



Willogoleche Stage 2 Wind Farm

Environmental Impact Report

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Willogoleche Stage 2 Wind Farm

Environmental Impact Report

0698170



Jenny Luk

Partner

Environmental Resources Management

Australia Pty Ltd

Level 14, 207 Kent Street

Sydney NSW 2000

T +61 2 8584 8888

F +61 2 9299 7502

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
AAR	Aboriginal Affairs and Reconciliation (SA Attorney-General's Department)
ABN	Australian Business Number
ACMA	Australian Communications and Media Authority
ACN	Australian Company Number
AEMO	Australian Energy Market Operator
AEQ4	PlanSA Assessment Requirements Library – AEQ4 Visual Amenity, Landscape and Open Space
AEP	Annual Exceedance Probability
AH Act	<i>Aboriginal Heritage Act 1988 (SA)</i>
AHD	Australian Height Datum
AIA	Aviation Impact Assessment
AIP	Aeronautical Information Publication (Airservices Australia)
ALARP	As Low As Reasonably Practicable
AMSL	Above Mean Sea Level
ARIF	Australian Renewable Income Fund
ARR2019	Australian Rainfall and Runoff (2019 edition)
ATC	Air Traffic Control
BAM	Bushland Assessment Method (Native Vegetation Council)
BESS	Battery Energy Storage System
BBUS	Bird and Bat Utilisation Surveys
BoM	Bureau of Meteorology
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations
CEMP	Construction Environmental Management Plan
CFS	South Australian Country Fire Service
CHMP	Cultural Heritage Management Plan
CNS	Communications, Navigation and Surveillance (aviation)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEM	Department for Energy and Mining (SA)
DEW	Department for Environment and Water (SA)
DIT	Department for Infrastructure and Transport (SA)
DHUD	Department for Housing and Urban Development (SA)
EP Act	<i>Environment Protection Act 1993 (SA)</i>

Acronym	Description
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EIR	Environmental Impact Report
EMI	Electromagnetic Interference
ER Act	<i>Energy Resources Act 2000</i> (SA)
ERM	Environmental Resources Management Australia Pty Ltd
ERSA	En Route Supplement Australia
ESCP	Erosion and Sediment Control Plan
FRMP	Fire Risk Management Plan
FRWL	Flinders Ranges Worm-lizard
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3rd Edition
GNSS	Global Navigation Satellite System
HIS	Heritage Impact Statement
HRE Act	<i>Hydrogen and Renewable Energy Act 2023</i> (SA)
HRE Regulations	<i>Hydrogen and Renewable Energy Regulations 2024</i> (SA)
HVNL	Heavy Vehicle National Law (South Australia)
IAIA	International Association for Impact Assessment
INTG	Iron-grass Natural Temperate Grassland of South Australia (EPBC-listed ecological community)
ISP	Integrated System Plan (AEMO)
LA90	A-weighted sound level exceeded 90% of the period
LAeq	A-weighted equivalent continuous sound level
Leq	Equivalent continuous sound level
LSALT	Lowest Safe Altitude (aviation)
LSA Act	<i>Landscape South Australia Act 2019</i> (SA)
MNES	Matters of National Environmental Significance (EPBC Act)
MOS Part 139	CASA Manual of Standards Part 139 – Aerodromes
MW / MWh	Megawatt / Megawatt-hour
NASF	National Airports Safeguarding Framework
NIA	Noise Impact Assessment
NHVR	National Heavy Vehicle Regulator
NOTAM	Notice to Air Missions (operational aviation notice)
NPW Act	<i>National Parks and Wildlife Act 1972</i> (SA)
NV Act	<i>Native Vegetation Act 1991</i> (SA)
NVC	Native Vegetation Council

Acronym	Description
O&M	Operations and Maintenance
OMP	Operational Management Plan
OPERA/EUMETNET	Operational Programme for the Exchange of Weather Radar Information / European Meteorological Services Network standards
OLS	Obstacle Limitation Surfaces (aviation)
OSOM	Oversize Overmass (vehicle movements)
OTL	Overhead Transmission Line
PBTL	Pygmy Blue-tongue Lizard
PCS	Power Conversion System (BESS)
PDI Act	<i>Planning, Development and Infrastructure Act 2016 (SA)</i>
PIRSA	Primary Industries and Regions SA
PMF	Probable Maximum Flood
REIL	Renewable Energy Infrastructure Licence
RNE	Register of the National Estate (non-legislated)
RoG	Rain-on-Grid (hydrologic/hydraulic modelling approach)
SA EPA	South Australian Environment Protection Authority
SARIG	South Australian Resource Information Gateway
SANTS	South Australian Native Title Services
SCADA	Supervisory Control and Data Acquisition
SEO	Statement of Environmental Objectives
SPPs	State Planning Policies (SA)
SSP5-8.5	Shared Socioeconomic Pathway 5 – high emissions scenario (IPCC)
The Applicant	Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust (subsidiary of ENGIE)
The Project	Willogoleche Stage 2 Wind Farm
TIA	Traffic Impact Assessment
OTL	Overhead Transmission Line
TMP	Traffic Management Plan
TUFLOW	Two-dimensional unsteady flow hydraulic modelling software
VIA	Visual Impact Assessment
WHO	World Health Organization
WMO	World Meteorological Organization
WWF	Willogoleche Wind Farm (Stage 1)
WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

EXECUTIVE SUMMARY

Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust (the Applicant), a subsidiary of ENGIE, is proposing to develop the Willogoleche Stage 2 Wind Farm (the Project) in the mid-north of South Australia, approximately 6 kilometres (km) north-west of Hallett and 200 km north-east of Adelaide.

The proposed Project proposes an installed wind energy capacity range of 110-160 MW and includes:

- Up to 20 wind turbine generators (WTGs);
- A 200 MW / 800-megawatt hour (MWh) Battery Energy Storage System (BESS);
- A 14.6 km overhead transmission line (OTL) corridor connecting the wind farm to the Willalo Substation;
- Temporary and permanent meteorological masts;
- A switchyard and substation;
- Access tracks; and
- Associated onsite support facilities and ancillary infrastructure.

With an estimated capital investment of AUD \$360 million, the Project will deliver economic benefits to the local community and the State, and will contribute to South Australia's renewable energy targets.

The Applicant is seeking a Renewable Energy Infrastructure Licence (REIL) under the *Hydrogen and Renewable Energy Act 2023* (HRE Act). A REIL application was submitted to the Department for Energy and Mining (DEM) on 5 February 2025 (REILA 3).

This draft Environmental Impact Report (EIR) has been prepared in accordance with the statutory requirements of the HRE Act, including the *Environmental Impact Assessment Criteria* (gazetted 31 October 2024) and DEM's associated guidelines (issued July 2024). The primary objective of this draft EIR is to assess the predicted environmental impacts associated with the construction, operation and decommissioning of the Project, and to develop a Statement of Environmental Objectives (SEO) to support the avoidance, mitigation and management of the identified potential impacts. The draft EIR and SEO has supported targeted consultation with identified stakeholders, as set out in Regulation 33 of the *Hydrogen and Renewable Energy Regulation 2024* and has been updated to reflect the views of affected communities post-consultation.

Project Site and Locality

The Project is in the mid-north of South Australia, within the Regional Council of Goyder and the Northern and Yorke Landscape Management Region. The Project Area covers approximately 1,560 hectares (ha) across 26 parcels of land, including the wind farm site (about 1,550 ha), the BESS site (10 ha), and a 14.6 km OTL connecting the wind farm to the Willalo Substation. Land use in the area is predominantly agricultural, with grazing and cropping as the main activities. There are no conservation parks within 15 km of the Project Area, and sensitive receptors include 12 dwellings within 2 km of the wind farm site, nine of which are associated with the Project.

Description of the Existing Environment

Aboriginal and Historic Heritage

The Traditional Owners are the Ngadjuri people. No registered Aboriginal heritage sites are within the Project Area, although predictive modelling indicates low to moderate archaeological sensitivity. The State-heritage listed Cappeedee Homestead and Woolshed are located within the Project Area.

Flora and Fauna

The Project Area supports eight vegetation associations, including patches of Iron-grass Natural Temperate Grassland (a critically endangered ecological community). Pygmy blue-tongue lizards have been recorded within the Project Area. A total of 129 flora species were recorded, including the state-listed, rare *Cryptandra campanulata*. Fauna surveys recorded 58 species, including four threatened bird species; the nationally vulnerable Southern Whiteface and state-listed Little Eagle, Peregrine Falcon and Black Falcon. No threatened bats were recorded. Weed species, including declared weeds and a Weed of National Significance, are present within the Project Area.

Air Quality and Climate

Air quality is generally good due to the rural setting, with temporary dust events during dry, windy periods. The climate is semi-arid Mediterranean, characterised by warm, dry summers and cool, occasionally wet winters.

Soils and Hydrogeology

Soils are predominantly shallow, stony, and erosion-prone, with key soil-landscape associations including Bald Hill Range and Hansen association. Groundwater levels range between nine to 21 meters (m) below ground level, with no significant contamination risks identified nearby.

Surface Water

The Project Area lies on a ridgeline dividing the River Murray and Broughton River catchments, with surface water runoff flowing in both directions. No permanent waterways are present within the wind farm site.

Aviation

The Project Area is within uncontrolled Class G airspace and a military training zone active during weekdays. There are no certified aerodromes within 30 nautical miles and no uncertified aerodromes within three nautical miles.

Environmental Impact Assessment Methodology

The assessment follows the *Environmental Impact Assessment Criteria* under the HRE Act. For each environmental aspect where potential impactful events may occur, mitigation and management measures are identified. Once potential impacts, and mitigation and management measures are understood, the impact magnitude is characterised by type, frequency, duration, extent, and severity, with sensitivity of the receiving environment also considered. Impact significance is assigned using a matrix combining magnitude and sensitivity, with significance classifications ranging from negligible to major.

Impact Assessment and Management Summary

Environmental Aspect	Potential impacts / Key mitigation and management measures	Significance assessment
Aboriginal heritage	Potential disturbance of unrecorded Aboriginal cultural heritage during construction. Mitigation includes ongoing consultation with Ngadjuri representatives, predictive modelling, archaeological surveys, cultural heritage management plans, and an Unexpected Finds Protocol.	Moderate
Historic Heritage	Potential impacts to the Cappeedee Homestead and Woolshed State-heritage sites are avoided by maintaining a 100-meter buffer, and implementing an Unexpected Finds Protocol.	Minor
Air quality	Dust emissions during construction are the primary concern, with impacts expected to be localised and temporary. Standard dust suppression measures and a CEMP will be implemented. Operational air quality impacts are negligible.	Negligible to minor
Aviation safety	Risks include physical obstruction, wake turbulence, and interference with emergency aviation operations. Mitigation involves regulatory notifications, marking and lighting of turbines and meteorological masts, emergency protocols, and ongoing stakeholder engagement.	Minor to moderate
Electromagnetic Interference	Potential interference with communication links, meteorological radar, mobile networks, and satellite services is assessed. Mitigation includes turbine siting to avoid critical zones, stakeholder consultation, and management plans for reported issues.	Minor
Flora and fauna	Native vegetation clearance will occur but is minimised through design and offset requirements under the Native Vegetation Act. Threatened flora and fauna are present but impacts are assessed as minor with appropriate management. Bird and bat collision risks are low. Weed spread will be controlled.	Minor
Landscape and Visual Amenity	The rural landscape features gentle undulations and agricultural land use. Visual impacts of turbines and infrastructure are assessed as minor to moderate, with mitigation including turbine colour selection, layout optimisation, vegetation screening, and lighting controls. Shadow flicker and blade glint are managed through design and monitoring.	Minor to moderate
Noise	Construction-phase noise is anticipated to result in short-term disturbance. Operational noise levels are expected to meet the requirements of the SA EPA Wind Farms Environmental Noise Guidelines, with overall impact assessed as minor. Noise limits are set in accordance with these guidelines, and ongoing noise monitoring and management measures will be implemented.	Minor (operation) to moderate (construction)
Social Impact	The project is expected to generate positive impacts such as employment and local business opportunities, alongside challenges including accommodation demand and service pressures. Community engagement is ongoing, with mitigation strategies including local	Moderate

Environmental Aspect	Potential impacts / Key mitigation and management measures	Significance assessment
	employment plans, workforce accommodation strategies, and a Community Benefit Fund.	
Surface Water	Flood modelling indicates localised and manageable changes to surface water flow paths and flood extents due to Project infrastructure. Design measures will avoid or mitigate impacts on flow paths.	Minor
Soils and Hydrogeology	Soil disturbance, erosion, and potential groundwater contamination risks are inherent but managed through a Construction Environmental Management Plan and best practice. No significant contamination is known nearby.	Negligible to minor
Traffic	Construction traffic will increase local road use, with management plans ensuring safety and minimising disruption. Operational traffic is minimal.	Minor

Environmental Objectives

The Draft EIR has informed the development of specific environmental objectives, assessment criteria, and leading performance criteria for relevant environmental aspects. These environmental objectives form the basis of the Draft Statement of Environmental Objectives.

Consultation

Stakeholder engagement undertaken to date has included Traditional Owners, local government, landowners, community groups, government agencies, and local businesses. Consultation methods include meetings, information sessions, correspondence, and newsletters. Key issues raised pertain to noise, visual impacts, biodiversity, traffic, accommodation, heritage, and community benefits. Engagement will continue throughout Project development, and a consultation summary report has been prepared to reflect the comments received during targeted consultation. A formal period of public consultation, to be undertaken by DEM in accordance with the HRE Act requirements, will occur during 2026.

Conclusion

The Draft EIR concludes that with the implementation of proposed mitigation measures and management plans, the environmental and social impacts of the Willogoleche Stage 2 Wind Farm project can be reduced to acceptable levels consistent with legislative requirements and community expectations.

1. INTRODUCTION

1.1 WILLOGOLECHE STAGE 2 WIND FARM

Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust (the Applicant), a subsidiary of ENGIE, is proposing to develop the Willogoleche Stage 2 Wind Farm (the Project) in the mid-north of South Australia, approximately 6 kilometres (km) north-west of Hallett and 200 km north-east of Adelaide.

The Project is an extension to the existing Willogoleche Wind Farm (WWF), also owned by ENGIE. The WWF was constructed in November 2019 and operates with 32 wind turbine generators with a capacity of 119 megawatts (MW).

The proposed Project will generate an installed wind energy capacity range of 110-160 MW and includes:

- Up to 20 wind turbine generators (WTGs);
- A 200 MW / 800-megawatt hour (MWh) Battery Energy Storage System (BESS);
- Temporary and permanent meteorological masts;
- A switchyard and substation;
- Access tracks; and
- Associated onsite support facilities and ancillary infrastructure.

Key Project elements are discussed in further detail in Section 3.

With an estimated capital investment of AUD \$360 million, the Project will contribute to South Australia's renewable energy targets and deliver economic benefits to the local community and the State. The Project will also contribute to the delivery of the Government of South Australia's aspiration to be a net 100 percent renewable energy generator.

The Applicant is seeking a Renewable Energy Infrastructure Licence (REIL) under the *Hydrogen and Renewable Energy Act 2023* (HRE Act). A REIL application was submitted to the Department for Energy and Mining (DEM) on 5 February 2025 (REILA 3).

This Environmental Impact Report (EIR) has been prepared in accordance with the statutory requirements of the HRE Act, including the *Environmental Impact Assessment Criteria* (gazetted 31 October 2024) and DEM's associated guidelines (issued July 2024). The primary objective of this EIR is to assess the predicted environmental impacts associated with the construction, operation and decommissioning of the Project as described in Sections 6 to 7.

A Statement of Environmental Objectives (SEO) (ERM, 2025a) has been developed in conjunction with this EIR, outlining the environmental objectives that the Applicant intends to achieve and the environmental criteria upon which the objectives are assessed.

1.2 THE APPLICANT

The Applicant for the Willogoleche Stage 2 Wind Farm is Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust, which is a subsidiary of International Power (Australia) Pty Ltd (ENGIE).

Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by ENGIE to support preparation of the REIL and associated documentation for the Project, under the HRE Act.

The Applicant and contact details are provided in Table 1-1 below.

TABLE 1-1 THE APPLICANT DETAILS

The Applicant details	
<i>Name of the Applicant</i>	Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust
<i>ACN</i>	663 709 813
<i>Applicant's Registered address</i>	Level 23, 2 Southbank Boulevard, Southbank, Naarm, VIC 3006
<i>Consultant's Contact Person</i>	Michael Guy, Associate Partner, ERM. E: michael.guy@erm.com
<i>Consultant's Registered address</i>	Level 2, 153 Flinders Street, Adelaide, SA 5000

1.2.1 ABOUT ENGIE

The ENGIE Group is a global player in low-carbon energy and services, supporting the transition towards a carbon-neutral economy, through reduced energy consumption and more sustainable solutions. Together with over 96,000 employees across 31 countries, the company is recognized as one of the world's leading Independent Power Producers, with an installed electricity production capacity of over 100 gigawatts (GW) worldwide.

The ENGIE ANZ Group comprises Australian subsidiaries of the ENGIE Group and other Australian entities, including International Power (Australia) Pty Ltd and Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust.

ENGIE Group has a strong record of delivering and operating renewable projects, with more than 42 GW of installed capacity worldwide. ENGIE Group constructs 4 GW of renewable generation each year. Unlike most developers, ENGIE's global business model is to develop, operate and own its renewable assets, meaning the company is heavily invested in a project's success throughout the project lifecycle. This model and international experience is being leveraged to deliver the Project. ENGIE Group's operating portfolio includes: 6.6 GW of onshore wind, 5.3 GW solar, 1.32 GW BESS, 20 GW hydropower; and the offshore wind portfolio of Ocean Winds, including 1.5 GW in operations and 1.9 GW in construction.

Notable ENGIE Group wind projects completed in the past five years include:

- Serra do Assuruá Wind (864 MW), Brazil;
- Red Sea Wind Energy (650 MW), Egypt;
- Umburanas Wind (360 MW), Brazil;
- Iron Star Wind (297.6 MW), USA; and
- Priddy Wind (300 MW), USA.

In Australia, ENGIE has a development portfolio of more than 3,000 MW of wind, solar and industrial-scale battery storage projects. ENGIE has worked locally in South Australia on a range of projects across energy industry sectors, including:

- Wind farms – Willogoleche Wind Farm with a generation capacity of 119 MW, along with Canunda Wind Farm with a generation capacity of 46 MW; and

- Power stations – Pelican Point Power Station with a generation capacity of up to 497 MW, and Synergen Power with a combined generation capacity of 396 MW.

ENGIE has a proven track-record of successful delivery of major projects within the energy sectors across Australia. ENGIE's portfolio also encompasses other renewable projects currently in development and construction including:

- Wind farms – The Plains Wind Farm (NSW, up to 1.5 GW) and Willatook (Vic, up to 350 MW);
- Solar farms – Goorambat East Solar Farm (Vic, 250 MW) under construction and Silverleaf Solar Farm (NSW, 120 MW); and
- Battery – Pelican Point (SA, 150 MW), Hazelwood (Vic, 150 MW), and The Plains Renewable Energy Park (NSW, up to 2 GW).

ENGIE owns and operates two wind farms in Australia (total 165 MW), and reached financial close for the 200 MW/400 MWh Pelican Point BESS in December 2025, and for the 250 MW Goorambat East solar farm in August 2025. The most recently completed project (June 2023) was Victoria's pioneering Hazelwood BESS, a 150 MW one hour battery.

The Australian Renewable Income Fund (ARIF), as a shareholder in the Project, is a dedicated renewable energy fund managed by Foresight Group. ARIF is an open-ended investment vehicle with total assets under management of \$1.7 billion, and is backed by a supportive and aligned institutional investor base. At present, ARIF comprises approximately 800 MW of operating assets and over 2 GW of development projects which comprises hydro, wind, solar and BESS technologies. The Project will sit alongside ARIF's other renewable energy assets, which have similarly been funded through a combination of equity from ARIF and project finance debt. As the investment manager of ARIF, Foresight has a strong track record in successfully raising capital for the deployment of renewable energy project across the National Electricity market and Wholesale Electricity Market over the past 20 years.

1.3 CONSULTATION PROCESS

A Consultation Plan was submitted to DEM on 22 December 2025 seeking endorsement to commence the targeted consultation with identified stakeholders. The Consultation Plan is intended to support the development of the Project EIR and the SEO – ensuring clear, respectful, and effective engagement with stakeholders.

The Consultation Plan has been prepared under the legislative requirements of the HRE Act and the *Hydrogen and Renewable Energy Regulations 2024* (HRE Regulations).

A Consultation Report has been prepared at Appendix A in accordance with Regulation 33(4) of the HRE Regulations and includes:

- the stakeholders who were consulted;
- the concerns or issues raised (if any); and
- the measures taken, or proposed, by the Applicant to address concerns.

A summary of the consultation undertaken since 2023 is provided in Section 9 of this EIR.

1.4 EIR SCOPE

The scope of this document is designed to satisfy the EIR requirements as outlined in Section 61 of the HRE Act and Regulation 32 of the HRE Regulations. This document:

- Describes the legislative and policy context (Section 2);
- Provides a description of the proposed Project (Section 3);
- Describes the location at which the Project is to be undertaken (Section 4);
- Describes the existing environmental features (Section 5);
- Outlines the environmental impact assessment methodology (Section 6);
- Describes the specific elements of the environment that can reasonably be expected to be affected by the Project (Section 6.2);
- Identifies and describes potential environmental impacts (Section 6.3);
- Proposes measures to avoid, mitigate or manage potential environmental impacts and evaluates the environmental significance of predicted impacts (Section 7); and
- Summarises stakeholder consultation (in accordance with the Consultation Plan approved by the DEM (Section 1.3, Section 9 and Appendix A).

2. LEGISLATIVE AND POLICY CONTEXT

2.1 HYDROGEN AND RENEWABLE ENERGY ACT 2023 (SA)

The HRE Act governs the full life cycle of *renewable energy infrastructure* in South Australia. The HRE Act is designed to facilitate the growth of renewable energy projects while ensuring environmental sustainability, public safety, and appropriate consultation with Aboriginal people and other impacted stakeholders.

Under the HRE Act, *renewable energy infrastructure* that *exploits* a renewable wind energy resource greater than 5 MW, including for the purposes of storage and transmission, is classified as a *regulated activity* and must be authorised via a license.

The Applicant is seeking a REIL for the Project under section 19 of the HRE Act.

Before a REIL can be granted the Project must undergo an environmental impact assessment with further details on the assessment process set out in the following sections.

2.1.1 ENVIRONMENTAL IMPACT REPORT

The EIR assesses the predicted impacts of the Project on the environment. It has been prepared in accordance with section 61 of the HRE Act and regulation 32 of the HRE Regulations, including an assessment of the authorised operations against the environmental impact assessment criteria.

Section 4(3) of the HRE Act defines the environment to include:

- Land, air, water (including both surface and underground water and sea water), organisms, ecosystems, flora, fauna and other features or elements of the natural environment;
- Buildings, structures and other forms of infrastructure, and cultural artefacts;
- Existing or permissible land use;
- Public health, safety or amenity;
- The heritage, aesthetic, Aboriginal, social and cultural values of an area; and
- The social or economic effects associated with regulated activities.

The Minister has set out the *Environmental Impact Assessment Criteria* (DEM, 2024) against which the environmental impacts of authorised operations are to be assessed.

Section 61 of the HRE Act requires an EIR in respect of proposed authorised operations to be prepared for the purpose of the approval of a SEO under section 62 of the HRE Act.

In accordance with section 61(2) of the HRE Act, an EIR must—

- Take into account the environment, cultural and other values as those matters are relevant to the assessment;
- Take into account risks inherent in the authorised operations to the health and safety of the public
- Contain sufficient information to make possible an informed assessment of the likely impact of the authorised operations on the environment;
- Include an assessment of the environmental impact of authorised operations to which the report applies against the environmental impact assessment criteria; and
- Be prepared in accordance with the requirements of the regulations.

Regulation 32 of the HRE Regulations further prescribes the scope of the EIR:

- A description of the authorised operations to be undertaken and the location at which the operations are to be undertaken;
- A description of the specific elements of the environment that can reasonably be expected to be affected by authorised operations, with particular reference to the environment and existing land uses;
- Data relating to biodiversity within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations;
- An assessment of the cultural and heritage values of Aboriginal and Torres Strait Islander persons and other persons within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations, and the public health and safety risks inherent in undertaking those operations (insofar as these matters are relevant in the particular circumstances);
- If relevant and required by the Minister—an assessment of the continuity of supply with respect to hydrogen; and
- Information on consultation that has occurred in accordance with the approved consultation plan, including specific details about relevant issues that have been raised and any response to those issues (but not including confidential information).

2.1.2 STATEMENT OF ENVIRONMENTAL OBJECTIVES

The EIR informs the SEO, and the Minister must not grant a licence unless an approved SEO is in force.

Under section 62 of the HRE act, an SEO must:

- Address the matters contained in the EIR; and
- Set out the following:
 - Environmental objectives that must be achieved in undertaking authorised operations to which the statement will apply;
 - Leading performance criteria; and
 - Immediately reportable incidents and reportable incidents (both within the meaning of section 47, HRE Act).
- Include, as an objective, the rehabilitation of land adversely affected by authorised operations; and
- Contain any other information prescribed by the regulations, which includes:
 - Identification of events that could cause reportable incidents if not properly managed;
 - Control strategies for managing environmental consequences;
 - Assumptions made, their sensitivity to change, and associated risks;
 - Limitations and uncertainties in the information provided; and
 - Compliance with Ministerial requirements for format and supporting evidence.

