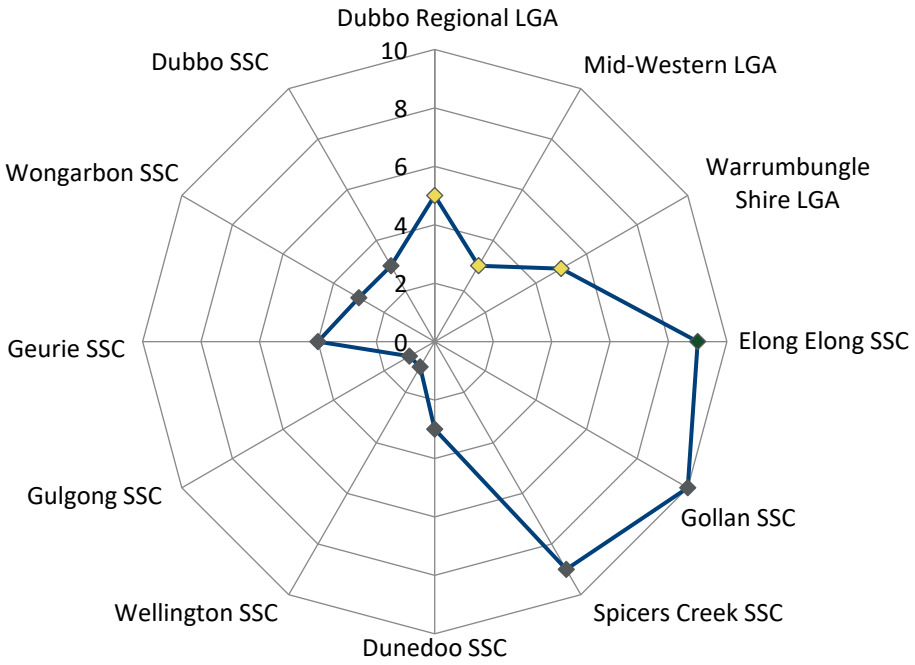



**Figure 3.3 SEIFA Index of Education and Occupation – Decile Ranking for Localities**

*Source: SEIFA, 2016*

## 3.7 Cultural Capital

Cultural capital refers to underlying factors that provide human societies with the means and adaptions to maintain themselves in their environment (Cochrane, 2006). It includes the way people know and understand their place within the world. It may also refer to the extent to which the local culture, traditions, or language, may promote or hinder wellbeing, social inclusion, and development (IAIA, 2015). This section provides a summary of the key characteristics of the social locality from a cultural capital perspective.

There are significantly fewer people born overseas in all the study community than the NSW average (30%). The most diverse community is Elong Elong with 9% of the population born overseas, in contrast, the suburbs of Gollan and Goolma have 3% of their populations born overseas.

Populations in the Dubbo region identify predominately as being of 'Australian', 'English', 'Irish', and 'Scottish' descent (>80% of the Population), with most people being born within Australia (>84%), and speaking English only (>86%).

All LGAs have a higher proportion of Aboriginal and Torres Strait Islander residents than the NSW average (Dubbo Regional LGA 15%, Warrumbungle Shire LGA 10%, Mid-Western Regional LGA 5%, compared to 3% in NSW). The urban centre of Wellington has a significantly higher Aboriginal and Torres Strait Islander population (26%), whilst Spicers Creek recorded no Aboriginal-identifying residents within the population.

The Social Locality falls within the Three Rivers Regional Assembly (TRRA) area which extends from Lithgow in the east of NSW through to Nyngan in the west and represents the interests of Aboriginal people across the communities of Bathurst, Dubbo, Gilgandra, Mudgee, Narromine, Nyngan, Orange, Parkes, Peak Hill, Trangie, Warren and Wellington. The TRRA facilitates the involvement of Aboriginal communities in setting regional priorities and strengthening the capacity of leaders and community members.

To preserve the history and culture of the Wiradjuri people, five memorials are currently being established in the Mudgee area as part of the Wiradjuri Mudgee-Dabee Stories Project (Mudgee Guardian, 2015). Scattered through the community, these memorials are located at sites of cultural significance to the Wiradjuri people.

## 3.8 Social Capital

Various indicators can be used to examine and assess social capital. Such indicators include the level of volunteering, population mobility, crime rates, and the demographic composition of the community, such as the percentage of people born overseas, language proficiency etc. The following provides a summary of the key characteristics of the study areas from a social capital perspective (refer to **Appendix A**).

The proportion of the community with a different address one year ago (15% in Dubbo Regional LGA; 10% in Warrumbungle Shire LGA; and 14% in Mid-Western Regional LGA), and five years ago (38% in Dubbo Regional LGA; 28% in Warrumbungle Shire LGA; and 37% in Mid-Western Regional LGA), is consistent with or lower than the State average (14% and 39% respectively), meaning residents have less mobility. Furthermore, the level of mobility of Mid-Western Regional LGA residents has remained consistent since 2006, with mobility of Dubbo Regional and Warrumbungle Shire LGA residents decreasing since 2006.

Across the broader Dubbo Regional LGA (20%), Mid-Western Regional LGA (22%), and Warrumbungle LGA (28%), volunteerism is higher than the State average (18%) which is reflective of other regional areas in NSW, however, the rate of volunteerism has decreased in all LGAs since 2006. The rate of volunteerism in the suburbs of Wellington UCL and Dubbo SSC is lower than the State average.

All LGAs have a higher number of single parent families than the State average (20% for Dubbo Regional LGA; 10% for Warrumbungle Shire LGA; and 9% in Mid-Western Regional LGA compared to 8% in NSW), however, a number of the study communities have no single parent families including Gollan, Goolma, and Spicers Creek.

The majority of the population in each study area are family households (a range between 66% - 100% across the study communities; with 71% in Dubbo Regional LGA; 67% in Warrumbungle Shire LGA; and 69% in Mid-Western Regional LGA), with very little presence of group households and less than a third of each community being lone person households. However, the number of lone person households is increasing whilst the number of family households is decreasing (refer to **Appendix A**).

In 2020, the prevalence of crime was notably high in the Dubbo Regional LGA, with the top three crimes as ranked across all LGAs in NSW being steal from person (3 out of 128 LGAs), fraud (5 out of 128 LGAs), and non-domestic violence related assault (5 out of 128 LGAs).

**Figure 3.4** provides the overall socio-economic status and level of disadvantage within each community, as determined by the Index of Relative Socio-economic Disadvantage (IRSD) - a SEIFA score prepared by the ABS which ranks areas in Australia according to relative socio-economic disadvantage. A low score indicates a greater degree of disadvantage, with the lowest 10% of areas receiving a decile of one, and the highest, ten. It should be noted that no comparison can be made between LGAs and state suburbs on ranking, as rankings are only comparative within each geographic classification.

When considering the relative socio-economic disadvantage of the study communities, Wellington, Dunedoo, and Gulgong SSCs have the most disadvantage in comparison to the other study communities, with Elong Elong and Gollan having the least socio-economic disadvantage. Dubbo Regional and Mid-Western Regional LGA have a lower level of relative socio-economic disadvantage than Warrumbungle Shire LGA).

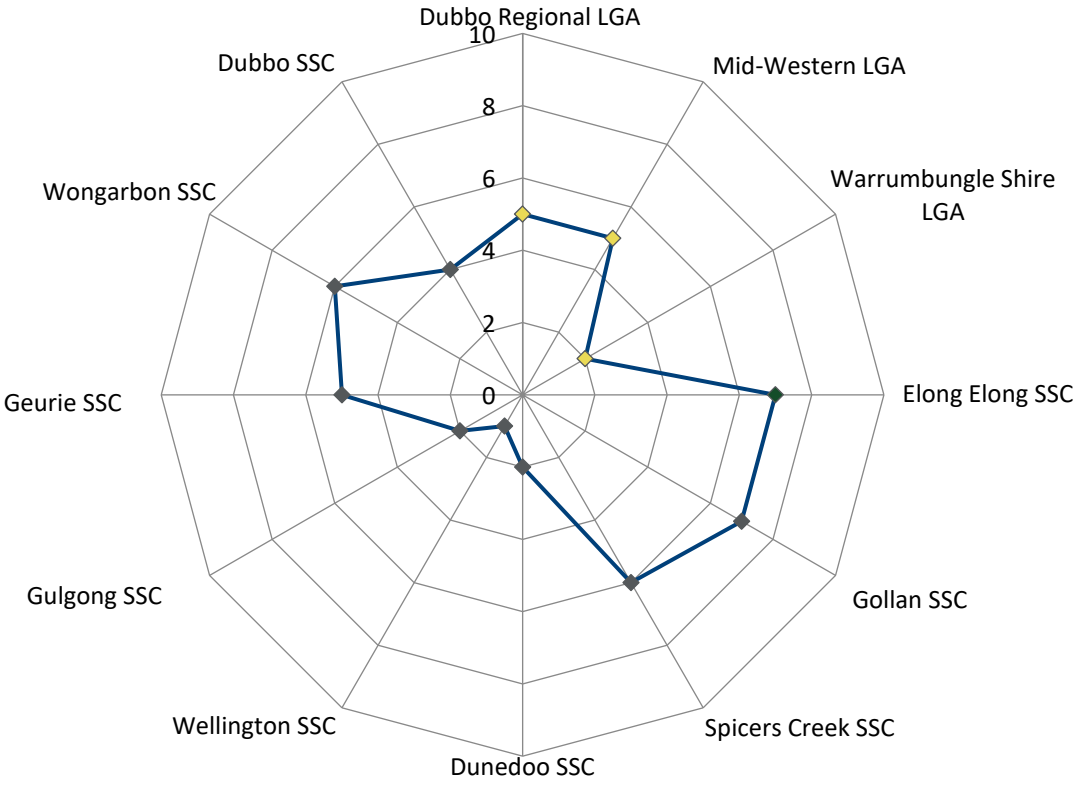



**Figure 3.4 SEIFA Index of Relative Socio-economic Disadvantage – Decile Ranking for Localities**

*Source: SEFIA, 2016*

## 3.9 Economic Capital

Examining a community's economic capital involves consideration of several indicators, including industry and employment, workforce participation and unemployment, income levels and cost of living pressures, such as weekly rent or mortgage repayments. The following provides a summary of the key characteristics of the study areas from an economic capital perspective (refer to **Appendix A**).

The proportion of the labour force employed full-time in both Warrumbungle Shire and Mid-Western Regional LGAs has decreased since 2006, whereas the proportion employed full-time in Dubbo Regional LGA has increased.

The unemployment rates in the LGAs have been decreasing gradually after peaking between 2014 – 2017. Despite this downward trend, recent data indicates a spike in the unemployment rate for Dubbo Regional LGA and Warrumbungle Shire LGA (increasing from 1.4% in August 2020 to 4.5% in August 2021 in Dubbo Regional; and increasing from 2.2% in August 2020 to 5.6% in August 2021 in Warrumbungle Shire). In contrast the unemployment rate in Mid-Western Regional has continued to trend downward (Refer **Appendix B**).

The unemployment rates in Dubbo Regional and Warrumbungle Shire coincide with relatively stable labour force participation rates, whereas in Mid-Western Regional, rates of unemployment have decreased with a coinciding increase in labour force participation.

This data indicates a slower expansion of the labour force in Dubbo Regional and Warrumbungle Shire which may be generally attributable to cycles of economic stagnation or decline. In contrast economic expansion in the Mid-Western Region indicates a stronger growing regional economy.

The rates of part-time employment in the labour force have been increasing since 2006 across all LGAs, this trend is common where populations generally are ageing.

At the 2016 Census, the unemployment rate was the highest in Wellington UCL (12.4% compared to the NSW rate of 6.3%) and aligns with it having the lowest SEIFA index scores amongst the study communities. Elong Elong SSC has the highest proportion of the population recorded as away from the Labour force (10%), which coincides with the locality having the highest median age (55 years).

The median weekly household income is below the NSW average across the three LGAs and all the study communities except for Wongarbon SSC, which has a median of $1,554. The suburb with the lowest median weekly household income is Elong Elong SSC ($771 a week). Despite the lower-than-average income, median weekly household income has increased in the LGAs since 2006.

In most cases, the cost of living in the study communities is lower than the State, with the median monthly mortgage repayments in all study communities, except for Gollan and Goolma, being lower than the NSW average. Similarly, mortgage prices have also been on the rise in both LGAs since 2006.

The same trend has been experienced in regard to rental prices, with the weekly median rent for a 3-bedroom house all below the State median and rental costs in the LGAs rising since 2006. Dubbo SSC has the highest median weekly rent at $265 in comparison to the NSW median of $380.

The low median household income in Elong Elong means that it has the highest cost of living, on par with NSW, with the median weekly rent equalling 27% of the median weekly household income. Cost of living has been rising across all LGAs since 2006, with the Mid-Western Regional LGA (24%) nearing the NSW figure (26%).

As at the 2016 ABS Census, approximately 15.4% of workers in the Dubbo Regional LGA were recorded under the census category of ‘health care and social assistance’ as their industry of employment. In contrast, ‘agriculture, forestry and fishing, and mining’ were recorded as the top industries of employment in Warrumbungle Shire and Mid-Western Regional LGAs (27.6% and 15.0% respectively). The disaggregation of services and primary producing sectors across the LGAs indicates that Dubbo LGA functions as a regional centre for the surrounding industries. Top industries of employment within the Dubbo Regional LGA are outlined in **Figure 3.5.**

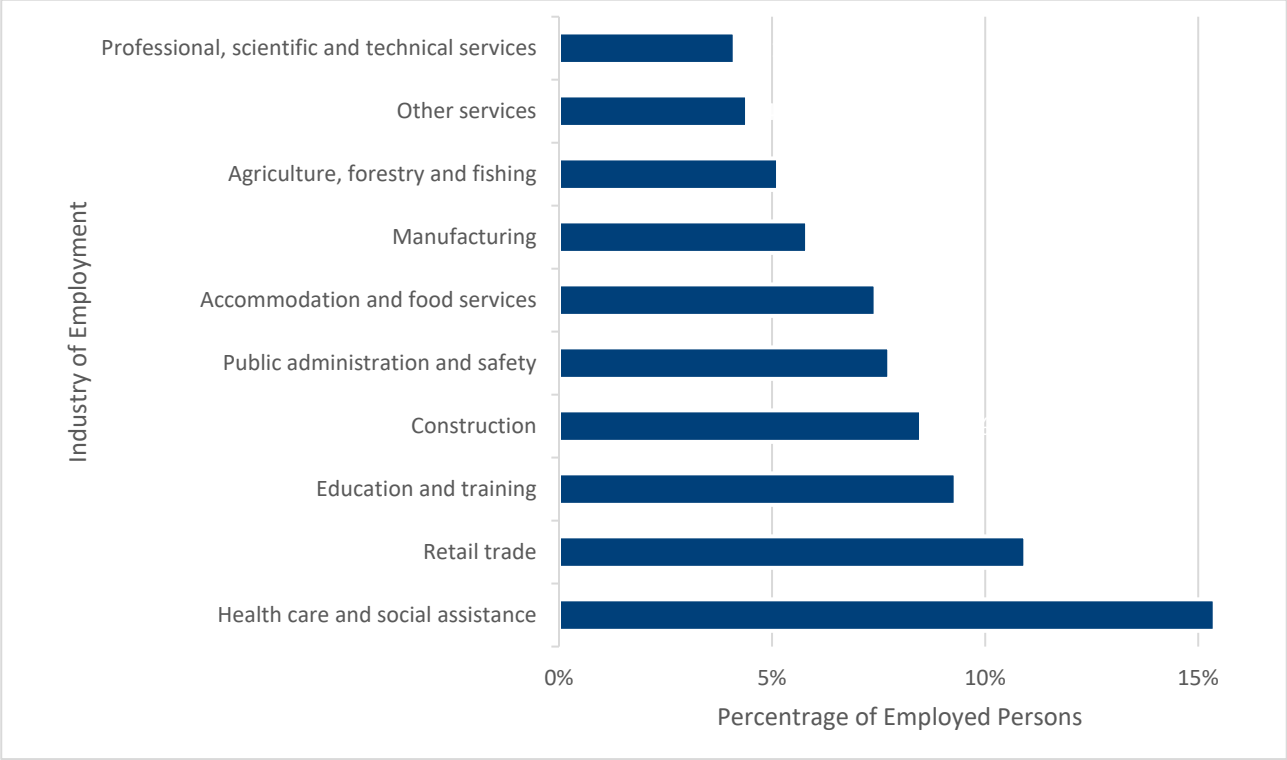



**Figure 3.5 Top Ten Industries of Employment – Dubbo Regional LGA**

The agricultural industry is the top employer in localities where rural land uses predominate by a large proportion (Elong Elong, Gollan, Goolma, Spicers Creek, and Dunedoo). Suburbs with more diverse land uses attract a wider range of industries of employment recorded (Wellington, Gulgong, Geurie, Wongarbon, Dubbo).

The closure of several resource extraction projects in surrounding communities has created key changes in these localities. Specifically, the closure of the Sibelco Tallawang magnetite mine in 2016 led to a reduction in the availability of mining jobs in the Mid-Western Regional LGA.

In the Warrumbungle Shire LGA, agriculture, forestry and fishing has consistently been the top industry of employment since 2006, with approximately a third of the population employed in the industry (27.6% in 2016). Health care and social assistance is the industry that employs the second highest proportion of people (12.2% in 2016), followed by education and training (11.5% in 2016).

The Central NSW Tourism Region (of which the social locality is located within) attracts over 3,771,000 domestic day, and 2,831,000 domestic overnight visitors (2019 pre-Covid results) each year through its diverse viticulture, eco-tourism, food, sport, and cultural events (Tourism Research Australia, 2020).

Central Orana is also recognised for its well developed its eco-tourism attractions and gliding events. Taronga Western Plains Zoo is the biggest attraction in the Region, attracting 228,092 paid admissions in 2016-17. Other known attractions are the Wellington Caves, Lake Burrendong, Old Dubbo Gaol and heritage gardens (NSW Government, 2018). According to Tourism Research Australia, visitors to the Dubbo Regional LGA spend on average 2 nights in the area, with a total expenditure of $274 million (Tourism Research Australia, 2019).

The SEIFA Index of Economic Resources (IER) reflects the economic resources of households within an area and includes variables such as household income, housing expenditure (e.g., rent) and wealth (e.g., home ownership). A low score indicates a relative lack of access to economic resources in general, while a high score indicates greater access to economic resources.

When considering the study communities, Wellington, Dunedoo and Gulgong are again the most disadvantaged, whereas Elong Elong, Gollan, Spicers Creek, and Wongarbon have the highest access to economic resources. Mid-Western LGA and Dubbo Regional LGA have a higher access to economic resources than the Warrumbungle Shire LGA (refer to **Figure 3.6**).

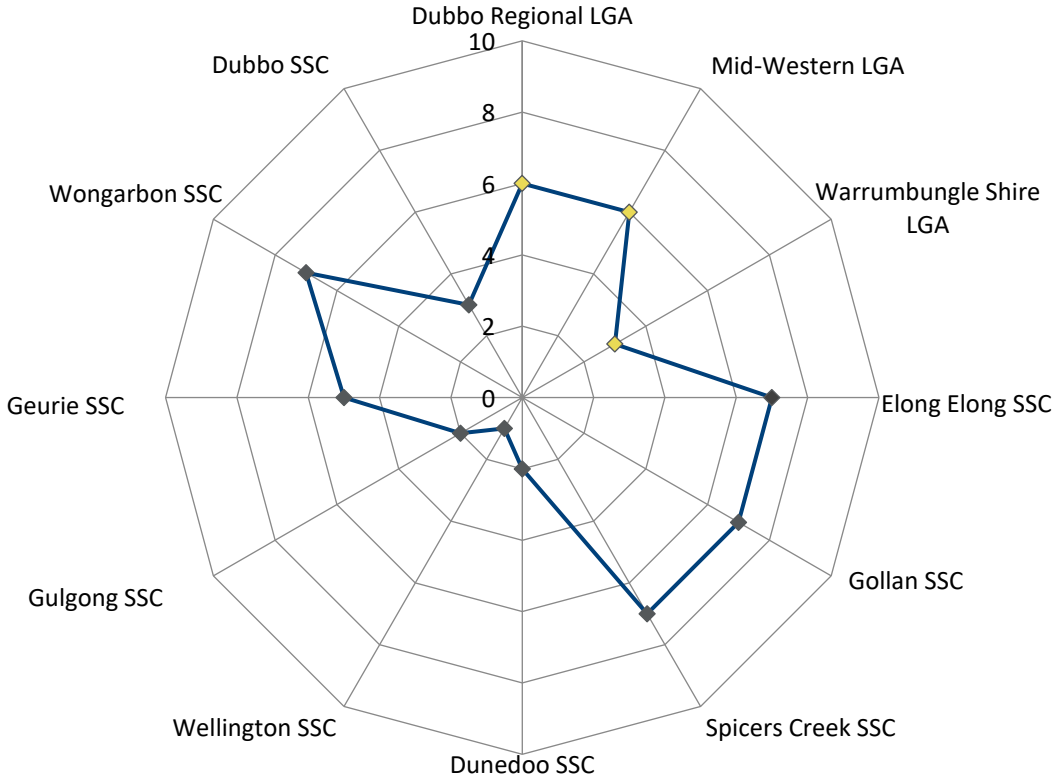



**Figure 3.6 SEIFA Index of Economic Resources**

*Source: SEIFA, 2016*

The Mid-Western, Dubbo Regional, and Warrumbungle Shire LGA industry diversity is outlined in **Figure 3.7**.


**Figure 3.7 Local economic profiles in the Central-West Orana Region (DPIE, 2016)**

Visions for future development of the region as outlined in the Central West and Orana regional Plan 2036 include increasing the diversity of the economy, capitalising on the historic towns and heritage centres for tourism, improving freight, transport and infrastructure and vibrant health communities (NSW Government, 2016).

Significant industries of employment in the region include the extractives sector, agriculture, health and social care sectors, as well as emerging sectors such as renewable energy (NSW Government, 2016).

**Figure 3.8** summarises the key industry sectors that the NSW Government's strategic plans focus on for the region.

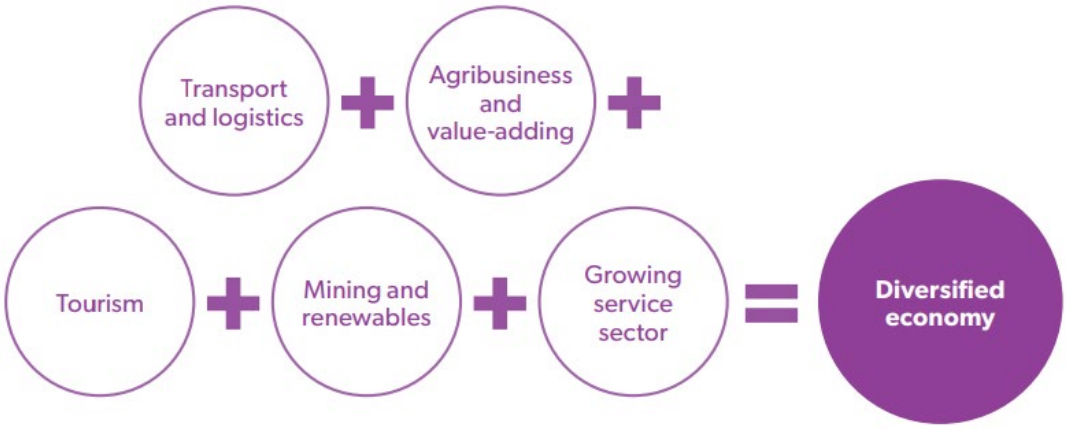



**Figure 3.8 Economic Diversification Strategy for the Central-West Orana Region (NSW Government, 2016)**

## 3.10 Physical Capital

Physical or built capital includes provision of infrastructure and services to the community. Within this capital area, it is important to consider the type, quality, and degree of access to public, built and community infrastructure (including amenities, services, and utilities), as well as housing. The Project's area of social influence can be characterised as having a wide range of community services (refer to **Appendix A**).

### 3.10.1 Housing

The study communities of Warrumbungle Shire and Mid-Western LGAs have a higher proportion of dwellings that are fully owned (without a mortgage) than the NSW average, whilst in Dubbo Region, the proportions are slightly lower. Rates of outright home ownership is decreasing in line with rising mortgage prices.

The proportion of houses owned with a mortgage is rising across all LGAs, as is the proportion of occupied dwellings that are being rented (refer to **Appendix A**). Proportions of dwellings that are being rented are comparable in Dubbo Regional to the State average (30.7% and 31.8% respectively), where rates of houses being rented are lower in Warrumbungle Shire, and Mid-Western Regional LGAs.

The suburbs with the highest proportion of households owned outright are Spicers Creek (76.5%), and Elong Elong (64%), which is common in rural areas where property ownership is generational. The suburb with the lowest proportion of outright home ownership was Dubbo SSC at 28.9%.

The proportion of households in mortgage stress in the Dubbo Regional LGA, Mid-Western Regional LGA and Warrumbungle Shire LGA have decreased since 2006, with the lowest level recorded in Dubbo Regional 5.1% of households. In contrast, the proportions experiencing mortgage stress in Mid-Western Regional LGA, and Warrumbungle Shire LGA remain similar to NSW (9.4% and 9.5% in 2016 respectively, compared to 9.6% in NSW). The proportion of households experiencing rental stress has increased across all localities, surpassing 9.8%, 24.2%, and 32.3% respectively. This is a sign of high demand in the rental market (particularly in Warrumbungle Shire LGA, and Mid-Western Regional LGA) and can often result in increasing rental prices.

### 3.10.2 Social Infrastructure

The majority of the study communities have a lower proportion of dwellings with internet access when compared with NSW (78% in Dubbo Regional; 69% in Warrumbungle Shire LGA; and 77% in Mid-Western Regional LGA compared to 85% in NSW), with Wellington UCL having the lowest access at 65%.

Regarding the provision of social infrastructure, there has been much controversary in recent years relating to the under supply of health care in the region. The town of Gulgong has been reliant on telehealth services since June 2020, when the contract for the towns one doctor was not renewed (ABC News, 2021). The Dubbo Regional LGA has a higher average rate of transport (4.5 ASR per 100) and cost (3.2 ASR per 100) affecting healthcare in comparison to NSW (4.3 ASR per 100 and 2.5 ASR per 100 respectively).

Health Infrastructure is currently redeveloping the Dubbo Hospital campus to significantly upgrade and expand health service delivery to the Dubbo community and the regional and remote areas of western NSW (Health Infrastructure, 2022). The NSW Government has committed $150 million toward the redevelopment project made under stages 3 and 4, which is reaching Project completion. The Project will:

- deliver a new three-storey clinical building to enable highly valued health staff to provide the very best care to the community
- help attract and retain essential health staff and expand their skills through the delivery of contemporary models of care
- provide a culturally appropriate, safe and welcoming place for all people in the western NSW district.

### 3.10.3 Connectivity

In terms of connectivity, the Castlereagh Highway and Mitchell Highway transverses the region and is a main route of travel for inland residents, connecting with Sydney on the coast, and inland regions in NSW and south-east Queensland. The Castlereagh Highway is part of the Great Inland Way connecting Sydney and Cairns. The Castlereagh Highway meets the Golden Highway at Dunedoo which is a key route of travel from Dubbo to Newcastle, giving the region access to the Hunter region and the major metropolitan centre of Newcastle. Railway lines at Binnaway and Mendooran provide opportunities to expand the freight network and support the local agricultural industry, particularly for the Warrumbungle LGA.

As a result of the proximity to major national highways, the Central West and Orana Regional Plan 2036 outlines a vision to capitalise on the location to grow the freight industry which may result in opportunities for new intermodal facilities and support rail infrastructure (NSW Government, 2016).

The Gwabegar railway line also runs through the Mid-Western Regional LGA, however, the portion of the railway between Kandos and Gulgong has not been operational for several years. Transport for NSW has been investigating reopening the line, with a feasibility study published in August 2020 outlining positive economic benefits. The project is now in the design and planning stage. Dubbo has an airport which provides return routes to Newcastle, Sydney, Walgett/Lightning Ridge, Essendon, Bourke, Broken Hill, Brisbane, Ballina, and Melbourne.

Based on service capacity assessments undertaken in the region, strain on accommodation services is evident, due to the large influx of seasonal and itinerant workers for mining and agribusiness, such as in the viticulture, pome fruit, nut, cotton, and stone fruit industries, particularly during harvest periods (DPIE, 2016). A range of accommodation options is needed to meet this temporary workforce demand, particularly in the context of growth in other sectors such as renewable energy.

## 3.11 Local Challenges and Opportunities

**Table 3.1** outlines the key challenges and opportunities for the host LGAs as acquired from the review of local, regional, and State government reports, strategies and plans, ABS Census data and other secondary sources of data, local media, and through community consultation.

**Table 3.1 Local Challenges and Opportunities – Dubbo and Warrumbungle LGAs**

| Challenges | Capital | Opportunities |
|---|---|---|
| | **Political** | • Future development and land use planning in the area is supported by a range of local and regional strategic planning systems and mechanisms. |
| • Water security and drought prone area<br>• Impacts of multiple cumulative developments on natural environment require management and regulation. | **Natural** | • Area has quality agricultural land<br>• Community members values the beautiful natural environment and aesthetic values of the landscape<br>• Area has been identified as having favourable natural resources for renewable energy development (sun and wind)<br>• Region hosts large areas of National Park including Warrumbungle National Parks |
| • Population decreasing in Warrumbungle LGA.<br>• Limited health services.<br>• Difficulties in attracting and retaining General Practitioners (GPs).<br>• Limited tertiary education options.<br>• Ageing population. | **Human** | • Population increasing in Dubbo Regional,<br>• Proportion of residents undertaking tertiary education increasing.<br>• Dubbo region has a strong technical training and skills base. |
| • The area has an extensive post-colonial occupation has destroyed many Aboriginal sites of cultural significance. | **Cultural** | • There is a long history of European cultural heritage exemplified through heritage buildings and places and the landscape.<br>• Aboriginal people are strongly represented in the social locality through organisations such as the Three Rivers Regional Assembly.<br>• Residents' cultural identity is tied with the landscape and land uses contained within the region. |
| • Temporary workers accommodation facilities are available, however can have unintended detrimental social consequences, such as segregation from the existing community.<br>• High crime rate in Dubbo Regional LGA | **Social** | • Dubbo Council's plan to increase housing options in the region.<br>• Thriving tourism, arts and cultural sectors<br>• Tight-knit community.<br>• Representation of Aboriginal and Torres Strait Islander people in the community<br>• Low mobility of residents resulting in sustained sense of community. |
| • Potential for labour force competition due to other renewable projects and mining activity.<br>• Increasing retirement age population leading to decrease in skilled employee base.<br>• Low median weekly household income resulting in less spending in the local economy.<br>• Increasing rental housing prices. | **Economic** | • Region has strong and diverse industries including mining, tourism, and agriculture.<br>• Strong business services sector.<br>• Low cost of living relative to other localities in NSW. |

| Challenges | Capital | Opportunities |
|---|---|---|
| • Road infrastructure and road surfaces require upgrade.<br>• Lack of public transport options.<br>• Broadband and mobile coverage need upgrading.<br>• There are a number of other major developments under construction or proposed in the social locality which may place potential strain on existing infrastructure. | Physical | • Hospital expansion in Dubbo.<br>• Historic character of region. |

### 3.11.1 Identification of Vulnerable Groups

Through the development of the social baseline profile, the following population groups within the area of social influence have been identified as potentially having vulnerability to the social or economic changes that the Project, and the cumulative effects of other developments across the region, may bring:

- landholders/property owners affected by the Project
- regular users of short-stay accommodation and tenants within the private rental market
- local job seekers
- local Aboriginal and/or Torres Strait Islander residents.

# 4.0 Perceived and Likely Social Impacts

This section summarises the scoped issues and impacts (positive and negative) in relation to the Project and has been framed in accordance with the social impact categories outlined in the SIA Guideline (DPIE, 2021). The issues scoping exercise has been compiled based on outcomes and responses from community consultation undertaken during the scoping phase, considered with the findings of the social baseline profile.

## 4.1 Key Outcomes of Engagement

CWPR has been engaging with landholders in the Spicers Creek area since 2019 to understand community feedback on the proposed Project. To date approximately 157 landholders have been engaged in relation to the Project (refer to **Table 2.3**). This consultation has informed the Project layout.

Since September 2019 to January 2022 there have been a number of rounds of consultation with local community (including potential hosts and neighbours) that have been used to:

- build relationships and develop an understanding of the local community (including who they are, length of time living in the area, land use practices, etc.)
- provide information and respond to question relating to wind farms generally and the Project
- develop an understanding of those who are (and those who are not) interested in being involved in the Project (including providing information on what being involved in the Project would entail, appropriate buffer zones and information on potential agreements that would be put in place)
- collect and understand community feedback on and perceptions of the Project (including any issues and benefits)
- provide hosts and neighbours with preliminary 360-degree photomontages to show proposed Project layout and potential visual impacts from individual residences
- discuss and collect feedback on preliminary Project layout and proposed WTG locations with hosts and neighbours.

The feedback and preferences provided by local landholders has informed the iterative Project design process. For example, appropriate buffers have been applied to residences where landholders who do not wish to be involved; WTGs have been removed where the visual impact was seen as too intrusive, and feedback has been incorporated into the civil and electrical design where practicable.

In addition, as outlined in **Section 2.0**, additional engagement with the local community and key stakeholders will continue as the Project progresses. CWRP has committed to ongoing engagement to understand community issues and feedback on the Project to inform Project design.

## 4.2 Summary of Identified Social Impacts

**Table 4.1**, and **Figure 4.1** and **Figure 4.2** illustrate the scoped social issues and impacts (positive and negative) organised by category, as derived from consultation activities undertaken during the Community Drop-in Session in Goolma (May 2021), and findings from the broader community survey distributed in May 2021 by CWPR. The overview presented provides a quantitative analysis of the outcomes of these engagement mechanisms with the broader community, however as previously noted there has been a range of additional consultation (including one-on-one meetings and ongoing communications with potential hosts and neighbours and hosts and briefings with key stakeholders) that has been undertaken since 2019 that is not reflected in quantitative data given the ongoing nature of this engagement. Instead, qualitative outcomes of this additional engagement have been reflected in the discussion in **Sections 4.3** to **4.10.**

When stakeholders and community members were asked directly about potential negative impacts of the Project, both prompted and unprompted, their top concerns included the impact on surrounds, and in particular the potential for the Project to impact on the visual amenity of the social locality (n = 10 & 9; refer **Table 4.1** and **Figure 4.1**), impacts relating to traffic and conditions on local roads (n = 8; refer to **Figure 4.1**), and impacts relating to changing land uses and associated impacts on how people sustain their livelihoods (n = 4 & 8; refer to **Table 4.1** and **Figure 4.1**).

When community members were asked directly to identify potential positive impacts of the Project, (outlined in **Figure 4.2**), the most frequently cited response related to the potential for the Project to benefit access through upgrades to road infrastructure (n = 12), the provision of renewable energy to the national electricity market (n=11), and the sharing of Project benefits through direct investment in the local community (n = 11).

Consultation undertaken with Federal, State, and Local Government officials, indicated that there is a broad level of support for the Project from these stakeholders, on the basis that the Project supports local employment, contracting, training, and industry and economic diversification in the region. These matters are further discussed in the following sections.

**Table 4.1 Perceived Issues and Impacts with Frequency (Unprompted)**

| Impact Category | Impact | Frequency |
|---|---|---|
| Way of Life | Changing land use and how people work | 4 |
| Community | Change in community character and composition | 5 |
| Accessibility | Access to property | 1 |
| Health and Wellbeing | Stress and anxiety | 1 |
| Surroundings | Impacts on flora and fauna | 1 |
| | Noise impacts during operational phase | 1 |
| | Visual amenity | 10 |
| Livelihoods | Changing use impacting on ability to maintain land-based livelihoods | 1 |
| | Property values | 3 |
| Decision Making Systems | Concern regarding the level of information provision | 2 |
| | Inability to meaningfully influence decision making process | 2 |
| Cumulative | Changed caused by multiple concurrent projects | 1 |

*Source Data: CWPR, 2022. SCWF Community Drop-in Session, Goolma, May 2021, base n = 61 attendees (41 registered on sign-on sheet); Data Processing: Umwelt, 2022.*

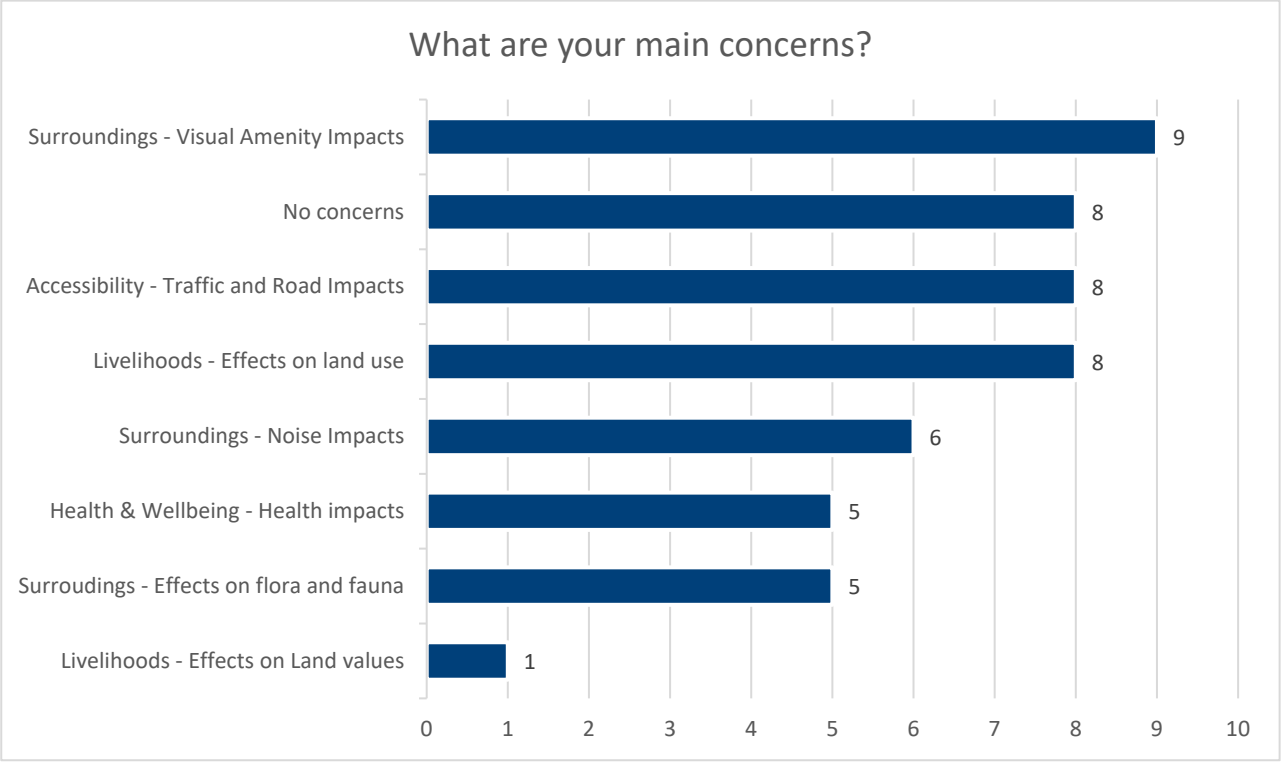



**Figure 4.1 Perceived Issues and Impacts (Prompted)**

*Source: CWPR, 2022. SCWF Community Survey May 2021, Base n = 21, multiple responses allowed; Data Processing: Umwelt, 2022.*

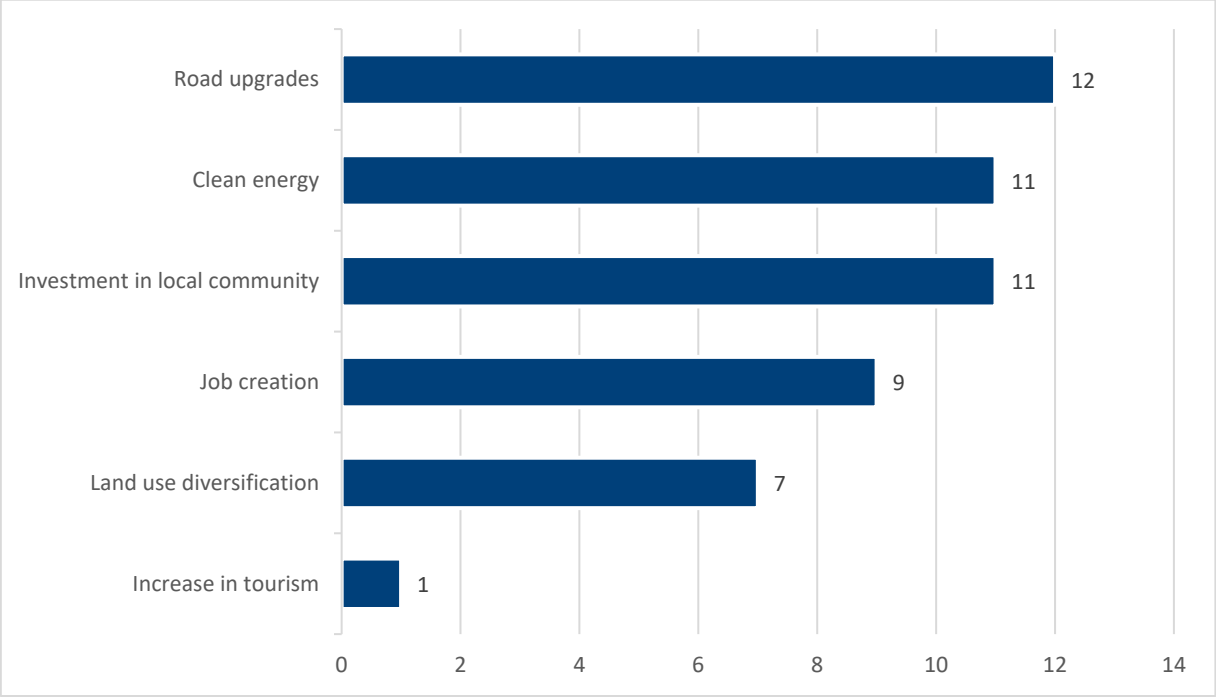



**Figure 4.2 Perceived Positive Impacts and Community Benefits (Prompted)**

*Source: CWPR, 2022. SCWF Community Survey May 2021, Base n = 21, multiple responses allowed; Data Processing: Umwelt, 2022.*

Further description of the issues noted within each SIA category or theme, as gathered through consultation with key stakeholders and community members, are further described in the following sections and have been organised by social impact category.

## 4.3 Accessibility

Impacts to community accessibility refers to people's ability to access and use infrastructure, services, and facilities and how the Project may inhibit or enhance access.

### 4.3.1 Strain on Local Services

During consultation, representatives from Dubbo Regional Council highlighted that the accommodation needs of the Project workforce would have the potential to cause a strain on existing service providers and may potentially limit the availability and affordability of housing to local residents. The towns of Dubbo and Wellington were highlighted in particular, as areas with low housing vacancy rates.

It is further noted that any additional strain on short-term accommodation may have the potential to cause changes to the local tourism sector, which is a key industry for the towns of Gulgong, Wellington, Dunedoo, and Dubbo. Outcomes of other assessments note that demand for accommodation in the area is already high due to demand from other sectors e.g., tourism, mining, and cumulative development in the region (Umwelt, 2021; Umwelt 2019) (Umwelt, 2021) (Umwelt, 2019).

Additional pressure on local accommodation provision can affect access and affordability for other user groups, including workers from other sectors, visitors, and tourists, who may also experience an increase in housing and accommodation prices during the construction period.

Additionally, due to the limited capacity of health services within the smaller communities of the social locality, it is also possible that the incoming construction workforce may place further strain on health services and facilities, impacting on broader community use of these services.

### 4.3.2 Roads and Traffic

Several respondents (n = 12) raised issues over the use of local roads, particularly during construction, and the disruption associated with traffic, deterioration of local road conditions, and potential roads closures. Dubbo Regional Council requested additional information regarding road usage as assessment of the Project progresses, and Warrumbungle Shire specifically wanted to understand the Project's proposed use of local roads, highlighting concern that 'short-cuts' to the Project Site, such as Spring Ridge Road, may be used in non-compliance with agreed committed transport routes.

Two community stakeholders raised specific issues in relation to the potential for Project traffic to cause deterioration to local roads, and the potential for the Project to cause a disruption to agricultural activities.

However, several stakeholders identified potential infrastructure upgrades as one of the key possible benefits (n = 12, prompted) of the Project for the wider community.

## 4.4 Surroundings

Impacts upon people's surroundings refer to changes that the Project may cause on a community's experience of the landscape, environmental assets, and resources and/or ecosystem services. This can include people's amenity, their access to and use of the natural and built environment, and the aesthetic value of the surrounds.

### 4.4.1 Visual Character and Vistas

The likely visual changes to the landscape were another issue identified through community consultation (n = 9, prompted; n = 10 unprompted). An increase of built infrastructure and associated changes to the rural character of the landscape was described as an issue by some respondents. In particular, it was noted that the Project could impact upon natural features of the landscape that have high community value, or upon people's continued ability to access these areas. During the Community Survey respondents were asked to identify key landscape features, with the following identified:

- *Natural bushland & forest*
- *Waterways & rock formations on private land*
- *Dapper Church, and high points*
- *Diversification between farming and grazing*
- *Scenic and gentle undulating hills, uninterrupted views and minimal man-made structures.*
- *Warrumbungle National Park.*
- *Dapper Nature Reserve.*

Additionally, respondents were also asked to identify what they value most about the existing natural and built environment, the following provides an overview of responses:

- *Quality of land/soil for farming operation*
- *Fertile rolling hills and meandering valleys, also homestead, working infrastructure and natural shelter belts*
- *It looks like farmland not commercial land*
- *Diversification of soils and topography as well as varying flora and fauna*
- *We have a very beautiful natural picturesque landscape that gives us peace and tranquillity*
- *We have made it part of our routine to watch the sunrise across the valley looking east toward Spicers Creek with beautiful natural, uninterrupted views. We also value the quiet roads and minimal traffic we experience.*

As indicated in **Table 4.1** and **Figure 4.1**, visual impacts associated with the Project were frequently noted as a key issue for proximal landholders that provided feedback. Four respondents directly highlighted that the Project would interfere with the views from their properties, with one highlighting that they considered the nature of large, built structures to be contrary to the natural values of the social locality. One respondent, while also noting the visual impact of the Project, suggested that the development may generate new opportunities and interests for the area, in the form of increased tourism.

> *Don't particularly want any turbines close to our house or view. Concern it will affect our visual view from our house – Community Survey Respondent*
>
> *Large towers will reduce the natural appeal however increase interest for tourism etc – Community Survey Respondent*

### 4.4.2 Noise

The potential noise impact from Project activities was raised as an issue by some stakeholders (n = 1; unprompted, n = 6; prompted). One respondent at the community drop-in session expressed concern in relation to the potential '*swooshing*' sound of the WTGs whilst operational, noting that they could hear the sound from the nearby Bodangora windfarm. One stakeholder additionally raised concerns in relation to the noise generated during construction.

### 4.4.3 Impacts on the Natural Environment

The effects of the Project on flora and fauna were noted as an issue amongst some stakeholders (n = 1; unprompted, n = 6; prompted). One participant at the community drop-in session expressed concern for wildlife, especially birds and the potential for bird strike from operating WTGs. Community responses to comparable Projects in the wider region have also included concerns about impacts to fauna particularly birds and bats.

One respondent to the community survey also expressed tree removal as a key concern associated with the development and suggested the replacement of removed vegetation as a proposed mitigation measure.

*Tree removal. Please replace any you remove in this project – Community Survey Respondent*

Community responses to other wind farms in the region indicate that the public are typically concerned about impacts to native flora and fauna in the area.

Bushfire concerns were not raised by consulted landholders during consultation. However, evidence from nearby proximal developments suggests that increased bushfire risk, as a result of the presence of WTGs may be a potential source of concern for some community members (Umwelt, 2021).

Respondents also recognised the potential Project benefits to the environment arising from generation of low emission energy, and implicitly, the mitigation of climate change impacts. Some community members (n = 11, prompted) identified that the most positive benefit of the Project related to the supply of clean energy provision.

## 4.5 Livelihoods

Impacts upon people's livelihoods refer to the capacity of community members to sustain their livelihood through income-generating activities such as employment or business. This impact category considers the changes that economic conditions caused by the Project may have on individuals and businesses and whether people experience any personal disadvantage.

A number of respondents identified perceived negative impacts to livelihood associated with the Project (n = 4, unprompted; n = 9, prompted), due to changing land uses and potential impact on land values. Conversely, positive impacts to livelihoods were one of the most identified benefits that stakeholders associated with the Project (refer to **Figure 4.2**).

### 4.5.1 Landholder Contributions and Community Investment

When asked about the positive impacts of the Project, respondents noted that the Project could provide livelihood benefits for host and neighbour landholders helping them to diversity their off-farm income, especially during periods of drought.

In addition, it was acknowledged that the Project would benefits the community through direct local investment. In July 2021, CWPR opened the Spicers Creek Community Sponsorship Program to provide funding or in-kind support to local community organisations and community-based activities, events and initiatives. CWPR develop Community Sponsorship Programs for each of their projects which aim to:

- support agencies or groups to address issues affecting our host communities
- contribute to the sustainable social, economic and environmental development of our host communities
- complement CWPR in achieving its business and corporate social responsibility objectives
- demonstrate the value created by community sponsorship and investment activities through reporting and outcomes measurement.

To date, CWPR has provided funding to support the following local community projects:

- the Goolma Amenities Committee with contributing to a new ride-on mower to maintain community grounds
- the Geurie Lions Club with new catering van equipment
- the refurbishment of the Spicers Creek Community Church building
- the Gollan Hall Christmas function.

The Spicers Creek Community Sponsorship Program will continue to be implemented as the Project progresses.

### 4.5.2 Changing and Conflicting Land Use, and Impact to Land Values

Land use change and conflict was one of the most frequently raised impacts (n = 4, prompted; n= 8, unprompted). Most livelihood issues raised related to the changes to land use which was seen to conflict with existing uses, and could potentially impact on farming practices and livelihoods of local farmers.

Most land use issues were associated with the impact and placement of Project infrastructure and its impact on agricultural activities. These impacts are related to patterns of work and people's ability to sustain their livelihoods through economic activities, such as farming and grazing activities, as well as issues for the cumulative impact of multiple renewable energy generation projects across the CWO REZ.

One respondent to the community survey highlighted the potential for the Project to disrupt agricultural activities, and limit access to roads and passageways, especially during construction. Additionally, one landholder expressed that the proposed wind farm development would cause detriment to their planned eco-tourism business.

Four respondents also cited potential issues with potential impacts on property prices from the Project (n = 3, unprompted; n = 1, prompted). The perceived change in rural property values associated with land, houses, or property adjacent to, or within eyesight of Project infrastructure, is perceived by the four respondents to be potentially detrimental to people's livelihoods and their futures. One participant at the community drop-in session was also concerned about the potential for cumulative developments to result in an increase in rural land prices, associated with the view that renewable energy projects were taking up agricultural land.

Despite these issues, some attendees to the drop-in session expressed a desire to host project infrastructure on their properties, and several respondents raised 'land use diversification' as an associated project benefit (n = 7, prompted). Positive impacts associated with hosting that were noted included potential financial benefits, arising from both hosting of Project infrastructure, and potential compensation for neighbouring landholders or hosts of ancillary infrastructure and access routes. The Project has the potential to benefit multiple landowners and diversify household income streams.

### 4.5.3 Opportunities for Local Employment, Training, and Procurement

Respondents (n = 9, prompted) also highlighted the opportunity for local employment and contracting services, to increase the commercial activity for local businesses and job security for local job seekers.

Council, local businesses and residents focussed on the economic benefits the Project could provide to the local community, and the Project's potential role in providing employment and contracting opportunities for service providers and businesses.

During consultation, Dubbo Regional Council expressed support for initiatives and programs to support employment training and procurement. One representative raised the matter that young Aboriginal people were underrepresented in the workforce and suggested targeted efforts to support Aboriginal education and employment.

Dubbo Regional Council was also interested in establishing and developing key renewable energy technology and maintenance skills amongst the local population to support contracting, supplier, and employment opportunities for residents in the area. A similar sentiment of support from the Member for Dubbo was also expressed, noting that skills training, partnerships, and the preference for local contracting opportunities were identified project benefits. Regional Development Australia broadly expressed a desire to create local industries, capitalising on the implementation of the REZ, and the level of investment and interest in the region, to foster local employment opportunities.

The indirect impacts on people's livelihoods, such as an anticipated increase in commercial activity for local service providers and suppliers in nearby townships during the construction period, has the potential to bring positive flow-on social benefits and improved community wellbeing.

## 4.6 Health and Wellbeing

Health and wellbeing impacts include impacts to both physical and mental health and may include psychological stress resulting from financial and/or other pressures, as well as changes to individual and public health. Six landholders consulted noted the potential for health and wellbeing to be negatively impacted as a result of the Project (n = 1, unprompted; n = 5, prompted)

In addition, while not frequently raised during engagement to date it is possible that the Project could cause increased stress and anxiety in near neighbours and local community members due to due to a fear of the unknown, feelings of uncertainty, and of losing control over one's future and local surroundings. CWPR has committed to ongoing engagement and information provision with the local community to help minimise any potential impacts.

## 4.7 Way of Life and Community

Impacts in relation to way of life refers to the potential impacts on how people live, work, play and interact with one another; with community impacts referring to changes in the composition, cohesion, and character of the population, as well as how the community functions and impacts on sense of community and sense of place.

Some respondents raised that their overall way of life could be affected by the Project (n = 4 unprompted; n = 8, prompted). Several impacts noted related to potential traffic impacts, road closures, and disruptions to road travel and land access as discussed in **Section 4.3.2**.

Further related impacts associated with livelihoods, and a change in the way that people use and perceive their surroundings, can result in alteration to people's pattern of living, their plans for the future, and the feasibility of certain life choices.

Based on comparable projects with large temporary workforces in regional settings, communities can also experience changes to the composition and character of local towns due to transient workforces. Over time, this can potentially cause a level of income disparity between differing groups of the population and lead to a shift in gender relations within the community.

## 4.8 Decision-Making Systems

Impacts in relation to decision-making systems relate to people's ability to make meaningful contributions to decisions that affect their lives, including their ability to influence change.

Community members noted that they were not sure of the potential impacts, with one in particular highlighting that more information was required to accurately assess any potential impacts. It should be noted that the Project is in its early planning stages and more detailed information will be made available as the Project progresses

Two attendees to the community information session expressed anxiety at the processes being undertaken to inform decision making processes. Their issues emanated from a feeling that they could not meaningfully inform assessment processes, feeling that their interest and issues may not be appropriately incorporated into the Project design.

Community members across a number of proximal SSD applications for renewable energy projects in the broader CWO REZ have emphasised the importance of consultation that is open, transparent, and responsive, and which focuses on listening to the issues and experiences of individual and local stakeholders. It has become clear that community members appreciate ongoing consultation during all stages of a Project's timeline, to ensure that Projects are more aligned with community identified values and address project impacts.

## 4.9 Culture

Impacts on culture include changes that may occur because of a Project to values, shared beliefs, customs, and connections of those who reside within a social locality.

Local Aboriginal organisations have not been consulted during this phase of the development approval process with consultation planned to commence shortly. Issues identified in other projects include:

- land rights, land use and management
- the disturbance of cultural sites, objects and artefacts, and the preservation of traditional practices
- cultural connections to country
- community programs and partnerships, and support for representation and the interests of Aboriginal people in the local area.

Impacts upon culture and on local Aboriginal communities, will be further explored during further preparation of the EIS and SIA.

## 4.10 Cumulative Effects of Renewable Energy Development

The rate of change across the region, due to the growing number of proposed and active renewable energy projects, and the associated cumulative changes to local communities, was noted by one respondent in the broader community survey.

> *I am concerned about how many solar and wind projects are proposed for our region – Community Survey Respondent*

The development of multiple projects in the region has been identified during other project assessments as causing community concern and reducing levels of community cohesion.

Cumulative impacts on service provision in the area, particularly in small towns such as Wellington, have also been raised in proximal projects, particularly impacts on accommodation and health services, given the number of projects proposed or underway.

# 5.0 Potential Enhancement and Mitigation Measures

**Table 5.1** identifies some potential strategies that may be considered as the Project progresses to mitigate or respond to issues and impacts, as well as opportunities for the Project to positively contribute to the local community. These suggestions have been identified through a review of similar projects in the region and based on initial feedback during consultation.

As outlined in **Section 4.1**, the Project design has been an iterative process which has incorporated community feedback. In addition, CWPR has already committed to a range of mitigation and enhancement strategies which are also reflected in **Table 5.1.**

Alignment of Project-led strategies to support local communities, and collaborate with host communities, through a participatory identification process of local needs and opportunities can result in greater social outcomes. Therefore, during subsequent engagement with the local community and key stakeholders, participants will be asked to identify any additional strategies they would like to see CWPR consider.

Local benefit sharing schemes and targeted local investment can over time generate improvements in community infrastructure, social cohesion and sense of place, and the capacity of local organisations.

**Table 5.1 Identified Potential Strategies and Opportunities**

| Impact Theme | Existing commitments and Project Design Changes | Identified Strategy / Opportunity |
|---|---|---|
| **Accessibility** | • Establishment of the Community Sponsorship Program for the Project | • Proactive support and establishment of a community investment fund that supports infrastructure and service provision improvements such as local roads and route upgrades and community facilities.<br>• Collaborate and engage with local Councils and Energy Corporation (responsible for the CWO REZ) to identify strategies for the housing and accommodation needs of a temporary workforce. |
| **Surroundings** | • Changes to Project design and layout based on feedback from early engagement with local landholders | • Greater community awareness and education around how windfarms and agriculture can co-exist.<br>• Capacity-building or resourcing support for local environmental restoration and protection programs, including weed control and restoration works for community-owned nature reserves and landholder properties. |

| Impact Theme | Existing commitments and Project Design Changes | Identified Strategy / Opportunity |
|---|---|---|
| **Livelihoods** | • Establishment of the Community Sponsorship Program for the Project<br>• Host agreement developed in consultation with landholders<br>• Neighbour agreements which include voluntary commercial arrangement which recognises the potential impact on the project of the neighbour<br>• Commitment to developing Voluntary Planning Agreements with host Councils<br>• Working with Energy Corporation on the access scheme payment framework and the contributions to community benefits (administered by Energy Corporation)<br>• Employment and training opportunities for local community including young people and Aboriginal people.<br>• Commitment to use of local contractors and suppliers (including use of expression of interest form on Project website) | • Provide opportunities for local workers to specialise, re-skill, or upskill in collaboration with local training organisations.<br>• Strategically target opportunities to local businesses and service providers in supply and servicing of the Project. |
| **Decision making systems / Cumulative impacts** | • Ongoing engagement with local community and key stakeholders as the Project progresses | • Establish programs and engagement strategies that support collaboration across the region to address regional impacts and priorities.<br>• Collaborate with Energy Corporation and other renewable energy developers across the REZ to ensure that cumulative negative impacts associated with concurrent ongoing and planned developments are identified and effectively mitigated. |

# 6.0 Preliminary Impact Evaluation

**Table 6.1** and **Table 6.2** outline the preliminary impact evaluation undertaken using the DPE Social Scoping Worksheet (DPIE, 2021a). Notably, it considers a range of social impacts relating to the Project and determines the level of assessment to be undertaken for each identified impact in subsequent phases of the SIA process.

The significance ratings identified are based on preliminary investigation and current understanding of the potential social impacts, prior to any mitigation measures being applied. It should be noted that these impact rating will be further evaluated in the assessment phase of the SIA with consideration of mitigation measures, including landholder agreements.

**Table 6.1 Preliminary Negative Social Impact Evaluation**

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Way of Life Livelihoods** | Limiting of existing agricultural operations | Establishment, operation, and decommissioning of Project infrastructure including ancillary infrastructure. | C, O & D | Proximal non-associated landholders including for ancillary infrastructure. | Low -ve | • Landholder agreements<br>• Ongoing farming<br>• Continue to consider landholder needs and activities in project design<br>• Ongoing stakeholder engagement | Detailed Assessment |

[1] P = Planning Phase, C = Construction Phase, O = Operational Phase, D = Decommissioning Phase

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Way of Life Livelihoods** | Potential fragmentation of properties and restricted property access | Establishment of Project infrastructure including ancillary infrastructure. | C & O | Proximal non-associated landholders including for ancillary infrastructure | Low -ve | As above. | Detailed Assessment |
| **Way of Life Community Livelihoods** | Reduced community cohesion and lack of distributional equity. | Payments to landholders | P | Proximal no-associated landholders, and broader community. | Medium -ve | Further engagement and ongoing open, transparent, and accessible communication.<br>Ongoing Community Sponsorship Program.<br><br>Host and neighbour agreements | Detailed Assessment |
| **Way of Life Livelihoods** | Decline in property values | Payments to host landholders, establishment of Project infrastructure, public release of Project plans | P, C, O & D | Proximal non-associated Landholders | Medium -ve | Early engagement with local community including potential hosts and neighbours to understand feedback on the Project<br>Further engagement and ongoing open, transparent, and accessible communication.<br><br>Ongoing Community Sponsorship Program.<br>Host and neighbour agreements | Detailed Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Way of Life**<br>**Social Amenity**<br>**Surroundings** | Altered landscape affecting people's sense of place (rural character, visual amenity, and impacts on community values) | Establishment of Project infrastructure, particularly WTG installation and operation. | C & O | Proximal non-associated landholders, nearby residents, tourists, and tourism operators | High -ve | Ongoing consideration of neighbour/adjacent property impacts and mechanisms to address personal issues on a case-by-case basis | Detailed Assessment |
| **Health and Wellbeing** | Increase in anxiety and stress | Public release of Project plans and documentation | P & C | Proximal non-associated landholders, and the broader community | Medium -ve | Continue to ensure appropriate mechanisms to enable open, transparent, and accessible communication of Project information to key stakeholders.<br>Continue to ensure community feedback is considered and acknowledged in Project planning and development. | Standard Assessment |
| **Health and Wellbeing**<br>**Accessibility**<br>**Surroundings** | Increased traffic and change in road conditions affect road safety, increase disruption and/or increase commuter travel times. | Establishment and construction of Project infrastructure | C | Broader Community, and road users | High -ve | Commission detailed Traffic Impact Assessment (TIA).<br>Develop detailed planning transport routes with public safety considerations and information disclosure, notifying residents, considering any sensitive user groups.<br>Consult with landowners and other stakeholder on the results of the TIA and develop appropriate mitigation measures. | Standard Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| | | | | | | Develop and implementation a Construction Environmental Management Plan (CEMP), including traffic management measures.<br>Complete road upgrade works as identified by Project traffic assessment. | |
| **Surroundings**<br>**Health and Wellbeing** | Social amenity and way of life impacts due to noise, vibration, lighting and dust | Establishment and construction of Project infrastructure | C | Proximal non-associated residents, broader community | Medium -ve | Development and implementation of a CEMP to identify controls to be implemented during the construction phase.<br>Construction and operational management controls to be developed in consultation with key stakeholders.<br>Ensure appropriate mechanisms to enable open, transparent, and accessible communication of Project information to key stakeholders.<br>Communication of key CWPR contacts from the Construction Team for the community to liaise with as required.<br>Ongoing engagement with local community and key stakeholders | Standard Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Accessibility**<br>**Livelihoods**<br>**Way of Life**<br>**Community** | Changes to local population and the composition and character of the community | Establishment and construction of Project infrastructure | C | Broader Community | Medium -ve | Continue to foster the use of local contractors and suppliers.<br>Ensure appropriate mechanisms to enable open, transparent, and accessible communication of Project information to key stakeholders<br>Continued use of the expressions of interest database on CWPR website | Detailed Assessment |
| **Accessibility**<br>**Livelihoods**<br>**Way of Life**<br>**Community** | Incoming construction workforce causing increased pressure on local facilities and services particularly housing and accommodation (affordability and availability) and local health care and facilities | Establishment and construction of Project infrastructure | C | Broader Community, Service Providers, Vulnerable community groups | Medium -ve | Develop workforce accommodation strategy.<br>Continue to foster the use of local contractors and suppliers.<br>Coordinate efforts and liaise with key stakeholders to coordinate provision of accommodation and other services or suppliers.<br>Commitment to developing Voluntary Planning Agreements with host Councils<br>Working with Energy Corporation on the access scheme payment framework and the contributions to community benefits | Detailed Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| | | | | | | (administered by Energy Corporation) | |
| **Culture** | Effect on local community values, sense of place and attachment | Establishment and construction of Project infrastructure | C | Broader community<br>Local Aboriginal community groups | Medium -ve | Consultation process during EIS and pre-construction to better understand local values and investigate options for responses to impact.<br>Environmental management planning to consider project impacts on ecological, community and cultural values | Standard Assessment |
| **Decision-Making Systems (cumulative)** | Multiple concurrent and nearby major projects could cause community division or reduced levels of social cohesion | Establishment, construction, and operation of Project infrastructure. | C & O | Broader community, political and community interest groups | Medium -ve | Cumulative impact assessment.<br>Stakeholder engagement and appropriate mechanisms to enable open, transparent, and accessible communication of Project information to key stakeholders.<br>Continue working with Energy Corporation and other REZ developers to minimise impacts | Detailed Assessment |
| **Decision-Making Systems (cumulative)** | The development of other proposed projects in the social locality could affect the level of social acceptance of the current Project. | Establishment, construction, and operation of Project infrastructure. | C & O | Broader Community | Medium -ve | As above | Detailed Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[1] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Mitigation Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Decision-Making Systems** | Perceived inadequate community consultation affecting people's ability to contribute to Project design, planning and decision-making and therefore affecting the level of social acceptance of the project | Community and stakeholder engagement activities | P | Broader Community | Medium -ve | Ongoing community engagement and community information sessions during EIS preparation.<br>Continue proactive personal engagement with community members and proximal residents.<br>Continue to build and maintain effective community relationships and implement a range of engagement mechanisms which respond to individual needs as required, prioritising personal and face-to-face consultation | Detailed Assessment |

**Table 6.2 Preliminary Positive Social Impact Evaluation**

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[2] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Enhancement Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Livelihoods** | The provision of jobs and procurement opportunities can increase and/or diversify skills for people in the social locality, increasing levels of human and economic capital for the community | Establishment, construction, and operation of Project infrastructure. | C, O, & D | Broader Community | High +ve | Continue to foster the use of local contractors and suppliers. | Detailed Assessment |
| **Livelihoods** | Procurement of local suppliers, services and contractors could increase commercial activity in local towns which may improve economic capital, local service capacity and township stability | Establishment, construction, and operation of Project infrastructure. | C, O, & D | Broader Community,<br>Local service providers and businesses | Medium +ve | Continue to foster the use of local contractors and suppliers.<br>.<br>Coordinate efforts and liaise with key stakeholders to coordinate provision of accommodation and other services or suppliers including opportunities for | Detailed Assessment |

[2] P = Planning Phase, C = Construction Phase, O = Operational Phase, D = Decommissioning Phase

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[2] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Enhancement Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| | | | | | | local contractors and services. | |
| **Livelihoods** | Recipients of the community benefit fund could experience improved social capital, community wellbeing and social cohesion, through improved local service provision and targeted support to the community. | Community benefit fund. | P, C, & O | Broader community, Local service providers, Community groups, Local government, Vulnerable community members | Medium +ve | Ongoing Community Sponsorship Program.<br>Robust community consultation process during EIS preparation and pre-construction period to understand local needs, priorities and aspirations<br>Develop targeted community benefit program to meet local needs and priorities.<br>Commitment to developing Voluntary Planning Agreements with host Councils<br>Working with Energy Corporation on the access scheme payment framework and the contributions to | Detailed Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[2] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Enhancement Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| | | | | | | community benefits (administered by Energy Corporation) | |
| **Livelihoods** | Payments to host landholders provide for the ability to diversify household income streams leading to improved social and economic capital. | Payments to landholders | P, C, & O | Host Landholders | Medium +ve | Continue open, transparent, and accessible communication of Project information.<br>Commitment to developing Voluntary Planning Agreements with host Councils<br>Working with Energy Corporation on the access scheme payment framework and the contributions to community benefits (administered by Energy Corporation) | Detailed Assessment |

| Social Impact Category | Potential Social Impact on People | Project Aspect/ Activity | Timing/ Duration[2] | Affected Stakeholder Group | Potential Impact Significance (based on preliminary investigation) | Existing and Potential Enhancement Measures | Phase 2 Assessment Level |
|---|---|---|---|---|---|---|---|
| **Accessibility** | The Project supports the objectives and priorities of the REZ, the establishment of a reliable and affordable source of energy for NSW customers, and helps to reduce the greenhouse gas (GHG) emissions intensity of the NEM. | Establishment and operation of Project Infrastructure | O | Broader community, Energy consumers, State and Federal Government | Medium +ve | The Project aligns with the desired objectives and outcomes of the CWO REZ. EIS to include further details and justification. | Minor Assessment |

# 7.0 Conclusion

This Report has documented the SIA process undertaken during the scoping phase of the Project and forms part of the Scoping Report to inform the issue of SEARs by the NSW DPE.

