Uungula Wind Farm

State Significant Development Assessment

(SSD 6687)

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Glossary

Abbreviation	Definition
AHD	Australian Height Datum
BCS	Biodiversity, Conservation and Science Directorate of the Department of Planning, Industry and Environment
Council	Dubbo Regional Council
Crown Lands	Crown Lands, DPIE
DAWE	Commonwealth Department of Agriculture, Water and the Environment (formerly DoEE)
Department	Department of Planning, Industry and Environment
DPI	Department of Primary Industries, DPIE
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
Heritage NSW	Heritage NSW, Department of Premier and Cabinet
LEP	Local Environmental Plan
MEG	Mining, Exploration and Geosciences Division of the Department of Regional NSW
Minister	Minister for Planning and Public Spaces
Planning Secretary	Secretary of the Department of Planning, Industry and Environment
RFS	Rural Fire Service NSW
SEPP	State Environmental Planning Policy
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
TfNSW	Transport for NSW, formerly Roads and Maritime Service

Executive Summary

Uungula Wind Farm Pty Ltd (the Applicant), owned by CWP Renewables Pty Ltd (CWP), proposes to develop a 400 megawatt (MW) wind farm, approximately 14 kilometres (km) east of Wellington in the Central West and Orana region of NSW (see **Figure ES 1**).

The project involves the development of up to 97 turbines, with a maximum tip height of 250 metres (m) and hub height of 166 m. The project would also include a 150 MW / 150 MW-hour battery energy storage facility.

The project also involves the development of associated ancillary infrastructure including temporary construction compounds, concrete batching plants, permanent access tracks, operation and maintenance facilities, on-site electrical infrastructure, wind monitoring masts, and a new 330 kilovolt (kV) transmission line to connect to TransGrid's Wellington to Wollar 330 kV transmission line that traverses the northern part of the project site.

The project has a capital investment of $820 million and would generate up to 250 construction jobs and 12 operation jobs.

The project is located in an area that could contribute to the pilot Renewable Energy Zone in the Central West and Orana Region, as identified in the NSW Government's *Electricity Strategy*, with access to the electricity grid at a location with available network capacity. The project is also consistent with the *NSW's Climate Change Policy Framework, Net Zero Plan Stage 1: 2020 – 2030, and Electricity Strategy*, as it would contribute 400 MW of renewable energy to the National Electricity Market. The assessment of the project is also broadly consistent with the principles of the *NSW Wind Energy Framework*.

The project is classified as State Significant Development under the *Environmental Planning and Assessment Act 1979* (EP&A Act), and the consent authority for the project is the NSW Minister for Planning and Public Spaces (the Minister). However, the Executive Director, Energy, Industry and Compliance, may determine the development application under delegation from the Minister as Dubbo Regional Council (Council) did not object, there were less than 50 objections from the general public and no reportable political donations were made.

Engagement

The Department exhibited the Environmental Impact Statement (EIS) for the project and received 33 submissions (17 in support, 13 objections and three providing comment). This included 26 submissions from the general public (14 in support, 11 objections and one providing comment) and seven from special interest groups (three in support, two objections and two providing comment).

The Department also consulted with Council and relevant government agencies on key issues, inspected the site on 9 February 2021 and 24 March 2021 and met with a number of the community members. No agencies objected to the project, subject to the implementation of appropriate mitigation and management measures.

The public submissions supporting the project cited the project's contribution to renewable energy and climate change and economic benefits and were received from local residents and from members of the public outside the immediate region.

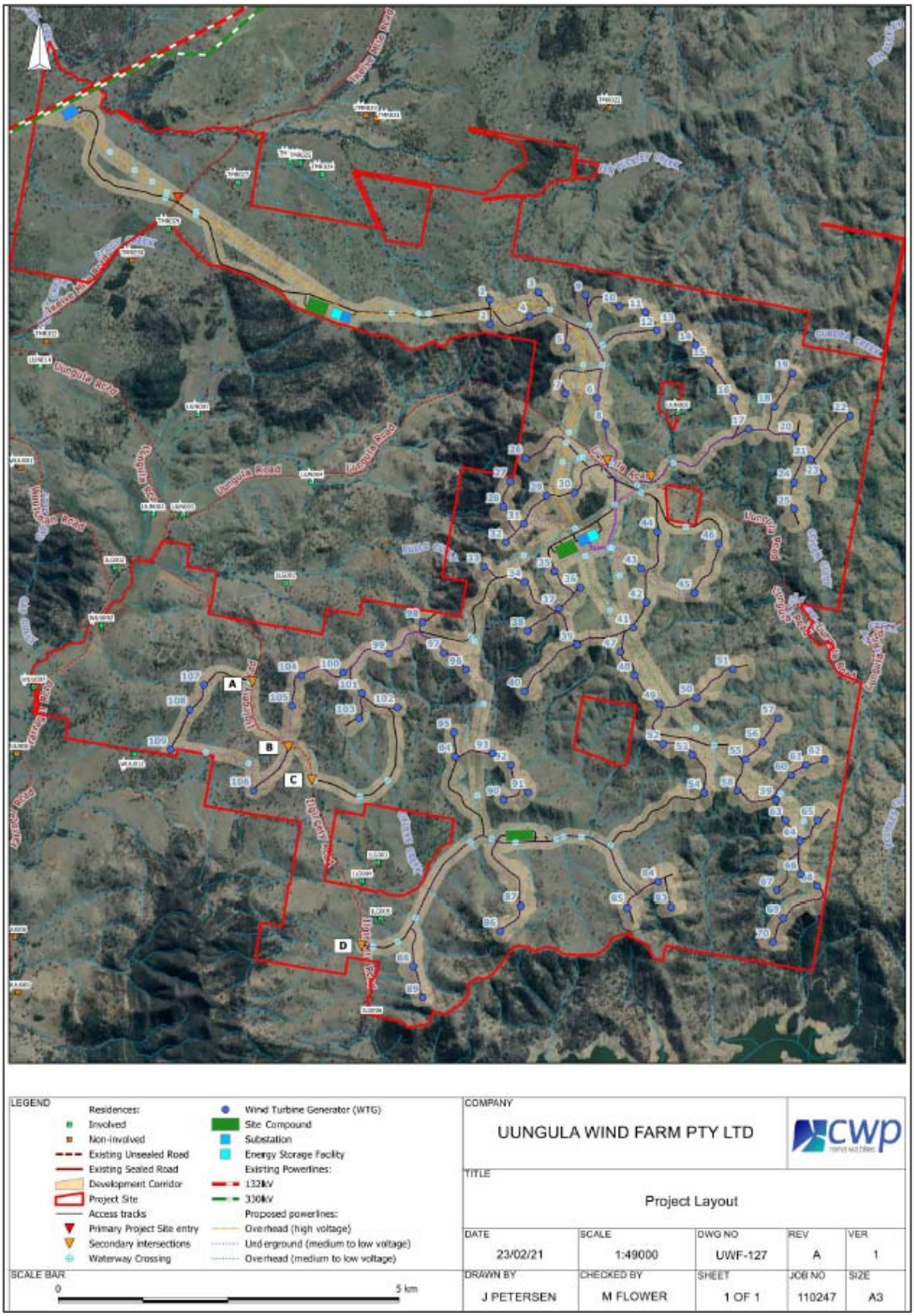

Figure ES 1 | Project Layout

The public submissions objecting to the project raised concerns including visual and noise amenity, impacts on biodiversity, traffic and transport impacts and cumulative impacts with other projects in the region and were received from residents adjacent to the site and in the region.

In response to agency advice and submissions on the project, CWP undertook additional assessments and made several amendments to the proposed project, which have led to better traffic safety and amenity outcomes. The amendments include a revised design of the intersection of Goolma Road and Twelve Mile Road, minor realignment of internal access tracks in the north of the project and additional residences becoming associated with the project through negotiated agreements.

Assessment

The Department has undertaken a comprehensive assessment of the merits of the project in accordance with the requirements of the EP&A Act. The key assessment issues identified for the project are visual and noise amenity, traffic and transport, and biodiversity.

Visual

The site is located in a sparsely populated area, away from major transport routes and public viewpoints, and benefits from several surrounding ridgelines and densely vegetated areas which generally obstruct views of the turbines from the broader landscape.

The Department undertook an assessment of the visual impacts on the broader landscape and non-associated receivers located within 5 km of a turbine, in accordance with the Department's *Visual Assessment Bulletin*.

The Department is satisfied that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-associated residences, with the exception of one residence.

For this residence, the Department considers that four turbines should not be constructed unless CWP secures an agreement with the landowner of the residence in regard to the visual impacts, as required by the recommended conditions.

A small number of residences located within 5 km of a proposed turbine may have some views of turbines and the Department considers these impacts could be sufficiently mitigated through the provision of visual impact mitigation measures (such as landscaping and visual screening at residences).

Accordingly, the Department has recommended conditions requiring CWP to reduce the visual impacts of the project by offering visual impact mitigation measures, such as landscaping and/or vegetation screening, to all existing non-associated residences within 5 km of any approved turbine.

As such, with the implementation of additional mitigation, the Department considers the residual visual impacts of the project would be acceptable.

Traffic and Transport

The potential traffic and transport impacts would be largely restricted to the 24 to 36 month construction period and would be managed by undertaking suitable road upgrades prior to commencing construction, regular road maintenance, and the implementation of a Traffic Management Plan, including standard traffic control measures and a driver's code of conduct.

CWP has agreed on a schedule of road upgrades with both Transport for NSW and Council, which includes the closure of the existing intersection at Goolma Road and Twelve Mile Road and construction

of a new intersection 400 m to the north, the upgrade of Twelve Mile Road along the transport route, and intersection treatments to facilitate entry and exit into the project site.

The Department has also recommended conditions requiring CWP to carry out dilapidation surveys of the transport routes before construction, on an annual basis during construction, and after decommissioning the project, and repair, or pay the full cost associated with repairing any damage to the road network caused by any project-related traffic.

With these measures in place, the Department is satisfied that the project would not result in any unacceptable impacts on the capacity, efficiency or safety of the road network.

Biodiversity

The project site and surrounds are characterised by cleared farmland, comprised of predominantly modified grassland communities (72 %) with pockets of remnant native vegetation remaining in open forests and woodlands, mostly along ridgelines and slopes (22 %). The remaining 6 % comprises areas cleared of native vegetation, including farm dams or cleared land.

CWP has designed the project to avoid disturbance of native vegetation where practicable, including micro-siting turbines to reduce impacts on biodiversity. However, the project would still involve clearing up to 483 hectares (ha) of modified grassland vegetation and 143 ha of native woodland, including 29 ha of White Box - Yellow Box - Blakely's Red Gum Woodland (Box Gum Woodland) listed as a critically endangered ecological community (CEEC) under the *Biodiversity Conservation Act 2016* (BC Act), inclusive of 14 ha of Box Gum Woodland CEEC under the EPBC Act.

Additionally, the project would potentially disturb habitat for four threatened fauna species credit candidates and four threatened flora species listed under the BC Act.

CWP proposes to further reduce the biodiversity impacts through additional micro-siting of wind turbines, and offset the residual impacts of the project in accordance with the requirements of the *NSW Biodiversity Offsets Policy for Major Projects*.

The Department's assessment found that although the project would require clearing of up to 626 ha of native vegetation, the project would not result in any significant impacts on threatened species or communities, and would not pose a significant or unacceptable level of risk to bird and bat species in the vicinity of the proposed turbines.

Overall, the Department (including the Department's Biodiversity, Conservation and Sciences Division (BCS)) considers that with the implementation of the recommended conditions requiring CWP to limit clearing of native vegetation, and implement a Biodiversity Management Plan, a Bird and Bat Adaptive Management Plan and a biodiversity offset strategy, the residual biodiversity impacts of the project would be suitably minimised, managed and/or offset.

Noise

The project site is located in a relatively quiet rural area with low background noise levels. Using conservative assumptions, the noise modelling suggests the project would be able to comply with the relevant operational noise criteria at all non-associated residences.

As such, the Department is satisfied that the operational noise generated by the project would be able to comfortably comply with the applicable operational noise criteria at all non-associated residences.

However, during construction, a number of residences may be subject to temporary noise levels above the relevant noise criteria from construction activities or construction related traffic. The level of disturbance to residents would be directly related to the proximity of the residence to the construction

activity or road upgrades. In addition, due to the large area of the project site and progressive nature of wind farm construction, the intensive civil works located close to these residences would occur within a shorter period of time.

CWP has committed to implementing a number of standard measures to minimise construction noise from the project, which may include construction of temporary acoustic barriers and use of proprietary enclosures around machines. The Department has recommended conditions formalising these commitments. With these measures in place, the Department is satisfied that the project would not result in any unacceptable construction noise impacts.

Summary

The Department acknowledges there is some community opposition from local landowners and special interest groups to the project. However, the Department considers that the project, including the amendments made which have led to better traffic safety and amenity outcomes, would achieve an appropriate balance between maximising the use of the site's wind resources, and minimising the amenity impacts on local residents and the environment.

The site has good wind resources and available capacity on the existing electricity network, and the project has been designed to largely avoid key constraints, including amenity impacts on nearby residences, watercourses, and remnant native vegetation.

To address the residual impacts of the project, the Department has recommended a range of detailed conditions to ensure these impacts are effectively minimised and/or offset. These conditions use a risk based approach that focuses on performance-based outcomes. This reflects current government policy, and the fact that wind farms require relatively limited ongoing environmental management once the turbines have been commissioned.

Importantly, the project is located in an area that could contribute to the Central West Renewable Energy Zone and is consistent with the NSW's *Climate Change Policy Framework* and *Net Zero Plan Stage 1: 2020 – 2030*, as it would contribute 400 MW of renewable energy to the National Electricity Market, enough to power over 149,000 homes and save over 847,000 tonnes of greenhouse gas emissions per year. Importantly the project includes a battery energy storage facility with a capacity of 150 MW / 150 MWh which would enable the project to store wind energy for dispatch to the grid during periods of peak demand, which has the potential to increase grid stability and energy security.

The project would also provide flow-on benefits to the local community, including up to 250 construction jobs, 12 operation jobs and a capital investment of $820 million, and up to $321,000 a year (plus CPI) in contributions to Council through a voluntary planning agreement for community enhancement projects, to support strategic planning for the Wellington area and road maintenance projects.

On balance, the Department considers that the project would result in benefits to the State of NSW and the local community and is therefore in the public interest. It should therefore be approved, subject to the recommended conditions of consent.

Contents

1 Project

Uungula Wind Farm Pty Ltd (the Applicant), owned by CWP Renewables Pty Ltd (CWP), proposes to develop a new State significant development (SSD) wind farm approximately 14 kilometres (km) east of Wellington in the Dubbo Regional local government area (LGA) (see **Figure 2**).

The project involves the construction of up to 97 turbines, with a maximum tip height of 250 metres (m) and hub height of 166 m. It also involves the maintenance, upgrading and decommissioning of infrastructure and equipment over time.

The project would have a generating capacity of approximately 400 megawatt (MW) and would generate up to 883,000 MW-hours (MWh) of electricity annually.

The project also involves the development of a battery energy storage facility with a delivery capacity of up to 150 MW and storage capacity of 150 MWh.

The project would connect to TransGrid's existing 330 kilovolt (kV) Wellington – Wollar transmission line via a new 330 kV overhead transmission line.

CWP has refined the proposal since its inception to include up to 97 turbines, as lodged in the development application and accompanying Environmental Impact Statement (EIS) in May 2020.

To provide flexibility in the requirements for micro-siting of turbines, CWP has defined a development corridor where turbines and ancillary infrastructure can be located (see **Figure 3**). The purpose of the development corridor is to identify locations where turbines and ancillary infrastructure could be sited without materially changing the key environmental impacts of the project (i.e. visual, noise, biodiversity and heritage impacts).

The key components of the project are summarised in **Table 1**, shown in **Figure 3**, and described in the (EIS) (see **Appendix B**), Amendment Report (see **Appendix E**), Submissions Report (see **Appendix D**) and additional information (see **Appendix F**). The project site is shown in **Figure 1**.

Figure 1 | Project Site

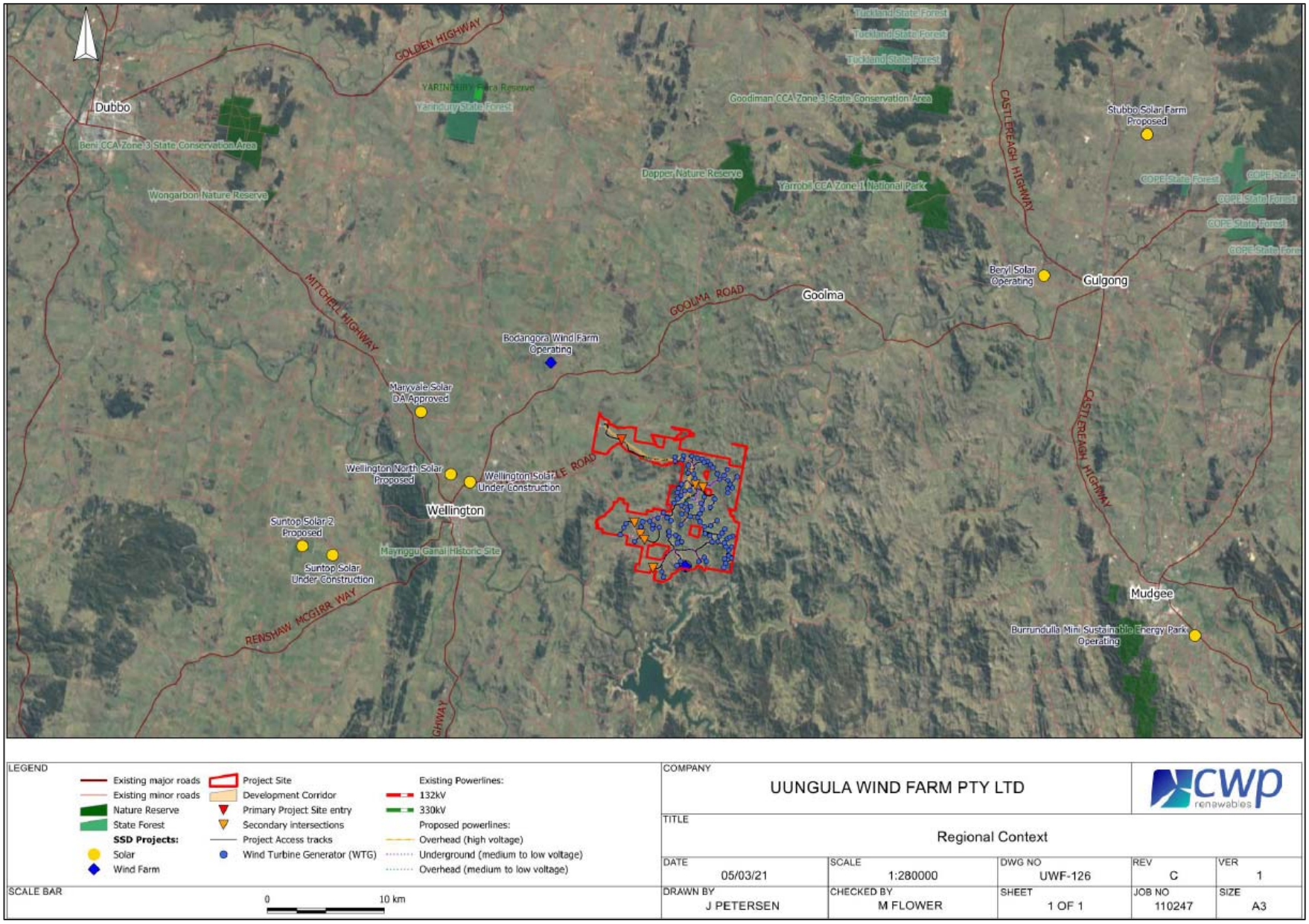

Figure 2 | Regional Context

Table 1 | Main Components of the Project

Aspect	Description
Project summary	The project includes: • up to 97 wind turbines and associated infrastructure; • an energy storage facility up to 150 MW / 150 MWh; • connection to TransGrid's existing 330 kV Transmission line that traverses the northern part of the project site and up to 3 substations; • temporary and permanent ancillary infrastructure on site to facilitate the construction and operation of the turbines; and • upgrades to several local and regional roads to cater for construction traffic and enable turbines to be delivered to the site using over-dimensional vehicles.
Project area	• Project site: 8,818 ha • Development corridor: 2,724 ha • Development footprint: 637 ha
Wind turbine	• 97 turbines and associated crane hard stand areas • Maximum tip height of 250 m • Maximum turbine hub height of 166 m • Maximum rotor diameter of 170 m • Swept area approximately 22,698 m^2 • Approximate capacity of 4 MW[1]
On-site ancillary infrastructure	• Electrical infrastructure including up to: – 12 km of external overhead transmission lines, connecting to TransGrid's existing Wellington to Wollar 330 kV transmission line which traverses the northern part of the site; – 15 km of internal transmissions lines; and – 90 km of underground transmission lines; • Turbine hardstands, two operations and maintenance compounds; utility services and signage; • Temporary facilities, including site offices and compounds, rock crushing and concrete/asphalt batching plants, stockpiles and materials storage, laydown areas, 12 temporary meteorological masts; • Up to 90 km of new internal access tracks; and • Six permanent meteorological masts up to 166 m in height.
Off-site road works	• Permanent closure of the existing intersection, and construction of new intersection 400 m to the north at Goolma Road and Twelve Mile Road (west); • Upgrade of Twelve Mile Road, from the new intersection with Goolma Road to the primary access point; • Construction of the primary site point on Twelve Mile Road; and • Construction of six secondary intersections, four on Ilgingery Road and two on Uungula Road

[1] Dependent on the final wind turbine model and layout selection

Aspect	Description
Construction	• The construction period would last for up to 30 months, including a peak period of six months. • Construction hours would be limited to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm.
Operation	The expected operational life of the infrastructure is approximately 30 years. However, the project may involve infrastructure upgrades that could extend the operational life.
Access route	• Over-dimensional would access the site via the Golden Highway, Saxa Road, Mitchell Highway, Goolma Road and Twelve Mile Road • Heavy and light vehicles would access the site from Goolma Road and Twelve Mile Road from the new intersection on the western end of Twelve Mile Road
Decommissioning and rehabilitation	The project includes decommissioning at the end of the project life, which would involve removing all infrastructure.
Employment	Up to 250 construction jobs and 12 operation jobs
Capital investment value	$820 million
Voluntary planning agreement	$3,309 per annum per turbine, equating to up to $320,973 per annum (indexed by CPI annually)