The SEO is a binding condition of the REIL licence. Licensees must comply with the approved SEO throughout the duration of authorised operations.

2.1.3 RELEVANT AUTHORITY

The Project will be assessed by the DEM in accordance with the HRE Act and HRE Regulations.

This assessment includes evaluation against the *Environmental Impact Assessment Criteria* (DEM, 2024), as determined by the Minister under section 60 of the HRE Act. Details of the Project's assessment against these criteria are provided in this report (refer to Sections 7 to 10).

The Relevant Authority for Approval of the EIR/SEO/REIL will be the South Australian Minister for Energy and Mining (the Minister).

2.1.4 REFERRAL BODIES

The Project is likely to be referred to the following referral bodies for comment under section 73 of the HRE Act and regulation 40 of the HRE Regulations as part of the EIR/SEO approval process:

Referral Body	Purpose
Department for Energy and Mining (DEM)	- Proposed regulated activities overlapping a licence administered under the <i>Energy Resources Act 2000</i>; - Proposed regulated activities overlapping a licence administered under the <i>Mining Act 1971</i>.
Attorney Generals Department – Aboriginal Affairs and Reconciliation (AAR)	All proposed regulated activities that have the potential to damage, disturb or interfere with an Aboriginal site, object or remains.
Department for Environment and Water (DEW)	- Proposed regulated activities within any of the following Planning and Design Code Overlays: State Heritage Place, State Heritage Area and/or Heritage Adjacency; - Proposed regulated activities that interact with the <i>Landscape South Australia Act 2019</i>.
Technical Regulator (DEM)	Proposed regulated activities requiring a licence and/or Safety, Reliability, Maintenance and Technical Management Plan (SRMTMP) under the <i>Electricity Act 1996</i>.
South Australian Environment Protection Authority (SA EPA)	Prescribed activities of environmental significance under the <i>Environment Protection Act 1993</i>.
Department for Housing and Urban Development (DHUD)	Proposed regulated activities that interact with the <i>Planning, Development and Infrastructure Act 2016</i>.
Commissioner of Highways	Proposed regulated activities within any of the following Planning and Design Code Overlays: Future Road Widening, Key Outback and Rural Routes, Major Urban Transport Routes, Non-Stop Corridors, Traffic Generating Development, Urban Transport Routes, Tunnel Protection.
Northern and Yorke Landscape Board	Proposed regulated activities within Northern and Yorke landscape management region or those with the potential to impact the region due to ancillary activities.
Native Vegetation Council (NVC)	Proposed regulated activities involving clearance of native vegetation, as defined under the <i>Native Vegetation Act 1991</i> and where that Act applies.

Further referrals may be determined by the DEM, where required under relevant legislation or policy.

2.2 OTHER KEY SA LEGISLATION AND POLICIES

A range of other legislation is relevant to the operation of the Project, including the legislation outlined in Table 2-1 and policies in Table 2-2.

TABLE 2-1 OTHER KEY LEGISLATION

Legislation	Description
<i>Aboriginal Heritage Act 1988</i> (AH Act)	The <i>Aboriginal Heritage Act 1988</i> provides protection for all Aboriginal cultural heritage within South Australia including from the impacts of excavation, damage, disturbance or interference.
<i>Native Vegetation Act 1991</i> (NV Act)	The <i>Native Vegetation Act 1991</i> safeguards native vegetation in South Australia and establishes a procedure for applying to clear vegetation when necessary. The NV Act ensures the protection of areas with high conservation value and mandates a comprehensive assessment process for clearances based on risk.
<i>Heritage Places Act 1993</i>	The <i>Heritage Places Act 1994</i> establishes the framework for identifying, protecting, and managing State Heritage Places and objects, as well as archaeological artefacts of heritage significance.
<i>National Parks and Wildlife Act 1972</i> (NPW Act)	The <i>National Parks and Wildlife Act 1972</i> provides a framework for the establishment, management, and protection of national parks and reserves, as well as the conservation of wildlife and their habitats. It empowers the Department for Environment and Water (DEW) to enforce regulations aimed at preserving both natural and cultural heritage, including Aboriginal sites.
<i>Landscape South Australia Act 2019</i> (LSA Act)	The <i>Landscape South Australia Act 2019</i> establishes a framework for the management and protection of the state's natural resources and landscapes. It promotes integrated landscape management through the creation of regional landscape boards, which are responsible for planning and implementing strategies that address issues such as water management, soil health, and biodiversity conservation.
<i>Electricity Act 1996</i>	Section 15 of this Act seeks to regulate the electricity supply industry and provides safety and technical standards for electrical installations.
<i>Environment Protection Act 1993</i> (EP Act)	The <i>Environment Protection Act 1993</i> establishes a licence system for activities of environmental significance, noting the following activities may occur on-site: • 'Concrete batching works' with a total capacity for production exceeding 0.5 cubic metres per production cycle, including temporary works for construction. • 'Activities involving listed wastes' including production, reception or storage, treatment or transport. The EP Act also provides for the creation of environment protection policies and the general environmental duty.
<i>Energy Resources Act 2000</i> (ER Act)	The <i>Energy Resources Act 2000</i> regulates the exploration, production, and development of petroleum, geothermal and other energy resources in South Australia. It establishes licensing and permitting requirements, environmental standards, and royalty provisions for operators in the sector. The ER Act is regulated by DEM.

Legislation	Description
<i>Mining Act 1971</i>	The Mining Act regulates mining exploration, extraction and production activities. The Mining Act is regulated by DEM.
<i>Planning, Development and Infrastructure Act 2016 (PDI Act)</i>	The <i>Planning, Development and Infrastructure Act 2016</i> establishes state planning policies and regulates <i>development</i> across the State. Prior to the commencement of the HRE Act in July-2024, renewable energy projects required development approval under the PDI Act. Pursuant to the PDI Act, building consent will need to be sought prior to commencement of any building works and associated activities. This is likely to occur via OMP approval. The PDI Act also establishes the Planning and Design Code, which guides development assessment across the State.
<i>Highways Act 1926</i>	The <i>Highways Act 1926</i> established the framework for the construction, maintenance, and administration of state-maintained roads. It has created the statutory position of Commissioner of Highways, who is responsible for implementing the Act's provisions. Under this legislation, the Commissioner has the authority to oversee roadworks, manage arterial roads, and collaborate with local councils on infrastructure projects.
<i>Heavy Vehicle National Law (South Australia) Act 2013 (HVNL Act)</i>	The <i>Heavy Vehicle National Law (South Australia) Act 2013</i> aligns SA's regulations with the national framework for heavy vehicle operations in Australia. It adopts the Heavy Vehicle National Law, which standardises rules for vehicles over 4.5 tonnes across participating states and territories. The HVNL Act is regulated by the National Heavy Vehicle Regulator (NHVR). Permit approvals for the transportation of Oversize Overmass (OSOM) vehicles and/or Restricted Access Vehicles (RAVs) may be required through the NHVR.
<i>Road Traffic Act 1961</i>	The <i>Road Traffic Act 1961</i> regulates the safe movement of vehicles, including those transporting large turbine components. It ensures compliance with speed limits, load restrictions, and road safety rules, while also addressing driver behaviour and vehicle conditions. It helps manage safe transportation of oversized loads, including road access, traffic control, and potential road closures during delivery.
<i>Fire and Emergency Services Act 2005</i>	The <i>Fire and Emergency Services Act 2005</i> establishes the framework for fire prevention, emergency response, and disaster management. It includes provisions for fire safety during the transportation and installation of large turbine components, ensuring that emergency services can respond effectively to incidents. It also outlines responsibilities for risk management, fire bans, and coordination with local fire authorities to prevent and manage hazards associated with transporting oversized loads.
<i>Local Government Act 1999</i>	The <i>Local Government Act 1999</i> outlines the powers, responsibilities, and functions of local councils in SA. It provides the framework for the governance, administration, and decision-making processes of local governments, covering areas such as council operations, public services, community engagement, and infrastructure management, including roads.

Legislation	Description
<i>South Australian Public Health Act 2011</i>	The <i>South Australian Public Health Act 2011</i> governs public health matters in SA, including the management of wastewater systems. It requires that any proposed onsite wastewater treatment and disposal systems (e.g., septic tanks) be approved by local Council. It ensures that systems are designed, installed, and maintained to prevent health risks such as contamination of water sources or disease transmission.

TABLE 2-2 KEY POLICIES

Policy	Description
<i>Environment Protection (Air Quality) Policy 2016</i>	Establishes a range of ground level concentrations, odour criteria and in-stack concentrations for assessing impacts of a wide range of air pollutants. Supported by the documents entitled <i>Evaluation distances for effective air quality and noise management</i> , and <i>Ambient Air Quality Assessment 2016</i> , prepared by the SA EPA.
<i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i>	Establishes processes to determine relevant indicative noise levels for operational noise sources and establishes the head power for application of the <i>Wind farms environmental noise guidelines 2021</i> , prepared by the SA EPA.
<i>Environment Protection (Water Quality) Policy 2015</i>	Establishes environmental values for the waters of the State, specifies requirements to meet the general environmental duty of the EP Act in relation to impacts to water, and provides specific context for what constitutes environmental harm to waters.
<i>South Australia's Climate Change Action Plan 2021–2025</i>	Sets state-level priorities for emissions reduction and climate resilience. Supports renewable energy deployment, decarbonisation of electricity, and regional investment. The Project directly aligns with Priority Action Areas 1 (Transform Energy Systems) and 5 (Regional Leadership).
<i>South Australia's Strategic Infrastructure Plan for South Australia (SIPSA)</i>	Identifies renewable energy and grid upgrades as critical infrastructure. The Mid North is a priority corridor due to transmission availability and strong wind resources. SIPSA supports planning certainty and infrastructure coordination for large-scale renewables.
<i>State Planning Policies (SPPs), particularly SPP 11 – Strategic Infrastructure and SPP 12 – Energy</i>	The State Planning Policies guide land use planning and strategic assessment under the PDI Act. SPP 12 encourages investment in renewable energy infrastructure, supports land use compatibility, and promotes efficient transmission integration.
<i>Regional Landscape Plan – Northern and Yorke Landscape Board (under LSA Act)</i>	This statutory plan sets out regional priorities for biodiversity, sustainable land and water use, and First Nations partnerships. Wind farm developments must demonstrate consistency with the Plan's objectives, particularly those relating to soil protection, vegetation condition, and cumulative biodiversity impacts.
<i>Goyder Master Plan 2022–2037</i>	Developed by the Regional Council of Goyder, this plan outlines a strategic vision for the region, emphasizing economic development, infrastructure enhancement, and community well-being. It identifies renewable energy as a key driver for regional growth, supporting projects that align with sustainable development and local employment opportunities. The plan serves as a guiding document for integrating large-scale renewable energy projects into the regional landscape.

2.3 STRATEGIC AND REGIONAL PLANNING CONTEXT

The mid-north region of South Australia is a renewable energy priority area due to its high wind resource, existing grid infrastructure, and proximity to major interconnectors. The Project strongly aligns with:

- South Australia's Renewable Energy Target (net 100% renewables by 2027);
- The Integrated System Plan (ISP) by the Australian Energy Market Operator (AEMO), which includes strategic transmission projects in the mid-north to facilitate wind energy dispatch;
- The Yorke Peninsula and Mid North Regional Plan under the PDI Act, which promotes renewable energy development, rural economic diversification, and minimisation of environmental and landscape impacts;
- The Northern and Yorke Regional Plan under the *Landscape South Australia Act 2019*, which guides the sustainable management of natural resources in the region; and
- Regional Development Australia (RDA) Yorke and Mid North Economic Plan, which prioritises clean energy projects as a vehicle for regional investment and job creation.

2.4 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999 (COMMONWEALTH)

The EPBC Act is the Australian Government's central piece of environmental legislation. It governs projects with potential significant impacts on Matters of National Environmental Significance (MNES). If a project might affect MNES, a referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) is required. DCCEEW assesses whether the action is:

1. A controlled action (requiring further assessment);
2. Not a controlled action if undertaken in a particular manner; or
3. Not a controlled action (requiring no further assessment).

The referral process must include details of the proposed action, the project area, impacts to MNES, mitigation measures, any legal proceedings, and feasible alternatives. It must also be supported by an ecological report following the '*Matters of National Environmental Significance: Significant Impact Guidelines 1.1*' (DoE, 2013).

Early engagement with DCCEEW occurred via a pre-referral meeting on 20 November 2024 to introduce the Project, clarify EPBC referral requirements, and discuss survey findings and MNES avoidance and mitigation strategies. A further pre-referral meeting was held with DCCEEW on 20 May 2026 to summarise surveys and assessment undertaken to date, and to clarify expectations for the upcoming referral under the EPBC Act.

The Project design has addressed ecological constraints identified during the concept design phase to first avoid and then mitigate and minimise anticipated impacts on MNES.

3. PROJECT DESCRIPTION

3.1 PROPOSED DEVELOPMENT

The Project comprises a second stage of the existing WWF located in the mid-north of SA, within the Goyder Regional Council Local Government Area approximately 6 km north-west of the Hallett township. Figure 3-1 illustrates the regional context of the Project Area.

The Project comprises three key components:

- The wind farm site, covering approximately 1,550 hectares (ha) for the construction and operation of up to 20 WTGs and ancillary infrastructure with an installed capacity range from 110 MW to 160 MW;
- The BESS site, occupying an additional 10 ha; and
- The overhead transmission line (OTL) corridor, which will extend for 14.6 km across a designated easement of approximately 20 m and connect the Project to the Willalo Substation.

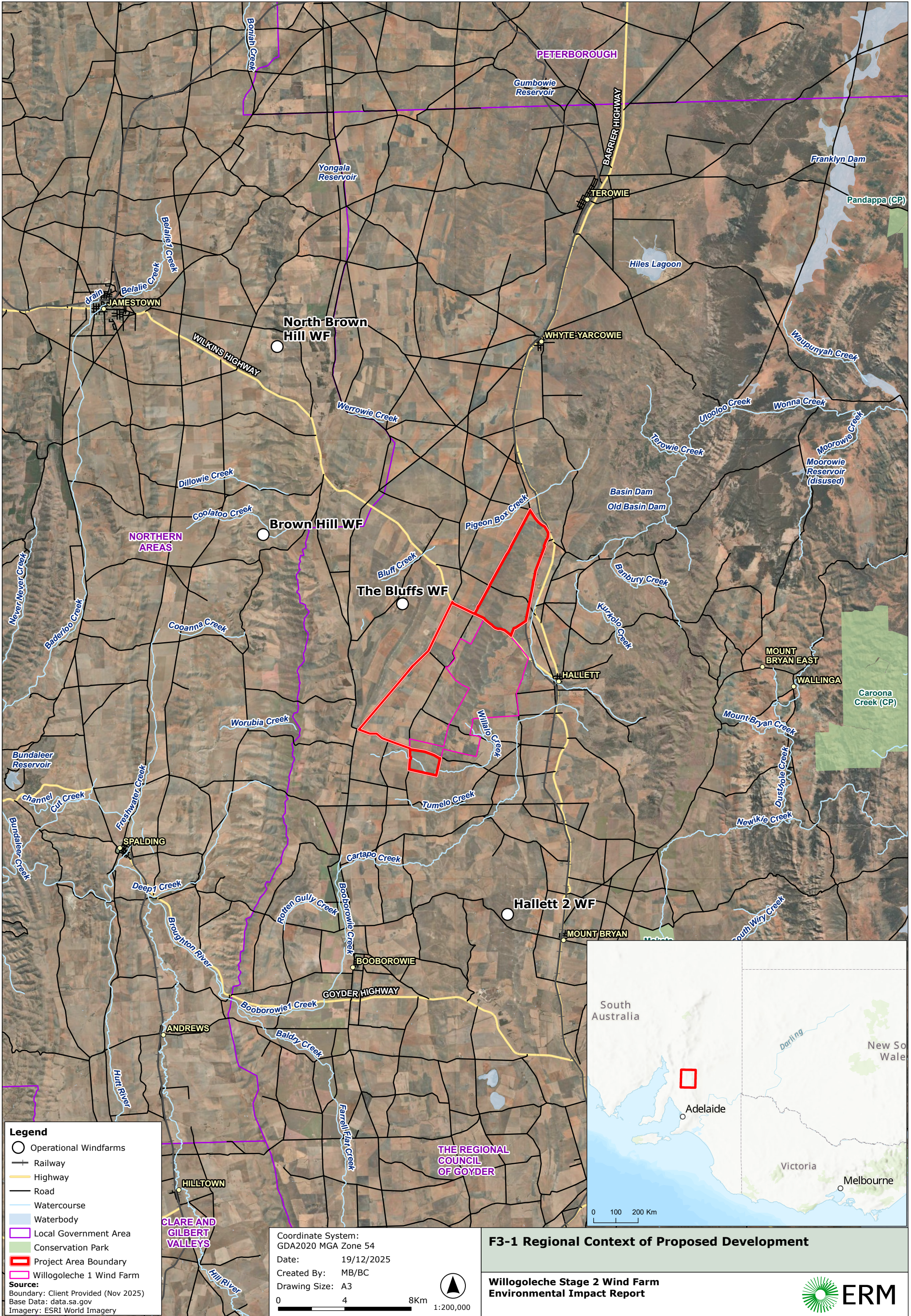
The wind farm site, BESS site, and the TL corridor are collectively referred to as 'the Project Area' and would be covered under the REIL licence area. The regional context of the Project Area is shown in Figure 3-1.

The following elements form part of the proposed REIL:

- Up to 20 WTGs, with a maximum blade tip height of 300 m;
- Hardstand areas adjacent to each WTG, sized approximately 70 m x 80 m;
- Internal electrical network comprising underground and overhead cabling linking WTGs to the onsite substation;
- Onsite electrical switchyard and substation equipped with two transformers; one rated to 33-132 kV, and the other to 132-275 kV;
- Operations and maintenance (O&M) facility including:
 - Control room and site office;
 - Amenities for staff and contractors; and
 - Car parking for operational personnel.
- BESS with a capacity of 200 MW / 800 MWh, located adjacent to the Willalo substation;
- One existing temporary meteorological mast (operational since April 2024), with a height of 150 m;
- A permanent meteorological mast, with a height of up to 150 m;
- Internal access tracks, with approximately 5.5 m to 6.5 m width;
- Drainage and stormwater management systems;
- Security infrastructure including fencing for critical infrastructure;
- Temporary construction facilities including concrete batching plants, laydown areas, site offices, amenities, and fencing;
- Site access upgrades and local road improvements, subject to traffic assessments and consultation;
- A 132 kV single-pole transmission line connecting the internal substation to the Willalo Substation, approximately 8.5 km south-west of the wind farm site;

- Upgrade works to the Willalo Substation to accommodate the new connection (if required); and
- Ancillary activities including sourcing of materials for construction; sourcing of water for construction; visual screening and associated ancillary works.

Figure 3-2 illustrates the indicative Project Area layout.



3.2 PROJECT LAYOUT

The proposed Project layout is set out in Figure 3-2, with the indicative locations of WTGs detailed on Table 3-1. WTG siting has been guided by energy yield modelling, construction feasibility, and findings from technical assessments, which are aimed at avoiding or minimising potential environmental impacts.

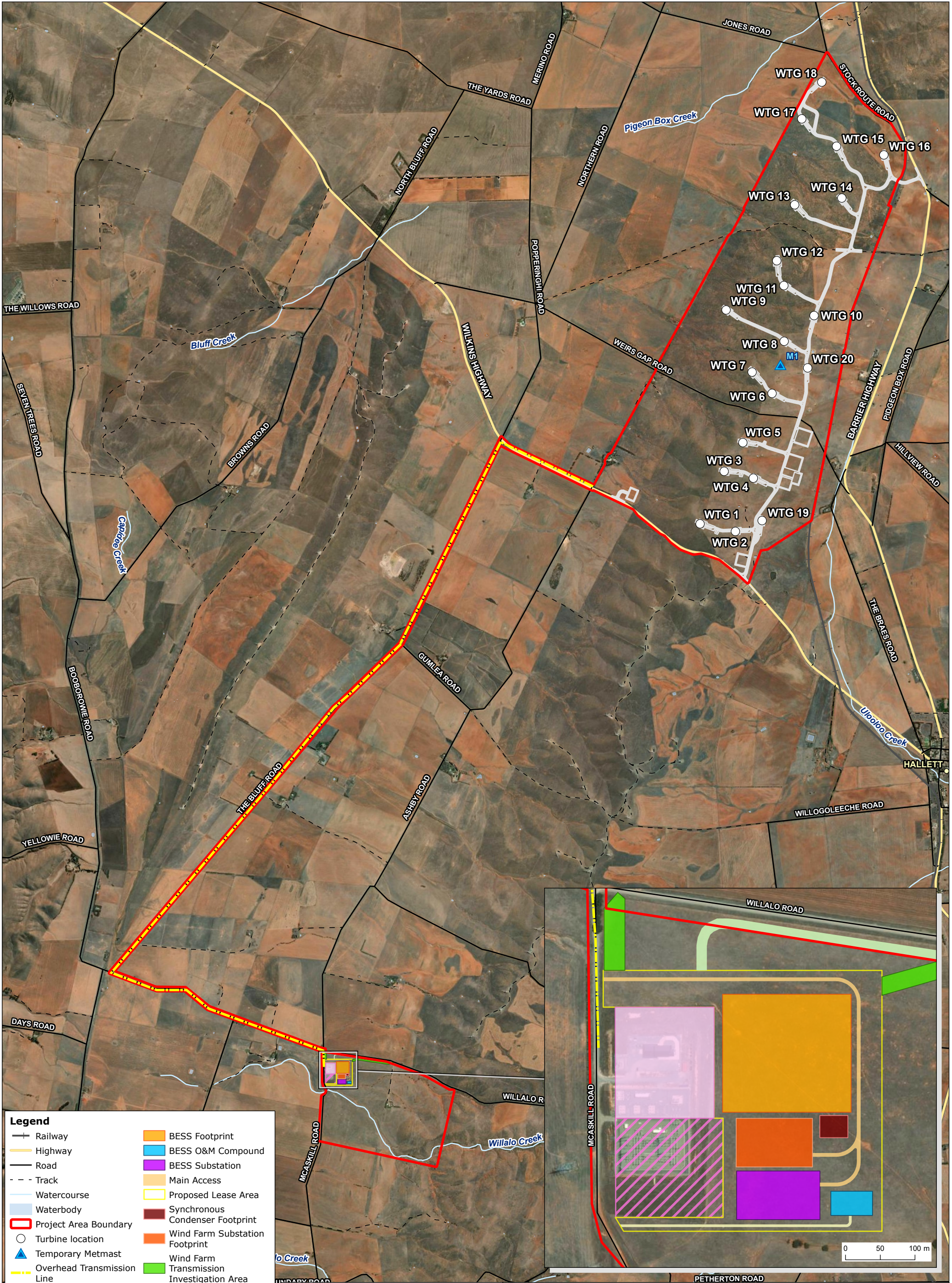
The Project originally consisted of up to 22 WTGs and has since been refined to up to 20 WTGs to avoid sensitive ecological areas, and to minimise potential visual and noise impacts to surrounding dwellings.

Final infrastructure locations, including WTGs, will be refined during the detailed design stage and submitted for endorsement as part of the Operational Management Plan (OMP) package, following the completion of pre-construction surveys and outcomes of ongoing stakeholder engagement.

3.2.1 MICROSITING

The layout presented in this EIR will be refined based on the outcomes of detailed geotechnical investigations, cultural heritage and ecology surveys, and the selection of the final WTG model. To accommodate this, the Applicant requires flexibility to microsite Project elements. Micrositing flexibility enables design adjustments to avoid unnecessary excavation or vegetation clearing, and to improve constructability and access for plant and equipment.

To allow for general design refinements without necessitating updates to the technical assessments, this EIR has assessed potential impacts across the Project Area including both temporary and permanent Project infrastructure, with a micrositing buffer applied where relevant. This approach ensures that the impact assessment reflects a conservative, worst-case scenario, with the intention to refine the layout during detailed design stage to minimise impacts prior to construction.



- Legend**
- Railway
 - Highway
 - Road
 - Track
 - Watercourse
 - Waterbody
 - Project Area Boundary
 - Turbine location
 - Temporary Metmast
 - Overhead Transmission Line
 - Indicative Civil Layout
 - Alternative Access
 - Approximate Substation Expansion Footprint
 - BESS Footprint
 - BESS O&M Compound
 - BESS Substation
 - Main Access
 - Proposed Lease Area
 - Synchronous Condenser Footprint
 - Wind Farm Substation Footprint
 - Wind Farm Transmission Investigation Area
 - Existing Willogoleche WF 1 Cable Route
 - Existing Willogoleche WF 1 Substation

Source:
Boundary: Client Provided (Nov 2025)
Base Data: data.sa.gov
Imagery: ESRI World Imagery

Coordinate System:
GDA2020 MGA Zone 54
Date: 17/12/2025
Created By: MB/BC
Drawing Size: A3

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F3-2 Project Layout

Willogoleche Stage 2 Wind Farm
Environmental Impact Report



TABLE 3-1 INDICATIVE WIND TURBINE GENERATORS COORDINATES

WTG ID	Coordinates (GDA2020 Z54)	
	Easting	Northing
1	300601.4	6304533.1
2	301110.2	6304423.9
3	300948.4	6305289
4	301368.4	6305191
5	301217.4	6305703
6	301637.7	6306411.9
7	301350.9	6306718.9
8	301812.1	6307162.8
9	300976	6307614
10	302242.8	6307532.9
11	301808	6307965
12	301706	6308323
13	301963.7	6309128.6
14	302642	6309226
15	302566.2	6309971.6
16	303247.9	6309846.9
17	302066	6310366
18	302354	6310896
19	301494.8631	6304580.233
20	302150.6452	6306778.998

3.3 PROJECT COMPONENTS

3.3.1 WIND TURBINE GENERATORS

The Project will comprise up to 20 WTGs, each set on a concrete base with steel towers. The turbine model, with an expected lifespan of 35 years, will be selected according to design needs, wind data, environmental constraints, and commercial considerations.