This Report has included the compilation of a social baseline profile for the Project, early-stage community and stakeholder consultation to inform the scoping of Project-related social impacts and opportunities, and preliminary social impact prediction and evaluation. The engagement undertaken by CWPR has been undertaken to inform and support the refinement of Project design and plans to reduce negative project impacts and achieve greater positive project benefits. Future engagement with the local community as the Project and the SIA continues will continue to be used to inform Project design, and the development of mitigation and enhancement strategies.

As part of the EIS, future stages of the SIA for this Project will include a comprehensive prediction and assessment of social impacts and development of relevant strategies to mitigate the negative and enhance the positive impacts associated with the Project. Further SIA and environmental impact studies will address perceptions of impacts raised by key stakeholders during this phase.

Subsequent phases of the SIA program will involve the following key activities:

- An update of the baseline social profile to ensure that any further data relevant to the impacts identified is obtained.
- Further identification of, and consultation with, affected communities and vulnerable groups.
- Provision of feedback to near neighbours, community members and key stakeholders on the outcomes of the issues raised in the scoping phase and communication of the Project's SEARs (once issued), including an outline of the next steps in the SIA and further opportunities for community input.
- Further consultation with neighbours, community members and other key stakeholders relating to key impact areas. This will involve feedback on the outcomes of the SIA and EIS and will provide opportunities for input to the development of appropriate mitigation and enhancement measures to address impacts to reduce residual effects and maximise Project benefits.
- A comprehensive assessment and evaluation of social impacts against existing baseline conditions.

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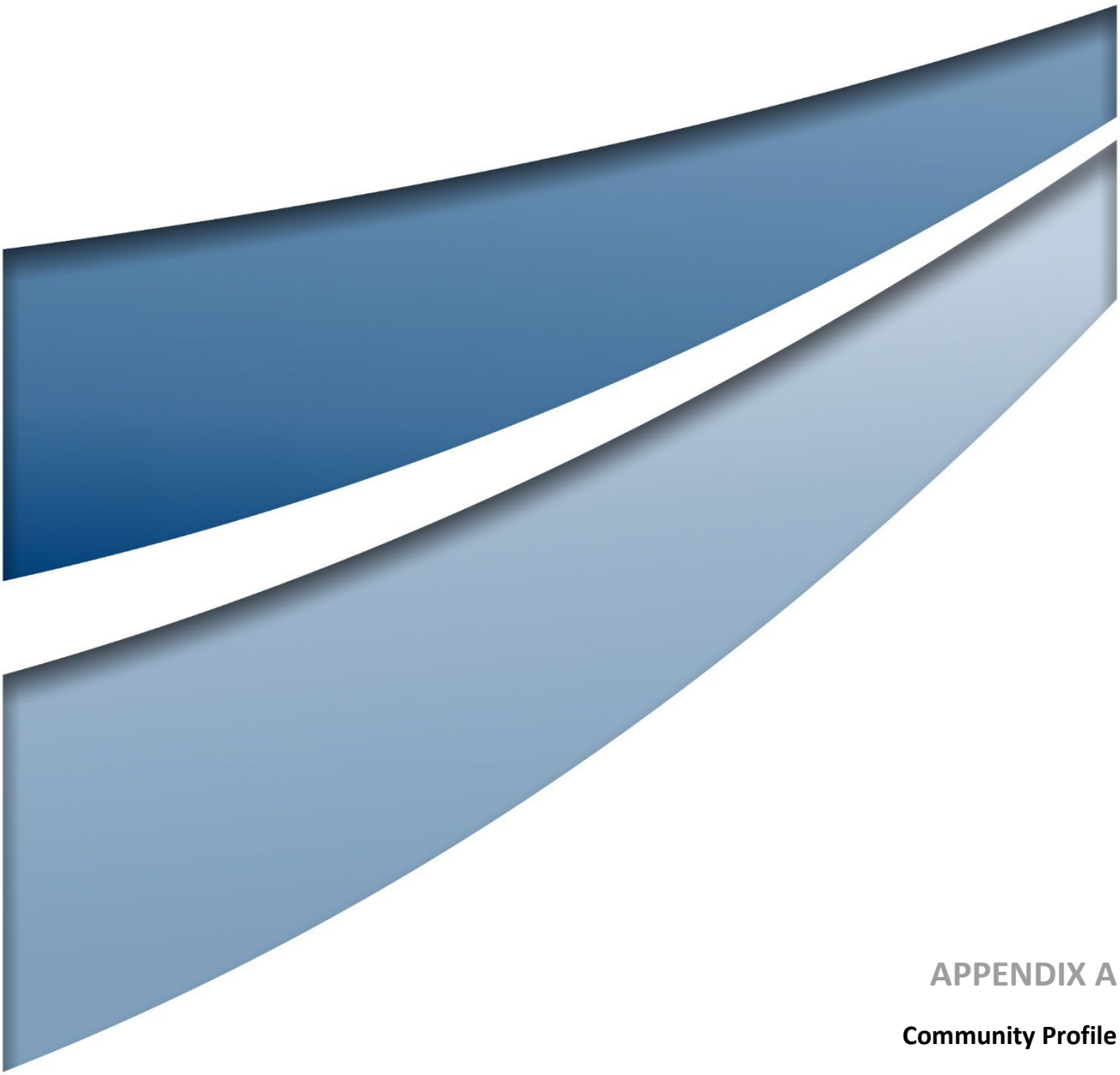


# APPENDIX A

**Community Profile**

**Table 1 Community profile**

| | Dubbo Regional LGA | | | | Warrumbungle LGA | | | | Mid-Western LGA | | | | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2006 | 2011 | 2016 | Change | 2006 | 2011 | 2016 | Change | 2006 | 2011 | 2016 | Change | 2016 |
| **Human Capital** | | | | | | | | | | | | | |
| Population Size | 45,963 | 47,303 | 50,071 | ^ | 9,810 | 9,588 | 9,384 | v | 21,085 | 22,318 | 24,076 | ^ | 7,480,228 |
| Proportion Indigenous Population (%) | 11% | 14% | 15% | ^ | 8% | 9% | 10% | ^ | 3% | 4% | 5% | ^ | 3% |
| Median Age | 36 | 37 | 37 | ^ | 43 | 45 | 49 | ^ | 41 | 41 | 42 | ^ | 38 |
| Year 10 highest year of schooling (%) | 37 | 36 | 34 | v | 37% | 37% | 37% | — | 39% | 38% | 36% | v | 23% |
| Year 12 highest year of schooling (%) | 34 | 38 | 44 | ^ | 29% | 32% | 35% | ^ | 30% | 35% | 39% | ^ | 59% |
| Bachelor degree (%) | 7 | 9 | 10 | ^ | 6% | 6% | 7% | ^ | 6% | 8% | 8% | ^ | 16% |
| Certificate (%) | 20 | 23 | 23 | ^ | 17% | 19% | 20% | ^ | 21% | 23% | 25% | ^ | 18% |

| | Dubbo Regional LGA | | | | Warrumbungle LGA | | | | Mid-Western LGA | | | | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Social Capital** | | | | | | | | | | | | | |
| Proportion of population with a different address 1 year ago (%) | 17 | 15 | 15 | ↓ | 14% | 12% | 10% | ↓ | 14% | 16% | 14% | — | 14% |
| Proportion of population with a different address 5 year ago (%) | 44 | 38 | 38 | ↓ | 36% | 29% | 28% | ↓ | 40% | 37% | 37% | ↓ | 39% |
| Proportion of population aged 15+ who volunteer (%) | 21 | 20 | 20 | ↓ | 30% | 29% | 28% | ↓ | 24% | 21% | 22% | ↓ | 18% |
| Proportion of population born overseas (%) | - | 6 | 8 | ↑ | - | 6% | 7% | ↑ | - | 9% | 8% | ↓ | 30% |
| Proportion of single parent families (%) | 19 | 20 | 20 | ↑ | 15% | 10% | 10% | ↓ | 15% | 9% | 9% | ↓ | 8% |
| Proportion of family households (%) | 73 | 71 | 71 | ↓ | 69% | 68% | 67% | ↓ | 71% | 70% | 69% | ↓ | 72% |
| Proportion of group households (%) | - | 3 | 4 | ↑ | - | 2% | 2% | — | - | 3% | 3% | — | 4% |
| Proportion of lone person households (%) | - | 26 | 26 | — | - | 30% | 31% | ↑ | - | 27% | 29% | ↑ | 24% |

| | Dubbo Regional LGA | | | | Warrumbungle LGA | | | | Mid-Western LGA | | | | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Top 3 Crime Rankings (LGA ranking out of 119 NSW LGAs) | Steal from person (3/128), Fraud (5/128), Non-domestic violence related assault (5/128) | | | | Sexual offences (8/128), Break and enter dwelling (18/128), Steal from Dwelling (29/128) | | | | Sexual Assault (10/128), Steal from Person (23/128), Domestic Violence Relate Assault (31/128) | | | | - |
| **Economic Capital** | | | | | | | | | | | | | |
| Proportion of the labour force employed full-time (%) | 60.4 | 61.7 | 61.9 | ^ | 57.6% | 57.5% | 55.7% | v | 57.1% | 58.0% | 56.4% | v | 59.2% |
| Proportion of the labour force employed part-time (%) | 26.9 | 27.3 | 27.1 | ^ | 27.5% | 29.1% | 30.6% | ^ | 29.8% | 30.4% | 31.6% | ^ | 29.7% |
| Proportion of the labour force who are unemployed (%) | 5.9 | 5.5 | 5.9 | — | 8.3% | 7.1% | 7.9% | v | 7.3% | 5.7% | 6.5% | v | 6.3% |
| Median household income ($/week) | 908 | 1,037 | 1,272 | ^ | 609 | 689 | 878 | ^ | 700 | 929 | 1,131 | ^ | 1,486 |
| Median mortgage repayment ($/month) | 1135 | 1446 | 1500 | ^ | 693 | 870 | 923 | ^ | 1083 | 1551 | 1690 | ^ | 1986 |
| Median rent for a 3-bed house ($/week) | 149 | 186 | 250 | ^ | 100 | 120 | 160 | ^ | 145 | 200 | 270 | ^ | 380 |
| Median rent as a proportion of median household income (weekly) | 16% | 18% | 20% | ^ | 16% | 17% | 18% | ^ | 21% | 22% | 24% | ^ | 26% |

| | Dubbo Regional LGA | | | | Warrumbungle LGA | | | | Mid-Western LGA | | | | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Capital** | | | | | | | | | | | | | |
| Proportion of occupied private dwellings that are fully owned (%) | 34.1% | 32.1% | 31.4% | ⌄ | 48.8% | 47.7% | 46.4% | ⌄ | 42.8% | 40.5% | 38.0% | ⌄ | 32.2% |
| Proportion of occupied private dwellings that are being purchased/ owned by a mortgage (%) | 32.9% | 34.5% | 33.% | ⌃ | 21.9% | 22.6% | 23.0% | ⌃ | 27.9% | 29.3% | 30.6% | ⌃ | 32.3% |
| Proportion of occupied private dwellings that are being rented (%) | 29.0% | 29.9% | 30.7% | ⌃ | 24.4% | 24.9% | 25.8% | ⌃ | 25.5% | 26.5% | 27.4% | ⌃ | 31.8% |
| Proportion of dwellings with internet access (%) | 53 | 72 | 78 | ⌃ | 47% | 65% | 69% | ⌃ | 51% | 72% | 77% | ⌃ | 85% |
| Proportion of households in mortgage stress (%) | - | 7.1 | 5.1 | ⌄ | 11.4 | 14.2 | 9.5 | ⌄ | 12.9 | 11.1 | 9.4 | ⌄ | 9.6 |
| Proportion of households in rental stress (%) | - | 8.0 | 9.8 | ⌃ | 20.2 | 19.2 | 24.2 | ⌃ | 29.3 | 27.4 | 32.3 | ⌃ | 27.9 |

| Indicators | Elong Elong SSC | Gollan SSC | Goolma SSC | Spicers Creek SSC | Dunedoo SSC | Wellington UCL | Gulgong SSC | Geurie SSC | Wongarbon SSC | Dubbo SSC | Maryvale SSC | Comobella SSC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Human Capital** | | | | | | | | | | | | |
| Population Size | 118 | 127 | 101 | 76 | 1,218 | 4,518 | 2,518 | 754 | 769 | 38,944 | 191 | 59 |
| Proportion Indigenous Population (%) | 6% | 9% | 3% | 0% | 8% | 26% | 8% | 9% | 8% | 15% | 10% | 10% |
| Median Age | 55 | 44 | 47 | 42 | 49 | 44 | 41 | 42 | 35 | 36 | 45 | 37 |
| Year 10 highest year of schooling (%) | 42% | 26% | 24% | 24% | 34% | 38% | 38% | 39% | 32% | 34% | 33% | 31% |
| Year 12 highest year of schooling (%) | 38% | 47% | 52% | 59% | 36% | 31% | 33% | 38% | 46% | 45% | 46% | 50% |
| Bachelor degree (%) | 15% | 11% | 9% | 22% | 6% | 5% | 5% | 8% | 12% | 11% | 9% | 7% |
| Certificate (%) | 26% | 18% | 19% | 15% | 17% | 22% | 25% | 32% | 29% | 24% | 22% | 16% |
| **Social Capital** | | | | | | | | | | | | |
| Proportion of population with a different address 1 year ago (%) | 14% | 4% | 6% | 0% | 8% | 13% | 13% | 12% | 11% | 16% | 6% | 5% |
| Proportion of population with a different address 5 year ago (%) | 24% | 13% | 32% | 10% | 25% | 33% | 34% | 31% | 39% | 41% | 28% | 5% |
| Proportion of population aged 15+ who volunteer (%) | 33% | 27% | 35% | 37% | 29% | 18% | 21% | 27% | 25% | 19% | 23% | 35% |
| Proportion of population born overseas (%) | 9% | 3% | 3% | 4% | 6% | 6% | 7% | 5% | 5% | 8% | 4% | 0% |
| Proportion of single parent families (%) | 9% | 0% | 0% | 0% | 15% | 29% | 18% | 18% | 15% | 20% | 6% | 18% |
| Proportion of family households (%) | 66% | 86% | 65% | 100% | 68% | 61% | 66% | 73% | 82% | 71% | 70% | 95% |
| Proportion of group households (%) | 0% | 0% | 0% | 0% | 2% | 3% | 2% | 1% | 3% | 3% | 6% | 0% |
| Proportion of lone person households (%) | 38% | 29% | 33% | 0% | 31% | 36% | 31% | 24% | 14% | 26% | 17% | 0% |

| Indicators | Elong Elong SSC | Gollan SSC | Goolma SSC | Spicers Creek SSC | Dunedoo SSC | Wellington UCL | Gulgong SSC | Geurie SSC | Wongarbon SSC | Dubbo SSC | Maryvale SSC | Comobella SSC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Economic Capital** | | | | | | | | | | | | |
| Proportion of the labour force employed full-time (%) | 58.0% | 70.2% | 70.6% | 47.4% | 55.4% | 52.7% | 53.6% | 60.3% | 63.1% | 62.7% | 67.7% | 91.3% |
| Proportion of the labour force employed part-time (%) | 38.0% | 22.8% | 29.4% | 26.3% | 28.8% | 29.7% | 32.4% | 28.0% | 27.5% | 26.8% | 22.6% | 21.7% |
| Proportion of the population away from Labour Force (%) | 10.0% | 8.8% | 0.0% | 0.0% | 2.5% | 3.0% | 4.1% | 3.8% | 5.1% | 3.2% | 3.2% | 0.0% |
| Proportion of the labour force who are unemployed (%) | 6.0% | 0.0% | 0.0% | 7.9% | 8.6% | 12.4% | 8.6% | 5.2% | 4.3% | 5.5% | 4.3% | 0.0% |
| Median household income ($/week) | 771 | 1,350 | 1,187 | 1,562 | 871 | 807 | 1,086 | 1,218 | 1,554 | 1,341 | 1,468 | 1,249 |
| Median mortgage repayment ($/month) | 368 | 2128 | 2275 | 0 | 967 | 1083 | 1517 | 1300 | 1387 | 1517 | 1700 | - |
| Median rent for a 3-bed house ($/week) | 205 | 0 | 30 | 0 | 175 | 190 | 250 | 250 | 260 | 265 | 220 | 160 |
| Median rent as a proportion of median household income (weekly) | 27% | 0% | 3% | 0% | 20% | 24% | 23% | 21% | 17% | 20% | 15% | 13% |
| **Physical Capital** | | | | | | | | | | | | |
| Proportion of occupied private dwellings that are fully owned (%) | 64.0% | 60.0% | 52.5% | 76.5% | 49.2% | 36.4% | 37.3% | 41.3% | 30.3% | 28.9% | 35.9% | 31.6% |
| Proportion of occupied private dwellings that are being purchased/ owned by a mortgage (%) | 24.0% | 28.6% | 35.0% | 17.6% | 21.2% | 24.6% | 30.5% | 43.2% | 54.8% | 34.3% | 40.6% | 21.1% |
| Proportion of occupied private dwellings that are being rented (%) | 16.0% | 14.3% | 20.0% | 23.5% | 28.7% | 34.4% | 28.2% | 12.5% | 9.5% | 32.7% | 14.1% | 26.3% |
| Proportion of dwellings with internet access (%) | 70% | 67% | 83% | 88% | 66% | 65% | 75% | 79% | 84% | 80% | 74% | 100% |

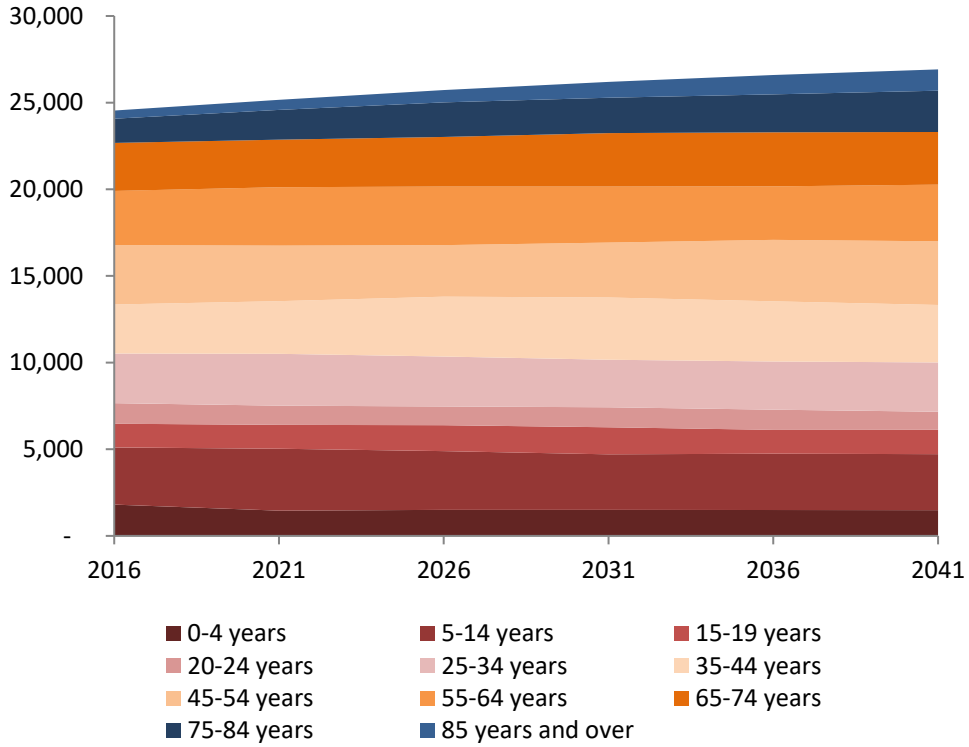
## Industries of Employment

| Industry | Mid-Western Region | Warrumbungle Shire | Dubbo Regional | NSW |
|---|---|---|---|---|
| Agriculture, forestry and fishing | 27.6% | 8.9% | 5.1% | 2.1% |
| Mining | 1.0% | 15.0% | 1.1% | 0.9% |
| Manufacturing | 2.8% | 4.0% | 5.8% | 5.8% |
| Electricity, gas, water and waste services | 0.9% | 1.0% | 1.3% | 0.9% |
| Construction | 4.1% | 8.0% | 8.5% | 8.4% |
| Wholesale trade | 1.5% | 2.1% | 3.1% | 3.1% |
| Retail trade | 7.7% | 10.5% | 10.9% | 9.7% |
| Accommodation and food services | 5.5% | 7.8% | 7.4% | 7.1% |
| Transport, postal and warehousing | 3.6% | 2.7% | 4.0% | 4.7% |
| Information media and telecommunications | 0.5% | 0.8% | 0.9% | 2.2% |
| Financial and insurance services | 0.4% | 1.1% | 1.8% | 4.9% |
| Rental, hiring and real estate services | 0.4% | 1.2% | 1.2% | 1.8% |
| Professional, scientific and technical services | 2.8% | 3.4% | 4.1% | 8.1% |
| Administrative and support services | 2.0% | 2.8% | 2.7% | 3.5% |
| Public administration and safety | 7.8% | 4.4% | 7.7% | 6.0% |
| Education and training | 11.5% | 7.6% | 9.3% | 8.4% |
| Health care and social assistance | 12.2% | 9.9% | 15.4% | 12.5% |
| Arts and recreation services | 0.6% | 1.1% | 1.6% | 1.5% |
| Other services | 2.8% | 4.7% | 4.4% | 3.7% |

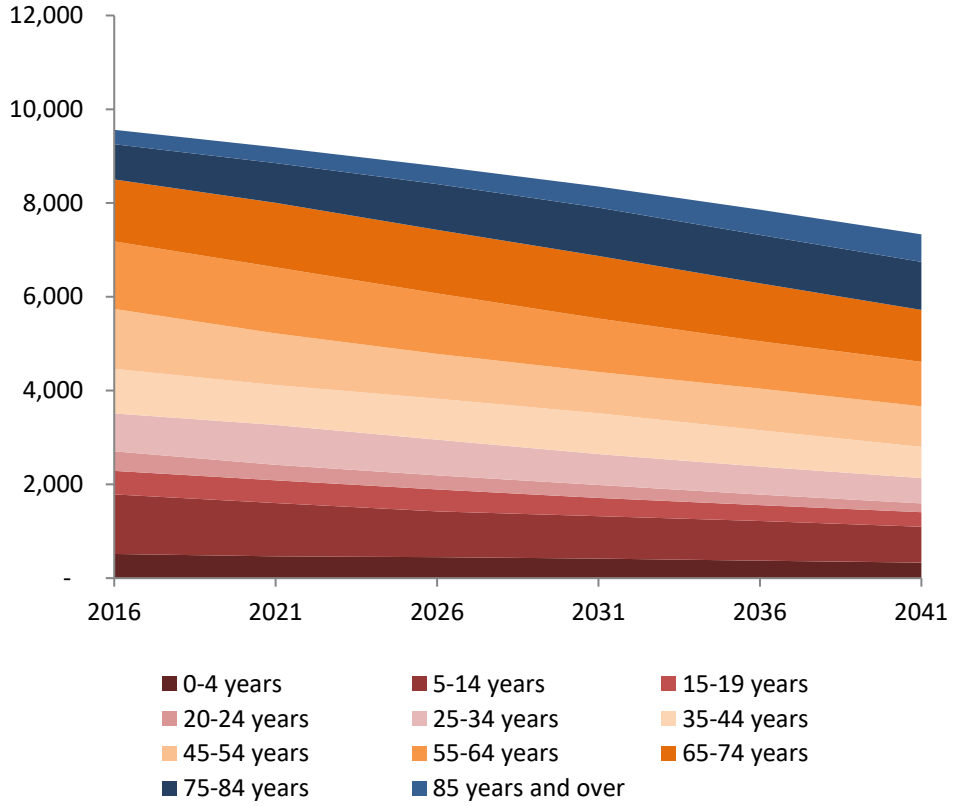
## Health status

| Category | Health Indicator | Source | Measure | Mid-Western Region | Warrumbungle Shire | Dubbo Regional | NSW |
|---|---|---|---|---|---|---|---|
| Chronic diseases | Estimated number of people with mental and behavioural problems (modelled estimates) | PHIDU 2017–18 | ASR per 100 | 23.9 | 21.8 | 24.9 | 18.8 |
| | 'Estimated number of people with heart, stroke and vascular disease | PHIDU 2017–18 | ASR per 100 | 5.3 | 4.9 | 5.2 | 4.9 |
| | Estimated number of people aged 15 years and over with fair or poor self-assessed health | PHIDU 2017–18 | ASR per 100 | 16.8 | 15.5 | 15.4 | 14.1 |
| Risk factors | Estimated number of males aged 18 years and over with high or very high psychological distress, based on the Kessler 10 Scale (K10) | PHIDU 2017–18 | ASR per 100 | 12.6 | 12.4 | 12.3 | 12.4 |
| | Estimated number of people aged 18 years and over who had high blood pressure | PHIDU 2017–18 | ASR per 100 | 23.4 | 22.2 | 23.6 | 23.1 |
| | Estimated number of people aged 18 years and over who were obese | PHIDU 2017–18 | ASR per 100 | 41 | 43.1 | 44 | 30.9 |
| | Estimated number of people aged 18 years and over who were current smokers | PHIDU 2017–18 | ASR per 100 | 21 | 22 | 18.7 | 14.4 |
| Premature death | Total deaths, 0 to 74 years | PHIDU 2015-2019 | ASR per 100,000 | 282 | 320.6 | 317.4 | 238.4 |

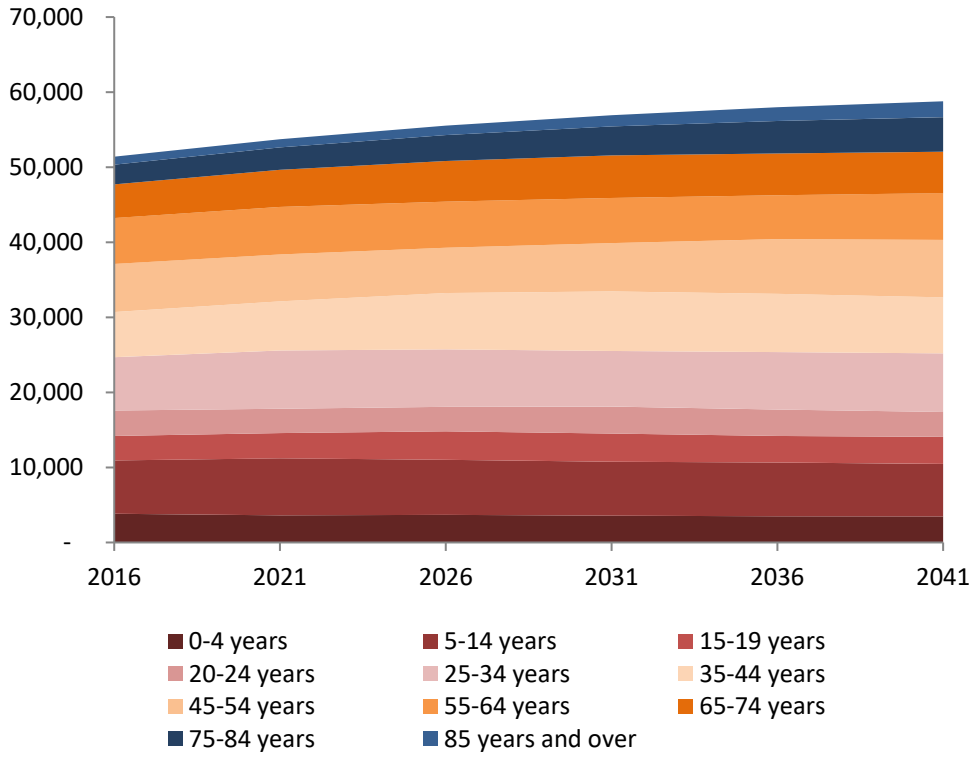
## Population Projections




## Mid-Western Regional LGA

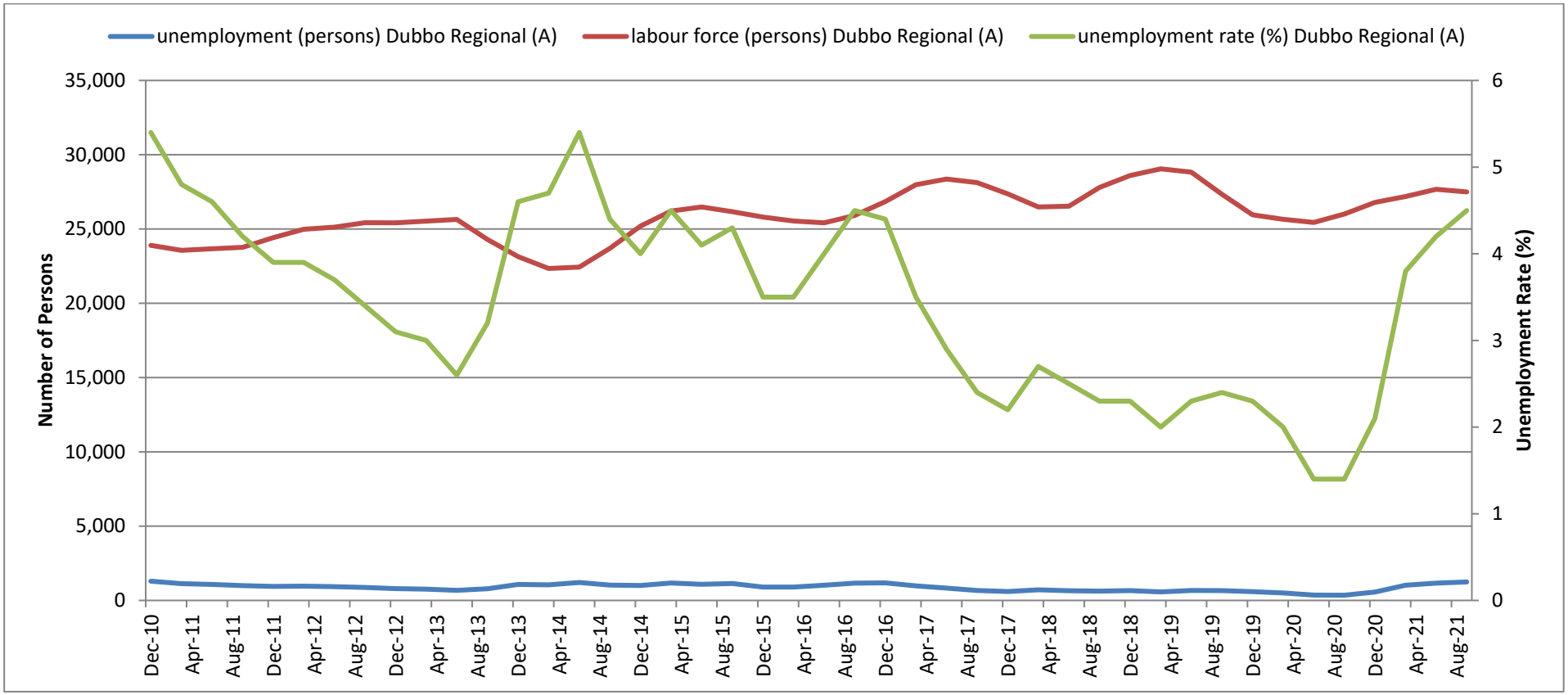



**Warrumbungle LGA**

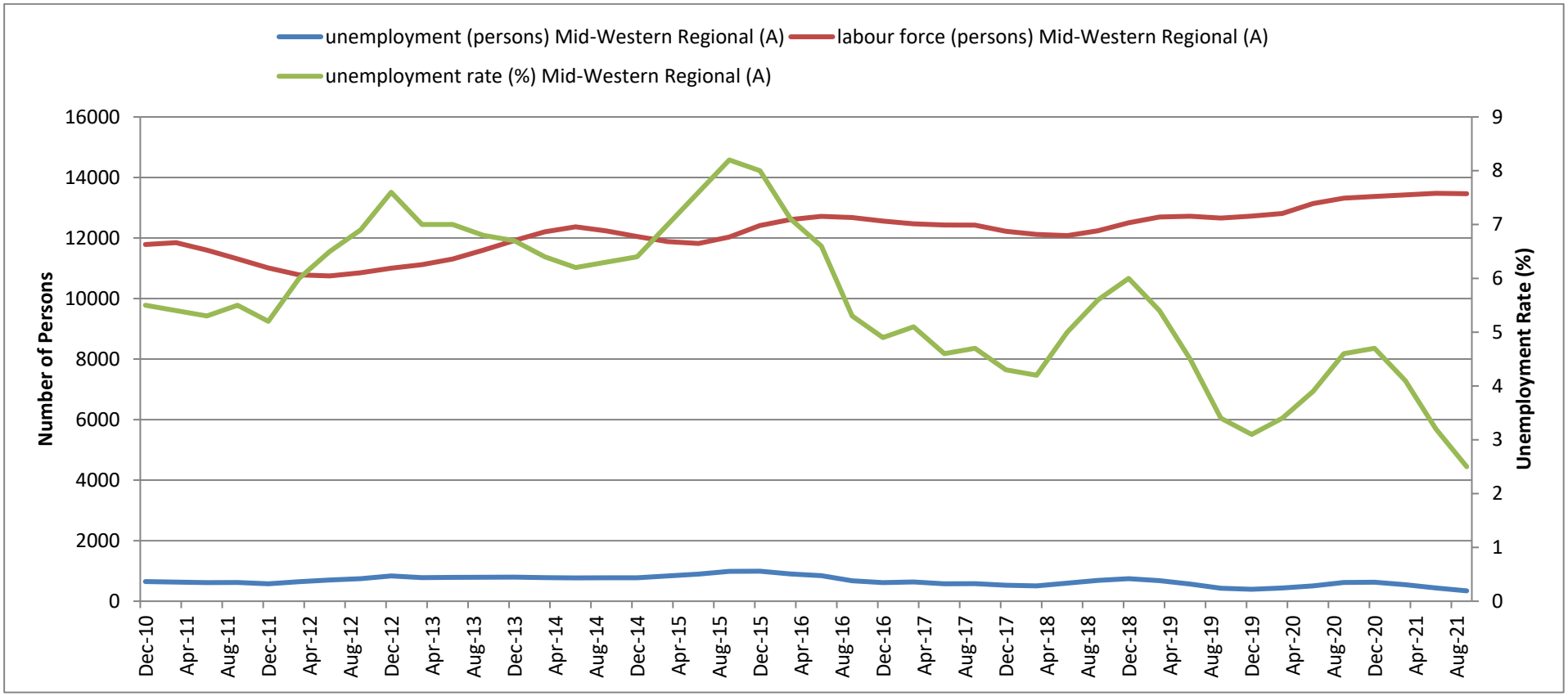



**Dubbo Regional LGA**

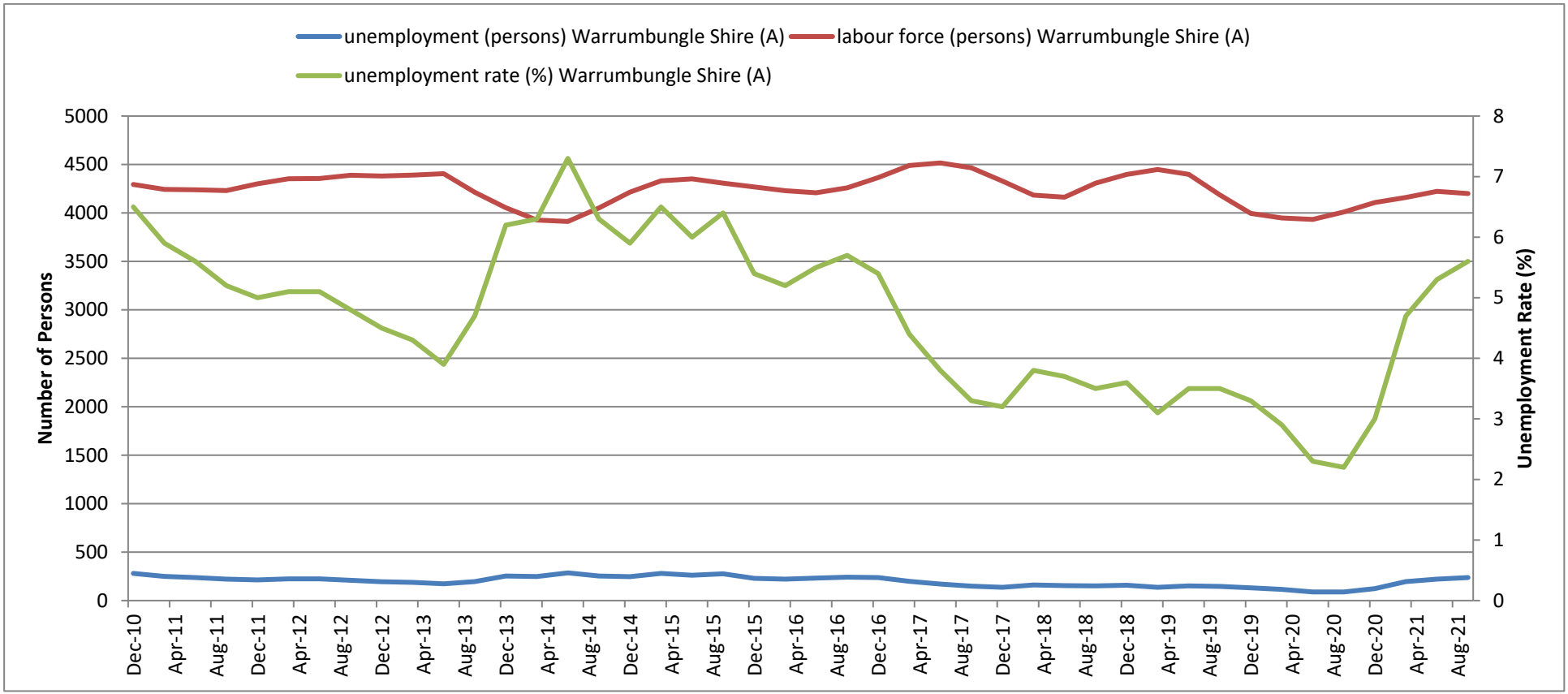
**Small Area Labour Markets (SALM), September Quarter 2021**



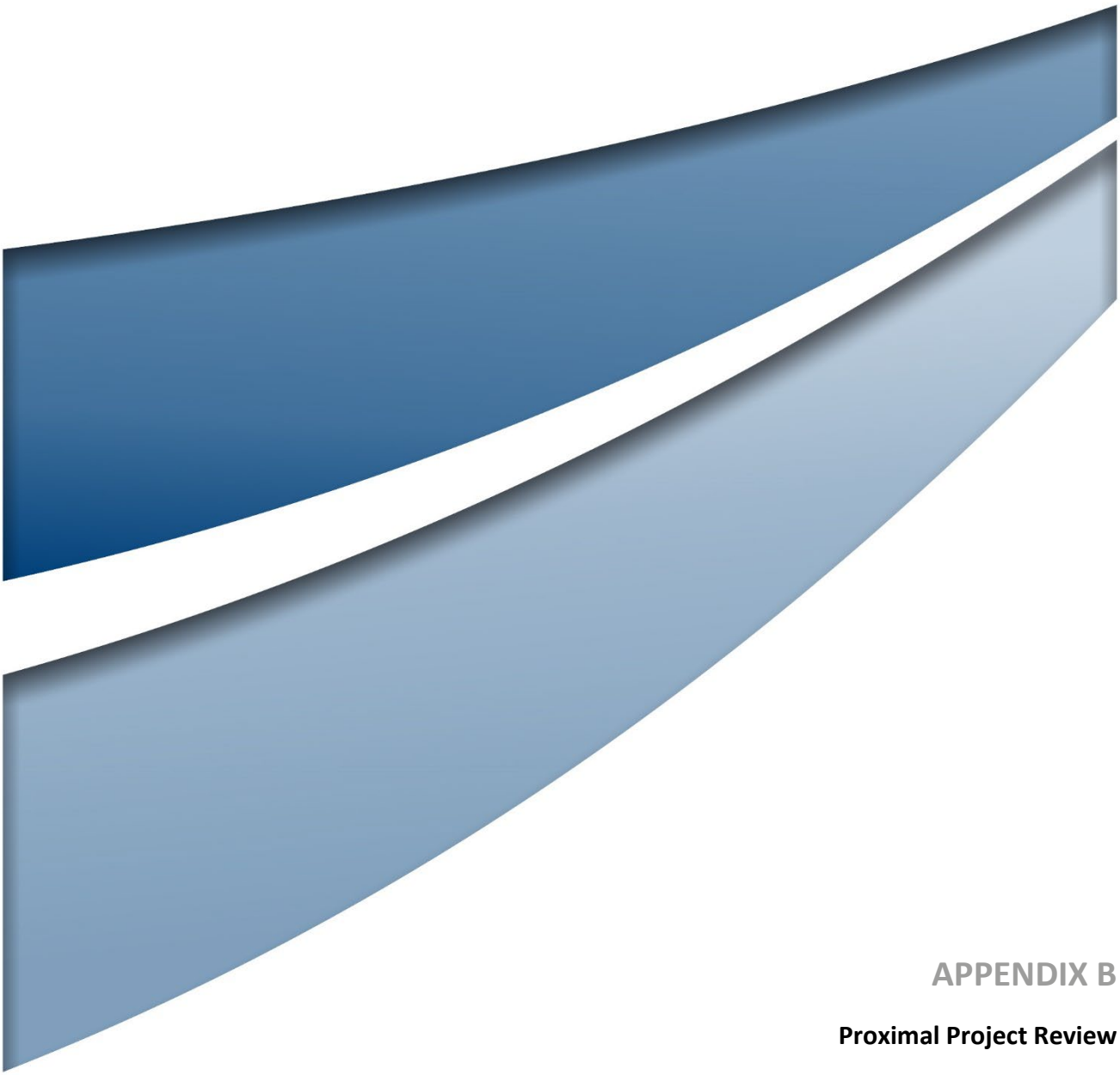

**Dubbo Regional LGA**




**Mid-Western Regional LGA**




**Warrumbungle Shire LGA**



# APPENDIX B

**Proximal Project Review**

## Proximal Cumulative Renewable Energy Projects

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| **Central West Orana REZ Transmission Works** | ? | Proposed installation and operation of new electricity transmission infrastructure as part of the CWO REZ.<br>The proposed transmission lines will run northwest from the existing network near Merriwa, passing south of Dunedoo, before heading south-west to connect to the existing network east of Wellington.<br>There is also an option to extend further south near Lake Burrendong.<br>Wollar substation will be upgraded as part of the project.<br>The current study corridor is 180 km long and 3-6 kilometres wide.<br>The final transmission line easements will be either 60 - 80 metres wide. | Project feasibility and route planning ongoing.<br>Construction planned to commence at the end of 2022. | • Construction workforce: 3,900 jobs during peak construction<br>• Landowner and community consultation ongoing. Social impact considerations pending. |
| **Stubbo Solar Farm** (UPC\AC Renewables, 2021) | 40km east | Development of a 400MW solar farm, with battery storage of up to 200MWH. The project is located between Blue Springs Road and Barneys Reef Road, approximately 10km north of Gulgong. | Approved June 2021<br>Construction planned to commence early 2022 | • Construction workforce: 400 direct jobs; Operational workforce: 10 ongoing jobs<br>• Potential impacts to existing and future land use.<br>• Impacts/disturbance to Aboriginal artefacts<br>• Impacts to landscape character and visual amenity.<br>• Operational and construction noise and vibration<br>• Increased road traffic movements, and associate impacts to roadways.<br>• Positive socio-economic impacts such as employment opportunities, local procurement, and a diversifying economy. |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| | | | | • Cumulative impacts associated with other renewable energy projects. |
| **Valley of the Winds Wind Farm** (UPC\AC Renewables, 2020) | 43km north east | The project comprises the development of 175 wind turbines and supporting infrastructure including a high voltage transmission line which would run approximately 65 km to the existing Bayswater to Mt Piper 500 kV transmission line. The wind farm would be located close to the township of Coolah, in the Warrumbungle LGA and is being developed by UPC\AC Renewables. | SEARs issued June 2020<br>EIS preparation ongoing | • Construction workforce: 400 FTE jobs; operational workforce: 50 FTE jobs<br>• Opportunities for employment, training and skills development, local procurement, and community investment<br>• Construction amenity<br>• Incoming workforce may impact community cohesion |
| **Liverpool Range Wind Farm** (Tilt Renewables, 2022) | 75km north east | Proposed 1000MW wind farm project.<br>Proponent is currently investigating modification approval to increase the maximum tip height of the turbines to 250m, decrease in maximum number of turbines from 267 to 217, include a BESS, and update the native vegetation clearing limits. The modification is proposed as the new turbines will be more efficient than the originally proposed, allowing for a maximum potential capacity of 1300MW. | Approved March 2018<br><br>Report to modify consent currently being prepared.<br><br>Construction pending approvals | • Construction workforce: 800 direct jobs<br>• Operational workforce: 47 FTE staff<br>• Visual impacts of turbines on the local community and significant vistas<br>• Shadow flickering<br>• Operational noise<br>• Damage to local roads from construction vehicle movement |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| **Dunedoo Solar Farm** (ib vogt, 2021) | 35km north east | Proposed 55 MW solar farm with BESS and associated infrastructure. The Dunedoo Solar Farm proposal site is located approximately 2 km north of the township of Dunedoo. | Approved September 2021<br>Construction planned to commence late 2022 | • Construction workforce: 100 direct, and 160 indirect positions<br>• Operational workforce: 3 direct, and 9 indirect positions.<br>• Habitat clearance and impacts to natural biodiversity and ecology<br>• Impacts to Aboriginal heritage items<br>• Visual amenity concerns and changes to landscape<br>• Agricultural land use conflict<br>• Dust and noise generation during construction |
| **Wellington Solar Farm** (Lighsource BP, 2020) | 33km south west | Proposed 174 MW capacity solar farm development and associated infrastructure. The proposed solar farm is located approximately 2km north east of the town of Wellington. | Approved May 2018.<br>Construction activities commenced in 2019. | • Construction workforce: 200 construction jobs during peak construction as well as indirect supply chain jobs.<br>• Possible impacts to Aboriginal heritage items.<br>• Medium and high visual impacts considered for a number of proximal localities.<br>• Construction and operational noise disturbance affecting social amenity. |
| **Wellington North Solar Farm** (Lightsource BP, 2020) | 32 km south west | Proposed solar farm development with a maximum capacity of 300MW and associated infrastructure.<br>The Wellington North Solar Plant proposal site is located approximately seven kilometres (km) north east of Wellington off Goolma Road, in the Orana region of central western NSW. The site would be located within the Dubbo Regional Local Government Area (LGA). The proposed solar plant would connect to an existing substation approximately 2.4km south of the site. | Approved April 2021 | • Construction workforce: approximately 250 local jobs.<br>• Operational workforce: 4 employees<br>• Submission report identified the following social impact considerations in relation to the project:<br>• Potential for agricultural land use conflict<br>• Concerns relating to visual impacts associated with the development and sterilisation and industrialisation of rural land |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| | | | | • Potential adjacent land devaluation<br>• Potential social amenity impacts due to construction noise, dust, and increased traffic<br>• Possible health impacts due to electromagnetic fields<br>• Production of few long-term employment opportunities. |
| **Wellington Battery Energy Storage System** (AMPYR Australia Pty Ltd, 2021) | 31km south west | Proposed battery energy storage system and associated infrastructure located approximately 3 kilometres (km) north-east of the township of Wellington. The project will have a capacity of approximately 500 megawatts(MW) and up to 1,000 megawatt-hour (MWh) and connect to the adjoining Wellington TransGrid substation either by way of 330 kilovolt (kV) overhead or underground transmission lines | SEARS issued October 2021. EIS preparation ongoing. | • Construction workforce peak: approximately 50 FTEs, construction period over 12 months. Construction is expected to commence in the beginning of 2023 subject to planning approval and other authorisations.<br>• |
| **Maryvale Solar Farm** (Photon Energy Group, 2022) | 33km south west | Proposed 160MW solar power plant and associated infrastructure located within the locality of Maryvale. Modification application preparation and planning assessment underway to include a BESS. | Approved December 2019, with construction works commencing and completion expected in Q2 2022. | • Construction workforce: 150 jobs; operational workforce: 6-10 ongoing positions.<br>• The associated RTS highlights the following key social impacts:<br>• Potential for land use conflict with existing agricultural operations.<br>• Potential increase in traffic and associated impacts to road safety. |
| **Mumbil Solar Farm** (Epuron, 2022) | 57km south | Proposed solar farm and associated BESS development located about 20 kilometres south east of Wellington. The proposed solar farm will have a capacity of up to 140MW, with a storage capacity of 70MW. | SEARs issued August 2019. EIS preparation ongoing. | • Impacts to road infrastructure as a result of construction vehicle movements.<br>• Potential for loss of productive agricultural land. |

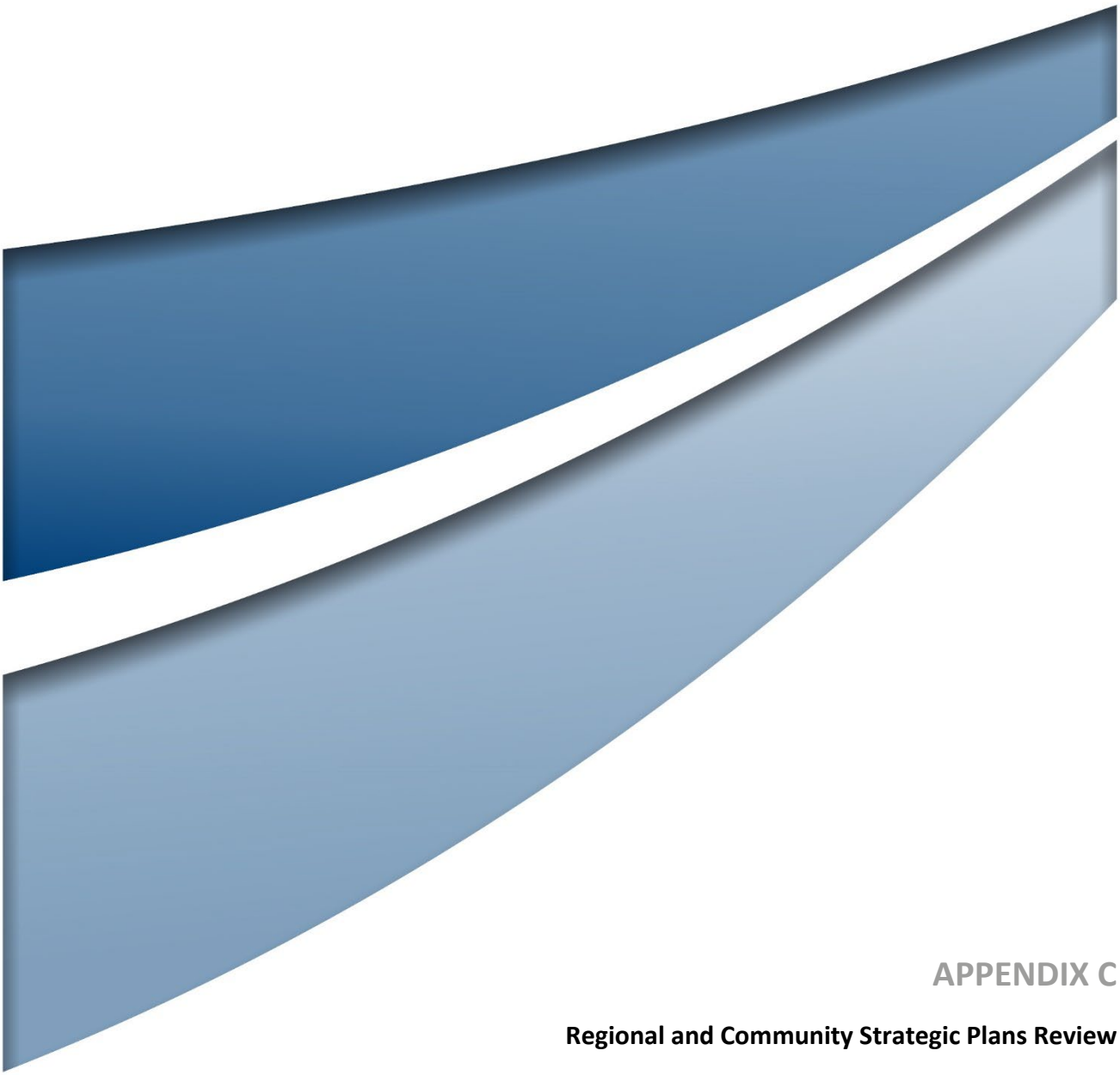
| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| | | | | • Concern regarding regional perception of solar farms with regards to fear of change and/or compatibility with agriculture |
| **Bodangora Wind Farm** (Iberdrola Australia Limited, 2022) | 21km south west | The 13.2 MW Bodangora Wind Farm has been operating since 2019 and comprises 33 General Electric 3.43-130 wind turbines. The wind farm is located approximately 15km east of Wellington. | Construction completed early 2019, wind farm currently operational. | • Community fund contributions allocated a minimum investment of $50,000 of community funding per year.<br>• |
| **Uungula Wind Farm** (CWP Renewables, 2022) | 31km south | Uungula Wind Farm is a proposed development of up to 97 wind turbines and associated infrastructure 14 km east of Wellington. | Approval granted in May 2021, with construction expected to commence in early-mid 2022. | As detailed in the RTS report prepared in support of the project, amongst the public submissions received, common impact themes included:<br>• Employment opportunities and demand for local services (direct employment and contracting);<br>• Opportunities for Wellington and investment in the local community;<br>• Impact to and suitability / land value;<br>• Compensation / negotiated agreements;<br>• Landscape and visual amenity impacts;<br>• Social amenity impacts e.g. noise and health impacts;<br>• Impact on Tourism opportunities; |
| **Suntop Solar Farm** (Canadian Solar, n.d.) | 48km south west | Suntop Solar Farm is a 189MW utility scale solar project based near the town of Wellington. Modification application preparation and planning assessment underway to include a BESS.<br>Suntop Stage 2 proposes an additional 230MW solar farm adjacent to the Suntop Solar Farm. Stage 2 was issued SEARs in September 2019. It is in the EIS preparation phase of assessment. | Approved December 2018, Construction anticipated to complete 2022.<br>Modification application to | • Potential for land use conflict with existing agricultural operations.<br>• Visual impacts resulting in a loss of social amenity.<br>• Social amenity impacts related to the construction of the Project (noise, dust, light) |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| | | | include BESS underway.<br>Stage 2 development received SEARs September 2019. | |
| **Burrendong Wind Farm** (Epuron Projects Pty Ltd, 2020) | 56km south | Proposed development of a 400MW wind farm consisting of 69 WTG and associated infrastructure. The project site is located approximately 30km south-east of Wellington and is situated within the Dubbo Regional and Mid-Western Regional LGAs. | SEARs issued October 2020, EIS Preparation ongoing. | • Construction workforce: will support 450 jobs.<br>• Issues such as operational noise, visual impact and potential impact on property values from the Project have been raised during discussions with Project neighbours.<br>• Increased traffic volumes, and increased traffic risks and/or reduced safety<br>• Aviation safety, effects on telecommunications, and health issues related to electromagnetic fields.<br>• Issues on known and unknown heritage impact items. |
| **Forest Glen Solar Farm** (X-Elio, 2022) | 57km west | Proposed development of a 110 MW solar farm and associated infrastructure, including battery storage facility. The proposed Forest Glen SF is located approximately 16 km west of Dubbo, NSW | Request for RTS report issued to the client by DPIE in January 2022. | Construction workforce: Up to 200 workers is a maximum estimation during peak construction (approximately 10months).<br>The key socio-economic impacts of the proposal include:<br>• Increased jobs (direct benefit of the proposal)<br>• Injection of money into the local economy (direct benefit of the proposal)<br>• Pressures on local services (adverse impact)<br>• Safety risks and hazards associated with construction activities (adverse impact). |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| **Wollar Solar Farm** (Wollar Solar Development Pty Ltd, 2022) | 41km east | Proposed solar farm development, operation and decommissioning with a capacity of 290MW. The proposed Solar Farm would be located 7km south of Wollar | Approved February 2020. Construction works ongoing with expected completion in 2022. | • Construction workforce: approximately 500 jobs; Operational: 5 FTE jobs.<br>• Potential strain on local services, particularly accommodations services.<br>• Implementation of workcamps may lead to social instability and impact levels of social cohesion |
| **Crudine Ridge Wind Farm** (CWP Renewables, 2022) | 58km south east | 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). Proposal located.<br>Crudine Ridge Wind Farm is located 45km south of Mudgee. The project is in the late stage of construction. Turbine erection activities have been completed and construction activities on site are now focused on commissioning the turbines. Crudine is expected to be fully operational by early 2022 | Commissioning activities ongoing, site expected to be operational in early 2022. | • Construction and operational workforce anticipated to generate up to 240 direct employment opportunities.<br>• Potential landscape and visual impacts resulting in a loss of social and landscape amenity.<br>• Potential noise impact s associated with construction and operational activities<br>• Impacts to aboriginal cultural heritage items<br>• Traffic impacts resulting in a decrease in public safety<br>• Potential for aviation risk.<br>• Potential limiting of site access and increased fire and bushfire risk. |
| **Tallawang Solar Farm** (RES, 2022) | 26km north | Proposed solar farm development located adjacent to Barneys Reef Wind Farm, involving a 500MW solar farm, a BESS, and associated infrastructure. | SEARs issued September 2021<br>EIS preparation ongoing<br>Construction planned to commence 2023 | • Construction workforce: 430 direct jobs; operational workforce: 7 direct jobs<br>• Competing land uses<br>• Changes to the landscape's visual character, including glare and glint from solar panels<br>• Increased traffic and road safety risks<br>• Changes to local population and increased demand for local services. |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| **Barneys Reef Wind Farm** (RES, 2022) | 34km north east | Proposed wind farm development located adjacent to the Tallawang Solar farm consisting of the construction and operation of approximately 63 wind turbines and associated infrastructure with a capacity of approximately 441 MW. | SEARs Issued September 2021. EIS preparation ongoing. | • Construction workforce: approximately 340 jobs; operational workforce: 10 direct jobs<br>• Competing land uses<br>• Changes to the landscape's visual character.<br>• Reduced community and social cohesion due to distributive equity of project impacts and benefits.<br>• Increased traffic and road safety risks<br>• Changes to local population and increased demand for local services |
| **Cobbora Solar Farm** (Marble Energy, 2021) | 8km north east | Proposed solar farm development consisting of the construction and operation of solar panel arrays with an indicative capacity of 700MW, an 200MW capacity BESS, and connecting infrastructure to the Central-West Orana REZ transmission infrastructure. Pending approvals, the solar farm is expected to be operational in early 2026. | SEARs issued November 2021. EIS preparation ongoing. | • Construction workforce: peak workforce of 700 FTE; operational workforce: 15 FTE ongoing.<br>• Land use tensions. Loss of grazing land could see a decrease in ability of local farmers to earn an income.<br>• Traffic causing delays accessing property.<br>• Pressure of local social infrastructure and services<br>• Population increase due to construction workers could cause disruption to community cohesion and harmony especially with multiple projects.<br>• Property devaluation<br>• Visual Amenity impacts |
| **Birriwa Solar Farm** (UPC\AC Renewables Australia, 2022) | 29km north east | Proposed solar farm development that will support an indicative energy generation capacity of 600MW, and included a centralised or a DC-coupled BESS of up to 1,000MW. The project is in the locality of Birriwa, approximately 15 kilometres (km) south-west of the township of Dunedoo. | SEARs issued November 2021. EIS preparation ongoing. | • Construction workforce: peak of approximately 500 FTE jobs, increasing to a maximum of 600 FTE jobs if BESS construction occurs during the same time; operational workforce: 15 FTE jobs.<br>• Disruptions to existing land-uses during construction and operation phases. |

| Project Name | Proximity from Spicers Creek Wind Farm | Overview | Status | Social Impact Considerations |
|---|---|---|---|---|
| | | | | • Increased traffic movements, causing increased commute times, and road degradation.<br>• Diversification of the local economy.<br>• Possible short term capacity constraints on local accommodation providers.<br>• Potential for changing property values.<br>• Changes to the landscape and visual amenity. |
| **Goulburn River Solar Farm** (Lightsource BP, 2021) | 89km east | Proposed solar farm development approximately 28 kilometres (km) south of the township of Merriwa within the Upper Hunter Local Government Area (LGA) (the Project Area). The proposed Goulburn River Solar Farm (the Project) will include an approximate 520 megawatt peak (MWp) of solar electricity generation with a Battery Energy Storage System (BESS) with a 260 MWp and 520 megawatt hour (MWh) capacity. The Project will also include supporting infrastructure, such as a substation and connection to an existing 500 kilovolt (kV) transmission line which intersects with the property. | Request for SEARs lodged December 2021. | • Competing land uses, particularly disruption to farming practices.<br>• Provision of employment, procurement and training opportunities.<br>• Increased pressure on local services and facilities<br>• Changes to community character and composition.<br>• Effect of project on local community values<br>• Increase in traffic and change in road conditions affecting public safety<br>• Increase in noise, vibration, lighting, and dust resulting in social amenity impacts<br>• perceived inadequate community consultation due to lack of face-to-face activities, affecting people's ability to contribute to Project design, planning and decision-making |

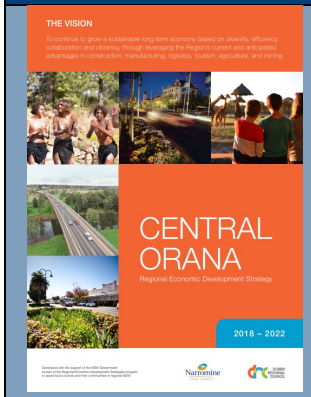


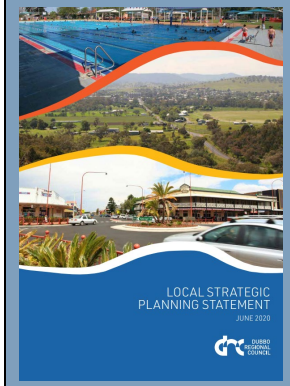
# APPENDIX C

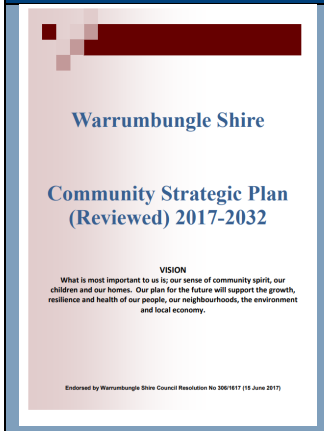
**Regional and Community Strategic Plans Review**

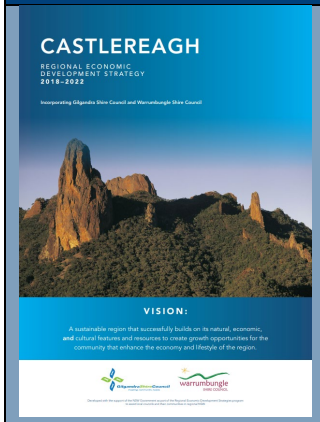
## Strategic plans and their relevance to the Project

| Plan | Overview and Relevance to the Project |
|---|---|
| **Central West and Orana Regional Plan 2036 (NSW Government, 2016)**<br>  | Outlines the goals and actions for the Central West and Orana Region to achieve a sustainable future; the plan applies to 19 local government areas including the Mid-Western Region LGA, being the closest to the Project.<br>The Plan identifies the following 4 goals for the Region:<br>1. A growing and diverse regional economy<br>2. A region with strong freight transport and utility infrastructure networks that support economic growth<br>3. A region that protects and enhances its productive agricultural land, natural resources, and environmental assets<br>4. Strong communities and liveable places that cater for the region's changing population.<br>The Plan also characterises the Mid-Western Regional LGA as being well known for its built heritage, food and wine tourism, and mining. The regional importance of the area is emphasised throughout the plan, with particular reference to supporting the mining and resources sector and associated businesses.<br>Increasing renewable energy generation is a key direction in the Plan, with actions identified to achieve this direction including:<br>• Identify locations with renewable energy generation potential and access to the electricity network.<br>• Facilitate small-scale renewable energy projects using bioenergy, solar, wind, small-scale hydro, geothermal or other innovative storage technologies through local environment plans.<br>• Promote best practice community engagement and maximise community benefits from all utility-scale renewable energy projects.<br><br>The Plan highlights the need across the region for diverse accommodation options to support mining workforces, as well as other seasonal and itinerant workers (in large-scale infrastructure, renewables and agriculture). |
| **Central Orana Regional Economic Development Strategy 2018 – 2022 (Narromine Shire Council & Dubbo Regional Council)** | The Strategy was developed to identify economic development opportunities that capitalise on the Central West's functional economic region.<br>The Strategies principle aims are:<br>• Establish Central Orana as an Agricultural Research Centre of Excellence to underpin the Region's strength in the agricultural sector.<br>• Develop the Logistics cluster to accompany anticipated growth in export-oriented sectors<br>• Establish Central Orana as an effective and interconnected Business Destination<br>• Capitalise on the growth potential of the Mining and Construction sectors to boost related clusters in Energy, Manufacturing and transportation<br>• Develop a mature and diversified tourism sector |