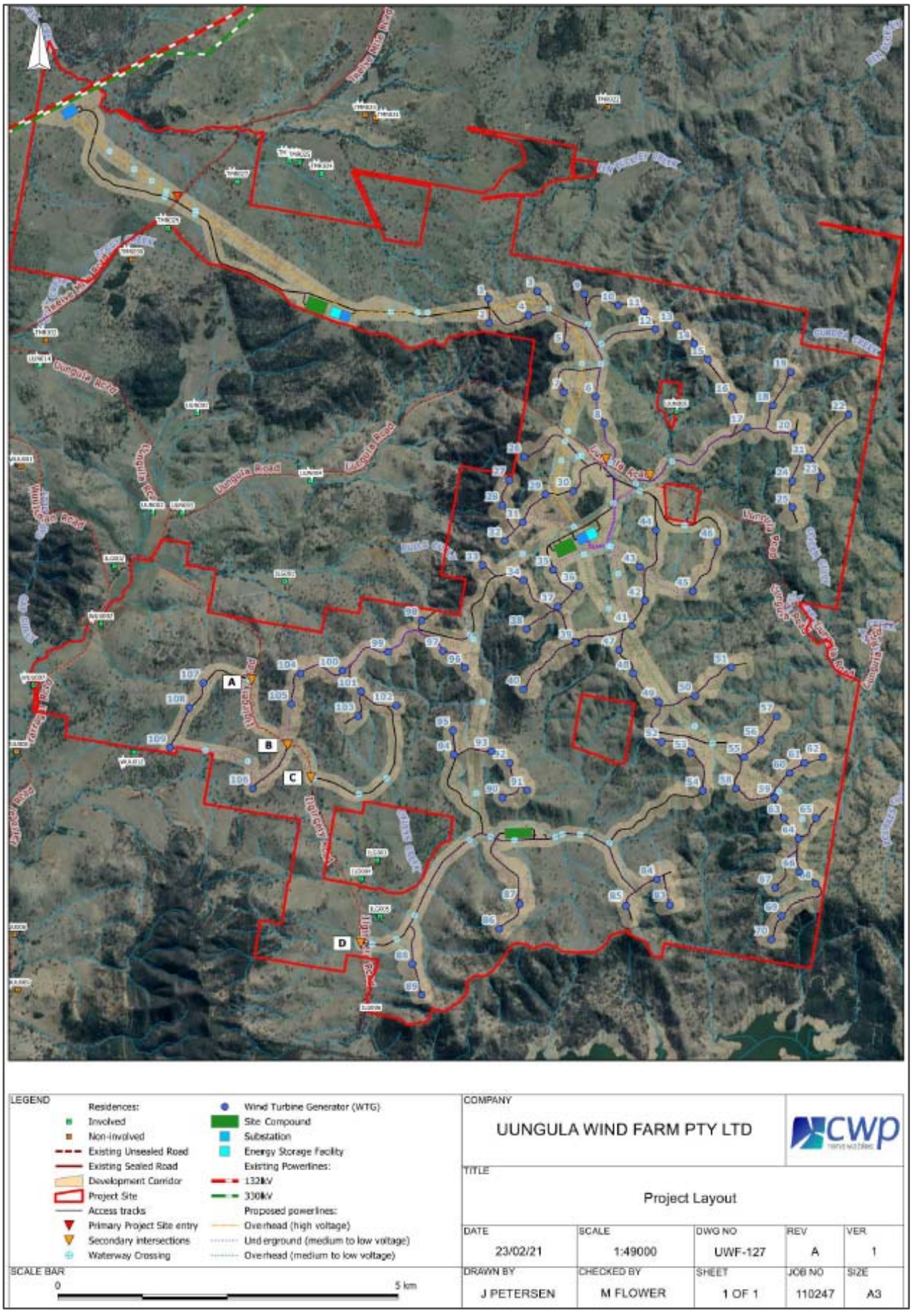

Figure 3 | Project Layout

2 Strategic context

2.1 Site and Surrounds

The project is located in the Dubbo Regional Council LGA, within the Central West and Orana region of NSW. The site (as shown in **Figure 2**) is zoned RU1 – Primary Production under the *Wellington Local Environmental Plan 2012* (Wellington LEP).

The project site is approximately 8,818 ha with a development footprint covering approximately 637 ha and includes cleared agricultural land, with predominantly modified grassland communities (72 %) with pockets of remnant native vegetation remaining in open forests and woodlands, mostly along ridgelines and slopes. The current agricultural activities are predominantly sheep and cattle grazing with some sections of broad-acre cropping.

The site does not include any mapped Biophysical Strategic Agricultural Land (BSAL).

The site and surrounds are predominantly a rural landscape, interspersed with infrastructure associated with supplying major towns (transmission lines, roads etc). TransGrid's Wellington 330 kV / 132 kV substation is approximately 11 km west of the project site and Wellington township is 14 km west of the project site.

The topography of the project area and surrounds is characterised as gently undulating to undulating with numerous valley and peaks. The site is within the Macquarie River Catchment area upon an elevated ridgeline ranging from 359 to 705 m (AHD).

The Cudgegong River, a main tributary of the Macquarie River, is located around 800 m south of the project at its closest point. Waterways within the project site, including Ilgingery Creek and Uungula Creek, are defined as ephemeral and only have surface flows after heavy rainfall events.

The Bodangora Wind Farm is located approximately 9 km north of the site. The Bodangora wind farm is an operating wind farm with 33 wind turbines with a blade tip height of 150 m.

The area surrounding the project site has scattered rural residences located primarily along Twelve Mile Road to the north, Ilgingery Road and Wuuluman Road to the west, and Uungula Road through the site. There are 24 associated residences, 8 of which are host landowners, who have entered into commercial agreements with CWP to facilitate the development of the project, including accepting the impacts of the project.

There are 10 non-associated residences located within 5 km of the proposed turbines locations. Potential amenity impacts on these residences are discussed in **section 5.1**.

2.2 Other Energy Projects

The Central West and Orana region of NSW has attracted considerable interest from wind and solar developers given abundant solar and wind resources and proximity to major electricity transmission lines and existing electricity substations. There are two operational, two under construction, two approved and three proposed SSD energy projects within 50 km of the project, with the closest project located approximately 9 km to the north west of the site (see **Table 2** and **Figure 4**).

Table 2 | Nearby Energy Projects

Project	Approximate Capacity (MW)	Status	Approximate distance from the project (km)
Bodangora Wind Farm	100	Operational	9
Burrendong Wind Farm	400	Proposed	15
Mumbil Solar Farm	140	Proposed	16
Wellington Solar Farm	174	Under Construction	17
Wellington North Solar Farm	300	Approved	18
Maryvale Solar Farm	125	Approved	23
Suntop Solar Farm	170	Under Construction	28
Suntop Stage 2 Solar Farm	165	Proposed	29
Beryl Solar Farm	87	Operational	40

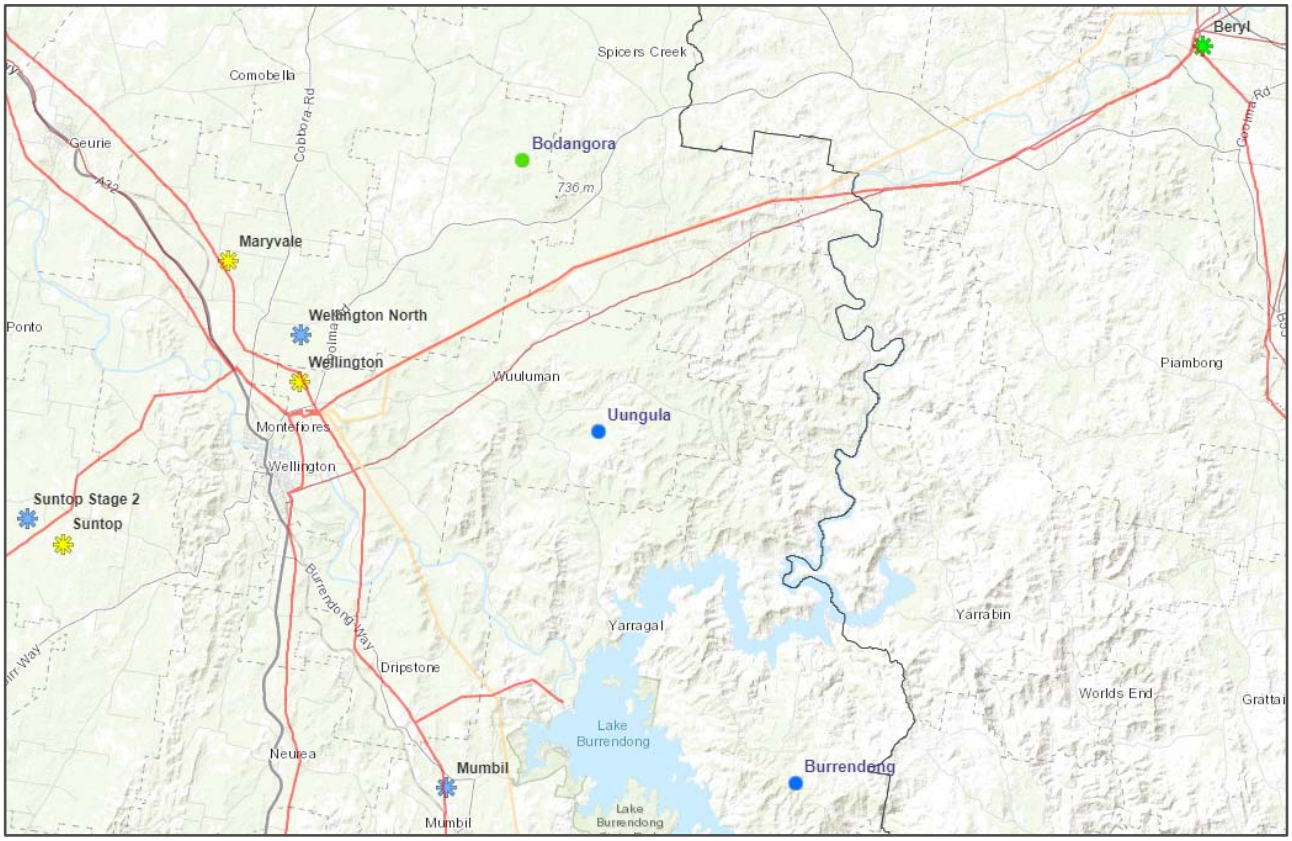

Figure 4 | Nearby Energy Generation Projects

Potential cumulative impacts relate to loss of agricultural land, traffic and visual amenity.

Bodangora Wind Farm is an operational wind farm approximately 9 km north of the project at the nearest point. Some non-associated residences along Twelve Mile Road and Goolma Road would potentially have views of

turbines from both projects. The cumulative visual impacts of these projects are considered further in **section 5.1**.

Given the distance of the proposed Uungula Wind Farm from other nearby projects, there would be no cumulative noise impacts. In addition, while the surrounding regional road network may experience an increase in traffic numbers there would be no significant cumulative impact on the local roads along the proposed transport route, as discussed further in **section 5.2**.

The project is proposing to use State network routes for heavy and light vehicles. The approved Maryvale Solar farm and Wellington North Solar Farm, if approved, have the potential to result in cumulative impacts to the regional road network should the construction periods overlap, due to the common section of the construction haulage route along Saxa Road and Goolma Road respectively.

The Burrendong Wind Farm is at an early stage in the assessment process and, if approved, is unlikely to cause cumulative construction impacts. Due to the distance from the project (15 km) it is not likely to have significant cumulative visual or noise impacts.

Other potential cumulative impacts with nearby energy projects include the loss of agricultural land and workforce accommodation. The potential cumulative impact on agricultural land in the region is discussed in **section 5.5**.

Workforce accommodation for these projects would be sourced from the local and wider region, including neighbouring towns and LGAs, as discussed further in **section 5.5**.

2.3 Renewable Energy Context

In 2019, NSW derived approximately 18.7 % of its energy from renewable sources. The rest was derived from fossil fuels, including 76.7 % from coal and 4.1 % from gas. However, there are currently no plans for the development of new coal power stations in NSW, and the development of renewable energy sources, like wind and solar farms, is experiencing rapid growth.

This is highlighted in the 2017 Independent Review into the Future Security of the National Electricity Market (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional coal and gas fired power generation to generation with lower emissions. It notes that Australia is heading towards zero emissions in the second half of the century.

The *United Nations Framework Convention on Climate Change* has adopted the Paris Agreement, which aims to limit global warming to well below 2°C, with an aspirational goal of 1.5°C. Australia's contribution towards this target is a commitment to reduce greenhouse gas emissions by 26 % to 28 % below 2005 levels by 2030.

The NSW *Climate Change Policy Framework*, released in November 2016, sets an aspirational objective for NSW to achieve net zero emissions by 2050. NSW's *Net Zero Plan Stage 1: 2020 – 2030*, released in March 2020, builds on the framework and sets out how the NSW Government will deliver on this objective, and fast-track emissions reduction over the next decade.

NSW is one of the nation's leaders in large-scale wind, with 11 major operational projects and five under construction.

In March 2018, the NSW Government's *Transmission Infrastructure Strategy* identified 10 potential Energy Zones across three broad regional areas, including the New England, Central West and South West regions of NSW. The identified energy zones are aimed at encouraging *"investment in new electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW"*.

Building on this, the NSW Government announced the *NSW Electricity Strategy* in November 2019, which adopted the Central West and Orana Region as the pilot Renewable Energy Zone (REZ) to support transmission upgrades in this zone. The strategy proposes NSW Government support for this REZ to unlock regional investment and new energy generation infrastructure and for the development of new transmission infrastructure to connect low cost generation to the electricity system.

The project is located in an area that could contribute to the Central West REZ and would have access to the electrical grid at a location with available network capacity and further network capacity being planned. With a capacity of approximately 400 MW, the project would generate enough electricity to power over 149,000 homes, and is therefore consistent with NSW's *Climate Change Policy Framework* and the *Net Zero Plan Stage 1: 2020 – 2030*.

In addition, the project's 150 MW / 150 MWh battery storage facility would enable the project to store wind energy for dispatch to the grid during periods of peak demand, which has the potential to increase grid stability and energy security.

2.4 NSW Wind Energy Framework

In December 2016, the Department released the *NSW Wind Energy Framework* (the Framework). The Framework seeks to provide greater clarity, consistency and transparency for industry and the community regarding assessment and decision-making on wind energy projects.

The Framework provides a merit-based approach to the assessment of wind energy projects, which is focused on the issues unique to wind energy, particularly visual and noise impacts. The key documents comprising the Framework include:

- Wind Energy Guideline;
- Visual Assessment Bulletin; and
- Noise Assessment Bulletin.

The *Visual Assessment Bulletin* (the Bulletin) identifies a number of visual performance objectives that can be used to assess potential visual impacts associated with wind energy development. For the proposed project, the performance objective for visual magnitude identifies that 250 m turbines have the potential to result in significant impacts on residences within 5 km of a turbine.

The performance objective requires proponents to either avoid[2] or provide detailed justification for 250 m turbines located within 5 km of any non-associated residence identified as being in a high zone of visual influence. The Bulletin also requires proponents to manage impacts and describe proposed mitigation measures for 250 m turbines located within 3.35 km of any non-associated residence identified as being in a moderate zone of visual influence.

Other key visual performance objectives identified in the Bulletin are landscape scenic integrity, cumulative impacts, aviation hazard lighting and shadow flicker. The Department's visual assessment and consideration of these performance objectives is discussed further in **section 5.1**.

[2] For new projects or modifications where the turbines are proposed in locations not previously approved

3 Statutory Context

3.1 State significant development

The project is classified as State significant development under Section 4.36 of the EP&A Act. This is because it triggers the criteria in Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), as it is development for the purpose of electricity generating works with a capital investment value of more than $30 million.

Consequently, the Minister for Planning and Public Spaces is the consent authority for the development. Under the Minister's delegation of 26 April 2021, the Executive Director, Energy, Industry and Compliance, may determine the development application as Council did not object, there were fewer than 50 unique objections from the general public and a political donations disclosure statement has not been made.

3.2 Amended Application

In accordance with Clause 55 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulations), a development application can be amended any time before the application is determined. Accordingly, CWP has sought to amend its application, the details of which are summarised in **section 4.4** of this report.

Under clause 55 of the EP&A Regulation, an application can be amended with the agreement of the consent authority (i.e. the Minister for this development), however, under the delegation of 26 September 2017, the Director, Energy Assessments can agree to amendments to an application.

The Director, Energy Assessments has accepted CWP's amended application for the following reasons:

- the project amendments have reduced the impacts of the project as a whole;
- the amended application directly responds to the key issues raised in submissions received by the Department during the exhibition of the original application;
- CWP assessed the impacts of the amended project (see **Appendix E**); and
- the Department made the additional information available online and sent it to the relevant agencies for comment.

3.3 Permissibility

The project site is located wholly within land zoned RU1 Primary Production under the Wellington LEP. The RU1 zone includes various land uses that are both permitted with and without consent. As electricity generating works are not expressly listed as permitted with or without consent, it is a prohibited land use under a strict reading of the LEP. However, the LEP expressly references the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) and acknowledges that electricity generating works are regulated by the Infrastructure SEPP, rather than the LEP.

The proposed realignment of the intersection of Goolma Road and Twelve Mile Road is located within land that is zoned SP2 – Infrastructure under the Wellington LEP. Road works are permissible with consent in this zone.

Under the Infrastructure SEPP, electricity generating works are permissible on any land in a prescribed rural, industrial or special use zone. Land zoned RU1 Primary Production and SP2 Infrastructure are a prescribed rural zone pursuant to the Infrastructure SEPP. Consequently, the project is permissible with development consent.

3.4 Other approvals

Under Section 4.41 of the EP&A Act, several other approvals are included in the SSD approval process, and consequently are not required to be separately obtained for the proposal.

Under Section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the proposal. These include:

- permits under the *Fisheries Management Act 1994*;
- approvals under the *Mine Subsidence Act 1961*;
- mining lease under the *Mining Act 1992*;
- lease under the *Petroleum (Onshore) Act 1991*;
- an Environmental Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997*; and
- approvals for any works road upgrades under the *Roads Act 1993*.

The Department has consulted with the relevant government authorities responsible for these approvals (see **Section 5.1**), considered their advice in its assessment of the merits of the project (see **Section 5.4**), and included suitable conditions in the conditions of consent to address these matters (see **Appendix H**).

3.5 Biodiversity Assessment

Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all applications for SSD to be accompanied by a Biodiversity Development Assessment Report (BDAR). However, after consultation with BCS, the Department accepted that CWP undertook substantial environmental assessment (including the biodiversity assessment) in connection to the preparation of the environmental impact statement before the commencement of the *Biodiversity Conservation Act* 2016 (i.e. prior to 25 August 2017).

Accordingly, the Department advised CWP that the environmental assessment for the project could be undertaken under the former biodiversity legislation as the project is considered a 'pending or interim planning application' under clause 27 (1)(d) of Part 7 of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*.

3.6 Commonwealth Approvals

On 4 December 2013, a delegate for the then Commonwealth Minister for the Environment and Energy determined the project (EPBC 2013/7026) to be a 'controlled action' in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to listed threatened species and communities (Sections 18 and 18A).

The assessment process under the EP&A Act has been accredited under section 87 of the EPBC Act. Accordingly, the NSW Government has undertaken the assessment on behalf of the Commonwealth and has assessed matters of national environmental significance (MNES).

The Department consulted with the Department of Agriculture, Water and the Environment (DAWE), (formerly Department of Environment and Energy), in accordance with the accredited assessment process and provided draft copies of this assessment report and the recommended conditions of consent to DAWE for comment. DAWE confirmed it is satisfied that MNES have been adequately addressed in the Department's assessment and has no detailed comments on the recommended conditions.

The Department's assessment of the potential impacts of the project on controlling provisions under the EPBC Act relating to biodiversity is provided in **section 5.3**. Further information on the matters that the Commonwealth Minister must consider under the EPBC Act is provided in **Appendix I**.

3.7 Mandatory Matters for Consideration

Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters are summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements and the EP&A Regulations;
- the environmental, social and economic impacts of the development;
- the suitability of the site;
- public submissions and advice from government agencies; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

The Department has considered these matters in its assessment of the project, as summarised in **Section 5** of this report. Detailed consideration of the relevant provisions of the environmental planning instruments is provided in **Appendix H** and the Department concluded the project is consistent with the relevant provisions.

4 Engagement

4.1 Department's engagement

The Department publicly exhibited the EIS from 27 May 2020 until 8 July 2020, advertised the exhibition in the *Sydney Morning Herald*, *Daily Telegraph* and *Dubbo Daily Liberal,* and notified adjoining landowners adjacent to the project boundary.

The Department consulted with Council and the relevant government agencies throughout the assessment. The Department also inspected the site on 9 February and 23 March 2021 and met several non-associated residences surrounding the project to assess visual impacts and further understand residents' concerns.

The Department notified and sought comment from TransGrid, Transport for New South Wales (TfNSW) (formerly Roads and Maritime Services) and the Director of the Siding Springs Observatory in accordance with the Infrastructure SEPP and this is discussed further in **sections 4.5 and 5**.

4.2 CWP's Engagement

CWP undertook engagement with the local community as detailed in the EIS, including:

- establishing a dedicated project website, phone number and email address;
- operating a Community Consultative Committee (CCC) since November 2018 comprising an independent chairperson, five members of the local community, two stakeholder representatives, a Council representative and two CWP representatives. The CCC has met seven times since 2018, with the most recent meeting being held 27 November 2020; and
- face-to-face meetings with various stakeholders.

CWP also undertook consultation with the Department and relevant government agencies during the assessment process.

4.3 Submissions and Submissions Report

During the exhibition period of the EIS, the Department received 26 public submissions, consisting of 14 in support, 11 objections and one comment.

In addition to the public submissions, seven submissions were received from special interest groups (three in support, two objecting and two comments).

Advice was also received from 19 government agencies, including Dubbo Regional Council.

Full copies of the agency advice and submissions are attached in **Appendix C.**

CWP provided a response to all matters raised in submissions on the project (see **Appendix D**) and has also provided additional information during the Department's assessment (see **Appendix F**).

4.4 Amended Application

Following consideration of submissions on the project, CWP amended its application, as detailed in the Amendment Report (see **Appendix E**).