Each WTG is expected to feature:

- A maximum hub height of up to 209 m;
- A maximum tip height of up to 300 m;
- Rotor diameters of up to 182 m; and
- Individual blade lengths of up to 91 m.

A conservative approach has been adopted for some technical assessments, such as the Landscape and Visual Impact Assessment, by considering a worst-case scenario with a maximum tip height of up to 300 m and a rotor diameter of up to 200 m. This approach ensures that all potential impacts are captured and allows for layout flexibility during the detailed design stage.

Figure 3-3 illustrates the key structural and electrical components of a typical WTG, including blade assembly, nacelle systems, tower, and foundation.

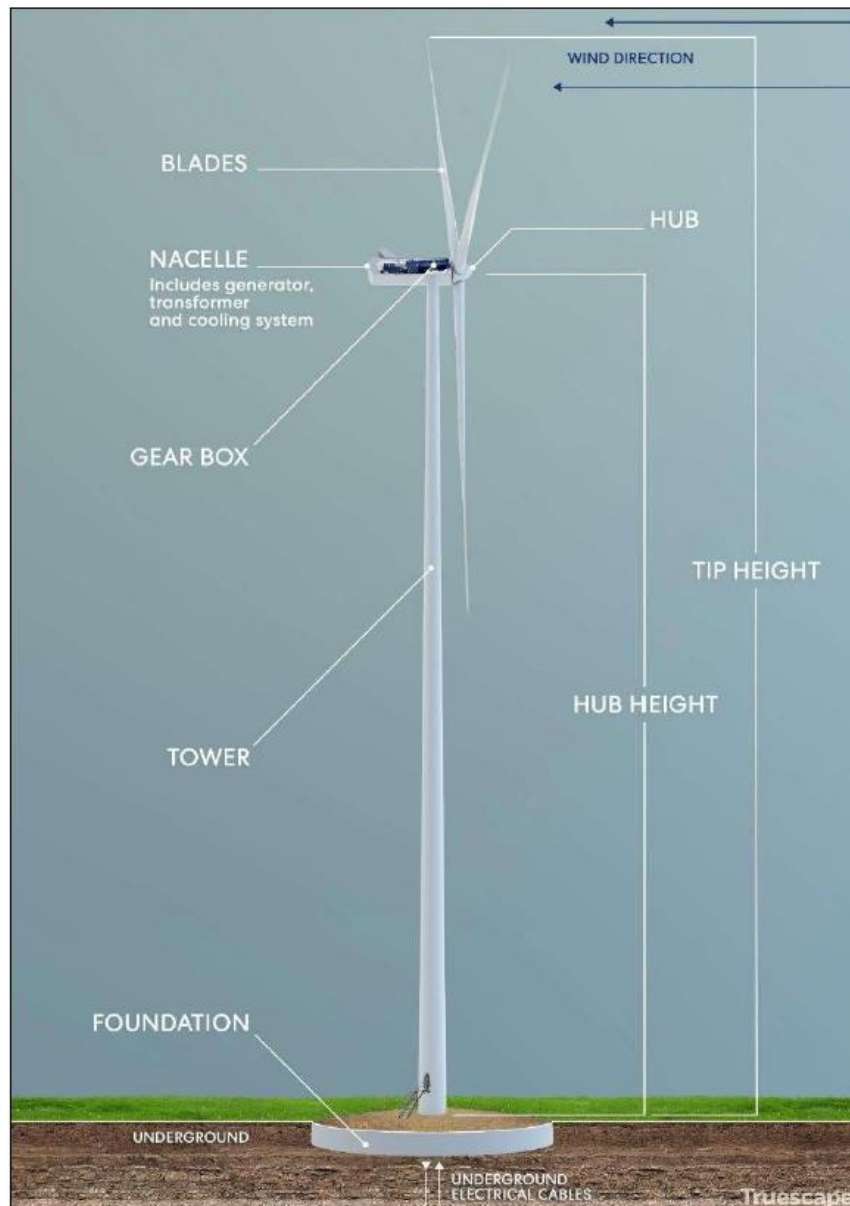


FIGURE 3-3 TYPICAL COMPONENTS OF A WIND TURBINE GENERATOR (NOT TO SCALE)

To support construction and ongoing maintenance, a hardstand area will be constructed at each turbine site. Hardstands will provide a stable platform for crane operations. Final hardstand dimensions will be approximately 70 m x 80 m ultimately depending on the selected WTG model and contractor requirements. Hardstands will remain in place throughout the operational life of the wind farm to ensure continued access for heavy vehicles and maintenance activities.

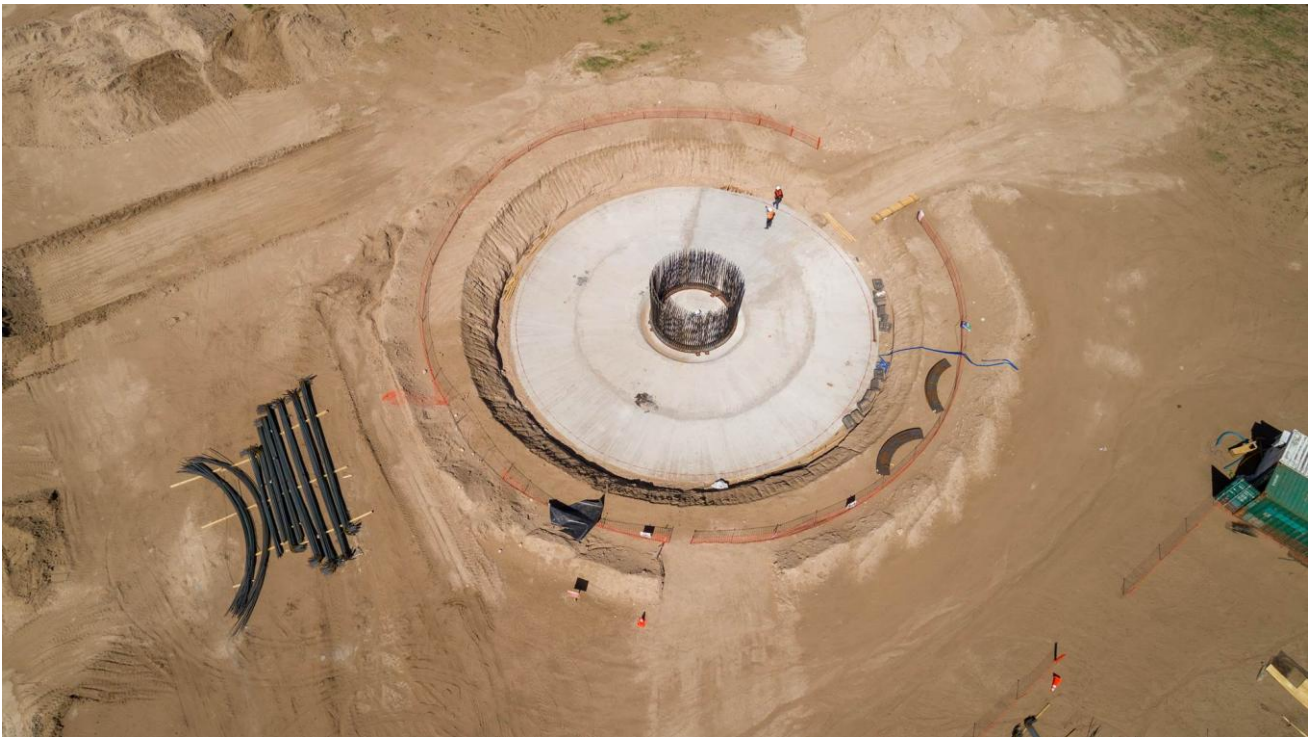


FIGURE 3-4 TYPICAL FOUNDATION BEING CONSTRUCTED

The final design and dimensions of each WTG foundation will be determined by geotechnical investigations and soil conditions identified during the detailed design stage. Common foundation types include gravity foundations, rock anchors, and pile foundations, or a combination thereof, depending on site-specific requirements.

The gravity foundation is the most frequently used, involving excavation to install a reinforced concrete pedestal. These foundations typically range from three to 5 m deep and 20 to 30 m in diameter, with a volume of 600 to 900 cubic m, depending on WTG specifications and environmental factors.

Excavation will be carried out using mechanical equipment. Topsoil and spoil will be stockpiled for reuse in backfilling and site rehabilitation. Any surplus material will be repurposed elsewhere on-site, sent offsite for beneficial reuse, or disposed of at a licensed landfill.

3.3.2 BATTERY ENERGY STORAGE SYSTEM

The Project will incorporate a 200 MW / 800 MWh BESS, located near the existing Willalo Substation on the WWF site. The BESS is a key component of the Project's electrical infrastructure, designed to enhance grid stability and optimise energy dispatch.

BESS layout options are currently under review to ensure optimal integration with existing infrastructure.

The specific model and design parameters of the BESS will be finalised during the OMP stage. It is anticipated that the BESS will comprise a fully integrated, pre-assembled and factory-tested system, incorporating battery modules, inverters, thermal management systems, circuit breakers, and associated control systems.

3.3.3 ELECTRICAL RETICULATION

3.3.3.1 INTERNAL SUBSTATIONS

The primary function of the internal substation on the wind farm site is to convert the voltage of the generated power from 33 kV to 132 kV for efficient transmission to the BESS site. The facility will be located within the south-west portion of the wind farm site, with an approximate footprint of 2.5 ha.

It will serve as the central hub for collecting and converting electrical power generated by the WTGs. Connection to the WTGs will be achieved via a combination of underground and overhead cabling, linking individual turbines and collector groups. Overhead cabling will be supported by monopoles, typically ranging from 30 to 32 m in height.

A second substation on the BESS site will convert voltage from 132 kV to 275 kV for connection to the South Australian power grid.

3.3.3.2 SWITCHYARD

The switchyard is a critical component of wind farm's electrical infrastructure, designed to facilitate the safe and efficient transfer of generated power to the broader transmission network. Typically located adjacent to the internal substation, the switchyard serves as the interface between the wind farm and the external grid.

The switchyard will include:

- High-voltage equipment including circuit breakers, disconnectors, busbars, and surge arrestors to manage and protect electrical flows;
- Control and protection systems housed in dedicated switch rooms or control buildings;
- Security fencing and lighting to ensure safety and restrict unauthorised access;
- Hardstand areas and access tracks for maintenance and operational activities.

The switchyard will be designed in accordance with relevant electrical standards and Generator Performance Standards, ensuring compatibility with the State's energy grid and supporting reliable power export from the wind farm.

3.3.3.3 TRANSMISSION NETWORK

A 132 kV overhead transmission line, configured as a single circuit, will span approximately 14.6 km, running south from the wind farm site to the Willalo substation.

The proposed transmission line will include:

- Monopoles approximately up to 32 m high;
- Concrete footings for structural support, with a temporary construction disturbance area; and
- An easement located within the public road corridor (up to 20 m wide), which will include unformed access tracks for maintenance and operational access.

The final pole heights, easement width, and exact locations will be determined during the design stage, based on terrain conditions, final engineering design, and findings from vegetation and cultural heritage surveys.

3.3.4 METEOROLOGICAL MAST

One temporary meteorological mast (met mast) was installed within the wind farm site in April 2024 and is currently operational.

The mast is designed as a guyed steel lattice structure, with a height of 150 m above ground level. It has a single associated foundation and guy wires supporting the mast at three 120-degree angles. At each angle there are three guy wire anchor points (nine in total), with distances to anchors on each side of 30 m, 70 m and 110 m.

The mast is equipped with wind monitoring instruments (anemometers and wind vanes), temperature, humidity, and pressure sensors, a data logger, junction box with feeder cables, antenna, and a small solar panel. Operational safety and infrastructure features include lightning and earthing protection, fall arrest system, guy wire anchors, marker balls, fencing, anti-climb barrier, and warning signage.

The land parcel containing the met mast is located approximately 700 m north of Weirs Gap Road. Figure 3-2 shows the location of the met mast in the wind farm site.

3.3.5 PERMANENT OPERATIONS AND MAINTENANCE FACILITIES

At this stage, the development of a new O&M facility for the Project is still under investigation. The existing O&M facility for the Willogoleche Wind Farm may be utilised for Willogoleche Stage 2; however, this remains subject to commercial and engineering considerations. The final approach will be confirmed during the OMP stage.

3.3.6 SITE ACCESS POINTS

Access to the wind farm site is expected to be via Weirs Gap Road, Stock Route Road and Wilkins Highway. Final access points will be determined at the OMP stage, along with OSOM route access, including access for individual turbine installations.

For the BESS site, Willalo Road and McAskill Road are likely to serve as the main access points.

3.3.7 INTERNAL ACCESS TRACKS

To support construction, operation and maintenance of the Project internal access tracks are required to connect infrastructure such as the WTGs and transmission lines to existing roads. These access tracks, identified as the indicative civil layout on Figure 3-2, will mostly follow existing farm paths to reduce environmental impact and support ongoing agricultural activities, and may be accessed via Weirs Gap Road, Stock Route Road and Wilkins Highway. Internal access tracks will be designed and constructed to accommodate large vehicles, in accordance with relevant standards and guidelines, and in consultation with landowners. The final civil layout will be confirmed during the OMP stage.

3.3.8 TEMPORARY FACILITIES

To support construction activities, a range of temporary facilities will be established across the Project Area. These include:

- A construction compound with site offices, car parking, and workforce amenities;
- Mobile concrete batching plants;
- Laydown and storage areas for construction materials, plant, equipment, and WTG components; and

- Temporary power supply.

Security measures such as chain link fencing and CCTV may be installed around construction compounds, batching plants, and storage areas as needed.

All temporary facilities will be removed after commissioning, and the land will be rehabilitated in consultation with landowners.

3.4 CONSTRUCTION PHASE

The construction of the Project is expected to span approximately 24 months. During peak activity, the workforce may reach up to 200 full-time equivalent (FTE) employees. Efforts will be made to engage local contractors, suppliers, and transport operators wherever feasible, and ongoing engagement with regional service providers and stakeholders will continue throughout the process. Construction is planned to begin in Q4 2027 / Q1 2028, with operations anticipated to commence in 2030.

A range of temporary infrastructure and construction activities will be undertaken to support the construction of the Project. These typically include site establishment works such as setting up temporary compounds, laydown areas, and site offices, along with installing fencing, signage, and safety barriers. Access and traffic-related works will involve constructing or upgrading roads and internal tracks to accommodate heavy vehicles and cranes, as well as preparing turbine access points and ensuring transport routes can accommodate oversized WTG components.

Earthworks will involve excavation for turbine foundations, substations, and other permanent structures, followed by reinforcement and concrete pouring for turbine bases and hardstand areas. Topsoil management and erosion control will also be implemented. Electrical infrastructure works will include trenching and installing underground cabling to connect turbines to substations, constructing substations and switchyards, and, where necessary, building above-ground transmission connections.

Turbine installation will involve transporting components to the site via approved routes (refer to Section 3 of the TIA at Appendix J), assembling towers, nacelles, hubs, and blades using heavy-lift cranes, and fitting internal cabling and communication systems within each turbine. Once construction is complete, rehabilitation and demobilisation activities will be carried out. These include removing temporary facilities, restoring disturbed land through topsoil replacement and revegetation, and managing weeds, pests, and surface water drainage. Temporary road and footpath closures or diversions may also be required.

All construction activities associated with the Project will be carried out in accordance with the EP Act, including the General Environmental Duty (s25), and the following policies: the *Environment Protection (Water Quality) Policy 2015*, *Environment Protection (Air Quality) Policy 2016*, *Environment Protection (Commercial and Industrial Noise) Policy 2023*, and *Environment Protection (Waste to Resources) Policy 2010*. These policies collectively govern the management of dust, noise, waste, water quality, and other potential environmental impacts.

In addition to these regulatory requirements, the Construction Environmental Management Plan (CEMP), which will form part of the Project's broader OMP, will also address other key environmental elements. These include the protection and management of native flora and fauna, control of weeds and pests, the management of Aboriginal cultural heritage, and other

potential impacts as relevant. The OMP will be developed to ensure that all construction and operational activities are undertaken responsibly and with minimal impact on the surrounding environment and community.

Variations to these activities may occur as site-specific conditions are assessed, designs are finalised, and further stakeholder consultation is undertaken. Final construction methodologies will be confirmed at the OMP stage.

3.5 OPERATIONAL PHASE

The Project is expected to operate for approximately 35 years, with operational capacity of 24 hours a day, seven days a week. During this phase, approximately 10 full-time equivalent (FTE) employees will be engaged. Additional contractors and personnel may be brought in as required for scheduled or unscheduled WTG maintenance.

Operations will be monitored and controlled via a remote Supervisory Control and Data Acquisition (SCADA) system, managed from a control room located within the O&M facility. Where necessary, support may be provided by an offsite SCADA engineering team. The SCADA system is designed to maximise power output, enable remote control of WTGs, and monitor overall plant efficiency.

Although the wind farm can be monitored remotely, regular onsite maintenance of WTGs and associated infrastructure will be required. This includes:

- Ongoing monitoring and operation of the WTGs throughout the year according to prevailing weather and electricity demand;
- Routine and ad-hoc maintenance activities such as blade repair/replacement or vegetation management;
- Ongoing infrastructure performance and environmental monitoring; and
- Maintenance of access roads.

An Emergency Management Plan will be developed for the Project as part of the OMP, outlining responsibilities, emergency contacts, evacuation procedures, incident management, preparedness, response actions, and post-emergency protocols. It will comply with Australian Standards and will be prepared in consultation with appropriate emergency agencies, such as the South Australian Country Fire Service (CFS), where applicable.

3.6 DECOMMISSIONING PHASE

The Project may be decommissioned or repowered after 35 years, subject to asset life condition. In general, there are three options for consideration:

- Continue the use of the site as a wind farm using existing WTGs (subject to equipment conditions);
- Replace WTGs with current technology at the time and continue to use the site as a wind farm for further term; or
- Decommission the Project and remove WTGs and ancillary infrastructure in accordance with the OMP procedures that will be prepared for the Project.

When decommissioning occurs:

- Key stakeholders including landowners will be consulted;
- All above ground structures not required for the ongoing agricultural use of the land, including WTGs, transformer station and substation, will be removed and the land rehabilitated so it can be returned to agricultural use;
- Access tracks and hardstands not requested to be retained by the landowners will be removed and land rehabilitated and returned to agricultural use; and
- Below ground infrastructure, including cabling and WTG foundations, will be left in situ to avoid further disturbance and minimise clearing of revegetated areas. The infrastructure will be removed to a minimum of 0.5 m below the ground surface and where required will be covered in clean fill material and topsoil prior to revegetation.

All materials removed from the Project Area will be sorted and packaged for reuse or recycling where possible in accordance with the waste hierarchy, a legally defined order of preference for waste management, under the EP Act and the *Environment Protection (Waste to Resources) Policy 2010*.

A Decommissioning and Rehabilitation Plan will be submitted for approval by the Minister ahead of the planned decommission of the Project in accordance with any REIL conditions.

3.7 TIMING AND STAGING

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

TABLE 3-2 INDICATIVE PROJECT STAGING

Activity	Indicative Timing
Anticipated REIL Grant	Q4 2026
Secondary Approvals Granted	Q1/Q2 2027
Commencement of Construction Activities	Q4 2027 – Q1 2028
Commissioning and Operations	2030 – 2065
Decommissioning, Rehabilitation or Repowering	35-40 years from commencement of operations

3.8 COMMUNITY BENEFIT FUND

ENGIE is committed to implement a comprehensive community benefit sharing program linked to the Project. This initiative aims to ensure local communities derive meaningful benefits from hosting renewable energy infrastructure through various financial and collaborative programs. ENGIE is committed to delivering a multi-tiered benefit sharing program that has commenced in the Project development phase with an annual grants program of \$30,000 and includes the following longer-term benefits:

- A Community Benefit Fund of \$50,000 per year, to be administered by an independent committee with representation from community, Council, ENGIE, and the Community Enterprise Foundation (Bendigo Bank);
- A Host Community Rebate program would provide eligible occupied households located near the project with \$500 to \$1,000 reduction in their annual electricity bills, depending on proximity, and capped at approximately \$15,000 per year; and
- A separate First Nations Benefit Sharing Program, developed in collaboration with the Ngadjuri Nation Aboriginal Corporation.

ENGIE proposes to collaborate with the Regional Council of Goyder to establish transparent governance for the Community Benefit Fund, including forming a committee with representatives from Bendigo Bank's Charitable Council, ENGIE, and local community members to meet annually for funding decisions.

4. PROJECT SITE AND LOCALITY

4.1 SITE LOCATION

The Project Area is located in the mid-north of South Australia within the Regional Council of Goyder and the Northern and Yorke Landscape Management Region.

The Project Area comprises approximately 1,560 ha across 26 parcels of land, containing:

- The wind farm site, covering approximately 1,550 ha, with the centre-point of the wind farm site located approximately six kilometres northwest of the Hallett township;
- The BESS site, occupying an additional 10 ha, located approximately nine km southwest of the Hallett township, and
- The transmission line corridor, which will extend for 14.6 km through a road reserve corridor and connects the wind farm to the BESS site, adjacent to the Willalo Substation.

4.2 LAND USE

Land uses within the Project Area and wider locality are shown in Figure 4-1.

Land use within the area is predominantly agricultural (e.g., grazing for sheep and cattle and cropping). Native vegetation has been extensively cleared in the broader area for cropping or pasture. The Project Area predominantly contains shrublands or grasslands along the western side of the Project Area while cropping and pasture dominated the eastern side. The region features trees sparsely distributed along creek lines, with most of the tree vegetation being planted and comprised of non-local native species.

There are no permanent waterways in the Project Area.

4.3 LAND TENURE AND OWNERSHIP

This section provides an overview of land tenure and ownership within the Project Area. A summary of the relevant Certificates of Title (CTs) is presented in Table 4-1. Figure 4-2 shows the identified ownership of land parcels across the Project Area.

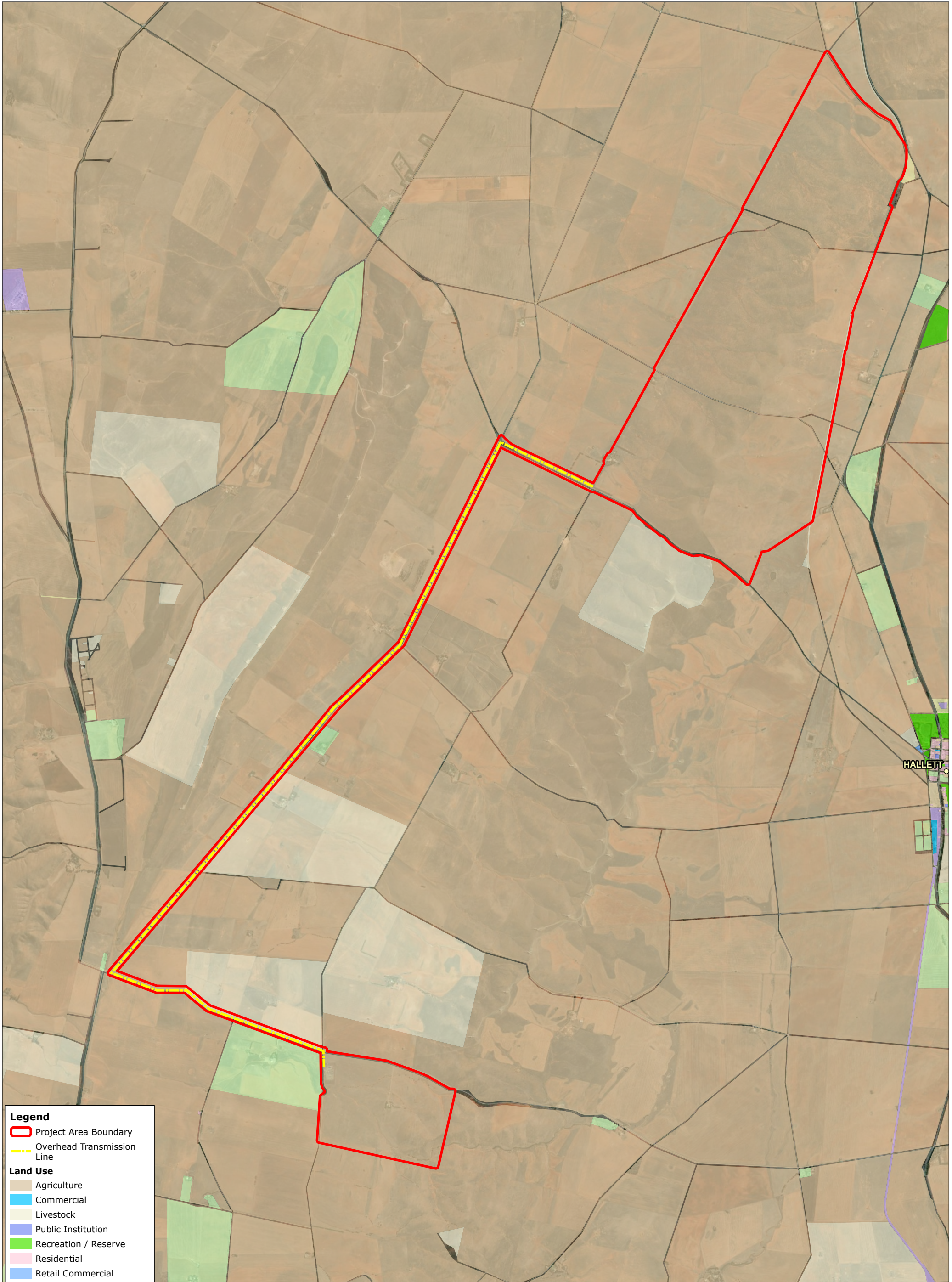
TABLE 4-1 CERTIFICATES OF TITLE

Project Aspect	Certificates of Title
Wind farm	• CT 5398/184 • CT 5402/214 • CT 5402/063 • CT 5403/977 • CT 5413/283 • CT 5511/581 • CT 5522/274 • CT 5610/301 • CT 5733/601 • CT 6207/728 • CT 6207/729 • CT 5963/438
Grid connection & BESS	• CT 5254/550

In addition, a search of the South Australian Resource Information Gateway (SARIG) has been undertaken to identify any Exploration Licences (EL) that intersect or are adjacent to the Project Area. Figure 4-3 shows the relevant exploration licences identified in Table 4-2 below.