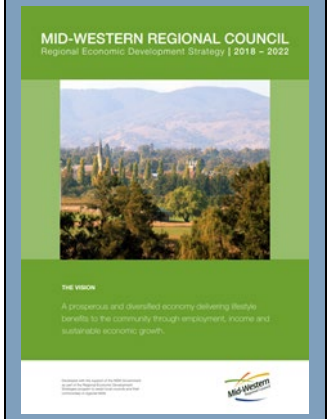
| Plan | Overview and Relevance to the Project |
|---|---|
|  | Of particular relevance to the Project, strategy 4 of the plan states that "*supporting renewable energy projects will provide a broad economic base for the construction and manufacturing industry to continue to grow. Where possible projects should incorporate small-scale co-generation measures in the design.*" The strategy subsequently supports the following activities:<br>• Provide training opportunities suited to the Region's needs<br>• Develop an incentive scheme to hire and train local staff<br>• Leverage increased activity in construction and the inland rail to provide growth supporting infrastructure in target industries<br>• Re-zone areas of the Region to industrial |
| **Dubbo Regional Council Community Strategic Plan 2040**<br>  | The Mid-Western Regional Council's Community Plan identifies the community's aspirations for the area. The Vision of the Plan is:<br>*In 2040 we will celebrate our quality of life, the opportunities available for us to grow as a community, our improved natural environment, and being recognised as the inland capital of regional NSW.*<br>The Plan is guided by the following key aspirations:<br>• The region capitalises on every opportunity to grow to an overall population of 100,000<br>• We are home to the 'Silicon Plains' where our strategic location, our transport linkages, land availability and access to world class telecommunications systems provide unmatched capability for high technology industries<br>• Our hard and our social infrastructure supports our population growth and allows for the development of a diverse regional economy<br>• Dubbo and Wellington are 'smart cities' that capitalise on future technological advances in the way we travel, communicate, work, live, and respond to change<br>• The region is a centre for educational excellence that provides a diverse range of opportunities that support our industry and business capabilities and economic growth of the region<br><br>Investment in renewable energy opportunities is encouraged and supported by Council's vision. Community identified needs of relevance to the Project include:<br>• Provide for housing choice and housing affordability to meet the needs of our community<br>• Achieve ongoing economic prosperity through a diverse employment base and a visitor economy that makes use of our tourism assets<br>Key infrastructure and services are provided to further enhance the quality of life of our community and to maintain economic growth |

| Plan | Overview and Relevance to the Project |
|---|---|
| **Dubbo Regional Local Strategic Planning Statement – June 2020 (Dubbo Regional Council)**<br>  | The LSPS integrates with the 2040 community strategy plan to support the following vision:<br>*"In 2040 we will celebrate our quality of life, the opportunities available for us to grow as a community. We will take advantage of technological innovation to become a smart city while protecting our natural environment and being recognised as the inland capital of regional NSW."*<br>The community, through feedback to Council in preparation of the LSPS have identified the following as key themes:<br>• Provide for housing choice and housing affordability to meet the needs of our community<br>• Achieve ongoing economic prosperity through a diverse employment base and a visitor economy that makes use of our tourism assets<br>• Key infrastructure and services are provided to further enhance the quality of life of our community and to maintain economic growth<br>• A united and cohesive council that provides leadership to our community<br>• We have access to a range of community, cultural and open space facilities and areas<br>• We value our unique environment and ensure its protected for future generations.<br><br>The plan identifies that the growth in renewable energy generation in recent times has been transformative for a range of industries and communities. Renewable energy will play a key part in Dubbo's sustainable future, particularly as the Queensland-NSW Interconnector transmission lines are constructed, facilitating energy transfer to the north and south of the LGA<br><br>Planning Priority 3: *Promote renewable energy generation*, identifies the following actions to support the growth and development of renewable energy in the region<br>• Work together with neighbouring councils on cross-boundary issues concerning electricity generation and transmission.<br>• Collaborate with State agencies and key landowners to deliver key infrastructure projects.<br>• Utilise the Department's Large-Scale Energy Guideline to advise proponents on the optimum location of new renewable industries.<br>• Investigate and implement VPAs with state significant scale development to mitigate impacts on local services and facilities.<br>Monitor the sterilisation of productive agricultural land as a result of renewable energy development, with an objective of minimising sterilisation. |
| **Warrumbungle Shire Community Strategic Plan (Reviewed) 2017-2032** | The Strategic Plan is supported by the following vision:<br>*What is most important to us is; our sense of community spirit, our children and our homes. Our plan for the future will support the growth, resilience and health of our people, our neighbourhoods, the environment and local economy*<br>The plan is supported by the following goals:<br>• The good health of our natural environment and biodiversity is preserved and enhanced.<br>• Our economy is strong and sustainable, providing our communities with localised employment opportunities and ease of access to markets, goods and services. |

| Plan | Overview and Relevance to the Project |
|---|---|
|  | • The communities of our shire are safe, harmonious and supportive and are bound by vibrant social and cultural interaction and a strong local identity.<br>• Our shire is characterised by its peaceful rural landscape, its thriving towns and villages and diverse agricultural activities.<br>• The communities of our shire have abundant opportunities to participate in sporting and recreational interests of their choice.<br>• Our communities are provided with safe, functional, and well-maintained infrastructure and a comprehensive range of services.<br><br>Renewable energy developments in the region are supported by the following strategies implemented under the plan:<br>• Identify and develop opportunities to realise the shire's potential as a location for the production of renewable energies.<br>Work with public and private sector agencies to ensure that mining and extractive industries and renewable energy production operating within the shire results in economic returns for our communities |
| **Warrumbungle Shire Council Local Strategic Planning Statement (2020)**<br>  | The Warrumbungle LSPS gives effect to the Central West and Orana Regional Plan 2036, implementing the directions and actions at a local level. The Plans vision for the future includes the following items:<br>• Over the next 20 years the Warrumbungle Shire will be an interconnected string of settlements, each with a unique lifestyle and good connections to Dubbo and other locations.<br>• The population decline will be arrested and there will be higher educational opportunities for young people in the Shire.<br>• There will be more economic diversity in each of the large towns with agriculture and tourism playing key roles in the economy.<br>• There will also be improved infrastructure, health and community services.<br>• We will have improved biodiversity and natural ecosystems and we will be more responsive to natural hazards such as bushfire and floods<br><br>No specific strategies are made under the LSPS in relation to renewable energy development. |
| **Castlereagh Regional Economic Development Strategy 2018 – 2022: Incorporating Gilgandra Shire Council and Warrumbungle Shire Council** | The Strategy is support by the following vision:<br>*A sustainable region that successfully builds on its natural, economic, and cultural features and resources to create growth opportunities for the community that enhance the economy and lifestyle of the region.*<br>The strategies' aims are to:<br>• Boost key industries' access to market and labour<br>• Invest in water and energy utilities infrastructure<br>• Develop and enhance the regional lifestyle<br>• Develop and promote a broad event and destination profile<br>• Build support for local businesses |

| Plan | Overview and Relevance to the Project |
|---|---|
|  | • The strategy notes that the region's capacity for renewable energy generation is large noting that development in the area" can lead to significant opportunities for exploring the potential for further investment in projects within the Region and link to supporting local industry"<br>Strategy 2: *Invest in water and energy utilities infrastructure,* aims to support renewable energy generation through the following key activities:<br>• Explore options for alternative water and energy resources; and,<br>Encourage and support investment in large-scale renewable energy and small-scale co-generation projects |
| **Towards 2030: Mid-Western Region Community Plan (Mid-Western Regional Council)**<br>  | The Mid-Western Regional Council's Community Plan identifies the community's aspirations for the area. The Vision of the Plan is:<br>*A prosperous and progressive community that we are proud to call home*<br>The Plan identifies the following key community priorities:<br>• Strong budget and economy<br>• Building infrastructure<br>• Protecting the vulnerable<br>• Better services<br>• Safer communities<br>A number of strategies are identified to achieve the community priorities. Key priorities of interest to the Project include:<br>• Ensure land use planning and management enhances and protects biodiversity and natural heritage<br>• Support the attraction and retention of a diverse range of businesses and industries<br>• Encourage the development of a skilled and flexible workforce to satisfy local industry and business requirements<br>• Support projects that create new jobs in the Region and help to build a diverse and multi-skilled workforce<br>• Build strong linkages with institutions providing education, training and employment pathways in the Region<br>• Provide a roads network that balances asset conditions with available resources and community needs. |
| **Our Place 2040: Mid-Western Regional Local Strategic Planning** | The Mid-Western Regional LSPS sets out the 20-year vision for land use planning in the Mid-Western Regional Council LGA. The vision for the plan is:<br>*To provide for sustainable growth and development, having regard to the Region's unique heritage, environment, and rural character, and to support agricultural enterprises and the Region's economic base* |

| Plan | Overview and Relevance to the Project |
|---|---|
| **Statement (Mid-Western Regional Council, 2020)**<br>  | The following planning priorities are identified:<br>• Maintain and promote the aesthetic appeal of the towns and villages within the Region<br>• Provide infrastructure and service to cater for the current and future needs of our community<br>• Minimise the impact of mining and other development on the natural environment<br>• Support the attraction and retention of a diverse range of businesses and industries<br>• Identify resources and infrastructure required to drive investment and economic growth<br>• Support the expansion of essential infrastructure and services to match business and industry development<br>• Develop a regional transport network.<br>Renewable energy development is considered within the planning framework where it is proposed in appropriate areas that avoids impacts on the scenic rural landscape and preserves valuable agricultural land.<br>Regarding workforce provision, future growth and development in the region will drive the demand for a new skilled workforce. Skilled workers such as engineers, builders, tradespeople, child and health professionals, are expected to be in highest demand over the near future to cater for new major projects. |

| Plan | Overview and Relevance to the Project |
|---|---|
| **Mid-Western Regional Council Regional Economic Development Strategy (2018-2022) (Balmoral Group Australia Pty Ltd on Behalf of Mid-Western Regional Council)**<br>  | The Regional Economic Development Strategy articulates a framework for identifying actions crucial in achieving the following vision for the Mid-Western Regional Council area:<br>*A prosperous and diversified economy delivering lifestyle benefits to the community through employment, income, and sustainable growth*<br>Relevant aims to the Project include:<br>• Grow industry clusters around mining, manufacturing & agriculture – Healthy environment for agricultural processing, metals and related manufacturing, and mining and agricultural support services<br>• Support the attraction and retention of an increased number of diverse businesses and industries.<br>• Within these aims are a number of identified priorities, priorities of relevance to the Project include:<br>• Maintaining the quality of the inter-regional road and air networks; with the Bylong Valley Way Road project taking the highest priority, and Wollar Road upgrades also being important<br>• Support for Technical training to ensure a steady supply of workers<br>• Strategies to lower the cost of electricity in the Region to support businesses should be a priority |

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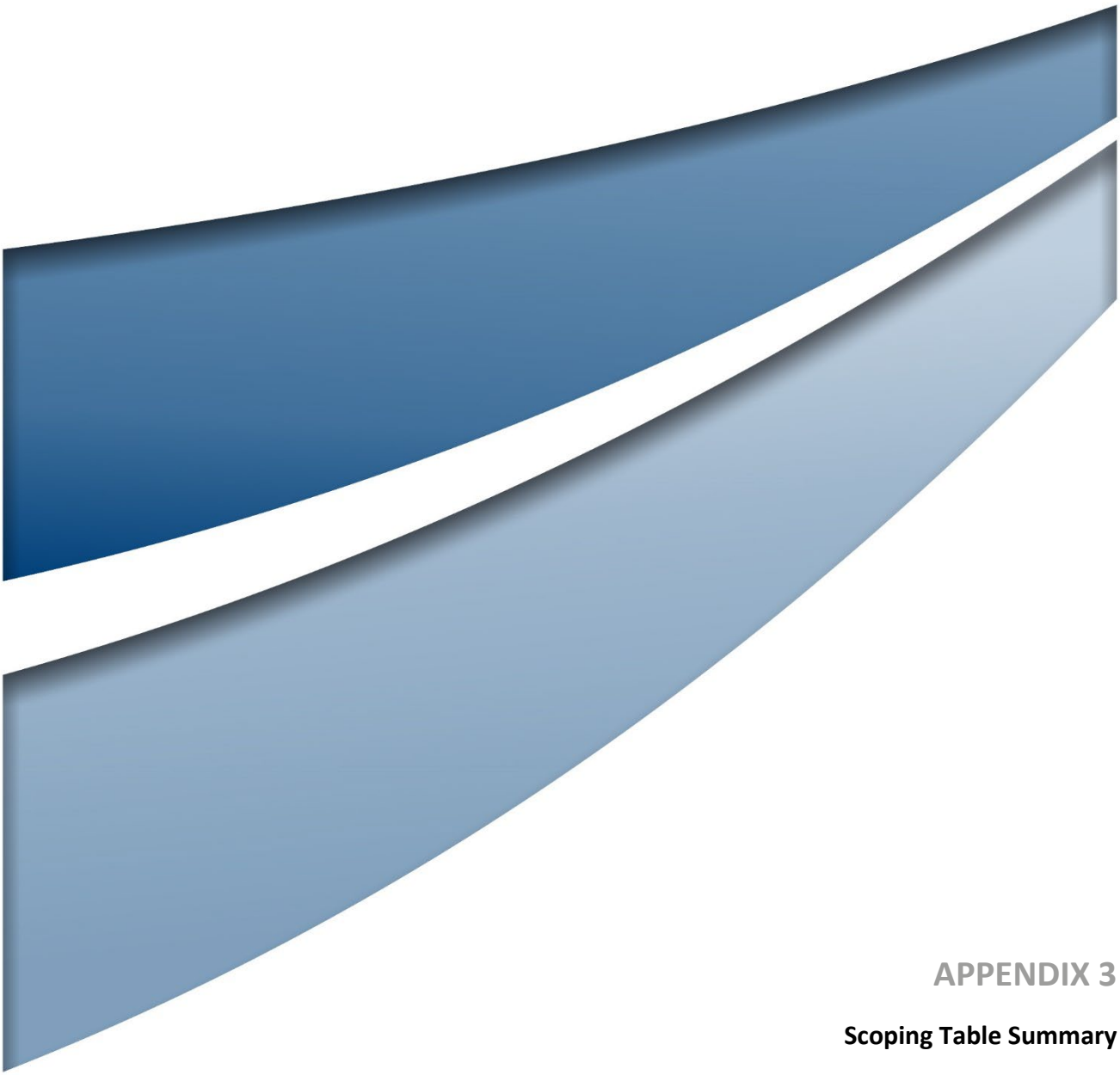

# APPENDIX 3

**Scoping Table Summary**

# 1.0 Scoping Summary Table

| Level of Assessment | Matter | CIA | Engagement | Relevant Government Plans, Policies and Guidelines | Scoping Report Reference |
|---|---|---|---|---|---|
| **Detailed** | **Visual Amenity** | Yes | Specific | Wind Energy: Visual Assessment Bulletin (DPE, 2016b) | **Section 6.2.1** |
| **Detailed** | **Noise and Vibration** | Yes | Specific | Wind Energy: Noise Assessment Bulletin (DPE, 2016c)<br>NSW Noise Policy for Industry 2017 (EPA, 2017)<br>Interim Construction Noise Guideline 2009 (DECC, 2009)<br>NSW Road Noise Policy 2011 (DECCW, 2011)<br>Assessment Vibration: A Technical Guideline 2006 (DECC, 2006) | **Section 6.2.2** |
| **Detailed** | **Biodiversity** | Yes | Specific | Biodiversity Assessment Method (BAM) 2020<br>DPIE Threatened Biodiversity Data Collection (TBDC) (DPIE, 2022) | **Section 6.2.3** |
| **Detailed** | **Aboriginal Cultural and Historic Heritage** | No | Specific | Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011)<br>Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010a)<br>Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010b)<br>NSW Heritage Manual<br>Relevant Heritage Council of NSW guidelines<br>The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance (ICOMOS, 2013) | **Section 6.2.4** |
| **Detailed** | **Traffic and Transport** | Yes | General | Guide to Traffic Generating Developments (RTA, 2002)<br>Road Design Guide<br>Relevant Austroads Standards<br>Austroads Guide to Traffic Management | **Section 6.2.5** |
| **Detailed** | **Socio-Economic Impacts** | Yes | Specific | Social Impact Assessment Guidelines for State Significant Projects (DPIE, 2021d)<br>Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2021e) | **Section 6.2.6** |

| Level of Assessment | Matter | CIA | Engagement | Relevant Government Plans, Policies and Guidelines | Scoping Report Reference |
|---|---|---|---|---|---|
| **Detailed** | **Aviation Safety** | No | General | Australian Standard AS/NZS ISO 31000:2018 Risk Management – Guidelines | **Section 6.2.7.1** |
| **Detailed** | **Telecommunications**<br>**EMF/EMI** | No | General | ICNIRP Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1998) | **Sections 6.2.7.2** and **6.2.7.3** |
| **Detailed** | **Blade Throw**<br>**Shadow Flicker/Blade Glint** | No | General | (Draft) National Wind Farm Development Guidelines (Environment Protection and Heritage Council, 2010) | **Sections 6.2.7.4** and **6.2.7.5** |
| **Detailed** | **Bushfire** | No | General | Planning for Bushfire Protection (PBP) 2019 (NSW Rural Fire Service, 2019) | **Section 6.2.7.6** |
| **Standard** | **Water and Soil Resources** | No | General | Acid Sulphate Soils Assessment Guidelines (Department of Planning, 2008)<br>Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) | **Section 6.2.8** |
| **Standard** | **Cumulative Impact** | Not applicable | General | NSW Cumulative Impact Assessment (CIA) Guidelines for State Significant Projects (DPIE, 2021c) | **Section 6.2.9** |
| **Standard** | **Waste** | No | General | Waste Classification Guidelines (DECCW, 2009) | **Section 6.2.10** |
| **Standard** | **Air Quality** | No | General | The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2016) | **Section 6.2.10** |
| **Standard** | **Decommissioning and Rehabilitation** | No | General | Decommissioning and rehabilitation following closure of Project will be undertaken in accordance with relevant consent conditions and legislation/licence requirements | **Section 6.2.10** |

# APPENDIX 4

**Preliminary Visual Assessment**

# Preliminary Visual Impact Assessment

# Spicers Creek Wind Farm

Prepared for: Umwelt

Project No: **2113** Issue: **REVISION D** Status: **FOR SUBMISSION** Date: **31st March 2022**

## DOCUMENT HISTORY AND STATUS

**Project No:** 2113

**Project Name:** Spicers Creek Wind Farm | Preliminary Visual Impact Assessment (PVIA)

| Issue | Submission | Date of Issue | Author | Approved by |
|---|---|---|---|---|
| A | Preliminary Desktop Assessment | 03.03.2022 | MED / AR | AR |
| B | Draft Preliminary Visual Impact Assessment for Review | 16.03.2022 | MED / AR | AR |
| C | Final Preliminary Visual Impact Assessment for Submission | 30.03.2022 | MED / AR | AR |
| D | Final Preliminary Visual Impact Assessment for Submission | 31.03.2022 | MED / AR | AR |

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# Contents

# **1.0** Introduction

## 1.1 Introduction

Moir Landscape Architecture have been commissioned by Umwelt on behalf of CWP Renewables Pty Ltd (CWPR) to prepare a Preliminary Visual Impact Assessment (PVIA) for the proposed Spicers Creek Wind Farm (the Project).

CWP Renewables Pty Ltd is proposing to construct and operate the renewable energy development located approximately 30 km west of Gulgong and 25 km north east of Wellington in Central West NSW.

This PVIA is to be submitted in conjunction with the Scoping Report to the Secretary of the Department of Planning & Environment (DPE) in support of the SSD application for the Project. The PVIA has been prepared in accordance with the *Wind Energy: Visual Assessment Bulletin,* December 2016 (referred to hereafter as 'the Visual Assessment Bulletin').

The Scoping Report will support the Secretary in issuing the Secretary's Environmental Assessment Requirements (SEARs) that will guide the Environmental Impact Statement (EIS) as part of the SSD application for the Project.

## 1.2 Relevant Experience

The Visual Assessment Bulletin states the proponent is expected to engage professionals from relevant natural resource management and design professions, with demonstrated experience and capabilities in visual assessment to carry out a wind energy project visual assessment.

Moir Landscape Architecture Pty Ltd is a professional design practice and consultancy specialising in the areas of Landscape Architecture, Landscape Planning and Landscape and Visual Impact. Our team has extensive experience in undertaking Landscape and Visual Impact Assessments for wind energy projects. In the context of our experience and with guidance from the Visual Assessment Bulletin we have developed methodologies to ensure a comprehensive and qualitative assessment of the Project.

Relevant experience includes the preparation of Landscape and Visual Impact Assessments for the following Wind Energy Projects:

- *Bodangora Wind Farm (Bodangora, New South Wales)*
- *Crudine Ridge Wind Farm (Crudine, New South Wales)*
- *Uungula Wind Farm (Wellington, New South Wales)*
- *Hills of Gold Wind Farm (Nundle, New South Wales)*
- *Burrawong Wind Farm (Balranald, New South Wales)*
- *Thunderbolt Energy Hub (Stage One) Wind Farm (Kentucky, New South Wales)*
- *Valley of the Winds Wind Farm (Coolah, New South Wales)*
- *Jeremiah Wind Farm (Adjungbilly, New South Wales)*

# 1.0 Introduction

## 1.3 Overview of Preliminary Visual Impact Assessment

The purpose of this Preliminary Visual Impact Assessment (PVIA) is to provide a preliminary assessment of the potential visual impacts of the proposed Spicers Creek Wind Farm and has been prepared in accordance with the Visual Assessment Bulletin.

The visual assessment process is broken into two main stages (see **Figure 1**):

**Phase 1:** Preliminary Environmental Assessment and
**Phase 2:** EIS

This PVIA forms apart of ***Phase 1: Preliminary Environmental Assessment*** to be submitted to the Department of Planning & Environment (DPE) together with the Scoping Report for the request for the Secretary's Environmental Assessment Requirements (SEARs).

The requirements of the Visual Impact Assessment Bulletin for the Stage 1: Preliminary Environmental Assessment are as follows:

*At the Preliminary Environmental Assessment stage, a process consisting of community consultation regarding key landscape values and application of preliminary assessment tools has been developed. The tools include consideration of the potential impact of the proposals on dwellings and key public viewpoints.*

*The preliminary assessment tools have been designed to assist proponents to drive better outcomes. They will assist in identifying early in the process the locations where wind turbines may have impacts that warrant further consideration. This in turn provides an opportunity to refine the proposed wind turbine layout to avoid or minimise impacts, or justify the proposed design prior to lodgement of the application.*

*Proponents will be required to submit, with the request for SEARs, a Preliminary Environmental Assessment that includes a map with key information, results of community consultation and the application of the preliminary assessment tools. This will form the basis for the issue of the SEARs that will identify the matters that must be addressed in the Environmental Impact Statement (EIS).*

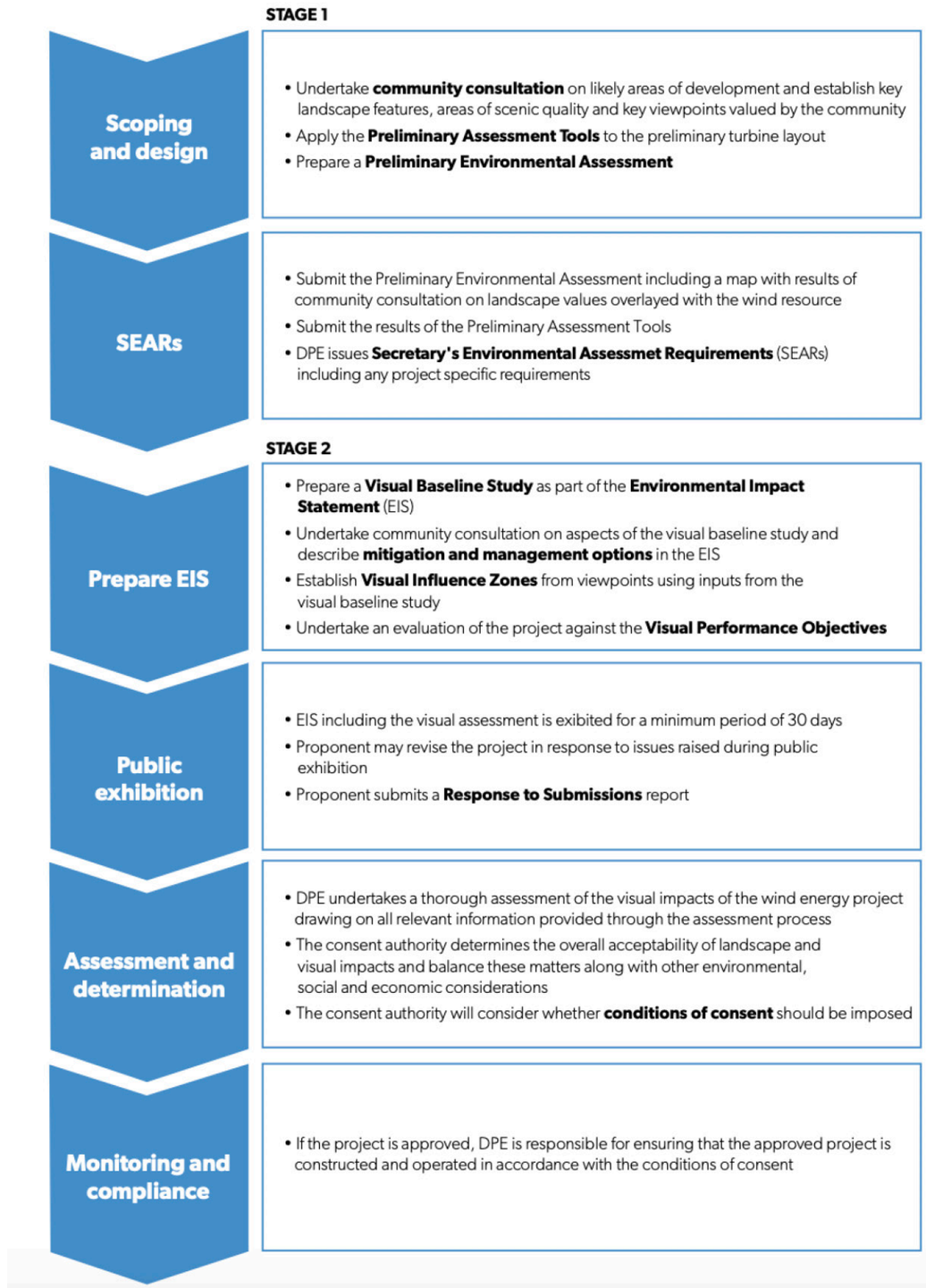



***Figure 1* Steps in Visual Assessment Process (Source: Wind Energy Visual Assessment**

# **2.0** Study Method

## 2.1 Study Method

The following has been undertaken to develop the PVIA:

**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.
- Identification of key viewpoints and landscape features using available mapping and background documents.

**Site Inspection:**

Photographic survey work for the study was undertaken in February 2022 to carry out a preliminary assessment of the existing landscape character from publicly accessible land within the Study Area. The findings of the site inspection has been included in the PVIA and will form the basis for discussion with the community in the EIS Phase of the Project.

**Community Consultation:**

CWPR is committed to genuine and meaningful engagement with the community, developing long-term relationships and maintaining open lines of communication. In developing wind farm projects, CWPR recognises that early and meaningful consultation with the local community and other stakeholders is fundamental to obtain feedback that can be incorporated into the design of the Project. Engagement with local landowners commenced in 2019 and has predominantly been undertaken by the Spicers Creek Wind Farm Project team of three (3) CWPR staff. Preliminary community feedback have been utilised to gain perspective on the landscape values held by the community to inform the PVIA.

Community consultation will be continued through the EIS phase of the Project.

## 2.2 Report Structure

The following table provides an overview of the requirements of the Visual Assessment Bulletin and where these have been addressed in the PVIA:

| **Preliminary Visual Impact Assessment Report Structure:** | |
|---|---|
| **Bulletin Requirements:** | **Addressed in report:** |
| • *Undertake community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area.* | **Refer to Section 4.0:**<br>**Community Consultation** |
| • *Production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints, and an overlay of the wind resource.* | **Refer to Section 5.0:**<br>**Existing Landscape Character** |
| • *Results of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.* | **Refer to Section 6.0:**<br>**Preliminary Assessment Tools** |
| | **Refer to Section 8.0:**<br>**Preliminary Dwelling and Viewpoint Assessment** |
| • *The use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of a project during the pre-lodgement stage. Most GIS systems can establish the theoretical 'zone of visual influence' of the proposal (the area from which the proposal is theoretically visible or the 'visual catchment').* | **Refer to Section 7.0:**<br>**Preliminary Zone of Visual Influence** |
| **Summary and Recommendations - Section 10.0** | |

***Table 1 Overview of Report Structure***

# **3.0** Project Overview

## 3.1 Regional Context

The Project Site is located approximately 30 km west of Gulgong and 25 km north east of Wellington in Central West region of New South Wales (NSW). The Project Site is situated predominately within the Dubbo Regional Council local government area (LGA) and partly in the Warrumbungle Shire Council LGA.

The Project Site is located within the Central West Orana Renewable Energy Zone (REZ). The Central West Orana REZ is expected to play a vital role in delivering affordable energy to the community across NSW.

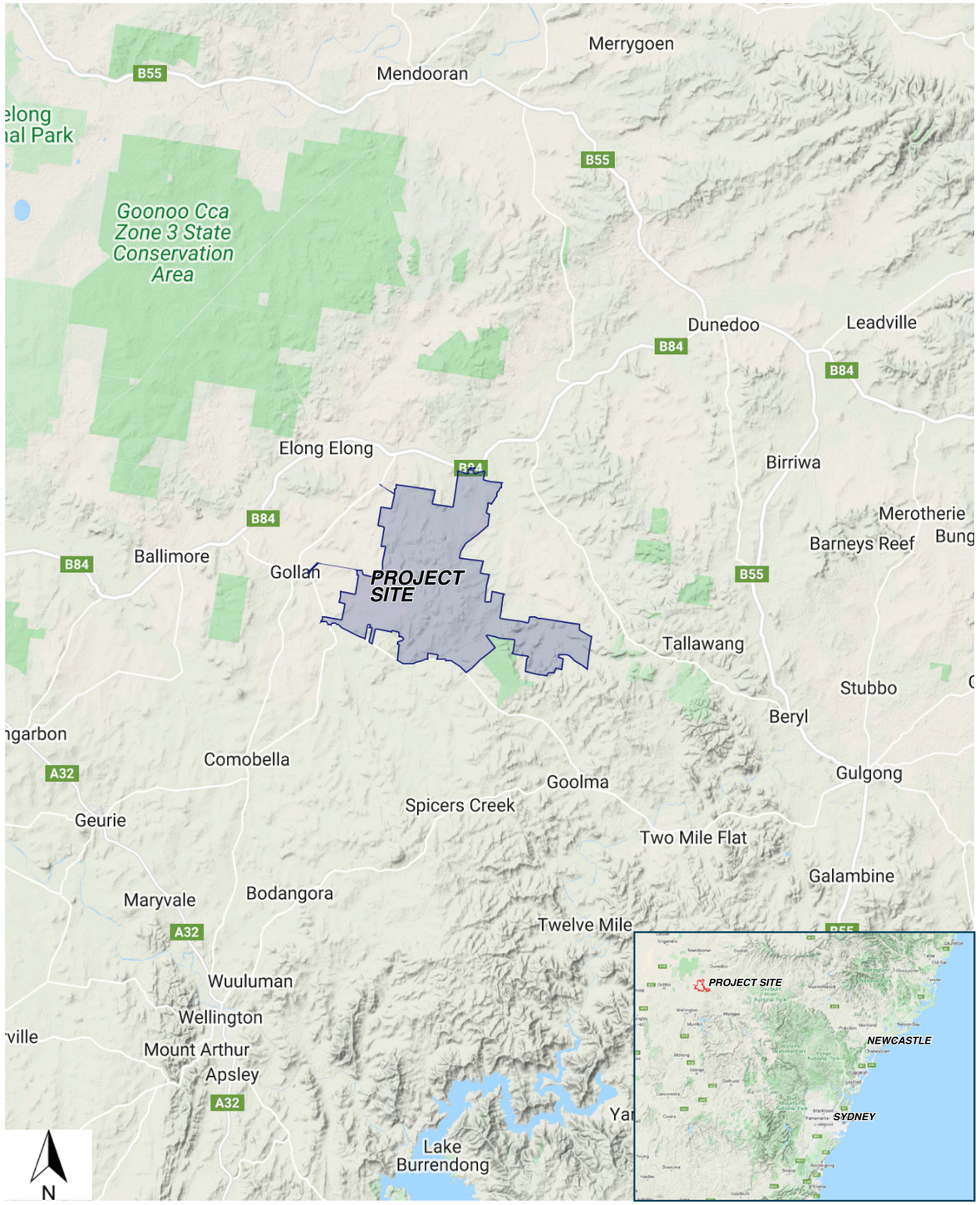



***Figure 2* Regional Site Context**

# **3.0** Project Overview

## 3.2 The Study Area

The Study Area refers to the land associated with and surrounding the Project. For the purpose of this report, the Study Area is loosely defined by an 8 km radius around the Project, however assessment of land outside of this radius will be undertaken as necessary. **Figure 3** provides a birds eye view of the Project Site and illustrates the surrounding landscape character including the Dapper Nature Reserve to the south east of the Project Site and Goonoo Zone 3 State Conservation Area to the north west.

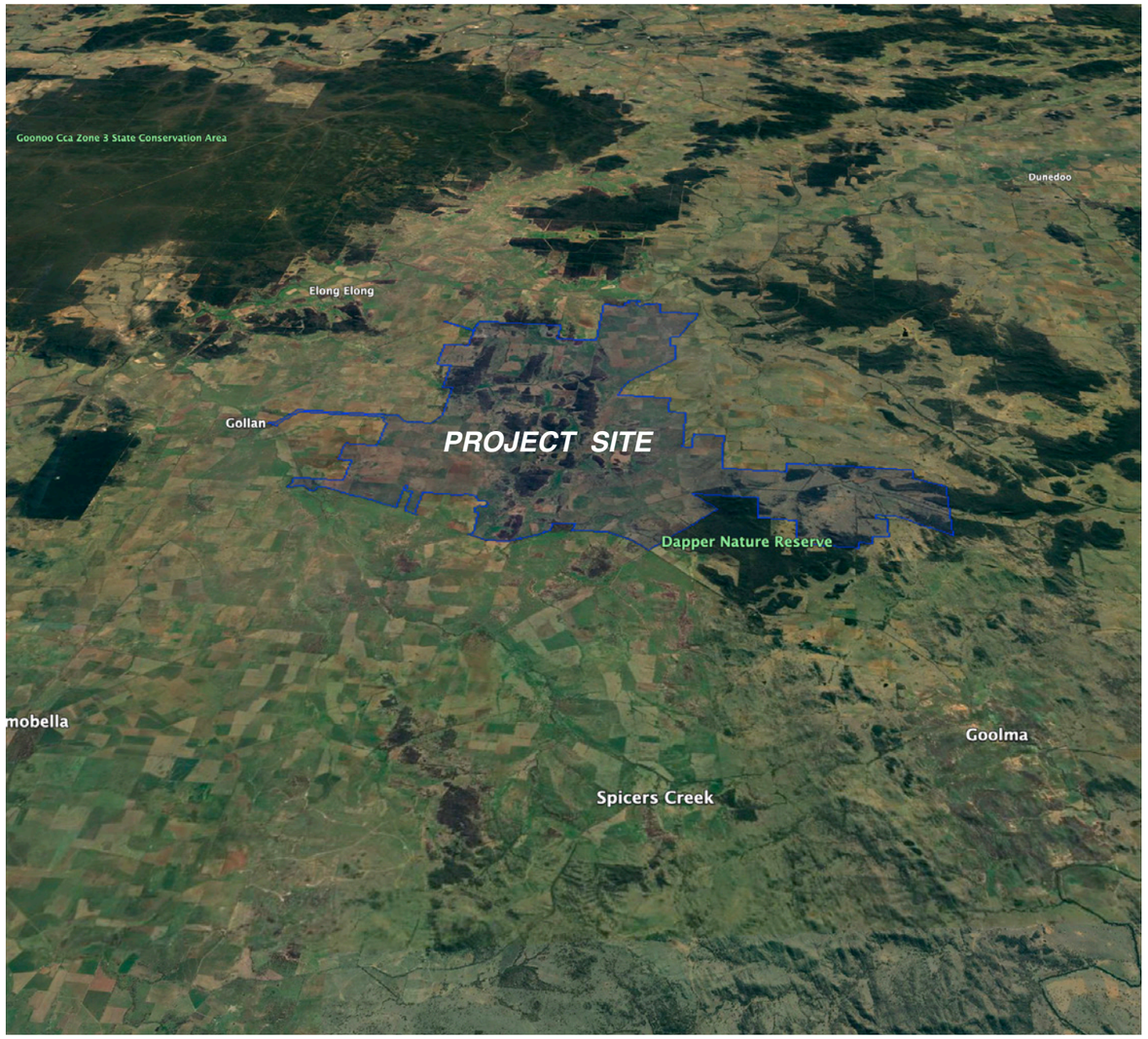



***Figure 3** Birds Eye View - The Project Site (Source: Google Earth)*

## 3.3 The Project Site

For the purpose of this report, the Project Site refers to the land associated with the Project. The Project Site is located to the north of Gollan Road and the south of the Golden Highway. The Project Site is presented in **Figure 4.**

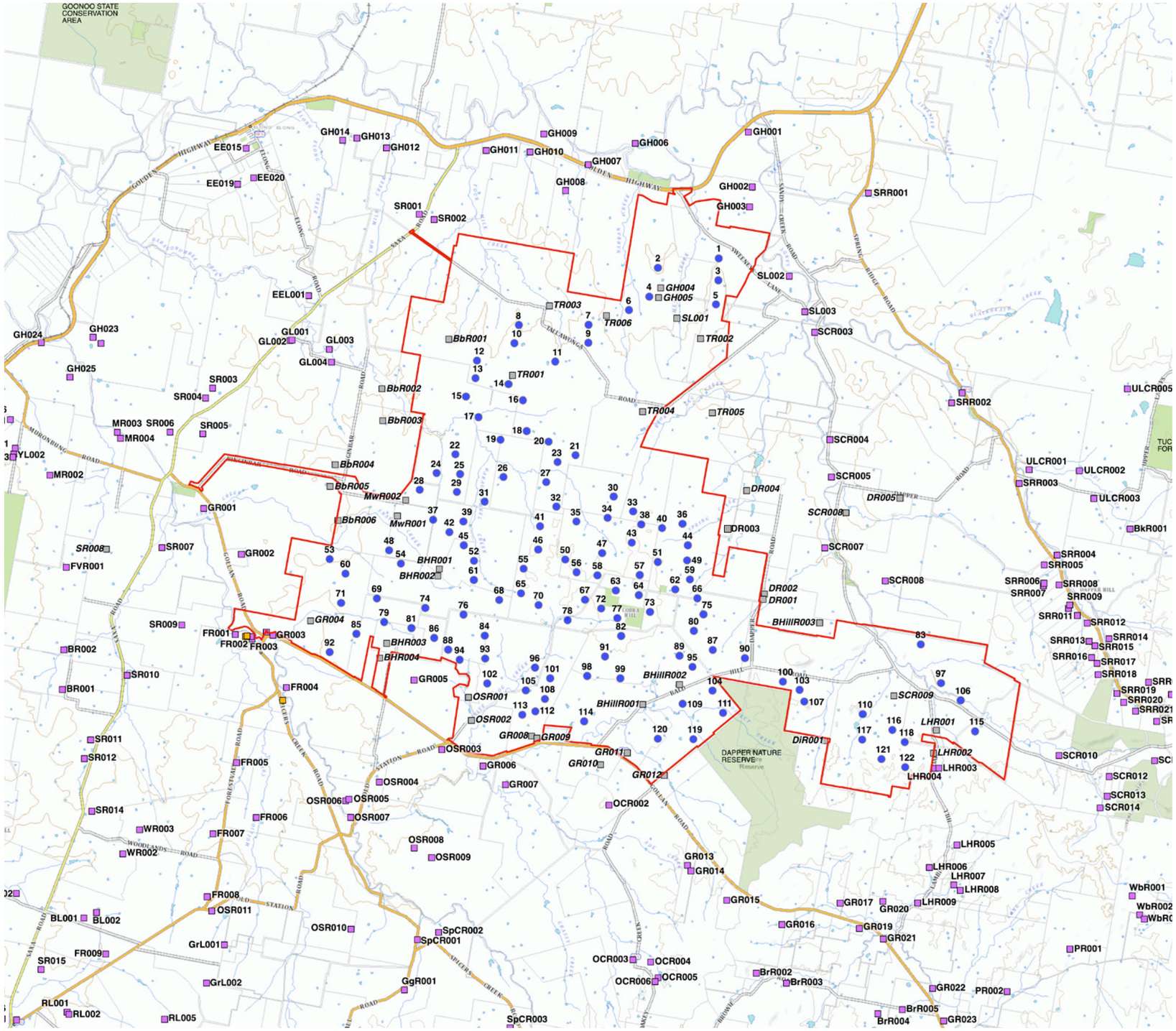
## 3.4 The Project

The Project includes the installation, operation, maintenance and decommissioning of up to 122 Wind Turbine Generators (WTG), battery storage facilities, ancillary infrastructure and temporary facilities associated with construction of the Project. The key components of the Project include:

- approximately 122 (3 blade) WTGs with a total height (tip height) of approximately 300 metres (m)
- electrical connections between the proposed wind turbines and substations consisting of a combination of underground cables and overhead powerlines
- substations and transmission connections to connect the proposed turbines to the proposed Central-West Orana REZ transmission line
- other ancillary infrastructure including access roads and tracks, operation and maintenance buildings and (all facilities subject to further detailed design)
- temporary facilities, including on-site concrete batching plants during the construction phase
- two battery storage facilities (400 MW, one-hour battery)
- targeted road network upgrades to facilitate delivery of wind turbine components to the site as required
- associated infrastructure, including compounds, electricity transmission lines, etc.

Refer to **Figure 4.**

# **3.0** Project Overview




## The Project
### Spicers Creek Wind Farm

**LEGEND**

- Project Site
- Proposed 300m high WTG Location
- Associated Dwelling
- Non-associated Dwelling
- Community Building
- Main Road
- Minor Road
- National Park / Nature Reserve

***Figure 4** The Project*

# **4.0** Community Consultation

## 4.1 Overview of Community Consultation

In accordance with the Visual Assessment Bulletin: *community consultation at this early stage may be broad, but should include discussions about the proposed Project Site, likely corridors of development, or preliminary turbine layouts and must involve people from the visual catchment. The purpose of community consultation is to establish key landscape features, areas of scenic quality and key public viewpoints valued by that community.*

In accordance with the Bulletin, ongoing community consultation has been undertaken by the proponent through face to face meetings and a questionnaire which was made available online. As of 15th of March 2022, a total of 21 questionnaires had been completed, the results of which have been outlined in the following section.

Community engagement will continue throughout the Project assessment and provide the community with further opportunities to provide input into the Visual Baseline Study of the LVIA.

## 4.2 Community Perception

Understanding of the community perception towards the proposed development is an intrinsic component of the Landscape and Visual Impact Assessment process.

A CSIRO study published in 2012: Exploring community acceptance of rural wind farms in Australia provides a snapshot of community acceptance levels regarding Australian wind farms from a variety of stakeholder perspectives. It found levels of acceptance among the public are highly subjective and can differ depending on location, local context and place attachment.

## 4.3 Landscape Values

Landscape values are highly subjective and can differ depending on location, local context and place attachment. The results of specific questions assisted in the identifying key areas of concern and ensuring the LVIA provided comprehensive assessment taking into account landscape values held by the community.

In response to the question ***'What do you value about the existing natural and built environment?'*** the following responses were received in relation to the visual amenity, connection to the landscape and lifestyle:

- *"It is untouched other then farming and the two co-habitate"*
- *"Isolation"*
- *"Trees, natural environment"*
- *"Varying flora and fauna"*
- *"It's natural open and bush setting"*
- *"Natural diversity"*
- *"We have a very beautiful natural picturesque landscape that gives us peace and tranquility as it is"*
- *"It is home"*
- *"Timbered areas"*
- *"Quite area family been in the district about 150 years wild life"*
- *"Clear air"*
- *"We have made it part of our routine to watch the sunrise across the valley looking east toward Spicers Creek with beautiful natural, uninterrupted views. We also value the quiet roads and minimal traffic we experience"*
- *"Quiet rural amenity*"

Other responses provided indicated a strong value on the agricultural land use of the area:

- *"Quality of land/soil for farming operation"*
- *"Regenerative agriculture & tree replacement works done by farmers in the district"*
- *"Fertile rolling hills and meandering valleys, also homestead, working infrastructure and natural shelter belts"*
- *"Farming land"*
- *"Diversification of soils and topography"*
- *"It looks like farm land not commercial land"*

The landscape values identified throughout the community consultation phase will be considered when preparing the Visual Baseline Study during the EIS Phase.

# **4.0** Community Consultation

## 4.4 Key Landscape Features & Areas of Scenic Quality

In addition to a review of existing landscape maps and detailed field work, the community consultation questionnaire asked respondents to identify key landscape features in the area. The following lists responses. Where possible these have been mapped on ***Figure 8*** (Section 5.0).

The following specific landscape features in the study area:

- *"Ridges to the south and east of our house Bald hill at Wetallibah, the heights peak"*
- *"Bald Hill" (On Bald Hill Road)*
- *"Dapper Reserve"*
- *"Dapper Church"*
- *"Warrumbungle National Park"*
- *"Dapper Nature Reserve"*

Additional features identified that appear throughout the Study Area include:

- *Natural bushland & forest. Waterways & rock formations on private land*
- *Farming land*
- *Diversification between farming and grazing. Scenic undulating hills*
- *Its view, its hills, roads are maintained*
- *The gentle sloping paddocks*
- *Undulating hills*
- *open farmland*
- *Rolling hills*
- *Landscape and mountain peaks*
- *The gently undulating hills with uninterrupted views and minimal man made structures.*
- *Rural vistas*

Responses relating to private property:

- *Expansive views from our house and farm to Warrumbungles (160km) for 180 degrees*
- *high points on our property includes: "Glenroy Hill" and "Toms Hill"*

Where possible the landscape features idenfitied have been mapped on ***Figure 8*** (Section 5.0). The landscape features identified community consultation (in addition to those identified through extensive field work) will be considered in the assessment process of the LVIA during the EIS stage of the Project.

## 4.5 Key Public Viewpoints

Key public viewpoints identified by the community for further assessment include:

- *"Gulgong"*
- *"Mudgee"*
- *"Wellingtown town"*
- *"Bodangora"*
- *"Mt Bodangora"*
- *"Driving the lanes"*
- *"Bald Hill" (On Bald Hill Road)*
- *"The Heights"*
- *"St Edwards"*
- *"Top of the mountain and hills"*

Where possible, these have been mapped on ***Figure 8*** (Section 5.0) and will be assessed in detailed during the EIS Phase.

In addition to the public viewpoints identified, a number of respondents noted locations on private property. These include:

- *Various hills around our property*
- *Elevated positions on own land*
- *Toms hill lookout*
- *Some lookouts on our property and some historical sites*
- *We have many hilltops at 650m where you see 360 degree well beyond the proposed windfarm*
- *home at gollan great view of the local area*
- *Our house has some of the best views in the district looking right across Gollan and up and down the valley toward Elong, Comobella and Bodangora*

Where required, detailed assessment from non-associated dwellings identified through the preliminary assessment tools will be undertaken during the EIS Phase.

# **5.0** Existing Landscape Character

## 5.1 Overview of Bioregion

The Project Site sits at the southern tip of the NSW South Western Slopes Bioregion (see ***Figure 5***). Located in the foothills of the Great Dividing Range, it also consists of isolated ranges and inland slopes. The Project Site is bordered to the north by the Brigalow Belt South Bioregion.

Topography is generally undulating with isolated peaks in wide valleys. Soils are generally shallow stony soils on steep slopes (NPWS, 2003). Hilly terrains towards the north and the east are dominated by open woodlands of Grey Box (*Eucalyptus microcarpa*) and White Cypress Pine (*Callitris glaucophylla*). Vegetation communities around valley flats and stream/river banks includes rough-barked apple (*Angophora floribunda*) and river oaks (*Casuarina cunninghammia*).

***Images 1 - 2*** illustrate the typical character of the landscape within the Study Area.


***Figure 5*** ***Bioregions of New South Wales (Source: NPWS)***

***Image 1*** *View toward the gently undulating and partially vegetated landscape with riparian vegetation south west of the Project Site.*

***Image 2*** *Character of vegetation within Nature Reserves and National Parks surrounding the Project Site consistent with the character of the wider Bioregion - (Yarrobil National Park)*

# **5.0** Existing Landscape Character

## 5.2 Land Zoning

The Project Site is located within both the Dubbo and Wurrumbungle Shire Local Government Areas (LGA). Mid Western LGA's boundary is located immediately south of the Project Site. The following gives an overview of the main land use zoning within the Study Area (see ***Figure 6***):

**RU1 - Primary Production**

The Project Site and majority of the surrounding land is zoned *RU1 - Primary Production*. There are no objectives of the RU1 zoning relevant to the visual impact assessment within the Dubbo Local Environmental Plan (LEP) 2011 and Wurrumbungle (LEP) 2013.

**RU3 Forestry**

The Tuckland State Forest is located north east of the Project Site within the Wurrumbungle LGA and is classed as RU3 Forestry within the Warrumbungle LEP 2013 .

Yurindury State Forest is located approx. 9km west of the Project Site within the Dubbo LGA and is classed as RU3 Forestry within the Dubbo LEP 2011 .

The objectives of this Land Use within both LEP's are to enable development for forestry purposes and other development that is compatible with forestry land uses.

**RU5 - Village**

Ballimore is located in excess of 8km north west of the Project Site and is zoned as RU5-Village within the Dubbo LEP 2011. The zoning designation provides for a range of land uses, services and facilities associated with a rural village. Although the village is located in excess of 8km away from the Project Site, an assessment of its visual character is important due to the proximity to the Project Site.

**C1 - National Parks and Nature Reserves**

Dapper Nature Reserve borders the Project Site to the south and is located across the Wurrumbungle and Dubbo LGA's. The Reserve is categorised as C1- National Parks and Nature Reserves within the Warrumbungle LEP 2013 and Dubbo LEP 2011

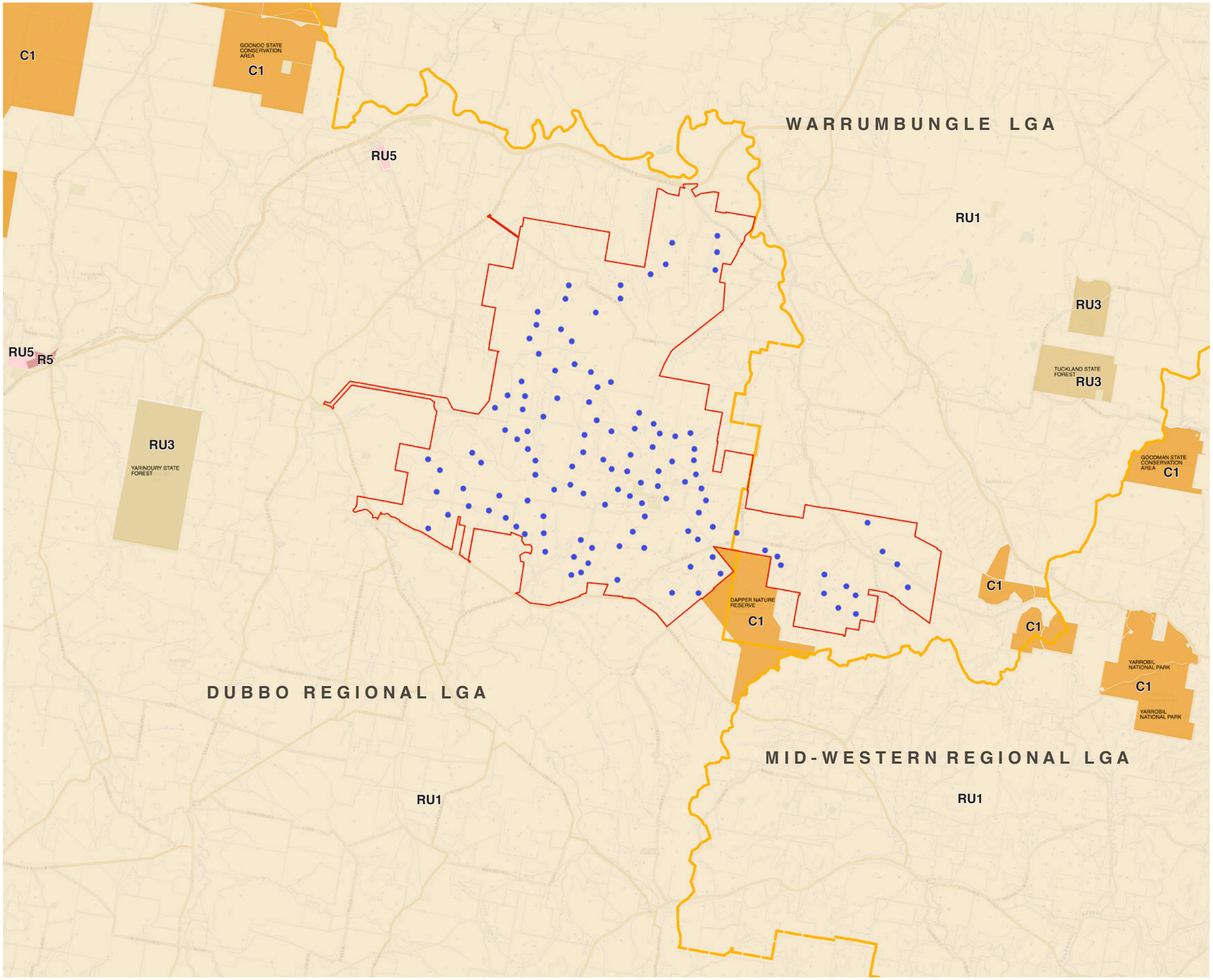
According to the Dapper Nature Reserve Plan of Management, the reserve: *'forms part of the fragmented southern corridor of the Brigalow Belt South Bioregion, linking Tuckland State Forest, Goodiman State Conservation Area and Yarrobil National Park. Dapper Nature Reserve is representative of the original woodland vegetation of the central western slopes, of which very little remains due to clearing for grazing and agricultural development'* (NPWS, 2014). The National Park's landscape, biological and educational values are as follows:

- *Dapper Nature Reserve protects excellent remnant stands of a wide variety of vegetation communities that once spanned the central western slopes of New South Wales including; mugga ironbark (Eucalyptus sideroxylon), black cypress pine (Callitris endlicheri), red box (E. polyanthemos), white box (E. albens) and western grey box (E. microcarpa) woodlands.*
- *The reserve protects woodland that is potentially representative of two endangered ecological communities: White Box Yellow Box Blakely's Red Gum Woodland and Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions.*
- *The reserve protects an area of important remnant vegetation in an otherwise highly cleared landscape.*
- *The reserve provides a significant nectar source for insects and nomadic honeyeaters, which migrate in winter following the flowering of eucalypts.*
- *The reserve provides important habitat for a diverse range of birds including the threatened glossy black-cockatoo (Calyptorhynchus lathami), barking owl (Ninox connivens), brown treecreeper (eastern subspecies) (Climacteris picumnus victoriae), speckled warbler (Chthonicola sagittata) and varied sittella (Daphoenositta chrysoptera).*
- *Aboriginal artefacts have been discovered within Dapper Nature Reserve and they are evidence of occupation of the region by Aboriginal people.*
- *The reserve receives small numbers of visitors per year, primarily research groups and birdwatchers. Permission is required to enter the reserve and access is restricted by locked gates.*
- *The reserve contains large populations of ringtail (Pseudocheirus peregrinus) and brushtail (Trichosurus vulpecula) possums and a small population of wombats (Vombatus ursinus) which is uncommon for the area. '*

Goonoo State Conservation Area is located approx. 10km to the north west of the Project Site across both the Dubbo and Wurrumbungle LGA's. The Conservation Area is catagorised as C1- National Parks and Nature Reserves within the Warrumbungle LEP 2013 and Dubbo LEP 2011.

Yarrobil National Park is located approx. 1.6km east of the from the Project Site. The National Park is located within the Mid-Western Regional Council and Wurrumbungle LGA and is categorised as C1- National Parks and Nature Reserves within the Mid-Western Regional LEP 2012 and Warrumbungle LEP 2013. According to the Yarrobil National Park Plan of Management, the parks are: *' Located within the overlap transition zone between the Brigalow Belt South Bioregion and South West Slopes Bioregion, the park protects important remnant native vegetation and a unique mix of native plant species. The park also protects the upper sections of the catchments of Goodiman Creek, Mebul Creek, Sandy Creek and Lahey's Creek.'* (NPWS, 2014).

# **5.0** Existing Landscape Character




## LEP Zoning
### Spicers Creek Wind Farm

**LEGEND**

- Proposed WTG location
- Project Site
- RU1 - Primary production
- RU3 - Forestry
- R5 - Village
- C1 - National Parks & Nature Reserves
- RU5 - Large Lot Residential

***Figure 6** Land Zoning (Sources: NPWS, Environment NSW 2016; Map Source: SIX Maps)*

# **5.0** Existing Landscape Character

Goodiman State Conservation Area is located approx 8.5km east of the Project Site within the Mid-Western Regional Council LGA and is categorised as C1- National Parks and Nature Reserves within the Mid-Western Regional LEP 2012.

According to the Goodiman State Conservation Area POM, the area is classed as Zone 3 Community land and is: *'The SCA protects important remnant native vegetation and a unique mix of plant species, due to its location within the overlapping transition zone between two bioregions. Goodiman SCA is surrounded by cleared grazing properties, however it has regional significance linking to Yarrobil National Park in the south and Tuckland State Forest in the north.'* (NPWS, 2014).

**R5 - Large Lot Residential**

*R5 - Large Lot Residential* is applicable to the southern sections of Elong Elong which is located 7km to the north west of the Project Site. Although of a similar scale to Ballimore, the majority of Elong Elong has been zoned RU1. An assessment of its visual character has been included as part of the report.

**SP2 - Infrastructure**

*SP2 - Infrastructure* corresponds to the number of road and rail corridors which surround the Project Site.

**Dark Sky Planning Guidelines**

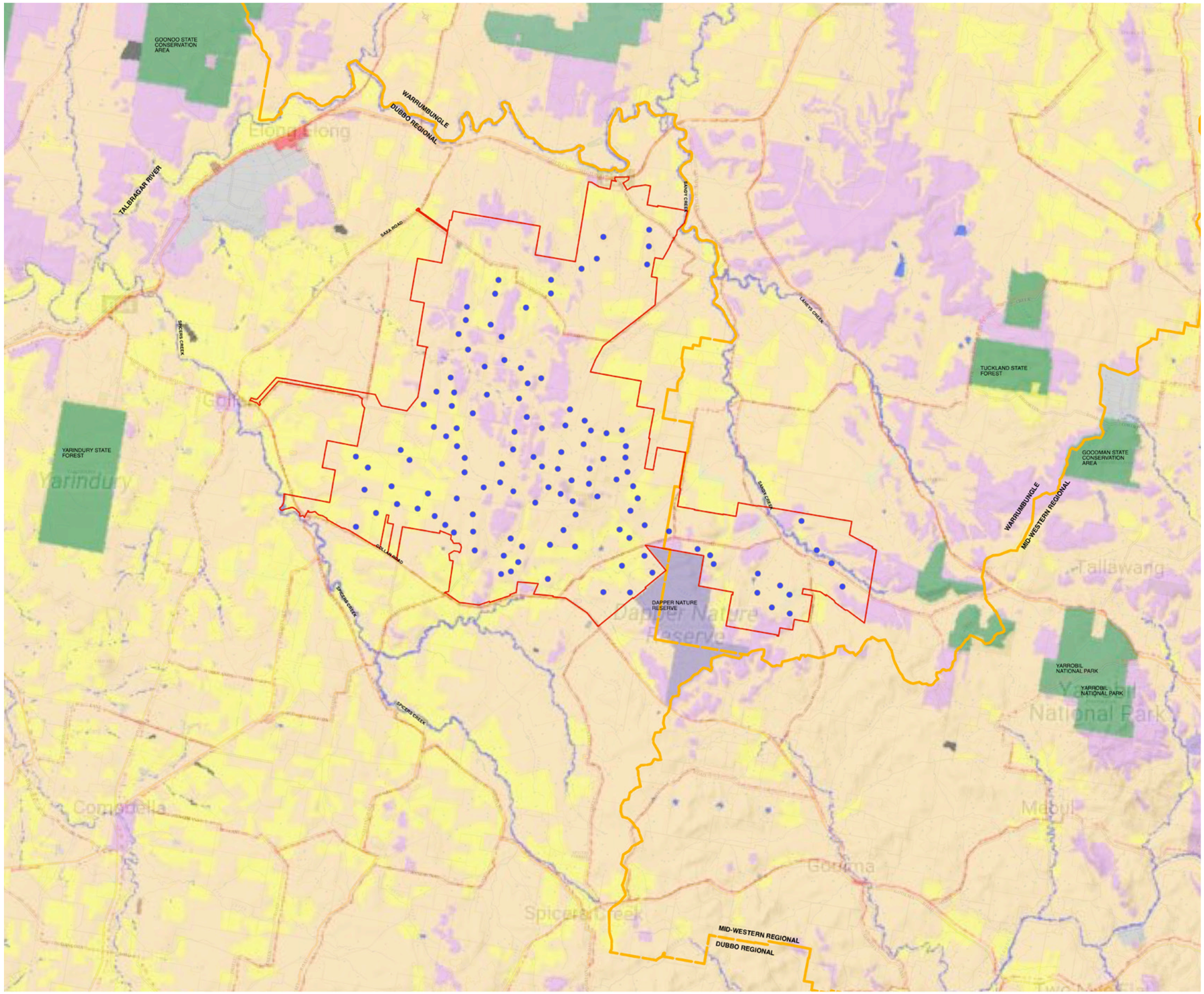
The Project Site is within 200km of the Dark Sky protection zone surrounding the ***Siding Springs Observatory. The Dark Sky Planning Guidelines - Protecting The Observing Conditions at Siding Spring, 2016*** outline the guidelines that are to be considered in the development of the lighting design for the proposal.

## 5.3 Land Use

Land Use within and around the Project Site comprises of predominantly cleared agricultural production activities contrasted by areas of Production and Plantation Forestry gazetted as National Parks, Conservation Areas and State Forests (see ***Figure 7***). Land parcels that adjoin creeklines and rivers create areas that are suitable for agricultural activities.

The proposed wind turbines are situated within an area of undulating to flat native grazing pastures. Land parcels located within the Project Site are also utilised for dryland cropping. These areas are largely flat, cleared and open with extensive agricultural associations. Isolated and densely vegetated undulations feature throughout the Project Site and within the nearby surrounds and are defined as 'minimal use' areas.

Elong Elong and Ballimore are small villages located nearby the Project Site which feature both rural residential and farm infrastructure and urban and intensive uses. Major highways and roads that connect the area include the Golden Highway, Saxa Road, Gollan Road and Goolma Road. The Dubbo-Merrygoen Railway line runs through the area, to the north of the Project Site.




## Land Uses
### Spicers Creek Wind Farm

**LEGEND**

- Proposed WTG Location
- Project Site
- Minimal Use
- Grazing, modified pastures
- Dryland cropping
- Plantation forestry
- Production forestry
- Urban and intensive uses
- Rural residential and farm infrastructure
- Nature Conservation

N

0 2 4 6 8 10km

***Figure 7** Land uses within and around the Project Site (Source: Environment NSW, 2021)*

# **5.0** Existing Landscape Character

## 5.4 Key Landscape Features & Viewpoints

The Bulletin states proponents must identify key landscape features, dwelling locations and key public viewpoints. The following section provides an overview of the key features identified through desktop assessment and field work within the Study Area. Refer to ***Figure 8.***

**Rivers and Creeks**

Talbragar River runs in a generally east west direction to the north of the Project Site. Talbragar River is a perennial stream of the Macquarie catchment and forms part of the Murray-Darling basin. Generally, the River forms the boundary between the Warrumbungle and Dubbo LGAs.

The Cudgegong River is a perennial stream of the Macquarie Catchment located approx. 15km to the south of the Project site. It flows generally west, north west and south west before reaching its confluence with the Macquarie River at Lake Burrendong.

Sandy Creek is a tributary of the Talbragar River and is located to the east of the Project Site. Laheys Creek is also located to the east of the Project Site and meets with Sandy Creek. Both Creeks generally run north south to eventually meet with the Talbragar River to the north east of the Project Site. Spicers Creek and Baragonumbel Creek are located to the west of the Project Site and generally run north south. Both creeks meet with the Talbragar River to the north west of the Project Site.

A number of small creek lines exist throughout and adjacent to the site including Spring Creek, Native Dog Creek, Four Mile Creek and Broken Leg Creek. There are also a number of dams which provide irrigation for crops and livestock.

**Nature Reserves**

There are a number of Conservation areas, Nature Reserves and National Parks surrounding the Project Site. It is noted that there a number of fire trails running through the reserves, however, there appears to be limited public access to formal walking tracks or amenities.

Goonoo State Conservation Area is located to the north of the Project Site and protects the various ironbark woodland vegetation communities including the narrow-leaved ironbark, blue-leaved ironbark (Eucalyptus nubila), red ironbark (E. fibrosa) and black cypress pine (Callitris endlicheri). The widespread Allocasuarina species that occur in the park provide the sole food source for the threatened glossy black-cockatoo (Calyptorhynchus lathami). Currently, it is understood that there are no formalised visitor facilities available within the Goonoo State Conservation Area (NPWS, 2014).

Dapper Nature Reserve directly adjoins the Project Site to the south and protects remnant stands of vegetation including mugga ironbark (Eucalyptus sideroxylon), black cypress pine (Callitris endlicheri), red box (E. polyanthemos), white box (E. albens) and western grey box (E. microcarpa) woodlands. In addition the park protects two endangered ecological communities including White Box Yellow Box Blakely's Red Gum Woodland and Inland Grey Box Woodland. The reserve is known to provide important habitat for a diverse range of birds (NPWS, 2014).

It is understood that the Reserve receives small numbers of visitors per year, primarily research groups and birdwatchers. Permission is required to enter the reserve and access is restricted by locked gates.

Yarrobil National Park is located to the east of the Project Site. Yarrobil National Park is comprised of three separate sections that are surrounded by heavily cleared land primarily used for grazing. The park is comprised of former State Forest tenure and for 100 years was selectively logged for ironbark. It is located within the overlap transition zone between the Brigalow Belt South Bioregion and South West Slopes Bioregion, and protects important remnant native vegetation and a unique mix of native plant species. It is understood that there are various fire trails running through the park, however there are no known walking trails or visitor amenities provided.

Goodiman State Conservation Area is also located to the east of the Project Site. Goodiman State Conservation Area was a former state forest that was primarily logged for ironbark for commercial timber production. It protects important remnant native flora and fauna including Ausfeld's wattle (Acacia ausfeldii), the powerful owl (Ninox strenua), barking owl (Ninox connivens), speckled warbler (Chthonicola sagittata) and varied sittella (Daphoenositta chrysoptera). It is understood that there are various fire trails running through the parks, however there are no known walking trails or visitor amenities provided (NPWS, 2014).

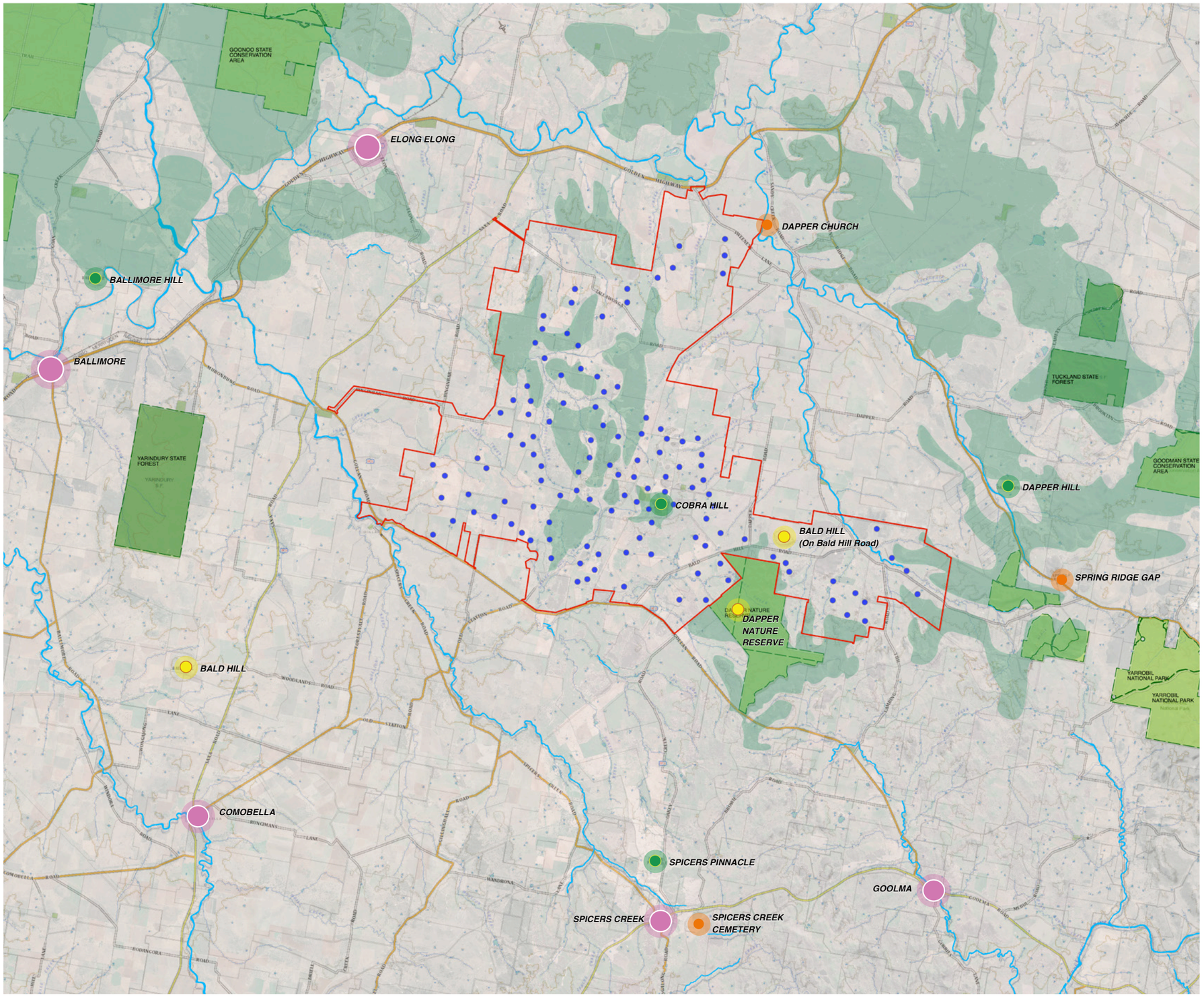
**Ridge lines, high points and landform**

The landscape is characterised by the generally flat to gently undulating agricultural land contrasted by the surrounding foothills and ridgelines associated with the Northern Ranges to the north east of the Project Site. Undulating and heavily vegetated hillsides with some steep sections also feature to the north and east associated with Goonoo State Conservation Area and Tuckland State Forest.

**Scenic Lookouts, Walking Tracks and Points of Interest**

A desktop analysis identified minimal points of interest and recreational attractions within the Project Site. Generally, recreational associations occur mostly in nearby towns including the historic Gulgong located approx. 25km from the Project Site.  Gulgong presents opportunities for recreation including a number of ovals, parks and lookouts which provides views over the town and surrounds. The town is also a popular tourist destination, with its historic main street featured on the ten dollar bill (Gulgong Chamber of Commerce, 2021).