The amended application includes:

- revised upgrade of the intersection at Goolma Road and Twelve Mile Road, which includes the permanent removal and closure of the existing intersection and the construction of a new intersection

400 m to the north, with a channelised right (CHR) turn lane and an Auxiliary Left (AUL) turn lane treatment;

- realignment of the western end of Twelve Mile Road to the new intersection with Goolma Road;
- minor alteration to a section of internal track in the northern part of the project; and
- additional residences becoming associated with the project.

The Department provided the Amendment Report to government agencies for review and comments and made it available on the Department's website. As the project amendments would not increase the impacts of the project as a whole, the Department did not exhibit the Amendment Report.

4.5 Key issues - Agency

Dubbo Regional Council raised concern regarding the impact of construction on local roads that form part of the transport route (including the intersection of Goolma Road and Twelve Mile Road (West)), provided road upgrade specifications, and noted that biodiversity impacts of the road upgrades and transmission line are adequately assessed.

Council also requested that CWP provide further details on several aspects of the proposal, including ancillary infrastructure, subdivision and the terms of a voluntary planning agreement (VPA) with Council.

These matters are discussed in sections **5.2**, **5.3** and **5.5** and, where required, incorporated into the recommended conditions of consent.

CWP also addressed matters raised by Council in its Submissions Report and Amendment Report, including addressing concerns regarding road upgrades and agreeing a schedule of road upgrades with Council, providing further details about the proposed subdivision and agreeing to terms of a VPA with Council.

Mid-Western Regional Council did not object to the project or the propose traffic route, however raised concerns over the potential use of the eastern end of Twelve Mile Road to access the site. CWP has committed to using only the western end of Twelve Mile Road to access the site. The Department has incorporated this requirement in the recommended conditions of consent, as discussed in **Section 5.2**, and Council advised it has no residual concerns.

Transport for NSW (TfNSW) initially raised concerns about the use and condition of the existing intersection of Goolma Road and Twelve Mile Road (West), and requested CWP design the proposed upgrades to facilitate the safe passage of traffic generated by the construction phase of the project. CWP provided details of the revised intersection upgrade as part of the Submissions Report and Amendment Report and TfNSW confirmed it is satisfied with the proposed intersection upgrade design.

The Department's **Biodiversity, Conservation and Science Directorate** (BCS) initially raised concerns that the Biodiversity Assessment Report (BAR) did not meet all requirements of the Framework for Biodiversity Assessment (FBA) and that all impacts had not been addressed and offsets calculated appropriately. CWP provided a revised BAR, including additional information on vegetation mapping, provision of species credit polygons and further clarifications as part of the Submissions Report and Amendment Report, and additional information during the Department's assessment.

Further, BCS raised concerns that the bird and bat utilisation surveys conducted were inadequate to inform an impact assessment of species prone to blade strike. To address this, BCS provided recommendations in relation to the preparation of the Bird and Bat Adaptive Management Plan (BBAMP) should the project be approved. The Department has incorporated BCS's advice in the recommended conditions of consent, as discussed in **Section 5**.

Heritage NSW supported analysis of artefacts extracted from testing salvage operations or unexpected finds and provided recommendations on conditions for an unexpected finds protocol and Heritage Management Plan. Heritage NSW requested evidence of consultation with the Registered Aboriginal Parties (RAP) and CWP provided these records of consultation in the submissions report. The Department has incorporated Heritage NSW's advice in the recommended conditions of consent. Heritage NSW has confirmed it has no residual concerns.

The **Environment Protection Authority** (EPA) supports the project and advised the Department that it is prepared to issue an environment protection licence for the project, and recommended conditions to control the potential noise, blasting, dust and water pollution impacts of the project. The Department has incorporated these requirements in the recommended conditions of consent where appropriate, as discussed in **sections 5.4** and **5.5**.

The **Department of Defence** and relevant Commonwealth aviation agencies – the **Civil Aviation Safety Authority** (CASA) and **Airservices Australia** – have no concerns about the aviation safety impacts of the project subject to the imposition of standard conditions requiring the notification of aviation authorities of the final location of the turbines and the installation of aviation lighting (if necessary). The Department of Defence also requested that the proposed transmission line be identified with maker balls which CWP has committed to providing in consultation with the requirements of the transmission network provider. The Department has included the CASA requirements in the recommended conditions of consent and all three agencies have confirmed they have no residual concerns.

The Department's **Water Group** (DPIE Water) provided recommended conditions regarding erosion and sediment control, and works within waterfront land and relevant approval and licences required under the *Water Management Act 2000*. These recommendations have been incorporated into the recommended conditions of consent where appropriate and discussed in **section 5.5**, and DPIE Water has confirmed it has no residual concerns.

WaterNSW requested appropriate mitigation measures be included in the conditions to manage runoff from the project to the Burrendong Catchment area. The Department has incorporated appropriate drainage and erosion and sediment control requirements in the recommended conditions of consent and WaterNSW has confirmed it has no residual concerns.

Department of Primary Industries – Agriculture (DPI Agriculture) recommended CWP undertake detailed soil surveys to provide information about the soils within the development footprint to inform both the construction and final rehabilitation of the project. CWP committed to undertaking the recommended soil surveys and to incorporate the results into the Erosion and Sediment Control Plan. DPI Agriculture supported CWP's commitments noting that the soil survey results would serve as a baseline for returning the land to similar capability and production capability should it be returned to agriculture use. DPI Agriculture also advised that all underground infrastructure should either be removed during decommissioning or be buried below ploughing depths (i.e. below 600 mm). The Department has incorporated strict rehabilitation and decommissioning objectives in the recommended conditions of consent, including the removal of all underground cabling and a requirement to minimise erosion and generation of sediment.

Fire & Rescue NSW (FRNSW) and **Rural Fire Service** (RFS) recommended a number of conditions, including the preparation of a Fire Safety Study (FSS) and a comprehensive fire and emergency response plan (ERP) and specific operation requirements related to bushfire and hazard preparation and management, which have been incorporated into the recommended conditions of consent where appropriate.

The **Department of Regional NSW – Minerals, Exploration and Geoscience** (MEG) confirmed it is satisfied that the CWP has provided sufficient evidence of consultation with the mineral title holders, and acknowledges

CWP's attempts to consult with the applicant of a new Exploration Licence Application (ELA6032) with no response after multiple attempts. MEG raise no further concerns on the project.

The Department's **Crown Land Group**, the **Heritage Council of NSW**, **TransGrid**, and **Department of Primary Industries – Fisheries** advised they had no concerns and made no recommendations.

4.6 Key Issues – Community

Of the 26 submissions received from the public, 14 supported, 11 objected and one provided comment on the project. A summary of submissions received from the public is provided in **Table 3**.

Table 3 | Summary of Community Submissions

Submitter (km)	Total	Support	Object	Comment
< 5	7	1	5	1
5 – 15	6	3	3	0
> 50	12	10	2	0
Other *	1	0	1	0
Total	**26**	**14**	**11**	**1**

* Submitters that did not provide a valid address

The key matters raised in supporting submissions and the comment included views that:

- the project would make a contribution to NSW's future energy demands, and make positive contributions to addressing climate change;
- the local economy would benefit as a result of the project by creating local jobs and supporting local businesses; and
- the project constitutes a good use of the land, CWP has undertaken significant consultation with the local community and designed the project to minimise impacts of the surrounding environment.

The most common matters raised in submissions objecting to the project included:

- visual impacts – on the surrounding landscape and potential cumulative impact with Bodangora Wind Farm;
- biodiversity – adequacy of the biodiversity assessment and survey effort, omission of certain threatened species, bird and bat strike;
- traffic and transport – suitability of the road network to accommodate construction traffic, increased traffic over an extended period, road safety;
- noise – noise from both the construction and operation of the wind farm, low frequency noise and infrasound from wind turbines;
- cumulative impacts with other SSD projects in the Wellington region; and
- socio-economic factors including property devaluation and lack of benefits to the local community.

Other issues raised in objections included health (particularly in relation to low frequency sound), hazards (particularly bushfire risks and the energy storage facility) and water and erosion (potential contamination flowing into the Burrendong catchment).

The key matters raised in public submissions are summarised in **Figure 5**.

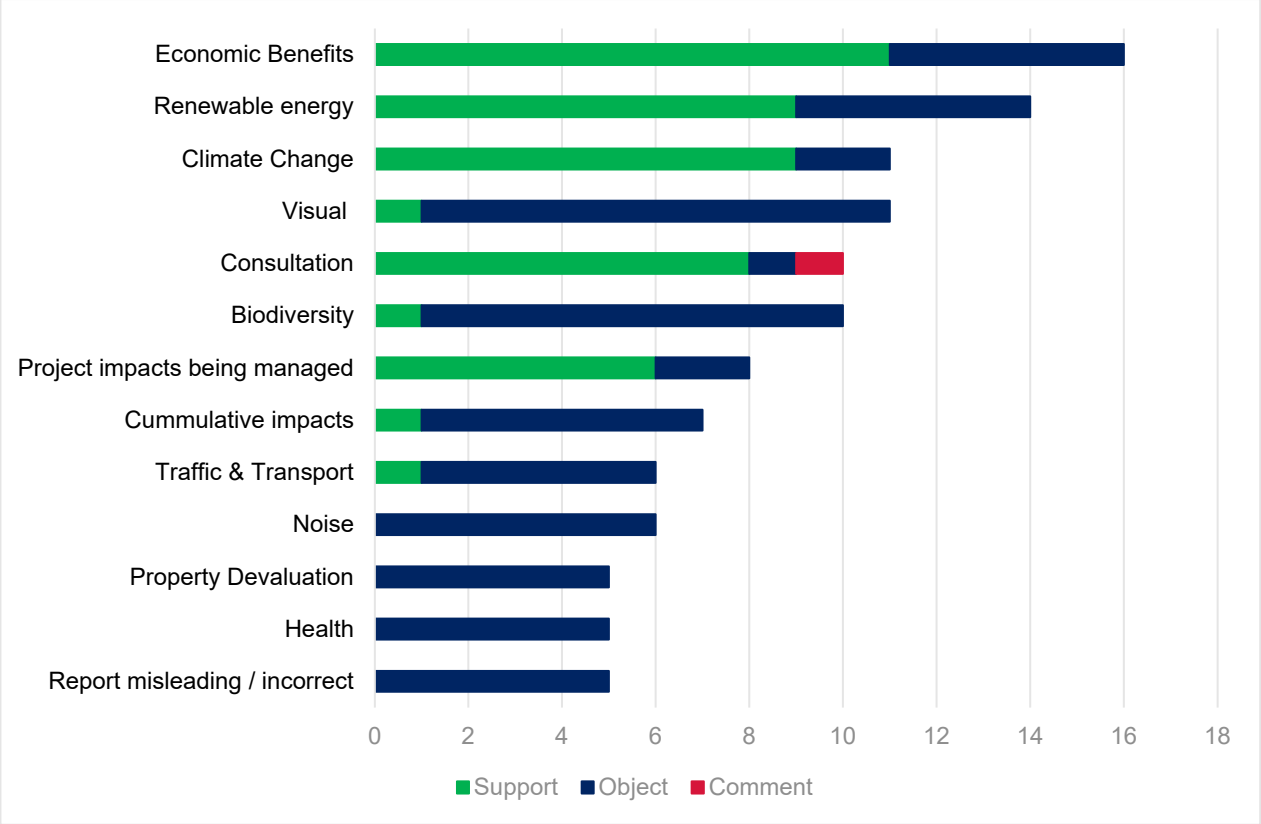

Figure 5 | Key Matters Raised in Public Submissions

4.7 Key Issues – Special Interest Groups

Australian Wind Alliance (AWA) is supportive of the project noting it is consistent with the Central West Renewable Energy Zone and supply of up to 400 MW of battery-firmed clean energy and assist with NSW's transition to net zero emissions by 2050. AWA also notes that the project has evolved since first being introduced in 2011 and cites that CWP's engagement with the community has resulted in a better proposal for both the community and the environment.

Dubbo Environment Group (DEG) is supportive of the project, noting the severe drought the Dubbo Region has experienced and welcoming the efforts of the energy industry to transition to renewable energy as part of strong action against climate change.

Gallanggabang Aboriginal Corporation (GAC) and the **Wellington Valley Wiradjuri Aboriginal Corporation** (WVWAC) both provided comments on the project and engagement undertaken with Registered Aboriginal Parties through the assessment process and the Community Consultative Committee. Both GAC and WVWAC provided comments and recommendations relating to the Aboriginal cultural heritage assessment undertaken by CWP and indicated conditional support of the project pending further involvement in the management and protection of Aboriginal heritage significance of the project site. CWP has committed to developing the Heritage Management Plan in consultation with Aboriginal stakeholders and Heritage NSW.

The **Ibbai Waggan People** objected to the project raising concerns with the application and approval process, noting that the Ibbai Waggan People have not ceded country.

NSW Farmers Association, Wellington Branch objected to the project raising concerns on the use of Twelve Mile Road as part of the construction transport route and the adverse impacts this would have to local road users. The submission provided recommendations on how to manage the transport route along Goolma Road and the intersection of Goolma Road and Twelve Mile Road (west).

Wellington Information and Neighbourhood Services (WINS) Community Centre is supportive of the project and the employment and business opportunities it would provide the Wellington community. The Centre requested involvement in how a Community Enhancement Fund would be used, citing opportunities for education and training for the youth and other Aboriginal focused training and employment organisations. The Department notes that administration of the Voluntary Planning Agreement would be through a Section 355 Committee under the *Local Government Act 1993* which could accommodate the involvement of groups such as WINS.

5 Assessment

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the key issues, namely visual amenity, traffic and transport, biodiversity and noise (see **section 5.1 to 5.4**).

The Department has also considered the full range of potential impacts associated with the project and has included a summary of its assessment of these matters in **section 5.5** The key constraints for the project are shown in **Figure 3**. A list of the key documents that informed the Department's assessment is provided in **Appendix A**.

5.1 Visual

Concerns about visual impacts were raised in some public submissions, particularly regarding the size and scale of the wind farm in the landscape.

CWP commissioned a Landscape and Visual Impact Assessment (LVIA) as part of its EIS and provided additional information, including further assessment of receivers and additional photomontages and wireframes, during the Department's assessment.

The Department visited the site and several non-associated residences surrounding the project to assess visual impacts and to further understand residents' concerns.

Visual Context and Landscape Character

The project is located on elevated ridges within the South Western Slopes bioregion that form part of the Great Dividing Range, with turbines spanning approximately 10 km from north to south and from east to west at its widest points respectively.

The project site and the surrounds are characterised by an undulating pastoral and agricultural landscape.

The site is located in a sparsely populated area and away from major transport routes, and benefits from several surrounding ridgelines and densely vegetated areas which generally obstruct views of the turbines from the broader landscape.

Dickerton Ridge and Yarragal Range ridgelines would limit views of the project from areas to the west of the site. However, there are a handful of residences located along Wuuluman Road, which runs in a north-south direction approximately 2.5 km west of the site, with views of the project site.

Twelve Mile Road runs in an east-west direction approximately 4 km north of the site, and the operational Bodangora Wind Farm is located approximately 9 km north of the site. There are a small number of residences located along Twelve Mile Road with views of the proposed turbines, which would be limited by existing vegetation and undulating topography.

Cudgegong River is located approximately 5 km east of the project site. There is a scattering of residences located along the valley floor, the majority of which would not see the project due to topography and riparian vegetation associated with the Cudgegong River, while some residences would have distant views of the project.

Lake Burrendong (and the associated Lake Burrendong State Park and Burrendong State Recreation Area), Macquarie River and Meroo River are approximately 1 km south of the site in a largely uninhabited area, with views contained by elevated ridges immediately south of the project site.

There are no national parks or conservation areas in proximity to the site, and the site is not visible from Wellington township, which is located approximately 14 km to the west.

Avoidance and Mitigation Measures

The *Visual Assessment Bulletin* (the Bulletin) lists different visual impact mitigation options for consideration, including physical turbine alterations (re-siting, re-sizing and re-colouring), landscaping alterations including vegetation screening, and landowner agreements or voluntary acquisition for significantly affected landowners.

As discussed in **section 1**, CWP has significantly reduced the maximum number of proposed turbines throughout its design process prior to submitting the EIS. While this was not necessarily done for the purpose of reducing visual impact in all cases, the Department acknowledges that it would result in a reduced visual impact on the landscape values at many non-associated residences, particularly as the project is now sited in one consolidated area away from residence clusters.

CWP is also proposing to implement other mitigation measures to further minimise visual impacts, including:

- measures offered to owners of non-associated neighbouring residences where there is opportunity to further reduce potential visual impacts from the project, such as landscaping, screen plantings and provision of awnings/blinds;
- lighting to be low intensity and not shine above the horizontal;
- using building materials and treatments for associated infrastructure which visually complement the surrounding environment; and
- shadow flicker associated with turbines not to exceed 30 hours per year at any non-associated residence.

The Department supports the proposed avoidance measures, however considers that additional mitigation measures should be implemented, including formalising vegetation screening for non-associated residences within 5 km of a turbine, as discussed further below.

Impact Assessment

The Department has assessed the visual impacts of the project against the relevant performance objectives identified within the Bulletin, as set out below.

Visual Magnitude

In accordance with the Bulletin, the Department has considered in detail the non-associated receivers located within 5 km of a turbine.

The Department's assessment also considered the Bulletin's visual performance objectives for a receiver's visual influence zone (VIZ). The VIZ is based on a combination of viewer sensitivity, visibility distance and scenic quality class.

Associated and Non-associated residences

There are 32 residences within 5 km of a proposed turbine. Of these, 22 are associated with the project and 10 are non-associated (see **Figure 6**).

The 22 associated residences comprise 12 host landowners and 10 non-host landowners.

The host landowners own land on the project site and have entered into commercial agreements with CWP to facilitate the development of the project, including accepting the impacts of the project. The non-host associated landowners have entered into negotiated agreements with CWP, and agreed to accept the potential impacts of the project.

For the purposes of its assessment, the Department has considered these residences to be 'associated' with the project.

In accordance with the Bulletin, 250 m turbines have the potential to result in high visual magnitude impacts on receivers within 5 km and potentially significant visual impacts on receivers within 3.35 km and provides performance objectives depending on the visual influence zone.

For 250 m turbines located within 5 km of any non-associated receivers identified as being in a high visual influence zone (i.e. VIZ1) the performance objective in the Bulletin requires proponents to either avoid locating turbines or provide detailed justification. There are no non-associated receivers within 5 km of a turbine identified as being in a VIZ1 zone for this project.

For 250 m turbines located within 3.35 km of any non-associated receivers identified as being in a moderate visual influence zone (VIZ2) the performance objective in the Bulletin requires proponents to manage impacts and describe proposed mitigation measures. The Bulletin requires the proponent to consider screening for any non-associated receiver located between 3.35 km and 5 km in a VIZ2 zone, or located within 3.35 km in a low visual influence zone (VIZ3).

There are 10 non-associated residences located within 5 km of a turbine, of which five are within 3.35 km and five are between 3.35 km and 5 km of a turbine. All are located in either a VIZ2 or VIZ3 zone.

Assessment

The non-associated residences within 5 km of a proposed turbine are confined to five along Twelve Mile Road to the north of the project, four along Wuuluman Road to the west of the project and one on Uungula Road to the east of the project (see **Figure 6**).

Twelve Mile Road

The five non-associated residences along Twelve Mile Road are located at distances between approximately 2.8 km and 4.8 km north of the closest turbines (see **Table 4**). Views of the turbines from these residences would be partially screened by undulating topography and existing intervening vegetation.

Objections were received from the owners of TMR022 and TMR050 on visual grounds.

Table 4 | Non-associated residences within 5 km (Twelve Mile Road)

Residence	Distance to closest turbine (km)	Visual Influence Zone	Closest Turbine No.	CWP's assessed impact	Department's consideration	Recommended mitigation strategy
TMR022	2.78	VIZ2	9	Moderate	Moderate-High	Agreement with landowner prior to constructing turbines 1, 2, 3 and 4
TMR023	3.2	VIZ2	1	Low	Low	Vegetation screening
TMR031	3.08	VIZ2	1	Low-Moderate	Low-Moderate	Vegetation screening
TMR036	4.62	VIZ3	3	Low	Low	Vegetation screening
TMR050	4.76	VIZ2	9	Low	Low	Vegetation screening

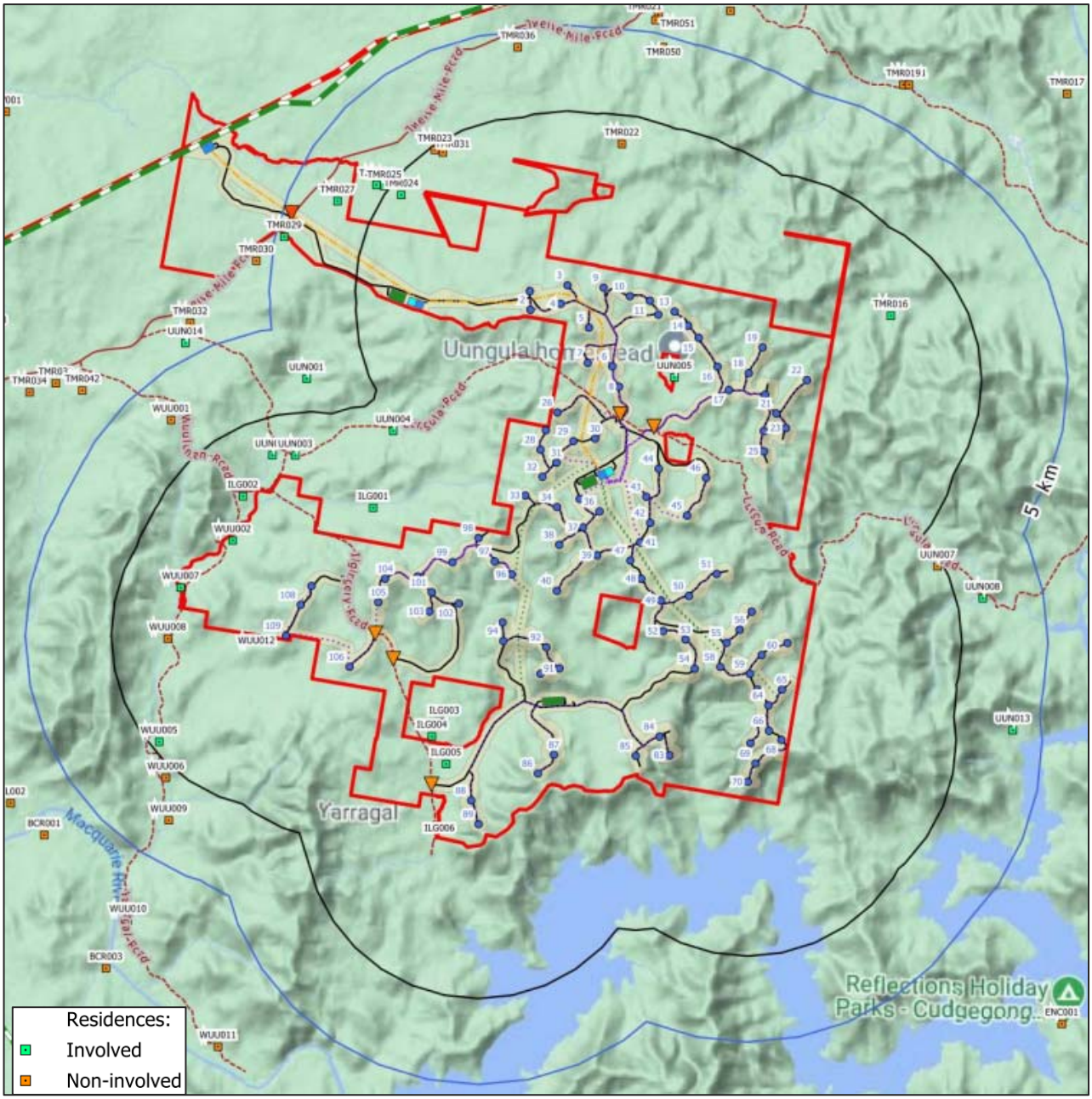

Figure 6 | Non-associated receivers

Residence TMR022 is located approximately 2.8 km north of the nearest turbine (turbine 9) and has six turbines within 3.35 km (turbines 1, 3, 4, 9, 10, 11) and a further 11 turbines between 3.35 km and 5 km (turbines 2, 5, 6, 7, 8, 12, 13, 14, 15, 16 and 19).