TABLE 4-2 OVERLAPPING TENEMENTS

Licence	Details	Tenement Holder	EL Expiry Date
EL 6799	Mineral Exploration Licence	EcoSaus Limited	06/07/2028
GSEL 766	Gas Storage Exploration Licence		19/07/2028
GSEL 787	Gas Storage Exploration Licence		23/01/2029
EL 6983	Mineral Exploration Licence	Flinders Prospecting Pty Ltd	20/03/2030



Legend

Project Area Boundary

Overhead Transmission Line

Land Use

- Agriculture
- Commercial
- Livestock
- Public Institution
- Recreation / Reserve
- Residential
- Retail Commercial
- Rural Residential
- Utilities / Industry
- Vacant
- Vacant Urban Land

Source:
Boundary: Client Provided (Nov 2025)
Base Data: data.sa.gov
Imagery: ESRI World Imagery

Coordinate System:
GDA2020 MGA Zone 54

Date: 17/12/2025

Created By: MB/BC

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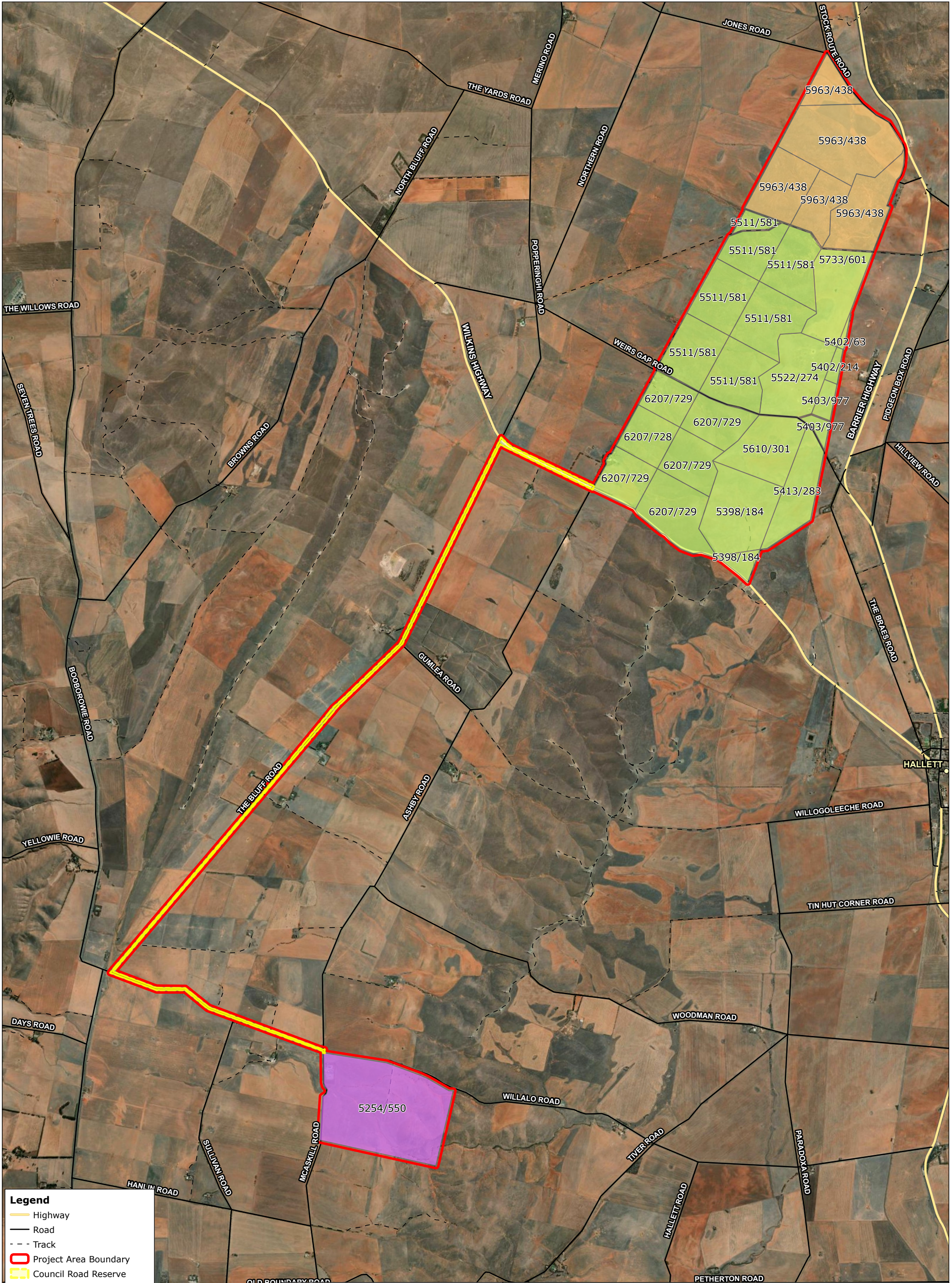
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F4-1 Land Use

**Willogoleche Stage 2 Wind Farm
Environmental Impact Report**





Legend

- Highway
- Road
- Track
- Project Area Boundary
- Council Road Reserve

Tenure

- Landowner 1
- Landowner 2
- Landowner 3

Source:

Boundary: Client Provided (Nov 2025)
Base Data: data.sa.gov
Imagery: ESRI World Imagery

Coordinate System:
GDA2020 MGA Zone 54

Date: 17/12/2025

Created By: MB/BC

Drawing Size: A3

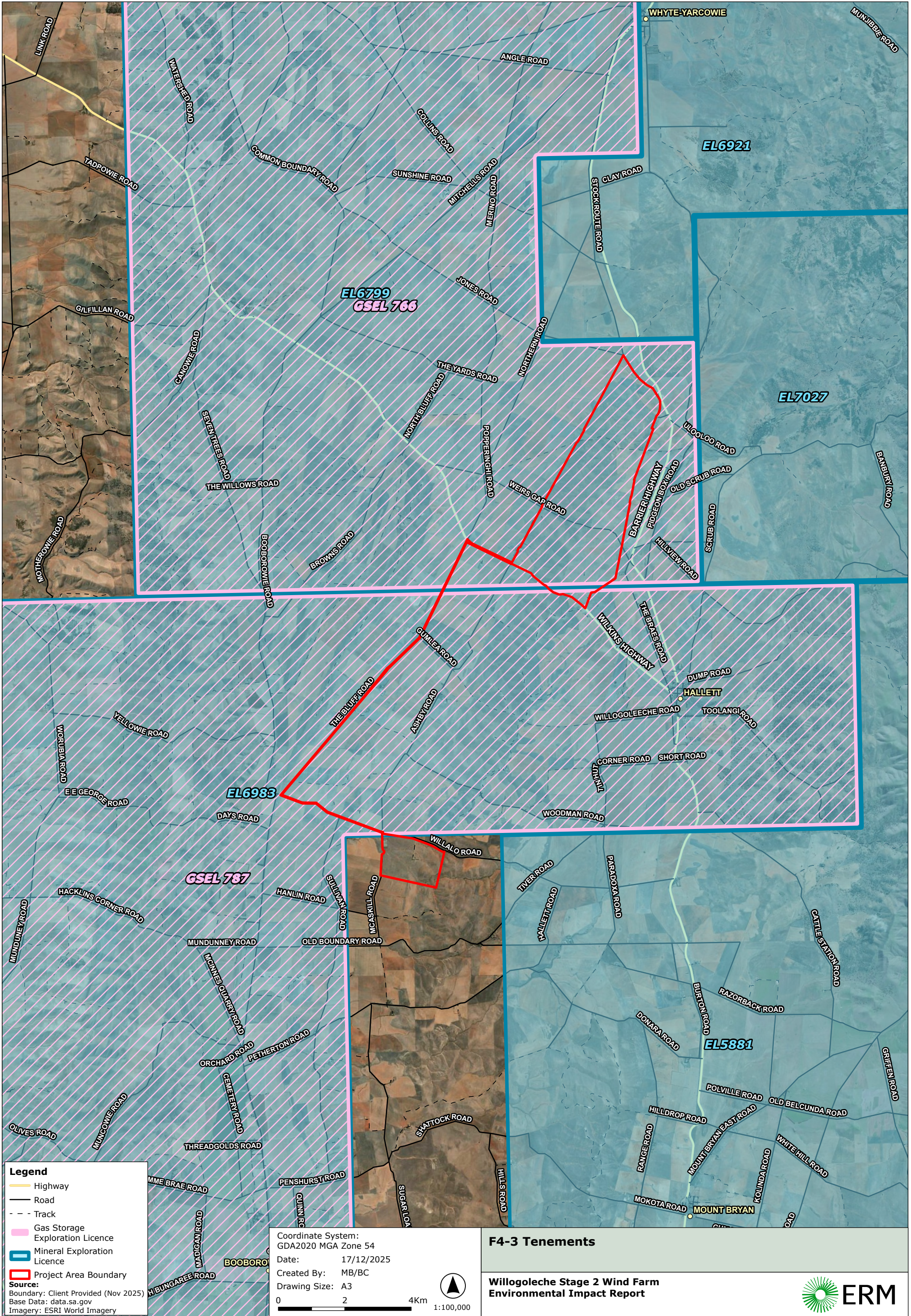
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F4-2 Land Tenure

Willogoleche Stage 2 Wind Farm
Environmental Impact Report





4.4 SENSITIVE RECEPTORS

4.4.1 PROTECTED AREAS

A spatial desktop assessment was undertaken using the NatureMaps database (DEW, 2025) to identify conservation features in proximity to the Project Area.

There are no Conservation Parks or Reserves protected under the NPW Act within 15 km of the Project Area.

There is one protected heritage agreement (HA) area under the NV Act within 10 km of the Project Area: HA 1602 (3.977 ha).

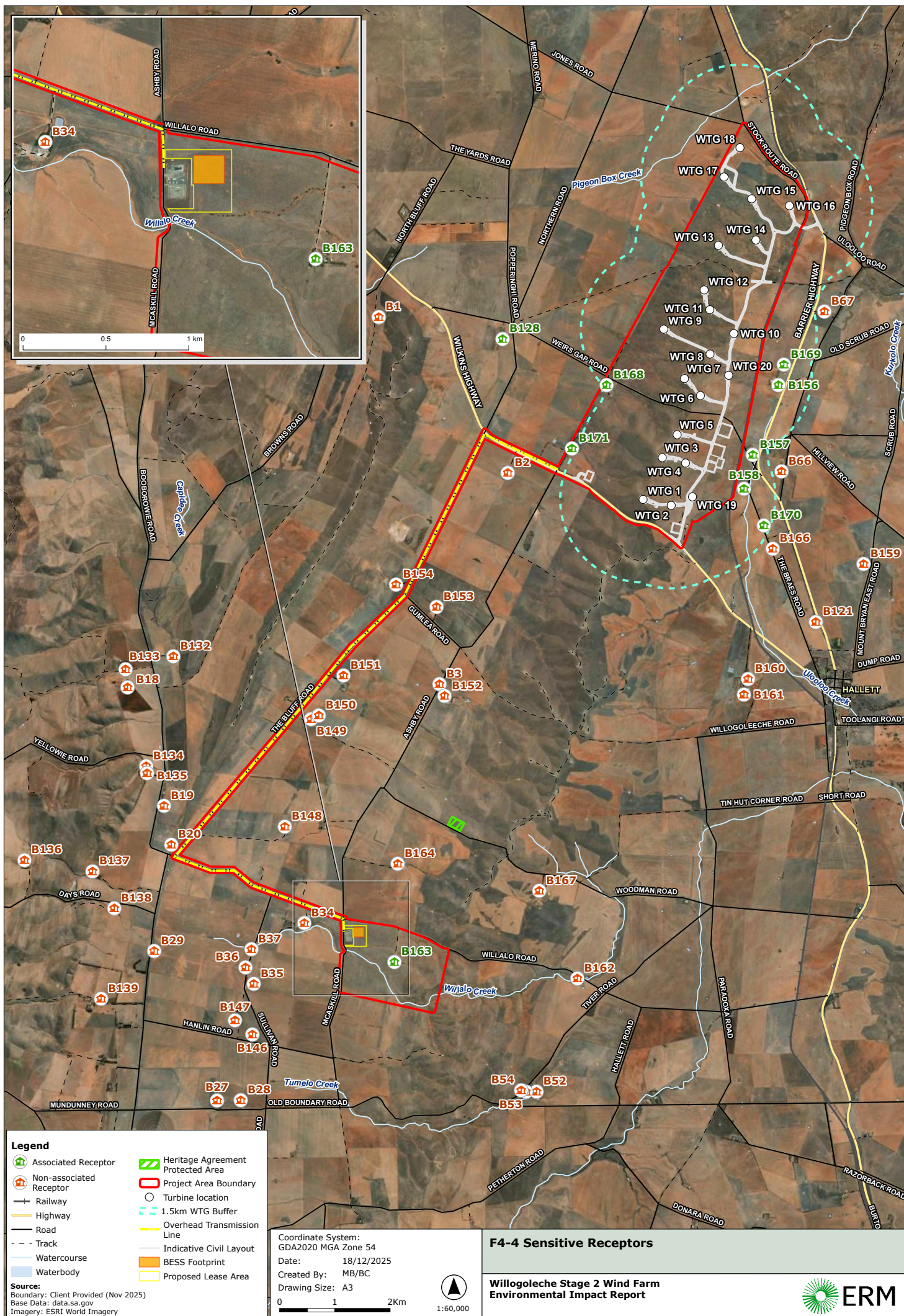
There are no Significant Environmental Benefit areas within 10 km of the Project Area.

4.4.2 DWELLINGS

There are twelve dwellings within two km from the wind farm site boundary, nine associated dwellings (AD) and three non-associated dwellings (NAD), with the closest NAD (NAD2) located at 800 m from the south-east boundary.

Within a 1.5 km radius of the BESS site, there is a total of two non-associated dwellings.

Sensitive receptors are identified within Figure 4-4.



5. DESCRIPTION OF THE EXISTING ENVIRONMENT

The following sections provide an overview of the environmental context for the Project Area and its surroundings.

5.1 LAND USE

The Project Area is within the Mid-North region of SA and is characterised by a predominantly agricultural landscape. The area lies close to Goyder's Line, which historically demarcated land suitable for cropping from grazing country. Today, broadacre dryland farming dominates, with winter cereals such as wheat and barley forming the backbone of production, complemented by pulses and canola in rotation systems. Grazing of sheep and cattle persists on less arable land, particularly in undulating terrain and areas with shallow soils. Scattered remnant native vegetation occurs along creek lines and ridgelines, providing ecological corridors amid largely cleared farmland. Townships like Hallett and Jamestown function as service hubs for surrounding farms, with infrastructure supporting grain storage, transport, and rural communities.

Land use in this corridor reflects a mix of traditional agriculture and emerging renewable energy developments. The region's open landscapes and strong wind resources have attracted large-scale wind farms, such as Hornsdale near Jamestown and Willogoleche near Hallett, integrating energy generation with pastoral and cropping enterprises.

5.2 ABORIGINAL HERITAGE

The Traditional Owners of land within the Project Area are the Ngadjuri people who have lived on the land since time immemorial. Ngadjuri land lies within the Mid North region of SA and extends from Gawler in the south to Orroroo in the north. The unique Ngadjuri language predates many ancient languages around the globe. These are found on several engraved rocks throughout Ngadjuri country (Ngadjuri Nation) (ERM, 2025b).

The Ngadjuri were semi-nomadic people; however, their reliance on water sources resulted in population concentrations surrounding streams throughout their lands. Their deep and intricate knowledge of the land, seasonality and management of resources was critical to their nomadic living. They survived off a diverse range of animals across the region including the kangaroo, bilby, wombat quoll, dunnart, bandicoot, emu, and birds and lizards (ERM, 2025b). They were in close contact with neighbouring Indigenous groups, with whom they traded and exchanged shells, plants, animal skins, and stone tools.

A search of the Taa Wika database found no registered Aboriginal places within the Project Area. The buffer zone for one Aboriginal Heritage Restricted Zone (site registration no. 6329) overlaps the northern portion of the Project Area; however, the site's central point is located to the northeast. No additional details on site 6329 or other Aboriginal cultural heritage were provided by the database. Data from AAR only indicates general locations of First Nations places, not specific coordinates, limiting analysis to site types rather than precise landform associations. It is acknowledged that AAR's central archives database is not an exhaustive record of all Aboriginal heritage in the state.

A 2024 met mast survey (completed by SANTS) identified one isolated quartz stone artefact in the northern section of the wind farm site. This artefact was not reflected in the Taa Wika search conducted on 21 November 2025 and may still be pending registration.

The survey concluded that Aboriginal cultural heritage is most likely to occur near watercourses and elevated landforms such as hilltops and ridgelines, with an overall low to moderate likelihood across the wind farm site. At the BESS site, likelihood ranges from low to high, with higher likelihood associated with the seasonally flowing Willalo Creek, which traverses the central and south-eastern portion of the site.

5.3 HISTORIC HERITAGE

The historic heritage environment of the Project Area is predominantly agricultural and pastoral in character, with settlement dating back to 1842. The area has experienced minimal built development, resulting in a generally low potential for historic archaeological remains. However, two State-listed heritage places are identified: the Cappeedee Homestead and Woolshed (Site ID 14872) within the wind farm site boundary, and the Ulooloo Homesteads, Dairies and Hut (Site ID 14873) approximately 3.5 km to the northeast. These sites may contain material evidence from the late 19th to early 20th century, such as domestic assemblages, wells, privy deposits, and remnants of agricultural infrastructure. The broader Project Area, aside from the vicinity of Cappeedee Homestead, is considered to have low likelihood for historic heritage due to its continuous use for farming and grazing.



5.4 AIR QUALITY

Air quality in the Hallett and Burra region of South Australia's Mid North is generally good, with clean air most of the time due to the rural setting and low population density (SA EPA, 2023a). There are no permanent air monitoring stations in these towns, but data from nearby regional centres shows that pollutant levels, such as dust and smoke, usually remain well below national limits (SA EPA, 2023b). Temporary changes in air quality can occur during dry, windy periods when dust is lifted from agricultural land, or during bushfires when smoke travels across the area (SA EPA, 2023c; BoM, 2025). Recent air quality index readings for both Hallett and Burra fall mainly in the 'good' to 'fair' range, meaning the air is safe to breathe for the general population (SA EPA, 2023d).

5.5 CLIMATE

The climate is a semi-arid Mediterranean climate characterised by warm to hot, dry summers and cool, occasionally wet winters. Winter rainfall patterns are inconsistent, often interrupted by periods of drought (DEW, n.d.). Data from local weather stations show that the mean annual rainfall in this region ranges from approximately 300 to 500 mm (BoM, 2025).

5.6 AVIATION

The aviation environment surrounding the Willogoleche Stage 2 Wind Farm is characterised by a mix of recreational, commercial, civil (including agricultural), and military aviation activities. The locality includes several non-controlled aerodromes, although none are within three nautical miles of the proposed wind farm site.

No certified aerodrome overlays directly affect the proposed wind farm site and there are no certified aerodromes within 30 nautical miles.

Aircraft operations in the vicinity are governed by Civil Aviation Safety Authority (CASA) regulations, including Advisory Circulars for operations near non-controlled aerodromes. Visual Flight Rules and Instrument Flight Rules apply depending on the type of operation, with private, passenger transport, and military flights all potentially active in the region.

The wind farm site is situated within Danger Area D258B when it is active, which serves as a low-level training zone for military aircraft during daylight hours on weekdays, excluding Public Holidays or as modified by NOTAM. During periods outside of these specified times, the airspace is classified as uncontrolled (Class G airspace).

5.7 FLORA AND FAUNA

Field work to determine the flora and fauna baseline across the Project Area were undertaken between 2023 and 2026 and included the following:

- An initial desktop assessment and ecological survey of the wind farm area in spring 2023;
- Eight seasonal Bird and Bat Utilisation Surveys (BBUS) commencing in spring 2023 and concluding in winter 2025;
- Additional surveys in spring 2024, including assessment of the proposed overhead transmission line corridor and a targeted surveys for the presence of Iron-grass Natural Temperate Grassland; and
- Pygmy Blue-tongue Lizard surveys, Spring 2023, March 2026 and April 2026.

The baseline ecological conditions are summarised below and detailed in the Ecological Constraints Assessment in Appendix B and Bird and Bat Utilisation 2-Year Summary Report in Appendix C.

5.7.1 NATIVE VEGETATION AND ECOLOGICAL COMMUNITIES

The wind farm site supports eight vegetation associations, including grasslands, shrublands, and exotic vegetation that provide potential habitat for threatened flora and fauna. These areas are protected under the *Native Vegetation Act 1991* and require approval for any clearance activities.

A comprehensive native vegetation survey was conducted across the Project Area in 2023 and 2024, using the Bushland Assessment Method (BAM) at 32 sites. The survey identified the extent, condition, and ecological value of vegetation associations, with a focus on areas potentially supporting threatened ecological communities and species.

Key native vegetation associations include:

- *Maireana aphylla* shrubland;
- *Lomandra multiflora* with *Austrostipa* sp. Grassland;
- *Austrostipa* sp. and *Rytidosperma* sp. Grassland; and
- *Cryptandra campanulata* shrubland.

Other vegetation associations include:

- Cropping;
- Exotic grassland;
- Planted vegetation; and
- *Enchylaena tomentosa* open shrubland.

Several patches of Iron-grass Natural Temperate Grassland (INTG; EPBC Act listed, Critically Endangered) were identified within the wind farm site, with four patches qualifying as Condition Class B Threatened Ecological Community (TEC) and six as Condition Class C (not TEC). No INTG TEC patches were identified in the transmission line corridor.

TABLE 5-1 IRON-GRASS NATURAL TEMPERATE GRASSLANDS OF SOUTH AUSTRALIA (INTG) WITHIN WIND FARM SITE

Vegetation	Lomandra grassland	
INTG Class	B	C
TEC	Yes	No
Identified within WF site (Total; ha)	205.42	40.84

Another TEC, Peppermint Box (*Eucalyptus odorata*) Grassy Woodland, is classified as likely to occur in the region but is absent from the wind farm site (Umwelt, 2025a).

5.7.2 FLORA

A total of 129 flora species were recorded within the wind farm site across eight vegetation associations, comprising 66 native species and 63 exotic species (Umwelt, 2025a). For a detailed species list, refer to Section 7.2 of Appendix B.

A single State-listed Rare flora species, *Cryptandra campanulata* (Long-flowered Cryptandra), was recorded within the Project Area. This species occurs extensively throughout shrubland communities and is also present as scattered groups within grassland habitats. Three distinct areas within the site (BAM sites A4a, A4b and A4c) were identified as being dominated by *Cryptandra campanulata* (Umwelt, 2025a). A representative example of this shrubland type is shown in Photograph 5-1 below.



PHOTOGRAPH 5-1 CRYPTANDRA CAMPANULATA (LONG-FLOWERED CRYPTANDRA) RECORDED WITHIN THE PROJECT AREA

One nationally Vulnerable and State Endangered flora species has historical records within the Project Area, *Codonocarpus pyramidalis* (Slender Bell-fruit), but field surveys to date have not observed any individuals (Umwelt, 2025a).

5.7.3 FAUNA

A total of 63 fauna species have been observed in the Project Area, this includes 48 bird species, nine mammal species and six reptile species.

Of the 58 fauna species observed across the Project Area, four species are listed as threatened, which are all birds.