# **5.0** Existing Landscape Character




## Landscape Features & Key Viewpoints

### Spicers Creek Wind Farm

**LEGEND**

- Project Site
- Proposed WTG Location
- Main Road
- Minor Road
- 8000 m from turbines
- National Park / SCA
- State Forest
- Highpoints / Peaks
- Rivers & creeks
- Towns and settlements
- Key Viewpoint
- Key Landscape Feature identified by Community
- Vegetated Ranges

N

0 2 4 6 8 10km

***Figure 8** Existing Landscape Features and Key Viewpoint Locations (Map Source: Six Maps)*

# **5.0** Existing Landscape Character

## 5.5 Preliminary Landscape Character Units

A number of Landscape Character typologies exist within the Study Area (refer to ***Figure 9***). As apart of the Preliminary Landscape Character Assessment, a total of six key landscape typologies referred to hereafter as Landscape Character Units (LCUs) have been identified.

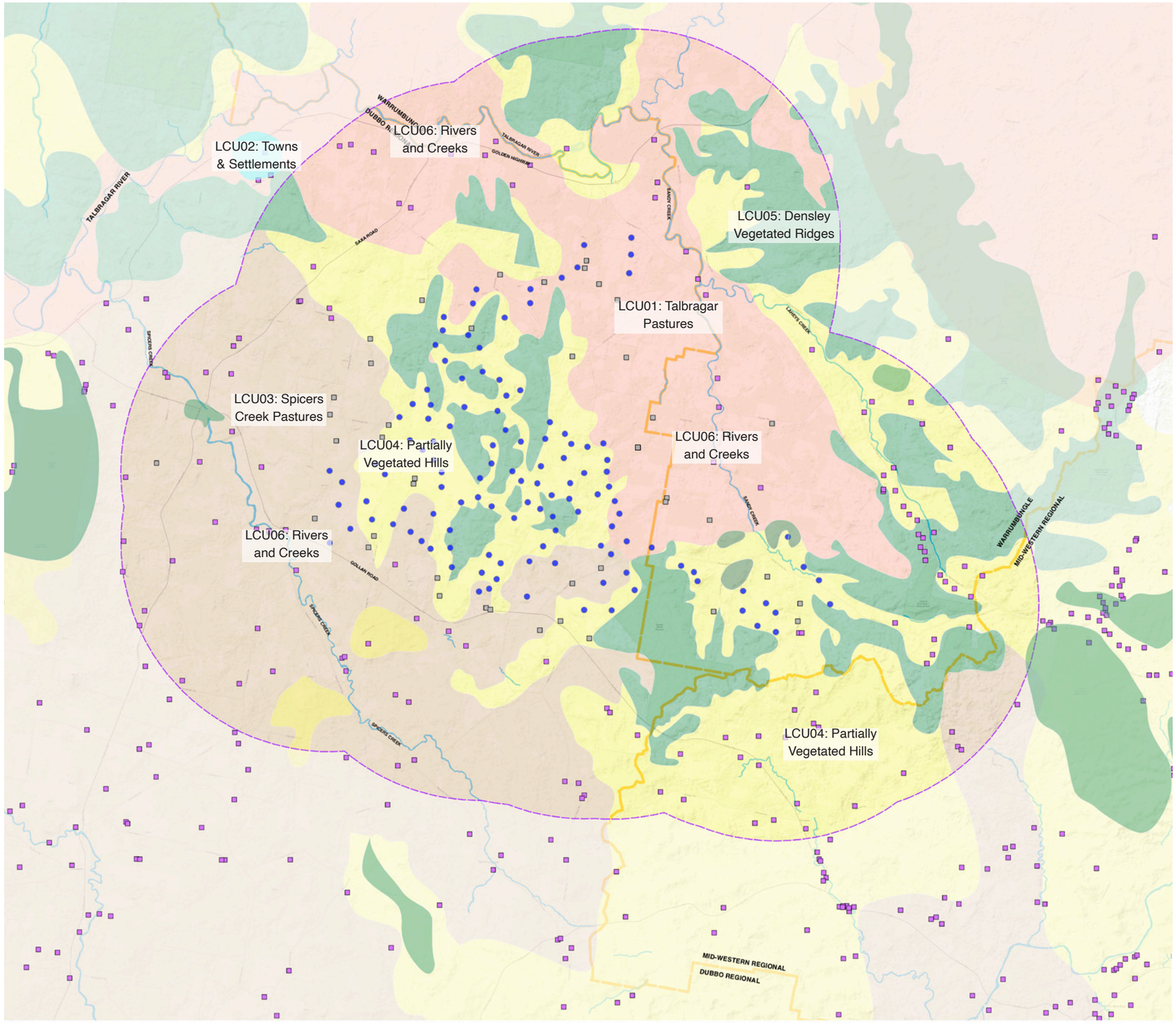
***Table 2*** provides an overview of the LCUs and preliminary Scenic Quality Ratings applied. The LCUs and Scenic Quality Ratings will be refined in the EIS Phase of the Project to reflect input provided by the community during ongoing consultation.

***Table 3*** provides a brief overview of the potential visibility of the Project from each of the LCUs .

| **Landscape Character Units** | | | |
|---|---|---|---|
| **LCU:** | **Name:** | **General Character:** | **Preliminary Scenic Quality Rating:** |
| **LCU01** | **Talbragar Pastures** | *Includes gently undulating to flat cleared grazing and cropping lands and large lot rural residences associated with the Talbragar River, to the north and east of the Project Site.* | **Moderate** |
| **LCU02** | **Towns and Settlements** | *Low density rural villages that are driven by agricultural and industrial activity. Includes Elong Elong and Ballimore.* | **Low** |
| **LCU03** | **Spicers Creek pastures** | *Predominately defined by generally flat to gently undulating land located south of the Golden Highway and surrounding Saxa Road to the west and south of the Project Site.* | **Moderate** |
| **LCU04** | **Partially Vegetated Rolling Hills** | *Undulating hills with scattered vegetation alongside cleared flat areas and densely vegetated hillsides.* | **Moderate** |
| **LCU05** | **Densely Vegetated Ridges** | *Densely vegetated undulations associated with the Project Site and surrounding conservation areas.* | **Moderate** |
| **LCU06** | **Rivers and Creeks** | *Riparian corridors along rivers and creeks which contribute towards the fertile soils in the region.* | **Moderate** |

*Table 2 Overview of Preliminary Landscape Character Units*

# **5.0** Existing Landscape Character




## Preliminary Landscape Character Units

### Proposed Alectown Wind Farm

**LEGEND**

- Proposed WTG Location
- Associated dwellings
- Non-associated dwellings
- 8000 m from turbines
- LCU01: Talbragar Pastures
- LCU02: Towns and Settlements
- LCU03: Spicers Creek Pastures
- LCU04: Partially vegetated hills
- LCU05: Densely vegetated ridges
- LCU06: Rivers and Creeks

N

0 2 4 6 8 10km

***Figure 9** Landscape Character Units (Map Source: Six Maps)*

# **5.0** Existing Landscape Character

### LCU01:Talbragar Pastures

The Talbragar pastures LCU is defined by gently undulating to flat cleared grazing and cropping lands and low density rural residences associated with the Talbragar River, to the north and east of the Project Site.  It is characterised by cleared, modified pastures used for cropping and grazing activities. Scattered patches of vegetation are visible along river and creeklines and dense roadside vegetation can be observed along stretches of the Golden Highway and other minor roadways within the LCU.

Scenic quality rating: Moderate

***See Images 9 and 10.***

***Image 9***

*View of pastures with LCU*

***Image 10***

*Corridors of remnant trees along roadways and creeklines*

### LCU02: Towns and Settlements

The LCU comprises of small rural villages including Elong Elong, Goolma and Ballimore. The settlements are characterised by a small number of rural dwellings in addition to a main street featuring a convenience/petrol store.

Views within these towns are generally filtered by the surrounding vegetation associated with the villages. The towns rely on agricultural and industrial activity associated with the railway line passing through the villages. The character of the landscape is highly modified in these small scale rural settlements.

Scenic quality rating: Low

***See Images 11-12***

***Image 11*** *Main Street of Ballimore*


***Image 12***

*Typical character of low density settlement, Elong Elong, located alongside the Golden Highway.*

# **5.0** Existing Landscape Character

### LCU03: Spicers Creek Pastures

The Spicers Creek pastures LCU is characterised by the generally flat to gently undulating land located south of the Golden Highway and surrounding Saxa Road. The pastures are supported by Spicers Creek and a number of smaller creeks and isolated dams and are generally utilised for dryland cropping and livestock production. Remnant areas of roadside vegetation can be observed along stretches of the Saxa Road. The LCU is extensively cleared and contains remnant vegetation associated with rivers and creeklines as well as stands of native vegetation within paddocks.

Scenic quality rating: Moderate

***See Images 13 and 14.***

### LCU04: Partially Vegetated Rolling Hills

This LCU is defined by the remnant woodlands and undulating hillsides which adjoin the densely vegetated undulations associated with the surrounding National Parks and Conservation areas. The hillsides have also been cleared in certain areas to accommodate agricultural activity that is predominant in the region.

Scenic quality rating: Moderate

***See Images 15 and 16.***

***Image 13***

*Typically cleared flat grazing lands used for cropping with remnant isolated stands of vegetation within grazing lots.*

***Image 15***

*Scattered pockets of vegetation on undulating hills alongside cleared lands.*

***Image 14***

*Flat terrain with roadside vegetation and isolated dams to support livestock production.*

***Image 16***

*Remnant vegetation alongside cleared land to support agricultural activity typical of the LCU.*

# **5.0** Existing Landscape Character

### LCU05: Densely Vegetated Ridges and Hillsides

The LCU is characterised by dense native vegetation that is consistent with the character of the surrounding National Parks and undulating hills and ridgelines adjacent. The undulating hills include areas of dense remnant woodlands of species including a variety of ironbark, red gum and black cypress pine, which are largely preserved. Steeper areas and slopes with dense vegetation are subjected to very minor agricultural activity.

Scenic quality rating: High

***See Images 17 and 18.***

***Image 17***

*Densely vegetated hills associated with Dapper Nature Reserve*

***Image 18***

*Large remnant patches of densely vegetated undulating hillsides associated with the Project Site.*

### LCU06: Rivers and Creeks

The Rivers and Creeks LCU is defined by the riparian corridors and fertile soils that run along a number of creeks including Spicers Creek, Spring Valley Creek, Talbragar River and Cudgegong River. Land is generally cleared, flat and used for grazing or cropping with the exception of riparian vegetation associations along the rivers and creeks. The rivers and creeks support the fertile soils and surrounding agricultural activity.

Scenic quality rating: Moderate

***See Images 19 and 20.***

***Image 19***

*Spicers Creek and associated riparian vegetation*

***Image 20***

*Typical character of Cudgegong River*

# **5.0** Existing Landscape Character

| Landscape Character Units | | |
|---|---|---|
| **LCU:** | **Name:** | **Preliminary Visual Impact Assessment** |
| **LCU01** | **Talbragar Pastures** | Views to the Project are likely to be available from areas and roads located at close proximity to the turbines. Views are mostly open but filtered by vegetation in certain areas. Existing roadside vegetation, creekline vegetation and planting associated with dwellings are likely to reduce visibility in those areas. |
| **LCU02** | **Towns and Settlements** | Views to the Project are in excess of 8km from the nearest turbine. Views from within the town of Elong Elong and Ballimore are likely to be contained by a combination of existing vegetation and topography. |
| **LCU03** | **Spicers Creek pastures** | Views to the Project are likely to be available from the land within this LCU, particularly from land closest to the Project. Views are mostly open to expansive but contained in certain areas due to existing roadside vegetation and creekline vegetation. Distance from the Project, vegetation and topographical changes are likely to reduce visibility in certain areas. |
| **LCU04** | **Partially Vegetated Rolling Hills** | The Project is located within this LCU and will be visible from the land within the LCU. Views to the Project are likely to available from locations outside of the Project Site due to the close proximity. However, vegetation typical of this LCU along with existing vegetation associated with the dwellings are likely to reduce the potential visibility from a number of dwellings within this LCU. |
| **LCU05** | **Densely Vegetated Ridges** | The project is located within sections of this LCU and will be visible from the land within the LCU. Due to the to-pography and dense vegetation typical of the LCU, views toward the Project are likely to be limited from densely vegetated areas. |
| **LCU06** | **Rivers and Creeks** | Views of the Project are likely to be available along certain stretches of Rivers and Creeks LCU that run closest to the Project Site. Land in this area has residential dwellings that may be impacted. Patches of riparian vegetation typical of the LCU may assist in screening views from some areas. |

*Table 3 Overview of Preliminary Visual Impact Assessment of LCUs*

# 6.0 Preliminary Assessment Tools

## 6.1 Overview of Preliminary Assessment Tools

To assist in defining the visual catchment, preliminary assessment tools have been developed in the Visual Assessment Bulletin. In accordance with the Visual Assessment Bulletin, the purpose of the preliminary assessment tools are: *to provide an early indication of where turbines require careful consideration because of potential visual impacts. The tools apply to both dwellings and key public viewpoints in 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 discussions for landholder agreements.*

The preliminary assessment tools involve analysis of two key visual parameters:

1. Visual Magnitude (***Refer to Section 6.2***)
2. Multiple Wind Turbine Tool (***Refer to Section 6.4***)

Once defined, the Bulletin states: *Further assessment and justification for placement of turbines located in these sensitive areas in the EIS will be required, along with a description of mitigation and management measures being employed to reduce impacts. This assessment may identify that factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project.*

Representative non-associated dwellings identified through the application of the Preliminary Assessment tools have been assessed in detail in ***Appendix A*** of this LVIA.

## 6.2 Preliminary Assessment Tool 1: Visual Magnitude

The Visual Magnitude Threshold is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints as shown in ***Figure 10***.

In accordance with the Bulletin: ***proposed turbines below the black line must be identified along with the dwellings or key public viewpoints as part of the request for SEARs.*** The proposed wind turbines are based on a worst case scenario with a tip height of ***300 metres***. The 'black line 'intersects at a distance of ***4,000 metres*** and the 'blue line' intersects at ***5,900 metres***.

For the purpose of the Preliminary Assessment, the Visual Magnitude thresholds are based on a 2D assessment of the Project alone. Further assessment indicates factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project from residences.

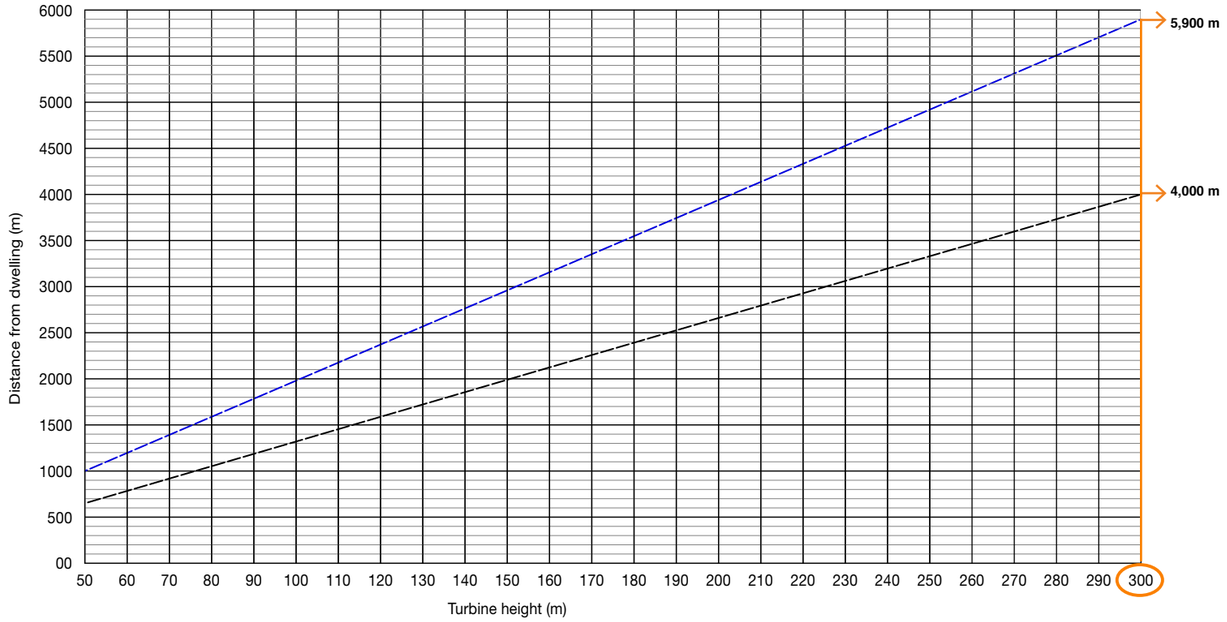



*Figure 10* ***Visual Magnitude thresholds for Project Layouts***

***(Source: Visual Assessment Bulletin)***

# **6.0** Preliminary Assessment Tools

## Visual Magnitude
### Spicers Creek Wind Farm

**LEGEND:**

- Project Site
- Proposed WTG Location
- Associated Dwelling
- Non-associated Dwelling
- Community Building (Hall, RFS, Church)
- 4,000 m from turbine
- 5,900 m from turbine
- 8,000 m from turbine
- Main Road
- Minor Road

**Zone 1** = Dwellings within 4,000 m (Black Line)

**Zone 2** = Dwellings between 4,000 m - 5,900 m (Blue Line)

**Zone 3** = Dwellings between 5,900 m (Blue Line) and 8,000 m

**Note:**

Preliminary Assessment Tool 1: Visual Magnitude is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing turbines.

N

0 2 4 6 8 10km

*Figure 11* ***Preliminary Assessment Tool 1: Visual Magnitude - Spicers Creek Wind Farm*** *(Map Source: Six Maps)*

# 6.0 Preliminary Assessment Tools

## 6.3 Results of Preliminary Assessment Tool 1: Visual Magnitude

Application of the Preliminary Assessment Tools to the Spicers Creek Wind Farm Project identified dwellings which require further assessment in accordance with the Bulletin. Non-associated dwellings identified within 4,000 metres and between 4,000 - 5,900 metres of the nearest proposed turbine are shown on ***Figure 11.***

**Zone 1 (Within the Black Line of Visual Magnitude):**

- 29 dwellings have been identified within 4,000 metres of a proposed wind turbine location (within the black line). Detailed assessment of the dwellings from which the proposal will be visible has been undertaken in ***Appendix A.***

**Zone 2 (Between the Black and Blue Line of Visual Magnitude):**

- 60 dwellings are located within 4,000 - 5,900 metres of a proposed wind turbine (between the black and blue line).

## 6.4 Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

The Multiple Wind Turbine Tool provides a preliminary indication of potential cumulative impacts arising from the proposed wind energy 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° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint. ***Figure 12*** below provides examples of where a dwelling or key public viewpoint may have views to turbines in multiple 60° sectors.

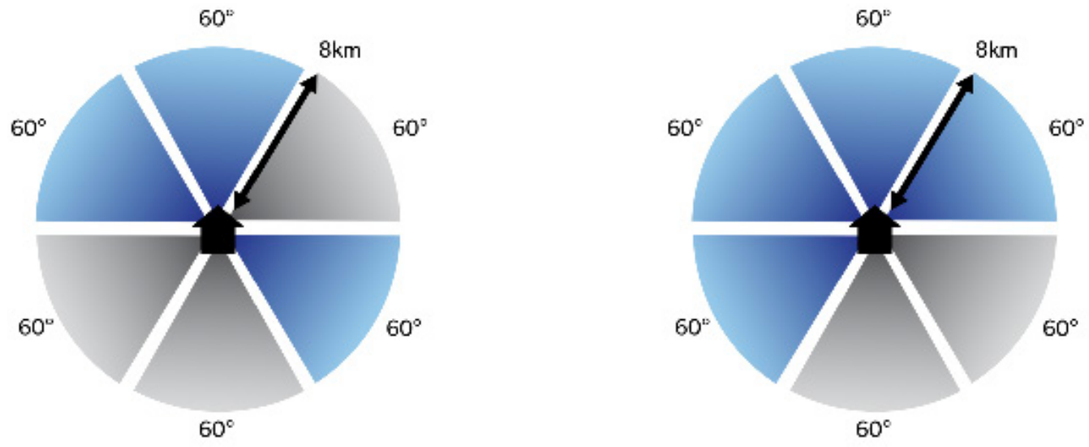



*Figure 12* ***Preliminary Assessment Tool: Multiple Wind Turbines***

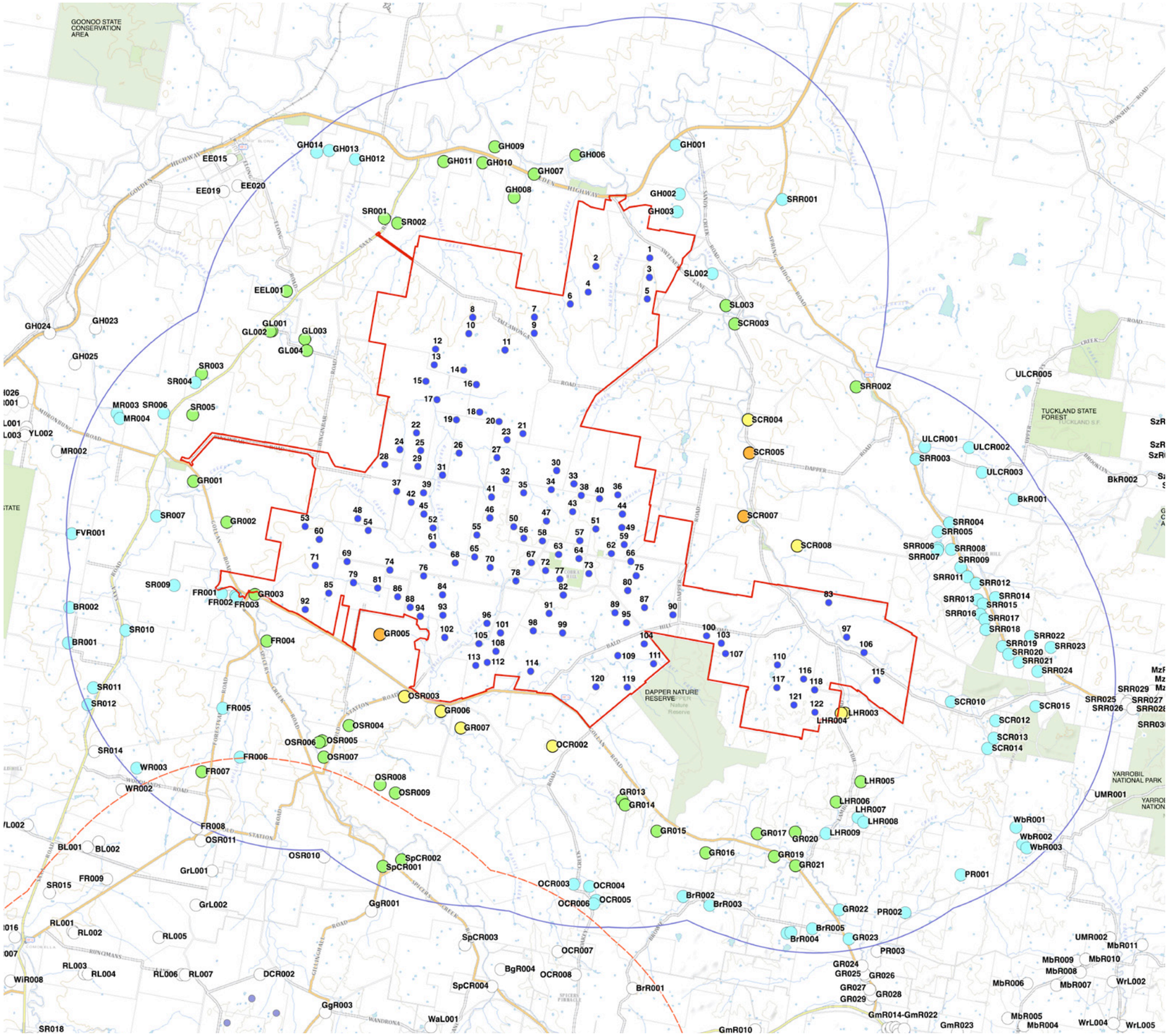
***(Source: Visual Assessment Bulletin)***

In accordance with the Visual Assessment Bulletin: '*Where wind turbines are visible within the horizontal views of the dwelling or key public viewpoints in three or more 60° sectors, the proponents must identify the turbines, relative dwelling and key public viewpoint, along with the relative distance and submit these to the Department as part of the request for SEARs'.*

These turbines will become a focus for assessment in the EIS.

***Figure 13*** provides an overview of the number of 60° sectors visible from each of the dwellings identified within 8 kilometres.

# **6.0** Preliminary Assessment Tools




## Multiple Wind Turbine Tool

### Spicers Creek Wind Farm

**LEGEND:**

- Project Site
- Proposed WTG Location
- 8000m from turbine

Number of turbines within 60 degree sector:

- Dwelling in excess of 8 kilometres
- One 60° Sector (60°)
- Up to 2 60° Sectors (120°)
- Up to 3 60° Sectors (180°)
- Up to 4 60° Sectors (240°)

**Note:**

Preliminary Assessment Tool 2: Multiple Wind Turbine Tool is based on a 2D Assessment alone and does not take into account topography, vegetation or other screening factors which may reduce the potential for viewing multiple turbines.

For detailed assessment of Non-associated Dwellings identified refer to ***Appendix E.***

N

0 2 4 6 8 10km

*Figure 13* ***Preliminary Assessment Tool 2: Multiple Wind Turbine Tool*** *(Map Source: Six Maps)*

## 6.5 Results of Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

When applied to the Project, the 2D Multiple Wind Turbine Tool (see ***Figure 13***) identified 11 non-associated dwellings with more than two (2) sectors of turbines (see ***Table 7***). Of the 11 dwellings identified:

- Eight (8) dwellings have turbines in three 60º sectors (up to 180º)
- Three (3) dwellings in four 60º sectors (up to 240º)

The Multiple Wind Turbine Tool (MWTT) also considers turbines associated with Bodangora Wind Farm, which is located approximately 13 kilometres to the south west of the Spicers Creek Wind Farm Project.

The MWTT identified three (3) dwellings within 8 kilometres of turbines associated with Spicers Creek Wind Farm and Bodangora Wind Farm. All three (3) dwellings have turbines within up to two (2) 60 degree sectors which is deemed acceptable. Further detailed assessment of the potential cumulative visual impact resulting from the two projects will be undertaken during the detailed LVIA Phase.

| ID | Location | Distance to nearest WTG | Number of Sectors (2D Assessment) |
|---|---|---|---|
| **Non-associated dwellings with turbines in up to three (3) 60º Sectors (up to 180º)** | | | |
| **OSR003** | *Old Station Road* | **2.383 km (T102)** | 3 |
| **GR006** | *Gollan Road* | **1.918 km (T113)** | 3 |
| **GR007** | *Gollan Road* | **2.138 km (T113)** | 3 |
| **OCR002** | *Oakey Creek Road* | **2.450 km (T120)** | 3 |
| **LHR003** | *Lambing Hill Road* | **1.000 km (T122)** | 3 |
| **LHR004** | *Lambing Hill Road* | **885 m (T112)** | 3 |
| **SCR004** | *Sandy Creek Road* | **5.037 km (T36)** | 3 |
| **SCR008** | *Sandy Creek Road* | **2.160 km (T83)** | 3 |
| **Non-associated dwellings with turbines in up to four (4) 60º Sectors (up to 240º)** | | | |
| **SCR005** | *Sandy Creek Road* | **4.634 km (T36)** | 4 |
| **SCR007** | *Sandy Creek Road* | **4.069 (T44)** | 4 |
| **GR005** | *Gollan Road* | **1.357 km (T88)** | 4 |

*Table 7* ***Multiple Wind Turbine Tool***

# **7.0** Zone of Visual Influence

## 7.1 Overview of Zone of Visual Influence

The Bulletin states *'the use of Geographic Information Systems (GIS) to facilitate the application of the tools will streamline the evaluation phase of the evaluation phase of a project during the pre-lodgement stage. This can also assist in refining the number of turbines and viewpoints that will ultimately need more detailed assessment.'*

A Zone of Visual Influence (ZVI) diagrams have been prepared for the Spicers Creek Wind Farm to illustrate the theoretical visibility of the proposed project from the blade tip height of 300 m.

- ***Figure 14*** depicts the areas of land from which the proposed development may be visible and provides an indicative number of wind turbines based on the blade tip height of 300 metres.

The ZVI (also known as a Zone of Theoretical Influence Model) 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 - ie. A landscape without screening, structures or vegetation, and is usually presented on a base map (Scottish Natural Heritage, 2017)

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

## 7.2 Overview of Zone of Visual Influence

The following provides an overview of the preliminary ZVI:

- Due the elevated locations of the proposed wind turbines and the blade tip height of 300 m above ground level, the ZVI depicts a large percentage of land immediately surrounding the proposed development from which wind turbines would theoretically be visible.
- Highest population is located along Spring Ridge Road. The ZVI indicates topography is likely to screen views to the Project from a number of these dwellings. A site inspection determined dense roadside vegetation and vegetation surrounding the majority of dwellings would further reduce visibility.
- Views to the Project will be limited by topography from the south east.

# **7.0** Zone of Visual Influence

## Zone of Visual Influence Blade Tip Height 300m

### Spicers Creek Wind Farm

**LEGEND**

- Project Site
- Proposed Turbine Location
- Associated Dwelling (TBC)
- Non-associated Dwelling (TBC)

**ZVI Legend (Number of visible turbines):**

- 0
- 1-10
- 10-25
- 25-50
- 50-75
- 75-100
- 100-122

**Note:**

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

N

0 2 4 6 8 10km

*Figure 14 Zone of Visual Influence - Blade tip (300 metres)*

# **8.0** Preliminary Dwelling and Viewpoint Assessments

## 8.1 Preliminary Assessment of Dwellings

***Table 3*** provides a summary of the application of the preliminary assessment tools for representative dwelling locations surrounding the Project (refer to ***Figure 15***). Representative dwellings have been selected to illustrate a variety of distances and viewing directions.

- Eight (8) representative non-associated dwellings have been assessed from within 'Zone 1' (the black line of visual magnitude - 4,000 m)
- Eight (8) representative non-associated dwellings have been assessed from within 'Zone 2' (between the black line of visual magnitude - 4,000 m and the blue line of visual magnitude - 5,900 m).
- Four (4) representative non-associated dwellings have been assessed from 'Zone 3' (between the blue line of visual magnitude - 5,900 m and 8,000m).

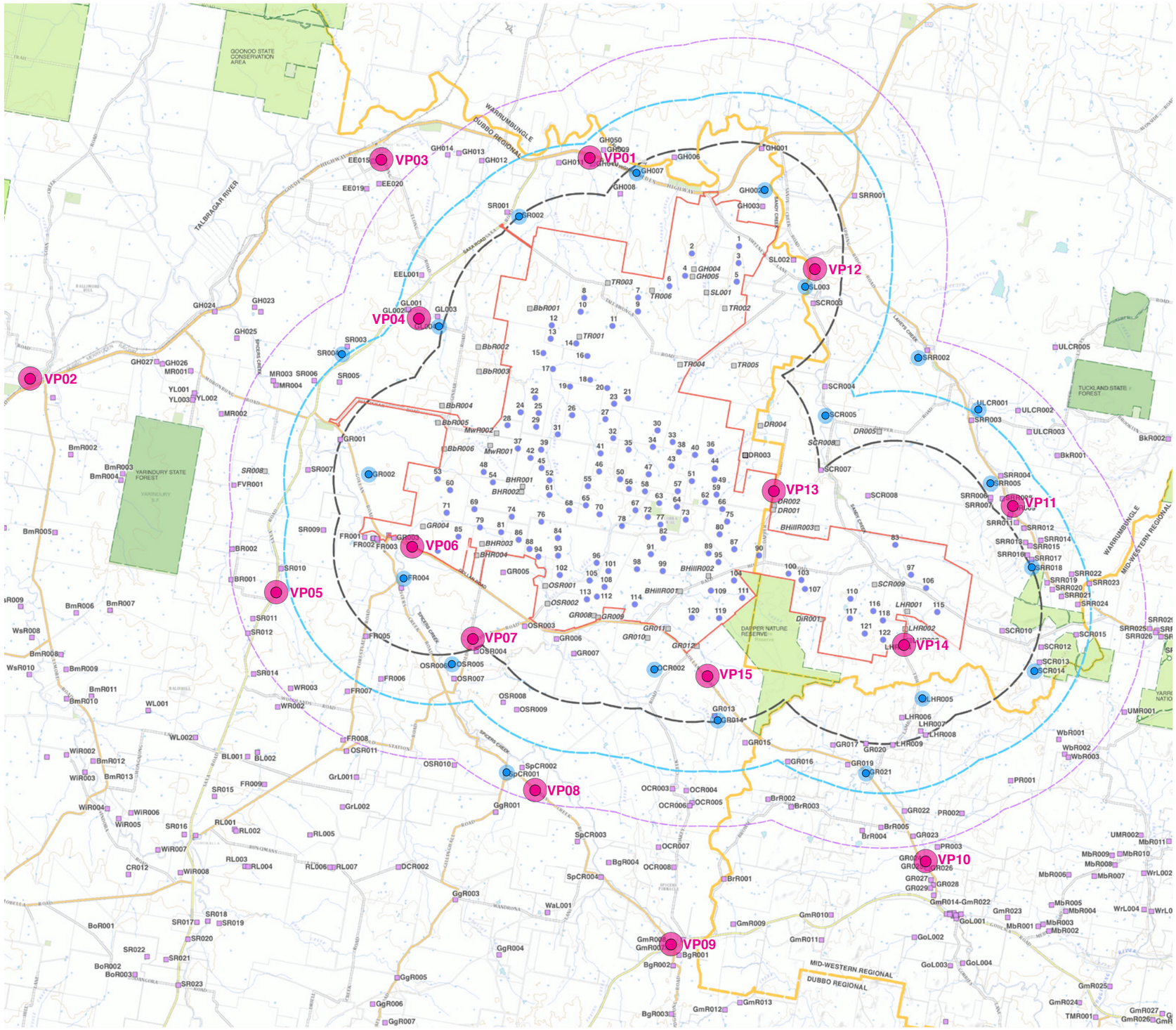
Examples of the preliminary assessment tools applied to 20 representative non-associated dwellings within 8,000 m has been included in ***Appendix A***.

The findings of the Preliminary Dwelling Assessment indicate that although a number of dwellings were identified by the preliminary assessment tools, other factors such as topography, vegetation will reduce the visibility of the Project. Further detailed assessment will be undertaken from sensitive non-associated dwellings during the EIS Phase.

## 8.2 Preliminary Assessment of Public Viewpoints

***Appendix B*** provides preliminary assessments from key Public Viewpoints to illustrate the existing landscape character of the area. A total of 15 preliminary public viewpoints have been selected to illustrate the varying landscape character typologies throughout the Study Area and provide a preliminary assessment of the potential visibility of the Project from varying distances and viewing directions (as shown on ***Figure 15***).

# **8.0** Preliminary Dwelling and Viewpoint Assessments




## Preliminary Viewpoint Locations

### Spicers Creek Wind Farm

**LEGEND**

- Project Site
- 4,000 m from turbine
- 5,900 m from turbine
- 8,000 m from turbine
- Proposed Turbine Location
- Associated Dwelling
- Non-associated Dwelling
- Preliminary Viewpoint Locations
- Preliminary Dwelling Assessment Locations

*Figure 15* ***Preliminary Viewpoint Locations***

# **9.0** Cumulative Visual Impacts

## 9.1 Overview of Cumulative Visual Impacts

The Project is located within the Central West Orana Renewable Energy Zone (REZ). The REZ has been identified by the NSW Governments Electricity Strategy (refer **Figure 16**). The REZ is expected to play a vital role in delivery of affordable energy to the community across NSW (Energy NSW, 2021).

The existing landscape character of the region allows for optimum harvest of wind energy due to the undulating terrain and large expanses of uninhabited land with minimal obstructions in the landscape. These characteristics are beneficial to the output of wind energy and it is inevitable that overtime this will be utilised for the development of wind farm projects.


***Figure 16** Central West Orana Renewable Energy Zone (REZ)*

## 9.2 Nearby Wind Farm Projects

A total of seven (7) Wind Farm Projects are currently proposed within the Central West Orana Renewable Energy Zone (refer to **Figure 17**).

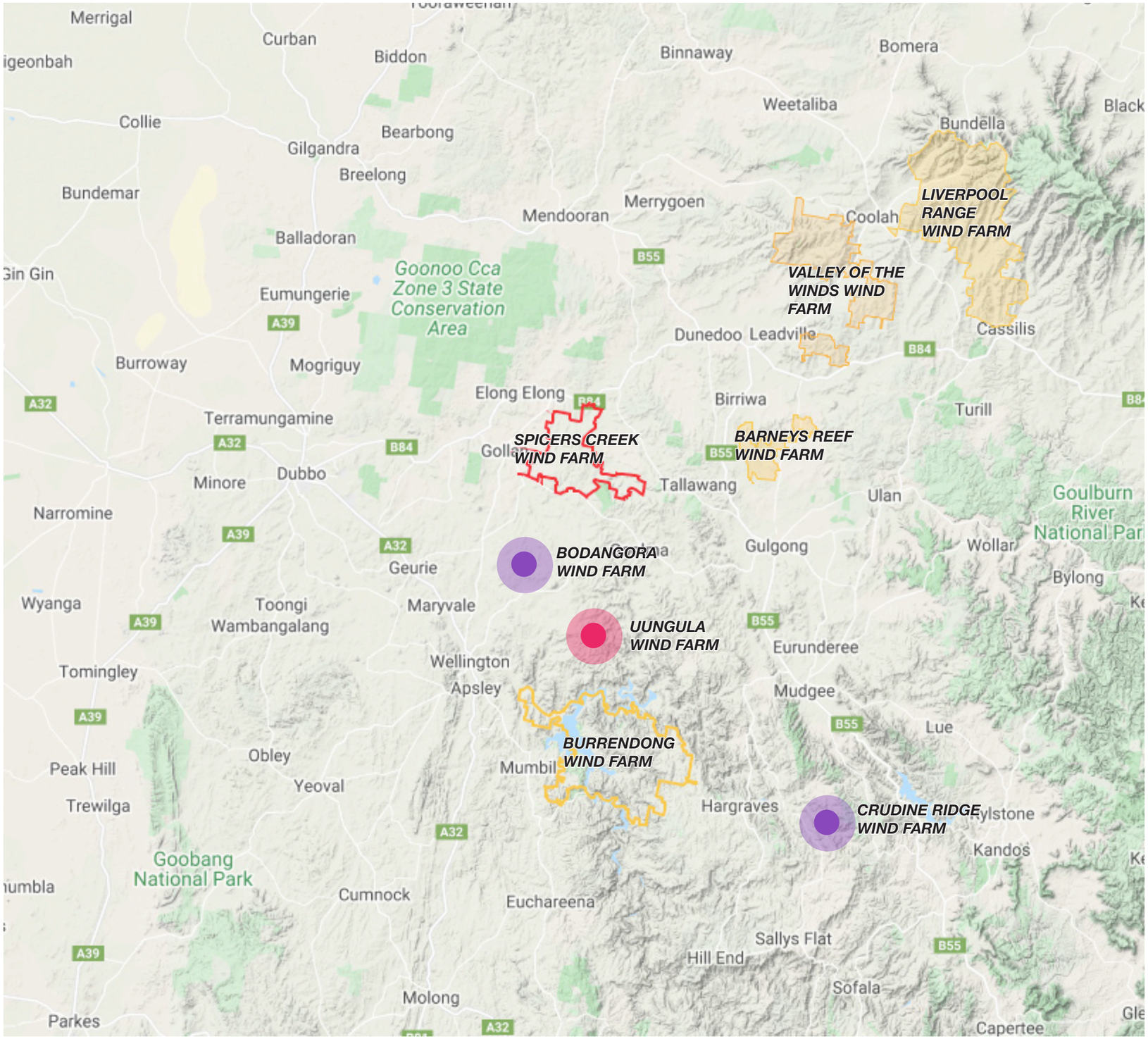
Three (3) nearby Wind Farm Projects have been approved (Uungula Wind Farm) or are currently operational (Bodangora Wind Farm and Crudine Ridge Wind Farm).

Four (4) are proposed and in various stages of the approval process (Liverpool Range, Valley of the Winds, Barneys Reef and Burrendong Wind Farm).

The re-occurrence of wind farms within a region has the potential to alter the perception of the overall landscape character irrespective of being viewed in a single viewshed. As wind farm developments prevail, it is important to determine whether the effect of multiple wind farms and other major infrastructure within the region would combine to become the dominant visual element, altering the perception of the general landscape character.

Due to the undulating topography of the region, it is unlikely multiple projects within the region will be viewed simultaneously. Some visibility of multiple projects may be available from elevated areas. Further assessment of the cumulative visual impact will be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts.

# **9.0** Cumulative Visual Impacts




## Nearby Wind Farm Projects

### Cumulative Visual Impacts

**LEGEND**

- Project Site
- Indicative Location of Proposed Wind Farm Project
- Approved Wind Farm Project
- Operational Wind Farm Project

N

0 10 20 30 40km

***Figure 17*** ***Nearby Wind Farm Projects***

# **10.0** Summary and Recommendations

## 10.1 Summary of Preliminary Visual Impact Assessment

This PVIA report has been undertaken in accordance with the Visual Assessment Bulletin, and will be submitted with the Scoping Report in the request for Secretary's Environmental Assessment Requirements SEARs. The following provides a brief summary of the PVIA and outlines the steps that will be undertaken in the Landscape and Visual Impact Assessment (LVIA) which will be undertaken during the EIS Phase of the Project.

**Community Consultation**

The report outlined the findings of community consultation to date which assisted in establishing the following:

- Landscape Values
- Key landscape features
- Defined areas of scenic quality and
- Identify key public viewpoints valued by that community.

**Next Steps:**

Community consultation will be ongoing through the Project. Ongoing input from the community will assist the preparation of the LVIA.

**Existing Landscape Character**

This PVIA provided a detailed assessment of the existing landscape character of the Study Area through the following:

- Identified land uses, key landscape features and key viewpoints,
- Categorisation of six (6) preliminary Landscape Character Units (LCUs),
- Application of preliminary scenic quality ratings to each of the LCUs ranging from Low - Moderate,
- A brief preliminary overview of the potential visual impacts has been provided for each LCU.

**Next Steps:**

- Utilise the landscape character assessment to prepare a detailed Visual Baseline Study.
- Identify any additional key features, key viewpoints valued by the community through consultation.
- Refine the Landscape Character Units and allow the community to provide feedback on the relative scenic quality ratings of LCUs.
- Determine the Visual Influence Zone of key viewpoints and assess against the objectives outlined in the Visual Assessment Bulletin.

**Application of the Preliminary Assessment Tools:**

The purpose of the Preliminary Assessment Tools in the PVIA is to identify 'sensitive receptors' for further assessment in the EIS Phase of the Project.

- The Visual Magnitude Tool identified a total of **29 non-associated dwellings** within 'Zone 1' (the black line of visual magnitude- 4,000 m) and
- **60 non-associated dwellings** were identified within 'Zone 2' (the between the black line of visual magnitude - 4,000 and the blue line of visual magnitude - 5,900 m).

- The Multiple Wind Turbine Tool (MWTT) was applied to all dwellings within 8000 m of the nearest proposed turbine.
- The MWTT identified a total of eleven (11) dwellings with turbines in more than two (2) 60 degree sectors (based on a 2D assessment alone).
- Eight (8) non-associated dwellings had turbines in up to three (3) 60 degree sectors.
- Three (3) non-associated dwellings had turbines in up to three (3) 60 degree sectors.
- Turbines associated with the operational Bodangora Wind Farm have been considered in the application of the MWTT. Three (3) non-associated dwellings were identified within 8,000m of the Spicers Creek and Bodangora Wind Farm turbines, however these dwellings would have turbines in up to two (2) 60 degree sectors which is deemed acceptable.

**Next Steps:**

- Ground truthing of all identified non-associated dwellings.
- Undertake site inspection and detailed dwelling assessment at sensitive non-associated dwellings.
- The LVIA will assess each 'sensitive receptor' in detail to take into account topography, vegetation and other screening factors.
- Determine the potential visual impact of each sensitive receptor and provide mitigation methods to reduce potential visual impacts.

**Zone of Visual Influence**

A Zone of Visual Influence (ZVI) has been prepared to illustrate the theoretical visibility of the Project and to assist in defining the visual catchment. A Preliminary ZVI was prepared from a blade tip height of 300 m to illustrate areas which have potential visibility of the Project (based on topography alone).

**Next Steps:**

- The LVIA will require further detailed assessment from areas identified as having potential visibility in the Preliminary ZVIs.

# **10.0** Summary and Recommendations

- Graphic representations of the Project using GIS technology including wire frame diagrams and photomontages will be provided in the EIS phase.

**Cumulative Visual Impacts of Surrounding Wind Farms**

The Project is located within the Central West Orana Renewable Energy Zone (REZ). Seven (7) Wind Farm Projects at varying stages of the development process are located within the regional context. Bodangora Wind Farm is within close proximity of the Project and turbines associated with Bodangora have been considered in the application of the Multiple Wind Turbine Tool (MWTT).

**Next Steps:**

It is important that the Project considers potential cumulative effects on the immediate and broader regional context that it forms a part of. Further assessment and justification for placement of turbines in multiple sectors will need to be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts. Such further assessment may identify that factors such as topography, relative distance and existing vegetation may minimise the impacts of the project.

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## Maps:


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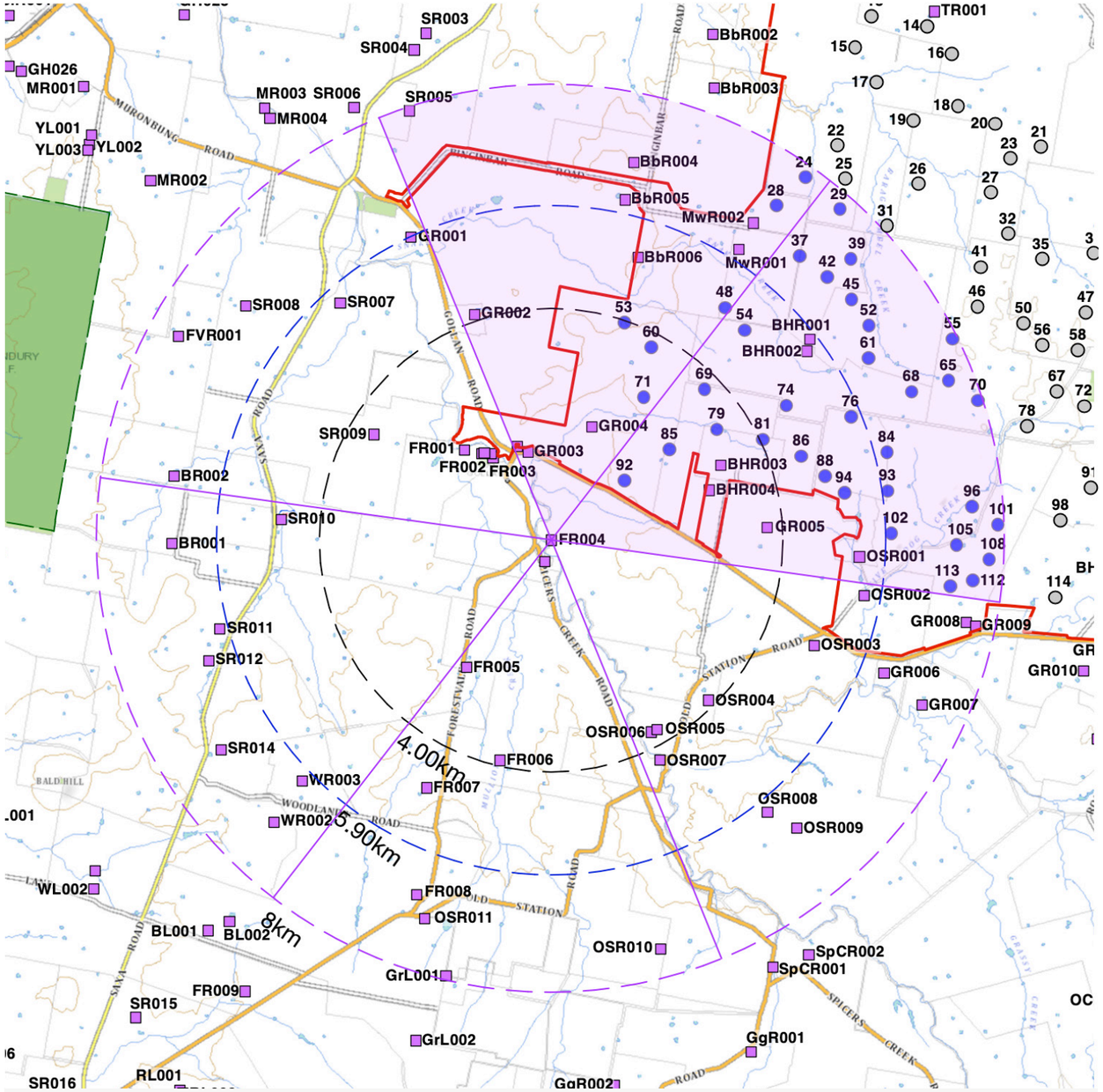
Google Earth Pro 2022 [Viewed Jan 2022 - March 2022] www.google.com/earth/index.html

# Appendix A

## Preliminary Dwellings Assessments

# **A.01.** Dwelling Assessment **FR004**



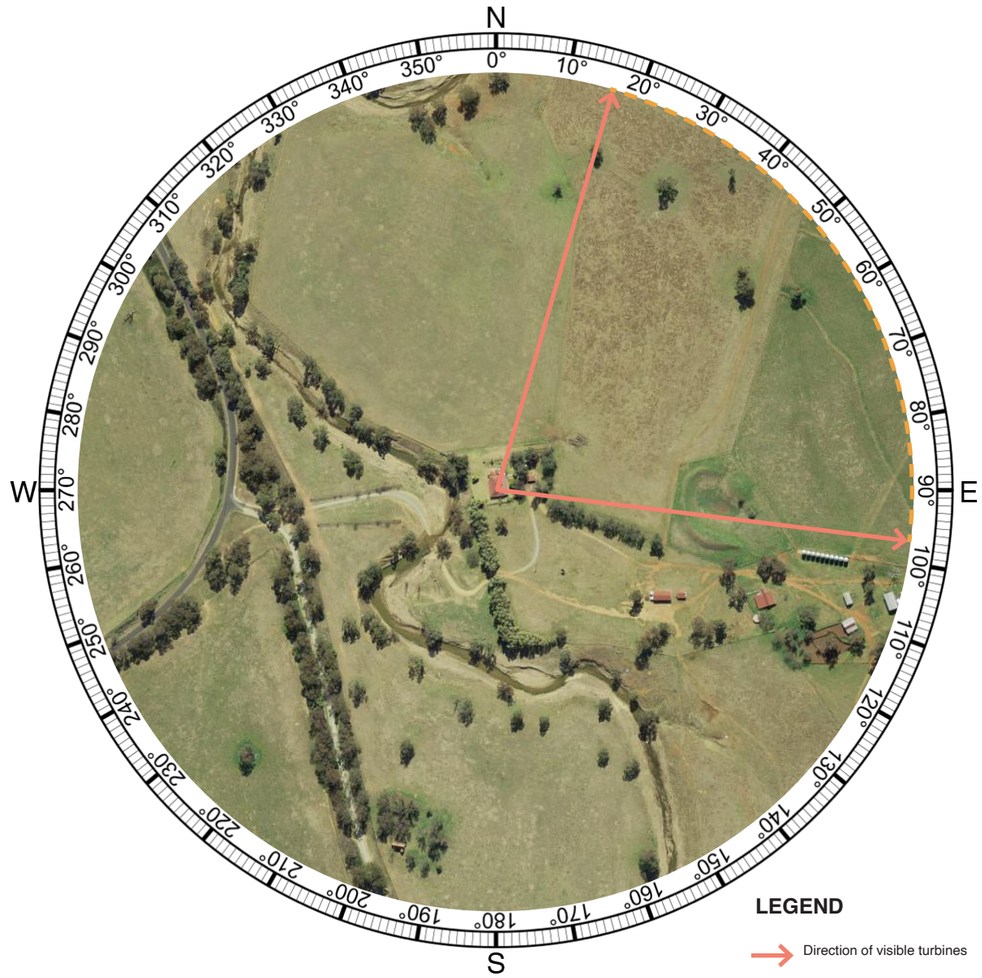
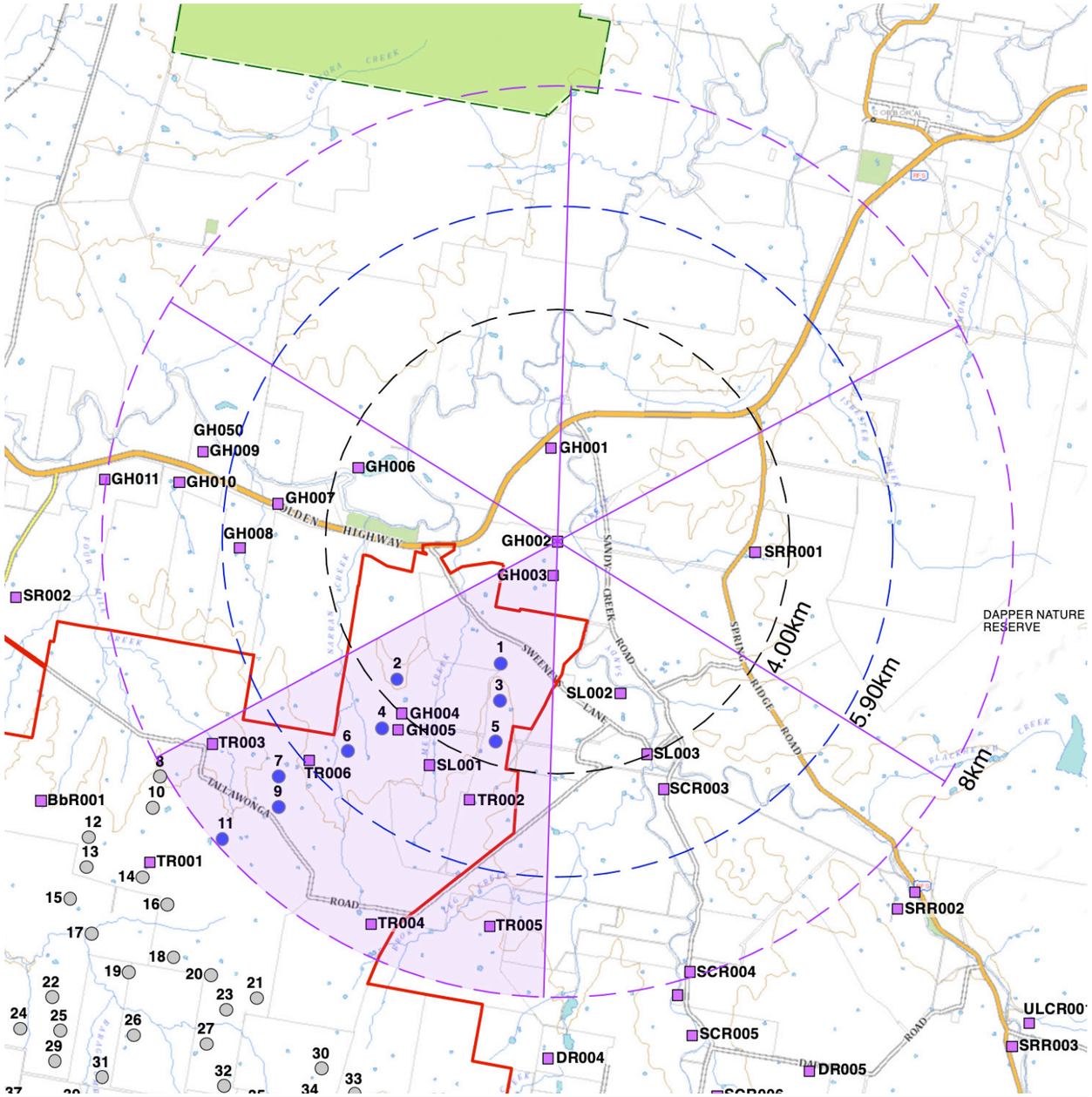




***Figure A.1*** Aerial Image Dwelling FR004 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **1.65 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **7** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **102 Turbine**<br>**31 at Tip**<br>**71 at Hub)** |

# **A.02.** Dwelling Assessment **GH002**



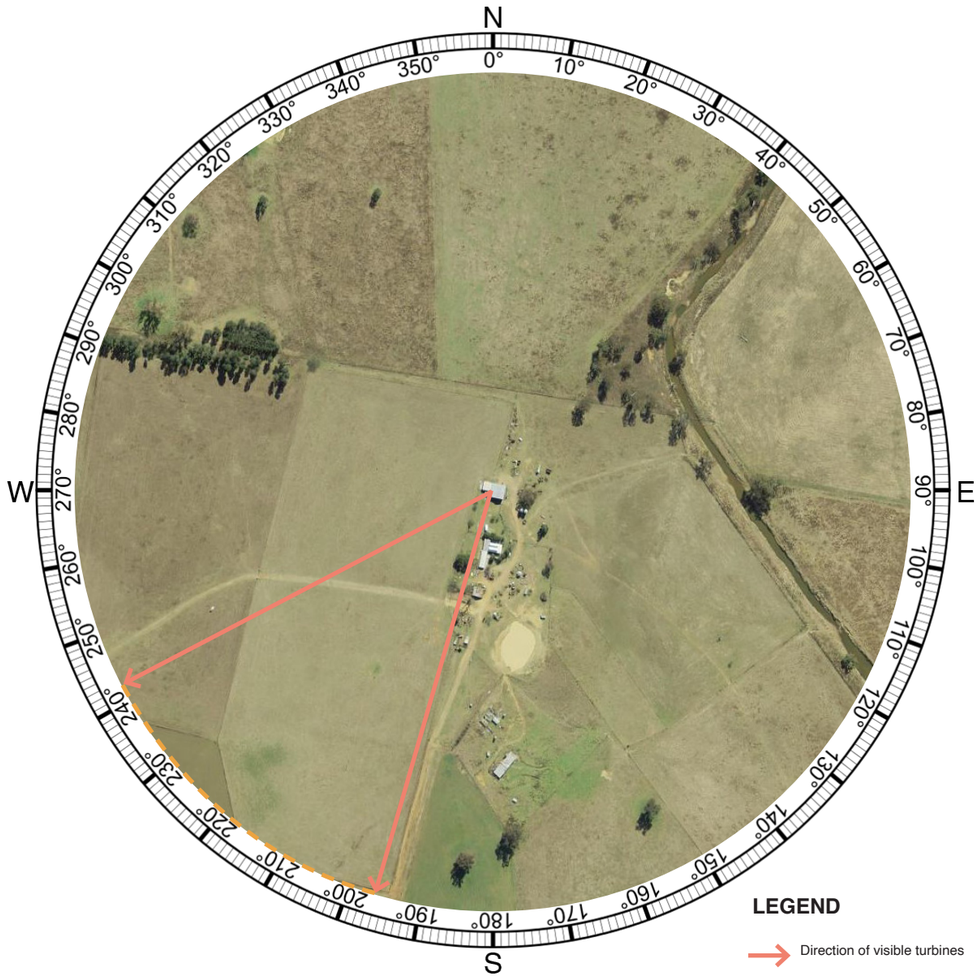
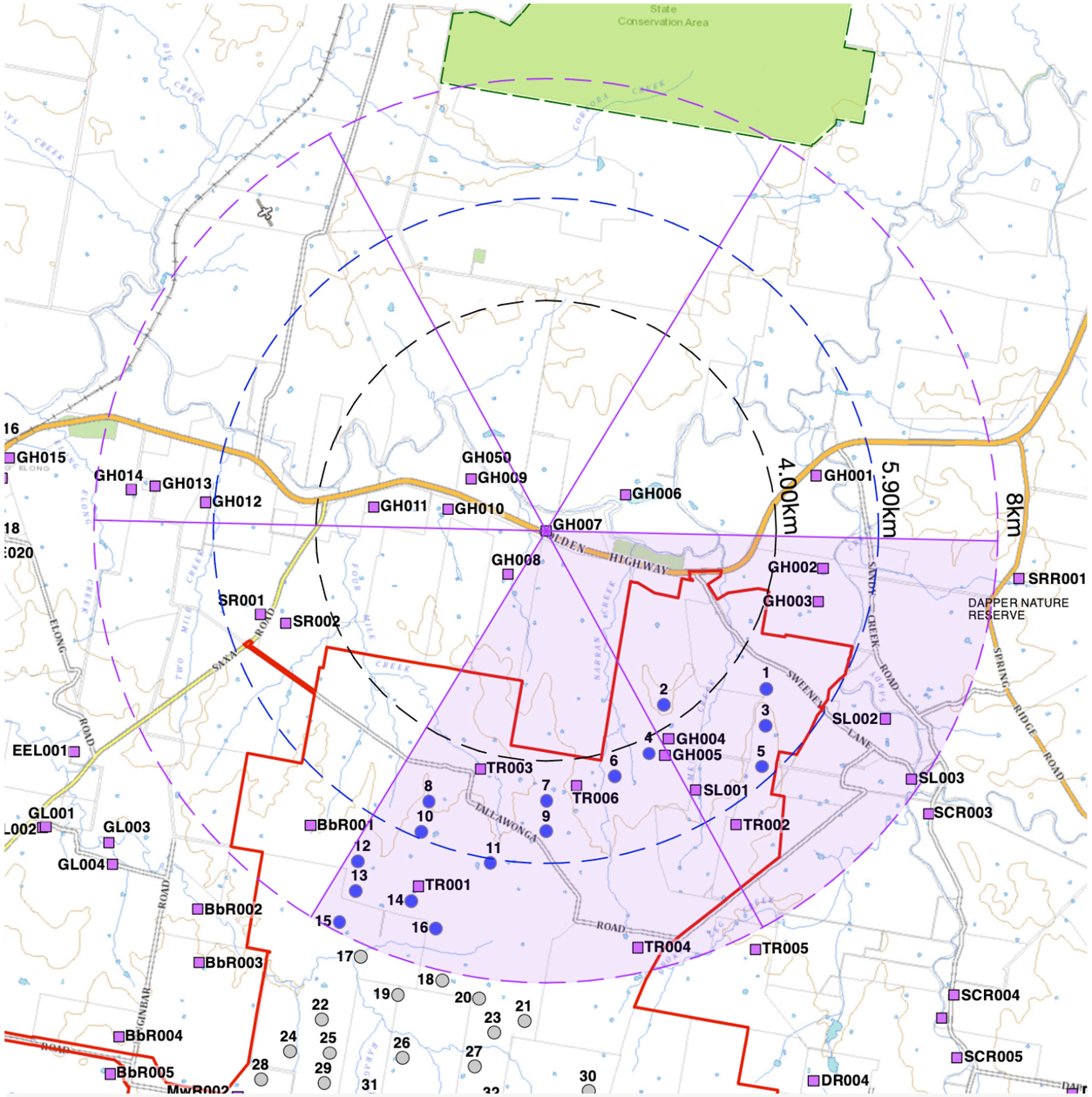




***Figure A.2*** Aerial Image Dwelling GH002 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.35 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **4** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **120 Turbine<br>15 at Tip<br>105 at Hub)** |

# **A.03.** Dwelling Assessment **GH007**



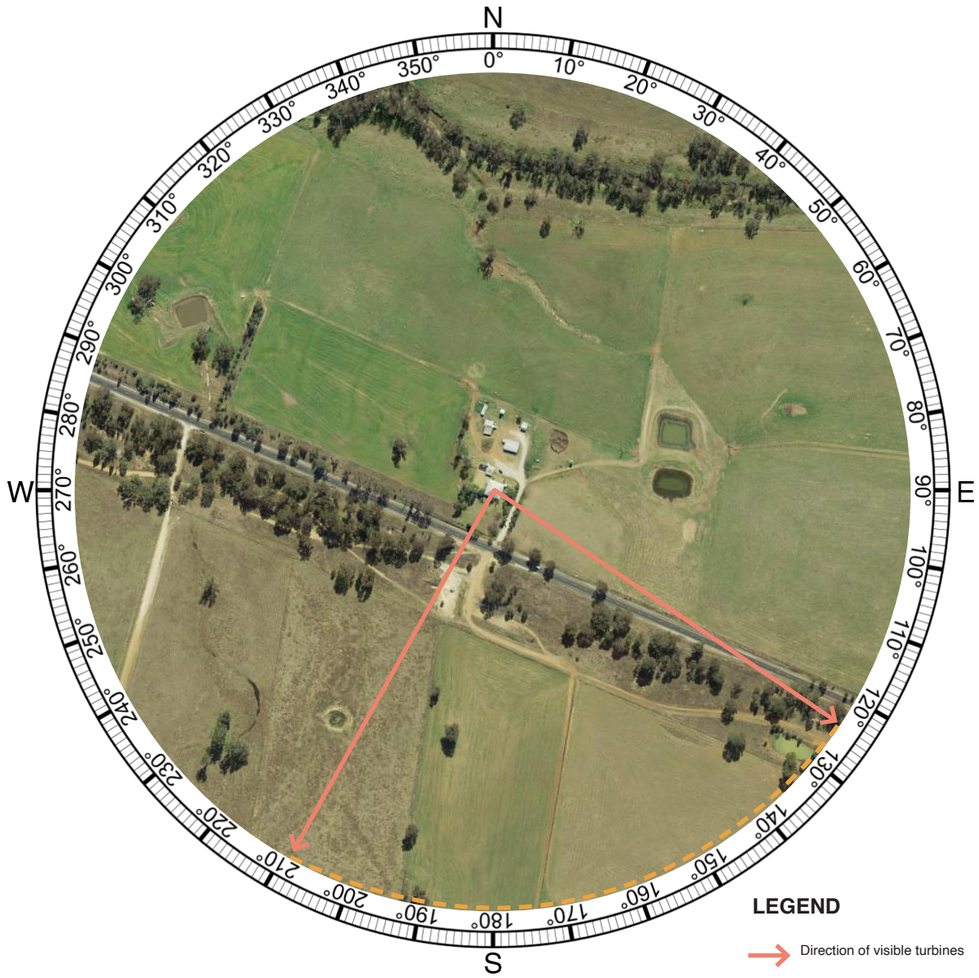
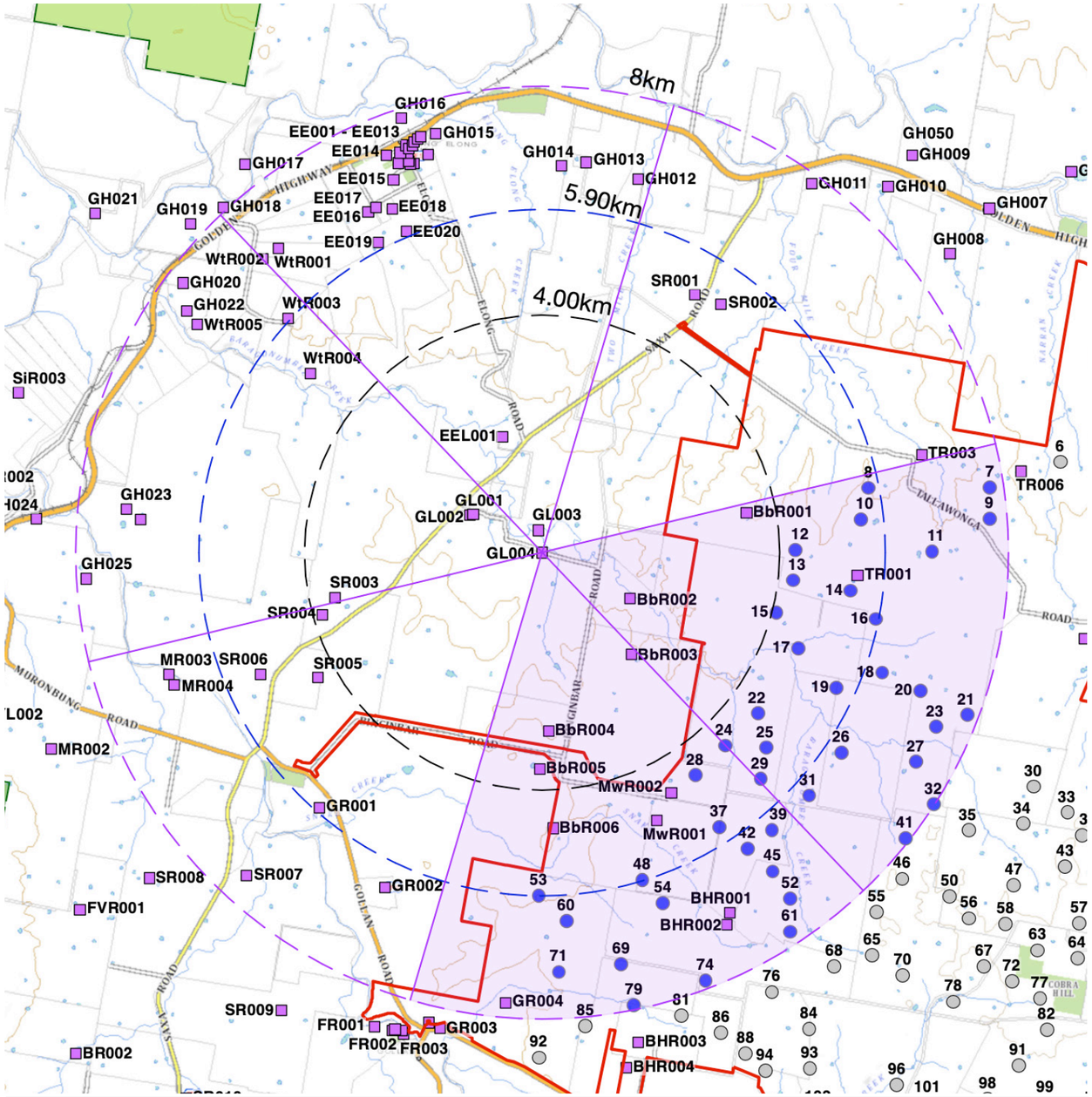




***Figure A.3*** Aerial Image Dwelling GH007 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

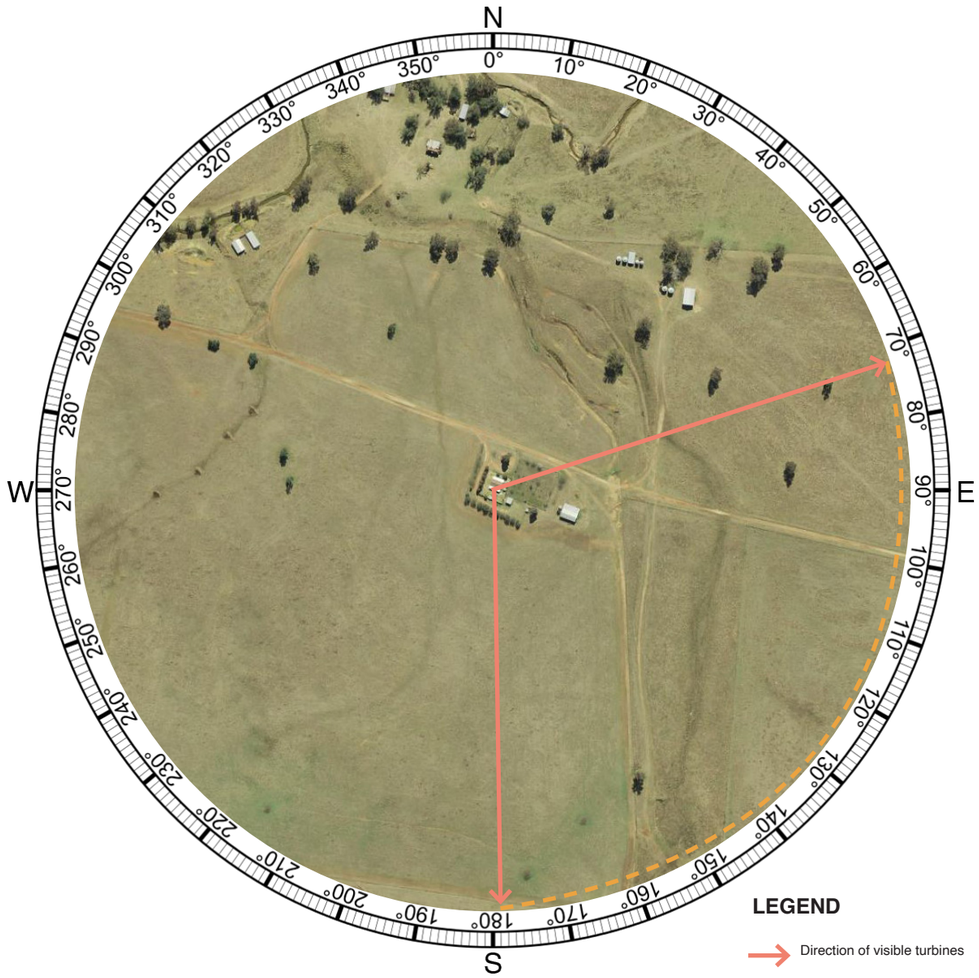
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **3.70 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **1** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **115 Turbine**<br>**36 at Tip**<br>**79 at Hub)** |

# **A.04.** Dwelling Assessment **GL004**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




LEGEND

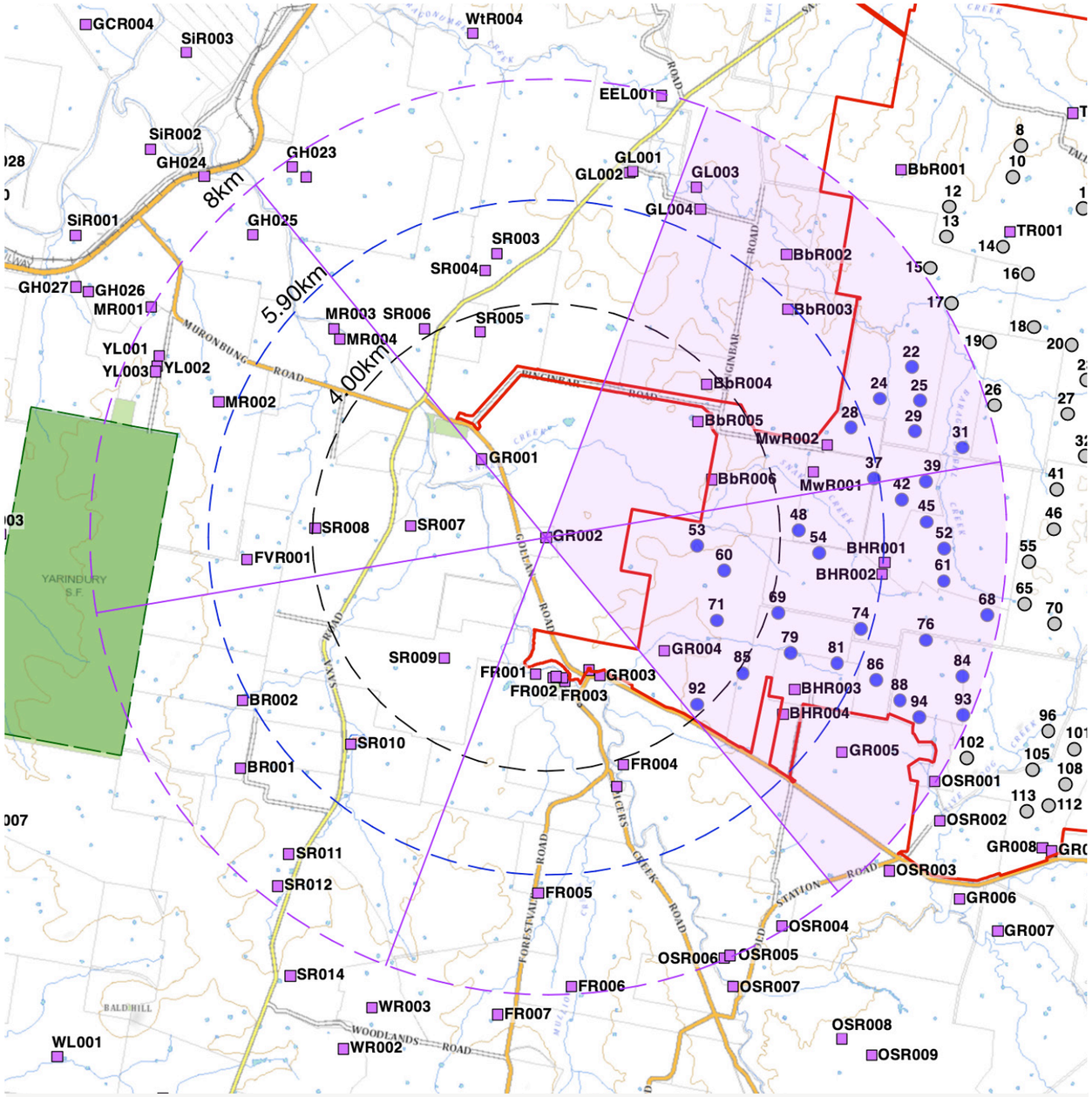
- Direction of visible turbines
- Extent of visible turbines

Note: Based on 3D assessment taking into account turbines screened by topography.