The residence has views north towards Twelve Mile Road and south towards the proposed turbines with views to the turbines over a gradual incline.

Intervening topography limits views of turbines beyond 5 km and scattered intervening vegetation fragments views of some turbines located within 5 km and directly south of the residence. However, the cluster of four turbines (turbines 1, 2, 3 and 4) at distances between 2.9 km and 3.6 km to the south-west of the residence have little intervening vegetation and would appear prominent in the views (see **Figure 7**).

The residence is predicted by CWP to experience Moderate visual impacts from the project. However, the Department considers that the residence would experience Moderate-High visual impacts, in particular to turbines 1, 2, 3 and 4, due to the lack of intervening vegetation and was confirmed in its site visit.

Given the elevated nature of the turbines in comparison to the residence, the Department does not consider that proposed vegetation screening would reduce the visual impacts to acceptable levels.

As such, the Department considers that turbines 1, 2, 3 and 4 should not be constructed unless CWP secures an agreement with the landowner in regard to the visual impacts. The Department has recommended conditions of consent to this effect.

Residences TMR023, TMR031, TMR036 and TMR050 are located between 3.1 km and 4.8 km of the nearest turbines. The residences benefit from intervening topography and existing mature vegetation, with some turbines visible through gaps in the vegetation.

The Department confirmed in site visits that there is considerable existing vegetation, which would significantly reduce the potential visual magnitude impacts of the project, and considers the residences would experience Low to Low-Moderate visual impacts.

Given the limited visual impacts at these four residences, the Department does not consider that mitigation measures beyond visual screening are warranted. In this regard, the Department has recommended conditions requiring CWP to offer visual impact mitigation measures, such as landscaping and/or vegetation screening, at these residences.

Wuuluman Road

The four non-associated residences (WUU001, WUU006, WUU008 and WUU009) along Wuuluman Road are located at distances between 2.3 km and 4.2 km west of the closest turbines (see **Table 5**).

One of these residences (WUU008) objected to the project on visual grounds.

Table 5 | Non-associated residences within 5 km (Wuuluman Road)

Residence	Distance to closest turbine (km)	Visual Influence Zone	Closest Turbine No.	CWP's assessed impact	Department's consideration	Recommended mitigation strategy
WUU001	4.17	VIZ2	107	Moderate – High	Moderate	Vegetation screening
WUU006	3.57	VIZ2	109	Low	Low	Vegetation screening
WUU008	2.26	VIZ2	109	Low	Low	Vegetation screening
WUU009	4.19	VIZ2	109	Low-Moderate	Low-Moderate	Vegetation screening

Residence WUU001 would have elevated views of the majority of proposed turbines beyond 5 km, with turbines located between approximately 5.1 km and 13.2 km from the residence (see **Figure 8**). The residence is located approximately 4.2 km from the nearest turbine (turbine 107) and would have three turbines (turbines 107, 108 and 109) within 5 km. However, views of these three turbines would be screened by intervening topography and vegetation.

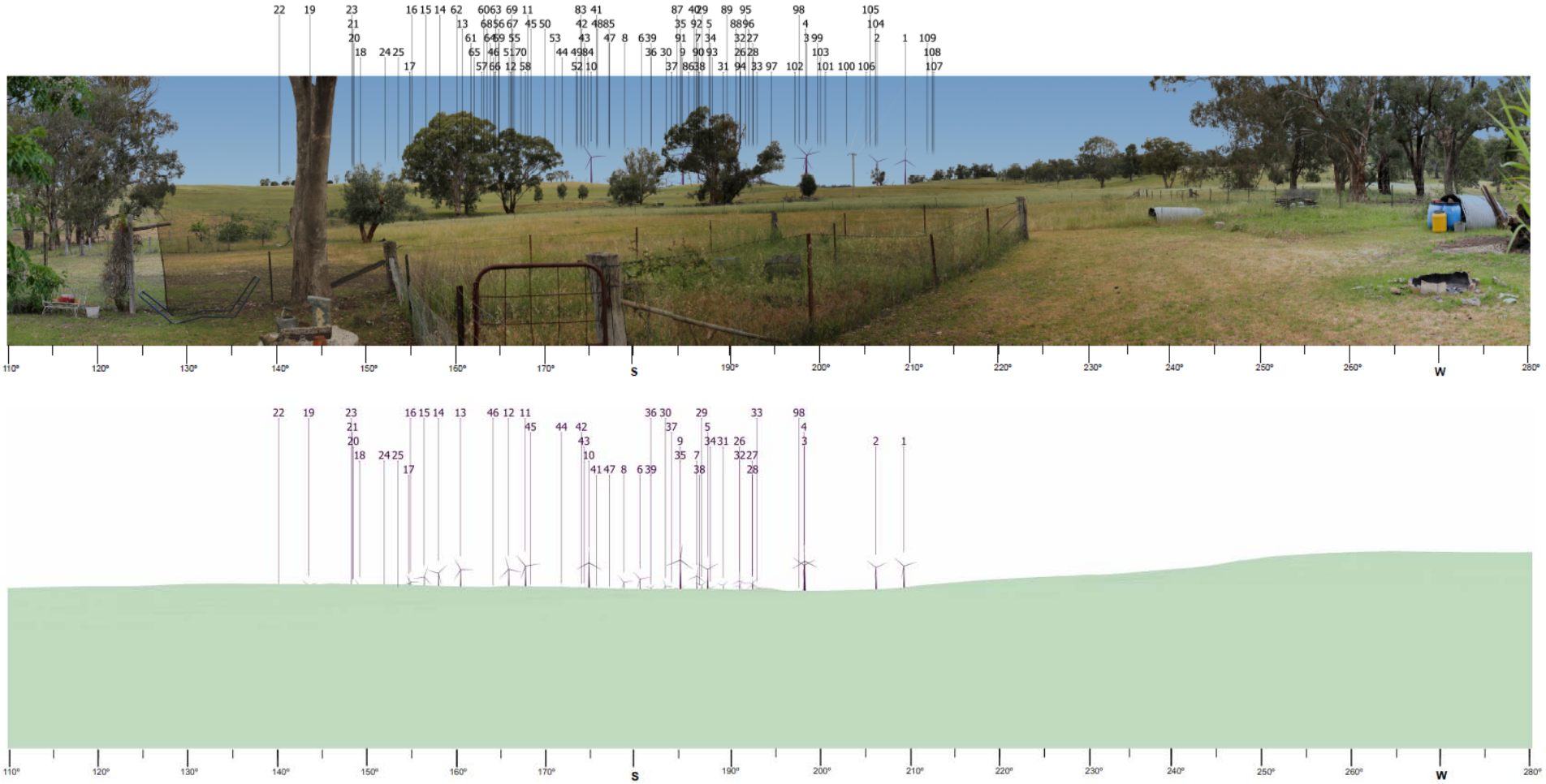

Figure 7 | Photomontage and wireframe looking south from residence TMR022

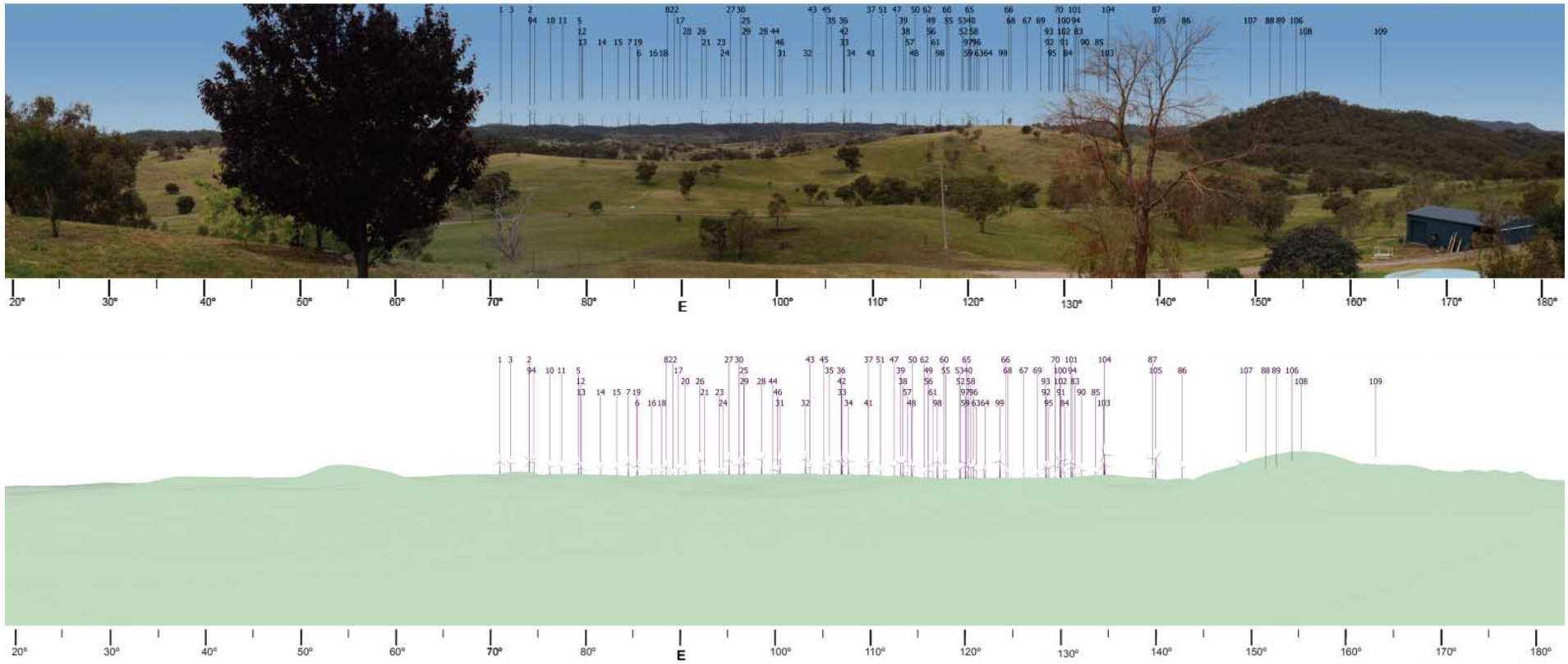

Figure 8 | Photomontage and wireframe looking east from residence WUU001

The residence does not benefit from existing intervening vegetation, other than to conceal lower parts of the turbine towers. Vegetation screening would be an effective method to screen views of the turbines, however the Department appreciates that the level of screening required would block desirable views or vistas of the landscape from the residence.

Despite this, the Department considers that, due to the distance of turbines within the viewshed being beyond 5 km, the visual magnitude impacts would not be significant and that the residence would experience Moderate visual impacts.

As there are no turbines that would cause significant visual magnitude impacts, and instead a large number of turbines at a distant view (i.e. Far Middleground and Near and Mid Background as defined in the Bulletin), the Department does not consider that an agreement with the landowner to accept the visual impacts is warranted.

Residence WUU006 is located approximately 3.6 km south-west of the nearest proposed turbine (turbine 109). The presence of a ridge immediately east of the residence would block views of the majority of turbines. The tips of turbines 104, 105, 106 and 109 may be visible beyond this ridge based on topography alone, however dense existing vegetation on the ridge would screen views of the four turbines. Consequently, the Department considers the residence would experience Low visual impacts.

Residence WUU008 is located approximately 2.3 km west of the nearest proposed turbine (turbine 109). There are three turbines within 3.35 km and an additional four turbines within 5 km of the residence.

The residence is surrounded by existing dense vegetation that would screen views of the turbines, which the Department observed during its site visits. As such the Department considers that there would be limited visual magnitude impacts on the residence and considers the residence would experience Low visual impacts.

Residence WUU009 is located approximately 4.2 km south-west of the nearest proposed turbine (turbine 109) and would have three turbines within 5 km.

The residence has a ridge to the north that would block views of the majority of turbines. CWP's visual assessment found that blades of up to ten turbines would be visible based on topography alone, however that existing vegetation surrounding the residence may fragment these views.

During its site visit the Department observed that existing vegetation within the residence's curtilage, and intervening vegetation on the ridge separating the residence from the proposed turbines, would fragment views further. The Department therefore considers the residence would experience Low-Moderate visual impacts.

Overall, the Department does not consider that mitigation measures beyond visual screening is warranted at these four residences.

Uungula Road

Residence UUN007 is the only non-associated residence along Uungula Road to the east of the project that is located within 5 km of a proposed turbine.

The residence is located approximately 3.2 km east of the nearest turbine (turbine 62) and would have 25 turbines within 5 km. However, the Department considers that topography and intervening vegetation (including dense vegetation surrounding the residence) would screen views of all turbines within 5 km and that the residence would experience Low visual impacts.

Table 6 | Non-associated residences within 5 km (Uungula Road)

Residence	Distance to closest turbine (km)	Closest Turbine No.	Visual Influence Zone	CWP's assessed impact	Department's consideration	Recommended mitigation strategy

UUN007	3.2	62	VIZ2	Low-Moderate	Low	Vegetation screening

Landscape Scenic Integrity

The Bulletin's landscape scenic integrity parameter recognises the need to undertake assessment at a broader, visual catchment level of the impacts of multiple wind energy projects within a region.

The purpose of this performance objective is to determine the impacts of a wind energy project on the broader landscape and to prevent wind turbines appearing as the dominant characteristic of the area.

As noted, the nearest wind farm is the operational Bodangora Wind Farm, which consists of 33 turbines and is located approximately 9 km north of the project at its closest point.

CWP's LVIA assessed the impacts on landscape scenic integrity from 46 viewpoints surrounding the project site, and considered that the wind turbines would not become a major element in the landscape other than within or immediately surrounding the project site where opportunities to view the project would be limited to host residences and road users. The LVIA noted that the project is generally obstructed from view by topography and existing vegetation and that the cumulative impact of wind farms in the region is low.

The LVIA concluded that the wind farms would not emerge as a dominant feature and that it is unlikely the perceptions of the region's broader landscape character would be significantly altered as a result of the project.

The Department recognises that the project benefits from several surrounding ridgelines and densely vegetated areas which generally obstruct views of the turbines from the broader landscape, and considers that the project would not dominate the existing visual catchment.

Overall, the Department considers that the current landscape character and scenic quality of the visual catchment would be maintained and that wind turbines would not appear as the dominant characteristic of the area.

Key Feature Disruption

The Bulletin's key features disruption parameter describes proposed wind turbines that are likely to disrupt the central line of sight and/or the central focal viewing fields surrounding it, when seen from a viewpoint looking toward key features of a landscape.

The Bulletin requires projects to avoid and/or minimise impacts of wind turbines or ancillary infrastructure that would result in the removal or visual alteration / disruption of identified key landscape features.

The key landscape features identified in proximity to the site include Lake Burrendong, Dickerton Ridge, Yarragal Range, Macquarie River and Cudgegong River (see **Figure 9**).

Lake Burrendong and Burrendong State Recreation Area are located in an uninhabited location approximately one km south of the project. Lake Burrendong was identified as a valued landscape feature by the community and is a popular recreation area for fishing and tourism, and Burrendong State Recreation Area surrounds the lake with vegetated, elevated ridges to the south.

The associated Burrendong State Park is zoned E3 Environmental Management in the LEP to allow for a range of low impact recreational activities and ancillary land uses within the park that protect and enhance its environmental and scenic qualities and the water quality of Lake Burrendong.

CWP's assessment of key feature disruption concluded that some turbines may be visible from some viewpoints, however that views of Lake Burrendong and the distant vegetated ranges would remain the dominant visual feature.

Although the project would be visible in the landscape, the landscape features of the ridges of Dickerton Ridge and Yarragal Range would remain visually prominent features of the landscape from land and viewpoints in the area.

Macquarie River and Cudgegong River, and their associated riparian vegetation, are located approximately five km south-west and east of the project respectively. CWP's assessment concluded that the rivers, and the surrounding undulating topography, would remain the dominant landscape features of the area.

CWP's key feature disruption assessment concluded that whilst the project may impact views from some areas, key features identified through the landscape baseline study are likely to remain undisrupted by the proposal.

The Department's assessment, including its site visits, considers that, given the project's location in a sparsely populated area and away from major transport routes and public viewpoints, that the project would not significantly disrupt the central line of sight and/or the central focal viewing fields surrounding it, when seen from viewpoints looking toward key features of the landscape.

Overall, the Department considers that the project would not result in the removal or visual alteration / disruption of identified key landscape features in the vicinity of the project.

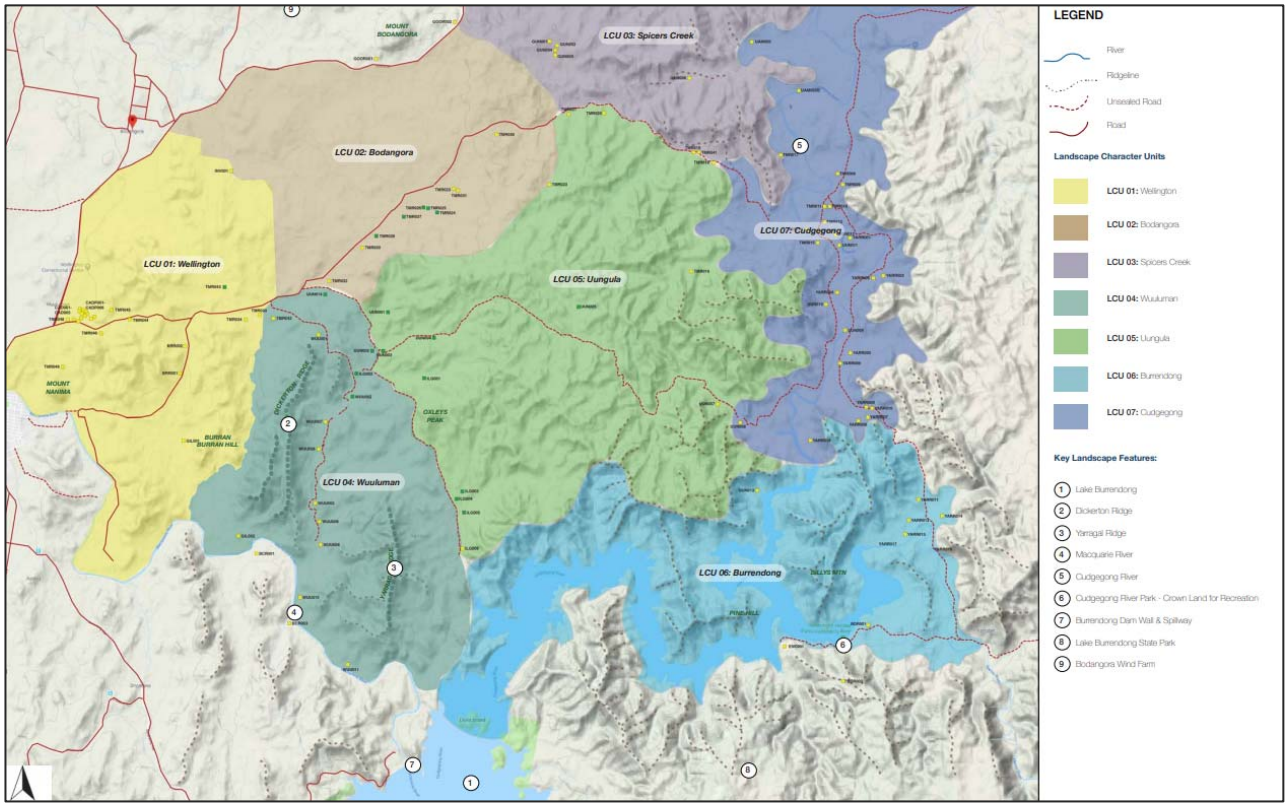

Figure 9 | Key landscape features

Multiple Wind Turbine Effects

The Bulletin's Multiple Wind Turbine Effects parameter provides an indication of potential cumulative impacts arising from the project.

The Bulletin states that applicants should avoid or provide detailed justification for effective horizontal views of three or more 60˚ turbine sectors (i.e. over 120° views of turbines) within 8 km for moderate sensitivity viewpoints. The Bulletin classifies rural dwellings as having a moderate sensitivity level.

The Department is satisfied that all non-associated residences located within 8 km of the project can be considered rural dwellings.

No non-associated residences would have horizontal views of three or more 60˚ turbine sectors, due to topography and existing vegetation.

Shadow Flicker and Blade Glint

Shadow flicker occurs when rotating blades momentarily block the sun's path. CWP conducted a shadow flicker assessment in accordance with the Bulletin, which recommends a maximum shadow flicker duration of 30 hours per year.

CWP's assessment concluded that no non-associated residences would exceed the 30 hours per year limit. The Department has included this limit in the recommended conditions.