One observed bird species is listed as threatened under the EPBC Act:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) – nationally Vulnerable.

Three observed bird species are listed as threatened under the NPW Act:

- Little Eagle (*Hieraaetus morphnoides*) – State, Vulnerable;
- Black Falcon (*Falco subniger*) – State, Rare; and
- Peregrine Falcon (*Falco peregrinus*) – State, Vulnerable.

No raptor nests were observed within the Project Area during the 2023–2025 survey period.

Figure 5-2 below shows the location of threatened bird species within the wind farm site (noting no threatened bat species were identified).

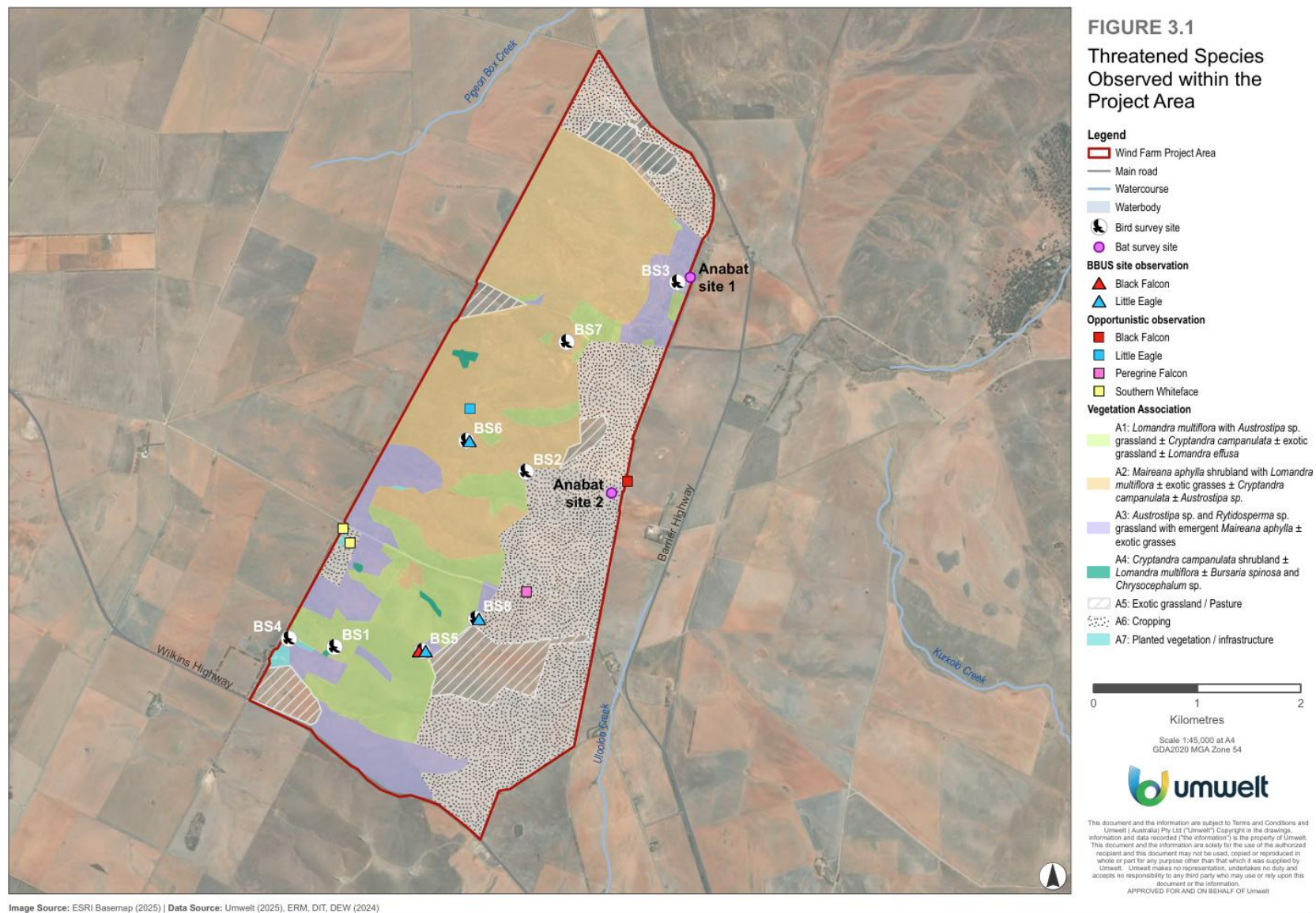


FIGURE 5-2 THREATENED BIRD SPECIES OBSERVATIONS

Additional avifauna species identified as potentially present but not observed during the eight surveys conducted from spring 2023 to winter 2025 included the nationally Vulnerable Blue-winged Parrot (possible) and the nationally Vulnerable Diamond Firetail (possible). However, it is important to note that the Project Area lacks suitable habitat for both the Blue-winged Parrot and the Diamond Firetail, resulting in a low probability of encountering these species within the Project Area.

Opportunistic surveys for Flinders Ranges Worm-lizard were undertaken during the 2023 spring survey with no individuals observed.

Targeted surveys for FRWL were undertaken in June 2026. A total of 38 sites, with between 5,200 and 7,100 rocks, were inspected within and adjacent to the proposed disturbance footprint, recording a total of two FRWL individuals.

Targeted surveys for Pygmy Blue-tongue Lizards (PBTL) were undertaken during the 2023 spring survey. Due to the relatively dry conditions and grazing pressure during this survey, most grassland areas had low vegetation cover and there was little difficulty locating spider burrows.

A total of 1,023 spider burrows across the wind farm site were inspected for the presence of PBTL. There are existing PBTL records within the Project boundary, but these are more than 20 years old and spider burrows were searched in this area. No PBTLs were recorded during the 2023 survey.

Targeted surveys for PBTL were undertaken in March and April 2026. A total of 1,221 burrows were checked across the two targeted surveys, recording a total of nine burrows containing PBTL.

5.7.4 WEEDS AND PESTS

A total of 63 exotic plant species were recorded across the Project Area (Umwelt, 2025). These include 29 weed species classified under the following categories:

- Declared Weeds (under the *Landscape South Australia Act 2019*):
 - *Chondrilla juncea* (Skeleton Weed);
 - *Cynara cardunculus ssp. flavescentis* (Artichoke Thistle);
 - *Echium plantagineum* (Salvation Jane);
 - *Lycium ferocissimum* (African Boxthorn);
 - *Marrubium vulgare* (Horehound);
 - *Pinus halepensis* (Aleppo Pine);
 - *Silybum marianum* (Variegated Thistle); and
 - *Xanthium spinosum* (Bathurst Burr).

From these species, *Lycium ferocissimum* (African Boxthorn) is also classified as a Weed of National Significance (WoNS).

Declared weeds are subject to mandatory control measures under South Australian LSA Act due to their potential to cause environmental, economic, and social impacts. For a detailed species list, refer to Section 7.2.4 of Appendix B.

5.7.5 ROADSIDE SIGNIFICANT SITES

A review of the Roadside Significant Sites (RSS) database identified four sites along Jamestown–Hallett Road associated with native vegetation within the road corridor, as outlined in Table 5-2. Two sites are flagged for *Maireana aphylla* (listed in the RSS database as Rare Flora), and two sites comprise native tussock grassland communities. Management measures at all sites focus on avoiding vegetation disturbance beyond defined verges and implementing targeted weed control.

TABLE 5-2 ROADSIDE SIGNIFICANT SITES WITHIN PROJECT AREA

RSS ID	Location	Feature Type	Key Vegetation / Values	Disturbance & Weeds
1	330 m ESE of Yarcowie (12 km) Rd intersection, extending 600 m (LHS)	Rare Flora (database listing, not NPW listed)	<i>Maireana aphylla</i> (~43 plants), mainly along fence line	Lucerne, thistles, salvation jane, wild oats, wild sage
2	35 m SE of Bluff Rd intersection, extending 830 m (RHS)	Rare Flora (database listing, not NPW listed)	<i>Maireana aphylla</i> (62 plants, scattered)	Salvation jane, horehound, lucerne, heliotrope, turnip
847	1.12 km SE of Ashby Rd intersection, extending 1.03 km (RHS)	Native Vegetation	Native tussock grassland (<i>Themeda</i> , <i>Stipa</i> , <i>Danthonia</i> , <i>Enneapogon</i> , <i>Aristida</i>) with <i>Lomandra multiflora dura</i> .	Plantation (first 150 m), wild sage, phalaris, artichoke, onion weed, salvation jane
887	2.76 km NE of Booborowie (15 km) Rd intersection, extending 900 m (LHS)	Native Vegetation	<i>Lomandra multiflora dura</i> tussock grassland with native grasses	Salvation jane, horehound, wild sage, couch, onion weed; plantation (first 100 m)

5.8 SOILS AND HYDROGEOLOGY

5.8.1 SOILS

The Project Area is situated within the Broughton subregion of the Flinders Lofty Block IBRA bioregion, a region characterised by subdued ranges and undulating plains underlain by sedimentary rock (DEW, 2022).

At the finer landscape scale, the area includes portions of the Bald Hill Range Land System and the Hansen soil–landscape association, as defined by South Australia’s Soil and Land Program (DEW, 2007).

The Bald Hill association comprises low hills and rises developed on fine-grained sedimentary rock, with slopes ranging from 10% to 50%, and local relief up to 60 m. Soils are predominantly shallow and stony, including shallow stony loams, calcareous loam over rock, gradational loam on rock, and sandy loam over red clay.

These soils are typically hard-setting, calcareous, and erosion-prone, especially where native vegetation has been cleared (DEW, 2007).

The Hansen association (mapped at soil–landscape unit scale) generally consists of gently undulating rises with moderately deep red duplex soils, shallow calcareous loams, and texture contrast profiles. Land use is predominantly dryland cropping and grazing, with remnant native vegetation limited to rocky or low-productivity areas (DEW, 2020).

5.8.2 SITE CONTAMINATION

Table 5-2 below presents site contamination records received by the EPA and listed in the public register under the *Environment Protection Act 1993* for locations within 50 km of the wind farm site. No properties within 15 km of the wind farm site appear on the SA EPA Site Contamination Index (EPA, 2025a). The nearest entries are found in Terowie, approximately 19 km north, where six records are associated with potentially contaminating activities, such as fill or soil importation and railway operations (EPA, 2025a).

TABLE 5-3 EPA CONTAMINATION INDEX RECORDS WITHIN 50 KM OF THE PROJECT

Notification No	Type	Address	Potentially contaminating activity	Distance from Project Area
16455 61282	109 Notification	Lots 89 & 90 Railway West Terrace TEROWIE SA 5421	Fill or soil importation; Railway operations	19 km
61280	109 Notification	Lot 89 Railway West Terrace TEROWIE SA 5421	Railway operations	19 km
61281	109 Notification	Lot 90 Railway West Terrace TEROWIE SA 5421	Railway operations	19 km
60945 - 01	S83A Notification	Lots 89 & 90 Railway West Tce & Section 469	Railway operations	19 – 39 km
16435	SAHC	Lot 104 Railway West Terrace TEROWIE SA 5421	Railway operations	20 km
62398 - 01	S83A Notification	1127 The Camels Hump Road LEIGHTON SA 5417	Not recorded	22 km
12542	109 Notification	Adchem Chemical Plant BURRA SA 5417	Not recorded	25 km
60504 - 01	S83A Notification	Lot 500 Linkson Street BURRA SA 5417	Not recorded	26 km

5.8.3 GROUNDWATER

A search of the WaterConnect database of the area indicates that historic standing water levels across the wind farm site have been observed between 9 m depth (Unit 6631-1592, 10/11/2002) to 21 m depth (Unit 6631-305, 11/10/1973).

5.9 SURFACE WATER

The Project Area lies along a ridgeline that divides the upper reaches of the Murray River and Broughton River catchments. This topographic positioning results in surface water runoff

flowing westward into the Broughton River catchment and eastward into the Murray River catchment. The terrain is steep and varied, with no defined waterways within the Project Area, and rainfall tends to flow actively across the surface rather than pooling.

As defined under the *Landscape South Australia Act 2019* landscape management framework, the Project Area falls within the Northern and Yorke Region. The Project Area is located across two non-prescribed water resource zones (NY1 and NY3). These zones reflect the absence of regulated surface water extraction in the area and the Project Area's positioning within a catchment divide.

The site's topography is characterised by frequent elevation changes and complex terrain. The Project Area's hydrological environment is shaped by its elevated position, lack of upstream inflows, and dynamic surface water movement. These features contribute to a landscape where water disperses rapidly across the terrain, with localised inundation occurring primarily within defined flow paths.

5.10 SOCIAL AND ECONOMIC ENVIRONMENT

The Project Area is in the mid-north region of SA, within the Goyder Regional Council Local Government Area (LGA). The Project Area and its immediate surroundings are predominantly rural, characterised by agricultural land use.

The Social Locality includes the townships of Hallett and Willalo (closest to the Project Area), as well as the regional centres of Burra, Clare, Jamestown, Peterborough, and Crystal Brook, all within approximately one hour's drive of the wind farm site. These centres are expected to provide much of the infrastructure, services, and workforce required for the Project's construction and operation phases.

Demographically, the Social Locality is marked by stagnant or declining population growth, with the Goyder LGA experiencing a slight decrease between 2016 and 2021. The population is relatively older than the state and national averages, with a median age ranging from 42 to 56 years, and a significant proportion of residents aged over 65.

Median household incomes across the locality are lower than those for South Australia and Australia as a whole, and there are pockets of socio-economic disadvantage, as indicated by Socio-Economic Indexes for Areas (SEIFA) scores. The region is also home to a small but significant First Nations population, primarily represented by the Ngadjuri Nation Aboriginal Corporation (NNAC).

Economically, the area is heavily reliant on agriculture and primary production, particularly within the Goyder LGA, although the larger towns display a more diverse economic base, including health, public services, and retail. The local business landscape is dominated by small enterprises, with the vast majority employing fewer than 19 people.

Social infrastructure in the locality includes basic emergency services, healthcare, and educational facilities, though access to specialised health and childcare services is limited, often requiring travel to larger regional centres.

Community values are closely tied to the rural landscape, natural environment, and local heritage, with a strong emphasis on the preservation of both European and Aboriginal cultural sites. The region hosts a variety of community and recreational services, as well as annual festivals and events that contribute to local identity and tourism.

5.11 TRAFFIC

The Project Area is characterised by a comprehensive network of roads that facilitate critical connections to townships and agricultural regions, serving a variety of commercial, recreational, and daily activities. This road network accommodates both light vehicles (LVs) and heavy vehicles (HVs), which include general access vehicles and restricted access vehicles (RAVs).

Public transport services within the study area are limited, largely due to the low population density and the considerable distances separating townships.

A decommissioned railway, previously a segment of the Roseworthy to Peterborough railway line via Hallett, runs through the wind farm site.

The main roads from port to wind farm site are likely to be:

- Port River Expressway (A9);
- Northern Expressway (M2);
- Sturt Highway (A20);
- Port Wakefield Highway (A1);
- Augusta Highway (A1);
- Main North Road (A20);
- Horrocks Highway (B82);
- Wilkins Highway (B78); and
- Barrier Highway (A32).

Council roads, including potential site access roads include:

- The Braes Road;
- Weirs Gap Road;
- Willalo Road;
- McAskill Road; and
- Booborowie Road.

The two main roads adjacent to the wind farm site are the Wilkins Highway and Barrier Highway.

The Hallett to wind farm site section of the Wilkins Highway has an annual average daily traffic volume of 250, with 30% commercial vehicle use (DIT, 2024).

The Hallett to Terrowie section of the Barrier Highway has an annual average daily traffic volume of 650, with 29% commercial vehicle use (DIT, 2024).

The primary access to the wind farm site is expected to be via Wilkins Highway, with secondary access via Weirs Gap Road. For the BESS site, Willalo Road and McAskill Road are likely to serve as the main access points (CIRQA, 2025).

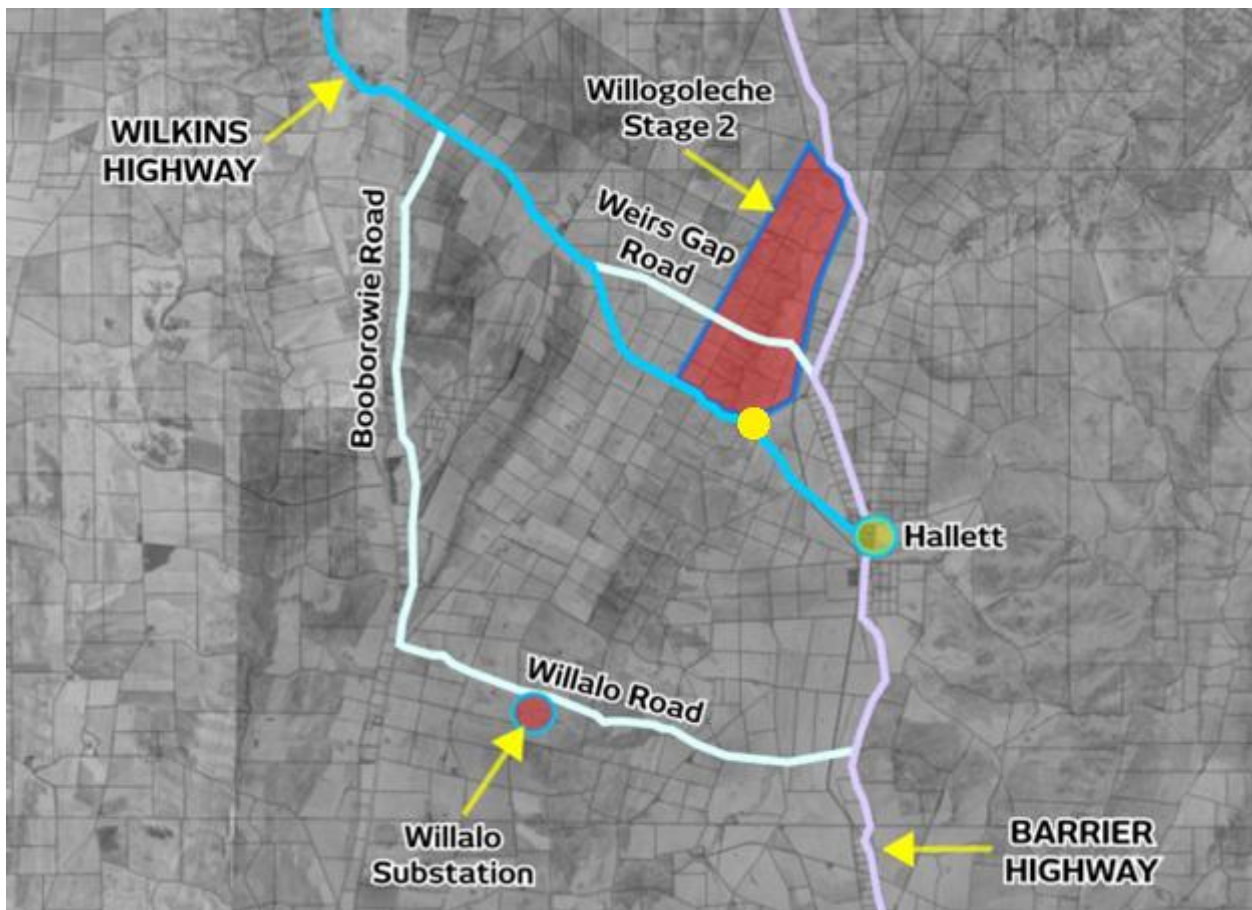


FIGURE 5-3 KEY ROADS WITHIN PROJECT AREA LOCALITY

5.12 VISUAL AMENITY

The Project Area is situated within a rural landscape characterised by gently undulating terrain, open agricultural fields, and scattered vegetation. Existing renewable energy developments, including several wind farms, are present in the broader region and form a recognised subset of the landscape character in this area of the Mid-North.

6. ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

This environmental impact assessment (EIA) has been prepared in accordance with the Environmental Impact Assessment Criteria (EIA Criteria) gazetted on 31 October 2024, as outlined under Part 4, section 60 of the HRE Act.

The EIA Criteria, as determined by the Minister, provides the framework for assessing the environmental impact of authorised operations.

Under the EIR Criteria, an EIR must consider the following criteria:

Criteria 1 Elements of the Environment	Describe the specific environmental elements (e.g. land, air, water, biodiversity) that may be affected by the proposed operations, incorporating stakeholder concerns and relevant standards.
Criteria 2 Potential Impact Events	Identify potential impact events across all operational phases, specifying the source, pathway, and receptor, while addressing any uncertainties in the assessment.
Criteria 3 Confirmation of Impact Events	Confirm the existence of source-pathway-receptor relationships, estimate the frequency of impact events, and describe their potential environmental consequences before implementing control measures.
Criteria 4 Control and Management Strategies and Uncertainty Assessment	Implement and describe control measures to minimise or manage environmental impacts, ensuring they are effective, long-term, and compliant with regulatory standards, while acknowledging any uncertainties.
Criteria 5 Environmental Significance Assessment	Assess the significance of potential impacts after controls are applied, considering factors like frequency, duration, severity, and the sensitivity of the affected environment.
Criteria 6 Statement of Environmental Objectives	Develop objectives and performance criteria to monitor environmental outcomes, with early warning indicators for control measure failures and ensure all identified impacts are addressed.

For Criteria 5, the environmental significance assessment must consider the following:

- The level to which a potential impact can be avoided through elimination (prevention);
- The estimated frequency of the potential impact occurring;
- The anticipated duration of the potential impact;
- The extent of the potential impact;
- The severity of the potential impact;
- The cumulative effects (if any) of the potential impact when considered in conjunction with other impacts on the same receptor; and
- The sensitivity of the receiving environment.

A statement to demonstrate the outcome of the significance assessment must be provided after proposed controls have been implemented.

6.1.1 DETERMINING IMPACT MAGNITUDE

ERM's Global Impact Assessment Standard (IA Standard) has informed this EIA. The ERM IA Standard provides a globally consistent approach to EIA undertaken by ERM practitioners, underpinned by the knowledge, experience and expertise of ERM's Global Impact Assessment Technical Community.

Standard terminology has been used to define impact characteristics. Table 6-1 below shows the characteristics, definitions and designations adopted for this EIR.

TABLE 6-1 IMPACT CHARACTERISTIC TERMINOLOGY

Characteristic	Designations	
Type The relationship of the impact to the Project (in terms of cause and effect)	Direct	Impacts that result from a direct interaction between the Project and a resource/receptor
	Indirect	Impacts that follow on from direct interactions between the project as a result of subsequent interactions within the environment
	Induced	Impacts that result from other activities which are not part of the project that happen as a consequence of the Project
Frequency Measure of the constancy or periodicity of the impact	Rarely Occasionally Intermittently Routinely Continuously	
Duration Time period over which a resource / receptor is affected	Temporary Short-term Medium-term Long-term Permanent	} may be defined on a resource/receptor-specific basis
Extent The 'reach' of the impact (e.g. confined to a small area or across several kms)	Local Regional National International	} may be defined on a resource/receptor-specific basis
Severity The size of the impact	Low Medium High	
Reversibility	Reversible Partially reversible Irreversible	

Once the impact characteristics are understood, they are used to assign each impact a magnitude in a manner specific to the resource/receptor. The magnitude designations used in this EIR are **Negligible**, **Small**, **Medium** and **Large**. Negligible impacts are characterised by changes to the environment that may be immeasurable, undetectable or within the range of normal natural variation. Negligible to large magnitude definitions are mapped in Table 6-3 for elements of the Biophysical and Built Environment, and in Table 6-4 for Cultural and Socioeconomic Environmental elements.

Some technical studies that have informed this EIR use their own significance assessment methodology or predictive model, in which cases the impact magnitude assignment has been aligned to a commensurate magnitude descriptions outlined in the tables below.

6.1.1.1 UNPLANNED EVENTS

An additional characteristic that pertains only to **unplanned events** is likelihood. The definitions for likelihood designations are provided in Table 6-2 and represent a measure of the degree to which an unplanned event is expected to occur, not the degree to which an impact is expected to occur because of the unplanned event.

TABLE 6-2 DEFINITIONS FOR LIKELIHOOD DESIGNATIONS FOR UNPLANNED EVENTS

Likelihood	Definition
Unlikely	The event is unlikely but may occur at some time during normal operating conditions
Possible	The event is likely to occur at some time during normal operating conditions.
Likely	The event will occur during normal operating conditions.