***Figure A.4*** Aerial Image Dwelling GL004 (Aerial Image Source: SixMap)

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.12 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **122 Turbine**<br>**115 at Tip**<br>**107 at Hub)** |

# **A.05.** Dwelling Assessment **GR002**



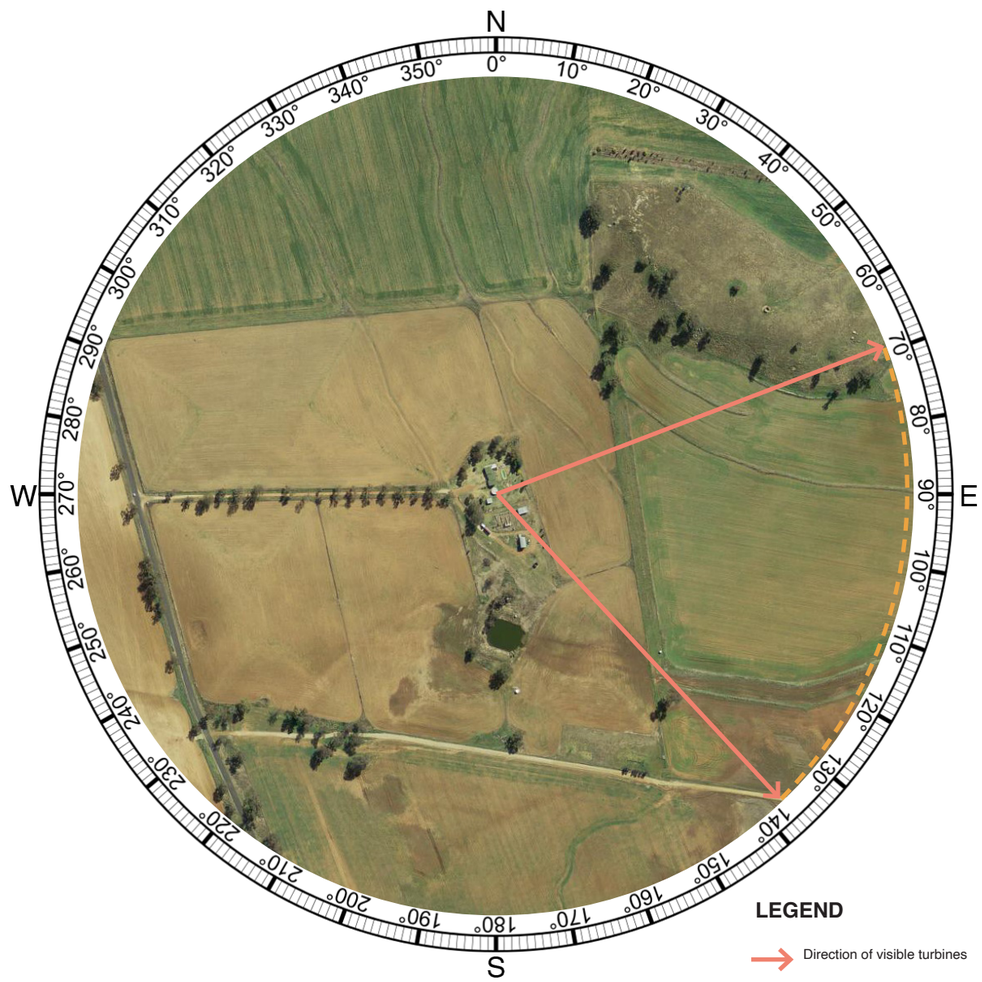
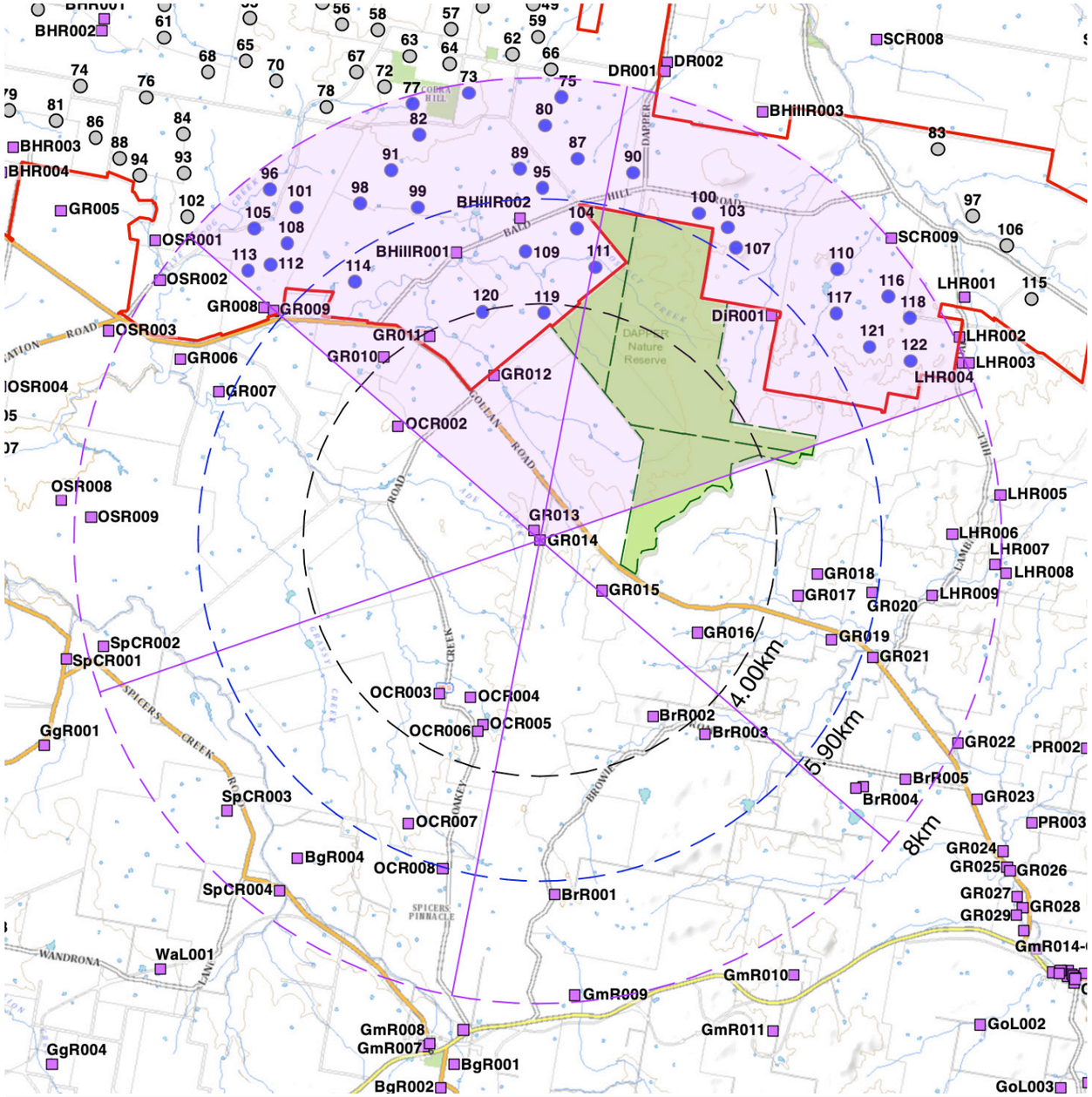




***Figure A.5*** Aerial Image Dwelling GR002 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

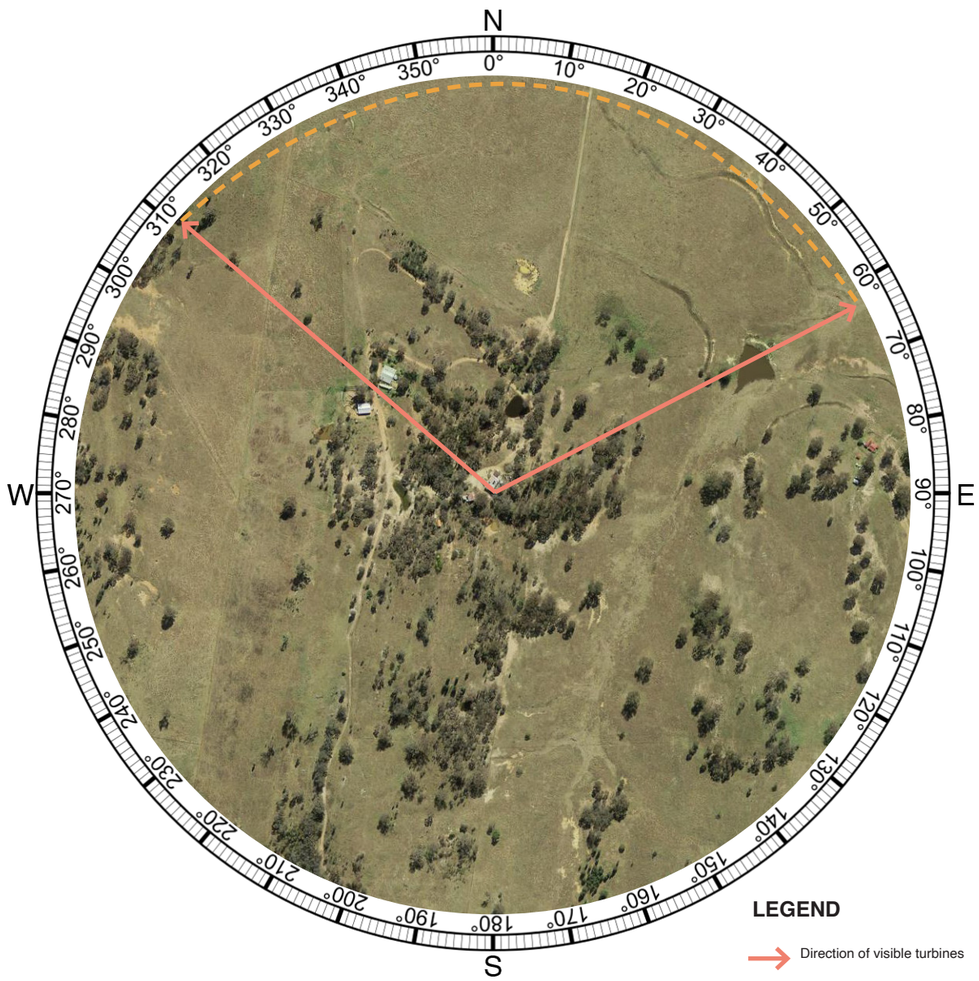
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.62 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **4** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **85 Turbine<br>33 at Tip<br>52 at Hub)** |

# **A.06.** Dwelling Assessment **GR014**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




LEGEND

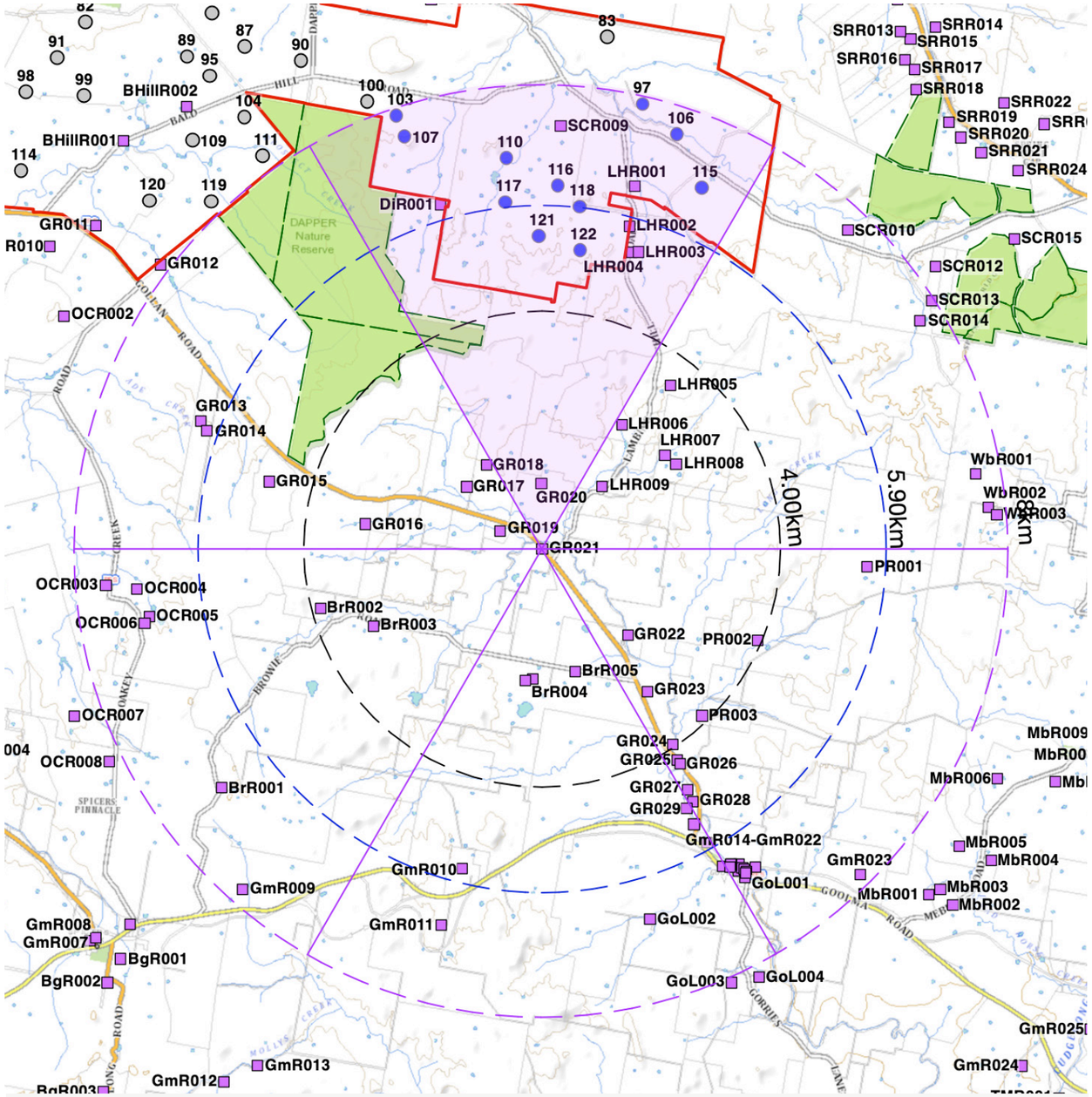
- Direction of visible turbines
- Extent of visible turbines

Note: Based on 3D assessment taking into account turbines screened by topography.

***Figure A.6*** Aerial Image Dwelling GR014 (Aerial Image Source: SixMap)

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **3.93 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **2** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **114 Turbine**<br>**8 at Tip**<br>**106 at Hub)** |

# **A.07.** Dwelling Assessment **GR021**



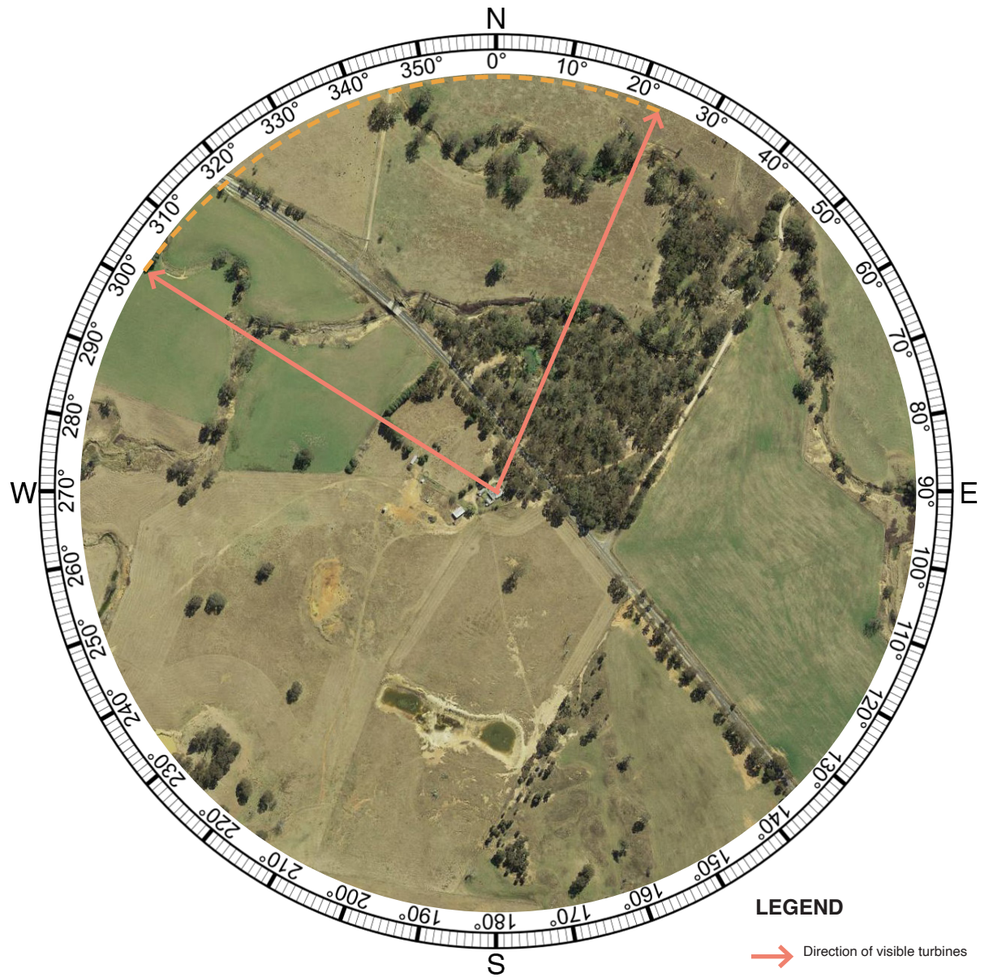
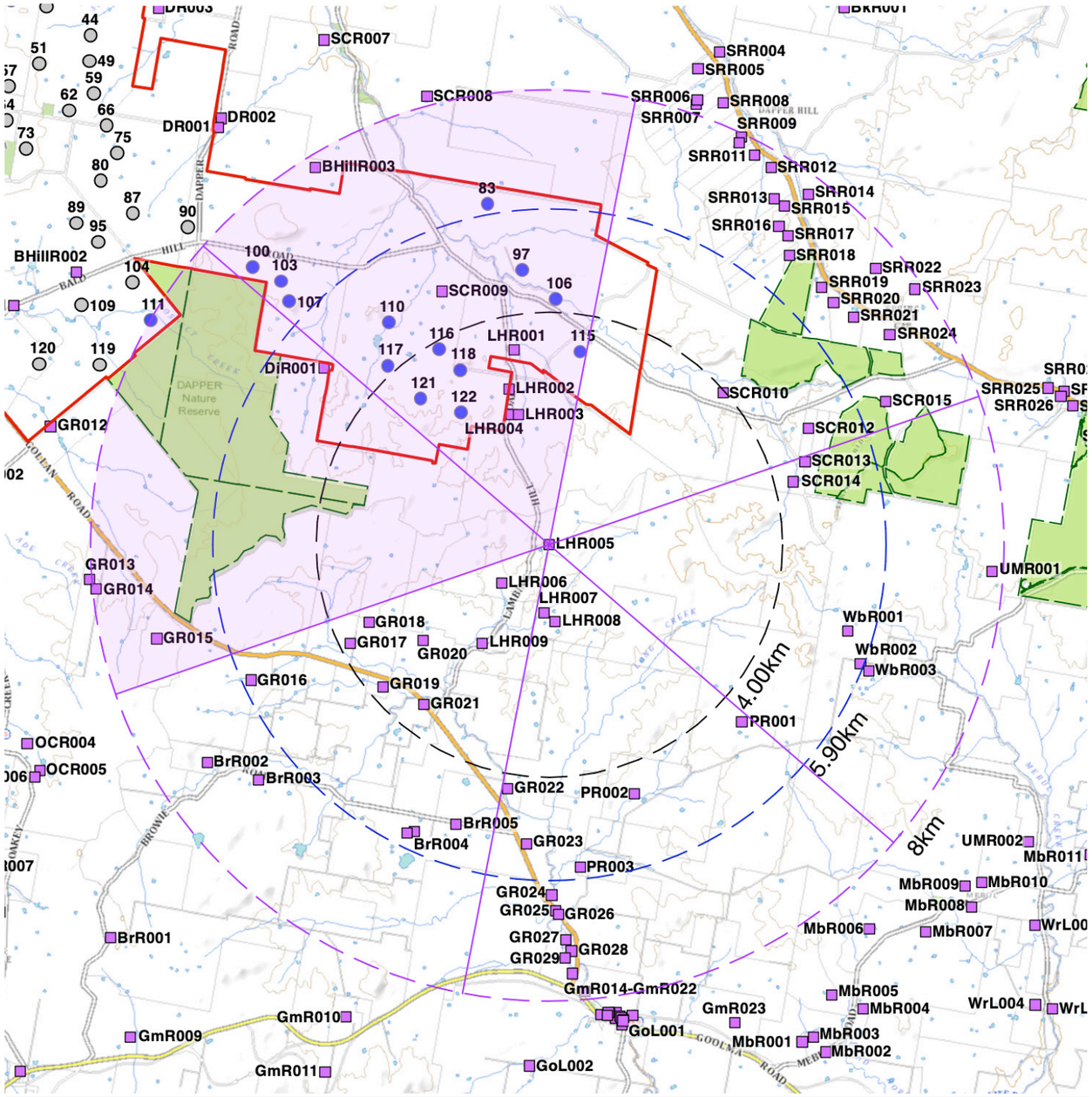




***Figure A.7*** Aerial Image Dwelling GR021(Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **5.16 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **66 Turbine**<br>**47 at Tip**<br>**19 at Hub)** |

# **A.08.** Dwelling Assessment **LHR005**



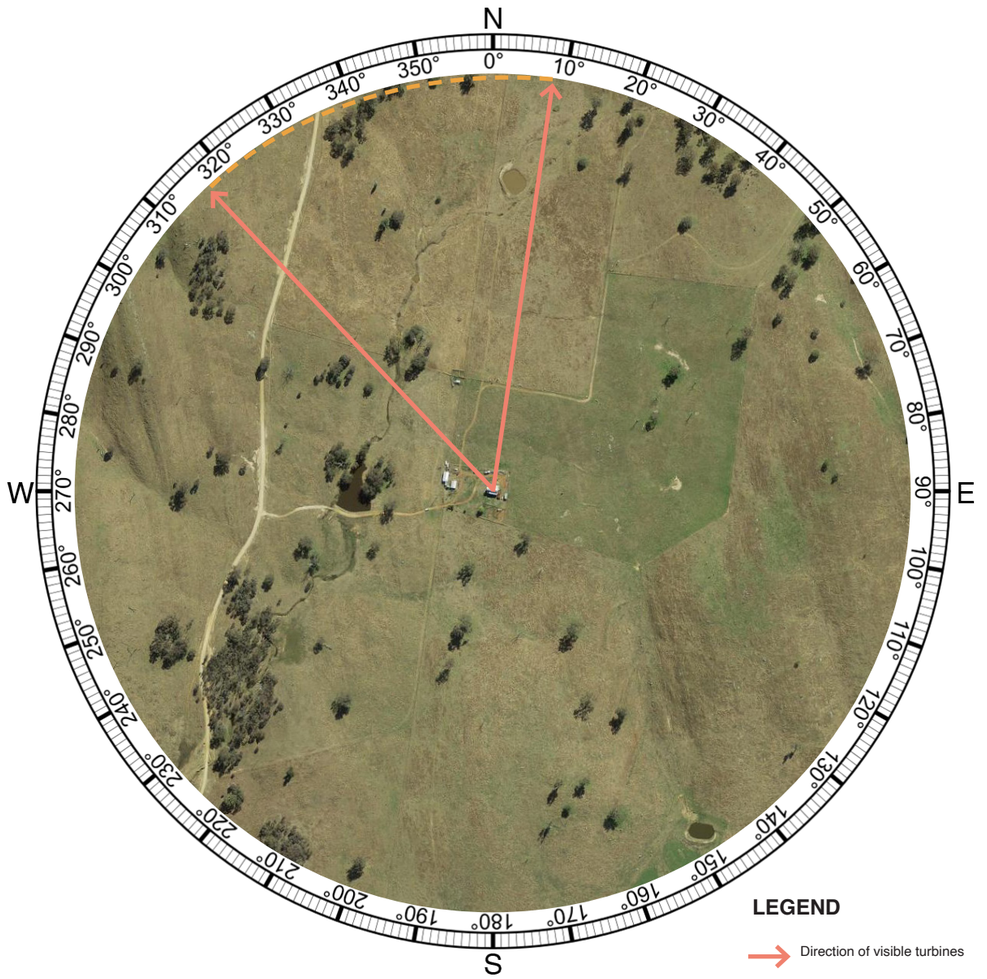
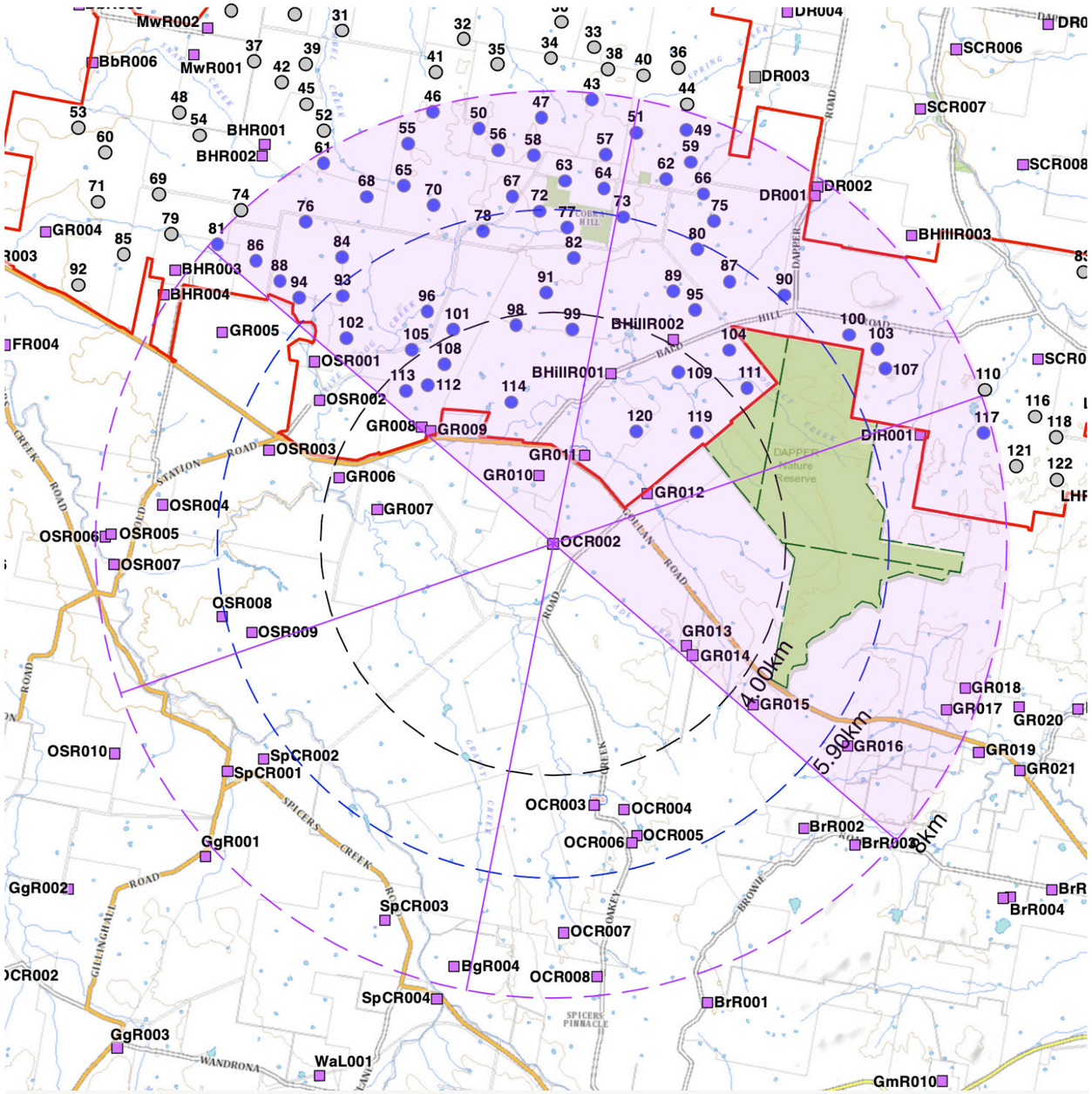




***Figure A.8*** Aerial Image Dwelling LHR005 (Aerial Image Source: SixMap)

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.78 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **5** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **10 Turbine**<br>**3 at Tip**<br>**7 at Hub)** |

# **A.09.** Dwelling Assessment **OCR002**



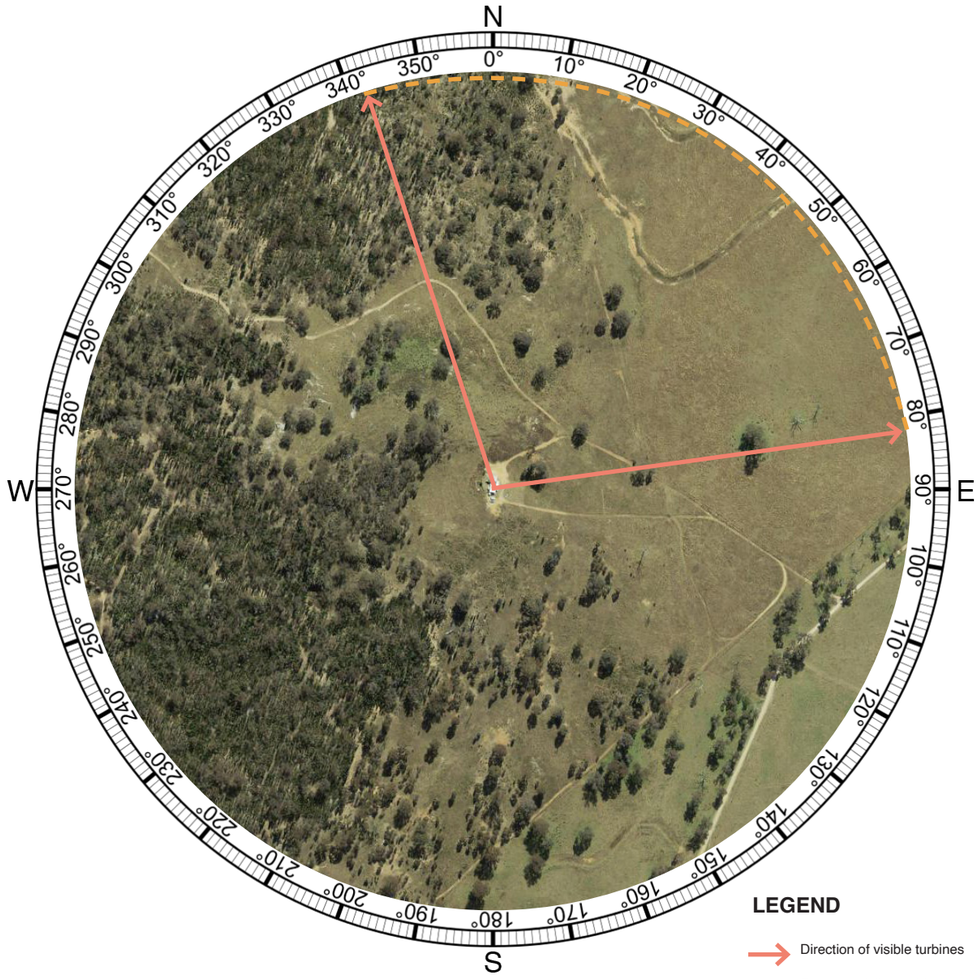
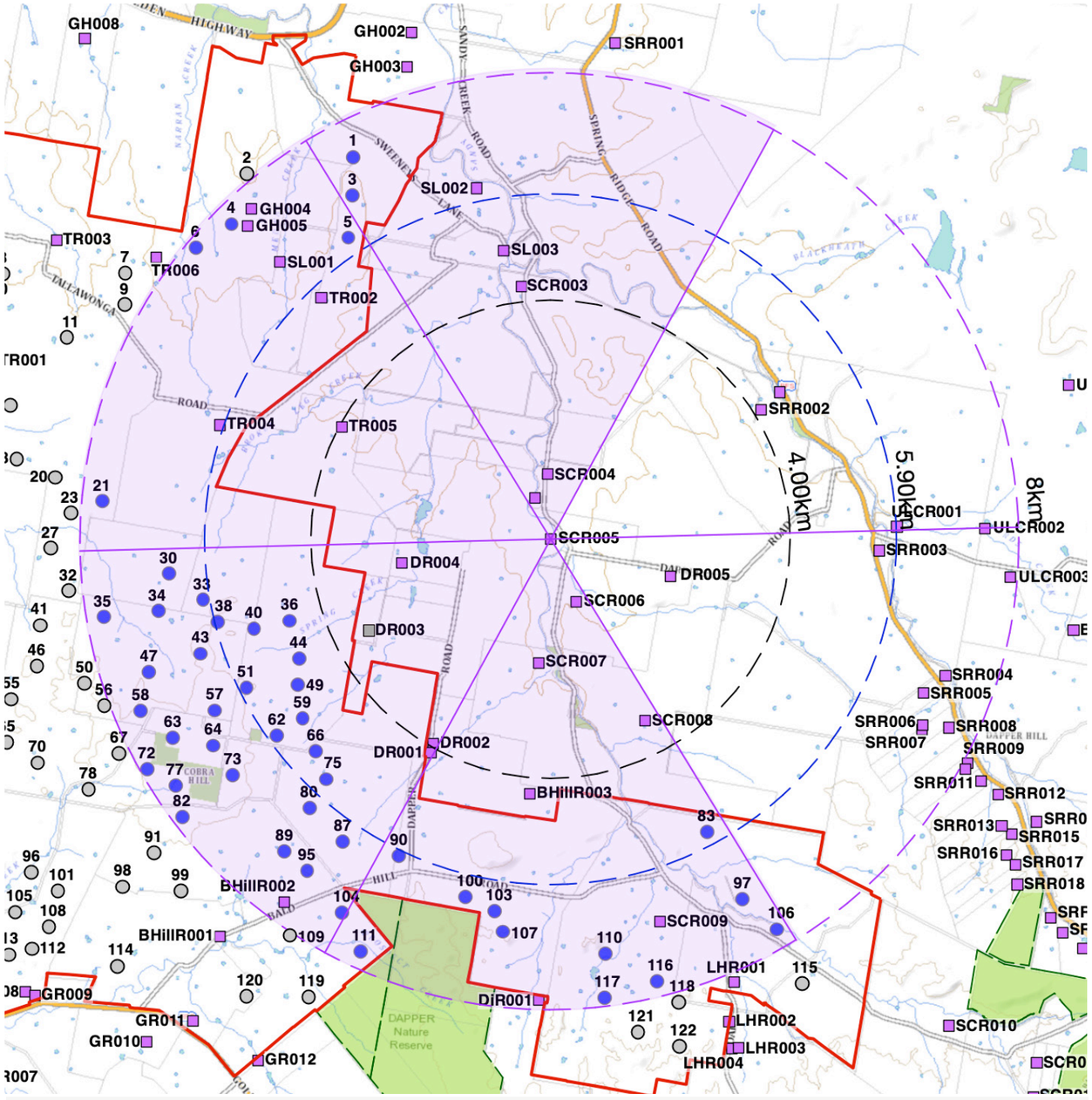




***Figure A.9*** Aerial Image Dwelling OCR002 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.46 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **9** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **3** |
| **Number of potentially visible turbines:** | **49 Turbine<br>09 at Tip<br>40 at Hub)** |

# **A.10.** Dwelling Assessment **SCR005**



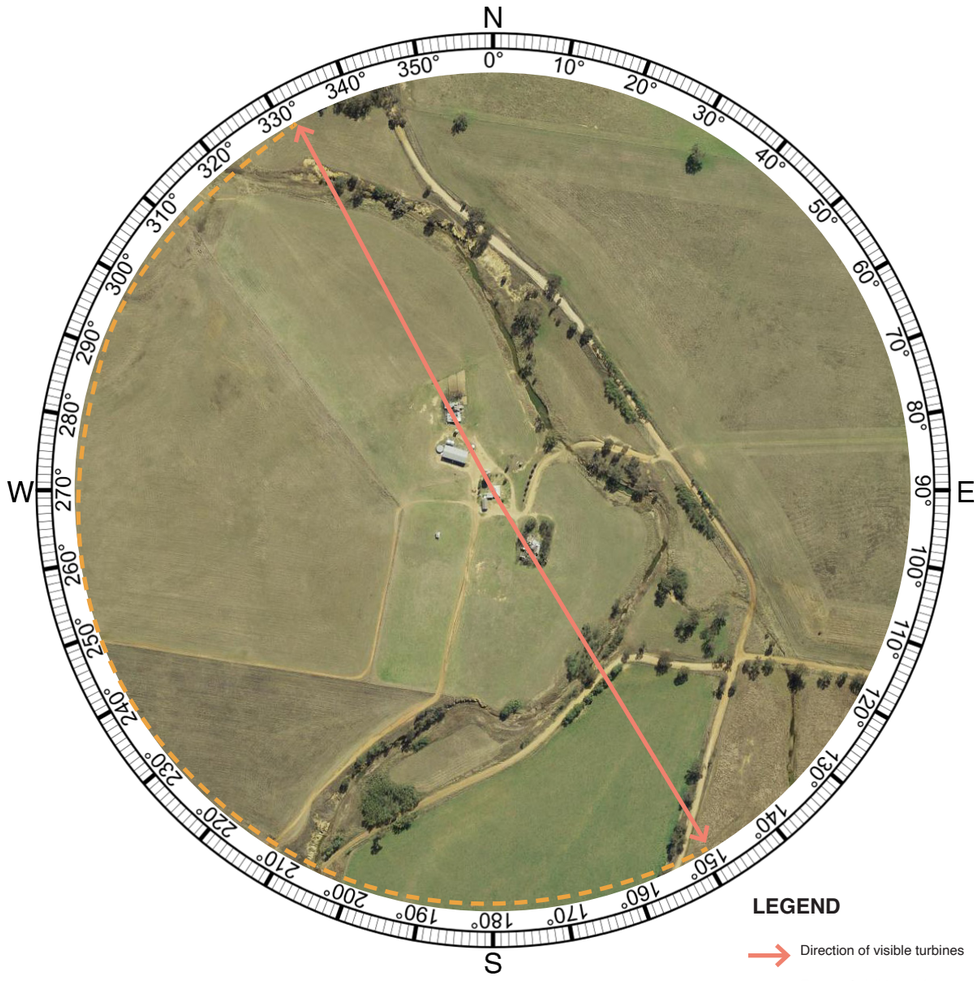
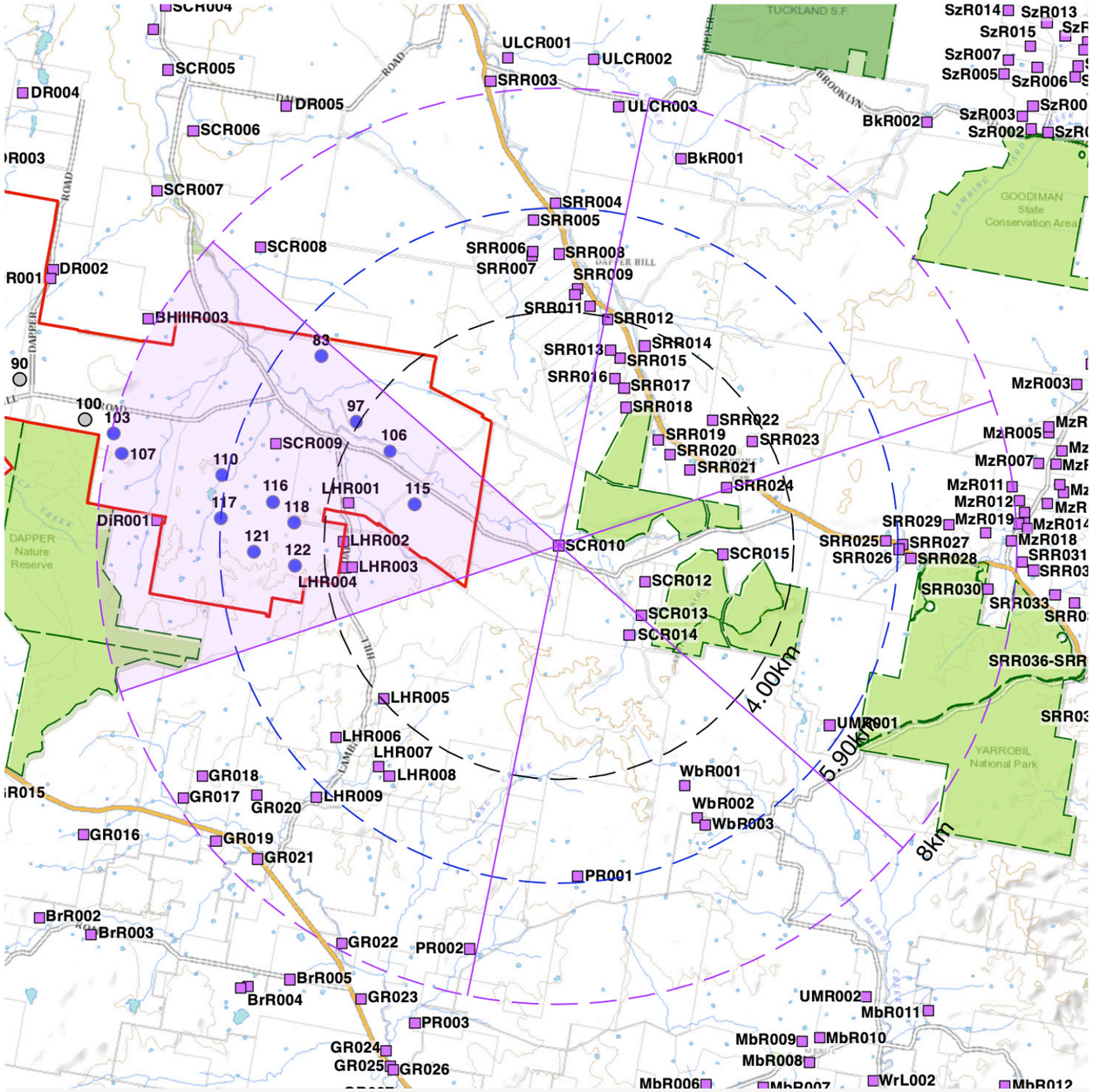




***Figure A.10*** Aerial Image Dwelling SCR005 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.63 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **4** |
| **Number of potentially visible turbines:** | **121 Turbine<br>26 at Tip<br>95 at Hub)** |

# **A.11.** Dwelling Assessment **SCR010**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines

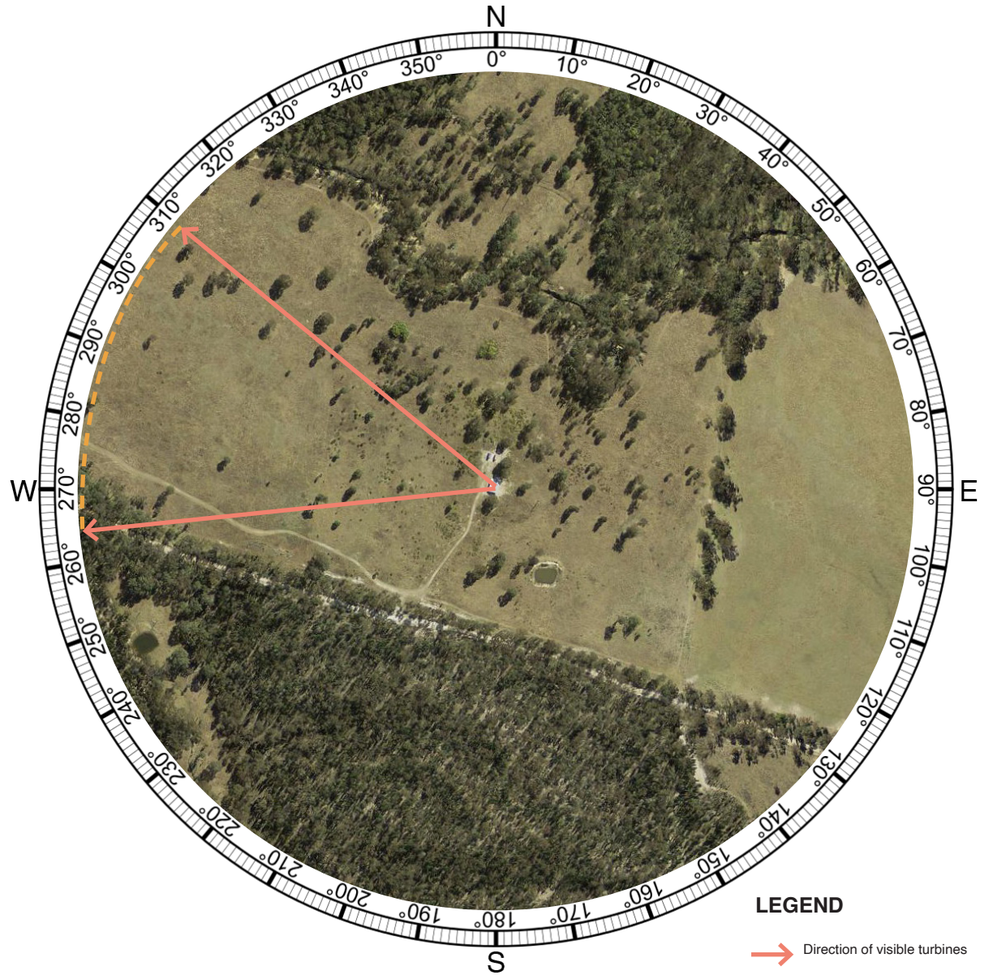
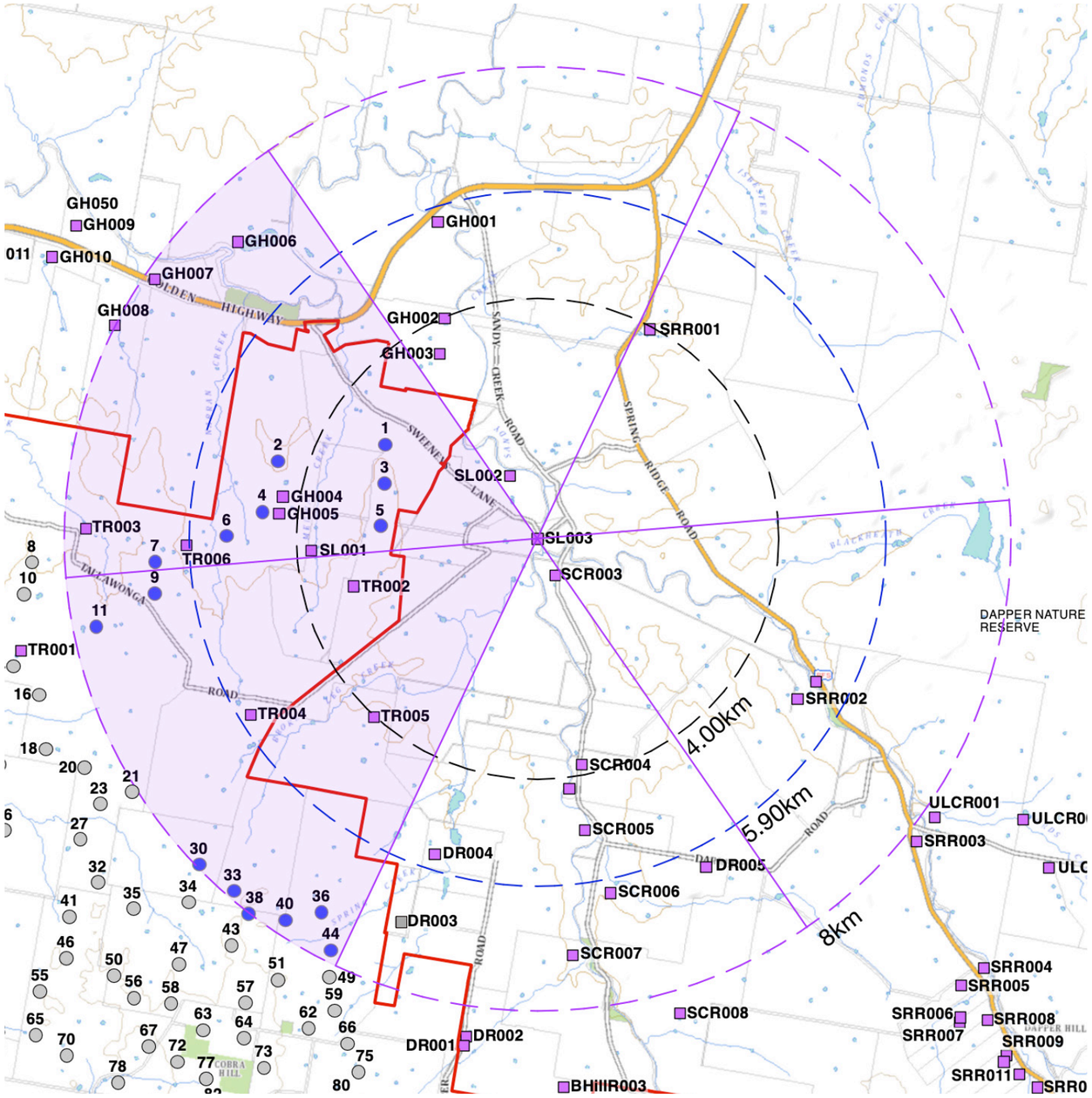



***Figure A.10*** Aerial Image Dwelling SCR010 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

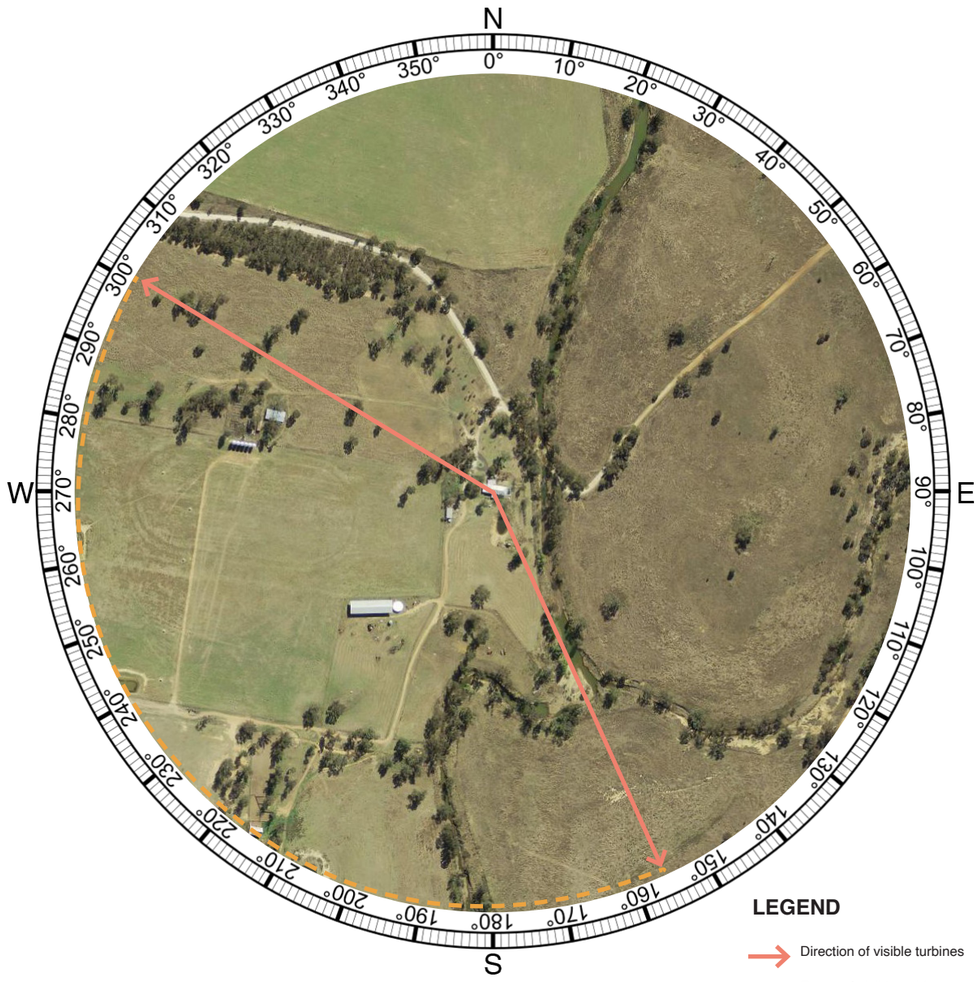
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.60 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **2** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **115 Turbine**<br>**4 at Tip**<br>**111 at Hub)** |

# **A.12.** Dwelling Assessment **SL003**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




LEGEND

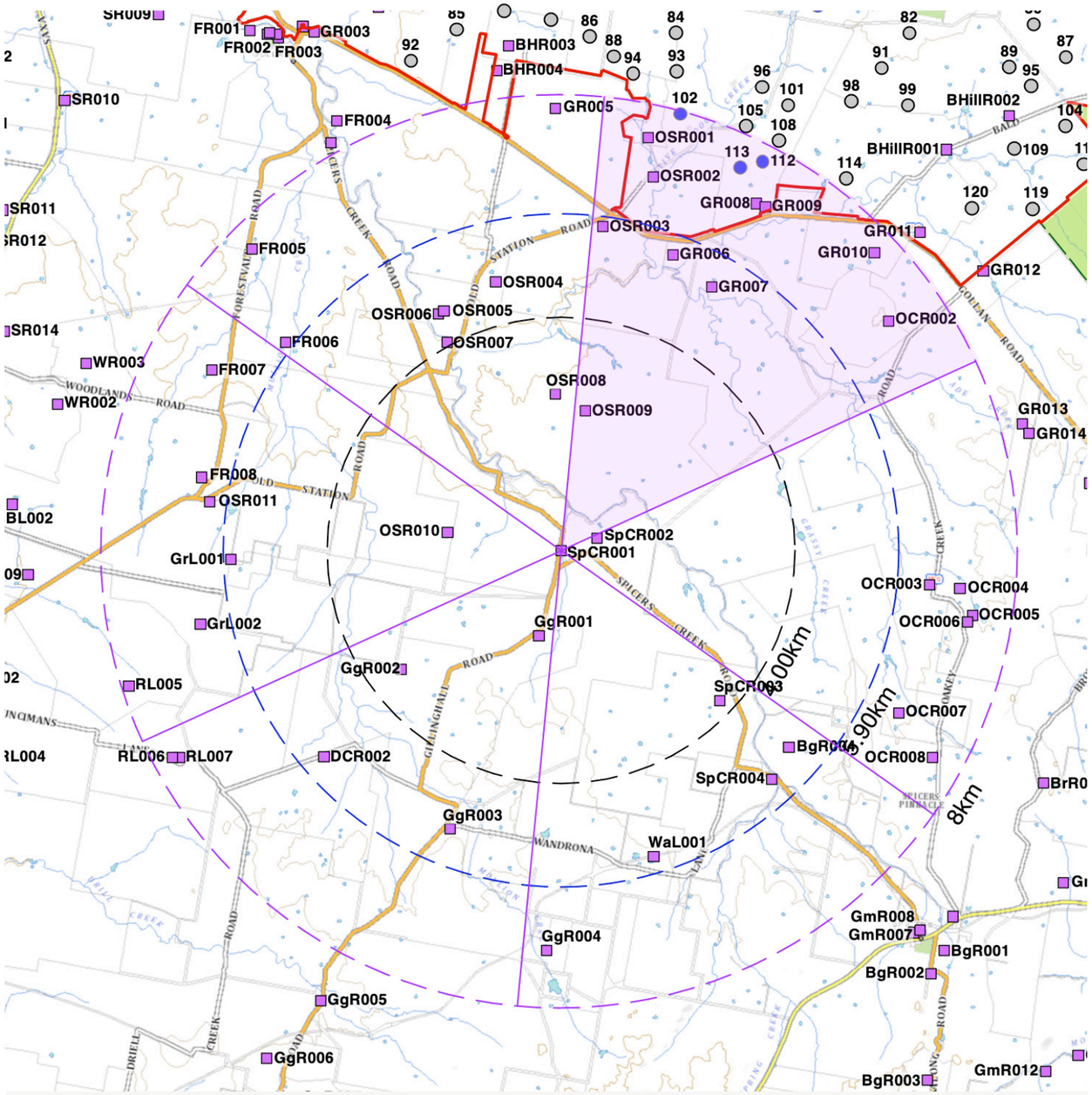
- Direction of visible turbines
- Extent of visible turbines

Note: Based on 3D assessment taking into account turbines screened by topography.