Blade glint (reflection of sunlight off the turbine blade) could also have temporary effects at a given location, depending on the orientation of the blades and nacelle in relation to the sun. The Bulletin recommends that blades are finished with a surface treatment of low reflectivity to ensure that blade glint is minimised.

The Department is satisfied that blade glint could be effectively managed through appropriate turbine treatments, such as the use of low sheen and matte finishes, to ensure negligible impacts, and has recommended conditions accordingly.

Lighting

Under the *National Airports Safeguarding Framework, Guideline D – Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms) / Wind Monitoring Towers, National Airports Safeguarding Advisory Group, 2012* (NASAG Guidelines) CASA is required to be notified if a proposed wind turbine or wind monitoring tower is greater than 150 m in height or infringes on the Obstacle Limitation Surfaces of an aerodrome. CASA may determine, and subsequently advise an applicant and relevant planning authorities, whether it considers obstacle lighting is required.

If such lighting is required, the guidelines recommend that to minimise visual impacts *"obstacle lights may be partially shielded, provided it does not compromise their operational effectiveness. Where obstacle lighting is provided, lights should operate at night, and at times of reduced visibility. All obstacle lights on a wind farm should be turned on simultaneously and off simultaneously."*

CASA has advised that the project requires low intensity night-time aviation hazard lighting, and that lights emitting as low as 200 candela would be sufficient, which is well below the 2,000 candela required by international standards.

CWP has committed to consult further with CASA before the turbines are installed, and install obstacle lighting in accordance with CASA's requirements.

The Department has recommended conditions requiring CWP to consult with CASA about this matter, and ensure that if obstacle lighting is required to be installed, it is installed in accordance with CASA requirements and in a manner that minimises any adverse visual impacts.

The project is located approximately 135 km south of Siding Spring Observatory and therefore falls within the Dark Sky Region covered by the NSW Government's *Dark Sky Planning Guideline*. A consent authority must consider this guideline for SSD that is likely to impact the night sky and is within 200 km of the Observatory.

Whilst the project would include some night security lighting (separate to aviation lighting), there would be negligible light spill beyond the horizontal plane.

The Department consulted with the Observatory during its assessment, who confirmed it had no concerns regarding the project, including obstacle lighting.

Consequently, the Department is satisfied that the project would not affect the observing conditions of the Observatory in accordance with the *Dark Sky Planning Guideline*.

Ancillary Infrastructure

In regard to the project's ancillary infrastructure (e.g. 330 kV transmission line, on-site substations and battery energy storage system), CWP has sited this infrastructure to minimise visibility from existing residences and publicly accessible viewpoints.

Potential views of the ancillary infrastructure would be limited to road users and a small number of rural residences, primarily to the north of the project along Twelve Mile Road.

The proposed 330 kV transmission line runs centrally through the site in a south to north direction from the central onsite substation to the site's northernmost extent, then heads west across Twelve Mile Road before terminating at the proposed network connection substation.

CWP's LVIA determined that the 330 kV transmission line is similar to existing electrical infrastructure in the locality and would appear as an extension to the existing power lines in the landscape and concluded that the transmission line would not have a significant visual impact on any non-associated residences or key public viewpoints.

In addition, CWP's assessment concluded that ancillary infrastructure, including the battery energy storage system, substations and switching stations, are of a relatively small scale in the overall landscape. Some residences and motorists along Twelve Mile Road to the north of the project may have scattered distant views of the battery energy storage system, site compound and substation located in the north of the project site, however these views would be screened by topography and existing intervening vegetation, and the visual impacts would be low.

CWP has committed to designing and siting all ancillary infrastructure (including the battery energy storage facility) to minimise visual impact, including measures such as retention of existing vegetation and selecting building materials and finishes to reduce reflectivity and to be sympathetic to existing landscape, and has committed to screen planting for the ancillary infrastructure (including the battery energy storage facility) in the north of the project site.

The Department also undertook an assessment of the visual impact associated with the project's ancillary infrastructure, noting that CWP provided further information during its assessment.

The Department considers the project's ancillary infrastructure is unlikely to have a significant visual impact given there are existing transmission lines and agricultural infrastructure in the area, the limited size of the infrastructure, the relatively low visual sensitivity of the existing land use, the location of the ancillary infrastructure away from non-associated receivers, the intervening topography and vegetation, and CWP's proposed landscape treatments and selection of ancillary infrastructure components with low visual contrast.

Notwithstanding, the Department has recommended conditions requiring CWP to ensure the visual appearance of all ancillary infrastructure (including paint colours, specifications and screening) blends in as far as possible with the surrounding landscape.

Conclusion

The Department is satisfied that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-associated residences, with the exception of one residence (TMR022).

For this residence, the Department considers that four turbines should not be constructed unless CWP secures an agreement with the landowner of residence in regard to the visual impacts, as required by the recommended conditions.

To minimise and manage the residual visual and lighting impacts as far as practicable, the Department has recommended conditions requiring CWP to:

- secure an agreement with the landowner of TMR022 in regard to the visual impacts prior to the construction of turbines 1, 2, 3 and 4;
- offer visual impact mitigation measures, such as landscaping and/or vegetation screening, to all non-associated residences within 5 km of any approved turbine;
- implement all reasonable and feasible measures to minimise the impacts of the visual appearance of the development;
- painting turbines off-white/grey and finishing the blades with a treatment that minimises potential for any glare or reflection;
- implement all reasonable and feasible measures to minimise the off-site lighting impacts of the development; and
- ensure that shadow flicker associated with turbines does not exceed 30 hours per annum at any non-associated residence.

5.2 Traffic and Transport

Introduction

A number of public submissions raised concerns about an increased number of heavy vehicles travelling on the local road network during construction, the suitability of the transport route and the proposed upgrade of Goolma Road and Twelve Mile Road intersection.

Construction of the project involves the delivery of plant, equipment and materials including the movement of over-dimensional and heavy vehicles, which has the potential to impact on the local and regional traffic network.

CWP commissioned Samsa Consulting to undertake a Traffic Impact Assessment (TIA), which accompanied the EIS. In response to a number of submissions received from the local community, Council and TfNSW, CWP supplemented its TIA with revised road upgrades along the proposed over-dimensional and heavy vehicle transport route, including the realignment of the intersection at Goolma Road and Twelve Mile Road (west). The intersection works include the permanent removal and closure of the existing intersection and construction of a new intersection with a channelised right (CHR) turn lane and an Auxiliary Left (AUL) turn lane treatment, which is shown in **Figure 11**. CWP provided further details on traffic and transport impacts in response to the Department's request for information.

Transport Route

CWP indicated the infrastructure components required for the project would likely be manufactured overseas and delivered to the Port of Newcastle. They would be transported to the project site via the New England Highway and Golden Highway.

From the Golden Highway, over-dimensional vehicles would access the site via Saxa Road (previously known as Cobbora Road), Mitchell Highway, Goolma Road and Twelve Mile Road and a new primary site access point on Twelve Mile Road (see **Figure 5**).

Heavy and light vehicles associated with the construction of the project would access the site from Goolma Road and Twelve Mile Road, via the new intersection at the western end of Twelve Mile Road, and the primary site access point.

Although the recommended conditions of consent require all vehicles related to the development to travel to site from the western end of Twelve Mile Road, this does not preclude CWP from requesting approval for vehicles to access the site from the eastern end of Twelve Mile Road.

Uungula Road, Wuuluman Road and Ilgingery Roads would not be used to access the project from Twelve Mile Road at any stage of the project, except to construct the six minor secondary intersections and road crossings, as detailed below and shown on **Figure 10**.

Site Access

Access to the site would be via the primary site access from Twelve Mile Road. The internal road network to turbines and ancillary infrastructure would be via a network of 6 m wide access tracks.

The internal road network would be linked by six secondary intersections on Uungula Road and Ilgingery Road. The two on Uungula Road would be constructed as cross-over locations to facilitate the routes of internal roads throughout the project site. The four intersections on Ilgingery Road would be used both as cross-over locations and to travel along a short section of the road between the intersections to access the internal road network either side of Ilgingery Road.

The proposed location of the primary site access point, secondary intersections and internal road network is shown on **Figure 10**.

Over-dimensional and Heavy Vehicles

Submissions raised a number of concerns relating to road safety and construction traffic impacts on local residents, particularly associated with over-dimensional and heavy vehicles. However, Council, TfNSW and the Department consider that the proposed transport route as outlined above is suitable for the typical transport loads associated with the construction of a wind farm with minimal impacts to the existing public roads, subject to the identified road upgrades.

Additionally, the Department is satisfied that the proposed transport route could be upgraded to facilitate the transport of turbine components to the site, noting that the final road upgrade works would be subject to detailed design prior to the implementation of these works. CWP has committed to road dilapidation surveys and repairing any damage resulting from the project's construction traffic.

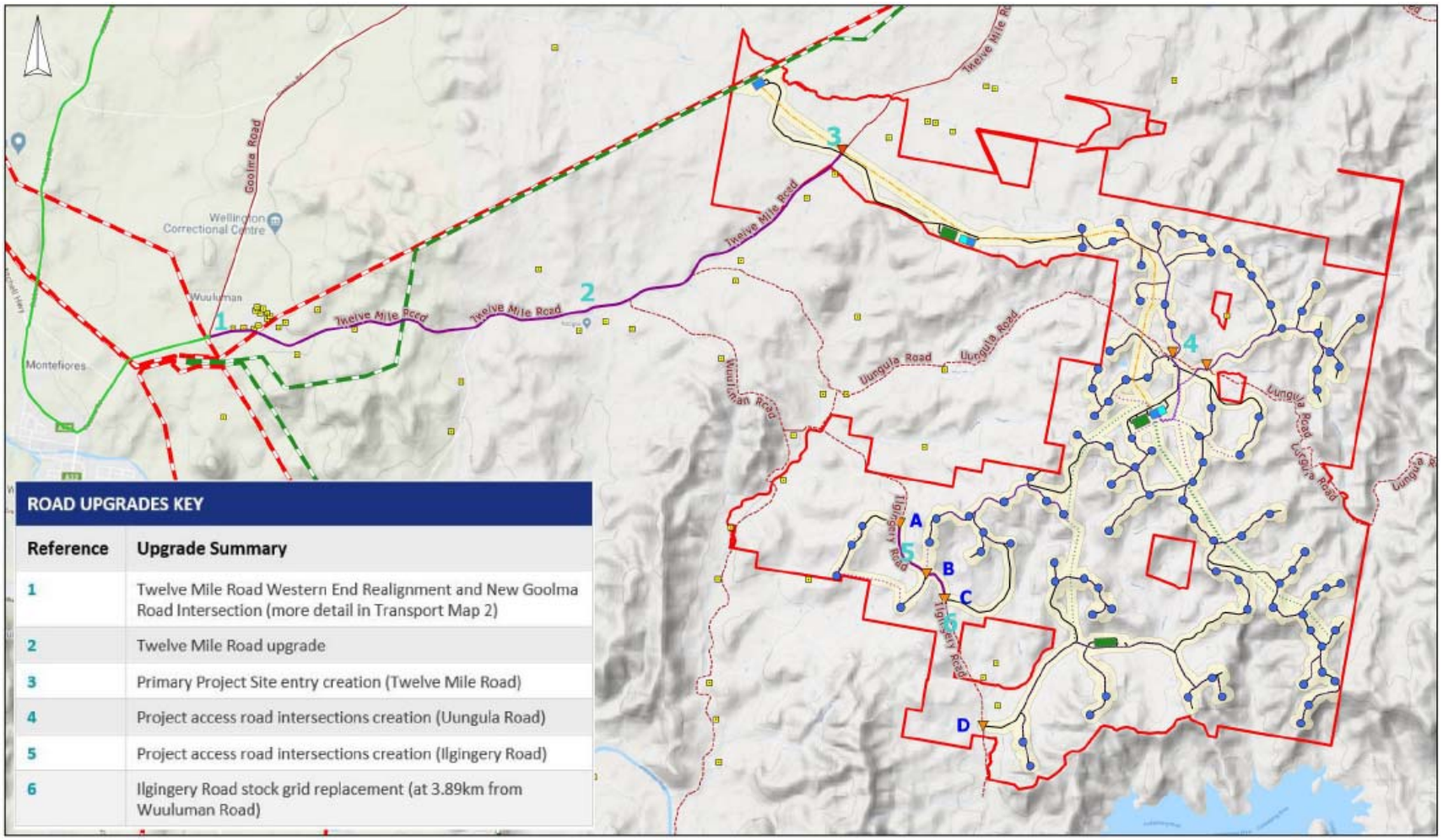

Figure 10 | Transport Route and Access Points

Traffic Volumes

Construction related traffic impacts would be limited to the construction period of up to 36 months, including a shorter period of up to 6 months using over-dimensional vehicles.

The transport assessment identified the over-dimensional, heavy and light vehicle transport requirements, including the vehicle type and the number that would be required to transport all wind turbine and infrastructure components to the project site. The estimated peak and average daily vehicle movements (i.e. two-way trips) during construction are shown in **Table 7**.

Table 7 | Traffic generation summary

Vehicle class	Peak movements (daily)	Non-peak movements (daily)
Over-dimensional vehicles	10	0
Heavy vehicles	96	90
Light vehicles	400	240
TOTAL	**506**	**330**

Notes:

- *Vehicle daily movements based on 2-way trips*
- *The peak traffic generation estimates were conservatively based on the peak construction period of approximately 6 months*

The volume of construction traffic would be spread over the construction period, but on a daily basis the frequency of vehicle movements would vary depending on the construction activities occurring at the time. Deliveries of long loads, such as the wind turbines blades, may involve up to 10 over-dimensional vehicle movements, 96 heavy vehicle movements and 400 light vehicle movements per working day. However, for the majority of the construction period, maximum daily traffic generation would be:

- 90 heavy vehicle movements per working day; and
- 240 light vehicle movements per working day.

The estimated maximum hourly volume of construction traffic during the peak construction period is 4 over-dimensional, 16 heavy and 120 light vehicles.

Only a small full-time workforce would be required for site maintenance and monitoring purposes. It is anticipated this workforce would contribute up to 20 vehicle movements per day.

Road Upgrades and Maintenance

TfNSW and Council support the proposed transport route, subject to the recommended conditions requiring road upgrades to be undertaken to support the increased traffic associated with the project.

The Department has undertaken extensive consultation with CWP, TfNSW and Council on the proposed transport route, road upgrades and maintenance requirements. From these discussions, the road upgrades required along the local road network to facilitate both the over-dimensional and heavy vehicles and the increased volume of light vehicle traffic on Twelve Mile Road associated with the construction of the project are summarised below:

- permanently remove and close the existing Goolma Road and Twelve Mile Road intersection, and construct a new intersection with a channelised right (CHR) turn lane and an Auxiliary Left (AUL) turn lane treatment 400 m to the north, as shown in **Figure** 11 below;

- upgrade Twelve Mile Road from the new intersection with Goolma Road to the primary site access point (approximately 13.6 km);
- construct the primary site access generally in accordance with design drawings provided in Appendix N of the EIS, as agreed with Council;
- construct the six secondary intersections (two on Uungula Road and four on Ilgingery Road) for safe exit and entry movement, and to provide adequate wind farm component access to be confirmed with Council; and
- extend the stock grid approach seal to 20 m x 4.5 m each side of the grid on Ilgingery Road, approximately 3.9 km from the intersection with Wuuluman Road.

The Department notes that while some community members did not support the proposed intersection upgrades and closure of the existing intersection, they were developed in consultation with, and supported by the relevant roads authorities. These upgrades would be carried out to the standards and satisfaction of the relevant road authority prior to any use of the road by over-dimensional and heavy vehicles.

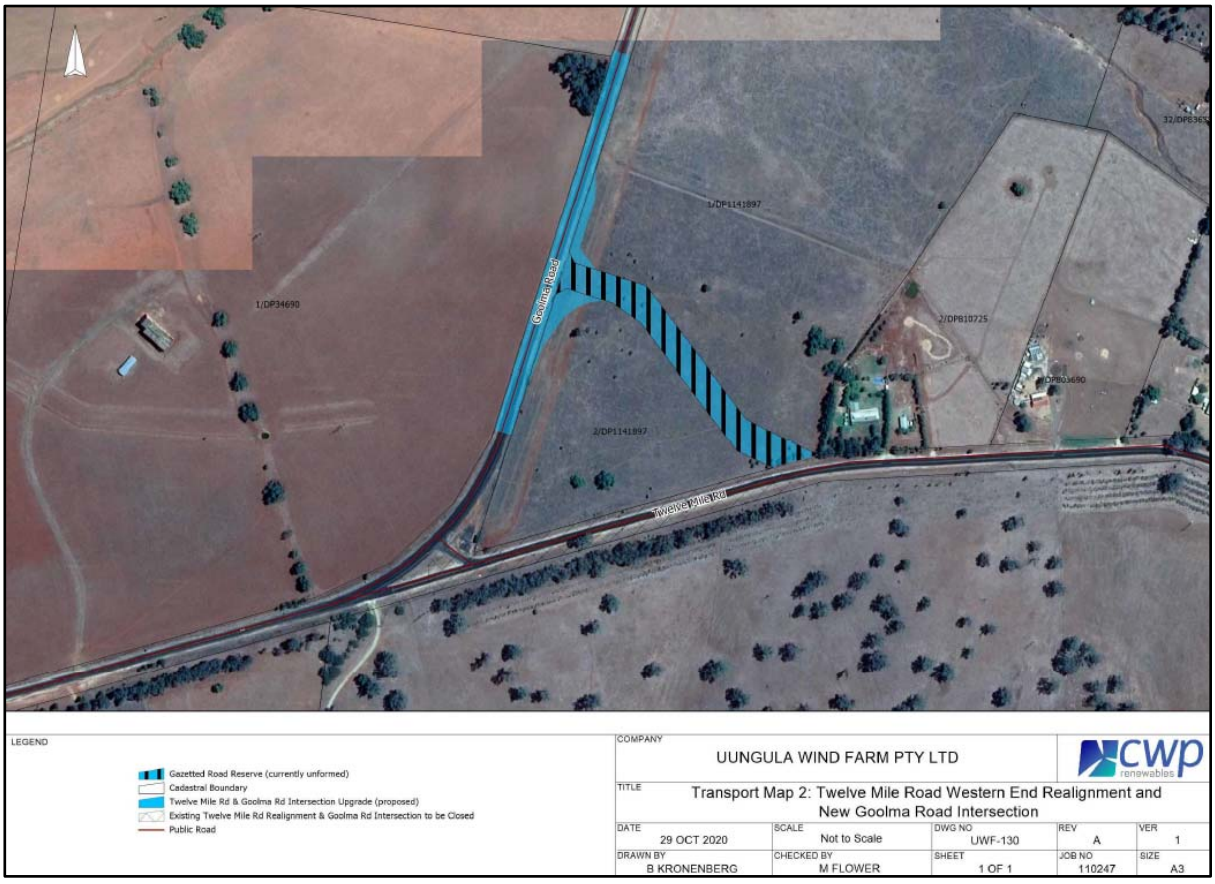

Figure 11 | Goolma Road and Twelve Mile Road Realignment

As construction would be up to 36 months, the Department has also recommended conditions requiring CWP to:

- carry out dilapidation surveys of the transport routes before construction, on an annual basis during construction and after decommissioning of the project; and
- repair, or pay the full cost associated with repairing any damage to the road network caused by any project-related traffic.

The relevant roads authorities (TfNSW and Council) have advised the Department that they are satisfied with this outcome.

With these measures in place, the Department is satisfied that the project would not result in any unacceptable impacts on the capacity, efficiency or safety of the road network.

Although the Department notes that the road upgrades required for the project have been addressed through the recommended conditions, a portion of the planning agreement (see **Section 5.5**) agreed between CWP and Council additionally would be allocated to the ongoing maintenance of roads in the region, with potential for additional benefits to the community beyond the roads used for the project's.

Conclusion

With suitable road upgrades, regular road maintenance, and the implementation of a detailed Traffic Management Plan, the Department is satisfied that the project would not result in unacceptable impacts on the capacity, efficiency or safety of the road network.

To ensure this occurs, the Department has recommended conditions requiring CWP to:

- undertake all necessary road upgrades for the project to the standard and satisfaction of the relevant roads authority prior to commencing construction;
- undertake dilapidation surveys of the relevant transport routes prior to construction and decommissioning, on an annual basis during construction, and repairing any damage resulting from construction traffic;
- prepare a detailed Traffic Management Plan in consultation with the relevant roads authorities, that includes provision for:
    - temporary traffic controls, including detours and signage;
    - notifying the local community about project-related traffic impacts;
    - minimising potential for conflicts with school buses routes, rail services and stock movements;
    - implementing measures to minimise development-related traffic on the public road network outside of standard construction hours;
    - responding to any emergency repair or maintenance requirements during construction and/or decommissioning;
    - a traffic management system for managing over-dimensional vehicles; and
    - a driver's code of conduct that addresses travelling speeds, fatigue management and procedures to ensure that drivers implement safe driving practices.

With these conditions in place, the Department is satisfied that the project would not result in unacceptable impacts on the capacity, efficiency or safety of the road network.

5.3 Biodiversity

The project site is characterised by predominantly modified grassland communities (72 %) with pockets of remnant native vegetation remaining in open forests and woodlands, mostly along ridgelines and slopes (22 %). The remaining 6 % comprises areas cleared of native vegetation, including farm dams or cleared land.

The site includes habitat for some threatened species and endangered ecological communities (EEC), which would potentially be impacted by the project through direct habitat loss from clearing of vegetation, and bird and bat strike during operation of the wind turbines.

The ecological assessment of the project was initially assessed under the former BioBanking Assessment Methodology (BBAM) in 2013 by ERM. In 2019 and 2020, EcoLogical Australia (ELA) undertook a high level validation of ERM's vegetation mapping, as well as undertaking detailed survey

and vegetation mapping to address gaps resulting from changes in the development footprint and the proposed upgrades to the public road network.

As outlined in **section 3.6**, the project was determined to be a controlled action under the EPBC Act due to the potentially significant impacts on MNES for listed threatened species and communities, specifically White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (CEEC), Regent Honeyeater (*Anthochaera phyrgia*), Swift Parrot (*Lathamus discolor*), and Superb Parrot (*Polytelis swainsonii*).

The NSW Government's policies in relation to biodiversity impact assessment and offsetting have changed during the preparation of the EIS, including changes to the classification of native vegetation condition and the introduction of new procedures.