TABLE 6-3 MAGNITUDE OF IMPACT (BIOPHYSICAL AND BUILT ENVIRONMENT)

Category	Land use	Soils	Air quality	Noise	Surface and groundwater	Flora and fauna (habitat and species)
Negligible	No measurable change to land use or values; impacts are temporary, reversible, and localised. Use of existing farm tracks for vehicle access during construction with no vegetation removal.	No measurable change to soil condition, structure, or function. Temporary vehicle access on existing roads with no excavation or chemical use.	Unnoticeable change from background conditions. No off-site impact of dust, odour or point source emission.	Unnoticeable change from background conditions. No off-site noise impacts anticipated.	No impact on upstream or downstream flood flows and/or surface levels. Water quality impacts are likely to be well within ambient levels or allowable criteria. Unlikely to have an impact on groundwater recharge / discharge at any time.	Impact is within the normal range of natural variation. Impact is within the normal range of variation for the population of the species.
Small	Low-level, short-term change with limited spatial extent and minimal disruption to land use. Installation of temporary site offices or laydown areas on cleared agricultural land (<1 ha).	Localised, low-level disturbance; short-term and reversible. Minor fuel or oil spill during construction, fully contained and remediated with no residual contamination.	Short-term (<1 month) and localised nuisance dust. Localised off-site pollutant or odour emissions that meet applicable air quality ground level concentrations or odour levels.	Short-term (<1month) construction nuisance noise during day-time hours. Operational noise impact achieves application noise criteria at sensitive receivers.	There is likely to be some alteration to existing drainage regimes, with no material impact on the frequency and severity of flooding. Water quality impacts are likely to be within ambient levels or allowable criteria. Likely to be some alteration to existing recharge / discharge regimes, unlikely to result in any significant long-term changes to groundwater levels, or flows.	Impacts only a small area of habitat, such that there is no loss of viability / function of the habitat. Impact does not cause a substantial change in the population of the species, or to other species dependent on it.
Medium	Medium-scale, longer-term change with partial loss of land use or values; some reversibility. Construction of turbine pads and access roads on grazing land (5–10 ha), with rehabilitation plans.	Noticeable change to soil profile or function; moderate erosion or contamination risk. Excavation for turbine pads on dispersive soils with moderate risk of erosion or hydrocarbon leaks from machinery.	Medium term (1 > 6 months) nuisance dust over wide regional area. Wide-scale regional off-site pollutant or odour emissions that meet applicable air quality ground level concentrations or odour levels.	Short-term (<1 month) construction nuisance noise during nighttime hours or medium-term (1 > 6 months) during day-time hours. Operational noise impact exceeds application noise criteria at sensitive receivers by more than 3 dB(A) under some operational conditions.	The project is likely to involve intermittent alterations to existing drainage regimes and patterns. Water quality impacts are likely to result in occasional exceedances or ambient levels or allowable criteria. Likely to involve significant changes to existing recharge / discharge regimes which may result in changes to groundwater flows (vertical and/or horizontal) and/or quality.	Impacts part of the habitat but does not threaten the long-term viability / function of the habitat. Impact causes a substantial change in abundance and / or reduction in distribution of a population over one, or more generations, but does not threaten the long-term viability / function of that population, or any populations dependent on it.
Large	Large-scale, irreversible change with significant loss of land use or environmental values. Clearing >20 ha of native vegetation or productive farmland for permanent infrastructure (e.g., substations, transmission corridors).	Large-scale, irreversible soil degradation or contamination. Significant diesel or hydraulic fluid spill from turbine installation or substation, leading to long-term soil contamination requiring excavation and off-site disposal. Formation of actual acid sulphate soil material or sulphuric material.	Permanent nuisance dust over wide regional area. Exceedances of applicable air quality ground level concentrations or odour levels.	Long-term (>6 months) construction nuisance noise during daytime and nighttime hours. Operational noise impact exceeds application noise criteria at sensitive receivers by more than 10 dB(A) under all or some operational conditions.	The project is likely to involve significant alterations to existing drainage regimes and patterns. Water quality impacts are likely to routinely exceed ambient criteria levels or allowable criteria over large areas. Likely to involve significant long-term changes to groundwater flows (vertical and/or horizontal extent) and/or quality.	Impacts the entire habitat, or a significant proportion of it, and the long-term viability / function of the habitat is threatened. Impacts entire population, or a significant part of it causing a substantial decline in abundance and/or change in and recovery of the population (or another dependent on it) is not possible either at all, or within several generations due to natural recruitment.

TABLE 6-4 MAGNITUDE OF IMPACT (CULTURAL AND SOCIOECONOMIC ENVIRONMENT)

Category	Aboriginal heritage	Historic heritage	Public health and safety	Landscape and visual amenity	Social and economic
Negligible	Damage or change, if occurred at all, would be of an extremely slight or minor nature. Note - Consideration must be given to the avoidance and protection of Aboriginal heritage to ensure compliance with the <i>Aboriginal Heritage Act 1988</i> . This includes provisions for potential unrecorded Aboriginal heritage and authorisations under Section 21 and 23 of the Act.	Damage or change, if occurred at all, would be of an extremely slight or minor nature.	No measurable risk to public health or safety; fully controlled and reversible. Controlled access to site with fencing and signage; no hazardous materials stored on-site. Site is not in known flight paths.	An imperceptible, barely or rarely perceptible change in landscape characteristics. The change may be short term.	Change remains within the range commonly experienced within the household or community.
Small	Minor damage or change could be managed through mitigation measures, with no permanent negative impact to the heritage item's significance or heritage values contributing to significance, the functionality of the item or place, or the item or place's availability for access.	Minor damage or change could be managed through mitigation measures, with no permanent negative impact to the heritage item's significance or heritage values contributing to significance, the functionality of the item or place, or the item or place's availability for access.	Low-level, localised risk; short-term and easily mitigated. Minor traffic increase on rural roads during construction; managed with traffic control plans. Turbines located near low-activity airspace with CASA clearance.	A subtle change in landscape character over a wide area of a more noticeable change either over a restricted area or occasionally perceived. The change may be short term.	Perceptible difference from baseline conditions. Tendency is that impact is local, rare and affects a small proportion of households and is of a short duration.
Medium	Some damage or change may occur that would require management through mitigation measures, and permanent impact would occur to one or more of the following: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.	Some damage or change may occur that would require management through mitigation measures, and permanent impact would occur to one or more of the following: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.	Noticeable risk requiring active management; potential for injury or nuisance. Blade transport through regional towns causing temporary road closures and public disruption. Turbines near non-controlled airstrips requiring consultation.	A noticeable change in landscape character, routinely perceived or continuous and over a wide area; or a clearly evident change over a restricted area that may be occasionally perceived. The change may be medium to long term and may not be reversible.	Clearly evident difference from baseline conditions. Tendency is that impact affects a substantial area or number of people and/or is of medium duration. Frequency may be occasional and impact may be regional in scale.
Large	Permanent detrimental impact on one or more of the following would occur but may be reduced through mitigation measures: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.	Permanent detrimental impact on one or more of the following would occur but may be reduced through mitigation measures: the significance, any of the values that contribute to significance, the functionality of the item or place, and / or the item or place's availability for access.	High risk to public safety or health; potential for serious injury or long-term harm. Fire or explosion from electrical fault at substation; or hazardous material spill near residential area. Turbines located within controlled airspace or near emergency flight paths without mitigation.	A clearly evident, continuous change in landscape characteristics affecting an extensive area. The change may be long term and would not be reversible.	Change dominates over baseline conditions. Affects the majority of the area or population in the Area of Influence and/or persists over many years. The impact may be experienced over a regional or national area.

6.1.2 SENSITIVITY OF RECEIVING ENVIRONMENT

In addition to characterising the magnitude of impact, the other principal step necessary to assign significance for a given impact is to define the sensitivity/vulnerability/importance of the impacted receiving environment (resource/receptor).

There are a range of factors to be considered when defining the sensitivity/vulnerability/importance of the resource/receptor, which may be physical, biological, cultural or human. Where the resource is physical (for example, a water body) its quality, sensitivity to change and importance (on a local, regional or national scale) are considered. Where the resource/receptor is biological or cultural, its importance and its sensitivity to the specific type of impact are considered. Where the receptor is human, the vulnerability of the individual, community or wider societal group is considered.

Other factors may also be considered when characterising sensitivity/vulnerability/importance, such as legal protection, government policy, stakeholder views and economic value.

As in the case of magnitude, the sensitivity/vulnerability/importance designations themselves are universally consistent, but the definitions for these designations will vary on a resource/receptor basis. The universal sensitivity/vulnerability/importance designations are: **Low**, **Medium** and **High**, and are mapped in Table 6-3 for elements of the Biophysical and Built Environment, and in Table 6-4 for the Cultural and Socioeconomic Environmental elements.

Once magnitude of impact and sensitivity/vulnerability/importance of resource/receptor have been characterised, the significance can be determined for each impact. Environmental impact significance is detailed in Section 6.1.3.

TABLE 6-5 SENSITIVITY/VULNERABILITY/IMPORTANCE OF RESOURCE/RECEPTOR (BIOPHYSICAL AND BUILT ENVIRONMENT)

Category	Land use	Soils	Air quality	Noise	Surface and groundwater	Flora and fauna (habitat and species)
Low	Land is already cleared or degraded; minimal ecological or cultural value. Low vulnerability to change; minimal impact from construction or operation.	Soils are stable, well-drained, and not prone to erosion or compaction. Low vulnerability to construction or operational impacts.	Industrial or agricultural areas	Special or general industry	The water resource does not support diverse aquatic habitat or populations, or supports aquatic habitat or population that is of low quality. The water resource has little or no role as a physical regulating service in the hydrologic cycle, and/or the role is highly localised. The groundwater resource is not currently abstracted and used in the vicinity of the project, but is of sufficient quality and yield to be used for that purpose in the future (and there is a reasonable potential for future use).	Habitats with no, or only local recognition, or common and widespread within the region, or with low conservation interest based on expert opinion. Species not meeting criteria for medium or high value.
Medium	Land has moderate agricultural, ecological, or community value. Moderate vulnerability; may require mitigation or stakeholder engagement.	Soils have moderate erosion potential or ecological value. Moderate vulnerability; may require erosion control or rehabilitation.	Residential areas Recreational areas & public open space Shopping areas	Rural industry Light Industry Commercial	The water resource supports diverse populations of flora and / or fauna. The water resource plays a local or subregional regulating role in the hydrologic cycle in terms of storage, flows and flood alleviation. The groundwater resource is an important water supply, and is currently used, but there is capacity and / or adequate opportunity for alternative sources of comparable quality.	Habitats (ecological communities) that are vulnerable or rare, or species that are vulnerable or rare and have a medium to high likelihood of occurrence across the project area.
High	Land is ecologically or culturally significant, changes may cause irreversible impacts. High vulnerability' sensitivity to disturbance and requires strict protections.	Soils are highly erodible, support sensitive ecosystems, or are difficult to rehabilitate. High vulnerability; disturbance may cause long-term degradation.	Hospitals Schools Sensitive commercial (e.g. food processing or manufacture, facilities with large clean air intake)	Rural Living Residential	The water resource supports economically important or biologically unique aquatic species or provides essential habitat for such species. The water resource plays a regional regulating role in the hydrologic cycle in terms of storage, flows and flood alleviation, and one which may have transboundary influences. The groundwater resource is wholly relied upon locally, with no suitable technically or economically feasible alternatives, or is important at a regional or transboundary level for water supply or contribution to groundwater dependent ecosystems.	Habitats (ecological communities) that are critically endangered or endangered, or species that are critically endangered, or endangered and have a high likelihood of occurrence across the project area.

TABLE 6-6 SENSITIVITY/VULNERABILITY/IMPORTANCE OF RESOURCE/RECEPTOR (CULTURAL AND SOCIOECONOMIC ENVIRONMENT)

Category	Aboriginal heritage	Historic heritage	Public health and safety	Landscape and visual amenity	Social and economic
Low	Site has limited cultural value to local, national, or international stakeholders. Site has limited scientific value or similar information can be obtained at numerous sites. Site is considered to be of low archaeological potential. Note - Consideration must be given to the avoidance and protection of any sensitivity areas, however low, to ensure compliance with the <i>Aboriginal Heritage Act 1988</i>. This includes provisions for potential unrecorded Aboriginal heritage and authorisations under Section 21 and 23 of the Act.	Site is not specifically protected under local, national or international laws or treaties. Site can be moved to another location or replaced by a similar site, or is of a type that is common in the surrounding region. Site has limited or no cultural value to local, national, or international stakeholders. Site has limited scientific value or similar information can be obtained at numerous sites.	Limited consequence if compromised.	A landscape which is not valued in a special way by the public. It has a low level of tranquillity and features detracting elements. The landscape may contain industrialised areas or may be in poor condition. Its character, land use, pattern and scale are such that it could absorb the Project without unacceptable damage.	Minimal areas of vulnerabilities; consequently with a high ability to adapt to changes brought by the project.
Medium	Site is specifically or generically protected by local or national laws but allows for mitigated impacts. Site can be moved or replaced, or date and artefacts recovered in consultation with stakeholders. Site has considerable cultural value to local and/or national stakeholders. Site has substantial scientific value but similar information can be obtained at a limited number of other sites. Site is of medium archaeological potential.	Site is specifically or generically protected by local or national laws but allows for mitigated impacts. Site can be moved or replaced, or date and artefacts recovered in consultation with stakeholders. Site has considerable cultural value to local and/or national stakeholders. Site has substantial scientific value but similar information can be obtained at a limited number of other sites.	Important for local operations or compliance.	A landscape which is valued locally but carries no statutory designation in its own right. The landscape is in reasonably good condition and has a medium level of tranquillity. Its character, land use, pattern and scale are such that it has some capacity to absorb the Project without unacceptable damage provided appropriate mitigation is incorporated.	Some but few areas of vulnerability; but still retaining an ability to at least in part adapt to change brought about by the project.
High	Site is protected by local, national and international laws or treaties. Site cannot be moved or replaced without major loss of cultural value. Legal status specifically prohibits direct impacts or encroachment on site and/or protection zone. Site has substantial value to local, national and international stakeholders. Site has exceptional scientific value and similar site types are rare or non-existent. Site is of high archaeological potential.	Site is protected by local, national and international laws or treaties. Site cannot be moved or replaced without major loss of cultural value. Legal status specifically prohibits direct impacts or encroachment on site and/or protection zone. Site has substantial value to local, national and international stakeholders. Site has exceptional scientific value and similar site types are rare or non-existent.	Critical to safety, regulatory compliance or public trust.	A landscape of international or national importance covered by international and/or national designation. The landscape features and character which are the bases for designation are largely intact and in good condition. The landscape has a high level of tranquillity. Its character, land use, pattern and scale are such that it has limited capacity to absorb the Project without unacceptable damage. Provision of appropriate mitigation may be difficult to prevent effects.	Profound or multiple levels of vulnerability that undermine the ability to adapt to changes brought by the project.

6.1.3 ENVIRONMENTAL IMPACT SIGNIFICANCE

Once magnitude of impact and sensitivity/vulnerability/importance of resource/receptor have been characterised, an environmental impact significance can be assigned using the matrix shown in Table 6-7.

TABLE 6-7 IMPACT SIGNIFICANCE MATRIX

		Sensitivity/Vulnerability/Importance of Receptor or Resource		
		Low	Medium	High
Magnitude of Impact	Negligible	Negligible	Negligible	Negligible
	Small	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	Large	Moderate	Major	Major

Table 6-8 below defines the outcomes of the environmental significance assessment as they relate to the environmental elements and associated impacts considered in this EIR.

As outlined in the EIR Criteria, negligible and minor impacts are considered acceptable. Moderate impacts are acceptable where demonstrated that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). Major impacts require further design and/or mitigation measures.

TABLE 6-8 IMPACT SIGNIFICANCE CATEGORISATION DEFINITIONS

Significance	Description of the significance outcome
Negligible	A resource/receptor (including people) will essentially not be affected in any way by a particular activity or the predicted effect is deemed to be imperceptible or is indistinguishable from natural background variations.
Minor	A resource/receptor will experience a noticeable effect, but the impact magnitude is sufficiently small (with or without mitigation) and/or the resource/receptor is of low sensitivity/ vulnerability/ importance. In either case, the magnitude should be well within applicable standards.
Moderate	An impact magnitude that is within applicable standards, but falls somewhere in the range from a threshold below which the impact is minor, up to a level that might be just short of breaching a legal limit, and/or the resource/receptor has a medium to high sensitivity/ vulnerability/ importance. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP).
Major	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors.

6.2 ENVIRONMENTAL ELEMENTS

Table 6-9 below summaries the environmental elements considered relevant for the project in the context of the surrounding environment, and these elements are subject to further assessment.

TABLE 6-9 OVERVIEW OF ENVIRONMENTAL ELEMENTS AND ASSOCIATED MATTERS

Environmental Element	Views of Affected Parties	Applicable Government Legislation	Applicable Non-Legislated Instruments	Environmental Receptor
Aboriginal Heritage	Engagement with the Ngadjuri Nation Aboriginal Corporation (NNAC), the recognised Traditional Owners of the land, commenced on 9 November 2023 and has continued throughout the planning process. In February 2024, South Australian Native Title Services (SANTS), together with three Ngadjuri representatives, undertook a field survey prior to the installation of a met mast for the Project. On 16 June 2025, ERM and ENGIE met with Aboriginal Affairs and Reconciliation (AAR) to discuss the desktop assessment and risk management approach. Further consultation with NNAC is planned to inform additional cultural heritage surveys and the development of a Cultural Heritage Management Plan (CHMP).	<i>Aboriginal Heritage Act 1988 (SA)</i> <i>Aboriginal and Torres Strait Islander Act 2005 (Cwlth)</i> <i>Native Title Act 1993 (Cwlth)</i>	The ICOMOS Burra Charter Register of the National Australian Natural Heritage Charter National Trust	Unregistered cultural heritage sites Cultural heritage values First Nations peoples
Air Quality	Community members expressed concerns about dust generation from construction traffic.	<i>Environment Protection Act 1993</i> <i>Environment Protection (Air Quality) Policy 2016</i> <i>Climate Change and Greenhouse Gas Emissions Reduction Act 2007</i> <i>National Greenhouse and Energy Reporting Act 2007</i>	<i>National Environment Protection (Ambient Air Quality) Measure 2021</i> SA EPA Dust Control Guidelines SA EPA Construction Environmental Management Plan Guidelines	Sensitive receptors (e.g. residences, fauna, stock)
Aviation	Consultation was undertaken with Airservices Australia, Department of Defence, Regional Council of Goyder, Royal Flying Doctor Service, SA Ambulance Service, South Australian Country Fire Service, and the Bureau of Meteorology (BoM) regarding obstacle lighting, airspace safety, and operational impacts as part of the Aviation Impact Assessment. Airservices Australia confirmed no impact on airspace procedures, CNS facilities, or ATC operations. The Department of Defence requested standard vertical obstacle notification via Airservices. The Regional Council of Goyder, Royal Flying Doctor Service, BoM, and SACFS raised no concerns. Overall, stakeholders either had no objections or required only minor administrative actions, with no technical issues necessitating design changes.	<i>Civil Aviation Safety Regulations 1998 (CASR)</i> <i>Planning, Development and Infrastructure Act 2016 (SA)</i> <i>Hydrogen and Renewable Energy Act 2023 (SA)</i>	NASF Guideline D – Managing the Risk to Aviation Safety of Wind Turbine Installations ISO 31000:2018 Risk Management – Guidelines Advisory Circulars AC 139.E-01 and AC 139.E-05 CASA MOS Part 139	Aviation safety (including local airspace, uncertified aerodromes, emergency services)
Electromagnetic Interference (EMI)	Consultation with ElectraNet, BoM, Geoscience Australia, Telstra, and Optus was undertaken as part of the EMI assessment to address potential impacts on licensed communication links, meteorological radar systems, GNSS stations, and mobile services. Stakeholders either raised no objections or identified manageable risks.	<i>Radiocommunications Act 1992 (Cwlth)</i> <i>Planning, Development and Infrastructure Act 2016 (SA)</i>	ACMA Licensing Guidelines WMO Radar Siting Guidance OPERA/EUMETNET Radar Siting Standards Australian Broadcasting Authority Fresnel Zone Clearance Guidelines ISO 31000:2018 Risk Management	Telecommunication systems
Flora and Fauna	Consultation with the Department for Environment and Water (DEW) and Native Vegetation Council (NVC) regarding vegetation clearance and offset requirements. Consultation with DCCEEW regarding MNES and survey requirements. Landowner input on site access and land use. Community members raised concerns about potential impacts on native vegetation and fauna.	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth);</i> <i>National Parks and Wildlife Act 1972 (SA);</i> <i>Native Vegetation Act 1991 (SA);</i>	EPBC Act Significant Impact Guidelines Native Vegetation Council Bushland Assessment Manual Onshore Wind Farms – Interim Guidance on	Native vegetation Threatened flora and fauna Migratory birds

Environmental Element	Views of Affected Parties	Applicable Government Legislation	Applicable Non-Legislated Instruments	Environmental Receptor
		<i>Landscape South Australia Act 2019 (SA);</i> <i>Planning, Development and Infrastructure Act 2016 (SA);</i> <i>Biodiversity Act 2025;</i> <i>Biosecurity Act 2025;</i> <i>Animal Welfare Act 1975.</i>	Bird and Bat Management (DCCEEW, in draft) National Recovery Plans for listed species and communities Policy for a Significant Environmental Benefit Codes of practice for the humane destruction of wildlife	Bats
Traffic	Stakeholders expressed concerns about increased traffic volumes and associated safety risks. Issues raised included potential noise and dust impacts linked to traffic and the condition of local road surfaces.	<i>Road Traffic Act 1961 (SA);</i> <i>Heavy Vehicle National Law (SA);</i> <i>Local Government Act 1999 (SA)</i>	Austroads "Guide to Road Design"; ARRB "Best Practice Guide for Unsealed Roads"	Local road network Adjacent landowners
Social Impact	Community members raised concerns about workforce influx affecting housing affordability and availability, including short- and long-term accommodation pressures and the risk of displacement or increased rental costs for local residents.	<i>Hydrogen and Renewable Energy Act 2023 (SA)</i> <i>Planning, Development and Infrastructure Act 2016 (SA)</i> <i>Aboriginal Heritage Act 1998 (SA)</i>	NSW SIA Guideline (2023) IAIA Principles Austroads; ARRB; Best Practice Guides	Local communities Landowners Regional economy
Noise	Community members raised concerns about the accuracy of noise modelling and monitoring, suggesting data collection over greater distances. Additional concerns included noise from construction traffic and cumulative impacts from surrounding projects.	<i>Environment Protection Act 1993</i> <i>Planning, Development and Infrastructure Act 2016</i> <i>Environment Protection (Commercial & Industrial Noise) Policy 2023</i> <i>Planning and Design Code</i>	SA EPA Wind Farms Environmental Noise Guidelines (2021) World Health Organization (WHO) Environmental Noise Guidelines	Residential receptors
Water	Community members expressed concerns about groundwater use and water access for the Project.	<i>Landscape SA Act 2019 (SA)</i> <i>Environment Protection Act 1993 (SA)</i> <i>Water Resources Act 1997 (SA)</i>	SA EPA Stormwater Management Guidelines	Local groundwater Surface water
Historic Heritage	No specific stakeholder concerns regarding historic heritage were recorded during consultation to date.	<i>Heritage Places Act 1993 (SA)</i>	The Burra Charter Heritage SA Guidelines	State heritage places Local heritage items
Visual Amenity	Community feedback noted concerns about the visibility of turbines and overhead transmission lines from residences and roads.	<i>Planning, Development and Infrastructure Act 2016 (SA)</i> <i>Hydrogen and Renewable Energy Act 2023 (SA)</i>	PlanSA Assessment Requirements Library AEQ4 Visual Amenity, Landscape and Open Space UK Landscape Institute Guidelines for Landscape and Visual Impact Assessment 3rd Edition Draft National Wind Farm Development Guidelines	Local residents Landscape character

6.3 POTENTIAL ENVIRONMENTAL IMPACTS

Table 6-10 below outlines an assessment against Criteria 2 and Criteria 3 of the EIA Criteria:

- **Criteria 2** – Potential Impact Events: Identify potential impact events across all operational phases, specifying the source, pathway, and receptor, while addressing any uncertainties in the assessment; and
- **Criteria 3** – Confirmation of Impact Events: Confirm the existence of source-pathway-receptor relationships, estimate the frequency of impact events, and describe their potential environmental consequences before implementing control measures.

TABLE 6-10 CONFIRMATION OF IMPACT EVENTS (CRITERIA 3)

Impact ID	Environmental Element	Project Phase	Potential Impact Event	Source	Pathway	Environmental Receptor	Uncertainties and Assumptions (incl. sensitivity to change)	Confirmation of source-pathway-receptor linkage (Yes/Uncertain/No)
AH1	Aboriginal heritage	Construction, operation and decommissioning	Damage or disturbance of Aboriginal cultural heritage sites, objects, remains and/or places	Earthworks impacting previously unidentified Aboriginal cultural heritage sites, objects, remains	Direct ground disturbance	Unregistered cultural heritage sites, objects, remains and/or places Cultural heritage values	Unrecorded artefacts may be present and only discovered during intrusive works. Sensitivity mapping informed by expert assessment and NNAC discussions will evolve with further survey and design.	Uncertain – the cultural heritage assessment a low to moderate likelihood of items or places of Aboriginal cultural heritage significance occurring within the Project Area.
HH1	Historic heritage	Construction, operation and decommissioning	Damage or disturbance to historic heritage places, including Cappeedee Homestead and Woolshed, or unrecorded historic heritage sites.	Clearing, ground disturbance, visual impacts	Direct and indirect (e.g., visual, curtilage reduction)	Cappeedee Homestead and Woolshed (SA State Heritage Place 14872); potential unrecorded historic heritage sites	Final footprint and proximity to heritage items remain to be confirmed. Current design has avoidance buffers of at least ~500 m to sites. Archaeological potential is moderate–high within ~100 m of Cappeedee; low elsewhere. Sensitivity is high for registered places.	Uncertain – indirect impacts are possible; avoidance buffers likely reduce risk.
AQ1	Air quality	Construction	Dust generated during construction activities results in a deterioration of air quality at sensitive receptors	Vehicle exhaust, earthworks, material handling	Airborne dispersion	Sensitive receptors (e.g. residences, fauna, livestock)	Dust generation is expected to be intermittent and localised. Emissions from vehicles and machinery are expected to be minor and temporary. Assumes standard mitigation measures (e.g. dust suppression, equipment maintenance) are implemented. Sensitive receptors are limited due to rural setting.	Yes – earthworks and construction traffic activities will generate dust and emissions.
AV1	Aviation	Construction, operation, decommissioning	Increased risk to aircraft due to tall structures (collision, wake turbulence)	Wind turbine generators	Physical obstruction, wake turbulence, radar interference	Aircraft operating in uncontrolled Class G airspace, nearby uncertified aerodromes (e.g. Tiverina Park), emergency services aircraft	WTGs outside certified aerodrome OLS and do not infringe CNS/radar. Wake turbulence may extend to ~10D downwind and could reach within 3 nm of Tiverina Park under northerly winds. No obstacle lighting currently required; assumes notifications and stakeholder liaison.	Yes – tall structures present recognised aviation safety risks; linkage established by AIA.
EMI1	Electromagnetic Interference	Construction and operation	Potential for electromagnetic interference with licensed communication infrastructure, geospatial services,	WTGs and electrical infrastructure	Emission, reflection, diffraction, or scattering of electromagnetic signals	Licensed point-to-point communication links, mobile networks, broadcast services, meteorological radar, GNSS stations, survey marks, and nearby	Desktop modelling and conservative siting indicate clearances to Fresnel/near-field zones. Sensitivity may change if layouts/services change.	Yes – source and pathways are well established; EMI analysis and stakeholder inputs confirm linkage.