***Figure A.12*** Aerial Image Dwelling SL003 (Aerial Image Source: SixMap)

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **2.64 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **3** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **122 Turbine**<br>**5 at Tip**<br>**117 at Hub)** |

# **A.13.** Dwelling Assessment **spCR001**



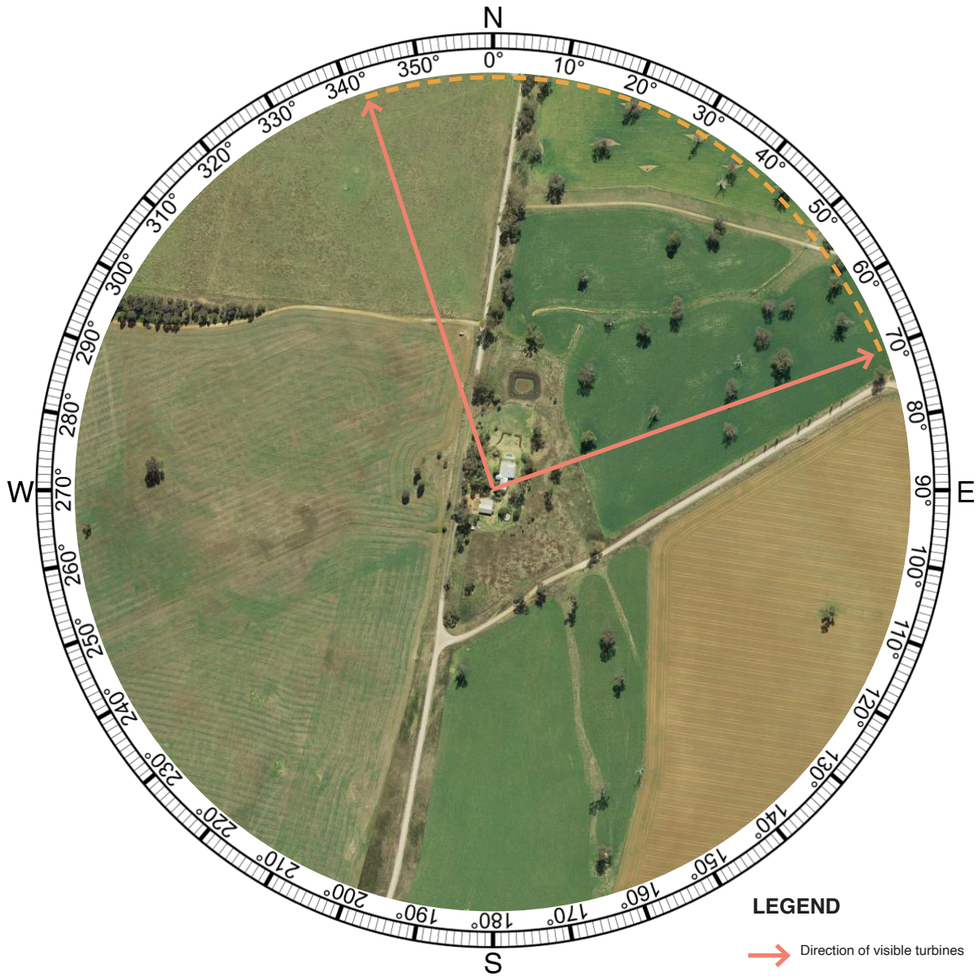
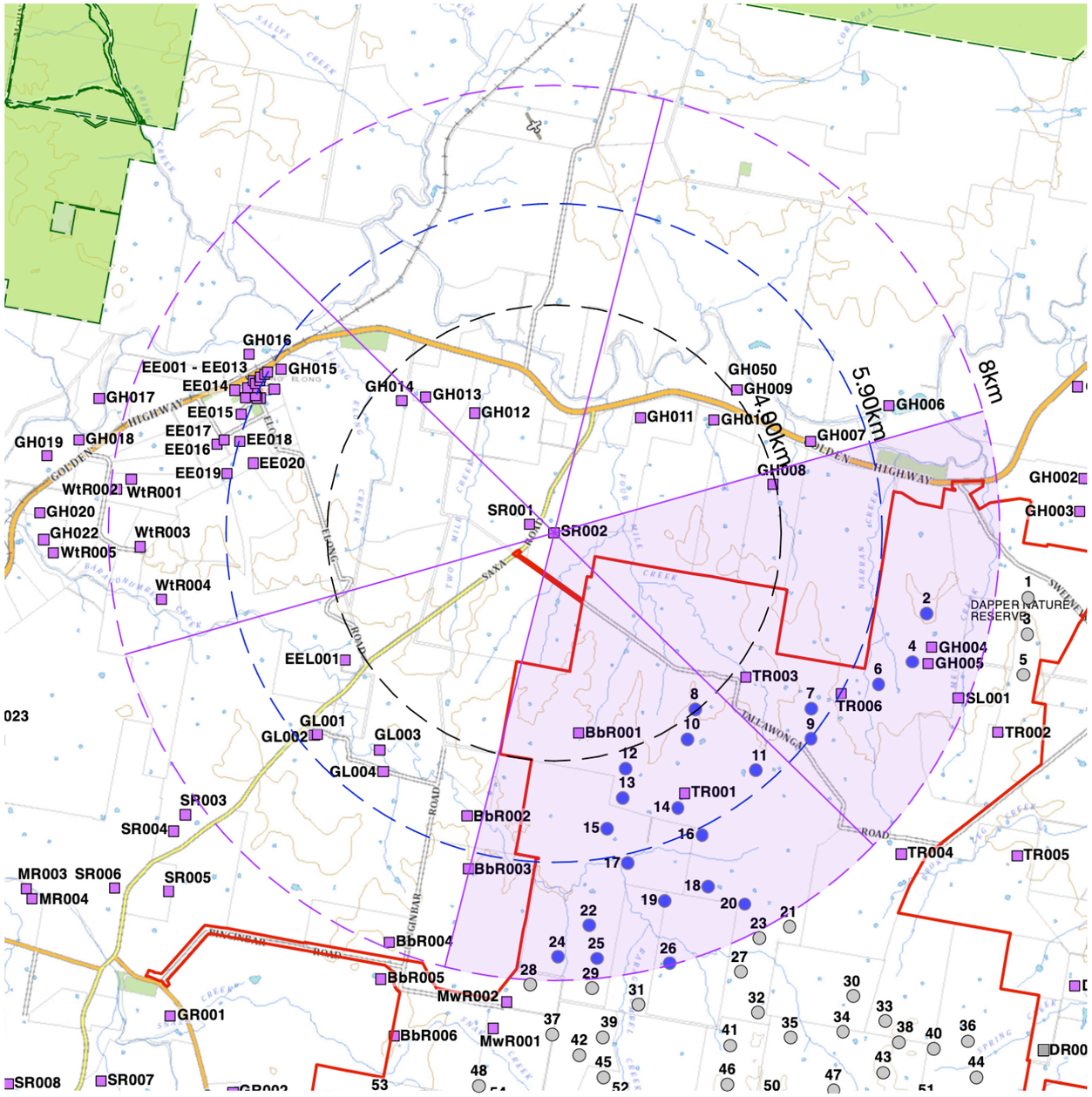




***Figure A.13*** Aerial Image Dwelling spCR001 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **7.34 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **122 Turbine**<br>**1 at Tip**<br>**121 at Hub)** |

# **A.14.** Dwelling Assessment **SR002**



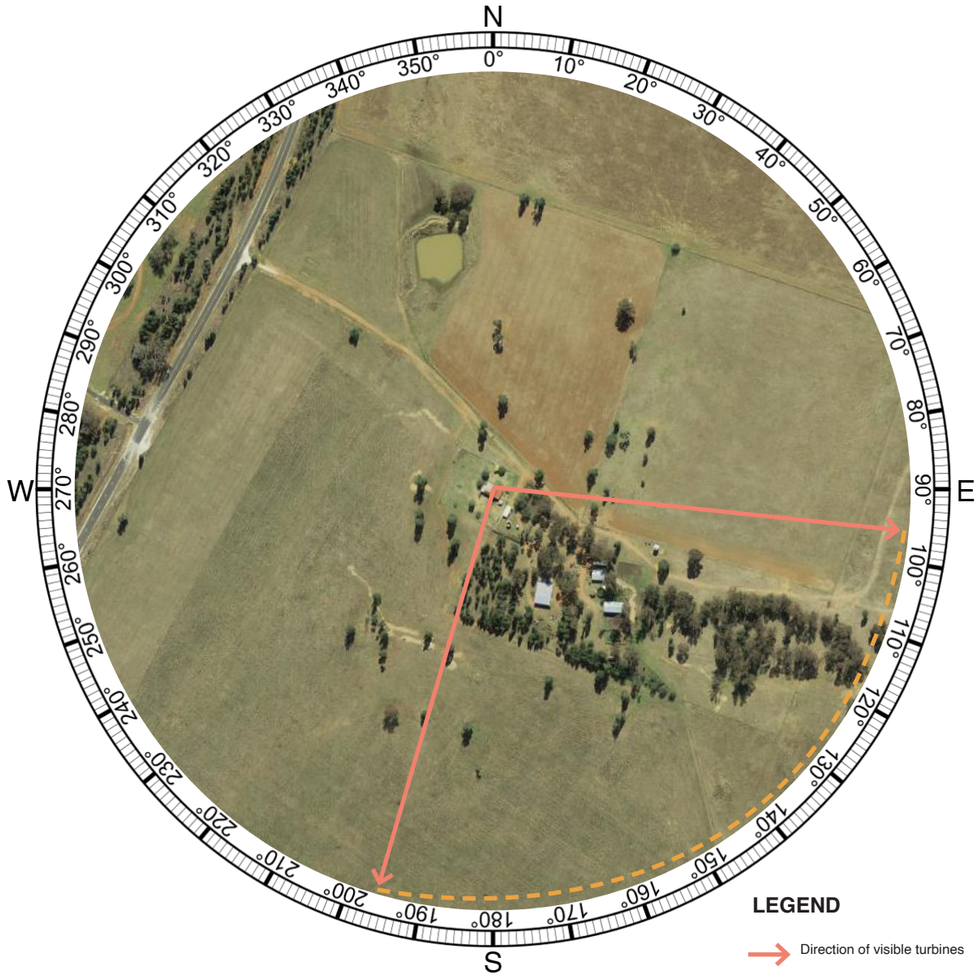
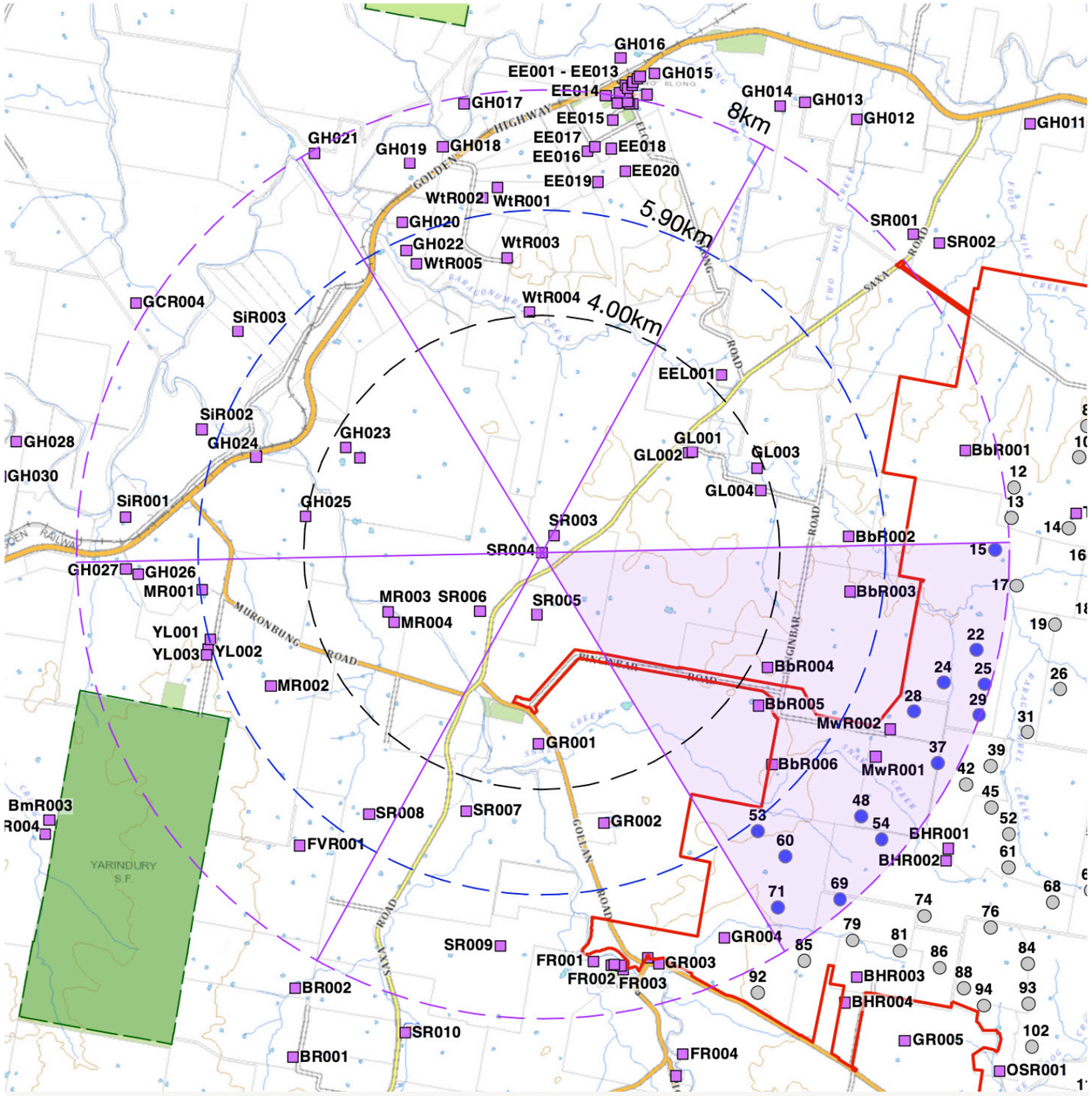




***Figure A.14*** Aerial Image Dwelling SR002 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.24 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **1** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **122Turbine<br>1 at Tip<br>121 at Hub)** |

# **A.15.** Dwelling Assessment **SR004**



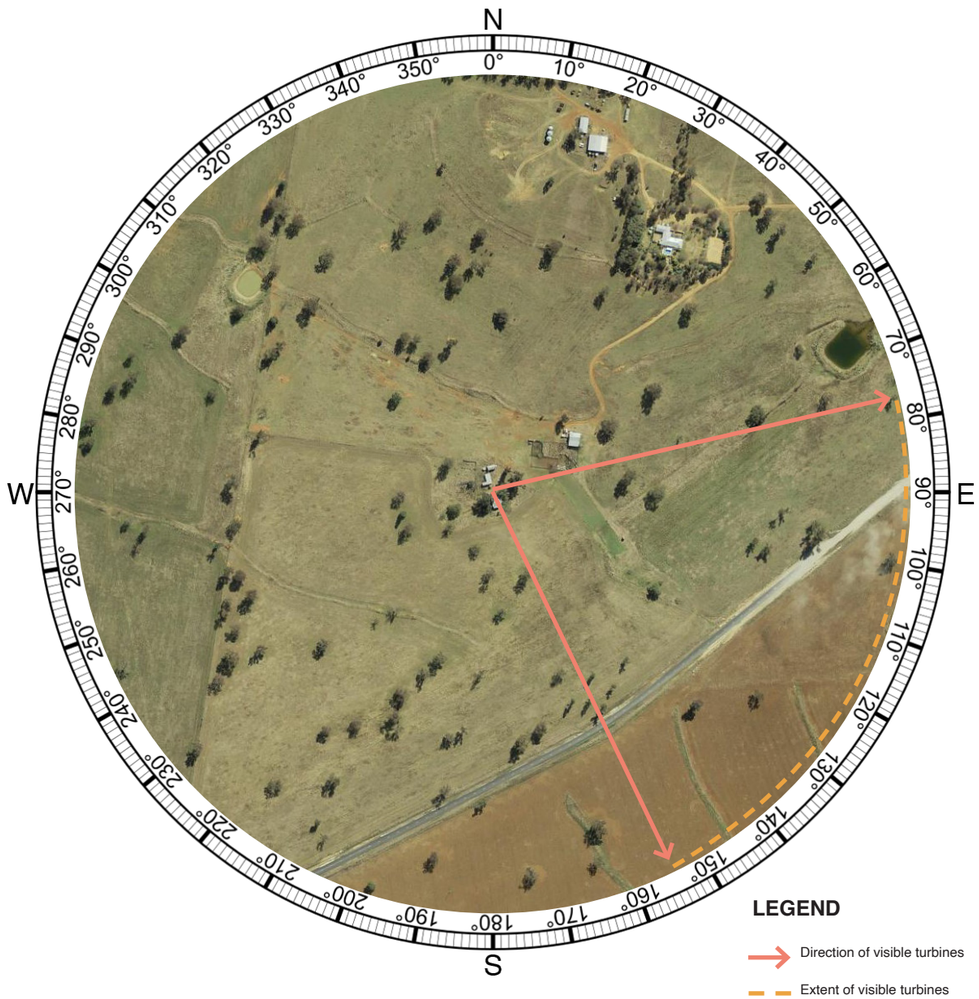
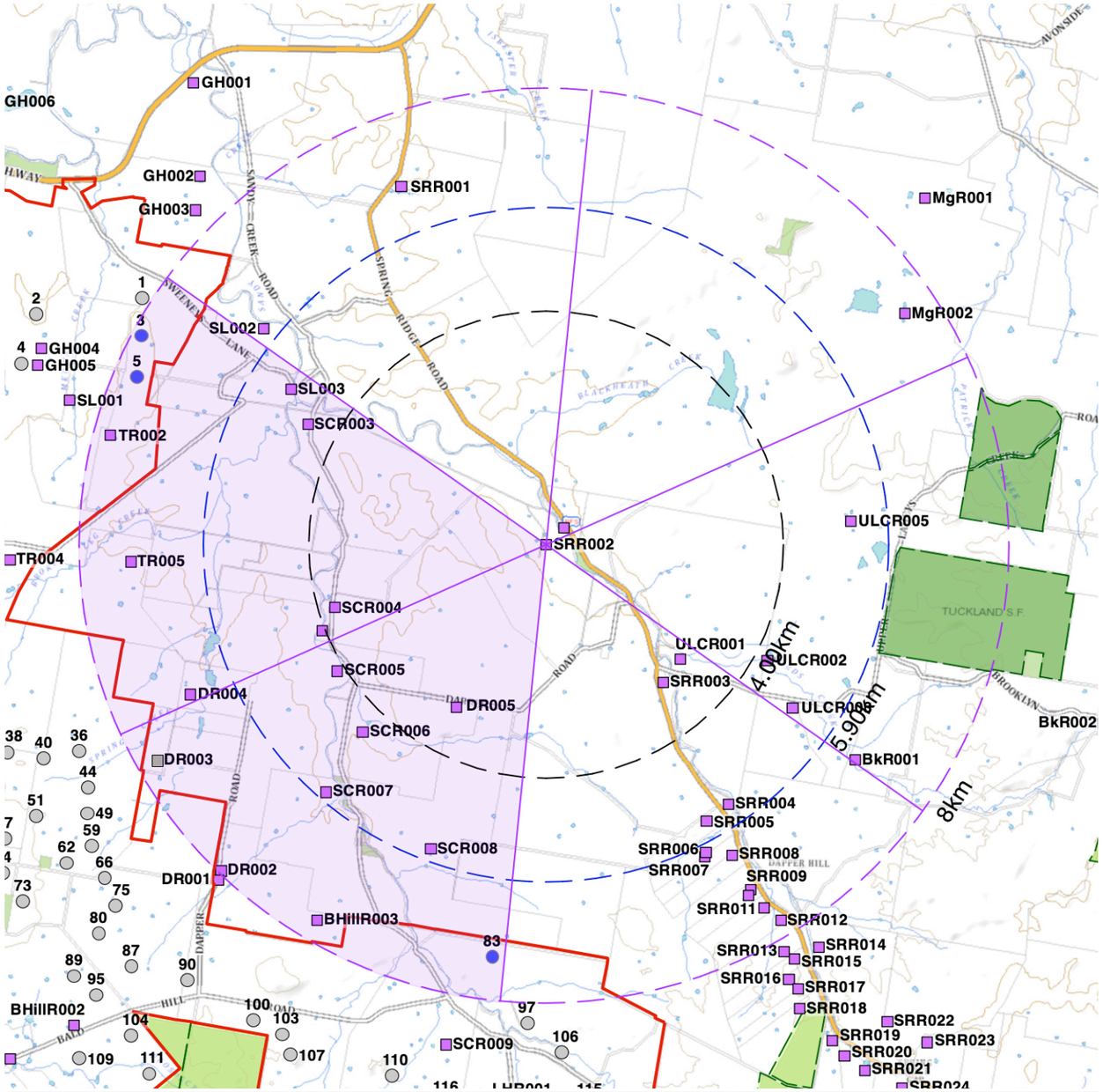




***Figure A.15*** Aerial Image Dwelling SR004 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

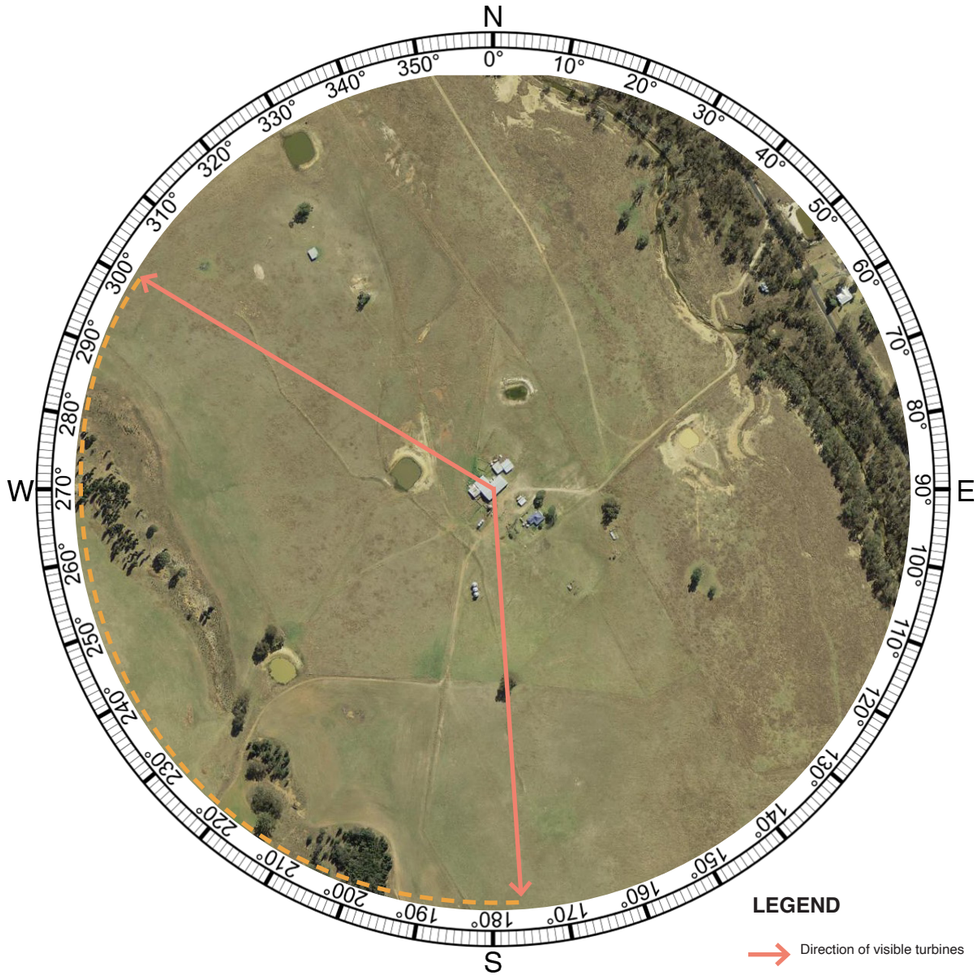
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **6.05 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **65 Turbine<br>30 at Tip<br>35 at Hub)** |

# **A.16.** Dwelling Assessment **SRR002**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




LEGEND

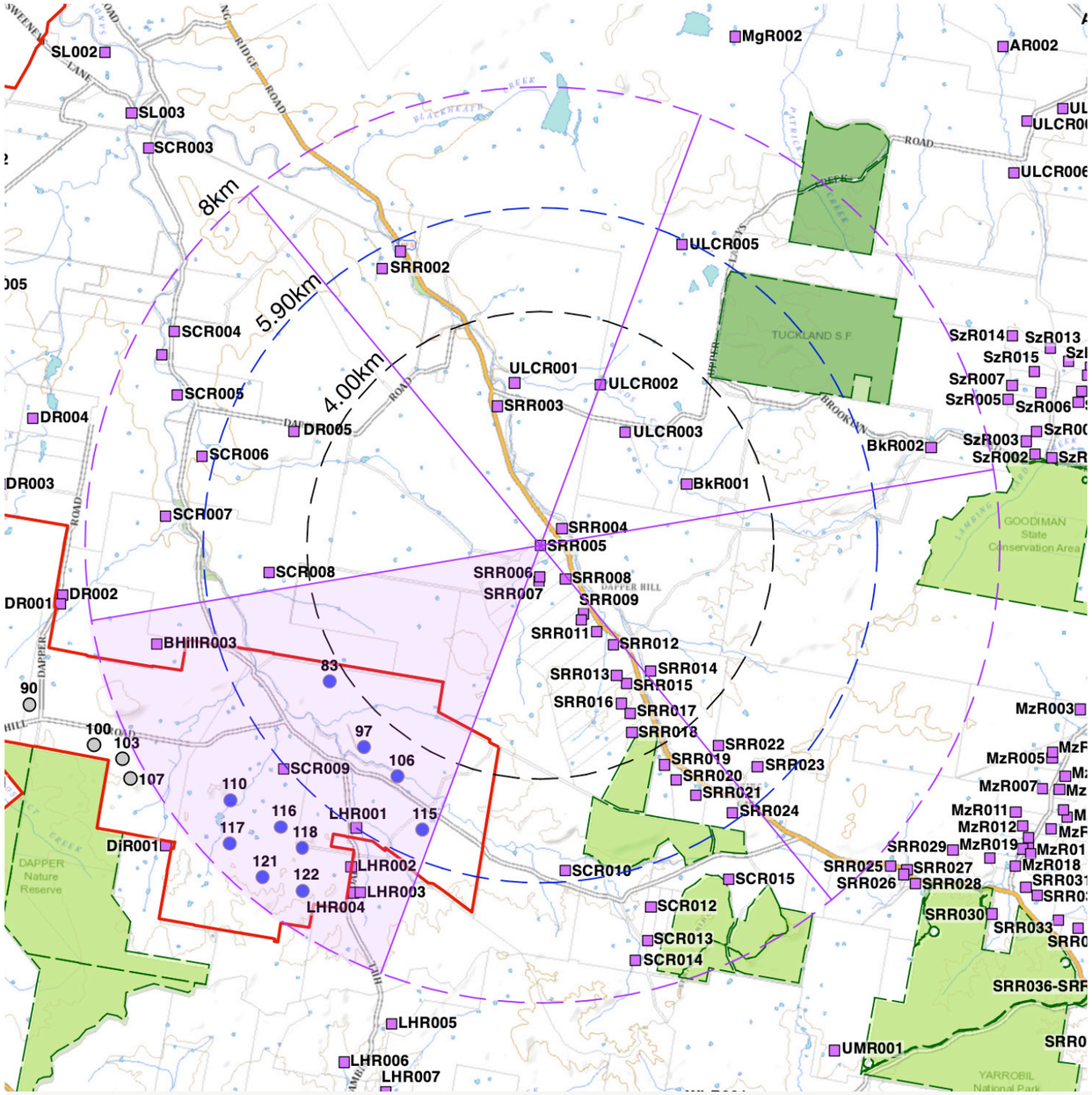
- Direction of visible turbines
- Extent of visible turbines

Note: Based on 3D assessment taking into account turbines screened by topography.

***Figure A.16*** Aerial Image Dwelling SRR002 (Aerial Image Source: SixMap)

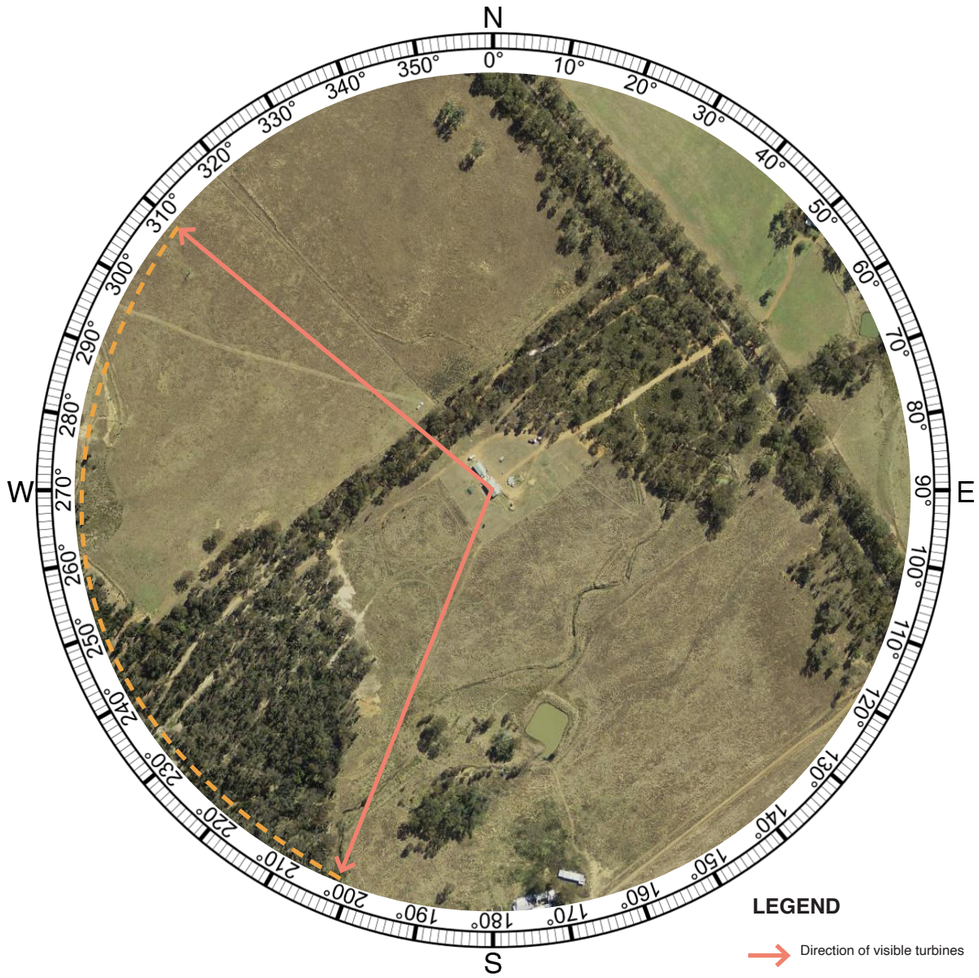
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **7.26 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **111 Turbine**<br>**44 at Tip**<br>**67 at Hub)** |

# **A.17.** Dwelling Assessment **SRR005**




**LEGEND**

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




**LEGEND**

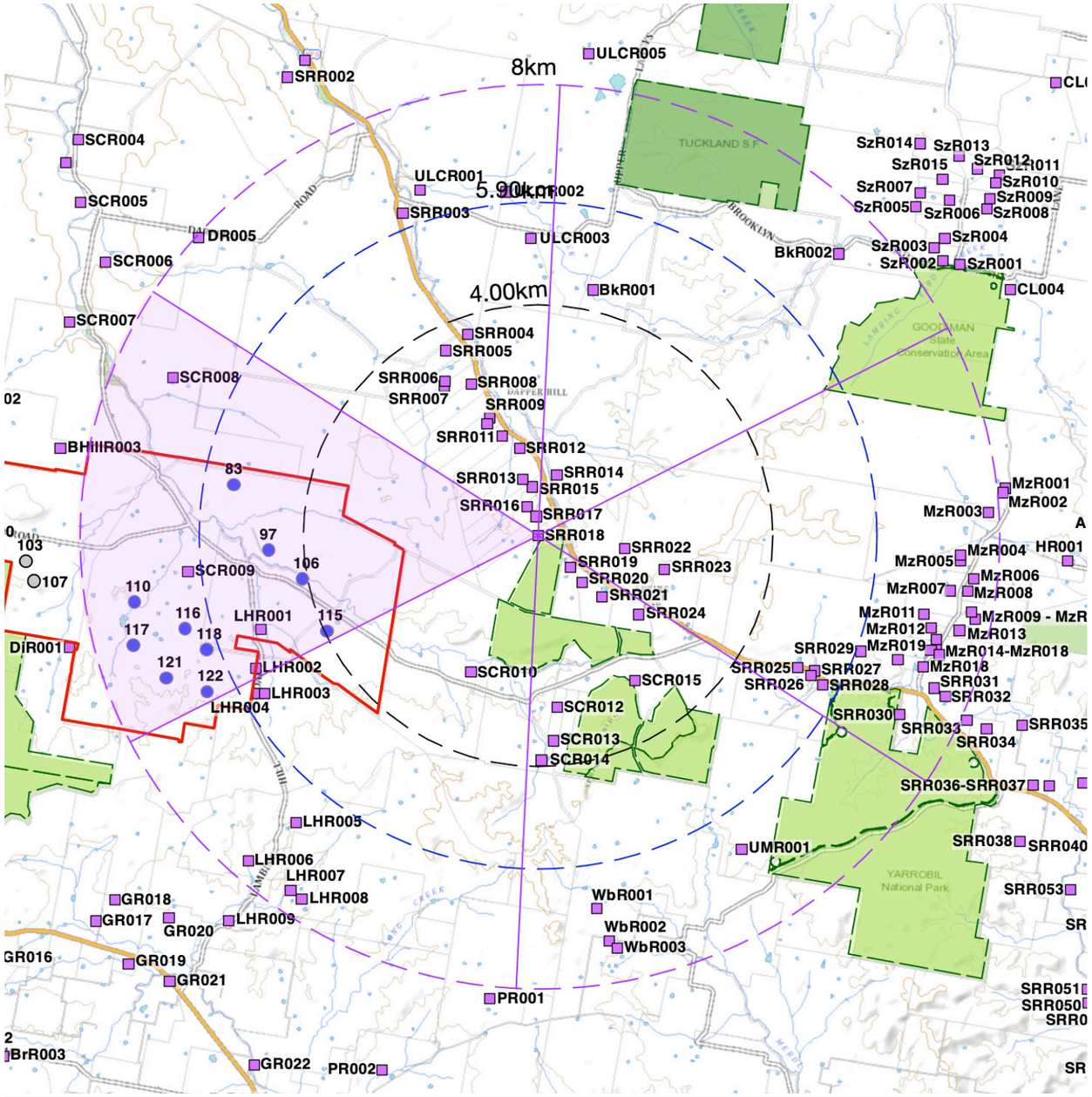
- Direction of visible turbines
- Extent of visible turbines

*Figure A.17* Aerial Image Dwelling SRR005 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.36 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **12 Turbine<br>10 at Tip<br>2 at Hub)** |

# **A.18.** Dwelling Assessment **SRR018**



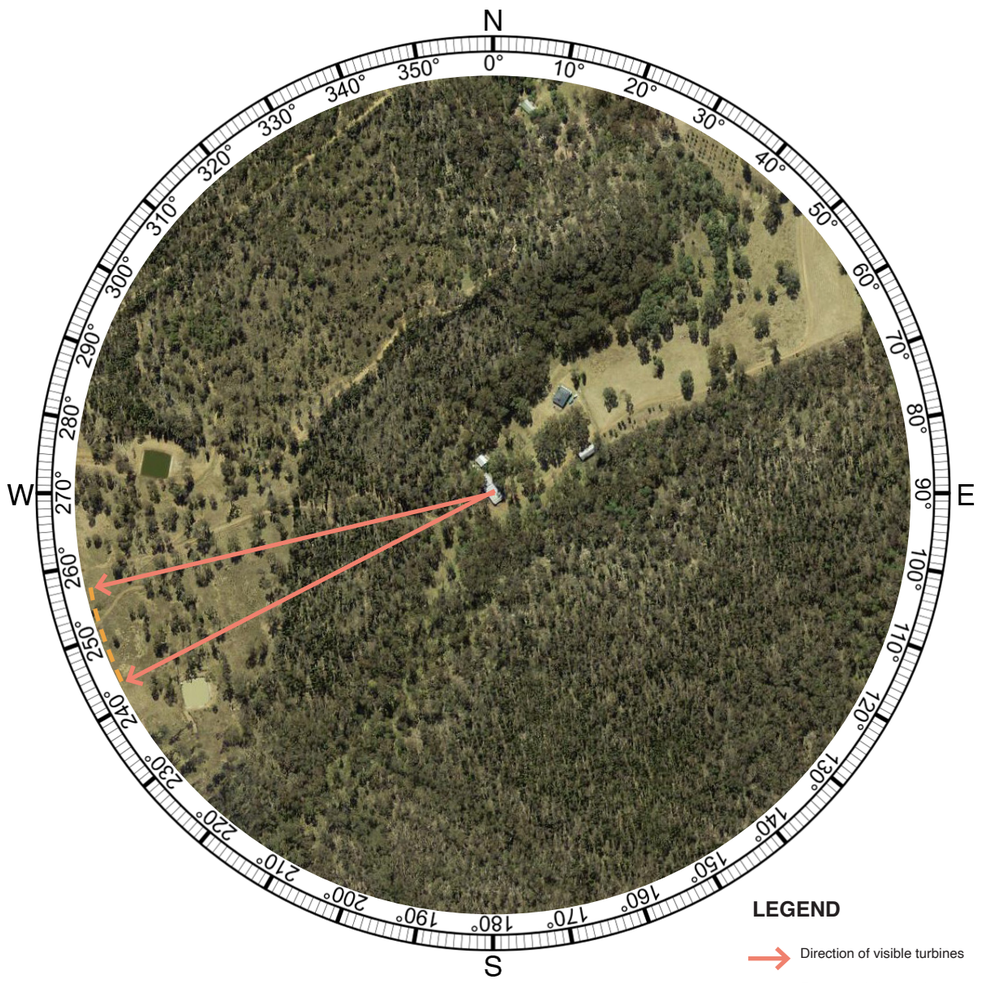
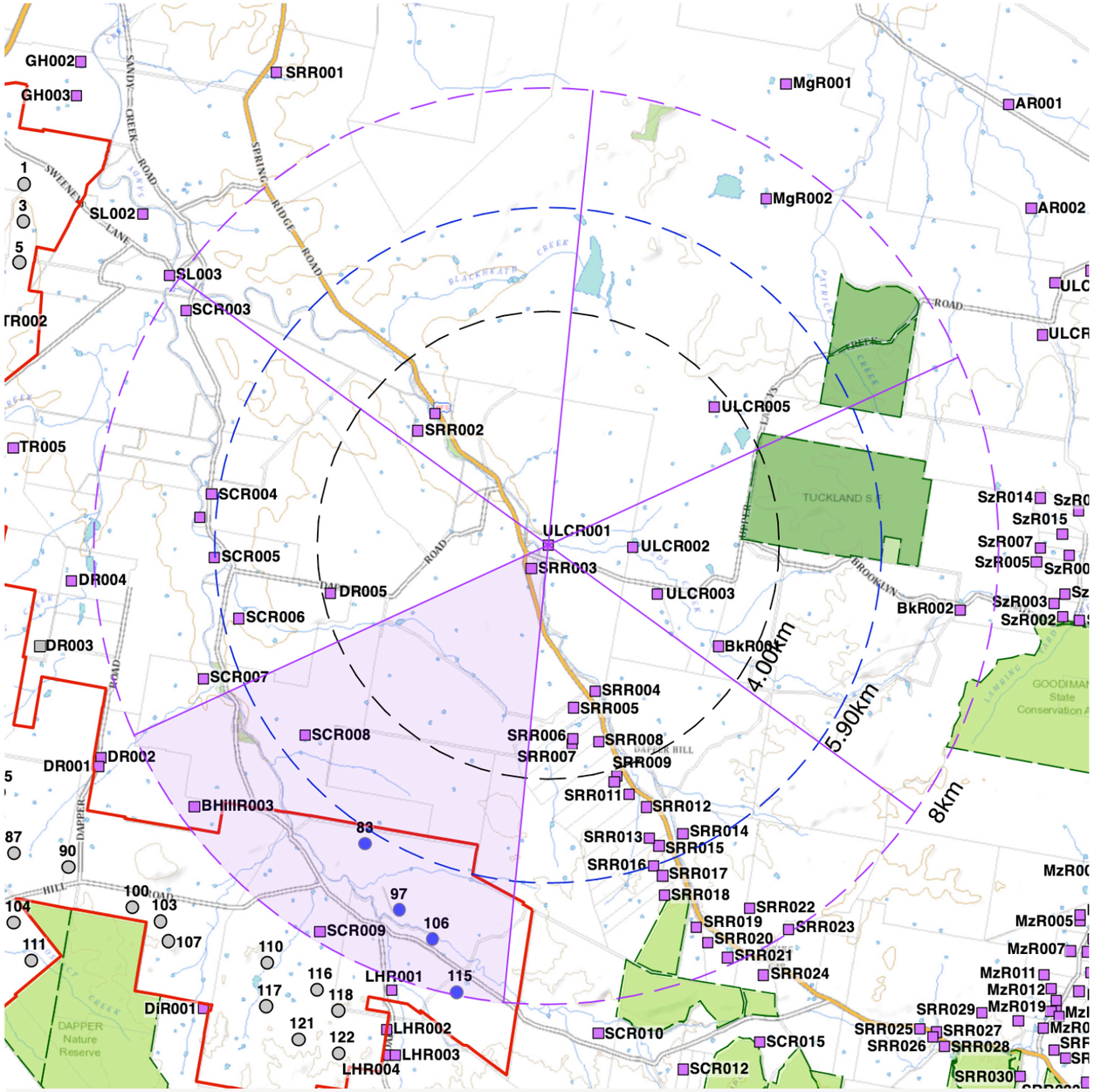




***Figure A.18*** Aerial Image Dwelling SRR018 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

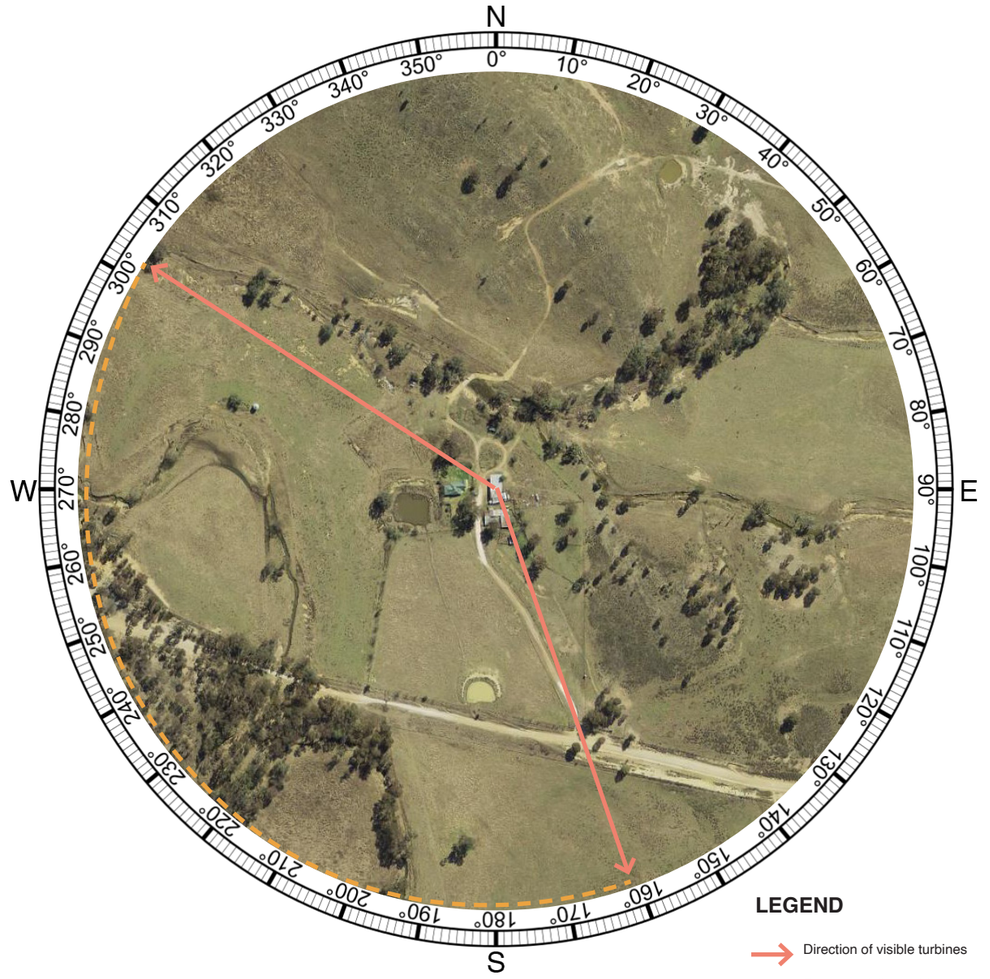
| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.02 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **1** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **4 Turbine**<br>**4 at Tip**<br>**0 at Hub)** |

# **A.19.** Dwelling Assessment **ULCR001**




LEGEND

- Project Boundary
- Proposed Turbine Location
- Proposed Turbine in excess of 8000 m from dwelling
- Involved Dwelling
- Non-involved Dwelling
- 4,000 m from nearest turbine (Black Line)
- 5,900 m from nearest turbine (Blue Line)
- 8,000 m from nearest turbine
- 60° sector
- 60° sector with turbines




LEGEND

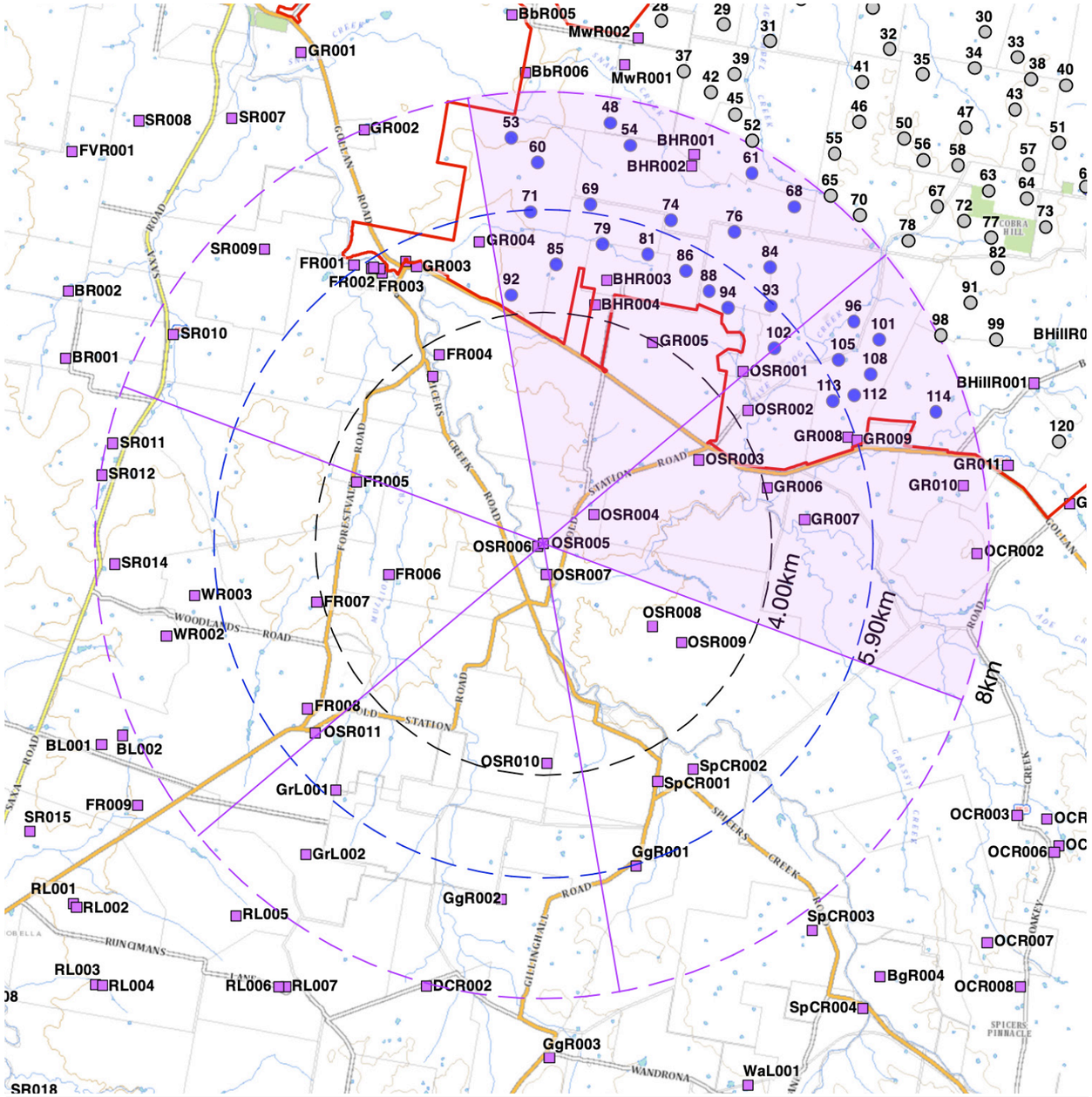
- Direction of visible turbines
- Extent of visible turbines

***Figure A.19*** Aerial Image Dwelling ULCR001 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **6.12 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **1** |
| **Number of potentially visible turbines:** | **72 Turbine<br>42 at Tip<br>30 at Hub)** |

# **A.20.** Dwelling Assessment **OSR005**



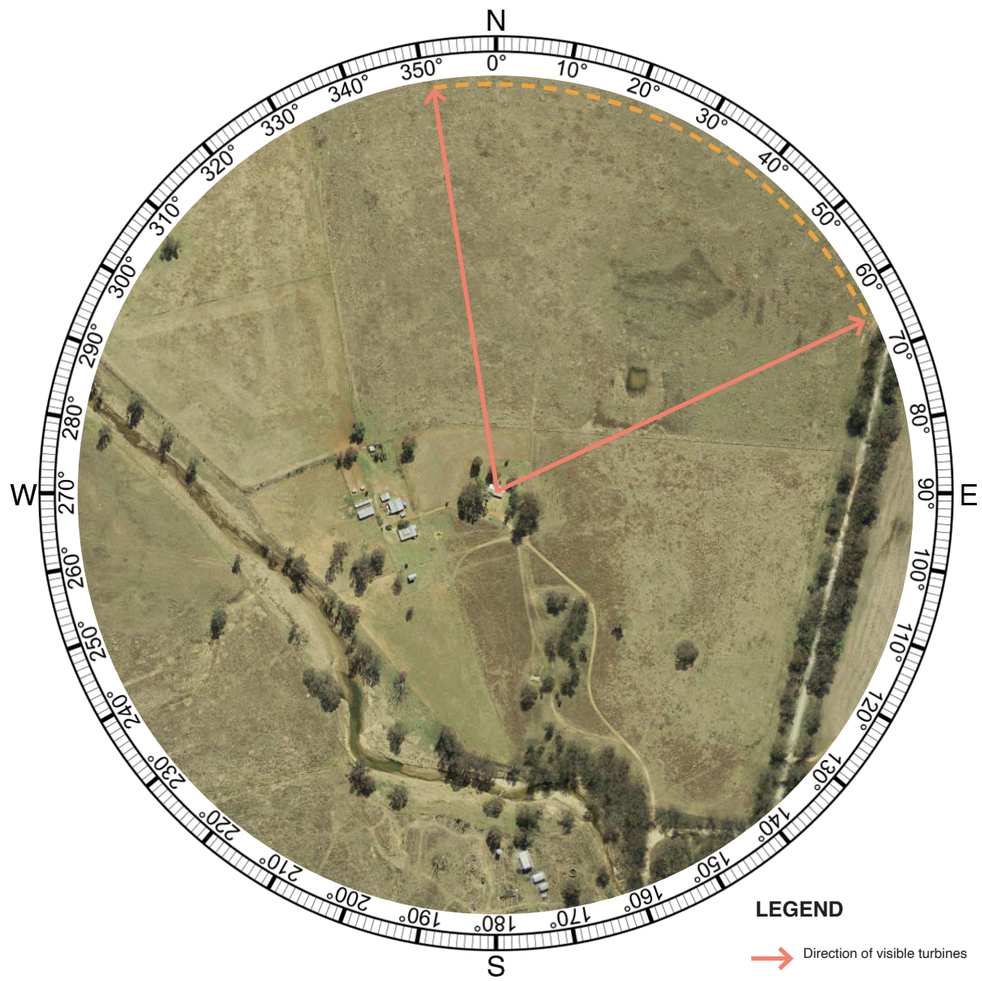




***Figure A.20*** Aerial Image Dwelling OSR005 (Aerial Image Source: SixMap)

Note: Based on 3D assessment taking into account turbines screened by topography.

| **Summary of Preliminary Assessment Tools:** | |
|---|---|
| **Distance to Nearest Turbine:** | **4.42 km** |
| **Number of proposed turbines within the black line (4,000 m) of visual magnitude:** | **0** |
| **Number of theoretical 60° sectors (Based on 2D assessment):** | **2** |
| **Number of potentially visible turbines:** | **82 Turbine**<br>**33 at Tip**<br>**49 at Hub)** |

# Appendix B

## Preliminary Public Viewpoint Assessments

# **VP01** Golden Highway, Elong Elong

Approximate extent of visible wind turbines

100° 110° 120° 130° 140° 150° 160° 170° S 190° 200° 210° 220° 230° 240° 250° 260° W 280°

## Existing View


*Aerial Image VP01 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP01

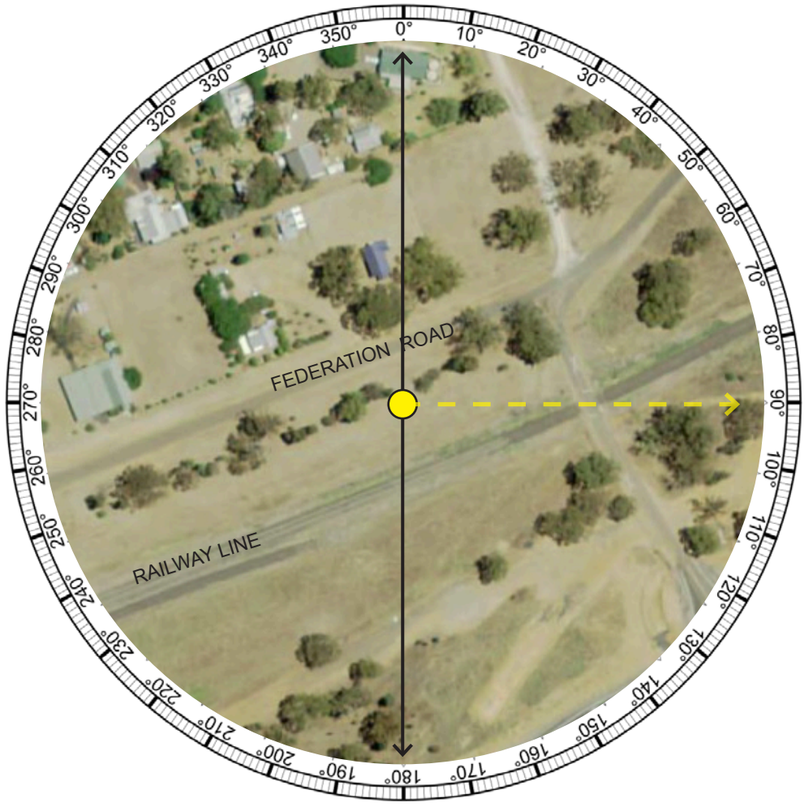
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Golden Highway, Elong Elong | 350m |
| Coordinates: | Viewing Direction: |
| 32° 6'57.78"S<br>149° 7'28.68"E | South |
| Distance to nearest WTG: | |
| 5.15km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located off the Golden Highway near dwelling NGH010. The Golden Highway is a main highway that connects Dubbo to the east coast. The landscape is generally characterised by flat grazing and cropping lands with scattered vegetation and patchy to dense roadside planting along the Golden Highway. Scattered vegetation within grazing lots is visible in the middleground and foreground of the view. Densely vegetated rolling low hills associated with the Project Site are visible to the south east in the background of the view. |
| **Potential Visual Impact:** |
| An assessment based on topography alone, identifies up to 122 WTG's associated with the project may be visible from this location. However, due to the combination of existing vegetation and distance, it is likely views toward a number of these may be fragmented from this location. Turbines located in the break in vegetation to the south east of the view are likely to be available though distance may make a number of difficult to discern. |

# **VP02** Federation Street, Ballimore

***Topography and vegetation are likely to screen views***


## Existing View




*Aerial Image VP02 (Aerial Image Source: Six Maps)*

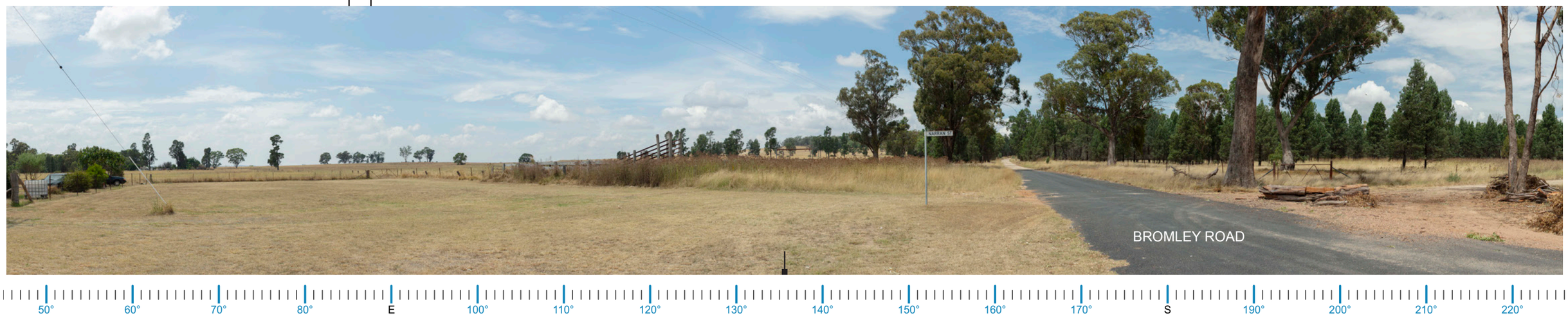
## VIEWPOINT VP02

| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Federation Street, Ballimore | 305m |
| Coordinates: | Viewing Direction: |
| 32°11'43.13"S<br>148°54'3.38"E | East |
| Distance to nearest WTG: | |
| 15.7km | |

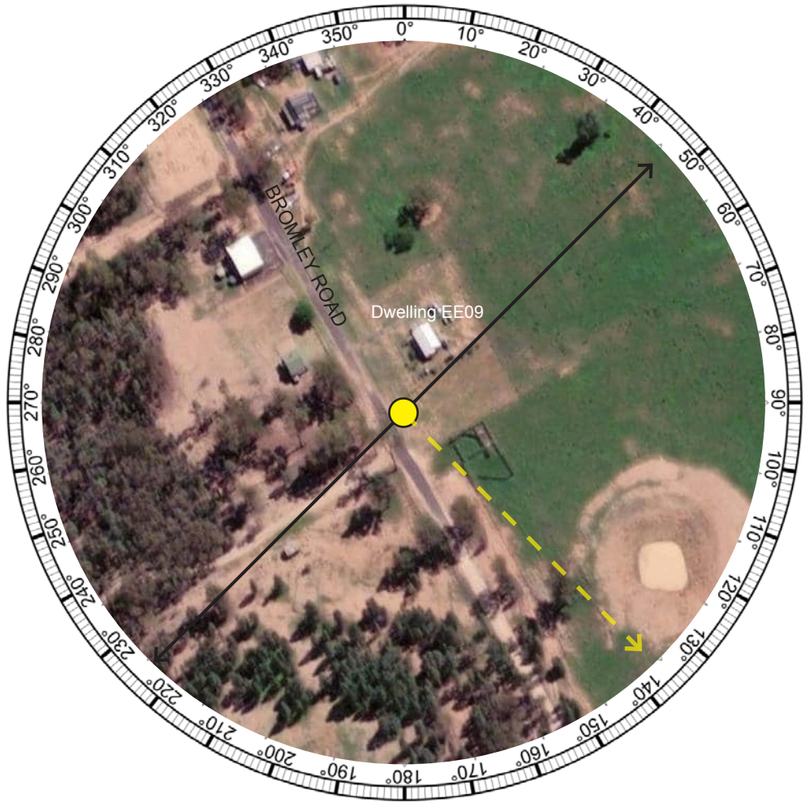
| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located at the entry to the village of Ballimore, off the Golden Highway. The entry to Ballimore is characterised by a row of native vegetation which lines Federation Street.<br>Land is flat and generally cleared with dense remnant groupings of native vegetation scattered along boundaries and roads. At this location, views are generally screened by existing vegetation in the foreground and middleground of the view. |
| **Potential Visual Impact:** |
| Topography is likely to screen views to the Project from Ballimore. |

# **VP03** Bromely Street, Elong Elong

Approximate extent of visible wind turbines




## Existing View




*Aerial Image VP03 (Aerial Image Source: NearMaps)*

## VIEWPOINT VP03

| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Bromely Street, Elong Elong | 338m |
| Coordinates: | Viewing Direction: |
| 32° 6’57.91”S<br>149° 2’14.86”E | South East |
| Distance to nearest WTG: | |
| 9.20km | |

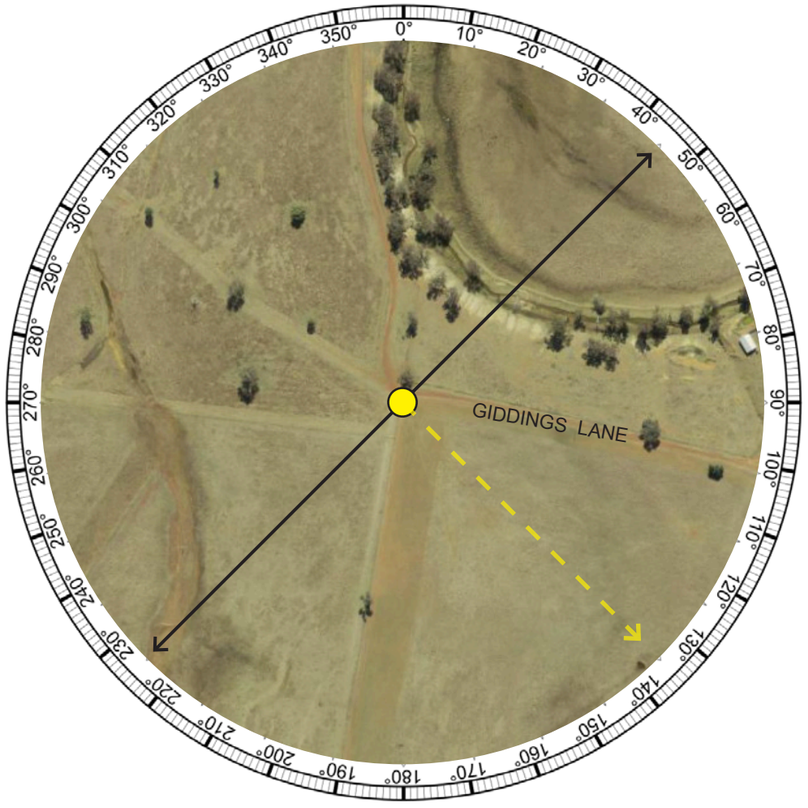
| **Existing Landscape Character Description:** |
|---|
| This viewpoint was taken from Bromley Road, in Elong Elong near the intersection of Narran Street and the driveway of dwelling EE09. This viewpoint is characterised by the flat and cleared rural residential residences typical of Elong Elong Village. A large parcel of dense native vegetation is visible to the south in the middleground of the view. Scattered vegetation within grazing lots are visible to the east in the background of the view. Views are generally contained or filtered by the vegetation to the south and scattered to the east of the view. |
| **Potential Visual Impact:** |
| From this location, it is likely that a combination of existing vegetation to the east and distance will screen views toward the Project. |

# **VP04** Giddings Lane, Elong Elong

Approximate extent of visible wind turbines

50° 60° 70° 80° E 100° 110° 120° 130° 140° 150° 160° 170° S 190° 200° 210° 220°

**Existing View**



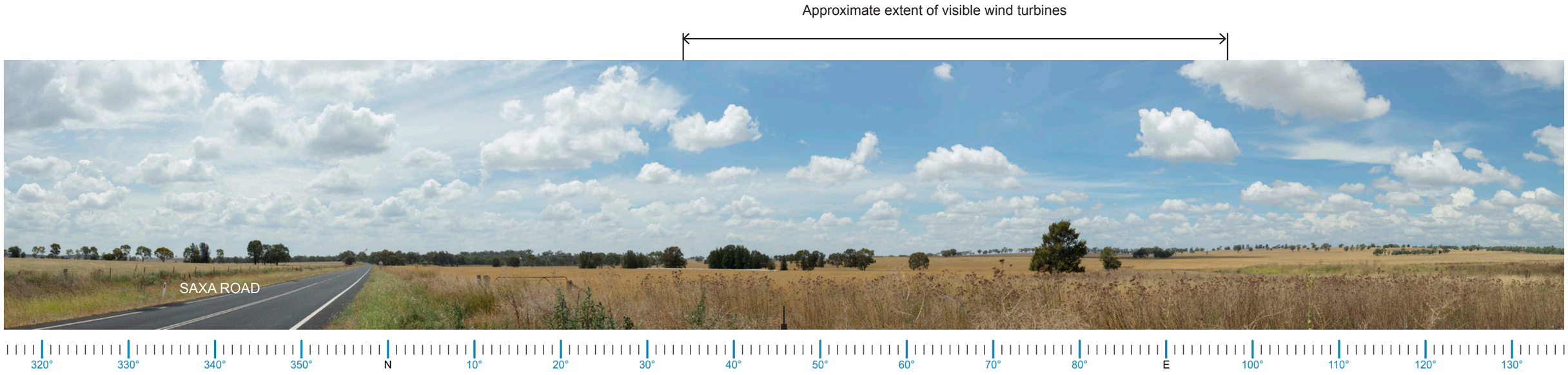

*Aerial Image VP04 Aerial Image Source: Six Maps)*

## VIEWPOINT VP04

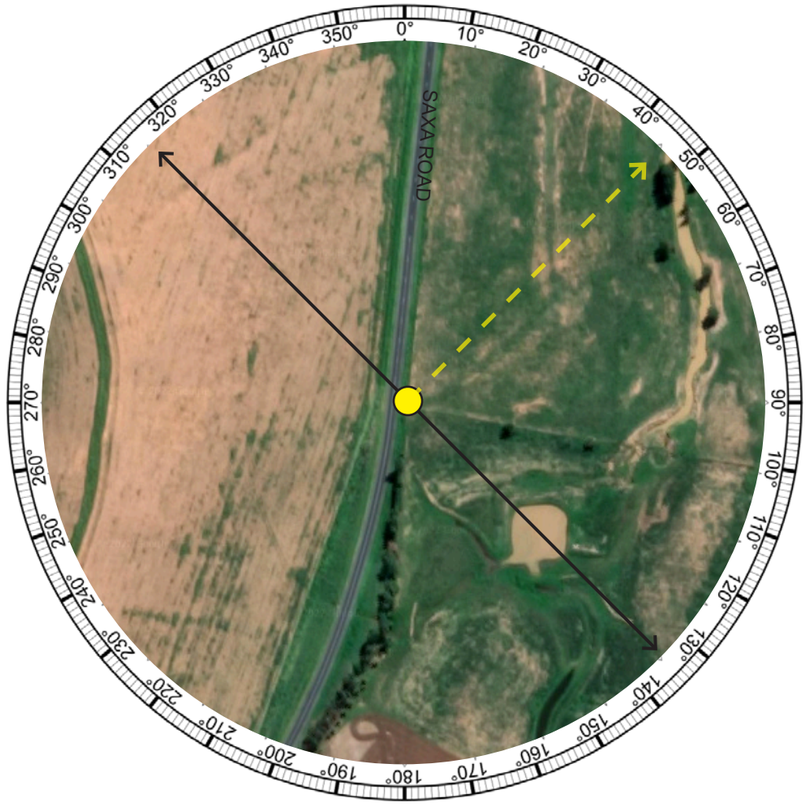
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Giddings Lane, Elong Elong | 337m |
| Coordinates: | Viewing Direction: |
| 32°10’23.28”S<br>149° 3’21.05”E | South East |
| Distance to nearest WTG: | |
| 4.75km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint was taken from Giddings Lane. Giddings Lane is a low-use road that runs generally east-west and provides access to low density rural residential lots. The surrounding landscape is characterised by flat and cleared land used to support agricultural activity. A small number of scattered trees are visible in the background of the view. Views from this locations are generally open and expansive. |
| **Potential Visual Impact:** |
| It is likely expansive views toward the turbines will be available from this location due to the lack of screening factors and topography. |

# **VP05** Saxa Road, Gollan




## Existing View




*Aerial Image VP05 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP05

| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Saxa Road, Gollan | 370m |
| Coordinates: | Viewing Direction: |
| 32°16'0.52"S<br>148°59'52.69"E | North East |
| Distance to nearest WTG: | |
| 6.36km | |

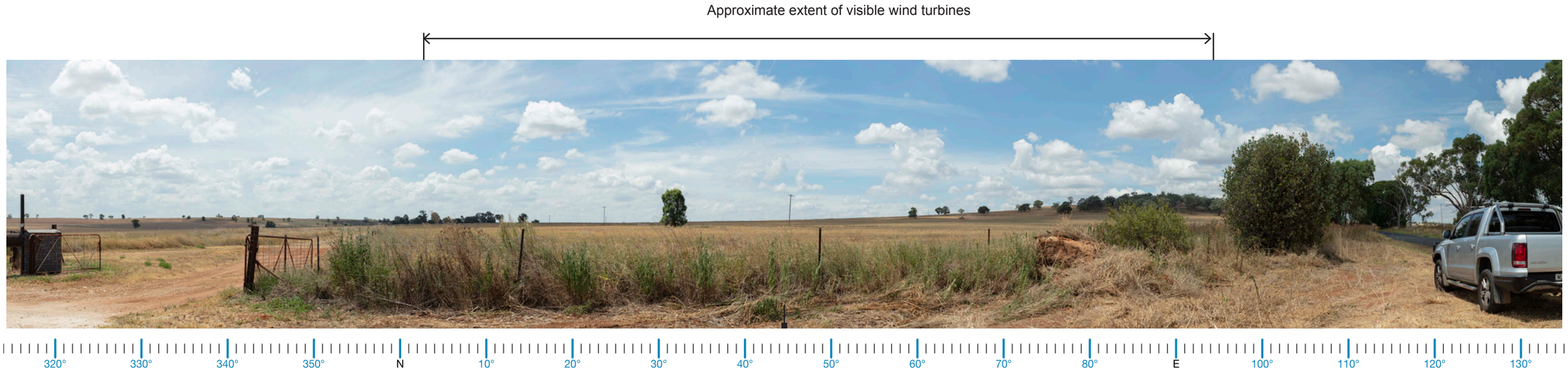
**Existing Landscape Character Description:**

This viewpoint was taken at Saxa Road. Saxa Road is a sealed road generally running north south, connecting the Golden highway south to Wellington and providing access to a number of rural residential properties located nearby. The viewpoint is located within the extent of the Spicers Creek pastures Landscape Character Unit (LCU), the character of which is defined by generally flat to gently undulating landscapes that have been extensively cleared for agricultural activity such as grazing and cropping. Scattered vegetation within grazing lots and large remnant patches of native vegetation are visible in the background to the north east of the view. Views from this location are generally open though the existing vegetation to the north east fragments views in this direction.