As CWP's assessment was undertaken prior to the commencement of the BC Act, under the transitional arrangements, the project may still be assessed and determined under the *NSW Biodiversity Offsets Policy for Major Projects* using the *Framework for Biodiversity Assessment* (FBA), which are accredited under the Assessment Bilateral Agreement between NSW and the Commonwealth. Accordingly, the offset credit requirements have been calculated using the FBA Biobanking Credit Calculator (BBCC).

The majority of public submissions objecting to the project expressed concerns about the potential impacts on biodiversity from the project, including the clearing of native vegetation, the potential impacts on threatened species and the adequacy of the ecological assessment.

CWP revised the BAR to address comments from BCS and public submissions, and to address the changes to the project identified in the amendment report.

Avoidance and Mitigation

The ecological assessments are based on a number of measures to avoid and/or mitigate impacts, including:

- siting project infrastructure on land previously modified by agricultural development as far as practicable;
- designing the project to avoid disturbance of CEECs, threatened species and woodland areas of high conservation value as far as practicable;
- committing to undertake pre-clearing surveys and micro-siting of wind turbines and ancillary infrastructure during the detailed design stage of the project to further avoid impacts to any previously unrecorded threatened species and ecologically sensitive areas, as far as practicable; and
- ongoing management measures to manage unavoidable impacts of the project, which would be detailed in the Biodiversity Management Plan and the Bird and Bat Adaptive Management Plan.

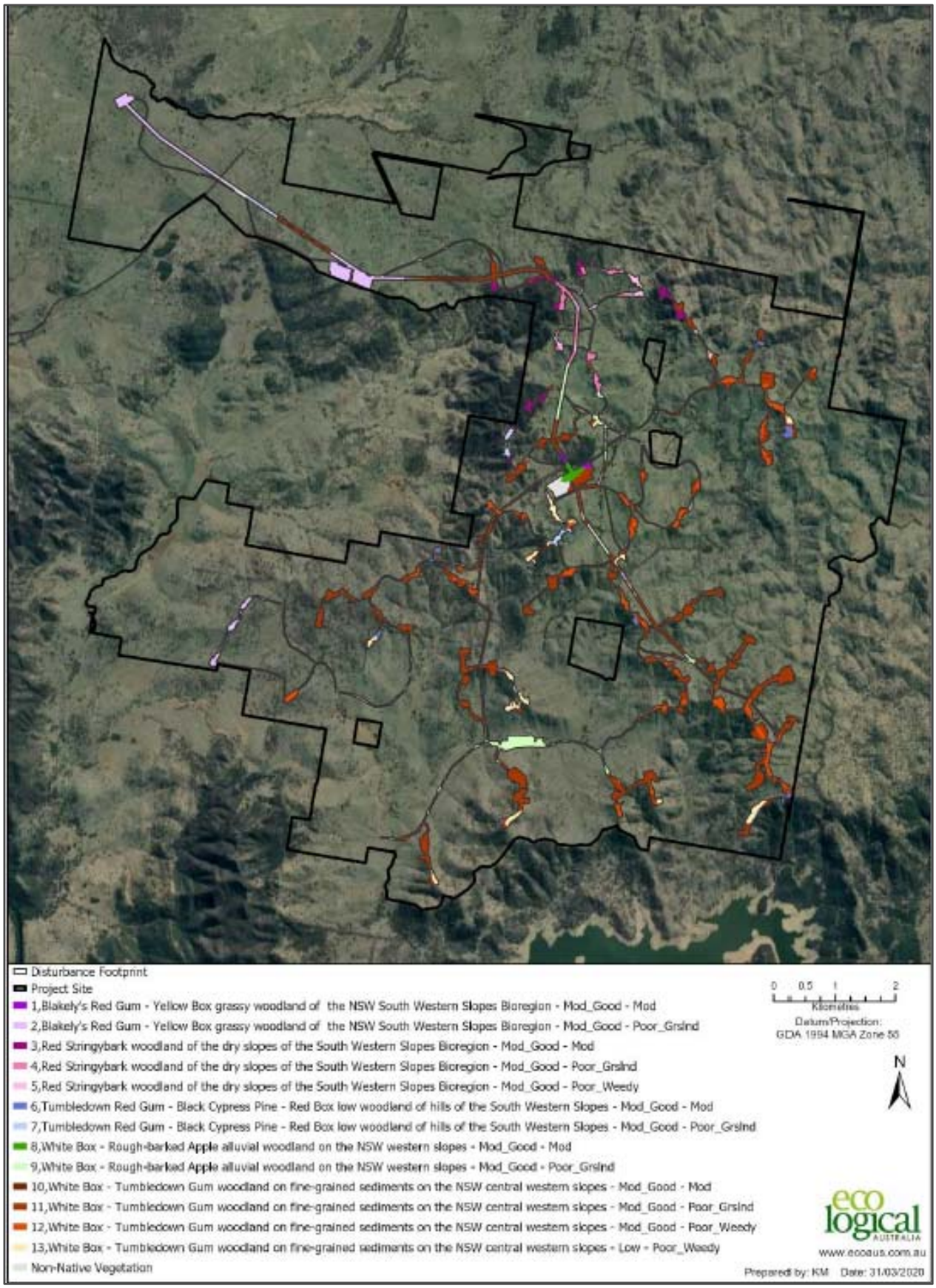

Figure 12 | Vegetation Mapping

Native Vegetation

The project would disturb around 626 ha of native vegetation on the site, predominantly modified grassland vegetation (483 ha), interspersed by pockets of remnant open forest and woodland vegetation (143 ha). The disturbance area includes clearing of up to 29 ha of White Box - Yellow Box - Blakely's Red Gum Woodland (Box-Gum Woodland) listed as CEEC under the BC Act, which includes 14.15 ha listed as a CEEC under the EPBC Act. **Table 8** provides a summary of the estimated impacts of the project on each vegetation type.

Table 8 | Native Vegetation Community Impacts

Vegetation Community	Condition	Conservation Significance		Impact (ha)
		BC Act	EPBC Act	
Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion	Moderate/Good_ Moderate	CEEC	CEEC	6.28
	Moderate/Good_ Poor – Grassland	-	-	61.1
Red Stringybark woodland of the dry slopes of the South Western Slopes Bioregion	Moderate/Good_ Moderate	-	-	18.78
	Moderate/Good_ Poor – Grassland	-	-	26
	Moderate/Good_ Other - Weedy	-	-	7.21
Tumbledown Red Gum – Black Cypress Pine – Red Box low woodland of hills of the NSW South Western Slopes Bioregion	Moderate/Good_ Moderate	-	-	16.27
	Moderate/Good_Poor - Grassland	-	-	11.27
White Box – Rough-barked Apple alluvial woodland on the NSW western slopes	Moderate/Good_ Moderate	CEEC	CEEC	7.87
	Moderate/Good_Poor - Grassland	-	-	45.3
White Box - Tumbledown Gum woodland on fine-grained sediments on the NSW central western slopes	Moderate/Good_ Moderate	CEEC		14.56
	Moderate/Good_Poor - Grassland			301.67
	Moderate/Good_Other - Grassland			72.16
	Low – Poor_weedy			37.11
Total				**626**

The calculated impact area for the project includes the proposed new intersection and roadside vegetation that would be disturbed to undertake the required road upgrade works.

The Department and BCS consider that all communities including those listed under the EPBC Act, have been correctly identified and assessed.

CWP proposes to further reduce these impacts during the detailed design of the project through micro-siting, and offset the residual biodiversity impacts of the project in accordance with the requirements of *NSW Biodiversity Offset Scheme*.

The Department notes that while wind monitoring masts may be located outside the development corridor, they are a relatively small impact area (i.e. around 10 square metres per mast) and the Department has recommended conditions that they be located within the development corridor where possible, to minimise and the clearing for the project overall and the area would be included in the calculation of the final disturbance area for offsets.

The Department is satisfied that the vegetation and habitat clearing of the project would be commensurate with other wind projects of this size and nature, and is unlikely to result in significant impacts on any threatened species, populations or ecological communities, or their habitats.

Flora Impacts

No threatened flora species listed under the BC Act or EPBC Act were identified within the site in surveys. However, four threatened flora candidate species were identified as having the potential to occur within the development corridor, namely Bluegrass (*Dichanthium setosum*), Silky Swainson-pea (*Swainsona sericea*), Small Purple-pea (*Swainsona recta*) and *Zieria obcordate*.

CWP has committed to undertaking targeted pre-clearing surveys and micro-siting turbines and infrastructure on site to avoid any impact to any previously unrecorded threated flora species where possible. The Department and BCS accept this approach.

Fauna Impacts

The project has the potential to affect fauna in a number of ways, particularly through direct habitat loss through the clearing of vegetation, and bird and bat strike during operation of the turbines.

The majority of threatened fauna known, likely or with the potential to occur are ecosystem credit species and therefore offset through vegetation offsets. The Department notes that this includes species such as Superb Parrot which was identified as a concern in community submissions.

Four threatened fauna species credit candidate species were identified as having the potential to occur within the study area. CWP undertook surveys to identify potential habitat for Squirrel Glider and provide a conservative assessment. CWP has committed to undertaking additional targeted surveys for the Squirrel Glider to confirm presence or absence.

Although none were identified during targeted surveys, two further threatened fauna candidate species (Koala and Regent Honeyeater) were considered to potentially occur within the study area based on the presence of potential foraging habitat in approximately 143 ha of the development footprint. The project site is unlikely to support breeding habitat for either species. The Department notes that CWP provided an additional expert report confirming that breeding habitat for Regent Honeyeater was unlikely within the development corridor based on the lack of key breeding habitat features.

To address BCS' comments, CWP undertook additional targeted assessment of potential suitable habitat for the Eastern Pygmy-possum, which was identified as good quality woodland areas with a shrubby understory. The resulting mapping identified an 11.61 ha area of impact on habitat and species credits have been calculated accordingly.

CWP has committed to undertaking additional targeted surveys for the Squirrel Glider and Eastern-Pygmy-possum prior to commencing construction, to confirm presence or absence and to inform the detailed design of the project in an effort to avoid impacts to these species.

Table 9 | Threatened Fauna Species Impacts

Species	Conservation Significance		Impact on habitat (ha)
	BC Act	EPBC Act	
Koala (*Phascolarctos cinereus*)	Vulnerable	Vulnerable	143.13
Regent Honeyeater (*Anthochaera phrygia*)	Critically Endangered	Critically Endangered	143.13
Squirrel Glider (*Petaurus norfolcensis*)	Vulnerable	-	143.13
Eastern Pygmy-possum (*Cercartetus nanus*)	Vulnerable	-	11.61

The Department and BCS consider that all threatened species, communities and habitats, including those listed under the EPBC Act, have been correctly identified, assessed and offsets calculated correctly.

Significance of Impacts on Threatened Species and Communities

CWP completed assessments of significance under the EPBC Act for Box Gum Woodland and three threatened species, being the Regent Honeyeater, Superb Parrot and Swift Parrot, and assessment was not required for any other threatened species.

Assessments of significance concluded that there is likely to be an impact on the Regent Honeyeater and that offsets would be required (see **Table 11**). However, that the impact would be isolated to 143 ha of foraging habitat (i.e. no impact on breeding habitat). The impacts on vegetation of importance to the Regent Honeyeater within the development footprint extends beyond the site and therefore the impacts on this species are not considered to be significant.

Further, it was concluded that there would be no significant impact on any threatened species, including either Superb Parrot and Swift Parrot, given the species are highly mobile and wide-ranging and are regularly observed in flocks of more than 40 individuals in the vicinity of the closest wind farm to the study area (Bodangora Wind Farm).

The Department has undertaken a detailed consideration of Commonwealth matters in consultation with DAWE, including consideration of CWP's assessments of significance and the relevant approved conservation advice, recovery plans and threat abatement plans (TAPs) for Box Gum Woodland, Regent Honeyeater, Superb Parrot and Swift Parrot.

Overall, although there is potential for impacts to occur to EPBC listed species, these are not considered significant.

The conclusions of this assessment are supported by BCS and DAWE, and a summary of this assessment is provided in **Appendix I**.

Bird and Bat Strike

The ecological assessment includes a risk assessment to identify which species would be most at risk of blade strike, including bird utilisation surveys undertaken by ERM. The risk assessment considered conservation status, flight character, distribution across the site and whether the species is migratory. Those species recorded within the study area and considered to be at risk of strike are provided in **Table 10**.

Table 10 | Bird and bat species considered at risk of blade strike

Species	Conservation Significance	
	BC Act	EPBC Act
Bird		
White-throated Needletail (*Hirundapus caudacutus)*	-	Vulnerable
Superb Parrot (*Polytelis swainsonii*)	Vulnerable	Vulnerable
Bush Stone-curlew (*Burhinus grallarius)**Historical record	Endangered	-
Diamond Firetail (*Stagonopleur a guttata)*	Vulnerable	-
Glossy Black-Cockatoo (*Calyptorhynchus lathami)*	Vulnerable	-
Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)	Vulnerable	-
Hooded Robin (southeastern form) (*Melanodryas cucullate cucullate)*	Vulnerable	-
Scarlet Robin (*Petroica boodang)*	Vulnerable	-
Speckled Warbler (*Chthonicola sagittate)*	Vulnerable	-
Varied Sittella (*Daphoenositta chrysoptera)*	Vulnerable	-
Spotted Harrier (*Circus assimilis)*	Vulnerable	-
Wedge-tailed Eagle (*Aquila audax*)	-	-
Little Black Cormorant (*Phalacrocorax sulcirostris*)	-	-
Strawnecked Ibis (*Threskiornis spinicollis*)	-	--
Bat		
Grey-headed Flying-fox (*Pterapus poliocephalus*)	Vulnerable	Vulnerable
Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris)*	Vulnerable	-
Large Bent-winged Bat (*Miniopterus orianae oceanensis*)	Vulnerable	-
White-striped Freetail Bat (*Austronomus australis*)	-	-

Based on the proposed 250 m high turbines, the project's rotor swept area (RSA) would be 80 m – 250 m above ground level, which is beyond the typical flight height of most Australian bird and bat species (25 m – 150 m). However, there were four species recorded flying within the Rotor Swept Area (RSA), namely the White-throated Needletail, Wedge-tailed Eagle, Little Black Cormorant and Straw-necked Ibis. The White-throated Needletail (vulnerable status under the EPBC Act) and Wedge-tailed Eagle (known risk of turbine collision within existing wind farms in south eastern Australia) were prioritised for further assessment.

The collision risk assessment undertaken in 2013 predicted that 2.5 White-throated Needletails and 0.5 Wedge-tailed Eagles per year may collide with wind turbines. The Department notes that this analysis was undertaken over a much larger wind turbine layout and study area than proposed and is therefore likely to be an overestimation of collisions.

CWP is proposing a number of mitigation measures to avoid or minimise bird and bat strike, including the development and implementation of a Bird and Bat Adaptive Management Plan, which would describe the mechanisms for reduction of impacts from the project.

BCS raised concerns on the adequacy of the bird and bat utilisation surveys conducted, noting that the surveys were not conducted over a long enough period to capture all seasonal ecological events to inform the impact assessment of species prone to blade strike. To address this, the Department has recommended conditions requiring CWP to carry out detailed monitoring of the bird and bat strike impacts of the project, and carry out adaptive management if the impacts are higher than predicted or result in adverse impacts on any threatened bird or bat species in the locality, including:

- the collection of relevant baseline data on threatened and 'at risk' bird and bat species and populations in the locality that could be affected by the project;
- a detailed description of the measures that would be implemented on site for minimising bird and bat strike during operation of the project;
- identifying trigger levels for further investigation of the potential impacts of the project on particular bird or bat species or populations;
- an adaptive management program that would be implemented if the development is having an adverse impact on a particular threatened or 'at risk' bird or bat species or population;
- a detailed program to monitor and report on the effectiveness of these measures; and
- provisions for a copy of all raw data collected as part of the monitoring program to be submitted to BCS and the Department.

Biodiversity Offset

The FBA does not require offsets for vegetation that is not identified as an EEC unless it contains threatened species habitat. The offsets required for impacts on Red Stringybark woodland and Tumbledown Red Gum – Black Cypress Pine – Red Box low woodland, as quantified in **Table 8**, have been identified as containing habitat for a number of threatened species, and as such, require an offset in accordance with the FBA.

Table 11 summarises the estimated biodiversity credit and offset requirements under the FBA for the project as a whole.

Table 11 | Summary of Biodiversity Offset Requirements

EEC/Species	Area of impact (ha)	Credits Required
Blakely's Red Gum - Yellow Box grassy woodland (CW112)	67.38	3,705
Red Stringybark woodland (CW177)	51.99	2,314
Tumbledown Red Gum - Black Cypress Pine - Red Box low woodland (CW202)	27.54	1,480
White Box - Rough-barked Apple alluvial woodland (CW211)	53.17	2,308
White Box - Tumbledown Gum woodland (CW212)	425.5	16,213
Regent Honeyeater habitat	143.13	11,021
Eastern Pygmy-possum habitat	11.61	232
Squirrel Glider habitat	143.13	3,149
Koala habitat	143.13	3,721

Both the Department and BCS are satisfied that the offset credit requirements have been correctly calculated using the FBA, noting that these credits would need to be re-calculated once the final layout design of the project is known in order to confirm the final number and class of biodiversity credits to be retired.

The Department notes that with further avoidance measures during detailed design, the number and class of credits that would need to be retired is likely to be lower than the worst-case calculations presented in **Table 11**.

CWP proposes to acquire and retire all ecosystem credits, based on the impacts of the final development footprint, calculated using the Biobanking Credit Calculator for Major Projects (BBCC). The credits calculated by the BBCC will require determination of reasonable equivalence credits as determined by the current Biodiversity Offset Scheme under the BC Act, determined by the Biodiversity Assessment Method (BAM).

While CWP has not proposed specific land-based offsets for the project at this stage, it has commenced consultation with surrounding properties to investigate options for establishing land-based offsets. Preliminary assessment indicates that the vegetation communities on neighbouring properties are largely consistent with those that would be impacted by the project, including the CEEC. Land-based offsets for CEEC provide a mechanism to secure and preserve areas of CEEC into perpetuity and assist with recovery effort in the surrounding landscape.

The Department has recommended conditions requiring CWP to:

- confirm the number and class of biodiversity credits required to be retired prior to the commencement of construction; and
- retire the required biodiversity offset credits in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* prior to the commencement of construction.

This approach also provides an incentive to CWP to avoid and minimise impacts on biodiversity values through the detailed design process to limit the offset liability for the project. With the retirement of the required biodiversity offset credits, both the Department and BCS are satisfied that the project could be undertaken in a manner that improves, or at least maintains, the biodiversity values of the locality over the medium to long term.

Conclusion

The Department acknowledges that the project site is agricultural land dominated by modified grassland communities, with scattered trees and isolated woodlands along ridgelines and slopes. A history of grazing has left the site highly disturbed and degraded with only pockets of high quality native vegetation.

In this regard, the Department has recommended conditions requiring CWP to:

- limiting the clearing of BC Act listed White-Box-Yellow Box-Blakely's Red Gum Woodland CEEC; to 29 ha; and EPBC Act listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC to 14.15 ha;
- update the baseline mapping of the vegetation and key habitat within the final disturbance area, in particular the additional targeted surveys for the Squirrel Glider and Eastern-Pygmy-possum;
- calculate credits based on the final disturbance area;
- minimise disturbance of threatened species and communities as far as practicable;
- if micro-siting turbines, ensure the revised location of the blade of a turbine is at least 50 m from the canopy of existing hollow-bearing trees; or where the proposed location of the blade of a

turbine is already within 50 m of the canopy of existing hollow-bearing trees, the revised location is not any closer to the existing hollow-bearing trees;

- prepare and implement a detailed Biodiversity Management Plan and Bird and Bat Adaptive Management Plan in consultation with BCS; and
- retire the applicable biodiversity offset credits in accordance with the NSW Offsets Policy.

With the implementation of all of these measures, both the Department and BCS are satisfied that the project could be undertaken in a manner that improves, or at least maintains, the biodiversity values of the locality over the medium to long term.

5.4 Noise

The project site is located in a quiet rural environment. Background noise levels of less than 30 dB(A) during calm weather conditions are typical for such rural settings in the absence of other industrial, rail and road inputs.

The EIS includes a noise impact assessment prepared by Sonus Pty Ltd (Sonus) in accordance with the applicable guidelines, including the *NSW Wind Energy: Noise Assessment Bulletin* (DPE, 2016), which provides the accepted methodology for assessing wind farm noise in NSW. Additionally, CWP provided further details on the noise impacts in the Amendment Report and additional information during the Department's assessment.

A number of public submissions raised concerns about potential adverse noise impacts from the project, including during both construction and operation of the wind farm.

Construction Noise and Vibration

The construction period would be up to 36 months. The noise assessment indicates that the majority of construction-related noise would be well below the highly noise affected criterion of 75 dB(A) as specified in the EPA's *Interim Construction Noise Guideline (2009)* (ICNG) for all non-associated residences for construction during standard hours (i.e. 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday).

Two non-associated residences (WUU008 and TMR030) may be subject to temporary noise up to 9 dB(A) above the 'noise affected' criterion of 40 dB(A) from construction. The predicted construction noise levels at these residences are 41 dB(A) and 49 dB(A) respectively.

The higher noise levels are attributed to the establishment of turbine tower foundations. Due to the large area of the project site and progressive nature of wind farm construction, the intensive civil works located close to these residences would occur within a shorter period of time limited to the construction of turbines in proximity to WUU008 and the construction of the 132 kV transmission line in proximity to TMR030.

CWP has committed to implementing a number of standard measures to minimise construction noise from the project (including from fixed noise sources such as the rock crushing and concrete batching plants), which may include construction of temporary acoustic barriers and use of proprietary enclosures around machines and notifying potentially impacted residents of the nature of works prior to construction.

In addition, there are 23 non-associated residences that would be subject to temporary noise above the 'noise affected criterion' of 40 d(BA) while the proposed road upgrade works are undertaken prior to the commencement of construction of the wind farm.

Due to the progressive nature of the road upgrade works from the intersection works at Goolma Road and Twelve Mile Road, and along Twelve Mile Road to the primary site access, the intensive works located close to these residences would occur within a shorter period of time (approximately four to six weeks) and during standard daytime construction hours.

The residences with predicted exceedances of the criteria while road upgrade works are being undertaken are summarised in **Table 12** below.