Impact ID	Environmental Element	Project Phase	Potential Impact Event	Source	Pathway	Environmental Receptor	Uncertainties and Assumptions (incl. sensitivity to change)	Confirmation of source-pathway-receptor linkage (Yes/Uncertain/No)
			and sensitive receivers			dwellings reliant on wireless/satellite services		
NV1	Native vegetation	Construction	Clearance, fragmentation and degradation of native vegetation resulting in biodiversity loss	Vegetation clearance, earthworks and construction activities	Direct disturbance; dust deposition; erosion and sediment mobilisation; altered drainage/runoff	Native vegetation; threatened flora	Vegetation condition/location may vary with seasonal conditions; avoidance design reduces exposure but some clearance remains likely. Extent of impacts depends on clearing, soil conditions, rainfall and drainage. Controls will minimise disturbance and off-site impacts.	Yes – clearing and construction activities may directly or indirectly affect native vegetation.
NV2	Native vegetation	Construction, operation, decommissioning	Introduction/spread of weeds reducing native vegetation condition	Weed introduction (external) or spread within site	Human/vehicle movement; soil transfer	Native vegetation; native fauna	Weed presence documented; standard biosecurity measures applicable.	Yes – weeds exist within the Project Area with potential to spread via movements/soil transfer.
NF1	Native fauna	Construction, operation, decommissioning	Reduced abundance of listed fauna due to habitat reduction and project activity	Habitat clearance; reduced connectivity; site activity	Direct disturbance (machinery/manual methods)	Listed native fauna (e.g., Little Eagle, Black Falcon)	Species presence varies over time; targeted surveys indicate limited suitable habitat for many species; avoidance reduces exposure.	Yes – assessments confirm presence of listed fauna in Project Area.
NF2	Native fauna (avifauna)	Operation	Injury or death to listed avifauna via WTG collision	Rotating WTG blades	Direct collision	Listed avifauna	Movements vary seasonally and with broader factors. Migratory birds not recorded; raptors occasionally observed at rotor height.	Yes –some listed avifauna species have been identified in Project Area.
NF3	Native fauna (bats)	Operation	Injury/death of listed bats via barotrauma/collision	Rotating WTG blades	Pressure change/collision	Listed native bats	No listed bats identified during surveys; site lacks strong bat habitat features.	No – linkage not established for listed bat species.
V1	Visual amenity	Construction, operation	Change to landscape character and visual exposure	Turbine structures; OTL segment; ancillary works	Visibility in viewshed	Local residents; road users; township public spaces	Final layout and screening influence magnitude; ZTV is conservative; night lighting not required for WTGs per AIA.	Yes – wind farm structures are tall and visible with potential to impact amenity.
N1	Noise	Construction	Short-term noise nuisance at sensitive receivers	Construction plant; OSOM convoys; site compounds	Airborne propagation	Nearby dwellings (associated/non-associated); rural amenity	Construction sequencing and weather introduce variability; TMP/CEMP will constrain hours and controls.	Yes –nuisance noise is possible during peak construction works.
N2	Noise	Operation	Operational noise from WTGs/BESS affecting amenity	WTGs, substation transformers, BESS PCS/fans	Airborne propagation	Nearby dwellings (associated/non-associated); rural amenity	Predictions show compliance with EPA criteria; uncertainty limited to final equipment selection and meteorology.	Yes – linkage exists, though modelled compliance indicates low consequence.

Impact ID	Environmental Element	Project Phase	Potential Impact Event	Source	Pathway	Environmental Receptor	Uncertainties and Assumptions (incl. sensitivity to change)	Confirmation of source-pathway-receptor linkage (Yes/Uncertain/No)
SE1	Social	Construction, operation, decommissioning	Disruption of social locality (both positive and negative impacts) due to increase in local activity and change in landscape during construction and operation	Project infrastructure, construction activities and workforce	Demand on accommodation/ services; increased traffic/noise; perceived amenity change	Local communities, landowners, regional economy	Estimated workforce numbers determined by contractors; sensitivity varies with community resilience, service capacity, and potential cumulative overlap with other projects.	Yes – Project activities, accommodation and workforce demands may impact social locality.
SW1	Surface water (WF site)	Construction, operation, decommissioning	Localised changes to overland flow paths, depths, velocities	Access tracks, hardstands, pads, culverts	Altered drainage; flow concentration	On-site flow paths; local roads crossing low points	Developed-conditions impacts depend on final civil levels and culvert sizing; modelling shows most site flows are shallow/high-velocity and contained.	Yes – infrastructure may intersect flow paths.
SW2	Surface water (BESS)	Construction, operation, decommissioning	Localised increases in flood depth/extent near site	BESS pad/platform	Displacement/ ponding	Willalo Creek flow paths and adjacent land within ~50–150 m	1% AEP (with/without climate change) uncertainties have been considered.	Yes – infrastructure may intersect flow paths.
SH1	Soils & hydrogeology	Construction, operation, decommissioning	Soil erosion/ compaction; sediment mobilisation	Earthworks; traffic; exposure of surfaces	Runoff	On-site soils; adjacent land and drains	Shallow, stony, erosion-prone soils increase sensitivity during wet/windy periods; controls reduce exposure.	Yes – disturbance produces erosion pathways; linkage confirmed.
SH2	Soils & hydrogeology	Construction, operation	Groundwater/soil contamination from spills	Fuels, oils, concrete washout	Infiltration to soils/groundwater	Local soils; perched water; deeper aquifer (9–21 m bgl)	Depth to groundwater reduces sensitivity; linkage depends on spill severity/location; standard EPA controls assumed.	Uncertain – plausible under unplanned events, but unlikely with controls and groundwater depth.
T1	Traffic and transport	Construction	Increased traffic volumes and heavy vehicle movements leading to road safety risks and infrastructure wear	Delivery of turbine components, construction materials, workforce commuting	Road network usage	Local road users, road infrastructure, nearby residents	Assumes peak traffic managed via scheduling and TMP; estimated workforce numbers determined by contractors. Sensitivity depends on construction timing/volume and Goyder Council coordination.	Yes – construction of the Project has low to moderate potential to temporarily disrupt local road network.
PH1	Public health and safety	Construction, operation, decommissioning	Injury, fatality or adverse health impact to members of the public or third parties	Construction traffic, heavy plant and lifting operations, electrical infrastructure, fire events, aviation interactions	Direct physical interaction	Members of the public, third parties, road users, aircraft operators, emergency services	Assumes compliance with WHS legislation, certified design, CASA aviation controls, and approved TMP, CEMP, OMP and FRMP. Sensitivity to change is low given rural setting and limited public access; residual uncertainty relates to unplanned incidents and human factors, which are mitigated through regulatory controls and emergency response planning.	Yes – potential safety risks associated with wind farm developments are well known and documented.

7. IMPACT ASSESSMENT AND MANAGEMENT

This section outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria for relevant environmental elements to determine the overall significance of the potential impact through:

- Focusing only on those impact events that have a confirmed source-pathway-receptor linkage (carried through from Table 6-10);
- Providing a refresh of the relevant issues or considerations raised by stakeholders, and any relevant legislated or recognised standards in relation to the environmental element;
- Description of the control and management strategies proposed to minimise or manage each impact event to as low as reasonably practicable (ALARP) ensuring they are effective, long-term, and compliant with regulatory standards;
- Description of any uncertainties associated with the control and management strategies, and (where relevant) the sensitivity to changes in any assumptions made in either a technical modelling report or through a qualitative assessment; and
- Determining the environmental significance assessment outcome having regard to the:
 - Likely **magnitude of impact** (which is a function of the following impact characteristics: type, frequency, duration, extent, severity, and likelihood (for unplanned events only));
 - **Sensitivity of the receiving environment**; and
 - **Cumulative effects** (if relevant).

For **unplanned events**, likelihood is incorporated into the magnitude designation (i.e., in parallel with consideration of the other impact characteristics), so that the “likelihood-factored” magnitude can then be considered with the sensitivity of the receiving environment to assign impact significance.

The identified control and management strategies have been informed by the EIA Criteria ‘hierarchy of controls’ as follows:

- Elimination (prevention - e.g. remove the source);
- Substitution – e.g. use an alternative process;
- Design/engineering controls – e.g. micrositing WTGs, setbacks from receptors or installing protective barriers to reduce risk; and
- Management system controls – e.g. cultural heritage management procedures during construction.

7.1 ABORIGINAL HERITAGE

ERM prepared the 'Willogoleche Stage 2 Wind Farm Desktop Historic and Cultural Heritage Assessment' (the Heritage Assessment, 2023; updated 2025) to provide a desktop review of Aboriginal and historic heritage within the Project Area and local region, and to assess the potential risks to First Nations and historic heritage. This section focuses on Aboriginal heritage, with a summary and assessment of historic heritage provided separately at section 6.4.2.

TABLE 7-1 OVERVIEW OF ABORIGINAL HERITAGE MATTERS

Matter	Description
Views of Affected Parties	Initial consultation with the Ngadjuri Nation Aboriginal Corporation (NNAC), the recognised Traditional Owners of the land, commenced on 9 November 2023, with ongoing engagement throughout the planning process. In February 2024, a field survey was conducted by South Australian Native Title Services (SANTS) in collaboration with three Ngadjuri representatives, prior to the construction of a met mast for the Project. On 16 June 2025, ERM/ENGIE met with Aboriginal Affairs and Reconciliation (AAR) to discuss the desktop assessment and risk management approach. Ongoing consultation with NNAC is planned to inform further cultural heritage surveys and the development of a Cultural Heritage Management Plan (CHMP) for the Project.
Applicable Government Legislation	<i>Aboriginal Heritage Act 1988 (SA)</i> <i>Aboriginal and Torres Strait Islander Act 2005 (Cwlth)</i> <i>Native Title Act 1993 (Cwlth)</i>
Applicable Non-Legislated Standards	The ICOMOS Burra Charter Register of the National Estate Australian Natural Heritage Charter National Trust
Environmental Receptor	Unregistered cultural heritage sites Cultural heritage values

7.1.1 METHODOLOGY

In preparing the Heritage Assessment, information was sourced from readily available data, through key Commonwealth, State and local database and register searches, including:

- DCCEEW Protected Matters Search Tool (PMST) for heritage MNES e.g., World Heritage Properties and National and Commonwealth Heritage Places;
- Australian Heritage Database (which includes the Register of the National Estate);
- South Australian Heritage Database;
- South Australia Nature Maps (State and Local Heritage Places, State Heritage Areas);
- Taa Wika SA Heritage Inventory Register;
- Digitised historical maps available from State Library SA, National Library of Australia (Trove);

- Publicly available heritage studies and reports; and
- Archival information held by the National Library of Australia (Trove).

A predictive model of First Nations land use and its material traces was developed based on a broad summary of identified archaeological site patterning across the geographic region, with particular attention to proximity to watercourses, elevated landforms, and areas of low historic disturbance.

7.1.2 ASSESSMENT SUMMARY

Previous Archaeological Reports

To date, an archaeological investigation has been undertaken within the boundaries of the Project Area for the installation of the met mast for the Project, in the presence of the SANTS and the NNAC.

Relevant contextual information about the Project Area can be drawn from a 2018 'Cultural Heritage Management Plan' (Stage 1 CHMP) prepared for Stage 1 of the Willogoleche Wind Farm, which is situated south of the Project Area.

The Stage 1 CHMP documented the presence of nine isolated artefacts, and one formally recorded archaeological site, designated as Willo_NN_01. These findings included a range of stone tools and a stone cairn. Although the cairn was dated to the late 19th century, it was recognised as retaining cultural significance for the local Aboriginal community.

The Stage 1 CHMP recommended several key heritage management strategies, including:

- The implementation of cultural awareness training for personnel involved in the project;
- On-site monitoring by representatives of the Ngadjuri people in collaboration with qualified archaeologists; and
- The establishment of clear procedures for the management of any unexpected heritage discoveries during project activities.

Taa Wika Search Results

Searches of the Taa Wika database were undertaken on 12 July 2023, 19 September 2023, and 21 November 2025 for the Project Area and a 5 km buffer. These searches found no registered First Nations heritage places located directly within the Project Area. However, the February 2024 survey undertaken by SANTS, identified an isolated quartz artefact in the northern Project Area, not yet reflected in the Taa Wika database.

In addition, the buffer zone for one Aboriginal Heritage Restricted Zone (site ID 6329) has been identified and overlaps the northern boundary of the Project Area, with the central point for this site located to the northeast outside of the wind farm site boundary.

Predictive Model of First Nations Land Use

Predictive modelling of the landscape suggests a moderate likelihood of encountering First Nations cultural heritage in areas adjacent to minor watercourses and on elevated landforms such as ridgelines. The southern portion of the Project Area (BESS site) is crossed by Willalo Creek, with several minor drainage lines also present across the site. These hydrological features are important predictors of archaeological sensitivity and should be considered in further field investigations and to inform microsite decisions. Conversely, areas that have

been subject to intensive agricultural activity are considered to have a lower likelihood of containing intact heritage materials.

Scarred trees, which are often associated with traditional resource use, are more likely to be found near permanent water sources. However, many of these trees may have been lost due to historical land clearing practices.

Overall, the predictive model indicates low to moderate archaeological sensitivity across the wind farm site. At the BESS site, high sensitivity areas are associated with a 200 m buffer along Willalo Creek, with moderate sensitivity extending 100 m along minor drainage lines. While the BESS footprint is located in a low sensitivity area and is approximately 60 m from the high sensitivity zone, some ancillary infrastructure overlaps the high sensitivity area. These areas will be inspected during the planned cultural heritage survey to confirm the predicted sensitivity. Figure 7-1 shows the predicted archaeological sensitivity for the Project Area.



FIGURE 7-1 PREDICTED ARCHAEOLOGICAL SENSITIVITY FOR THE PROJECT AREA

7.1.3 MITIGATION AND MANAGEMENT

7.1.3.1 PRIOR TO CONSTRUCTION

- Early and ongoing consultation with the NNAC;
- Identify First Nations cultural heritage places in the Project Area via Taa Wika Heritage Inventory Register, and other ethnohistorical data sources (refer to section 4.2 of the ERM Heritage Assessment for further details);
- Develop a predictive model of First Nations land use and its material traces to inform WTG and associated infrastructure micro-siting;
- Subject to landowner and NNAC consent, conduct a field survey with NNAC representatives to identify any potential and unrecorded First Nations heritage sites across the Project Area focusing on disturbance areas;
- A Cultural Heritage Management Plan (CHMP) will be developed in consultation with NNAC for any Aboriginal cultural heritage discovered during surveys. The CHMP management measures will include any permit authorisations that must be obtained prior to construction commencing as per Section 21 and Section 23 of the *Aboriginal Heritage Act 1988*. The CHMP will also include an unexpected finds protocol to manage any unknown heritage located during construction;
- Incorporation of Unexpected Finds Protocol to be included in the OMP, or as part of a Cultural Heritage Management Plan if unrecorded First Nations cultural heritage is discovered during field surveys; and
- Prepare and deliver cultural awareness training as part of site induction for construction management personnel, contractors and operational staff.

7.1.3.2 DURING CONSTRUCTION AND OPERATION

- If First Nations cultural heritage or potential archaeological deposits are located during the construction, avoid these areas and establish 'no go' zones to enable protection, where possible.

7.1.3.3 DECOMMISSIONING

- Ensure Unexpected Finds Protocol remains in the OMP for the decommissioning phase.

If avoidance of identified First Nations cultural heritage or potential archaeological deposits for First Nations cultural heritage is not possible, the Applicant must seek authorisation under Section 23 of the *Aboriginal Heritage Act 1988* prior to any disturbance, damage, or interference with those places. This process must be undertaken in consultation with the NNAC and relevant authorities.

7.1.4 SIGNIFICANCE ASSESSMENT

Table 7-2 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on Aboriginal heritage.

The outcome of the significance assessment has been evaluated as having a **moderate impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-2 ABORIGINAL HERITAGE ENVIRONMENTAL SIGNIFICANCE ASSESSMENT

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
AH1	Damage or disturbance of Aboriginal cultural heritage sites, objects, remains and/or places.	Construction, operation and decommissioning	No – the Project commits to avoiding known sites and has sought to avoid/minimise disturbance in areas of higher potential for First Nations cultural heritage, but there is still potential to encounter or disturb unrecorded First Nations heritage sites, objects, remains and/or places.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct impact on unrecorded First Nations cultural heritage may result from construction activities including proposed access roads, or transportation of materials. • Frequency: rare, given the design methodology has sought to microsite WTGs to avoid areas of higher potential for unrecorded First Nations heritage sites, and management strategies will be implemented. • Duration: short-term, mostly during the construction phase, which is time-bound. • Extent: localised, confined to the construction footprint and temporary construction laydown areas and site access routes. • Severity: medium, as potential still exists to encounter or disturb unrecorded First Nations cultural heritage sites, objects, remains and/or places, that would require remedial action. Unplanned events: Unlikely to occur. Magnitude rating: Medium			• No registered First Nations heritage places were identified within the Project Area during the desktop assessment. • Site predictive modelling indicates there is a low to moderate likelihood for First Nations cultural heritage in the form of stone artifact scatters, engravings, scar trees and burials sites to occur within the Project Area. • An Aboriginal Cultural Heritage survey will be undertaken across the Project's disturbance footprint, further reducing the likelihood of unanticipated impacts. Sensitivity rating: Low to medium
Environmental Significance Assessment Outcome			
The anticipated effects on First Nations cultural heritage within the Project Area have been evaluated as having moderate significance. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Moderate

7.1.5 CUMULATIVE IMPACTS

There are no known projects within the Project Area that would lead to cumulative impacts. However, potential wind farm or infrastructure developments in the surrounding region may contribute to cumulative effects, particularly where they overlap in culturally sensitive landscapes or site complexes. Identification of additional heritage items, within the Project Area or nearby, would increase the likelihood of cumulative impacts if these values are disturbed, fragmented, or not effectively managed.

7.1.6 UNCERTAINTIES AND ASSUMPTIONS

- Information on First Nations cultural heritage was sourced from readily available Commonwealth, State, and local databases, register searches, and initial discussions with the NNAC. While these sources are comprehensive, they may not capture all sites or cultural values present in the Project Area, particularly unrecorded or recently identified places;
- The assessment relies on predictive modelling and regional site patterning. Actual presence, extent, and significance of First Nations cultural heritage can only be confirmed through field surveys and ongoing consultation with the NNAC;
- Subject to ongoing discussions with the NNAC, the Project has high confidence that the planning and design methodology will collectively lead to the likely avoidance of First Nations cultural heritage or potential archaeological deposits for First Nations cultural heritage across the Project Area;
- Unexpected Finds Protocol and site inductions gives further confidence that proposed control and management strategies will be effective and reduce the likelihood of an unplanned impact event; and
- If avoidance of identified First Nations cultural heritage or potential archaeological deposits across the Project Area is not possible, it is assumed that section 23 authorisation under the *Aboriginal Heritage Act 1988* will be sought in consultation with NNAC and relevant authorities.

7.2 HISTORIC HERITAGE

ERM prepared the '*Willogoleche Stage 2 Wind Farm Desktop Historic and Cultural Heritage Assessment*' (the Heritage Assessment, 2023; updated 2025) to provide a desktop review of Aboriginal and historic heritage within the Project Area and local region, and to assess the potential risks and impacts from the Project. This section focuses on historic heritage, with a summary and assessment of Aboriginal heritage provided separately at Section 7.1.

TABLE 7-3 OVERVIEW OF HISTORIC HERITAGE MATTERS

Matter	Description
Views of Affected Parties	No specific stakeholder concerns regarding historic heritage were recorded during consultation to date.
Applicable Government Legislation	<i>Heritage Places Act 1993 (SA)</i>
Applicable Non-Legislated Standards	The ICOMOS Burra Charter Register of the National Estate Australian Natural Heritage Charter National Trust
Environmental Receptor	Unregistered historic heritage sites Cappeedee Homestead and Woolshed (SA State Heritage Place 14872)

7.2.1 METHODOLOGY

In In preparing the Heritage Assessment, information was sourced from readily available data, through key Commonwealth, State and local database and register searches, including:

- Desktop searches of the Australian Heritage Database, South Australian Heritage Database, South Australia Nature Maps and the Register of the National Estate (RNE);
- Review of digitised historical maps and publicly available heritage studies; and
- Archival information from the National Library of Australia (Trove).

7.2.2 ASSESSMENT SUMMARY

No previous archaeological investigations specific to historic heritage within the Project Area were located; prior reports for the adjacent Willogoleche Wind Farm only mention historic heritage from a regional perspective.

There are no World Heritage or National/Commonwealth Heritage listed places within or near the Project Area. There are three RNE (non-legislative) 'indicative' listed placed within 5 km of the Project Area:

- Police Station (former) (Historic) 'Indicative' (RNE ID 6971);
- Public School (Historic) 'Indicative' (RNE ID 6972); and
- Railway Station (Historic) 'Indicative' (RNE ID 6973).

One State-listed Heritage Place is recorded within the wind farm site:

- Cappeedee Homestead and Woolshed (SA State Heritage Place 14872), located towards the northwestern boundary.

An additional State Heritage Place was identified within 5 km of the Project Area:

- Uloloo Homesteads, Dairies and Hut (SA State Heritage Place 14873), approximately 3.5km to the northeast.

No places within the Project Area or 5 km buffer are included on a local heritage list.

The Cappeedee Homestead and Woolshed represent a significant example of early European settlement in the region, dating back to the 1850s. This subject site is recognised for its moderate to high archaeological potential, with the possibility of further deposits being present in and around the homestead and woolshed. In contrast, the remainder of the Project Area is assessed as having a low potential for intact and significant historical archaeological deposits, largely due to its continuous use for agriculture since the time of settlement.

The installation of wind farm infrastructure may lead to localised ground disturbance, which could affect historic heritage values and archaeological resources, particularly at Cappeedee Homestead and Woolshed. There is also the potential for visual impacts to the historic setting of this property. Furthermore, while no additional historic heritage sites have been formally recorded, there remains a possibility that unrecorded sites exist within the Project Area, and ground disturbance could result in direct or indirect impacts to these resources.

To address these risks, potential indirect impacts to Cappeedee Homestead and Woolshed could be assessed in a Heritage Impact Statement (HIS), which will include a detailed site investigation survey. Wherever feasible, project activities should avoid the heritage site and maintain a buffer of at least 100 m around it. It is also recommended that an Unexpected Finds Protocol and historic heritage induction material be prepared for all construction personnel, with these protocols incorporated into the OMP for the Project.

7.2.3 MITIGATION AND MANAGEMENT

7.2.3.1 PRIOR TO CONSTRUCTION

- Maintain a minimum 100 m buffer between wind farm infrastructure and the Cappeedee Homestead and Woolshed heritage sites;
- If required, consider the preparation of a HIS, in accordance with the South Australian *Heritage Impact Statement Guidelines for State Heritage Places* (2013) to identify the extent of any potential indirect impacts to Cappeedee Homestead and Woolshed (SA State Heritage Place 14872). The HIS could include a site investigation survey and provide recommendations for avoidance, mitigation, and management of potential impacts to the heritage place and its setting in the event a 100m buffer cannot be maintained; and
- Prepare an Unexpected Finds Protocol for historic heritage to be included in the construction and operational management plan. Unexpected Finds Protocol to include provision for an 'on call' qualified archaeologist to provide management of unexpected finds.

7.2.3.2 DURING CONSTRUCTION AND OPERATION

- Implement the Unexpected Finds Protocol for historic heritage as part of the construction and operational management plan; and
- Deliver historic heritage induction material to all construction personnel, with induction requirements documented within the construction and operational management plan.

7.2.3.3 DECOMMISSIONING

- Ensure Unexpected Finds Protocol is included in decommissioning management plan along with any relevant mitigation from the CEMP/OMP.