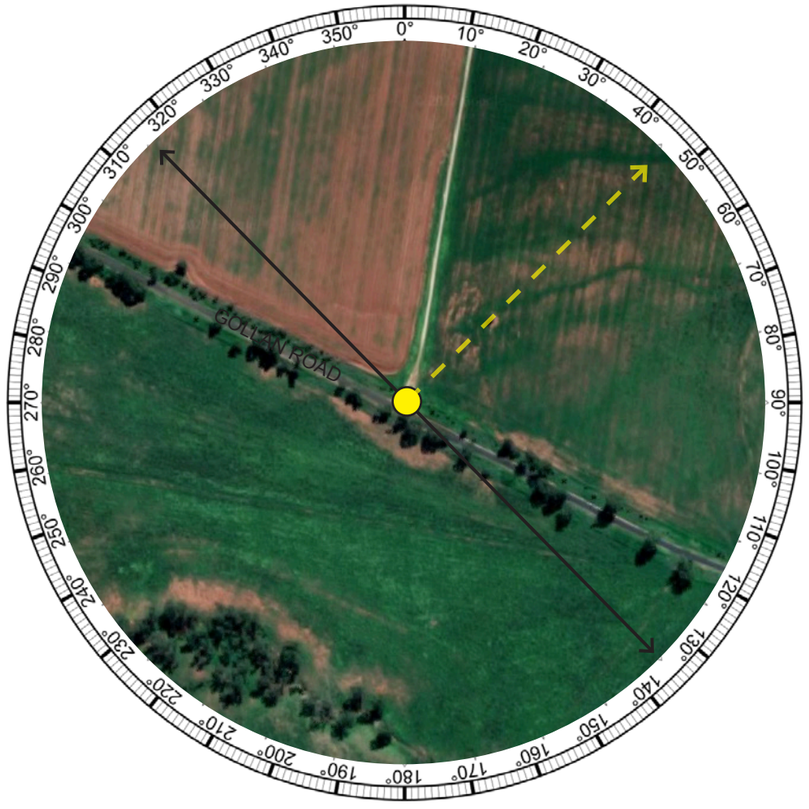
**Potential Visual Impact:**

The Project will be visible in the background to the north-east of the viewpoint. Existing vegetation in the background are likely to assist in fragmenting views to a number of turbines located to the north east.

# **VP06** Gollan Road, Gollan




**Existing View**



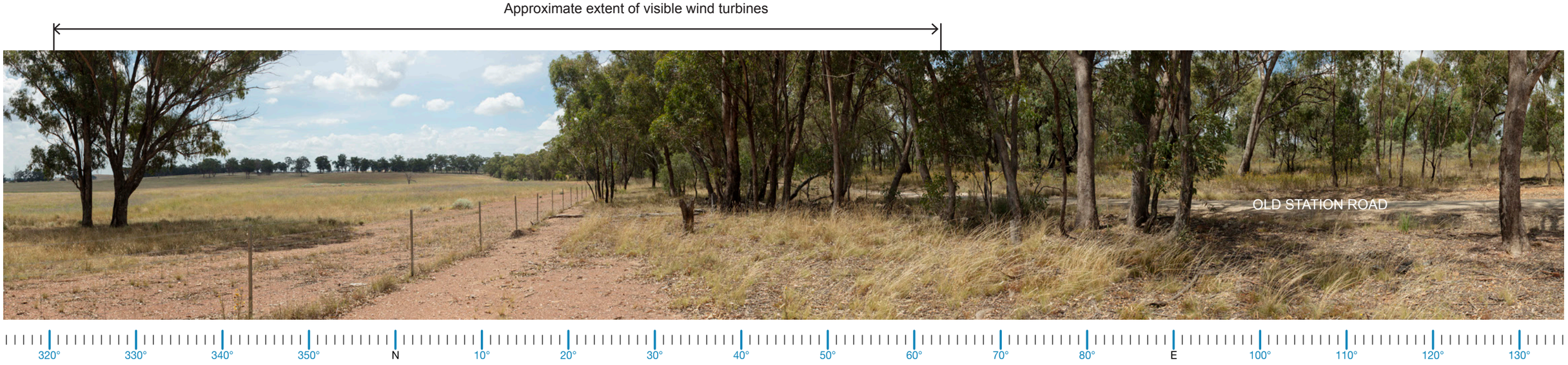

*Aerial Image VP06 Aerial Image Source: Google Maps)*

## VIEWPOINT VP06

| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Gollan Road, Gollan | 380m |
| Coordinates: | Viewing Direction: |
| 32°15'5.56"S<br>149° 3'16.66"E | North East |
| Distance to nearest WTG: | |
| 0.84km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located along Gollan Road, at the boundary with the Project Site. The topography is flat to gently undulating and modified to suit the surrounding land use which includes livestock grazing and cropping. Scattered roadside vegetation is visible in the foreground to the east of the view with remnant groups of native vegetation located along highpoints to the east, in the background of the view. Due to the distance to the Project Site, views toward the proposed turbines are generally open and at close range from this location. |
| **Potential Visual Impact:** |
| An assessment based on topography alone suggests that from this location up to 75 wind turbines may be visible. Existing scattered vegetation to the east is likely to fragment views to a small number of turbines located in this direction, reducing the number of turbines that will be visible from this location. |

# **VP07** Old Station Road, Gollan




**Existing View**

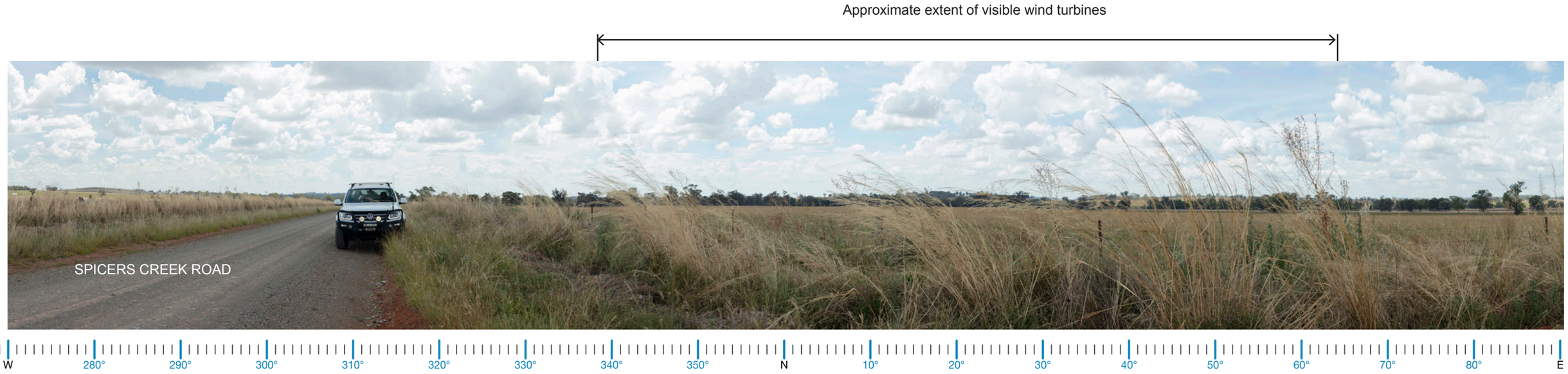

*Aerial Image VP07 (Aerial Image Source: Google Maps)*

## VIEWPOINT VP07

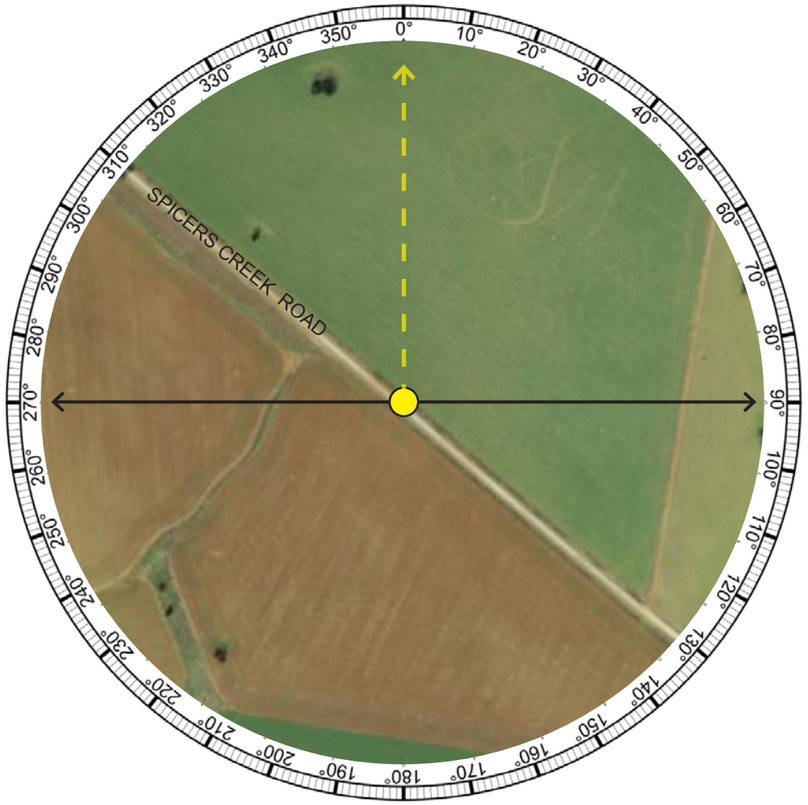
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Old Station Road, Gollan | 412m |
| Coordinates: | Viewing Direction: |
| 32°17’3.88”S<br>149° 4’36.91”E | North East |
| Distance to nearest WTG: | |
| 3.68km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is taken from Old Station Rd. Old Station Road is a low use, unsealed road providing access to a number of residences located between Gollan Road and Spicers Creek Road. Dense roadside vegetation features along the Old Station Road. Land is mostly flat to gently undulating generally utilised for grazing activities. The surrounding cleared landscape contains pockets of remnant vegetation located along boundaries and isolated pockets within grazing lots. Dense vegetation associated with Old Station Road is visible in the north east in the foreground of the view with boundary vegetation visible in the distance of the view. The existing foreground vegetation is likely to screen a large portion of views toward the Project Site to the north east and east. |
| **Potential Visual Impact:** |
| An assessment based on topography alone suggests that up to 122 turbines may visible from this location. However, due to a combination of distance and existing roadside vegetation, it is likely the number of turbines visible from this location will be reduced to approximately 13. |

# **VP08** Spicers Creek Road, Spicers Creek




## Existing View



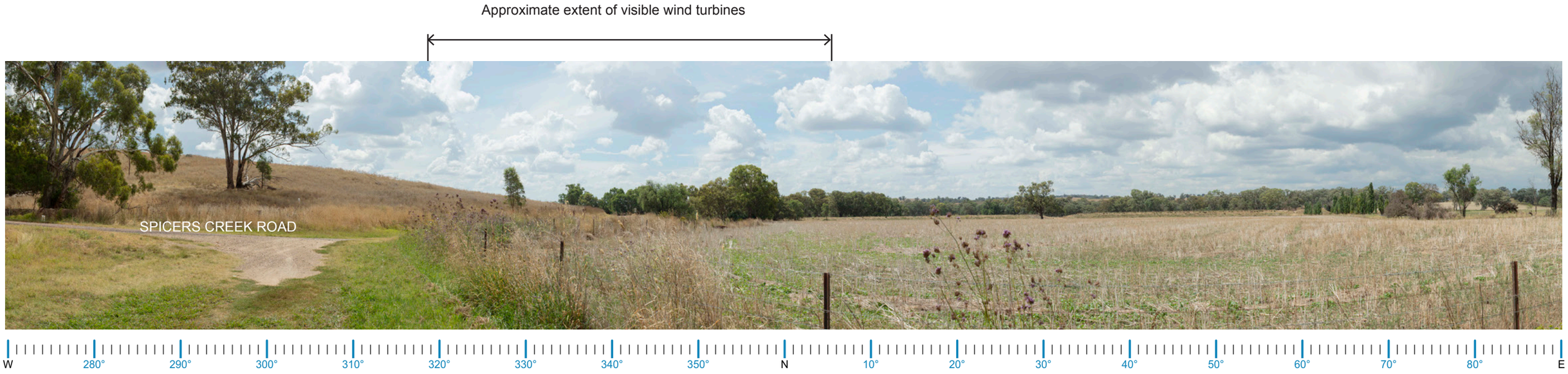

*Aerial Image VP08 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP08

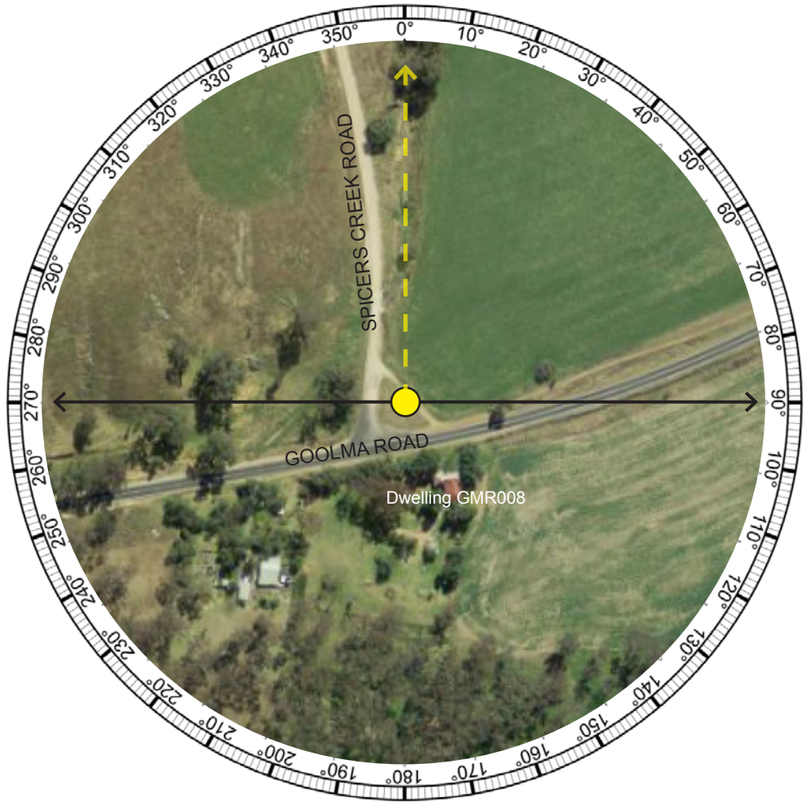
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Spicers Creek Road, Spicers Creek | 442m |
| Coordinates: | Viewing Direction: |
| 32°20'4.62"S 149° 6'23.53"E | North |
| Distance to nearest WTG: | |
| 7.5km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located on Spicers Creek Road. Spicers Creek Road is a low use, unsealed road connecting a number of rural residential residences along Forestvale Road to Goolma Road. Land is characterised by flat land used for cropping and grazing activities. Surrounding land is generally cleared with dense vegetation isolated to boundaries, creeklines and undulating hillsides. Clearings along the roadside provide open views towards the north of the Project. The undulating and vegetated hillsides associated with the Project Site are visible in the background of the view. |
| **Potential Visual Impact:** |
| From this location turbines will be visible to the north of the view, located along the undulating hillsides in the background. It is likely vegetation along the hillside may fragment some views to a small number of turbines from this location. |

# **VP09** Goolma Road, Spicers Creek




## Existing View



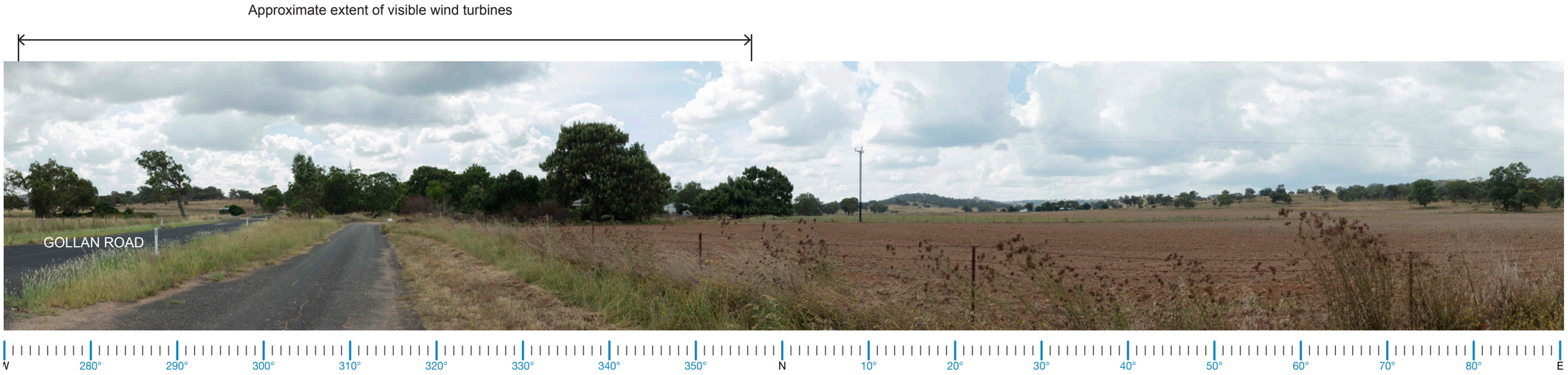

*Aerial Image VP09 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP09

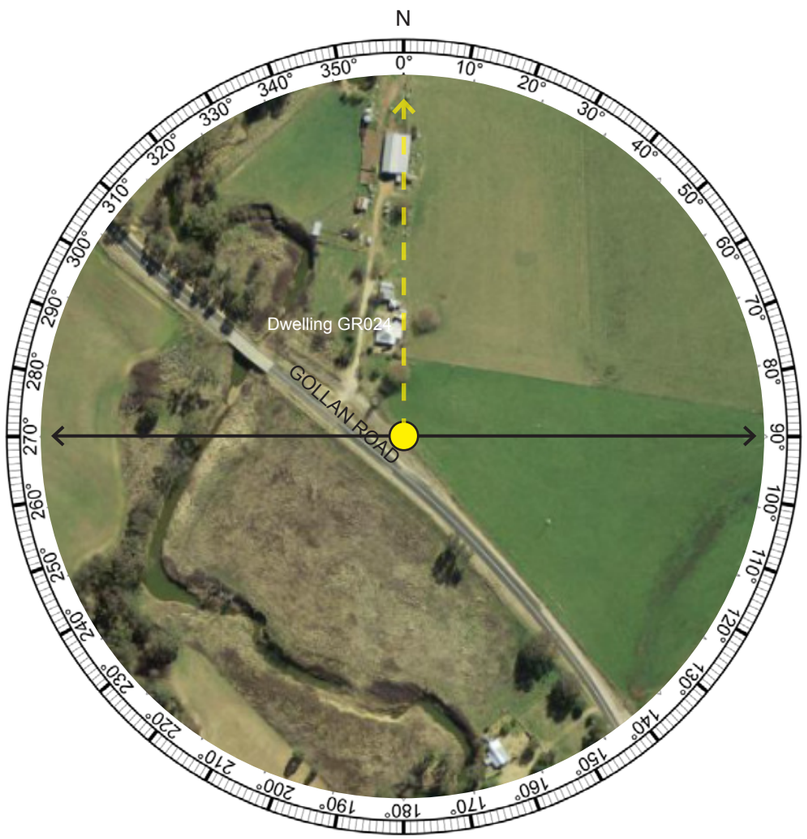
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Goolma Road, Spicers Creek | 519m |
| Coordinates: | Viewing Direction: |
| 32°23'14.45"S<br>149° 9'36.62"E | North |
| Distance to nearest WTG: | |
| 13.10km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint was taken from the intersection of Spicers Creek Road and Goolma Road across from GMR008. This viewpoint is representative of dwelling GMR008. Goolma Road is a low use sealed road that connects Wellington to Goolma. The land is flat to undulating with cleared parcels of land used for cropping and grazing activities visible in the foreground of the view. Dense vegetation associated with Spicers Creek is visible to the north in the background of the view. A local rise is visible to the west in the middleground of the view and contains views in this direction. |
| **Potential Visual Impact:** |
| It is likely a combination of existing vegetation will screen views toward the Project Site from this location. |

# **VP10** Gollan Road, Goolma




## Existing View



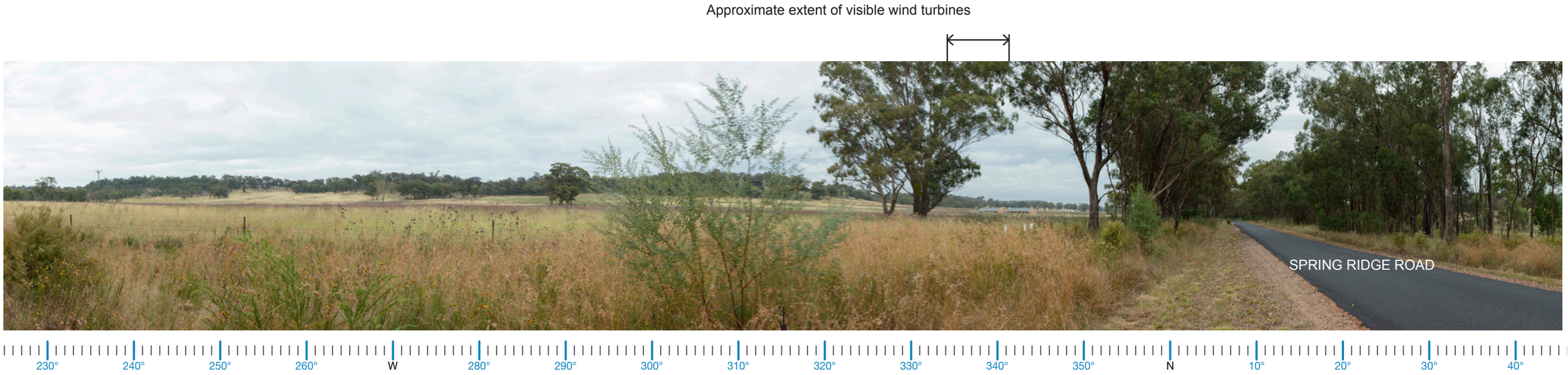

*Aerial Image VP10 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP10

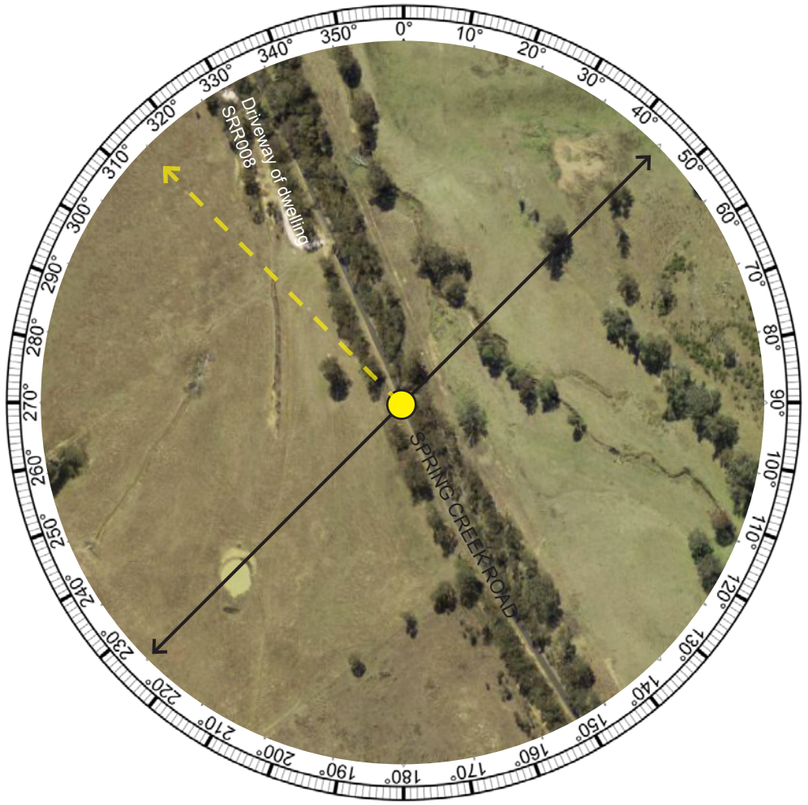
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Gollan Road, Goolma | 419m |
| Coordinates: | Viewing Direction: |
| 32°21'25.39"S<br>149°15'51.91"E | North |
| Distance to nearest WTG: | |
| 8.80km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint was taken the from the driveway of GR024, off Gollan Road. The surrounding landscape is characterised by relatively flat to gently undulating land that has been partially cleared to support agricultural activity. Dense vegetation associated with GR024 is visible in the middleground to the north west of the view. Vegetated rolling and steep hills are visible in the background to the north and north east. Land use is characterised by low density rural living, livestock grazing and cropping. Existing vegetation screens views toward the north west from this location with open views generally available to the north east. |
| **Potential Visual Impact:** |
| Existing vegetation to the north west is likely to screen views toward the Project Site from this location. |

# **VP11** Spring Ridge Road, Tallawang




**Existing View**




*Aerial Image VP11 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP11

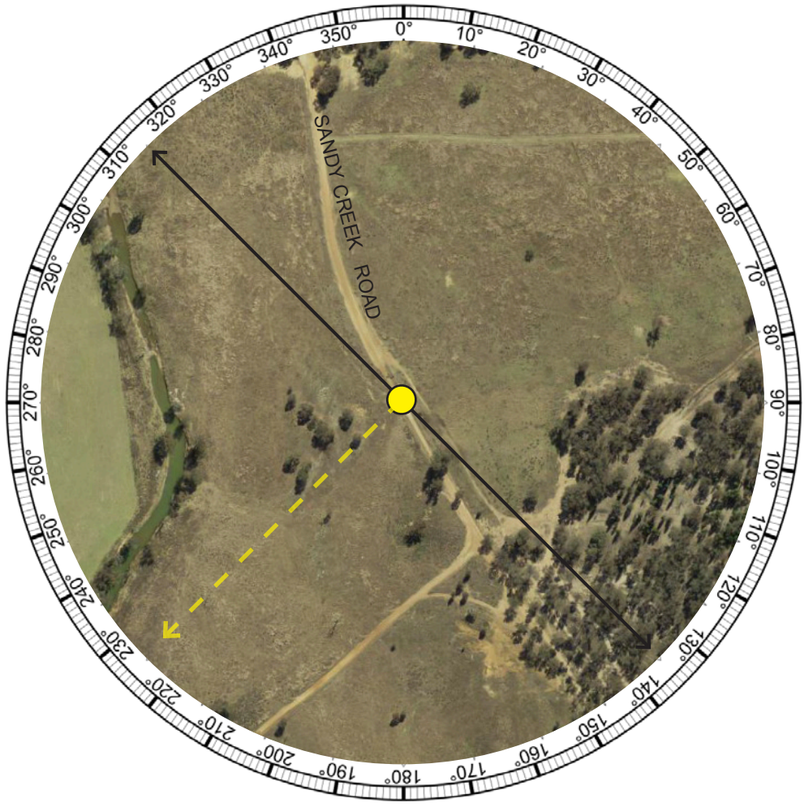
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Spring Ridge Road, Tallawang | 459m |
| Coordinates: | Viewing Direction: |
| 32°13'59.25"S 149°17'45.23"E | North West |
| Distance to nearest WTG: | |
| 4.47km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located at a break in vegetation on Spring Ridge Road near dwellings SRR008 and SRR009. Spring Ridge Road is a sealed road that features dense roadside vegetation for the majority of the road. The topography around this viewpoint is generally flat to undulating and includes patches of dense roadside vegetation and vegetation along hillsides. Dense roadside vegetation is visible in the foreground to the north of the view. Remnant areas of native vegetation situated along the rolling hillsides are visible in the background of the view. Views from this location are typically screened due to existing vegetation. |
| **Potential Visual Impact:** |
| It is likely that roadside vegetation will fragment views toward the Project Site from this location. |

# **VP12** Sandy Creek Road, Dunedoo

Approximate extent of visible wind turbines


## Existing View




*Aerial Image VP12 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP12

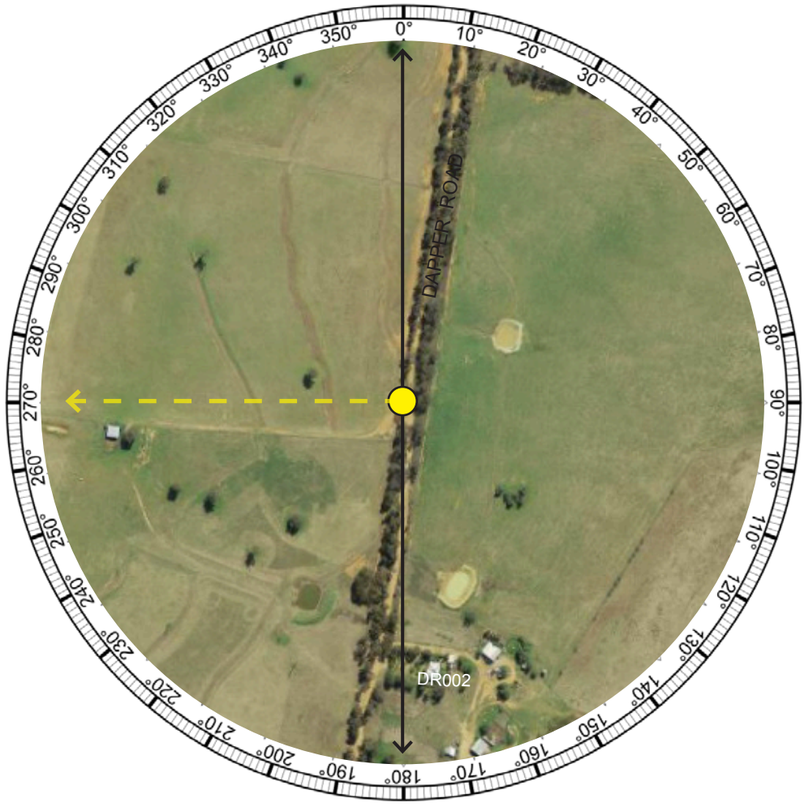
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Sandy Creek Road, Dunedoo | 375m |
| Coordinates: | Viewing Direction: |
| 32° 9’16.36”S 149°12’54.54”E | South West |
| Distance to nearest WTG: | |
| 3.06km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is from Sandy Creek Road, a low use and unsealed road providing access to a small number of isolated rural residential properties. The topography is generally flat to gently undulating and used for grazing and cropping activities. Large patches of remnant vegetation feature along hillsides and creeklines. Riparian vegetation associated with nearby Sandy Creek is visible to the south west in the middleground of the view. Densely vegetated low rises associated with the Project Site are visible in the background of the view. |
| **Potential Visual Impact:** |
| From this location turbines will be visible towards the south of the view. It is likely that creekline vegetation in the middleground will fragment views toward a number of turbines located to the south west. |

# **VP13** Dapper Road, Dunedoo

Approximate extent of visible wind turbines


## Existing View



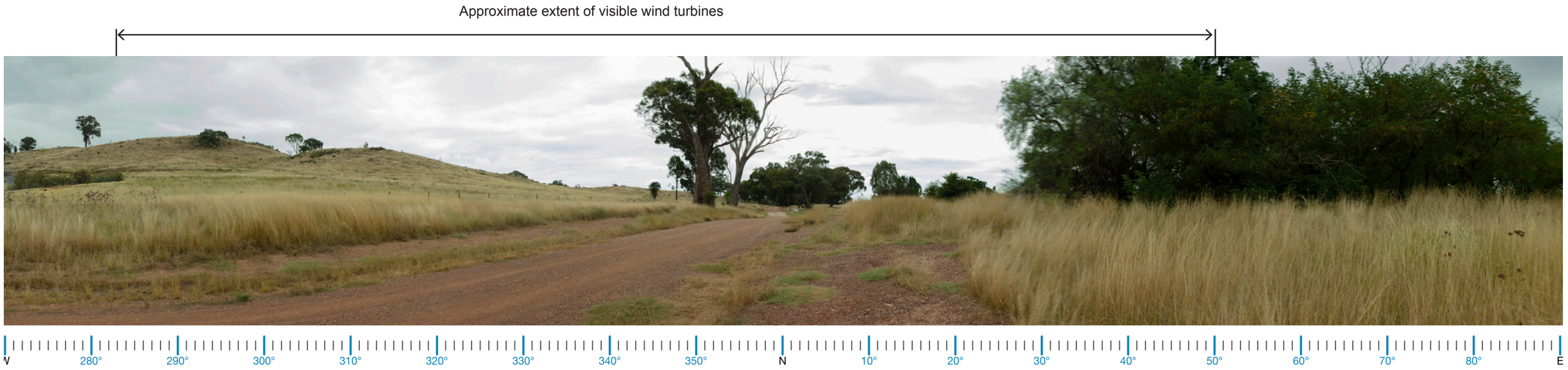

*Aerial Image VP13 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP13

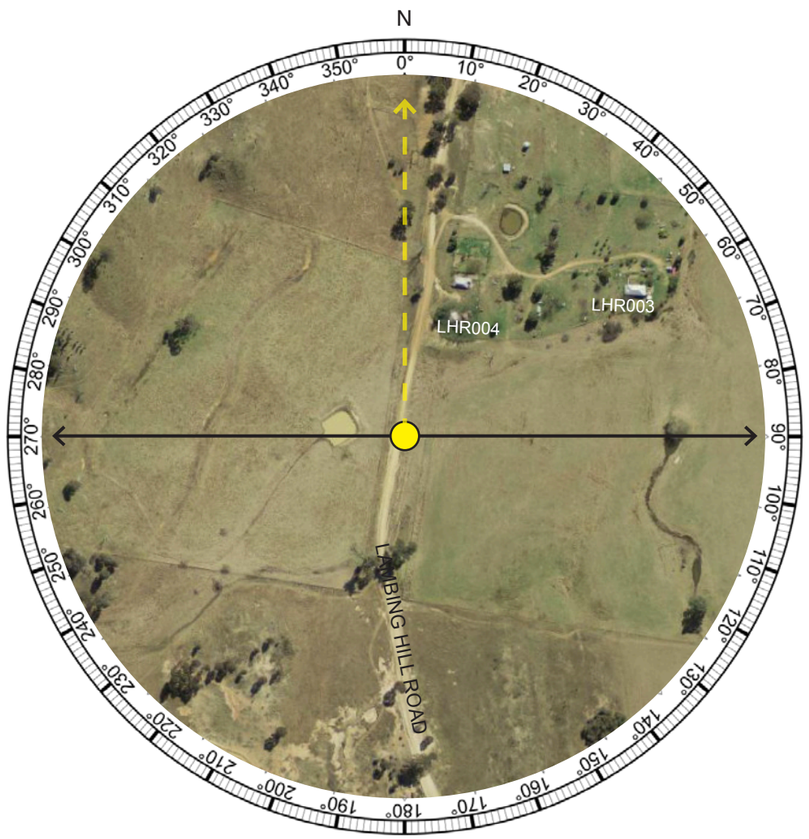
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Dapper Road, Baldry | 444m |
| Coordinates: | Viewing Direction: |
| 32°13'54.01"S<br>149°11'58.23"E | South |
| Distance to nearest WTG: | |
| 2.02km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is from a break in vegetation along Dapper Road near dwelling DR002, at the Project Boundary. Dapper Road is a low-use, unsealed and heavily tree lined road that provides access to a handful of low density rural residential lots. The landscape is characterised by gentle undulations and surrounding land has been extensively cleared to support grazing paddocks and cropping. Dense roadside vegetation features in the foreground to the north of the view in addition to isolated groupings of vegetation within lots visible in the background of the view. Views from this area are generally expansive toward the Project Site. |
| **Potential Visual Impact:** |
| Due to the proximity to the Project site and lack of screening factors, expansive views toward the turbines from this location are likely. Roadside vegetation is likely to fragment views to a small number of turbines to the north of the view. |

# **VP14** Lambing Hill Road, Dunedoo




## Existing View



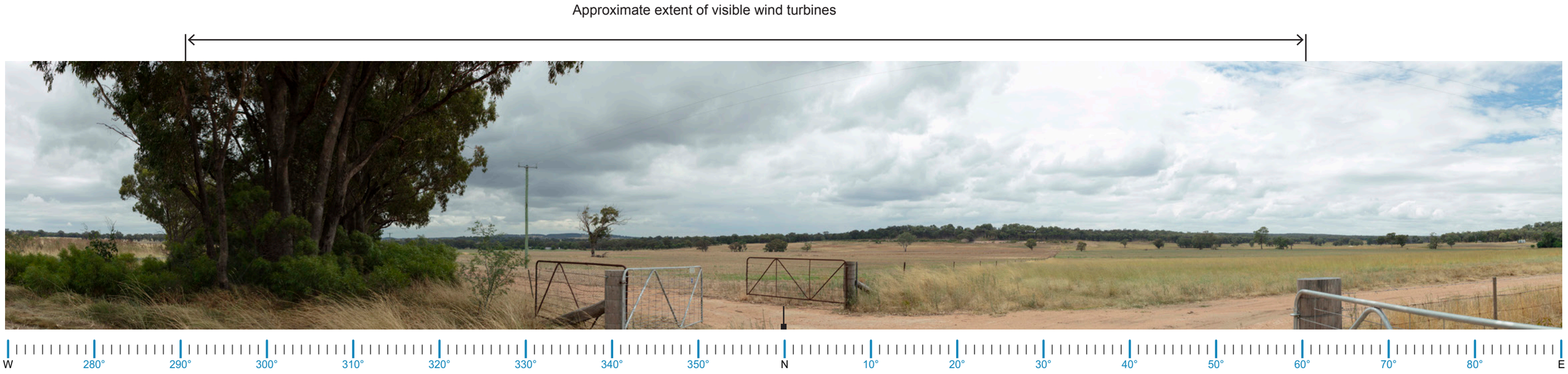

*Aerial Image VP14 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP14

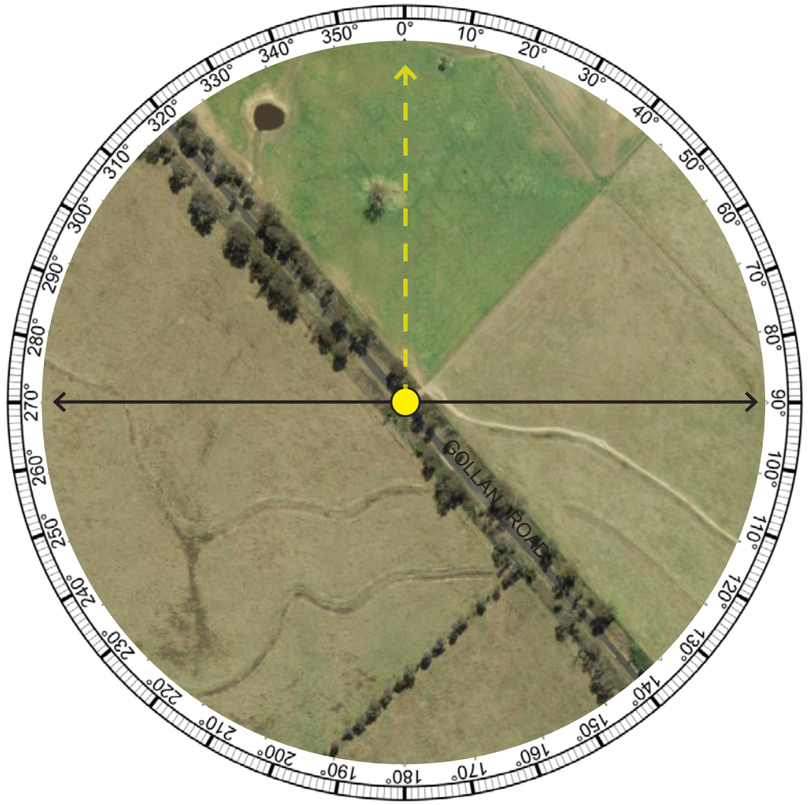
| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Lambing Hill Road, Dunedoo | 468m |
| Coordinates: | Viewing Direction: |
| 32°16'54.24"S 149°15'14.95"E | North |
| Distance to nearest WTG: | |
| 0.84km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint is located on Lambing Hill Road near to dwelling LHR004 and LHR003. The surrounding landscape is characterised by undulating topography which has been partially cleared to allow for grazing. Patches of vegetation associated with the nearby residences are visible to the north east in the foreground of the view. A local rise associated with the Project Site is visible in the north west of the view. At this location, views are generally open to the north west and partially contained by dense vegetation to the east. |
| **Potential Visual Impact:** |
| Due to the proximity to the Project site and lack of screening factors, expansive views toward the turbines closest to the viewpoint are likely to be available. Vegetation associated with the nearby residences is likely to fragment views to a small number of turbines to the north east of the view. |

# **VP15** Gollan Road, Gollan




## Existing View

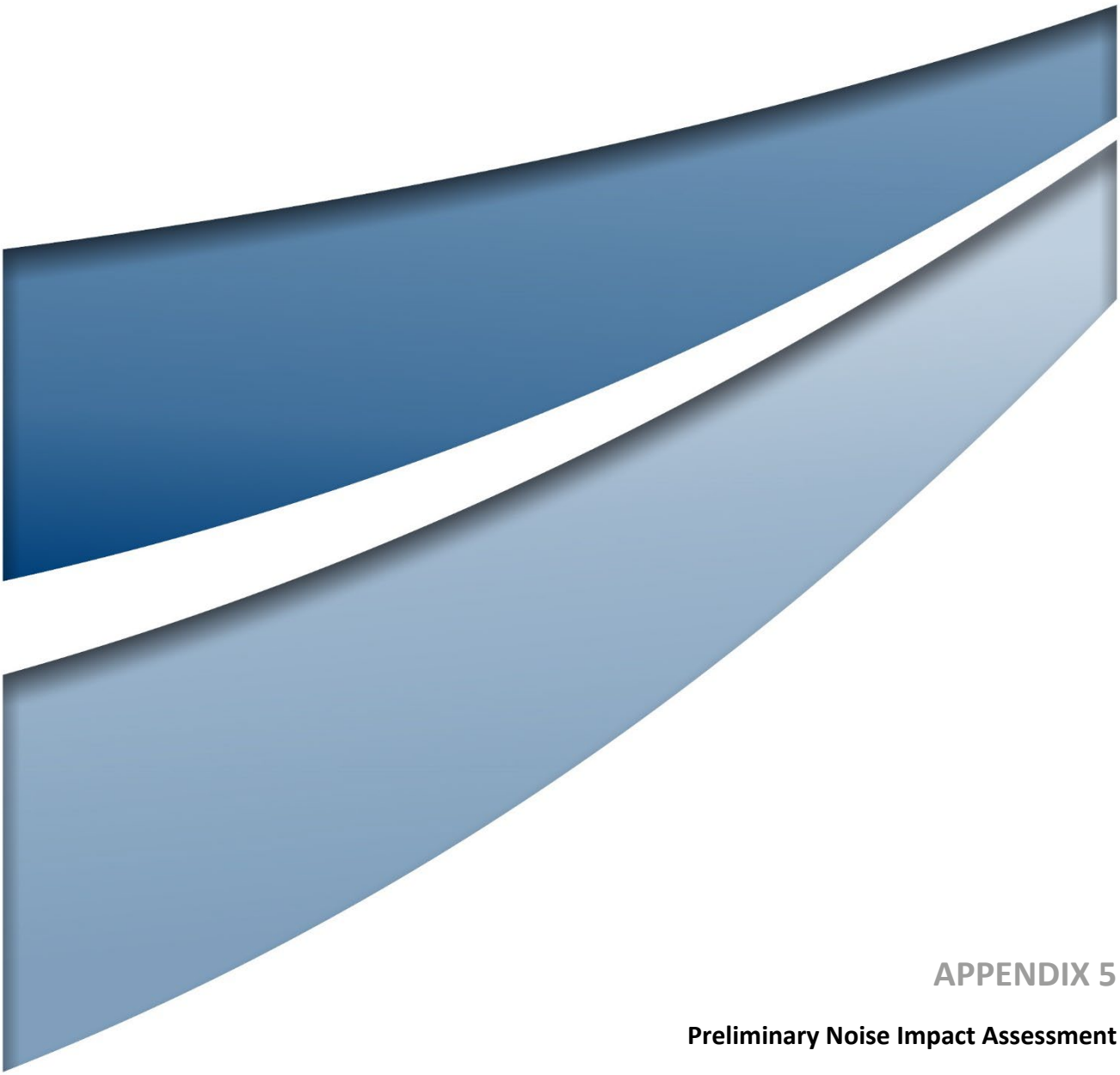



*Aerial Image VP15 (Aerial Image Source: Six Maps)*

## VIEWPOINT VP15

| **Viewpoint Summary:** | |
|---|---|
| Location: | Elevation: |
| Gollan Road, Gollan | 468m |
| Coordinates: | Viewing Direction: |
| 32°17'38.76"S<br>149°10'25.52"E | North |
| Distance to nearest WTG: | |
| 2.21km | |

| **Existing Landscape Character Description:** |
|---|
| This viewpoint was taken from Gollan Road, nearby the boundary of Dapper Nature Reserve and the Project Site. The landscape is characterised by flat to undulating cleared land used for agricultural activities, contrasted with undulating to steep and densely vegetated sections associated with the Nature Reserve. Views are generally contained to the west by the existing roadside vegetation in the foreground of the view. The low ridgeline associated with the Nature Reserve is visible in the background of the view. |
| **Potential Visual Impact:** |
| Due to the proximity to the Project site and lack of screening factors, expansive views toward the turbines from this location are likely. Roadside vegetation is likely to fragment views to a small number of turbines to the west of the view. |



# APPENDIX 5

**Preliminary Noise Impact Assessment**

# Spicers Creek Wind Farm

## Preliminary Noise Impact Assessment

S6219C5

March 2022

sonus.

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| | | |
|---|---|---|
| **Document Title** | : | Spicers Creek Wind Farm<br>Preliminary Noise Impact Assessment |
| **Document Reference** | : | S6219C5 |
| **Date** | : | March 2022 |
| **Author** | : | Chris Turnbull, MAAS |

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**GLOSSARY**

| | |
|---|---|
| A-weighting | Frequency adjustment applied to measured noise levels to replicate the frequency response of the human ear. |
| Ambient noise level | The noise level of the existing noise sources in the environment (in the absence of the wind farm). |
| Associated Residence | A residence, where the landowner has a commercial agreement with the wind farm. |
| Background noise level | The ambient noise level which excludes intermittent noise sources. |
| Bulletin | *Wind Energy: Noise Assessment Bulletin - For State significant wind energy development (NSW Department of Planning and Environment, December 2016)* |
| CONCAWE | *The oil companies' international study group for conservation of clean air and water - Europe, The propagation of noise from petrochemical complexes to neighbouring communities (May 1981).* |
| dB(A) | A-weighted noise or sound power level in decibels. |
| EIS | Environmental Impact Statement |
| Equivalent noise level | Energy averaged noise level over a prescribed period of time |
| Non-associated Residence | A residence, where the landowner does not have a commercial agreement with the wind farm. |
| SEARs | Secretary's Environmental Assessment Requirements |
| Sound power level | A measure of the sound energy emitted from a source of noise. |
| The Project | Spicers Creek Wind Farm |
| Weather category 6 | Weather category which is most conducive for the propagation of noise, resulting in highest predicted noise levels when using CONCAWE. |
| Worst-case | Conditions resulting in the highest noise level at residences. |
| WTG | Wind turbine generator comprising a three bladed, upstream facing, horizontal axis turbine mounted on steel towers with a common set of generic design components comprising a foundation, tower, nacelle, hub and blades |

## 1 INTRODUCTION

A Preliminary Noise Impact Assessment has been made in accordance with the New South Wales Planning and Environment *Wind Energy: Noise Assessment Bulletin* (**the Bulletin**) for the proposed Spicers Creek Wind Farm (**the Project**), approximately 25km north west of Gulgong and 30km north east of Wellington in New South Wales (NSW). In addition to the assessment of wind turbine noise, the noise from ancillary infrastructure, comprising the battery energy storage and substation equipment, has been assessed in accordance with the *NSW Noise Policy for Industry 2017* (**the Policy**).

This preliminary noise impact assessment has been prepared to assist in the application for the Secretary's Environmental Assessment Requirements (**SEARs**) and to guide the preparation of the Environmental Impact Statement (**EIS**) for the Project.

## 2 PRELIMINARY NOISE IMPACT ASSESSMENT

The preliminary noise impact assessment is based on the following preliminary information:

- Wind turbine generator (**WTG**) locations as summarised in Appendix A;
- Potential substation and battery storage locations as summarised in Appendix A.
- Receiver locations summarised in Appendix B, including the type of receiver, the distance to the nearest WTG and the preliminary predicted noise level.
- Local topographical contours;
- Noise level data for an indicative WTG with a sound power level of 108 dB(A) (107 dB(A) plus 1 dB(A) uncertainty), which is a conservative (high) assumed level for a modern wind turbine.
- A hub height of 200m has been assumed.
- Noise data for an indicative 300MVA transformer (with a sound power level of 101 dB(A)) at each potential substation site, and a sound power level of 110 dB(A) at each potential battery storage site; and,
- The WTG, transformer, and inverter being free of any excessive levels of tonality or any other special noise characteristics, when assessed at the residences.

## 2.1 Methodology

Predictions have been made using the CONCAWE noise propagation model and SoundPLAN noise modelling software. The sound propagation model considers the following influences:

- sound power levels and noise source locations;
- separation distances between noise sources and receivers;
- topography of the area;
- influence of the ground;
- air absorption; and,
- meteorological conditions.

The CONCAWE system divides meteorological conditions into six separate "weather categories", depending on wind speed, wind direction, time of day and level of cloud cover. Weather category 6 provides "worst-case" (i.e. highest noise level) conditions.

The preliminary noise assessment has been based on the following input conditions:

- weather category 6 (representing a temperature inversion and wind conditions that assist with the propagation of noise);
- atmospheric conditions at 10°C and 80% relative humidity (representing conditions that result in low levels of noise absorption from the atmosphere);
- wind direction from all noise sources to the particular receiver under consideration, even in circumstances where sources are located in opposite directions from the receiver (representing the worst-case noise propagation due to wind);
- acoustically soft ground (representing the pastoral nature of the land); and,
- maximum barrier attenuation from topography of 2 dB(A) (representing a conservative assessment of any shielding provided by topography).

## 2.2 Criteria

Wind Turbine Generators

The Bulletin provides a criterion of 35 dB(A) or 5 dB(A) above the background noise level at each integer wind speed for non-associated residences. The baseline criterion of 35 dB(A) may be increased at associated residences, in accordance with the Policy.

The background noise monitoring to be conducted as part of the EIS process may result in an increase in the noise assessment criteria above that provided by the baseline.

Ancillary Infrastructure

The Policy establishes noise trigger levels based on the existing background noise environment (intrusiveness noise levels) and the amenity for particular land uses (amenity noise levels). The noise trigger levels are the lower values provided by the two methods.

The amenity level for a noise source which operates during the night in a rural area is 40 dB(A). The minimum project intrusiveness noise level for a noise source which operates during the night in a rural area is 35 dB(A), although this may be increased based on the results of background noise monitoring.

Based on the above, the preliminary assessment has assumed a Policy noise trigger level ($L_{Aeq,15\ minute}$) of 35 dB(A) for ancillary infrastructure at all locations.

The background noise monitoring to be conducted as part of the EIS process may result in an increase in the noise assessment criteria, in accordance with the Policy.

## 2.3 Results

Wind Turbine Generators

The highest predicted noise from WTGs (corresponding to hub height wind speeds of 10m/s and above) is detailed for each residence in Appendix A and is shown graphically in Figure 1 below. Figure 1 shows the predicted 35 dB(A), 40 dB(A) and 45 dB(A) noise contour. The preliminary prediction indicates that the noise at receivers shown outside of the 35 dB(A) contour achieves the baseline criterion and the noise at receivers inside of the 35 dB(A) contour do not achieve the baseline criterion.

Based on the preliminary modelling, there are four non-associated residences that exceed 35dBA, being GR005, GR006, LHR003 and LHR004 (refer to Figure 1). As outlined in **Section 2**, the modelling is considered conservative based on a 1 dB(A) uncertainty factor being added to the WTG sound power level.

The Project will be refined as part of the ongoing design process to seek to minimise noise impacts at all non-associated residences when compared against the noise criteria determined after background noise monitoring. Potential modifications to the WTG layout or agreements with landowners are options that will be further considered to seek to design the Project to comply with relevant criteria at receivers.

Ancillary Infrastructure

The highest noise level predicted at any receiver is 34 dB(A) at receiver ID “SCR009” (associated residence). This level achieves the 35 dB(A) noise trigger level ($L_{Aeq,15\ minute}$) for ancillary infrastructure.

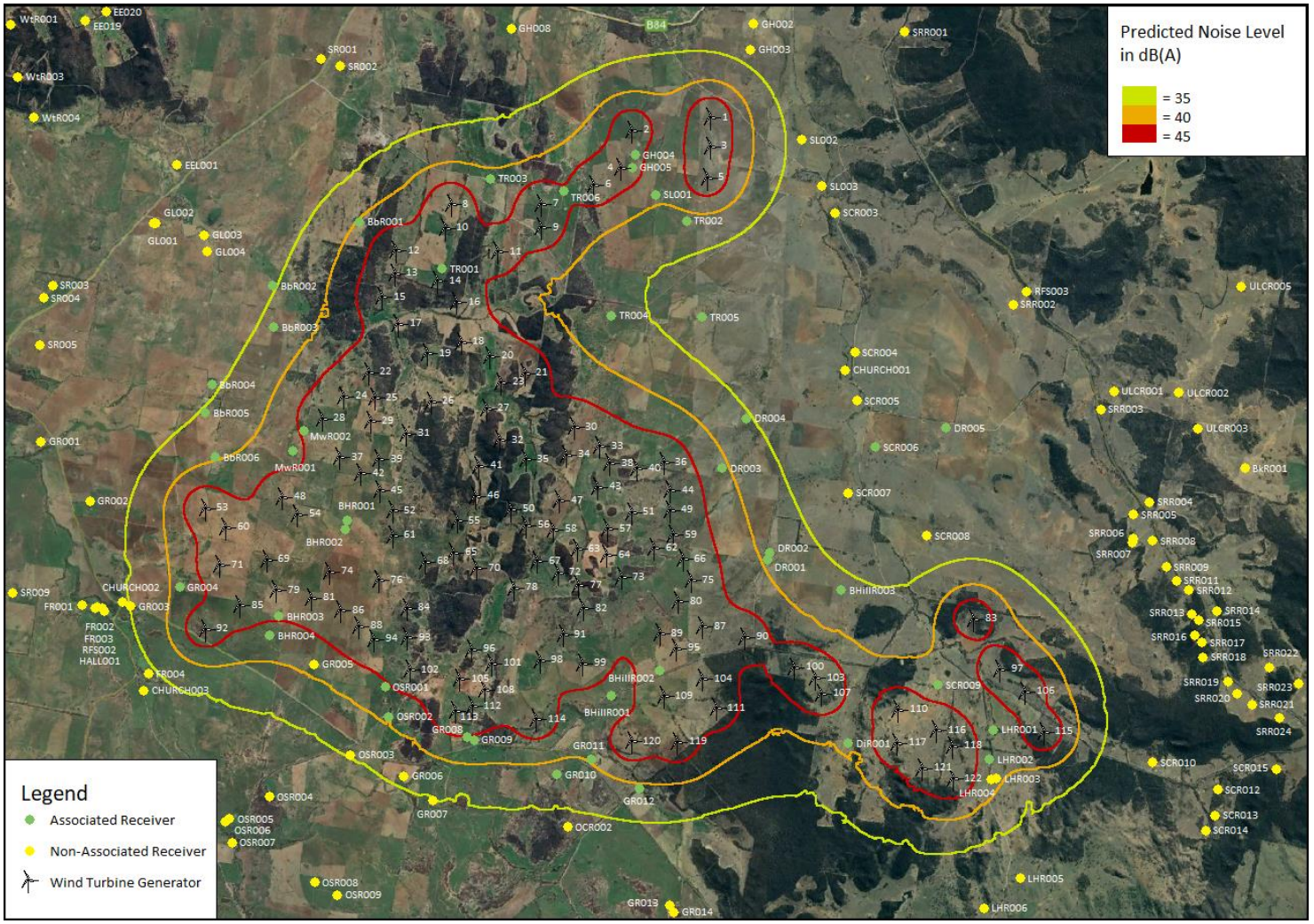


**Figure 1: Noise contours with WTGs and nearby receivers**

## 3 ACOUSTIC IMPACT ASSESSMENT

A detailed acoustic assessment will be prepared for inclusion in the EIS, addressing the following components:

- WTG noise in accordance with the Bulletin;
- Ancillary noise in accordance with the Policy*;*
- Construction noise in accordance with the *Interim Construction Noise Guideline, 2009;*
- Traffic noise in accordance with the *NSW Road Noise Policy, 2011*; and,
- Vibration in accordance with *Assessing vibration: A Technical Guideline, 2006*.

The EIS will incorporate the following information to assist in considering the detailed assessment:

1. Background noise monitoring results;
2. Establishment of criteria in accordance with the background noise monitoring results;
3. Predictions which account for the sound power levels and locations of WTGs and ancillary infrastructure;
4. A construction noise assessment and framework for a management plan;
5. A traffic noise assessment;
6. Commentary on vibration impacts; and,
7. Noise reduction measures where the relevant operational or construction assessment criteria are not achieved.

## APPENDIX A: Noise Source Locations

| WTG ID | WTG Coordinates (UTM WGS84 55H) | |
|---|---|---|
| | Easting | Northing |
| 1 | 705929 | 6441370 |
| 2 | 704122 | 6441091 |
| 3 | 705916 | 6440721 |
| 4 | 703864 | 6440235 |
| 5 | 705846 | 6440007 |
| 6 | 703261 | 6439837 |
| 7 | 702062 | 6439400 |
| 8 | 699992 | 6439392 |
| 9 | 702056 | 6438865 |
| 10 | 699857 | 6438854 |
| 11 | 701073 | 6438307 |
| 12 | 698746 | 6438335 |
| 13 | 698701 | 6437817 |
| 14 | 699683 | 6437639 |
| 15 | 698421 | 6437268 |
| 16 | 700113 | 6437158 |
| 17 | 698791 | 6436657 |
| 18 | 700224 | 6436242 |
| 19 | 699446 | 6435985 |
| 20 | 700874 | 6435929 |
| 21 | 701676 | 6435529 |
| 22 | 698106 | 6435553 |
| 23 | 701139 | 6435325 |
| 24 | 697548 | 6434998 |
| 25 | 698244 | 6434967 |
| 26 | 699533 | 6434883 |
| 27 | 700803 | 6434730 |
| 28 | 697044 | 6434499 |
| 29 | 698152 | 6434435 |
| 30 | 702807 | 6434302 |
| 31 | 698977 | 6434147 |
| 32 | 701106 | 6434003 |
| 33 | 703385 | 6433858 |
| 34 | 702627 | 6433668 |
| 35 | 701699 | 6433562 |
| 36 | 704853 | 6433492 |
| 37 | 697446 | 6433610 |
| 38 | 703628 | 6433470 |
| 39 | 698343 | 6433560 |
| 40 | 704246 | 6433362 |
| 41 | 700620 | 6433417 |
| 42 | 697928 | 6433243 |
| 43 | 703343 | 6432933 |
| 44 | 705010 | 6432853 |
| 45 | 698356 | 6432853 |
| 46 | 700566 | 6432724 |
| 47 | 702464 | 6432620 |
| 48 | 696136 | 6432704 |
| 49 | 704991 | 6432406 |
| 50 | 701371 | 6432429 |

| WTG ID | WTG Coordinates (UTM WGS84 55H) | |
|---|---|---|
| | Easting | Northing |
| 51 | 704120 | 6432358 |
| 52 | 698659 | 6432391 |
| 53 | 694371 | 6432441 |
| 54 | 696487 | 6432310 |
| 55 | 700130 | 6432159 |
| 56 | 701706 | 6432053 |
| 57 | 703582 | 6431969 |
| 58 | 702326 | 6431959 |
| 59 | 705071 | 6431839 |
| 60 | 694843 | 6432010 |
| 61 | 698655 | 6431824 |
| 62 | 704637 | 6431541 |
| 63 | 702871 | 6431508 |
| 64 | 703552 | 6431372 |
| 65 | 700056 | 6431428 |
| 66 | 705292 | 6431279 |
| 67 | 701956 | 6431238 |
| 68 | 699408 | 6431230 |
| 69 | 695776 | 6431274 |
| 70 | 700576 | 6431079 |
| 71 | 694712 | 6431140 |
| 72 | 702435 | 6430977 |
| 73 | 703888 | 6430873 |
| 74 | 697214 | 6430991 |
| 75 | 705474 | 6430801 |
| 76 | 698345 | 6430795 |
| 77 | 702916 | 6430690 |
| 78 | 701439 | 6430631 |
| 79 | 695993 | 6430573 |
| 80 | 705189 | 6430314 |
| 81 | 696802 | 6430395 |
| 82 | 703031 | 6430159 |
| 83 | 711931 | 6429909 |
| 84 | 698978 | 6430171 |
| 85 | 695165 | 6430223 |
| 86 | 697476 | 6430103 |
| 87 | 705749 | 6429743 |
| 88 | 697893 | 6429753 |
| 89 | 704764 | 6429574 |
| 90 | 706706 | 6429503 |
| 91 | 702549 | 6429550 |
| 92 | 694373 | 6429680 |
| 93 | 698991 | 6429491 |
| 94 | 698233 | 6429456 |
| 95 | 705148 | 6429244 |
| 96 | 700471 | 6429220 |
| 97 | 712530 | 6428760 |
| 98 | 702020 | 6428973 |
| 99 | 703006 | 6428903 |
| 100 | 707834 | 6428804 |

| WTG ID | WTG Coordinates (UTM WGS84 55H) | |
|---|---|---|
| | Easting | Northing |
| 101 | 700922 | 6428903 |
| 102 | 699053 | 6428749 |
| 103 | 708328 | 6428560 |
| 104 | 705742 | 6428538 |
| 105 | 700198 | 6428543 |
| 106 | 713114 | 6428250 |
| 107 | 708468 | 6428213 |
| 108 | 700768 | 6428291 |
| 109 | 704855 | 6428148 |
| 110 | 710207 | 6427840 |
| 111 | 706055 | 6427876 |
| 112 | 700480 | 6427921 |
| 113 | 700093 | 6427819 |
| 114 | 701933 | 6427626 |
| 115 | 713541 | 6427329 |
| 116 | 711084 | 6427370 |
| 117 | 710189 | 6427084 |
| 118 | 711455 | 6427008 |
| 119 | 705172 | 6427098 |
| 120 | 704121 | 6427111 |
| 121 | 710761 | 6426505 |
| 122 | 711465 | 6426264 |

| Battery Storage ID | Battery Storage Coordinates (UTM WGS84 55H) | |
|---|---|---|
| | Easting | Northing |
| 1904221 | 701240 | 6431690 |
| 1904222 | 704180 | 6430660 |
| 1904223 | 711730 | 6428870 |
| 1904224 | 713400 | 6429200 |
| 1905385 | 713630 | 6428210 |

| Substation ID | Substation Coordinates (UTM WGS84 55H) | |
|---|---|---|
| | Easting | Northing |
| 1904213 | 700730 | 6431180 |
| 1904214 | 704130 | 6430810 |
| 1904215 | 711430 | 6429110 |
| 1904216 | 713170 | 6429220 |
| 1904217 | 713430 | 6428340 |
| 1904218 | 701240 | 6435720 |