Table 12 | Residences where road upgrade works predicted to exceed Noise Management Levels (exceeding 40 dB(A))

Upgrade Activity	Predicted Noise Level dB(A)	Non-associated residences
Goolma Road / Twelve Mile Road intersection works	41 – 50 dB(A)	TMR045, TMR046, TMR049, CAD005, CAD003
	51 – 60 dB(A)	CAD004, CAPD001, CADP002, CADP003, CABP004, CADP005, CADP006, CAD002, CAD001, TMR047
	71 dB(A)	TMR048
Twelve Mile Road Upgrade	44 – 55 dB(A)	BRR001, TMR049, WUU001, BRR002, TMR042
	56 – 65 dB(A)	CADP004, CADP006, CADP005, CADP002, CADP001, TMR045, CADP003, CAD004, TMR034, CAD003, TMR033, TMR032, TMR030, TMR046,
	67 – 75 dB(A)	CAD002, TMR044, CAD001, TMR047, TMR048

The Department accepts that the proposed construction activities are unlikely to result in significant adverse impacts during daytime hours and consequently has developed conditions restricting to standard construction hours (i.e. 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday) with no work on Sundays or NSW public holidays.

However, the Department acknowledges that there may be some instances where construction activities may be required to be undertaken outside of these hours (such as emergency works or other works that are inaudible at any non-associated residence) and has recommended conditions allowing these activities to be undertaken with these pre-conditions.

Importantly, construction noise would also be regulated by the EPA under the EPL for the project.

The noise assessments also considered vibration impacts from construction with reference to *Assessing Vibration: A Technical Guideline* (DECC, 2006). The assessments found that typically, the distances required to achieve the construction vibration criteria provided in the Technical Guideline between the source of vibration and the receiver are in the order of 20 m to 100 m. The assessment noted that vibration from construction activities was unlikely to be detectable to humans at a distance of 100 m.

Given the proposed construction activities would be well over 100 m from the closest residence, the noise assessment concluded that the project construction activities would comply with the relevant construction vibration criteria.

Notwithstanding, the Department has recommended conditions requiring CWP to implement best management practice to minimise construction vibration generated by the project.

Construction Traffic Noise

Traffic noise impacts from increased project-related traffic are separately assessed against the *NSW Road Noise Policy 2011* (RNP).

Several local submissions were particularly concerned about noise impacts associated with the general increase in daily traffic along the proposed access routes. Disturbance levels would be directly related to the proximity of a residence to an access route.

The predicted construction traffic noise levels indicate that four residences would experience minor exceedances of the RNP's criteria of 55 dB(A). The residences with exceedances of the criteria are summarised in **Table 13**.

Table 13 | Residences predicted to have traffic noise exceeding 55 dB(A)

Phase	Residence	Approximate Distance to Road (m)	Predicted noise level (dB(A))
Average construction period	CAD001	50	56
	TMR047	55	55
	TMR048	45	56
Peak construction period	TMR044	70	56
	CAD001	50	58
	TMR047	55	57
	TMR048	45	58

In order for the noise criteria to be met for non-associated residences along the transport route during the average predicted traffic volumes, there would need to be a minimum of 60 m separation distance.

There are three residences (CAD001, TMR047, TMR048) along the proposed transport route on Twelve Mile Road within 60 m of the road. As such, they would be subject to construction noise levels above the criterion when the traffic generated is equivalent to the average predicted volumes.

In order for the noise criteria to be met for non-associated residences along the transport route during the peak predicted traffic volumes, there would need to be a minimum of 100 m separation distance.

There is one additional residence (TMR044) along the proposed transport route on Twelve Mile Road located between 60 m to 100 m of the road. As such, during the 6 month peak construction traffic period a total of four residences would be subject to traffic noise levels above the criterion.

In accordance with the general principles of addressing temporary construction noise impacts, CWP proposes to apply a range of mitigation measures to reduce construction-related traffic noise, including communicating with impacted residences and scheduling construction activities and deliveries to minimise road noise.

The EPA acknowledged that any traffic noise impacts would be generally limited to the construction period and is satisfied that these impacts could be adequately managed through the implementation of measures contained in the *Interim Construction Noise Guidelines* (2009).

The Department is satisfied that CWP's proposed mitigation measures would be sufficient to minimise traffic noise impacts from the project.

Notwithstanding, the Department has recommended conditions requiring CWP to restrict construction activities to the daytime, and implement best management practice to minimise road traffic noise as part of a Traffic Management Plan for the project.

Operation

Noise monitoring was undertaken between 12 September 2012 and 6 November 2012 at 15 locations to determine background noise levels.

Background noise levels were found to be relatively quiet, as expected for residences in a rural environment relatively isolated from other extraneous noise sources (e.g. traffic noise).

Wind Turbines

For noise predictions, a Vestas V162 turbine layout was used to represent the likely sound outputs of the project. The predictions conservatively assumed that all turbines would be operating at full capacity, with no sector management (operating turbines at lower speeds to curtail noise impacts). The noise assessment also considered potential noise generation from the proposed substations and the overhead 330 kV transmission lines.

These predictions show the project would be able to comfortably comply with the relevant noise criteria (i.e. 35 dB(A) or the existing background noise level plus 5 dB(A)) at all non-associated residences under all wind speeds.

Both the EPA and the Department are satisfied that the noise criteria and the predicted noise levels have been correctly calculated for the project, and the EPA has indicated that it would be able to issue an EPL for the project subject to the noise limits as identified in Appendix S of the EIS.

The EPA requested that CWP be required to prepare a revised Noise Impact Assessment based on the final turbine selection and layout, and to prepare and implement a Noise Management Plan for the project, prior to construction. The Department has considered the EPA's advice but notes that the outcomes-based recommended conditions require CWP to meet the relevant noise criteria, and monitor against this criteria, to ensure the project is noise compliant.

Consequently, the Department is satisfied that the noise impacts of the project would be acceptable, and has recommended conditions requiring CWP to:

- undertake noise monitoring within 6 months of the commencement of operations to determine whether the project is complying with the relevant noise criteria; and
- require a penalty of 5 dBA to be added to any noise monitoring results if excessive tonality or low frequency noise is detected.

Ancillary Infrastructure

The noise assessments also considered potential noise generation from the proposed substations, battery energy storage facility and the overhead 132 kV transmission lines.

The predicted levels indicate that the noise generated by the substations would be well below the NSW *Industrial Noise Policy* intrusiveness criteria at all non-associated residences, and would most likely be inaudible at all non-associated residences at all times.

In regard to transmission lines, corona noise (conductor induced noise under wet conditions) and aeolian noise (vortex shedding from the lines under specific wind conditions) are typically only an issue for transmission lines rated 345 kV and above, and rarely an issue at distances greater than 50 m to 100 m.

Given the proposed transmission line is below this voltage and the nearest non-associated residence (TMR030) about 1 km from the proposed 330 kV transmission line alignment, the Department accepts that any noise impacts would be negligible. Notwithstanding, CWP has committed to incorporating standard noise control measures into the design of the transmission line.

Low Frequency Noise

The Department acknowledges some community members hold concerns about the health impacts of low frequency noise associated with wind turbines.

The Department's *Wind Energy Guideline* refers to the advice of the National Health and Medical Research Council (NHMRC) regarding this matter. In a statement released in 2015, the NHMRC states that 'there is currently no consistent evidence that wind farms cause adverse health outcomes in humans' but acknowledged that further high-quality research into possible health effects of wind farms, particularly within 1.5 km, is warranted. The Department notes that the nearest non-associated residence (WUU008) is about 2.26 km away from the nearest turbine (Turbine 109).

The Department will continue to monitor contemporary scientific research outcomes to ensure its position reflects robust evidence on any health effects, including any advice release from the National Wind Farm Commissioner and the Independent Scientific Committee on Wind Turbines.

Further, the Department notes that the noise assessment found the project would not generate excessive levels of low frequency noise or infrasound, and consequently considers the health risks of the project to be negligible.

Notwithstanding, the Department has recommended conditions requiring CWP to monitor low frequency noise in accordance with the *Wind Energy: Noise Assessment Bulletin*, that incorporates the penalties that must be applied in the unlikely event that excessive low frequency noise is detected.

Based on the above, the Department does not consider that the project would result in any adverse health outcomes for the local community.

5.5 Other issues

The Department's consideration of other issues is summarised in **Table 14**.

Table 14 | Summary of other issues

Findings	Recommendations
Heritage	
Aboriginal Cultural Heritage • The Aboriginal Cultural Heritage Assessment (ACHA) identified 39 Aboriginal heritage items (artefact scatters and artefacts) and seven potential archaeological deposits (PADs) on the site. • Of the 39 Aboriginal heritage items identified within the development corridor, 14 of the stone artefact scatters and 21 isolated stone artefacts were assessed as having low significance and 4 of the stone artefact scatters were assessed as having moderate significance. The project would avoid two artefact scatter sites of low significance. Further, the seven areas of PADs were assessed as having low significance. • CWP has committed to salvage and relocate all impacted items to suitable alternative locations in consultation with Aboriginal stakeholders, as required. • Further excavations would be undertaken if the undertaking test excavations and salvage (if required) for the PADs where impacts cannot be avoided. • The Department and Heritage NSW consider that the project would not significantly impact the heritage values of the locality. Non-Aboriginal Heritage • No heritage items listed on Commonwealth, National or State registers are located within or surrounding the site. • Wellington LEP lists two heritage items of local significance within 5 km of the project site, the nearest (*Zieria obcordata* - threatened plant species) is located 1.2 km west from the development site. Glenwood homestead is located approximately 4 km to the north of the project site. • Site inspections found an excavated shaft, presumed to be a well or a mine (survey area 19), which may be of historical significance. No works are proposed within survey area 19. • CWP committed to cease works around any potential historic site if identified, and do not recommence works until advised by an historic archaeologist. • The Department is satisfied that the project would not have any adverse impacts on heritage items in the local area. Any unexpected finds of potential heritage significance on site could be appropriately managed by an unexpected finds protocol.	• Salvage and relocate Aboriginal items to suitable alternative locations. • Undertake consultation with Aboriginal stakeholders prior to construction. • Prepare and implement a Heritage Management Plan, in consultation with Aboriginal stakeholders.
Agriculture	
• The project site and surrounds are dominated by agricultural land uses, particularly grazing of sheep, cattle and goats. Limited cropping activities are mostly for stock feed and sheep studs.	• The Department has recommended conditions requiring the project site be rehabilitated to a standard that makes

Findings	Recommendations
• There is no mapped biophysical strategic agricultural land (BSAL) within 4 km of the project site, and the site is generally not suited to broadacre cropping due to the undulating topography, steep elevations and rugged landscape. • Wind harvesting is a passive land use that can co-exist with grazing activities, which are expected to continue concurrently throughout the project lifespan with land being rehabilitated upon project decommissioning. As such, the project will not compromise or significantly diminish the availability of land for primary production purposes within the project site or surrounding Dubbo Regional Council LGA. • Although the project would temporarily reduce the available land for agricultural uses during construction, the long-term use of the land for agricultural purposes will not be compromised during operation of the Project. • The balance of land would continue to be used for agricultural purposes, such as sheep and cattle grazing. • Given the small percentage of land (1-2 %) that would be used for the project, the Department is satisfied that agricultural and wind farm activities are compatible land uses and can co-exist in the locality. This has been demonstrated at several operating wind farms in NSW. • Additionally, the Department notes that the project would provide an additional source of income for the landowners of the associated properties, whose land would be directly affected by the project.	it available for agricultural production following decommissioning.
Economic	
• Concerns were raised in community submissions that the project would have negligible benefits to the local community following construction. • While five community objections raised economic impact issues, the Department notes that 11 community submissions supporting the project noted positive socio-economic benefits to the local economy as a result of the project creating jobs and supporting local businesses. • The project would generate direct and indirect benefits to the local community, including: - up to 250 jobs during the 24 – 36 month construction period and up to 12 ongoing full-time jobs during operation of the project; - expenditure on accommodation and business in the local economy by workers who would reside in Dubbo Regional LGA or the adjoining Mid-Western Regional LGA; and - the procurement of goods and services by CWP and associated constructors; and - upgrading and maintenance of roads used by project related traffic. • While CWP has committed to a local participation and procurement approach, the Department has recommended a condition requiring CWP to prepare an Accommodation and Employment Strategy to prioritise these matters. • In addition, CWP has undertaken extensive consultation with Dubbo Regional Council regarding the planning agreement and has committed to contributing towards a planning agreement to support strategic planning for the Wellington region, a community benefit fund for projects within the LGA, as well as road maintenance projects. This funding would comprise of $3,309 per annum per turbine constructed or under construction, amounting to total of $320,973 per annum (adjusted annually to increase in CPI) for the lifetime of the development.	• Prepare an Accommodation and Employment Strategy for the project in consultation with Council, with consideration to prioritising the employment of local workers • Enter into a VPA with Council prior to commencing construction.

Findings	Recommendations

- The funds would be administered via a planning agreement established under Section 7.4 of the EP&A Act with Council. As of the date of this report, a planning agreement has been drafted and agreed between CWP and Council, and the Department understands it has been notified and is likely to be entered into in the near future.
- The Department notes that the recommended conditions require CWP to undertake road upgrades required for the project (see **section 5.2**) and therefore the proposed funding for road maintenance in the VPA would be in addition to any project related requirements.
- The Department notes that the recent review of contributions report released in March 2021 by the NSW Productivity Commission forms the basis of reform to create certainty about the funding and delivery of infrastructure to support new and existing communities.
- The NSW Government accepted the recommendations in the review and is currently preparing regulatory amendments and associated guidance for the implementation of the recommendations.
- While the Department acknowledges that CWP's offer has been accepted by Council, the Department notes that at this stage, it does not support the use of VPA funds being used towards Council functions such as strategic planning and recommends that community funds be spent in proximity to the project rather than across the broader LGA.
- The Department has also considered the demand on public services and infrastructure in Dubbo Regional LGA and is satisfied that its recommended conditions address the material impacts of the project on these matters (i.e. roads).
- Noting the above, the Department considers that the project would provide economic benefits for the local community.

Property Values

- Some submissions from the public raised concerns about potential adverse impacts on property values in the area.
- The Department notes that property values are influenced by a number of factors.
- In 2009, the NSW Valuer-General released a report on the impacts of wind farms on land values in Australia. The report was based on primary investigations and analysis of previous studies, and concluded that the majority of wind farms in Australia appear to have no quantifiable effect on land values.
- In 2016, OEH commissioned Urbis to undertake an investigation into the potential impact of wind farm developments in NSW. The study was based on sales data and traditional valuation sales analysis techniques, and similar to the NSW Valuer-General's report, concluded that wind farms are unlikely to have a measurable negative impact on surrounding land values in rural areas.
- Nonetheless, the Department notes that the project is permissible with consent under applicable planning instruments, and the assessment demonstrates that with the changes made to the project through the assessment process, the project would not result in any significant impacts and would be able to comply with applicable amenity criteria established by the NSW Government for wind farm developments.
- Accordingly, the Department considers the project would not result in any significant or widespread reduction in land values in the areas surrounding the wind farm.

Findings	Recommendations
Electric and magnetic fields	
• Like other electrical equipment, including electricity generating infrastructure, electric and magnetic fields (EMF) would be generated by the electrical components of the project; including wind turbines, energy storage facility, power conversion units (including transformers), transmission lines and substation. It is noted that EMF also results from natural sources such as the Earth's magnetic field and lightning. • The main sources from the project would be the substation, the energy storage facility, electrical equipment within the turbine structures, interconnecting underground and/or overhead cables and transmission lines. • The EMF produced by the proposed generating, storage and exporting electricity facilities are very low frequency and do not pose a threat to public health. Further, CWP has proposed mitigation measures such as the proposed distance between electrical infrastructure and receivers, metal shielding and security fencing around substations. The highest EMF emitter would be the substation, which would be located more than 2 km away from all non-associated residences, EMF from the project is likely to be indistinguishable from background levels at all non-associated residences. • The EIS includes an assessment of EMF, which indicates that the levels of EMF would be significantly lower than the current internationally acceptable level for human health. • The Department is satisfied the project is not likely to have any significant EMF related impacts. • The project would also comply with the International Commission on Non-Iodizing Radiation Protection (ICNIRP) guidelines for electric, magnetic and electromagnetic fields.	• No specific conditions required.
Radiocommunications	
• Electromagnetic signals transmitted for telecommunication systems (such as radio, televisions, mobile phones and mobile/fixed radio transmitters) function most efficiently where a clear line of sight exists between the transmitting and receiving locations. Wind farms and other infrastructure have the potential to cause interference with this line of sight. • CWP undertook a Telecommunications and Electromagnetic Interference Study as part of its EIS. The study included consultation with telecommunications licence holders and service providers. • The assessment concluded that the project is unlikely to have any material impacts on the services assessed, predominantly due to the proximity from transmitter and receivers. • However, the assessment recommended that any micrositing of turbines 105 and 106 does not adversely impact two point to point microwave links, which CWP has committed to. • As such, the Department is satisfied that the project is not likely to have significant impacts on radiocommunications.	• To ensure that telecommunications services are maintained, the Department has recommended conditions requiring CWP to 'make good' any disruption to radio or telecommunications services caused as a result of the project as soon as possible following the disruption, but no later than 1 month following the disruption of the service, unless the relevant service provider or user or Secretary agrees otherwise. • The Department notes that this approach has been effective in addressing interference with

Findings	Recommendations
	telecommunications services associated with other wind farms in NSW.
Aviation safety	
• The project is located 34 km west of Mudgee airport and 60 km south east of Dubbo airport. • CWP's commissioned Landrum and Brown Worldwide (Aust) to undertake an aviation impact assessment in February 2020. • The assessment concluded that the project would not pose unacceptable risks to aircraft flying in the vicinity of the site, provided aircraft are operated in compliance with applicable regulatory and operational control requirements; and consequently that the installation of obstacle lighting was unnecessary. • Airservices Australia confirmed that there would be no adverse impact on aviation communications, navigation and surveillance equipment from the project. • CASA recommended that obstacle lighting be installed, no lower than 200 candela at the top of the tower. • CWP has agreed to consult further with CASA before the turbines are installed, and install obstacle lighting in accordance with CASA's requirements. • The Department of Defence did not raise any concerns about the project, however requested the installation of powerline marker balls along the powerline connecting the wind farm to the electricity grid, and that the top third of wind monitoring masts be painted in alternating contrasting bands of colours in accordance with the Manual of Standards for Part 139 of the *Civil Aviation Safety Regulations 1998*. This recommendation has not been included in the recommended conditions of consent as hazard marking would be provided in accordance with the relevant safety guidelines and in consultation with the network service provider or powerline owner. • Defence also requested that the details of turbines and monitoring masts be included in the RAAF's national database for tall structures which the Department has included in the recommended conditions. • The Department considers that any hazards from the turbines would be appropriately managed as long as the development is carried out in accordance with the *National Airports Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers*, or its latest version. • With these conditions, the Department is satisfied that the project is unlikely to result in any significant aviation hazards or impacts to aerial agricultural activities.	• Notify the relevant aviation authorities of the final location and specifications of the wind turbines and any wind monitoring masts; • Install aviation hazard lighting in accordance with CASA's requirements; and • Minimise the off-site lighting impacts of the project.
Water Use	
• The amount of water required for the construction of the wind farm is estimated to be around 95 ML. This includes water for the construction of concrete foundations for the wind turbines, control buildings and substations as well as for road upgrades, dust suppression during construction and in case of fire.	• Ensure the development has adequate water supplies for the project and that it obtains any necessary licences under

Findings	Recommendations
• CWP is proposing to source the water required for construction from sources licensed under the *Water Management Act* 2000, including existing onsite dams or groundwater purchased from associated or adjacent landowners. • CWP are proposing to source the water required for operation from on-site rainwater tanks or delivery to site as potable water. Groundwater would not be used during the operation of the project. • The Department, including DPIE Water Group, are satisfied that the project's water use is unlikely to have any significant impact on water supply and demand in the region. However, DPIE Water noted that any water sourced for the project is required to be appropriately licensed.	the *Water Act 1912* or *Water Management Act 2000*.
Riparian areas and erosion risk	
• The Cudgegong River runs north/south to the east of the project site, with several smaller tributaries running through the site, including Uungula Creek, Bourkes Creek, Mitchell Creek, Ben Buckley Creek, Oxleys Creek, Bulls Gully and Ilgingery Creek. • Lake Burrendong is about 800 m to the south of the site at its closest point. • Most waterways within the site, including Ilgingery Creek and Uungula Creek are ephemeral and only have surface flows after heavy rainfall events in the catchment area. • There are two fourth order streams within the development footprint, Mitchell and Ilgingery Creeks. A 40 m riparian buffer has been applied to both. • The project involves a number of water crossings for internal access roads and cabling. • Neither the EPA nor DPIE Water have raised concerns about the site's erosion potential, and the Department considers that with the implementation of best practice control measures, any risks can be adequately managed. The Department also notes that it is a strict liability offence to pollute any waters off the site under the *Protection of the Environment Operations Act 1997*.	• Comply with Section 120 of the *Protection of the Environment Operations Act 1997*; • Minimise erosion and control sediment generation; and • Undertake activities in accordance with applicable guidelines including OEH's *Managing Urban Stormwater: Soils and Construction Volumes 1 and 2C,* and DPI's *Water Guidelines for Controlled Activities on Waterfront Land.*
Bushfire safety	
• Some submissions raised concerns about the impacts of the project on bush fire management. • The development site is mapped as bushfire prone land in Dubbo Regional bush fire prone land map. CWP would be required to: - establish 10m Asset Protection Zone (APZ) around each wind turbine generators (WTG) and wind monitoring masts, and the compound for the operation and maintenance facilities including battery energy storage and substations; - 20 m APZ be incorporated into the final design layout if battery-based storage technology is proposed. • CWP would also be required to comply with the RFS's *Planning for Bushfire Protection (2019)* and prepare an Emergency Response Plan to manage the fire risk.	• Ensure that the development complies with relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2019* (or equivalent) for Asset Protection Zones; • Ensure the development is suitably equipped to response to fires on site, including the provision of a 40,000 litre water supply; and

Findings	Recommendations
• CWP has committed to a number of mitigation measures and strategies, including the preparation of a Emergency Management Plan. • The Department, RFS and FRNSW are satisfied that the bushfire risks can be suitably controlled through the implementation of standard fire management plans and procedures.	• Prepare and implement an Emergency Response Plan.
Blasting and vibration	
• The blast assessment concluded that if blasts were required during construction, the project would comply with the applicable amenity and structural damage criteria at all surrounding private residential receivers. • Furthermore, the assessment concluded that the project would not pose a perceptible source of vibration impacts during construction.	• To appropriately manage any blasting activities and vibration from the project, the Department has recommended conditions requiring CWP to: - manage blasting operations to comply with the criteria in the *Australian and New Zealand Environment Council Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration* at any residence on privately-owned land; and • Only carry out blasting on site between 9 am and 5 pm Monday to Friday and between 9 am and 1pm on Saturday, in accordance with the blasting guidelines.
Subdivision	
• CWP require freehold title to substation lots in order to proceed with the construction of substations, including all relevant electrical components and infrastructure. • As TransGrid has not finalised the preferred connection configuration, CWP has proposed three potential subdivisions on the basis that any or all three proposed substations would be constructed. The three subdivision options are as follows: - Option 1: Lot 2 DP 586633 (563 ha) subdivided into two new lots: 3.52 ha for the substation, with 559.48 ha residual lot - Option 2: Lot 120 DP 754290 (337 ha) subdivided into two lots: 2.25 ha for the substation, 334.75 residual lot; and	• Subdivide the proposed lots in accordance with requirements of the EP&A Act, EP&A Regulation, *Conveyancing Act 1919* (NSW) and the NSW Land Registration Services or its successor).