## APPENDIX B: Receiver Locations

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| CHURCH001 | 709015 | 6435581 | Church | No | T36 | 4657 | 27 |
| CHURCH002 | 692492 | 6430275 | Church | No | T92 | 1973 | 34 |
| CHURCH003 | 692977 | 6428250 | Church | No | T92 | 1998 | 32 |
| CHURCH004 | 688123 | 6408343 | Church | No | T92 | 22234 | <25 |
| CHURCH005 | 682084 | 6418564 | Church | No | T92 | 16571 | <25 |
| CHURCH006 | 713627 | 6416149 | Church | No | T122 | 10343 | <25 |
| HALL001 | 691875 | 6430145 | Community Hall | No | T92 | 2541 | 32 |
| HALL002 | 703788 | 6414758 | Community Hall | No | T120 | 12357 | <25 |
| HALL003 | 676703 | 6426104 | Community Hall | No | T92 | 18028 | <25 |
| HALL004 | 714291 | 6415635 | Community Hall | No | T122 | 10998 | <25 |
| AR003 | 725982 | 6441408 | House | No | T83 | 18156 | <25 |
| AR004 | 727717 | 6438784 | House | No | T106 | 18006 | <25 |
| BbR001 | 697911 | 6438971 | House | Yes | T12 | 1050 | 41 |
| BbR002 | 695926 | 6437501 | House | Yes | T15 | 2506 | 35 |
| BbR003 | 695951 | 6436555 | House | Yes | T24 | 2230 | 37 |
| BbR004 | 694537 | 6435247 | House | Yes | T28 | 2616 | 34 |
| BbR005 | 694384 | 6434598 | House | Yes | T53 | 2157 | 36 |
| BbR006 | 694619 | 6433589 | House | Yes | T53 | 1174 | 40 |
| BgR001 | 703631 | 6414164 | House | No | T120 | 12956 | <25 |
| BgR002 | 703404 | 6413758 | House | No | T120 | 13372 | <25 |
| BgR003 | 703338 | 6411905 | House | No | T120 | 15226 | <25 |
| BgR004 | 700935 | 6417715 | House | No | T120 | 9921 | <25 |
| BHillR001 | 703673 | 6428130 | House | Yes | T99 | 1021 | 44 |
| BHillR002 | 704761 | 6428719 | House | Yes | T109 | 579 | 47 |
| BHillR003 | 708925 | 6430550 | House | Yes | T100 | 2059 | 37 |
| BHR001 | 697626 | 6432147 | House | Yes | T45 | 1016 | 46 |
| BHR002 | 697580 | 6431943 | House | Yes | T74 | 1020 | 46 |
| BHR003 | 696066 | 6429942 | House | Yes | T79 | 635 | 46 |
| BHR004 | 695862 | 6429505 | House | Yes | T85 | 1001 | 43 |
| BkR001 | 718147 | 6433336 | House | No | T83 | 7098 | <25 |
| BkR002 | 722402 | 6433970 | House | No | T106 | 10908 | <25 |
| BL001 | 687073 | 6421783 | House | No | T92 | 10754 | <25 |
| BL002 | 687449 | 6421947 | House | No | T92 | 10380 | <25 |
| BmR001 | 679604 | 6435553 | House | No | T53 | 15091 | <25 |
| BmR002 | 680283 | 6433374 | House | No | T53 | 14119 | <25 |
| BmR003 | 682279 | 6432642 | House | No | T53 | 12094 | <25 |
| BmR004 | 682213 | 6432390 | House | No | T53 | 12158 | <25 |
| BmR005 | 679678 | 6430387 | House | No | T92 | 14712 | <25 |
| BmR006 | 680498 | 6427299 | House | No | T92 | 14078 | <25 |
| BmR007 | 681795 | 6427398 | House | No | T92 | 12783 | <25 |
| BmR008 | 679908 | 6425702 | House | No | T92 | 15002 | <25 |
| BmR009 | 680101 | 6425128 | House | No | T92 | 14980 | <25 |
| BmR010 | 680127 | 6424001 | House | No | T92 | 15336 | <25 |
| BmR011 | 681075 | 6424098 | House | No | T92 | 14422 | <25 |
| BmR012 | 681141 | 6421616 | House | No | T92 | 15496 | <25 |
| BOD001 | 688084 | 6409097 | House | No | T92 | 21522 | <25 |
| BOD002 | 687944 | 6408728 | House | No | T92 | 21916 | <25 |
| BOD003 | 688420 | 6408631 | House | No | T92 | 21875 | <25 |
| BOD004 | 688073 | 6408425 | House | No | T92 | 22169 | <25 |
| BOD005 | 687996 | 6408291 | House | No | T92 | 22319 | <25 |
| BOD006 | 687990 | 6408245 | House | No | T92 | 22365 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| BOD007 | 687938 | 6408056 | House | No | T92 | 22561 | <25 |
| BOD008 | 687931 | 6408017 | House | No | T92 | 22601 | <25 |
| BOD009 | 687906 | 6407914 | House | No | T92 | 22706 | <25 |
| BOD010 | 687967 | 6407891 | House | No | T92 | 22711 | <25 |
| BOD012 | 687793 | 6407813 | House | No | T92 | 22836 | <25 |
| BOD013 | 687831 | 6407572 | House | No | T92 | 23056 | <25 |
| BOD014 | 687851 | 6407452 | House | No | T92 | 23165 | <25 |
| BOD015 | 688166 | 6407581 | House | No | T92 | 22954 | <25 |
| BOD018 | 688293 | 6407443 | House | No | T92 | 23053 | <25 |
| BOD019 | 688216 | 6407328 | House | No | T92 | 23184 | <25 |
| BOD020 | 688625 | 6406975 | House | No | T92 | 23421 | <25 |
| BoR003 | 682749 | 6413419 | House | No | T92 | 19988 | <25 |
| BoR004 | 686202 | 6411106 | House | No | T92 | 20292 | <25 |
| BoR005 | 687596 | 6409928 | House | No | T92 | 20882 | <25 |
| BR001 | 686434 | 6428570 | House | No | T92 | 8016 | <25 |
| BR002 | 686480 | 6429749 | House | No | T92 | 7893 | <25 |
| BrR001 | 705358 | 6417086 | House | No | T119 | 10014 | <25 |
| BrR002 | 707046 | 6420144 | House | No | T119 | 7202 | <25 |
| BrR003 | 707938 | 6419848 | House | No | T121 | 7231 | <25 |
| BrR004 | 710657 | 6418942 | House | No | T122 | 7366 | <25 |
| BrR005 | 711380 | 6419067 | House | No | T122 | 7198 | <25 |
| CH002 | 731522 | 6421975 | House | No | T115 | 18761 | <25 |
| CL001 | 727355 | 6435018 | House | No | T106 | 15767 | <25 |
| CL002 | 726158 | 6436991 | House | No | T106 | 15702 | <25 |
| CL003 | 727209 | 6437525 | House | No | T106 | 16873 | <25 |
| CL004 | 725375 | 6433345 | House | No | T115 | 13275 | <25 |
| CoR008 | 682095 | 6410303 | House | No | T92 | 22939 | <25 |
| CoR009 | 682090 | 6410672 | House | No | T92 | 22631 | <25 |
| CR004 | 674601 | 6415989 | House | No | T92 | 24049 | <25 |
| CR006 | 675047 | 6416020 | House | No | T92 | 23666 | <25 |
| CR012 | 682499 | 6417257 | House | No | T92 | 17185 | <25 |
| DCR001 | 689453 | 6410095 | House | No | T92 | 20194 | <25 |
| DCR002 | 692860 | 6417548 | House | No | T92 | 12226 | <25 |
| DiR001 | 709081 | 6427048 | House | Yes | T117 | 1109 | 41 |
| DoR001 | 718770 | 6407740 | House | No | T122 | 19912 | <25 |
| DoR002 | 719009 | 6407773 | House | No | T122 | 19971 | <25 |
| DR001 | 707243 | 6431249 | House | Yes | T75 | 1825 | 40 |
| DR002 | 707285 | 6431404 | House | Yes | T75 | 1909 | 39 |
| DR003 | 706197 | 6433329 | House | Yes | T44 | 1279 | 41 |
| DR004 | 706758 | 6434476 | House | Yes | T36 | 2144 | 36 |
| DR005 | 711314 | 6434252 | House | Yes | T83 | 4387 | <25 |
| EE015 | 691894 | 6444636 | House | No | T12 | 9309 | <25 |
| EE019 | 691639 | 6443575 | House | No | T12 | 8830 | <25 |
| EE020 | 692114 | 6443764 | House | No | T12 | 8571 | <25 |
| EEL001 | 693747 | 6440264 | House | No | T12 | 5358 | <25 |
| FR001 | 691568 | 6430207 | House | No | T92 | 2854 | 30 |
| FR002 | 692038 | 6430141 | House | No | T92 | 2380 | 32 |
| FR003 | 692070 | 6430075 | House | No | T92 | 2337 | 32 |
| FR004 | 693088 | 6428629 | House | No | T92 | 1660 | 34 |
| FR005 | 691610 | 6426398 | House | No | T92 | 4290 | <25 |
| FR006 | 692191 | 6424768 | House | No | T92 | 5375 | <25 |
| FR007 | 690910 | 6424285 | House | No | T92 | 6411 | <25 |
| FR008 | 690734 | 6422416 | House | No | T92 | 8125 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| FR009 | 687719 | 6420717 | House | No | T92 | 11163 | <25 |
| FVR001 | 686549 | 6432199 | House | No | T53 | 7826 | <25 |
| GaR001 | 724038 | 6413333 | House | No | T115 | 17495 | <25 |
| GaR005 | 724855 | 6413744 | House | No | T115 | 17679 | <25 |
| GbR002 | 713990 | 6402382 | House | No | T122 | 24015 | <25 |
| GgR001 | 696593 | 6419653 | House | No | T113 | 8884 | <25 |
| GgR003 | 695049 | 6416290 | House | No | T113 | 12584 | <25 |
| GgR004 | 696729 | 6414170 | House | No | T113 | 14057 | <25 |
| GgR005 | 692808 | 6413296 | House | No | T113 | 16248 | <25 |
| GgR006 | 691869 | 6412289 | House | No | T92 | 17570 | <25 |
| GgR007 | 692345 | 6411575 | House | No | T113 | 17997 | <25 |
| GH001 | 706807 | 6445122 | House | No | T1 | 3853 | <25 |
| GH002 | 706923 | 6443493 | House | No | T1 | 2344 | 30 |
| GH003 | 706844 | 6442902 | House | No | T1 | 1784 | 33 |
| GH004 | 704207 | 6440494 | House | Yes | T4 | 430 | 47 |
| GH005 | 704143 | 6440205 | House | Yes | T4 | 281 | 49 |
| GH006 | 703448 | 6444785 | House | No | T2 | 3755 | 26 |
| GH007 | 702051 | 6444152 | House | No | T2 | 3696 | 26 |
| GH008 | 701378 | 6443384 | House | No | T2 | 3576 | 28 |
| GH009 | 700735 | 6445063 | House | No | T2 | 5220 | <25 |
| GH010 | 700325 | 6444532 | House | No | T2 | 5124 | <25 |
| GH011 | 699021 | 6444573 | House | No | T8 | 5271 | <25 |
| GH012 | 696060 | 6444651 | House | No | T8 | 6566 | <25 |
| GH013 | 695180 | 6444940 | House | No | T8 | 7344 | <25 |
| GH014 | 694757 | 6444878 | House | No | T8 | 7583 | <25 |
| GH023 | 687343 | 6439028 | House | No | T53 | 9632 | <25 |
| GH024 | 685808 | 6438865 | House | No | T53 | 10705 | <25 |
| GH025 | 686656 | 6437844 | House | No | T53 | 9419 | <25 |
| GH026 | 683799 | 6436852 | House | No | T53 | 11455 | <25 |
| GH027 | 683585 | 6436940 | House | No | T53 | 11687 | <25 |
| GL001 | 693196 | 6438930 | House | No | T15 | 5483 | <25 |
| GL002 | 693254 | 6438946 | House | No | T15 | 5433 | <25 |
| GL003 | 694362 | 6438669 | House | No | T15 | 4294 | 28 |
| GL004 | 694427 | 6438288 | House | No | T15 | 4122 | 28 |
| GmR003 | 691922 | 6408030 | House | No | T113 | 21410 | <25 |
| GmR004 | 691920 | 6408022 | House | No | T113 | 21418 | <25 |
| GmR005 | 696913 | 6409394 | House | No | T113 | 18697 | <25 |
| GmR006 | 699849 | 6410699 | House | No | T120 | 16959 | <25 |
| GmR007 | 703105 | 6414480 | House | No | T120 | 12672 | <25 |
| GmR008 | 703211 | 6414525 | House | No | T120 | 12619 | <25 |
| GmR009 | 705705 | 6415354 | House | No | T119 | 11756 | <25 |
| GmR010 | 709457 | 6415707 | House | No | T122 | 10746 | <25 |
| GmR011 | 709100 | 6414741 | House | No | T122 | 11763 | <25 |
| GmR012 | 705395 | 6412065 | House | No | T119 | 15035 | <25 |
| GmR013 | 705964 | 6412345 | House | No | T119 | 14774 | <25 |
| GmR014 | 713900 | 6415747 | House | No | T122 | 10795 | <25 |
| GmR015 | 714022 | 6415729 | House | No | T122 | 10841 | <25 |
| GmR016 | 714054 | 6415729 | House | No | T122 | 10848 | <25 |
| GmR017 | 714038 | 6415778 | House | No | T122 | 10797 | <25 |
| GmR019 | 714173 | 6415780 | House | No | T122 | 10828 | <25 |
| GmR021 | 714259 | 6415694 | House | No | T122 | 10933 | <25 |
| GmR022 | 714456 | 6415731 | House | No | T122 | 10949 | <25 |
| GmR024 | 718997 | 6412339 | House | No | T122 | 15832 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| GmR025 | 720165 | 6412963 | House | No | T115 | 15820 | <25 |
| GmR026 | 721817 | 6411673 | House | No | T115 | 17709 | <25 |
| GmR027 | 722174 | 6411919 | House | No | T115 | 17663 | <25 |
| GmR028 | 722743 | 6412070 | House | No | T115 | 17819 | <25 |
| GmR029 | 723695 | 6411637 | House | No | T115 | 18691 | <25 |
| GmR030 | 723853 | 6411462 | House | No | T115 | 18924 | <25 |
| GmR031 | 723694 | 6412175 | House | No | T115 | 18241 | <25 |
| GmR032 | 724233 | 6411288 | House | No | T115 | 19278 | <25 |
| GmR033 | 724306 | 6411621 | House | No | T115 | 19043 | <25 |
| GmR034 | 724430 | 6412353 | House | No | T115 | 18516 | <25 |
| GmR035 | 725061 | 6411976 | House | No | T115 | 19194 | <25 |
| GmR036 | 725226 | 6412990 | House | No | T115 | 18497 | <25 |
| GmR037 | 725685 | 6413536 | House | No | T115 | 18377 | <25 |
| GmR038 | 726718 | 6413847 | House | No | T115 | 18852 | <25 |
| GmR039 | 726798 | 6413145 | House | No | T115 | 19415 | <25 |
| GmR040 | 728343 | 6412556 | House | No | T115 | 20913 | <25 |
| GmR041 | 728542 | 6412740 | House | No | T115 | 20925 | <25 |
| GmR042 | 728728 | 6412861 | House | No | T115 | 20975 | <25 |
| GmR043 | 728770 | 6412777 | House | No | T115 | 21064 | <25 |
| GmR044 | 728859 | 6412426 | House | No | T115 | 21371 | <25 |
| GmR045 | 729139 | 6412912 | House | No | T115 | 21240 | <25 |
| GmR046 | 729361 | 6412832 | House | No | T115 | 21458 | <25 |
| GmR047 | 729587 | 6412973 | House | No | T115 | 21531 | <25 |
| GmR048 | 731832 | 6412093 | House | No | T115 | 23805 | <25 |
| GmR049 | 731755 | 6411477 | House | No | T115 | 24146 | <25 |
| GoL001 | 714272 | 6415561 | House | No | T122 | 11065 | <25 |
| GoL002 | 712658 | 6414848 | House | No | T122 | 11478 | <25 |
| GoL003 | 714047 | 6413758 | House | No | T122 | 12770 | <25 |
| GoL004 | 714514 | 6413852 | House | No | T122 | 12781 | <25 |
| GoL005 | 716360 | 6411084 | House | No | T122 | 15950 | <25 |
| GR001 | 690627 | 6433943 | House | No | T53 | 4034 | 25 |
| GR002 | 691749 | 6432584 | House | No | T53 | 2626 | 31 |
| GR003 | 692687 | 6430179 | House | No | T92 | 1758 | 35 |
| GR004 | 693803 | 6430612 | House | Yes | T71 | 1051 | 42 |
| GR005 | 696880 | 6428850 | House | No | T88 | 1357 | 42 |
| GR006 | 698927 | 6426296 | House | No | T113 | 1918 | 36 |
| GR007 | 699594 | 6425740 | House | No | T113 | 2138 | 35 |
| GR008 | 700368 | 6427189 | House | Yes | T113 | 687 | 45 |
| GR009 | 700529 | 6427127 | House | Yes | T112 | 796 | 44 |
| GR010 | 702422 | 6426336 | House | Yes | T114 | 1380 | 39 |
| GR011 | 703213 | 6426691 | House | Yes | T120 | 1000 | 41 |
| GR012 | 704314 | 6426020 | House | Yes | T120 | 1108 | 39 |
| GR013 | 704997 | 6423348 | House | No | T119 | 3754 | 27 |
| GR014 | 705103 | 6423184 | House | No | T119 | 3915 | 27 |
| GR015 | 706167 | 6422313 | House | No | T119 | 4887 | <25 |
| GR016 | 707807 | 6421590 | House | No | T121 | 5734 | <25 |
| GR017 | 709536 | 6422226 | House | No | T121 | 4451 | <25 |
| GR019 | 710104 | 6421471 | House | No | T122 | 4982 | <25 |
| GR020 | 710804 | 6422278 | House | No | T122 | 4040 | <25 |
| GR021 | 710817 | 6421163 | House | No | T122 | 5142 | <25 |
| GR022 | 712282 | 6419695 | House | No | T122 | 6620 | <25 |
| GR023 | 712610 | 6418730 | House | No | T122 | 7621 | <25 |
| GR024 | 713048 | 6417831 | House | No | T122 | 8580 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| GR025 | 713122 | 6417561 | House | No | T122 | 8859 | <25 |
| GR026 | 713172 | 6417500 | House | No | T122 | 8929 | <25 |
| GR027 | 713297 | 6417048 | House | No | T122 | 9396 | <25 |
| GR028 | 713390 | 6416855 | House | No | T122 | 9604 | <25 |
| GR029 | 713281 | 6416732 | House | No | T122 | 9703 | <25 |
| GrL001 | 691246 | 6420991 | House | No | T92 | 9235 | <25 |
| GrL002 | 690714 | 6419853 | House | No | T92 | 10486 | <25 |
| GuR001 | 703352 | 6409949 | House | No | T120 | 17179 | <25 |
| GuR002 | 703632 | 6409764 | House | No | T120 | 17354 | <25 |
| GuR003 | 703597 | 6409610 | House | No | T120 | 17509 | <25 |
| GuR004 | 703545 | 6409452 | House | No | T120 | 17668 | <25 |
| HgR001 | 724808 | 6407031 | House | No | T115 | 23215 | <25 |
| HgR002 | 725289 | 6407242 | House | No | T115 | 23270 | <25 |
| HR001 | 726364 | 6428565 | House | No | T115 | 12882 | <25 |
| IN001 | 691515 | 6405373 | House | No | T113 | 24029 | <25 |
| LCR001 | 727675 | 6423825 | House | No | T115 | 14562 | <25 |
| LCR003 | 728461 | 6423309 | House | No | T115 | 15452 | <25 |
| LCR004 | 729599 | 6423086 | House | No | T115 | 16609 | <25 |
| LCR005 | 729814 | 6423657 | House | No | T115 | 16682 | <25 |
| LCR006 | 730064 | 6423587 | House | No | T115 | 16941 | <25 |
| LCR007 | 730030 | 6423034 | House | No | T115 | 17039 | <25 |
| LCR008 | 730390 | 6423159 | House | No | T115 | 17357 | <25 |
| LCR009 | 730521 | 6423222 | House | No | T115 | 17470 | <25 |
| LCR010 | 730671 | 6422979 | House | No | T115 | 17674 | <25 |
| LCR011 | 730764 | 6422849 | House | No | T115 | 17796 | <25 |
| LCR012 | 730975 | 6422602 | House | No | T115 | 18063 | <25 |
| LHR001 | 712394 | 6427359 | House | Yes | T118 | 1002 | 43 |
| LHR002 | 712307 | 6426678 | House | Yes | T118 | 914 | 43 |
| LHR003 | 712465 | 6426235 | House | No | T122 | 1000 | 41 |
| LHR004 | 712349 | 6426229 | House | No | T122 | 885 | 42 |
| LHR005 | 713008 | 6423954 | House | No | T122 | 2778 | 30 |
| LHR006 | 712183 | 6423282 | House | No | T122 | 3067 | 28 |
| LHR007 | 712912 | 6422767 | House | No | T122 | 3785 | 26 |
| LHR008 | 713101 | 6422608 | House | No | T122 | 4005 | <25 |
| LHR009 | 711837 | 6422233 | House | No | T122 | 4048 | <25 |
| LPR001 | 722155 | 6408406 | House | No | T115 | 20791 | <25 |
| LPR002 | 722085 | 6408266 | House | No | T115 | 20890 | <25 |
| LPR003 | 722523 | 6404886 | House | No | T122 | 24069 | <25 |
| LPR004 | 722278 | 6404312 | House | No | T122 | 24471 | <25 |
| MbR001 | 717414 | 6415267 | House | No | T122 | 12503 | <25 |
| MbR002 | 717823 | 6415090 | House | No | T122 | 12856 | <25 |
| MbR003 | 717608 | 6415348 | House | No | T122 | 12526 | <25 |
| MbR004 | 718476 | 6415845 | House | No | T115 | 12499 | <25 |
| MbR006 | 718582 | 6417245 | House | No | T115 | 11274 | <25 |
| MbR007 | 719569 | 6417190 | House | No | T115 | 11796 | <25 |
| MbR008 | 720370 | 6417623 | House | No | T115 | 11868 | <25 |
| MbR009 | 720249 | 6417995 | House | No | T115 | 11494 | <25 |
| MbR010 | 720546 | 6418053 | House | No | T115 | 11624 | <25 |
| MbR011 | 722433 | 6418531 | House | No | T115 | 12509 | <25 |
| MbR012 | 723749 | 6417213 | House | No | T115 | 14371 | <25 |
| MbR013 | 728184 | 6416327 | House | No | T115 | 18316 | <25 |
| MbR014 | 728581 | 6416466 | House | No | T115 | 18553 | <25 |
| MbR015 | 729130 | 6417276 | House | No | T115 | 18549 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| MbR016 | 729279 | 6417470 | House | No | T115 | 18571 | <25 |
| MbR017 | 729131 | 6417504 | House | No | T115 | 18428 | <25 |
| MbR018 | 729290 | 6417756 | House | No | T115 | 18430 | <25 |
| MbR019 | 729280 | 6417931 | House | No | T115 | 18331 | <25 |
| MbR020 | 729287 | 6418067 | House | No | T115 | 18268 | <25 |
| MbR021 | 729824 | 6418102 | House | No | T115 | 18716 | <25 |
| MCR003 | 677721 | 6430560 | House | No | T92 | 16675 | <25 |
| MiR001 | 684249 | 6408631 | House | No | T92 | 23357 | <25 |
| MR001 | 684886 | 6436585 | House | No | T53 | 10351 | <25 |
| MR002 | 686063 | 6434937 | House | No | T53 | 8675 | <25 |
| MR003 | 688062 | 6436207 | House | No | T53 | 7348 | <25 |
| MR004 | 688159 | 6436029 | House | No | T53 | 7174 | <25 |
| MwR001 | 696385 | 6433722 | House | Yes | T28 | 1019 | 44 |
| MwR002 | 696630 | 6434191 | House | Yes | T28 | 516 | 46 |
| MzR001 | 725283 | 6429843 | House | No | T115 | 12008 | <25 |
| MzR002 | 725246 | 6429768 | House | No | T115 | 11956 | <25 |
| MzR003 | 724997 | 6429416 | House | No | T115 | 11645 | <25 |
| MzR005 | 724508 | 6428575 | House | No | T115 | 11038 | <25 |
| MzR006 | 724737 | 6428251 | House | No | T115 | 11234 | <25 |
| MzR007 | 724338 | 6428042 | House | No | T115 | 10821 | <25 |
| MzR008 | 724636 | 6428029 | House | No | T115 | 11117 | <25 |
| MzR009 | 724701 | 6427671 | House | No | T115 | 11165 | <25 |
| MzR010 | 724764 | 6427539 | House | No | T115 | 11225 | <25 |
| MzR011 | 723874 | 6427631 | House | No | T115 | 10337 | <25 |
| MzR013 | 724491 | 6427343 | House | No | T115 | 10950 | <25 |
| MzR014 | 724091 | 6427186 | House | No | T115 | 10551 | <25 |
| MzR015 | 724091 | 6427007 | House | No | T115 | 10555 | <25 |
| MzR016 | 723996 | 6426992 | House | No | T115 | 10460 | <25 |
| MzR018 | 723863 | 6426697 | House | No | T115 | 10341 | <25 |
| MzR019 | 723424 | 6426829 | House | No | T115 | 9896 | <25 |
| OCR002 | 702666 | 6425138 | House | No | T120 | 2451 | 33 |
| OCR003 | 703379 | 6420546 | House | No | T120 | 6607 | <25 |
| OCR004 | 703907 | 6420475 | House | No | T120 | 6639 | <25 |
| OCR005 | 704127 | 6420013 | House | No | T120 | 7098 | <25 |
| OCR006 | 704041 | 6419894 | House | No | T120 | 7217 | <25 |
| OCR007 | 702845 | 6418310 | House | No | T120 | 8893 | <25 |
| OCR008 | 703434 | 6417536 | House | No | T120 | 9600 | <25 |
| OSR001 | 698496 | 6428337 | House | Yes | T102 | 693 | 44 |
| OSR002 | 698582 | 6427654 | House | Yes | T102 | 1192 | 41 |
| OSR003 | 697704 | 6426785 | House | No | T102 | 2383 | 35 |
| OSR004 | 695845 | 6425823 | House | No | T92 | 4128 | 29 |
| OSR005 | 694944 | 6425313 | House | No | T92 | 4404 | 26 |
| OSR006 | 694844 | 6425264 | House | No | T92 | 4441 | 26 |
| OSR007 | 694997 | 6424772 | House | No | T92 | 4948 | <25 |
| OSR008 | 696884 | 6423864 | House | No | T113 | 5093 | <25 |
| OSR009 | 697402 | 6423579 | House | No | T113 | 5022 | <25 |
| OSR010 | 695006 | 6421456 | House | No | T113 | 8146 | <25 |
| OSR011 | 690872 | 6421995 | House | No | T92 | 8445 | <25 |
| PR001 | 716361 | 6420861 | House | No | T115 | 7056 | <25 |
| PR002 | 714491 | 6419600 | House | No | T122 | 7319 | <25 |
| PR003 | 713545 | 6418316 | House | No | T122 | 8216 | <25 |
| RL001 | 686574 | 6418989 | House | No | T92 | 13233 | <25 |
| RL002 | 686628 | 6418929 | House | No | T92 | 13250 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| RL003 | 686968 | 6417576 | House | No | T92 | 14189 | <25 |
| RL004 | 687096 | 6417561 | House | No | T92 | 14136 | <25 |
| RL005 | 689470 | 6418778 | House | No | T92 | 11954 | <25 |
| RL006 | 690229 | 6417538 | House | No | T92 | 12830 | <25 |
| RL007 | 690351 | 6417535 | House | No | T92 | 12794 | <25 |
| SCR003 | 708780 | 6439174 | House | No | T5 | 3050 | 28 |
| SCR004 | 709230 | 6435987 | House | No | T36 | 5038 | 26 |
| SCR005 | 709275 | 6434880 | House | No | T36 | 4635 | 27 |
| SCR006 | 709710 | 6433820 | House | Yes | T83 | 4498 | 28 |
| SCR007 | 709078 | 6432773 | House | No | T90 | 4040 | 31 |
| SCR008 | 710877 | 6431794 | House | No | T83 | 2160 | 32 |
| SCR009 | 711134 | 6428382 | House | Yes | T116 | 1013 | 43 |
| SCR010 | 716035 | 6426611 | House | No | T115 | 2595 | 29 |
| SCR012 | 717526 | 6425985 | House | No | T115 | 4206 | <25 |
| SCR013 | 717466 | 6425400 | House | No | T115 | 4373 | <25 |
| SCR014 | 717254 | 6425056 | House | No | T115 | 4353 | <25 |
| SCR015 | 718872 | 6426459 | House | No | T115 | 5402 | <25 |
| SL001 | 704685 | 6439593 | House | Yes | T4 | 1042 | 41 |
| SL002 | 708020 | 6440843 | House | No | T3 | 2108 | 33 |
| SL003 | 708483 | 6439785 | House | No | T5 | 2646 | 30 |
| SpCR001 | 696978 | 6421143 | House | No | T113 | 7367 | <25 |
| SpCR002 | 697607 | 6421360 | House | No | T113 | 6921 | <25 |
| SpCR003 | 699732 | 6418529 | House | No | T113 | 9297 | <25 |
| SpCR004 | 700635 | 6417152 | House | No | T120 | 10551 | <25 |
| SR001 | 697032 | 6442682 | House | No | T8 | 4426 | 25 |
| SR002 | 697474 | 6442523 | House | No | T8 | 4018 | 26 |
| SR003 | 690897 | 6437517 | House | No | T53 | 6151 | <25 |
| SR004 | 690685 | 6437225 | House | No | T53 | 6039 | <25 |
| SR005 | 690604 | 6436159 | House | No | T53 | 5293 | <25 |
| SR006 | 689631 | 6436213 | House | No | T53 | 6058 | <25 |
| SR007 | 689390 | 6432785 | House | No | T53 | 4993 | <25 |
| SR008 | 687738 | 6432740 | House | Yes | T53 | 6640 | <25 |
| SR009 | 689980 | 6430483 | House | No | T92 | 4466 | <25 |
| SR010 | 688354 | 6428990 | House | No | T92 | 6058 | <25 |
| SR011 | 687273 | 6427076 | House | No | T92 | 7562 | <25 |
| SR012 | 687084 | 6426518 | House | No | T92 | 7945 | <25 |
| SR014 | 687307 | 6424956 | House | No | T92 | 8500 | <25 |
| SR015 | 685798 | 6420259 | House | No | T92 | 12739 | <25 |
| SR016 | 684641 | 6418794 | House | No | T92 | 14602 | <25 |
| SR017 | 685126 | 6415426 | House | No | T92 | 16991 | <25 |
| SR018 | 685545 | 6415466 | House | No | T92 | 16732 | <25 |
| SR019 | 685980 | 6415381 | House | No | T92 | 16580 | <25 |
| SR020 | 684786 | 6414771 | House | No | T92 | 17725 | <25 |
| SR021 | 683941 | 6413992 | House | No | T92 | 18840 | <25 |
| SR022 | 683206 | 6414105 | House | No | T92 | 19165 | <25 |
| SR023 | 684407 | 6413014 | House | No | T92 | 19418 | <25 |
| SR024 | 684352 | 6409342 | House | No | T92 | 22673 | <25 |
| SR025 | 684384 | 6409241 | House | No | T92 | 22749 | <25 |
| SR026 | 683429 | 6407598 | House | No | T92 | 24645 | <25 |
| SR027 | 683909 | 6407167 | House | No | T92 | 24826 | <25 |
| SRR001 | 710370 | 6443312 | House | No | T1 | 4847 | <25 |
| SRR002 | 712849 | 6437082 | House | No | T83 | 7232 | <25 |
| SRR004 | 715976 | 6432560 | House | No | T83 | 4836 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| SRR005 | 715598 | 6432269 | House | No | T83 | 4361 | <25 |
| SRR006 | 715587 | 6431725 | House | No | T83 | 4082 | <25 |
| SRR007 | 715572 | 6431646 | House | No | T83 | 4034 | <25 |
| SRR008 | 716038 | 6431678 | House | No | T83 | 4472 | <25 |
| SRR009 | 716355 | 6431080 | House | No | T106 | 4303 | <25 |
| SRR011 | 716579 | 6430767 | House | No | T106 | 4283 | <25 |
| SRR012 | 716876 | 6430544 | House | No | T106 | 4406 | <25 |
| SRR013 | 716928 | 6430003 | House | No | T106 | 4198 | <25 |
| SRR015 | 717100 | 6429869 | House | No | T106 | 4302 | <25 |
| SRR016 | 717008 | 6429518 | House | No | T106 | 4095 | <25 |
| SRR017 | 717165 | 6429349 | House | No | T115 | 4149 | <25 |
| SRR018 | 717195 | 6429011 | House | No | T115 | 4023 | <25 |
| SRR019 | 717755 | 6428451 | House | No | T115 | 4361 | <25 |
| SRR021 | 718307 | 6427928 | House | No | T115 | 4803 | <25 |
| SRR023 | 719379 | 6428419 | House | No | T115 | 5939 | <25 |
| SRR025 | 721695 | 6426694 | House | No | T115 | 8179 | <25 |
| SRR026 | 721922 | 6426547 | House | No | T115 | 8417 | <25 |
| SRR027 | 721981 | 6426632 | House | No | T115 | 8469 | <25 |
| SRR028 | 722125 | 6426385 | House | No | T115 | 8636 | <25 |
| SRR029 | 722783 | 6426974 | House | No | T115 | 9249 | <25 |
| SRR030 | 723458 | 6425860 | House | No | T115 | 10025 | <25 |
| SRR031 | 724051 | 6426326 | House | No | T115 | 10558 | <25 |
| SRR032 | 724251 | 6426180 | House | No | T115 | 10771 | <25 |
| SRR033 | 724619 | 6425756 | House | No | T115 | 11189 | <25 |
| SRR034 | 724961 | 6425610 | House | No | T115 | 11549 | <25 |
| SRR035 | 725576 | 6425669 | House | No | T115 | 12149 | <25 |
| SRR036 | 725770 | 6424616 | House | No | T115 | 12526 | <25 |
| SRR037 | 726049 | 6424608 | House | No | T115 | 12801 | <25 |
| SRR038 | 725539 | 6423630 | House | No | T115 | 12555 | <25 |
| SRR039 | 726632 | 6424657 | House | No | T115 | 13361 | <25 |
| SRR040 | 726821 | 6423563 | House | No | T115 | 13804 | <25 |
| SRR041 | 727546 | 6422326 | House | No | T115 | 14872 | <25 |
| SRR042 | 727477 | 6422138 | House | No | T115 | 14871 | <25 |
| SRR043 | 728240 | 6421628 | House | No | T115 | 15766 | <25 |
| SRR044 | 727902 | 6421406 | House | No | T115 | 15534 | <25 |
| SRR045 | 727989 | 6421253 | House | No | T115 | 15674 | <25 |
| SRR046 | 728098 | 6420783 | House | No | T115 | 15961 | <25 |
| SRR047 | 730251 | 6419815 | House | No | T115 | 18322 | <25 |
| SRR048 | 727480 | 6419647 | House | No | T115 | 15916 | <25 |
| SRR049 | 727136 | 6420561 | House | No | T115 | 15187 | <25 |
| SRR050 | 726722 | 6420780 | House | No | T115 | 14718 | <25 |
| SRR051 | 726709 | 6421028 | House | No | T115 | 14598 | <25 |
| SzR002 | 724209 | 6433849 | House | No | T106 | 12428 | <25 |
| SzR004 | 724239 | 6434247 | House | No | T106 | 12638 | <25 |
| SzR005 | 723741 | 6434804 | House | No | T106 | 12486 | <25 |
| SzR006 | 724315 | 6434919 | House | No | T106 | 13036 | <25 |
| SzR007 | 723810 | 6435046 | House | No | T106 | 12672 | <25 |
| SzR008 | 724967 | 6434760 | House | No | T106 | 13523 | <25 |
| SzR009 | 725019 | 6434942 | House | No | T106 | 13657 | <25 |
| SzR010 | 725123 | 6435224 | House | No | T106 | 13887 | <25 |
| SzR011 | 725182 | 6435366 | House | No | T106 | 14010 | <25 |
| SzR012 | 724798 | 6435470 | House | No | T106 | 13735 | <25 |
| SzR013 | 724481 | 6435695 | House | No | T106 | 13588 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| SzR014 | 723815 | 6435913 | House | No | T106 | 13162 | <25 |
| SzR015 | 724199 | 6435288 | House | No | T106 | 13131 | <25 |
| TkR003 | 728785 | 6440812 | House | No | T83 | 20073 | <25 |
| TkR005 | 729138 | 6440085 | House | No | T106 | 19921 | <25 |
| TkR006 | 727240 | 6438502 | House | No | T106 | 17454 | <25 |
| TkR007 | 727924 | 6434525 | House | No | T115 | 16083 | <25 |
| TMR001 | 719628 | 6411785 | House | No | T122 | 16622 | <25 |
| TMR002 | 719069 | 6411150 | House | No | T122 | 16919 | <25 |
| TMR003 | 716996 | 6409759 | House | No | T122 | 17407 | <25 |
| TMR005 | 716226 | 6409344 | House | No | T122 | 17577 | <25 |
| TMR006 | 715029 | 6409026 | House | No | T122 | 17603 | <25 |
| TMR007 | 715540 | 6408645 | House | No | T122 | 18084 | <25 |
| TMR008 | 715930 | 6407887 | House | No | T122 | 18912 | <25 |
| TMR009 | 713984 | 6404999 | House | No | T122 | 21414 | <25 |
| TMR010 | 714182 | 6404568 | House | No | T122 | 21865 | <25 |
| TMR011 | 713468 | 6403802 | House | No | T122 | 22551 | <25 |
| TMR012 | 713481 | 6403225 | House | No | T122 | 23127 | <25 |
| TMR013 | 713247 | 6402890 | House | No | T122 | 23442 | <25 |
| TMR014 | 712774 | 6402982 | House | No | T122 | 23319 | <25 |
| TMR015 | 713210 | 6402471 | House | No | T122 | 23857 | <25 |
| TMR016 | 711875 | 6405721 | House | No | T122 | 20547 | <25 |
| TMR017 | 708842 | 6405894 | House | No | T122 | 20538 | <25 |
| TMR018 | 708711 | 6405907 | House | No | T122 | 20542 | <25 |
| TMR019 | 705420 | 6407309 | House | No | T119 | 19791 | <25 |
| TMR020 | 704032 | 6407244 | House | No | T120 | 19867 | <25 |
| TMR021 | 703980 | 6407135 | House | No | T120 | 19976 | <25 |
| TMR022 | 704125 | 6406614 | House | No | T120 | 20497 | <25 |
| TMR023 | 701340 | 6406613 | House | No | T120 | 20686 | <25 |
| TMR024 | 699748 | 6404640 | House | No | T120 | 22893 | <25 |
| TMR025 | 699902 | 6404592 | House | No | T120 | 22911 | <25 |
| TMR026 | 697882 | 6403657 | House | No | T113 | 24263 | <25 |
| TMR027 | 698627 | 6403970 | House | No | T120 | 23784 | <25 |
| TMR028 | 698779 | 6403943 | House | No | T120 | 23776 | <25 |
| TMR029 | 699104 | 6403775 | House | No | T120 | 23869 | <25 |
| TMR030 | 703335 | 6404765 | House | No | T120 | 22360 | <25 |
| TR001 | 699805 | 6437898 | House | Yes | T14 | 286 | 50 |
| TR002 | 705389 | 6438986 | House | Yes | T5 | 1119 | 39 |
| TR003 | 700899 | 6439961 | House | Yes | T8 | 1071 | 41 |
| TR004 | 703669 | 6436819 | House | Yes | T21 | 2374 | 37 |
| TR005 | 705738 | 6436784 | House | Yes | T5 | 3225 | 33 |
| TR006 | 702592 | 6439672 | House | Yes | T7 | 596 | 46 |
| ULCR001 | 715150 | 6435093 | House | No | T83 | 6102 | <25 |
| ULCR002 | 716641 | 6435062 | House | No | T83 | 6981 | <25 |
| ULCR005 | 718070 | 6437494 | House | No | T83 | 9758 | <25 |
| UMR001 | 720721 | 6423487 | House | No | T115 | 8143 | <25 |
| UMR002 | 721354 | 6418768 | House | No | T115 | 11590 | <25 |
| UR001 | 708560 | 6408529 | House | No | T122 | 17971 | <25 |
| UR002 | 710861 | 6409832 | House | No | T122 | 16443 | <25 |
| UR003 | 712591 | 6408034 | House | No | T122 | 18265 | <25 |
| UR004 | 713035 | 6410390 | House | No | T122 | 15951 | <25 |
| UR006 | 713867 | 6411614 | House | No | T122 | 14846 | <25 |
| UR007 | 715478 | 6410986 | House | No | T122 | 15796 | <25 |
| WaL001 | 698586 | 6415804 | House | No | T113 | 12109 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| WbR001 | 718210 | 6422443 | House | No | T115 | 6758 | <25 |
| WbR002 | 718431 | 6421879 | House | No | T115 | 7322 | <25 |
| WbR003 | 718572 | 6421752 | House | No | T115 | 7511 | <25 |
| WiR001 | 679368 | 6421766 | House | No | T92 | 16964 | <25 |
| WiR002 | 680119 | 6421849 | House | No | T92 | 16263 | <25 |
| WiR003 | 680829 | 6421179 | House | No | T92 | 15991 | <25 |
| WiR004 | 681689 | 6419785 | House | No | T92 | 16087 | <25 |
| WiR005 | 682127 | 6419404 | House | No | T92 | 15986 | <25 |
| WiR006 | 682596 | 6419624 | House | No | T92 | 15486 | <25 |
| WiR007 | 683626 | 6418201 | House | No | T92 | 15725 | <25 |
| WiR008 | 684497 | 6417330 | House | No | T92 | 15813 | <25 |
| WL001 | 683258 | 6423554 | House | No | T92 | 12691 | <25 |
| WL002 | 685066 | 6422514 | House | No | T92 | 11746 | <25 |
| WR002 | 688229 | 6423688 | House | No | T92 | 8582 | <25 |
| WR003 | 688726 | 6424406 | House | No | T92 | 7727 | <25 |
| WrL002 | 721471 | 6417310 | House | No | T115 | 12778 | <25 |
| WrL004 | 721478 | 6415916 | House | No | T115 | 13902 | <25 |
| WrL005 | 721771 | 6415844 | House | No | T115 | 14129 | <25 |
| WsR007 | 676537 | 6426221 | House | No | T92 | 18168 | <25 |
| WsR008 | 678794 | 6426353 | House | No | T92 | 15930 | <25 |
| WsR009 | 678360 | 6427546 | House | No | T92 | 16155 | <25 |
| WsR010 | 678692 | 6424937 | House | No | T92 | 16383 | <25 |
| WsR015 | 675097 | 6416463 | House | No | T92 | 23372 | <25 |
| WsR016 | 675311 | 6416389 | House | No | T92 | 23238 | <25 |
| YL001 | 685032 | 6435738 | House | No | T53 | 9904 | <25 |
| YL003 | 684963 | 6435467 | House | No | T53 | 9883 | <25 |
| YR001 | 713699 | 6403801 | House | No | T122 | 22574 | <25 |
| YR002 | 714387 | 6402649 | House | No | T122 | 23795 | <25 |
| GbR001 | 713887 | 6402753 | Possible future house | No | T122 | 23635 | <25 |
| GgR002 | 694196 | 6419074 | Possible future house | No | T113 | 10547 | <25 |
| GR018 | 709869 | 6422603 | House | No | T122 | 3994 | <25 |
| RFS001 | 685074 | 6418759 | RFS | No | T92 | 14344 | <25 |
| RFS002 | 691919 | 6430162 | RFS | No | T92 | 2501 | 32 |
| RFS003 | 713160 | 6437378 | RFS | No | T83 | 7569 | <25 |
| RFS004 | 714299 | 6415657 | RFS | No | T122 | 10979 | <25 |
| SCHOOL001 | 713406 | 6416462 | School | No | T122 | 9992 | <25 |
| GaR002 | 724411 | 6413312 | House | No | T115 | 17738 | <25 |
| GaR003 | 724507 | 6413375 | House | No | T115 | 17747 | <25 |
| GaR004 | 724656 | 6413512 | House | No | T115 | 17733 | <25 |
| GaR006 | 725213 | 6413825 | House | No | T115 | 17849 | <25 |
| GaR007 | 725302 | 6413886 | House | No | T115 | 17862 | <25 |
| GmR002 | 688744 | 6406626 | House | No | T92 | 23731 | <25 |
| GmR023 | 716243 | 6415607 | House | No | T122 | 11679 | <25 |
| LCR002 | 728088 | 6423525 | House | No | T115 | 15036 | <25 |
| MbR005 | 717933 | 6416088 | House | No | T122 | 12058 | <25 |
| MzR004 | 724512 | 6428672 | House | No | T115 | 11053 | <25 |
| MzR012 | 724000 | 6427390 | House | No | T115 | 10459 | <25 |
| MzR017 | 724139 | 6426910 | House | No | T115 | 10606 | <25 |
| SRR003 | 714853 | 6434686 | House | No | T83 | 5600 | <25 |
| SRR014 | 717521 | 6430078 | House | No | T106 | 4771 | <25 |
| SRR020 | 717960 | 6428190 | House | No | T115 | 4502 | <25 |
| SRR022 | 718697 | 6428784 | House | No | T115 | 5357 | <25 |
| SRR024 | 718939 | 6427623 | House | No | T115 | 5406 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| SzR001 | 724502 | 6433791 | House | No | T106 | 12664 | <25 |
| SzR003 | 724054 | 6434077 | House | No | T106 | 12395 | <25 |
| TMR004 | 714988 | 6409509 | House | No | T122 | 17121 | <25 |
| ULCR003 | 717071 | 6434240 | House | No | T83 | 6721 | <25 |
| YL002 | 684991 | 6435565 | House | No | T53 | 9887 | <25 |
| ACR001 | 676388 | 6436218 | House | No | T53 | 18375 | <25 |
| AdR001 | 727644 | 6429289 | House | No | T115 | 14239 | <25 |
| AdR002 | 727633 | 6429180 | House | No | T115 | 14213 | <25 |
| AHR001 | 669860 | 6420074 | House | No | T92 | 26328 | <25 |
| AHR002 | 669003 | 6418415 | House | No | T92 | 27759 | <25 |
| AR001 | 723254 | 6442753 | House | No | T83 | 17122 | <25 |
| AR002 | 723653 | 6440943 | House | No | T83 | 16098 | <25 |
| AR005 | 726154 | 6441658 | House | No | T83 | 18448 | <25 |
| AvR001 | 671662 | 6412253 | House | No | T92 | 28627 | <25 |
| AvR002 | 670150 | 6411053 | House | No | T92 | 30557 | <25 |
| AvR003 | 669360 | 6410328 | House | No | T92 | 31625 | <25 |
| AvR004 | 669742 | 6409956 | House | No | T92 | 31555 | <25 |
| AvR005 | 669238 | 6409434 | House | No | T92 | 32275 | <25 |
| AvR006 | 668645 | 6408955 | House | No | T92 | 33037 | <25 |
| AvR007 | 669115 | 6408659 | House | No | T92 | 32861 | <25 |
| AvR008 | 668803 | 6407526 | House | No | T92 | 33832 | <25 |
| BaR001 | 669771 | 6432462 | House | No | T53 | 24600 | <25 |
| BaR002 | 671712 | 6431418 | House | No | T53 | 22682 | <25 |
| BaR003 | 668705 | 6426243 | House | No | T92 | 25897 | <25 |
| BaR004 | 670120 | 6430521 | House | No | T92 | 24268 | <25 |
| BaR005 | 667522 | 6425020 | House | No | T92 | 27252 | <25 |
| BaR006 | 668989 | 6428246 | House | No | T92 | 25424 | <25 |
| BaR007 | 667351 | 6423856 | House | No | T92 | 27642 | <25 |
| BaR008 | 667019 | 6423647 | House | No | T92 | 28011 | <25 |
| BaR009 | 666897 | 6423489 | House | No | T92 | 28165 | <25 |
| BaR010 | 666806 | 6423380 | House | No | T92 | 28278 | <25 |
| BaR011 | 666819 | 6423238 | House | No | T92 | 28297 | <25 |
| BaR012 | 666534 | 6423141 | House | No | T92 | 28597 | <25 |
| BaR013 | 666206 | 6422242 | House | No | T92 | 29133 | <25 |
| BFR001 | 666497 | 6426287 | House | No | T92 | 28082 | <25 |
| BFR002 | 666888 | 6426240 | House | No | T92 | 27699 | <25 |
| BFR003 | 667311 | 6428416 | House | No | T92 | 27092 | <25 |
| BFR004 | 666119 | 6426807 | House | No | T92 | 28400 | <25 |
| BM001 | 677836 | 6435618 | House | No | T53 | 16837 | <25 |
| BM002 | 677935 | 6436573 | House | No | T53 | 16947 | <25 |
| BM003 | 678245 | 6436343 | House | No | T53 | 16591 | <25 |
| BM004 | 678376 | 6436262 | House | No | T53 | 16445 | <25 |
| BM005 | 678428 | 6436194 | House | No | T53 | 16379 | <25 |
| BM006 | 678439 | 6436104 | House | No | T53 | 16348 | <25 |
| BM007 | 678493 | 6436141 | House | No | T53 | 16303 | <25 |
| BM008 | 678505 | 6436251 | House | No | T53 | 16317 | <25 |
| BM009 | 678591 | 6436314 | House | No | T53 | 16248 | <25 |
| BM010 | 678749 | 6436217 | House | No | T53 | 16072 | <25 |
| BM011 | 678638 | 6436356 | House | No | T53 | 16213 | <25 |
| BM012 | 678703 | 6436353 | House | No | T53 | 16149 | <25 |
| BM013 | 678711 | 6436431 | House | No | T53 | 16160 | <25 |
| BM014 | 678770 | 6436454 | House | No | T53 | 16109 | <25 |
| BM015 | 678804 | 6436470 | House | No | T53 | 16080 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| BM016 | 678797 | 6436383 | House | No | T53 | 16065 | <25 |
| BM017 | 678842 | 6436405 | House | No | T53 | 16027 | <25 |
| BM018 | 678866 | 6436466 | House | No | T53 | 16019 | <25 |
| BM019 | 678733 | 6436561 | House | No | T53 | 16172 | <25 |
| BM020 | 678786 | 6436531 | House | No | T53 | 16113 | <25 |
| BM021 | 678822 | 6436546 | House | No | T53 | 16082 | <25 |
| BM022 | 678934 | 6436509 | House | No | T53 | 15964 | <25 |
| BM023 | 678882 | 6436421 | House | No | T53 | 15992 | <25 |
| BM024 | 678818 | 6436327 | House | No | T53 | 16031 | <25 |
| BM025 | 678841 | 6436259 | House | No | T53 | 15992 | <25 |
| BM026 | 678872 | 6436336 | House | No | T53 | 15981 | <25 |
| BM027 | 678900 | 6436279 | House | No | T53 | 15940 | <25 |
| BM028 | 678950 | 6436381 | House | No | T53 | 15916 | <25 |
| BM029 | 679061 | 6436398 | House | No | T53 | 15813 | <25 |
| BM030 | 679191 | 6436465 | House | No | T53 | 15704 | <25 |
| BmR014 | 678817 | 6417687 | House | No | T92 | 19642 | <25 |
| BnR001 | 665080 | 6436568 | House | No | T53 | 29580 | <25 |
| BnR002 | 665359 | 6436484 | House | No | T53 | 29292 | <25 |
| BnR003 | 665253 | 6436256 | House | No | T53 | 29367 | <25 |
| BnR004 | 664722 | 6436379 | House | No | T53 | 29909 | <25 |
| BnR005 | 665296 | 6435461 | House | No | T53 | 29231 | <25 |
| BnR006 | 665897 | 6435465 | House | No | T53 | 28634 | <25 |
| BnR007 | 665799 | 6435207 | House | No | T53 | 28706 | <25 |
| BoR001 | 680804 | 6415275 | House | No | T92 | 19789 | <25 |
| BoR002 | 681274 | 6413485 | House | No | T92 | 20829 | <25 |
| BrL001 | 676056 | 6408409 | House | No | T92 | 28071 | <25 |
| BuR001 | 663888 | 6433931 | House | No | T53 | 30519 | <25 |
| BuR002 | 664183 | 6434092 | House | No | T53 | 30233 | <25 |
| BuR003 | 664049 | 6434615 | House | No | T53 | 30400 | <25 |
| BuR004 | 664160 | 6434637 | House | No | T53 | 30291 | <25 |
| BuR005 | 664305 | 6434580 | House | No | T53 | 30142 | <25 |
| BuR006 | 664710 | 6434775 | House | No | T53 | 29753 | <25 |
| CH001 | 729824 | 6438750 | House | No | T106 | 19735 | <25 |
| CoR001 | 675477 | 6411736 | House | No | T92 | 26059 | <25 |
| CoR002 | 676473 | 6410742 | House | No | T92 | 26059 | <25 |
| CoR003 | 676822 | 6410363 | House | No | T92 | 26100 | <25 |
| CoR004 | 677714 | 6410524 | House | No | T92 | 25387 | <25 |
| CoR005 | 679124 | 6409847 | House | No | T92 | 25018 | <25 |
| CoR006 | 679349 | 6409446 | House | No | T92 | 25202 | <25 |
| CoR007 | 680498 | 6410687 | House | No | T92 | 23521 | <25 |
| CR001 | 674139 | 6413912 | House | No | T92 | 25652 | <25 |
| CR002 | 673655 | 6413405 | House | No | T92 | 26346 | <25 |
| CR003 | 673106 | 6414295 | House | No | T92 | 26248 | <25 |
| CR005 | 672974 | 6416778 | House | No | T92 | 24988 | <25 |
| CR007 | 675648 | 6416318 | House | No | T92 | 23004 | <25 |
| CR008 | 676132 | 6416130 | House | No | T92 | 22723 | <25 |
| CR009 | 676301 | 6416188 | House | No | T92 | 22553 | <25 |
| CR010 | 676796 | 6416715 | House | No | T92 | 21841 | <25 |
| CR011 | 677211 | 6416442 | House | No | T92 | 21674 | <25 |
| DeCR001 | 669558 | 6417999 | House | No | T92 | 27427 | <25 |
| DeCR002 | 670402 | 6417026 | House | No | T92 | 27106 | <25 |
| DeCR003 | 670548 | 6416740 | House | No | T92 | 27112 | <25 |
| DeCR004 | 670667 | 6415799 | House | No | T92 | 27471 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| DL001 | 663780 | 6433814 | House | No | T53 | 30622 | <25 |
| DL002 | 664084 | 6433161 | House | No | T53 | 30296 | <25 |
| DL003 | 664269 | 6432994 | House | No | T53 | 30107 | <25 |
| DL004 | 664715 | 6433288 | House | No | T53 | 29668 | <25 |
| DL005 | 664922 | 6433481 | House | No | T53 | 29467 | <25 |
| DL006 | 665248 | 6433511 | House | No | T53 | 29143 | <25 |
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| DL008 | 665076 | 6433160 | House | No | T53 | 29304 | <25 |
| DL009 | 665282 | 6433120 | House | No | T53 | 29097 | <25 |
| DL010 | 665617 | 6433612 | House | No | T53 | 28778 | <25 |
| DL011 | 666314 | 6433122 | House | No | T53 | 28065 | <25 |
| DL012 | 665787 | 6432439 | House | No | T53 | 28584 | <25 |
| DL013 | 665496 | 6432639 | House | No | T53 | 28876 | <25 |
| DL014 | 665886 | 6434005 | House | No | T53 | 28528 | <25 |
| DL015 | 665826 | 6434415 | House | No | T53 | 28613 | <25 |
| DL016 | 664366 | 6434199 | House | No | T53 | 30056 | <25 |
| EE001 | 692360 | 6445382 | House | No | T12 | 9510 | <25 |
| EE002 | 692312 | 6445345 | House | No | T12 | 9515 | <25 |
| EE003 | 692484 | 6445074 | House | No | T12 | 9199 | <25 |
| EE004 | 692239 | 6445290 | House | No | T12 | 9524 | <25 |
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| FbR003 | 671936 | 6421182 | House | No | T92 | 23992 | <25 |
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| FiR001 | 671889 | 6442442 | House | No | T53 | 24606 | <25 |
| FiR002 | 673887 | 6441371 | House | No | T53 | 22346 | <25 |
| FiR003 | 676342 | 6438001 | House | No | T53 | 18867 | <25 |
| FiR004 | 677971 | 6437831 | House | No | T53 | 17263 | <25 |
| GCR001 | 679289 | 6436852 | House | No | T53 | 15714 | <25 |
| GCR002 | 679071 | 6439688 | House | No | T53 | 16930 | <25 |
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| GCR004 | 683753 | 6441500 | House | No | T53 | 13957 | <25 |
| GeR001 | 673687 | 6425243 | House | No | T92 | 21157 | <25 |
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| GH015 | 692610 | 6445432 | House | No | T12 | 9382 | <25 |
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| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
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| GH020 | 688303 | 6442884 | House | No | T12 | 11391 | <25 |
| GH021 | 686808 | 6444069 | House | No | T12 | 13244 | <25 |
| GH022 | 688373 | 6442404 | House | No | T12 | 11143 | <25 |
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| GH030 | 681444 | 6438530 | House | No | T53 | 14289 | <25 |
| GH031 | 676971 | 6434003 | House | No | T53 | 17470 | <25 |
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| GH033 | 675207 | 6433314 | House | No | T53 | 19184 | <25 |
| GH034 | 674079 | 6433931 | House | No | T53 | 20347 | <25 |
| GH035 | 672815 | 6434838 | House | No | T53 | 21689 | <25 |
| GH036 | 671164 | 6434429 | House | No | T53 | 23292 | <25 |
| GH037 | 670145 | 6434229 | House | No | T53 | 24292 | <25 |
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| GH043 | 667456 | 6435944 | House | No | T53 | 27142 | <25 |
| GH044 | 667062 | 6436145 | House | No | T53 | 27559 | <25 |
| GH045 | 664932 | 6436904 | House | No | T53 | 29775 | <25 |
| GH046 | 664730 | 6436933 | House | No | T53 | 29979 | <25 |
| GH047 | 663917 | 6437146 | House | No | T53 | 30815 | <25 |
| GH048 | 663634 | 6435991 | House | No | T53 | 30941 | <25 |
| GH049 | 666241 | 6436355 | House | No | T53 | 28401 | <25 |
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| GHR002 | 669289 | 6413341 | House | No | T92 | 29936 | <25 |
| GHR003 | 669070 | 6412839 | House | No | T92 | 30395 | <25 |
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| GHR006 | 667338 | 6409262 | House | No | T92 | 33879 | <25 |
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| GiL002 | 678250 | 6411329 | House | No | T92 | 24428 | <25 |
| GnL001 | 667679 | 6414934 | House | No | T92 | 30496 | <25 |
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| HbR002 | 672012 | 6418505 | House | No | T92 | 24998 | <25 |
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| HbR004 | 671446 | 6416357 | House | No | T92 | 26517 | <25 |
| HbR005 | 671237 | 6416068 | House | No | T92 | 26843 | <25 |
| HbR006 | 670994 | 6415752 | House | No | T92 | 27213 | <25 |
| HbR007 | 671350 | 6415634 | House | No | T92 | 26969 | <25 |
| HL001 | 672697 | 6407859 | House | No | T92 | 30757 | <25 |
| HL002 | 673320 | 6408546 | House | No | T92 | 29831 | <25 |
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| HR003 | 727812 | 6428959 | House | No | T115 | 14364 | <25 |
| JCR001 | 667830 | 6439645 | House | No | T53 | 27501 | <25 |
| JCR002 | 669790 | 6440865 | House | No | T53 | 25984 | <25 |
| KL001 | 678772 | 6415617 | House | No | T92 | 21004 | <25 |
| LR001 | 670903 | 6435740 | House | No | T53 | 23699 | <25 |
| LR002 | 670648 | 6436062 | House | No | T53 | 23998 | <25 |
| LR003 | 672262 | 6438459 | House | No | T53 | 22913 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
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| MCR002 | 676236 | 6431497 | House | No | T53 | 18160 | <25 |
| MgR001 | 719335 | 6443110 | House | No | T1 | 13518 | <25 |
| MgR002 | 718991 | 6441111 | House | No | T1 | 13065 | <25 |
| MH001 | 665719 | 6420525 | House | No | T92 | 30081 | <25 |
| MH002 | 666293 | 6419031 | House | No | T92 | 30031 | <25 |
| MH003 | 666154 | 6418518 | House | No | T92 | 30346 | <25 |
| MH004 | 667383 | 6417666 | House | No | T92 | 29543 | <25 |
| MH005 | 670300 | 6416258 | House | No | T92 | 27562 | <25 |
| MH006 | 669412 | 6417486 | House | No | T92 | 27780 | <25 |
| MH007 | 672570 | 6412271 | House | No | T92 | 27901 | <25 |
| MH008 | 672952 | 6411884 | House | No | T92 | 27849 | <25 |
| MH009 | 673914 | 6411342 | House | No | T92 | 27475 | <25 |
| MH010 | 676041 | 6409382 | House | No | T92 | 27351 | <25 |
| MH011 | 676543 | 6408525 | House | No | T92 | 27667 | <25 |
| MH012 | 676771 | 6409324 | House | No | T92 | 26911 | <25 |
| MH013 | 676781 | 6408352 | House | No | T92 | 27647 | <25 |
| MH014 | 677734 | 6407092 | House | No | T92 | 28055 | <25 |
| MH015 | 677621 | 6407106 | House | No | T92 | 28111 | <25 |
| MH016 | 678122 | 6406773 | House | No | T92 | 28086 | <25 |
| MH017 | 677869 | 6406685 | House | No | T92 | 28305 | <25 |
| MH018 | 677851 | 6406564 | House | No | T92 | 28413 | <25 |
| MH019 | 678842 | 6407633 | House | No | T92 | 26968 | <25 |
| NR001 | 671111 | 6436193 | House | No | T53 | 23561 | <25 |
| NR002 | 672509 | 6436652 | House | No | T53 | 22264 | <25 |
| NR003 | 672547 | 6436065 | House | No | T53 | 22123 | <25 |
| ODR001 | 669235 | 6413987 | House | No | T92 | 29634 | <25 |
| ODR002 | 670056 | 6414030 | House | No | T92 | 28918 | <25 |
| ODR003 | 670415 | 6413938 | House | No | T92 | 28667 | <25 |
| ODR004 | 670044 | 6413502 | House | No | T92 | 29217 | <25 |
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| OMR002 | 664383 | 6439042 | House | No | T53 | 30706 | <25 |
| OMR003 | 664897 | 6439404 | House | No | T53 | 30285 | <25 |
| OMR004 | 665289 | 6440109 | House | No | T53 | 30076 | <25 |
| OMR005 | 667030 | 6441463 | House | No | T53 | 28791 | <25 |
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| OMR007 | 667946 | 6442115 | House | No | T53 | 28140 | <25 |
| OMR008 | 667603 | 6442380 | House | No | T53 | 28554 | <25 |
| OMR009 | 667906 | 6440645 | House | No | T53 | 27707 | <25 |
| OTHL001 | 678955 | 6413786 | House | No | T92 | 22143 | <25 |
| PCR001 | 671674 | 6427417 | House | No | T92 | 22812 | <25 |
| PCR002 | 671447 | 6426119 | House | No | T92 | 23201 | <25 |
| PCR003 | 673076 | 6426570 | House | No | T92 | 21523 | <25 |
| PFR001 | 673855 | 6406462 | House | No | T92 | 30985 | <25 |
| PTL001 | 667301 | 6407764 | House | No | T92 | 34831 | <25 |
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| RHR002 | 667871 | 6419432 | House | No | T92 | 28414 | <25 |
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| RR001 | 670598 | 6406534 | House | No | T92 | 33181 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| SiR001 | 683576 | 6437831 | House | No | T53 | 12066 | <25 |
| SiR002 | 684881 | 6439335 | House | No | T53 | 11730 | <25 |
| SiR003 | 685501 | 6441018 | House | No | T53 | 12339 | <25 |
| TbR001 | 666334 | 6408631 | House | No | T92 | 35061 | <25 |
| TkR001 | 727054 | 6441366 | House | No | T83 | 18973 | <25 |
| TkR002 | 727175 | 6441336 | House | No | T83 | 19051 | <25 |
| TL001 | 729948 | 6421115 | House | No | T115 | 17544 | <25 |
| TL002 | 730154 | 6420846 | House | No | T115 | 17833 | <25 |
| TOdR001 | 673086 | 6413100 | House | No | T92 | 26982 | <25 |
| TOdR002 | 673235 | 6412396 | House | No | T92 | 27305 | <25 |
| TOdR003 | 672897 | 6412459 | House | No | T92 | 27528 | <25 |
| TOdR004 | 674376 | 6411538 | House | No | T92 | 27000 | <25 |
| TOR001 | 671552 | 6411442 | House | No | T92 | 29213 | <25 |
| TOR002 | 671274 | 6410697 | House | No | T92 | 29898 | <25 |
| TOR003 | 671623 | 6409637 | House | No | T92 | 30320 | <25 |
| TOR004 | 670835 | 6408983 | House | No | T92 | 31343 | <25 |
| TOR005 | 670727 | 6408571 | House | No | T92 | 31697 | <25 |
| TwL001 | 677024 | 6407976 | House | No | T92 | 27786 | <25 |
| TwL002 | 676825 | 6407517 | House | No | T92 | 28269 | <25 |
| TwL003 | 677222 | 6407447 | House | No | T92 | 28080 | <25 |
| TwL004 | 676746 | 6407083 | House | No | T92 | 28659 | <25 |
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| TwL007 | 677350 | 6406861 | House | No | T92 | 28469 | <25 |
| ULCR006 | 723845 | 6438746 | House | No | T83 | 14834 | <25 |
| ULCR007 | 724071 | 6439649 | House | No | T83 | 15564 | <25 |
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| UR005 | 713052 | 6410778 | House | No | T122 | 15567 | <25 |
| VR001 | 665185 | 6422041 | House | No | T92 | 30171 | <25 |
| VR002 | 665378 | 6422599 | House | No | T92 | 29847 | <25 |
| VR003 | 665110 | 6423476 | House | No | T92 | 29913 | <25 |
| VR004 | 665236 | 6423794 | House | No | T92 | 29726 | <25 |
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| VR006 | 665671 | 6425531 | House | No | T92 | 29000 | <25 |
| WeR001 | 665785 | 6422669 | House | No | T92 | 29435 | <25 |
| WeR002 | 665981 | 6422658 | House | No | T92 | 29247 | <25 |
| WeR003 | 666178 | 6422607 | House | No | T92 | 29069 | <25 |
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| WON002 | 666351 | 6420738 | House | No | T92 | 29414 | <25 |
| WON003 | 666482 | 6420707 | House | No | T92 | 29299 | <25 |
| WrL001 | 676419 | 6408962 | House | No | T92 | 27415 | <25 |
| WrL003 | 676459 | 6408798 | House | No | T92 | 27513 | <25 |
| WRR001 | 665041 | 6421253 | House | No | T92 | 30519 | <25 |
| WsR001 | 666295 | 6422155 | House | No | T92 | 29069 | <25 |
| WsR002 | 666703 | 6422096 | House | No | T92 | 28691 | <25 |
| WsR003 | 667770 | 6422942 | House | No | T92 | 27443 | <25 |
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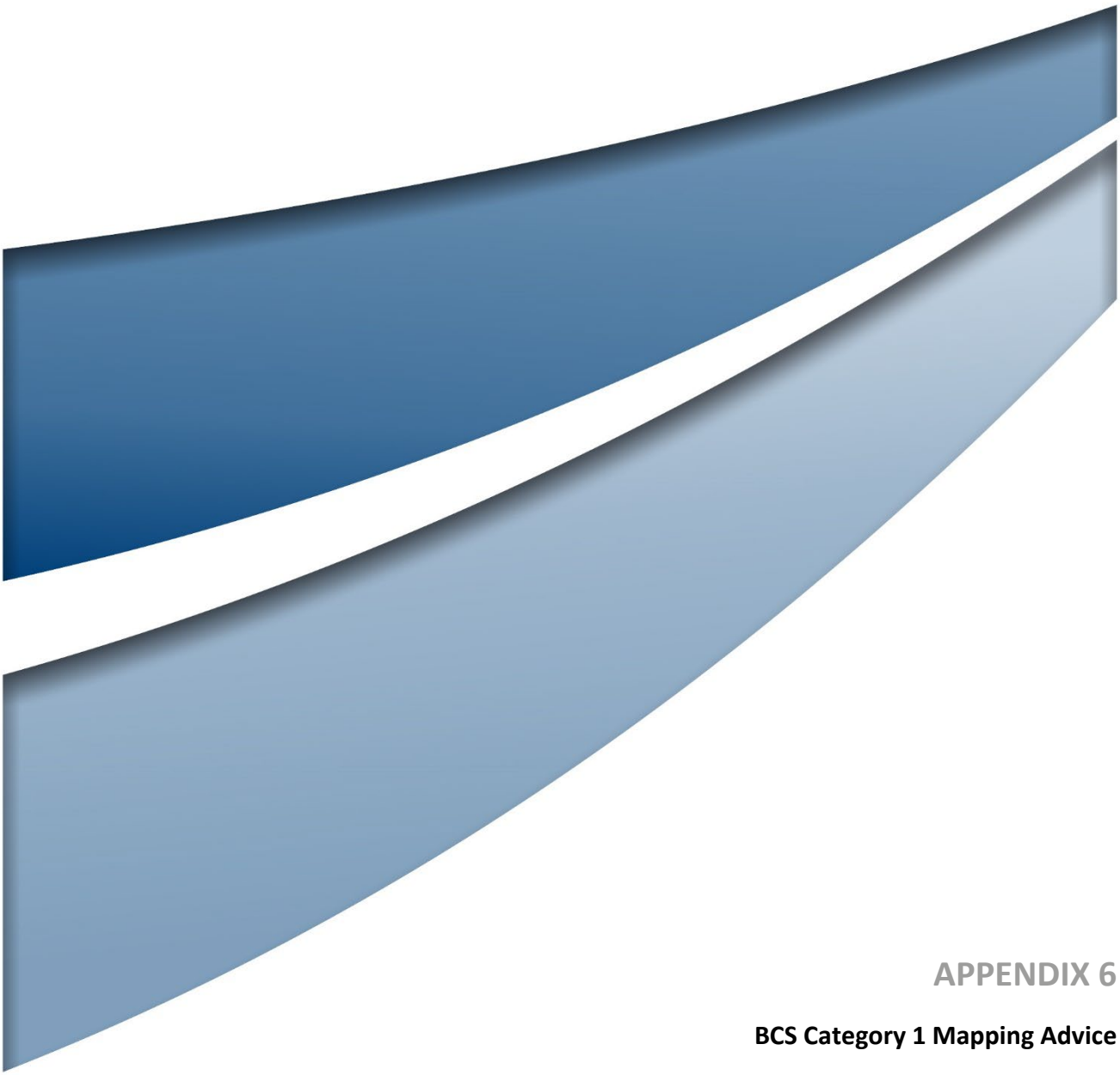
| WsR006 | 672002 | 6424500 | House | No | T92 | 22963 | <25 |
| WsR011 | 675123 | 6420415 | House | No | T92 | 21364 | <25 |
| WsR012 | 673758 | 6418783 | House | No | T92 | 23318 | <25 |
| WsR013 | 676797 | 6418868 | House | No | T92 | 20635 | <25 |

| Receiver ID | Receiver Coordinates (UTM WGS84 55H) | | Type | Associated (Yes / No) | Nearest WTG | Distance to Nearest WTG (m) | Predicted Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | | |
| WsR014 | 676230 | 6422513 | House | No | T92 | 19507 | <25 |
| WsR017 | 675516 | 6416481 | House | No | T92 | 23017 | <25 |
| WsR018 | 675767 | 6416678 | House | No | T92 | 22699 | <25 |
| WtL001 | 676481 | 6408040 | House | No | T92 | 28079 | <25 |
| WtL002 | 675804 | 6406583 | House | No | T92 | 29636 | <25 |
| WtR001 | 689934 | 6443475 | House | No | T12 | 10202 | <25 |
| WtR002 | 689670 | 6443297 | House | No | T12 | 10344 | <25 |
| WtR003 | 690095 | 6442278 | House | No | T12 | 9507 | <25 |
| WtR004 | 690474 | 6441345 | House | No | T12 | 8803 | <25 |
| WtR005 | 688544 | 6442174 | House | No | T12 | 10900 | <25 |



# APPENDIX 6

**BCS Category 1 Mapping Advice**

Our ref: DOC22/13554
Your ref:

Bill Wallach
Senior Ecologist
Umwelt (Australia) Pty Ltd
bwallach@umwelt.com.au

Dear Mr Wallach

**Spicers Creek Wind Farm – Land categorisation**

Thank you for your e-mail dated 7 December 2021 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning and Environment inviting comments on the land category mapping for Spicers Creek Wind Farm (December 2021).

We note that the proposed Category 1 – exempt land mapping shown in figure 3.3 and provided in spatial files is preliminary and may change with additional information. BCS will conduct a more detailed review of the mapping when the Environmental Impact Statement (EIS) is exhibited.

BCS notes and recommends the following:

- Paddock trees have been mapped as Category 2 – regulated land. This categorisation is correct, and the streamlined assessment module – scattered trees assessment (Biodiversity Assessment Method 2020, Appendix B) can be used for these trees.
- Planted native vegetation has been mapped as Category 1 – exempt. BCS recommends that planted native vegetation be assessed using the streamlined assessment module – planted native vegetation (Biodiversity Assessment Method 2020, Appendix D).
- The standard Biodiversity Assessment Method will be used to assess impacts on the remaining areas.

Where there is any doubt about land categorisation, the land must be categorised as Category 2 – regulated and will need to be assessed. BCS also recommends that a clear map showing category 1 – exempt, category 2 – regulated and excluded land be included in the EIS.

Except for planted native vegetation, BCS endorses the method used to categorise land for Spicers Creek Wind Farm.

If you require any further information regarding this matter, please contact Liz Mazzer, Conservation Planning Officer, via liz.mazzer@environment.nsw.gov.au or (02) 6883 5325.

Yours sincerely

**Samantha Wynn**
**Senior Team Leader Planning North West**
**Biodiversity, Conservation and Science Directorate**

12 January 2022