Findings	Recommendations
- Option 3: Lot 80 DP 750778 (16 ha) subdivided into two lots: 2.25 ha for the substation, 13.75 ha residual lot. • Five of the six subdivided lots are prohibited under a strict reading of the Wellington LEP as they would not meet the minimum lot size for land use zoned RU1 – Primary Production (400 ha). • Notwithstanding, development consent for the project as a whole can be granted despite the subdivision of the application being prohibited by the LEP (under section 4.38(3) of the EP&A Act). • CWP proposed to further subdivide the project to allow for the registration of long-term leases over the relevant areas of the project site for the wind turbines and permanent ancillary infrastructure. • The leased areas will be circular in shape to accommodate dimensions of the wind turbines, as well as for the proposed transmission line to connect the existing transmission network. • The Department considers that the subdivision be approved as part of the project as the subdivisions are: - necessary for the ongoing operation of the wind far as they are required for the transfer of the substation to TransGrid; - would not result in the addition on any dwelling entitlements on the subdivided land; - consistent with the key objectives of the RU1 zone as it would encourage diversity in primary industry enterprises and minimise conflict between land uses; - for the purposes of long-term leases, are necessary for the operation of the wind farm as they are required to register the leases with the Office of the Registrar-General; and - the long term leases would be administrative in nature and does not result in any additional environmental impacts. • The Department is satisfied that the proposed subdivisions are in the public interest, as they would allow the wind farm to be development and consequently provide net benefits to the National Electricity Market that can be realised in a timely manner.	
Decommissioning and rehabilitation	
• The Department has developed standard conditions for wind farms to cover this stage of the project life cycle, including clear decommissioning triggers and rehabilitation objectives. • Additionally, the Department has provided guidance on how host landowner agreements should consider refurbishment, decommissioning and rehabilitation in the *NSW Wind Energy Framework's Negotiated Agreement Advice Sheet*. • With the implementation of these measures, the Department considers that project infrastructure would be suitably decommissioned, either at the end of the project life or if the project is not operating for more than a year, and the site appropriately rehabilitated to a standard that would allow the ongoing productive use of the land.	• To ensure that redundant infrastructure is removed, and the areas rehabilitated appropriately, the Department has recommended conditions requiring CWP to: - decommission wind turbines (and associated infrastructure) within 18 months of the cessation of operations; - progressively rehabilitate the site, and minimise the total disturbance area exposed at any time; and

Findings	Recommendations
	- comply with a number of rehabilitation objectives, including removing redundant above-ground infrastructure, restoring rural land capability and vegetation, ensuring public safety and ensuring the site is maintained in a safe, stable and non-polluting condition.

6 Recommended Conditions

The Department has prepared recommended conditions of consent for the project (see Appendix G).

The Department consulted with CWP and the relevant agencies on the conditions for the project, particularly Council and TfNSW in regard to the road upgrades and maintenance requirements, and BCS to determine the appropriate biodiversity offset requirements for the project.

These conditions are required to:

- prevent, minimise, and/or offset adverse impacts of the project;
- ensure standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The recommended conditions use a risk-based approach that focuses on performance-based outcomes. This reflects current government policy and the fact that wind farms require relatively limited ongoing environmental management once the project has commenced operations.

In line with this approach, the Department has:

- set strict criteria for noise and shadow flicker;
- set strict limits on the clearing of critically endangered ecological communities;
- recommended operating conditions to minimise noise, traffic, biodiversity, air quality and water impacts, and consolidated the number of management plans be prepared and implemented:
    - Traffic Management Plan;
    - Biodiversity Management Plan;
    - Bird and Bat Adaptive Management Plan;
    - Heritage Management Plan; and
    - Emergency Plan.

The recommended conditions also require CWP to provide detailed final layout plans to the Department prior to construction.

Other key recommended conditions include:

- *roads* – requiring relevant road upgrades are undertaken prior to the commencement of construction;
- *biodiversity offsets* – retiring biodiversity offset credits in accordance with the NSW Biodiversity Offsets Scheme;
- *operating hours* – undertaking construction, upgrading or decommissioning activities on-site during standard construction hours, unless these activities that are inaudible at non-associated receivers;
- *roads* – requiring relevant road upgrades are undertaken prior to the commencement of construction, and maintenance and repair of any damage during construction, upgrades or decommissioning activities; and
- *fire* – ensure that the development complies with the relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2019*.

7 Evaluation

The Department has assessed the development application, EIS, submissions, Submissions Report, Amendment Report and additional information provided by CWP and advice received from relevant government agencies including Council. The Department has also considered the objectives and relevant considerations under Section 4.15 of the EP&A Act.

The Department has carefully considered the residual potential impacts of the project on the site and surrounds in its assessment, and has concluded that the impacts of the project on the environment and the community could be adequately minimised, managed, or at least compensated for, to an acceptable standard, and the project can be carried out in a manner that is consistent with the principles of ecologically sustainable development (ESD).

The project is located in a rural area with 10 non-associated residences located within 5 km of a turbine, of which five are within 3.35 km (and the closest 2.26 km) and five are between 3.35 km and 5 km of a turbine.

The site has access to the State road network via Twelve Mile Road, Goolma Road and Mitchell Highway. The project would connect to the electricity network via the existing 330 kV transmission line which traverses the northern part of the site.

The Department considers the site to be appropriate for a wind farm as it has good wind resources and available capacity on the existing electricity network.

The project has also been designed to largely avoid key constraints, including remnant native vegetation of good condition and Aboriginal heritage items of high cultural value. Any residual impacts would be relatively minor and managed through the recommended conditions of consent.

The project would not result in a reduction in the long-term use of the land for agricultural purposes and it encourages the proper development of natural resources. The project is able to be undertaken in a manner that would improve or at least maintain the biodiversity values of the locality over the medium to long term, and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.

Importantly, the project would assist in transitioning the electricity sector from coal and gas-fired power stations to low emissions sources. It would generate over 883,000 MWh of clean electricity annually, which is enough to power over 149,000 homes and save over 847,000 tonnes of greenhouse gas emissions per year. It is therefore consistent with the goals of the *NSW Climate Change Policy Framework* and *Net Zero Plan Stage 1: 2020 – 2030*.

The project is also located in an area that could contribute to the Renewable Energy Zone in the Central West and Orana region, as identified in the NSW Government's *Electricity Strategy*, with access to the electricity grid at a location with available network capacity.

To address the residual impacts of the project, the Department has recommended detailed conditions to ensure these impacts are effectively minimised and/or offset. These conditions use a risk-based approach that focuses on performance-based outcomes. This reflects current government policy, and the fact that wind farms require relatively limited ongoing environmental management once the turbines have been commissioned.

Notwithstanding some community opposition from local landowners and special interest groups, the project offers several benefits for the wider community, and would facilitate the development of the

state's renewable energy resources, and is consistent with the NSW Government's vision for a secure, reliable, affordable and clean energy future for the state.

The Department considers that the project achieves an appropriate balance between maximising the efficiency of the wind resource development and minimising the potential impacts on surrounding land users and the environment. The project would also stimulate economic investment in renewable energy and provide flow-on benefits to the local community, including 250 construction jobs, 12 operation jobs and a capital investment of $820 million, and up to $321,000 a year (plus CPI) through CWP's proposed community funding contributions.

Given these benefits can be achieved without causing any significant adverse impacts, the Department considers that the project is in the public interest and should be approved, subject to the recommended conditions of consent.

8 Recommendation

It is recommended that the Deputy Secretary, Assessment and System Performance, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **accepts** and **adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants** consent to the application in respect of the Uungula Wind Farm (SSD 6687); and
- **signs** the attached development consent and recommended conditions of consent (see **Appendix G**).

Prepared by:

Iwan Davies, Team Leader
Natasha Homsey, Senior Environmental Assessment Officer

Recommended by:

26 April 2021

Iwan Davies
Team Leader
Energy Assessments

26 April 2021

Nicole Brewer
Director
Energy Assessments

9 Determination

The recommendation is **Adopted** by:

7 May 2021

Chris Ritchie
A/Executive Director
Energy, Industry and Compliance

Appendices

Appendix A – List of referenced documents

Uungula Wind Farm – Environmental Impact Statement, CWP (May 2020)

Uungula Wind Farm – Submissions Report, CWP (November 2020)

Uungula Wind Farm – Amendment Report, CWP (November 2020)

Uungula Wind Farm – Response to Request for information received from CWP (January, March, April and May 2021)

Appendix B – Environmental Impact Statement

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix C – Submissions

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix D – Submissions Report

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix E – Amendment Report

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix F – Additional Information

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix G – Recommended Conditions of Consent

See the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9431

Appendix H – Statutory Considerations

In line with the requirements of Section 4.15 of the EP&A Act, the Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include:

- the objects found in Section 1.3 of the EP&A Act; and
- the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

The Department has considered all of these matters in its assessment of the project and has provided a summary of this assessment below.

Aspect	Summary
Objects of the EP&A Act	The objects of most relevance to the Minister's decision on whether or not to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act. The Department is satisfied that the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 1.3(c)), as the project: • is a permissible land use on the subject land; • is located in a logical location for efficient wind energy development; • is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard; • would contribute to a more diverse local industry, thereby supporting the local economy and community; • would not fragment or alienate resource lands in the LGA; • is consistent with the goals of the *Net Zero Plan Stage 1: 2020 - 2030* and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions. The Department has considered the encouragement of ESD (Object 1.3(b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. In addition, the Department considers that appropriately designed SSD wind development, in itself, is consistent with many of the principles of ESD. CWP has also considered the project against the principles of ESD. Following its consideration, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD. Consideration of the protection of the environment, including conservation of threatened and other species of native animals, plants and their habitats (Object 1.3(e)) is provided in **Section 5.3** of this report. Following its consideration, the Department considers the project is able to be undertaken in a manner that would improve or at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality.

	Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in **Section 5.5** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality.
State Significant Development	Under Section 4.36 of the EP&A Act and the *State Environmental Planning Policy (SEPP) (State & Regional Development) 2011* the project is considered a State significant development. The Minister for Planning is the consent authority for the development. However, under the Minister's delegation of 26 April 2021, the Executive Director, Energy, Industry and Compliance, may determine the project.
Environmental Planning Instruments	The *Wellington Local Environmental Plan 2012* applies and is discussed in **sections 3.2** and **5.5** of this report, particularly regarding permissibility, land use zoning, flooding, heritage, bushfire and subdivision. The project is permissible under the Infrastructure SEPP. In accordance with the Infrastructure SEPP, the Department has given written notice of the project to TfNSW, TransGrid and the Director of the Siding Springs Observatory. The Department has considered the provisions of the *SEPP (Primary Production and Rural Development) 2019.* Of relevance to the project, the SEPP aims to facilitate the orderly economic use and development of lands for primary production, to reduce land use conflict and sterilisation of rural land and to identify State significant agricultural land. While the location of State significant agricultural land has not been finalised, the Department has considered all these matters in **section 5.5** of this report. The Department has considered the provisions of *SEPP No. 55 – Remediation of Land*. A preliminary assessment of the land found no contaminated land within the project site, and the Department is satisfied the site is suitable for the development. *Dubbo Regional Council* is not listed under *SEPP (Koala Habitat Protection) 2021*. Uungula Wind Farm's assessment concluded that a portion of the vegetation within the site is considered potential Koala habitat and the biodiversity offset liability has been calculated accordingly.

Appendix I – Consideration of Commonwealth Matters

In accordance with the accredited assessment process under section 87 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the Department provides the following additional information required by the Commonwealth Minister, in deciding whether to approve a proposal under the EPBC Act.

The Department's assessment has been prepared based on the assessment contained in the Uungula Wind Farm Environmental Impact Statement (EIS), Submissions Report, Amendment Report and additional information provided during the assessment process, public submissions, and advice provided by the Department's Biodiversity Conservation Directorate (BCS), other NSW government agencies and the Commonwealth Department of Agriculture, Water and Environment (DAWE).

This Appendix is supplementary to, and should be read in conjunction with, the assessment included in **section 5.3** of this assessment report which includes the Department's consideration of impacts to listed threatened species and communities, and mitigation and offsetting measures for threatened species and communities, including Matters of National Environmental Significance.

Identifying MNES

The Biodiversity Assessment Report for the Uungula Wind Farm has identified and addressed all the listed threatened species and communities which the decision on referral (EPBC 2013/7026) considered that the controlled action may, or is likely to, have an impact on. These entities include:

- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered.
- Regent Honeyeater (*Anthachaera phrygia*) – Endangered
- Swift Parrot (*Lathamus discolour*) – Endangered
- Superb Parrot (*Polytelis swainsonii*) – Vulnerable

The Department notes that both CWP and BCS concluded that there would not be a significant impact on the Box Gum Woodland, Regent Honeyeater, Swift Parrot or Superb Parrot, as discussed in Section 5.3 of this assessment report.

Nonetheless, further detailed consideration of the impact on these 3 threatened species or ecological communities is provided below.

CWP assessed the significance of the impacts on these species using the methodology outlined in the *Matters of National Environmental Significance Significant Impact Guidelines 1.1 (2013)* as documented in Appendix H of the EIS and Appendix B of the Amendment Report.

DAWE determined that other matters under the EPBC Act are not controlling provisions with respect to the controlled action. These include listed World Heritage, National Heritage, migratory species, Ramsar wetlands, Commonwealth marine environment, Commonwealth land, Commonwealth action, nuclear action, Great Barrier Reef Marine Park, Commonwealth Heritage places, overseas and a water resource, in relation to coal seam gas development and large coal mining development.

Impacts on EPBC Listed Species and Communities

Impacts on threatened ecological communities

Two *Biodiversity Conservation Act 2016* (NSW) (BC Act) Threatened Ecological Communities (TEC) were identified as being present on site. These were Blakely's Red Gum – Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (CW112) and White Box – Rough-barked Apple alluvial

woodland on the NSW western slopes (CW211), which are consistent with the Critically Endangered Ecological Community (CEEC pursuant to the BC Act) known as White Box-Yellow Box-Blakley's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland).

The project would clear 14.15 ha Box Gum Woodland listed under the EPBC Act. The Department notes that the impacts on Box Gum Woodland may be reduced through detailed design and that CWP intends to secure land-based offsets to fulfill the biodiversity credit liability.

Further detailed consideration of the impact on this threatened ecological community, including proposed mitigation, management and offsetting requirements, is considered in section 5.3 of this report.

Threatened species assessment of significance

The Department has considered the impacts on the three EPBC listed species identified in the referral advice.

Regent Honeyeater

The Department has considered the approved conservation advice and national recovery plan under the EPBC Act for the Regent Honeyeater in assessing the impacts of the project, and notes that the main threats and causes for decline in Regent Honeyeater population are clearing, fragmentation and degradation of its habitat, and competition from Noisy Miners and introduced honeybees.

The national recovery plan includes a number of objectives, recommendations and actions relevant to the project, including maintaining and enhancing the value of Regent Honeyeater habitat and monitoring trends in Regent Honeyeater population size and dispersion.

CWP's ecological assessments concluded that the project would not have a significant impact on the species, as the project site contains foraging habitat but does not support known or good quality breeding habitat for the Regent Honeyeater, as indicated by the habitat assessments undertaken on site and the lack of records of the species within the project area. This was also confirmed in an expert report provided by CWP at BCS' request, which concluded that Regent Honeyeater could potentially use the site for foraging but is unlikely to use the site for breeding.

CWP has calculated Regent Honeyeater species credits to account for impacts on 143ha on foraging habitat. Vegetation of importance to Regent Honeyeater that is to be impacted is typical of the locality and extends beyond the study site.

As such, the Department considers that with the proposed site mitigation and potential land-based offsets, the project would not be inconsistent with the objectives of the national recovery plan. The Department has recommended conditions to formalise these measures

Requirements for Decisions about Threatened Species and Communities

In accordance with Section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of Section 18 or 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved conservation advices.

Australia's International Obligations

Australia's obligations under *the Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access

to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding.

The recommendations of this assessment report are consistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended development consent requires avoidance, mitigation and management measures for listed threatened species, and all information related to the project is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Approved Conservation Advice and National Recovery Plans

The approved conservation advice and national recovery plans relevant to this project are discussed below and are available at http://www.environment.gov.au/cgi-bin/sprat/public/conservationadvice.pl.

Approved conservation advice under the EPBC Act for threatened species that would potentially be significantly impacted are available for the Regent Honeyeater and Swift Parrot.

Approved national recovery plans under the EPBC Act for threatened species that would potentially be significantly impacted are available for Box Gum Woodland, the Regent Honeyeater and Swift Parrot.

CWP considered relevant approved conservation advice and recovery plans in its assessment of impacts on MNES.

Threat Abatement Plans

The Threat Abatement Plans relevant to this project are discussed below and are available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved

Threat Abatement Plan for disease in natural ecosystems caused by **Phytophthora cinnamomi (relevant to Box Gum Woodland)**

Phythophthora cinnamomi (P. cinnamomi) is a microscopic soil-borne organism (i.e. pathogen) that has the ability to cause plant disease and death by interfering with the movement of water and nutrients to plants. It can be spread in water, soil or plant material that contains the pathogen, and dispersal is favoured by moist or wet conditions. It can be carried in both overland and subsurface water flow and by water moving infested soil or organic material. Native and feral animals have been implicated in spreading P. cinnamomi, particularly where there are digging behaviours (e.g. pigs, rabbits). Humans, however, have the capacity to disturb and transport more soil than any other vector.

Box Gum Woodland is identified as an ecological community that may be affected by P. cinnamomi.

That Department notes that construction related activities have the potential to introduce or spread the pathogen through the movement of vehicles, the use of construction equipment/tools for undertaking excavation work, footwear and the introduction of infected soil or building materials to uninfected areas.

The threat abatement plan for managing the impacts of P. cinnamomi identifies actions to minimise its spread to uninfected sites and mitigate impacts at infected sites.

Threat Abatement Plan for predation, habitat degradation, competition and disease transmission **by feral pigs (relevant to Box Gum Woodland)**

Feral pigs impact on native flora and fauna due to their presence, movement, rooting, wallowing, trampling, consumption of water, animals, plants and soil organisms. Direct impacts from feral pigs include predation, habitat loss and degradation, competition and disease transmission, which can impact on native flora and fauna.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for threats from feral pigs

Threat Abatement Plan for competition and land degradation by rabbits (relevant to **Box Gum Woodland and Regent Honeyeater)**

Rabbits have direct impacts on native flora and fauna by grazing on native vegetation and preventing regeneration, and by competing with native fauna for habitat and food. Rabbits also have indirect and secondary impacts, such as supporting populations of introduced predators by providing a food source, and denuding vegetation exposing fauna species to increased predation. Their behaviour, including digging and browsing, also leads to a loss of vegetation cover and consequent slope instability and soil erosion, which further degrades fauna habitat.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for threats from rabbits.

Threat Abatement Plan for competition and land degradation by unmanaged goats (relevant to **Box Gum Woodland and Superb Parrot)**

Goats affect native flora by grazing on native vegetation and can result in overgrazing. Grazing by goats can prevent regeneration of native flora, cause erosion through overgrazing, foul waterholes and introduce weeds, through ingestion of seeds, which they can deposit in their dung. Goats also compete with native animals for food and shelter.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for threats from unmanaged goats.

Threat Abatement Plan for predation by feral cats (relevant to **Swift Parrot)**

Feral cats are significant predators in Australia that interact with native fauna in various ways, including predation, competition for resources and transmission of disease.

Measures to control feral animals are recommended in the conditions which would be implemented as part of the Biodiversity Management Plan and/or biodiversity stewardship agreements for the site and offset areas.

Therefore, the Department considers the approval of the project would not be inconsistent with the threat abatement plan for predation by feral cats.

Additional EPBC Act Considerations

Table J1 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act additional to hose already discussed.

Table I1 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory Considerations		
136(1)(b)	Social and economic matters are discussed in section 2.1 and 5.5 of this report.	The project would provide benefits for the local and regional economy and is of public benefit. Up to 250 workers would be required during the construction period and CWP has committed to source workers from the local community where possible, and would provide for 12 jobs during operation of the project. Impacts on the local community would mostly occur during the construction period, which has been considered in the assessment report. The recommended conditions require CWP to implement road upgrades, manage traffic movements along the transport route, and minimise potential amenity impacts including noise, dust and visual by maintaining a setback distance to the nearest receiver. Furthermore, CWP has committed to enter into a VPA with Council amounting to $3,309 per annum per turbine, equating to up to $320,973 per annum (indexed by CPI annually), a portion of which would be used to fund community enhancement projects.
Factors to be taken into account		
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular: • the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; • conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project; • conditions requiring the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in	The Department considers that the project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act section	Considerations	Conclusion
	relation to all of the controlling provisions for this project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the Applicant to mitigate the environmental impacts of the project.	
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account in its assessment.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity.
Consideration on deciding conditions		
134(4)	Must consider: • Information provided by the person proposing to take the action or by the designated Applicant of the action; and • The desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	All project related documentation is available from the Department's website www.planningportal.nsw.gov.au The Department considers that the conditions at Appendix I are a cost effective means of achieving their purpose. The conditions are based on material provided by the Applicant that was prepared in consultation with the Department, BCS and other government agencies.

Conclusions on Controlling Provisions

For the reasons set out in **section 5.3** of this report and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to the avoidance and mitigation measures described in the EIS, Amendment Report and the recommended conditions of consent in **Appendix G**.