7.2.4 SIGNIFICANCE ASSESSMENT

Table 7-2 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on historic heritage.

The outcome of the significance assessment has been evaluated as having a **minor impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-4 HISTORIC HERITAGE ENVIRONMENTAL SIGNIFICANCE ASSESSMENT SUMMARY

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
HH1	Damage or disturbance to historic heritage places or unrecorded historic heritage sites.	Construction, operation and decommissioning	No – while the Project commits to avoidance of existing Cappeedee Homestead and Woolshed heritage sites, including application of a 100 m buffer zone, potential still exists to encounter or disturb unrecorded historic heritage sites or features.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Indirect impacts on the Cappeedee Homestead and Woolshed or unrecorded historic heritage sites may result from construction activities including proposed access roads, or transportation of materials. • Frequency: rare, the design methodology has sought to avoid the Cappeedee Homestead and Woolshed and maintain a 100 m buffer. • Duration: permanent, impacts limited to construction phase but impacts would be permanent • Extent: local, confined to heritage sites and immediate surrounds. • Severity: minor, there remains a low potential to encounter or disturb unrecorded historic heritage sites or features beyond a 100 m buffer from the heritage sites. Unplanned events: Unlikely to occur. Magnitude rating: Small.			• Cappeedee Homestead and Woolshed sites are protected by their State heritage listing. • State heritage sites have cultural value to local stakeholders. Sensitivity rating: Low to medium
Environmental Significance Assessment Outcome			
The anticipated effects on Historic heritage within the Project Area have been evaluated as having minor significance. Appropriate setbacks from the heritage place will limit potential impacts to acceptable limits.			Minor

7.2.5 CUMULATIVE IMPACTS

Other land uses in the Project Area are unlikely to further impact on historic heritage values so cumulative impacts are unlikely.

7.2.6 UNCERTAINTIES AND ASSUMPTIONS

- The assessment relied on desktop review of publicly available records, heritage databases, and previous studies. No new field surveys or archaeological investigations were conducted for historic heritage, and prior reports for the area are limited or unavailable;
- It is assumed that the highest potential for historic archaeological deposits is within 100 m of Cappeedee Homestead and Woolshed, based on historical context and typical patterns of rural settlement. The remainder of the Project Area is assumed to have low potential due to its continuous agricultural use;
- The effectiveness of recommended mitigation measures (e.g., avoidance buffers, HIS, Unexpected Finds Protocol) is assumed but cannot be fully validated without further site-specific investigation; and
- There is an acknowledged risk that unrecorded historic heritage items may exist elsewhere in the Project Area, particularly given the lack of previous archaeological survey. The assessment assumes that an Unexpected Finds Protocol will adequately address any such discoveries during construction.

7.3 AIR QUALITY

ERM has undertaken an Air Quality (AQ) Assessment using a qualitative, risk-based desktop assessment approach, consistent with SA EPA expectations for developments with low emission intensity and temporary construction-related air quality risks.

TABLE 7-5 OVERVIEW OF AIR QUALITY MATTERS

Matter	Description
Views of Affected Parties	Community members expressed concerns about dust generation from construction traffic.
Applicable Government Legislation	<i>Environment Protection Act 1993</i> <i>Environment Protection (Air Quality) Policy 2016</i> <i>Local Nuisance and Litter Control Act 2016</i>
Applicable Non-Legislated Standards	Construction Environmental Management Plan Guidelines (SA EPA) Concrete Batching Guidelines (SA EPA)
Environmental Receptor	Sensitive receptors (e.g. residences, fauna, stock)

7.3.1 METHODOLOGY

The AQ Assessment methodology comprised:

- Review of Project construction activities with potential to generate air emissions;
- Identification of dust and particulate matter as the primary potential pollutants of concern;
- Consideration of the receiving environment, including rural land use, background air quality, and the presence of sealed and unsealed access roads;

- Review of relevant SA EPA guidance, including requirements for Construction Environmental Management Plans (CEMP) and guidance for temporary or mobile concrete batching operations; and
- Application of professional judgement to assess the likelihood and consequence of impacts, and the effectiveness of standard mitigation measures.

Given the temporary nature of emissions, the rural setting and the absence of significant continuous emission sources, quantitative dispersion modelling and ambient monitoring were not considered necessary for this stage of assessment.

7.3.2 ASSESSMENT SUMMARY

The primary potential air quality impacts associated with the Project relate to dust emissions during construction, including:

- Earthworks and vegetation clearance;
- Vehicle movements on unsealed access tracks and laydown areas;
- Handling and storage of soil and construction materials; and
- Concrete batching works, including the potential use of a mobile batching plant.

Construction activities may result in short-term increases in airborne dust, particularly during dry and windy conditions. Coarse (PM₁₀) and fine particulates (PM_{2.5}) have the potential to affect amenity and, to a lesser extent, health if not appropriately managed particularly for fine particulates.

During operation, air quality impacts are expected to be negligible, limited to infrequent vehicle movements for maintenance purposes, primarily on existing access tracks.

With the implementation of standard mitigation measures consistent with SA EPA guidance, air quality impacts are expected to remain localised, temporary, and manageable, with no significant adverse impacts on sensitive receptors or regional air quality.

7.3.3 MITIGATION AND MANAGEMENT

7.3.3.1 PRIOR TO CONSTRUCTION

- Preparation of a Construction Environmental Management Plan (CEMP) addressing air quality and dust management, consistent with SA EPA guidance;
- Identification of construction areas, access tracks, laydown areas, and haul routes, with preference for use of existing sealed roads where practicable; and
- Identification of nearby sensitive receptors to inform targeted dust management.

7.3.3.2 DURING CONSTRUCTION

- Dust control measures (e.g. water spraying, dust suppression products) implemented if dust generation affects near sensitive receptors;
- Vehicles are driven at speeds slow enough to minimise generation of dust;
- Maintain suitable surfacing (e.g. gravel) of high traffic areas where required;
- Dust generating activities to be scheduled to avoid adverse weather conditions where practicable (e.g. periods of high winds);
- The extent of new exposed and stripped surface area is minimised;

- Soil stockpiles are appropriately managed, e.g. through covering, of a reduced height and/or for minimal duration;
- Progressive rehabilitation of disturbed areas is undertaken during the construction phase where possible;
- System is in place for logging landowner communication and logging landowner complaints to ensure that any identified amenity issues are recorded, addressed as appropriate and complaints are resolved in a timely manner;
- Vehicles and plant are maintained in accordance with manufacturer specifications to minimise emissions and visible smoke where practicable; and
- Any concrete batching activities, if required, would be undertaken in accordance with relevant SA EPA guidelines and licensing requirements, as applicable.

7.3.3.3 DURING OPERATION

- Limitation of vehicle movements to those required for routine operation and maintenance;
- Continued use of existing sealed roads where practicable for operational access.; and
- Maintenance of access tracks to minimise dust generation.

7.3.3.4 DECOMMISSIONING

- Impacts are expected to be similar to those during construction but will last for a shorter period of time.

7.3.4 SIGNIFICANCE ASSESSMENT

Table 7-6 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impacts on air quality.

The outcome of the significance assessment has been evaluated as having a **negligible to minor impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-6 AIR QUALITY IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
AQ1	Dust generated during construction activities results in a deterioration of air quality at sensitive receptors	Construction and decommissioning	No – impacts can be mitigated but not fully avoided; dust impacts may still occur as a result of activities and traffic movements.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct; impact on local air quality, primarily associated with fugitive dust and particulate emissions generated during construction, and decommissioning of the Project. • Frequency intermittent; primarily during construction and decommissioning, and occasionally during operational maintenance under dry and windy conditions. • Duration short-term; spanning mostly active works during construction and decommissioning. • Extent localised to Project Area and immediate vicinity, with limited potential for off-site dust dispersion under dry and windy conditions. • Severity low; with appropriate controls in place, dust levels at sensitive receptors are expected to be consistent with background rural conditions. Unplanned events: Unlikely, but possible in the event of prolonged dry and windy conditions or equipment failure, which could temporarily increase dust generation. Magnitude rating: Small to medium			• The Project Area is within a rural agricultural district, where baseline air quality is generally good and valued as an aspect of rural amenity. • Sensitive receptors are limited and generally well separated from construction activities. • Proposed control measures are consistent with accepted practice for dust management in rural environments. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated air quality effects associated with dust generation during construction, and decommissioning are assessed as having negligible to minor environmental significance. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Negligible to minor

7.3.5 CUMULATIVE IMPACTS

Potential cumulative impacts will depend on the extent of other projects being developed in the immediate region. Even where construction activities overlap, dust impacts are expected to remain localised. While cumulative effects on air quality (dust) and native flora could occur if plant die-off happens near the site or along access routes, the likelihood is low provided appropriate mitigation and standard dust suppression controls are implemented. These measures are consistent with industry best practice and have proven effective in reducing dust dispersion.

7.3.6 UNCERTAINTIES AND ASSUMPTIONS

- Construction activities will be temporary and staged;

- Standard industry dust suppression and site management measures will be implemented through a CEMP;
- High certainty that the proposed mitigation measures are well-established and effective, including minimising exposed surfaces, managing soil stockpiles, rehabilitating disturbed areas, maintaining equipment, managing landowner complaints, and conducting concrete batching (if any) in line with EPA requirements; and
- Uncertainty primarily relates to meteorological variability, particularly wind speed and direction during construction. However, given the low intensity and short duration of potential emissions, these uncertainties are not expected to materially affect the conclusions of this assessment.

7.4 AVIATION

Aviation Projects Pty Ltd (Aviation Projects) prepared the '*Willogoleche Stage 2 Wind Farm Aviation Impact Assessment*' (the AIA, 2025) to assess potential aviation safety impacts associated with the construction and operation of the Project. This section summarises the methodology, key findings, and management strategies, referencing relevant legislative requirements, risks, and stakeholder considerations. For the full detailed assessment, refer to the AIA at Appendix H.

TABLE 7-7 OVERVIEW OF AVIATION SAFETY MATTERS

Matter	Description
Views of Affected Parties	Consultation with Airservices Australia, Department of Defence, Regional Council of Goyder, Royal Flying Doctor Service, SA Ambulance Service, South Australian Country Fire Service, and Bureau of Meteorology (BoM) regarding obstacle lighting, airspace safety, and operational impacts was undertaken as part of the AIA. Airservices Australia confirmed no effect on airspace procedures, CNS facilities, or ATC operations; Department of Defence required standard vertical obstacle notification with Airservices. The Regional Council of Goyder, Royal Flying Doctor Service, BoM, and SACFS expressed no concerns. Overall, stakeholders either had no objections or required only minor administrative actions, with no technical issues necessitating design changes.
Applicable Government Legislation	<i>Civil Aviation Safety Regulations 1998 (CASR);</i> <i>Planning, Development and Infrastructure Act 2016 (SA);</i> <i>Hydrogen and Renewable Energy Act 2023 (SA)</i>
Applicable Non-Legislated Standards	NASF Guideline D – Managing the Risk to Aviation Safety of Wind Turbine Installations; ISO 31000:2018 Risk Management – Guidelines; Advisory Circulars AC 139.E-01 and AC 139.E-05; Civil Aviation Safety Authority (CASA) MOS Part 139
Environmental Receptor	Aviation safety (including local airspace, uncertified aerodromes, emergency services)

7.4.1 METHODOLOGY

In The AIA combined desktop review, regulatory analysis, spatial assessment and qualitative risk evaluation, including:

- Review of aeronautical charts and databases;
- Assessment of certified and uncertified aerodromes within 30 nautical miles (nm) and 3 nm buffers respectively;
- Evaluation of Grid and Air Route lowest safe altitude (LSALT) compliance;
- Identification of communications, navigation and surveillance (CNS) and radar facilities potentially affected;
- Wake turbulence modelling using a 200 m rotor diameter and published flight studies;
- Risk assessment aligned with ISO 31000:2018 and CASA guidelines; and
- Targeted consultation with relevant stakeholders including Airservices Australia, Department of Defence, and the BoM.

All assessments were conducted in accordance with CASA regulations, MOS Part 139, National Airports Safeguarding Framework (NASF) Guideline D and relevant Advisory Circulars.

7.4.2 ASSESSMENT SUMMARY

The Project involves installing up to 20 WTGs, each with a maximum blade tip height of 300 m above ground level (AGL). The highest turbine will be located at 638.4 m Australian Height Datum (AHD), resulting in a maximum overall structure height of 938.4 m AHD (3,078.6 feet above mean sea level (AMSL)). In addition, the Project includes one met mast, which has already been constructed, with a maximum height of 150 m AGL and a total elevation of 757 m AMSL.

There are no certified aerodromes within 30 nm of the site; the closest is Port Pirie Airport, 44 nautical miles away. No uncertified aerodromes are located within three nautical miles; the nearest are Tiverina Park and Tiverville. The Project Area is within Class G (uncontrolled) airspace and falls within Danger Area D258B, which extends from the surface up to 9,500 feet AMSL.

A key consideration is the potential for wake turbulence, which refers to disturbed air behind wind turbines that may affect aircraft operating nearby. For this Project, a conservative assessment approach has been adopted, assuming that wake turbulence may be noticeable up to 10 rotor diameters (approximately 2 km) downwind of the turbines. Studies referenced in the AIA indicate that more pronounced turbulence effects are generally confined within approximately seven rotor diameters, with any residual effects beyond this distance typically reducing to a level that is manageable by pilots using normal control inputs.

The closest aerodrome to the Project is the Tiverina Park uncertified aerodrome, which is located outside the 3 nautical mile (nm) (approximately 5.56 km) assessment area and beyond the 10 rotor diameter (2 km) conservative turbulence distance. Notwithstanding this separation, the AIA identifies that under certain wind conditions, particularly northerly winds, wake turbulence from the closer turbines may extend into the 3 nm area surrounding the aerodrome. However, given the distance between the turbines and the aerodrome, it is unlikely that noticeable wake turbulence would be experienced at the aerodrome. On this basis, the

AIA recommends further consultation with the aerodrome operator to better understand potential operational considerations and confirm the extent of any impacts.

The AIA also considered the impact of the turbines on air routes and LSALT. The turbines do not infringe upon the Grid LSALT (set at 4,500 feet AMSL) or any Air Route LSALT, as all protection surfaces are above 3,500 feet AMSL. There was no impact identified on published air routes W448, J21, or H246, suggesting that the Project will not compromise established aviation corridors.

With respect to aviation CNS facilities, as well as air traffic control (ATC) surveillance radar installations at Adelaide and Summertown, the AIA found no anticipated impacts. The Project Area is outside the line-of-sight range for these radar systems, and the turbines are a sufficient distant from all relevant CNS facilities.

Emergency services and aerial operations were also reviewed. The Royal Flying Doctor Service and other emergency aviation services operate under instrument or visual flight rules, and no significant risks were identified for their operations. Aerial agricultural and firefighting activities are possible in the area, and the assessment notes that safe operations will depend on effective notification, appropriate marking of structures, and the implementation of emergency protocols. Recommendations include ongoing liaison with emergency agencies, ensuring turbines can be shut down during emergencies, and providing hazard information to landowners and pilots as needed.

Overall, the assessment found that aviation safety risks are manageable and do not require changes to the project design.

7.4.3 MITIGATION AND MANAGEMENT

7.4.3.1 PRIOR TO CONSTRUCTION

- AIA completed for the Project.
- Early and ongoing consultation with Airservices Australia, Department of Defence, Regional Council of Goyder, BoM, Royal Flying Doctor Service, South Australian Country Fire Service, and other aviation stakeholders;
- Confirm final turbine and met mast locations, heights, and coordinates; report all WTGs ≥ 100 m AGL to CASA (CASR Part 139.165) and submit Vertical Obstacle Data to Airservices Australia at least two weeks prior to construction;
- Notify temporary obstacles (e.g., cranes) to Airservices Australia NOTAM office until incorporated in published operational documents;
- Provide hazard information to local and regional aircraft operators and landowners, including details of WTGs, met masts, and overhead transmission lines;
- Develop emergency protocols for aerial operations and firefighting (as part of the Emergency Management Plan in the OMP), including arrangements for turbine shutdown during emergencies;
- Ensure regulatory notifications and compliance (CASR, NASF Guideline D, Planning and Design Code); and
- Mark and light met masts in accordance with CASA MOS Part 139 and NASF Guideline D (e.g., top 1/3 alternating bands, marker balls on guy wires, red obstacle light for temporary or isolated towers).

7.4.3.2 DURING CONSTRUCTION AND OPERATION

- Maintain ongoing stakeholder engagement and transparent communication with aviation authorities and emergency services;
- Continue regulatory compliance and update notifications as required;
- Ensure turbines and met masts are marked and lit in accordance with CASA and NASF requirements; WTGs to be finished in non-reflective off-white;
- Provide updated hazard information to landowners, pilots, and emergency agencies as needed; and
- Maintain and periodically review emergency protocols for aerial operations and firefighting.

7.4.3.3 DECOMMISSIONING

- Impacts are expected to be similar to those during construction but will be of shorter duration; and
- Maintain notifications and emergency protocols until all structures are removed.

7.4.4 SIGNIFICANCE ASSESSMENT

Table 7-8 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impacts on aviation safety.

The outcome of the significance assessment has been evaluated as having a **minor to moderate impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-8 AVIATION IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
AV1	Increased aviation safety risks (e.g. aircraft collision with WTGs or met masts, wake turbulence, emergency ops)	Construction, operation and decommissioning	No – impacts can be mitigated but not fully avoided; residual risks remain due to airspace and operational context.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Direct impact on local airspace, including increased aviation safety risks (collision, wake turbulence, emergency ops). • Frequency of impacts is considered infrequent, but possible during construction, operation, and emergency events. • Duration of impacts would be long-term, spanning the operational life of the Project. • Extent is localised to Project Area and immediate airspace, with potential downstream effects in certain wind conditions. • Severity remains at medium, residual risks remain due to airspace classification, proximity to non-controlled aerodromes, and emergency operations. Unplanned events: Unlikely, but possible in the event of unexpected low-level flight, emergency operations, or regulatory changes. Magnitude rating: Medium			• Local airspace includes Class G (uncontrolled) and Danger Area D258B. • No certified aerodromes within 30 nm; closest uncertified aerodrome >3 nm. • Emergency and agricultural aerial operations possible. • Sensitivity increased by proximity to non-controlled aerodromes and potential for emergency aerial operations. Sensitivity rating: Low to medium
Environmental Significance Assessment Outcome			
The anticipated effects on aviation safety during construction and operation are evaluated as having minor to moderate significance. The proposed control and management strategies are robust and subject to audit, minimising the impact to ALARP. Risks are assessed as acceptable and manageable with the recommended treatments implemented.			Minor to moderate

7.4.5 CUMULATIVE IMPACTS

At the time of the AIA, there were no known or approved wind energy or infrastructure projects within the Project Area or on the surrounding airspace that would combine with the Project to create cumulative aviation safety impacts. The assessment considered other wind farms in the broader region, including The Bluff, Brown Hill, North Brown Hill, and Hallett Hill. These sites are located a sufficient distant that their combined effect on aviation safety, airspace usage, or navigation is not expected to be significant. Existing and forecast aviation activities, including those potentially affected by the Project, are expected to be accommodated within the capacity of the local airspace and regulatory framework.

7.4.6 UNCERTAINTIES AND ASSUMPTIONS

- The analysis assumed that any micro-siting of turbines would be within 100 m of the assessed positions; this is not expected to alter the maximum overall heights or assessment outcomes;
- Wake turbulence modelling used a conservative rotor diameter of 200 m and a 10 rotor diameter envelope; published flight studies indicate that medium hazards are generally confined within seven rotor diameters;
- The Airservices Australia assessment covered only procedures designed by Airservices Australia; other third-party procedures were outside the scope of the AIA;
- The CASA will determine any requirements for obstacle lighting; the BoM's radar and radiocommunications advice is current as of the time of assessment; Defence airspace activation (such as Danger Area D258B) may vary according to NOTAMs; and
- The assessment was based on aeronautical charts and publications (AIP, ERSA) effective from June to September 2025.

7.5 ELECTROMAGNETIC INTERFERENCE

Middleton Group Engineering Pty Ltd (Middleton) prepared the '*Willogoleche Stage 2 Wind Farm Electromagnetic Interference Assessment*' (the EMI Assessment, 2025) to evaluate the potential impacts of the Project on surrounding telecommunications and geospatial services. This section summarises the methodology, key findings, and management strategies, referencing relevant legislative requirements, risks, and stakeholder considerations. For the full detailed assessment, refer to the EMI Assessment at Appendix F.

The EMI assessment considered the following services:

- Point-to-point radiocommunications links;
- Meteorological radar systems;
- Mobile voice-based communications;
- Wireless and satellite internet services for dwellings;
- Broadcast, digital and satellite television;
- Trigonometric stations; and
- Global Navigational Satellite System (GNSS) stations.

TABLE 7-9 OVERVIEW OF EMI MATTERS

Matter	Description
Views of Affected Parties	Consultation with ElectraNet, BoM, Geoscience Australia, Telstra, and Optus was undertaken as part of the EMI assessment to address potential impacts on licensed communication links, meteorological radar systems, GNSS stations, and mobile services. Stakeholders either raised no objections or identified manageable risks.
Applicable Government Legislation	<i>Radiocommunications Act 1992 (Cwlth); Hydrogen and Renewable Energy Act 2023 (SA); Planning, Development and Infrastructure Act 2016 (SA);</i>

Matter	Description
Applicable Non-Legislated Standards	ACMA Licensing Guidelines; WMO Radar Siting Guidance; OPERA/EUMETNET Radar Siting Standards; Australian Broadcasting Authority Fresnel Zone Clearance Guidelines; ISO 31000:2018 Risk Management.
Environmental Receptor	Telecommunication systems, meteorological radar, GNSS stations, broadcast services

7.5.1 METHODOLOGY

The EMI Assessment was conducted as a desktop study, mapping WTG locations against telecommunication services and evaluating the impact of the wind turbines on these services. The methodology included:

- Review of Australian Communications and Media Authority (ACMA) databases for point-to-point links within 150 km of the Project Area;
- Identification of four communication links and three ACMA sites within 2 km of the Project boundary;
- Analysis of meteorological radar coverage and compliance with World Meteorological Organisation (WMO), The Operational Programme for the Exchange of Weather Radar Information (OPERA), and the radar programme of the European Meteorological Services Network (EUMETNET) standards;
- Assessment of mobile voice-based communications, including proximity to base stations and coverage maps for Telstra and Optus;
- Evaluation of wireless and satellite internet services, focusing on dwellings within 2 km of WTGs;
- Review of trigonometric stations, GPS, and GNSS networks, including proximity to survey marks and GNSS stations;
- Analysis of broadcast and digital radio and television transmitters within 5 km of WTGs; and
- Stakeholder consultation with ElectraNet, BoM, Geoscience Australia, Telstra, and Optus.

All data was sourced from public databases, stakeholder input, and project-specific infrastructure details provided by ENGIE and ERM.

7.5.2 ASSESSMENT SUMMARY

Point-to-Point Radiocommunication Links

The assessment found four point-to-point links and three ACMA sites within 2 km of the WTGs. Detailed analysis of near-field, reflection/scattering, and diffraction effects showed that all WTGs are sited beyond the critical clearance distances and Fresnel Zones¹. No material impact is expected on these links. Stakeholder consultation with Optus, Telstra and ElectraNet has been undertaken with feedback indicating no significant concerns.

Meteorological Radar Systems

The closest meteorological radars (Adelaide Buckland Park and Sellicks Hill) are 140 km and 218 km from the Project Area, respectively. The Project complies with WMO and OPERA/EUMETNET siting guidelines, and BoM has indicated manageable risk and no objection to the Project.

Mobile Voice-Based Communications

One mobile base station is located within 2 km of the WTGs, but the nearest turbine is over 1 km away. The assessment concluded that the Project is unlikely to impact mobile service operation. Coverage maps for Telstra and Optus confirm robust service in the area.

Wireless and Satellite Internet Services

Nine associated and three non-associated dwellings are located within 2 km of the WTGs. The conservative distance of 2 km is used as a screening criterion to screen potential impact of wireless and satellite services. The closest associated dwelling is 0.81 km from WTG20. The Project may cause degradation to signal quality from satellite services to associated dwellings. Non-associated dwellings are not expected to be impacted by the Project noting these dwelling are setback around 1.7 kms from the nearest WTG.

Broadcast and Digital Radio and Television

No broadcast, radio, or television transmitters are located within 5 km of any turbine. The closest transmitter (Mt Bryan) is 11.3 km away. The Project is highly unlikely to impact broadcast services.

Trigonometric Stations and GPS

Eight survey marks are within 2 km of proposed WTGs, with the closest being 0.34 km away. No turbines are sited directly on survey marks. If survey marks are impacted during construction consultation with the South Australian Surveyor-General will be required.

GNSS Networks

One GNSS station (Booborowie) is 19.6 km from the nearest turbine. The Project is highly unlikely to impact GNSS services.

Stakeholder Engagement

Consultation has been conducted with ElectraNet, Bureau of Meteorology (BoM), Geoscience Australia, Telstra and Optus. All stakeholders' responses either raised no objections or identified manageable risks.

¹ A *Fresnel Zone* defines an envelope of influence along the length of the ray line, whereby a rotating wind turbine could adversely impact the signal.

7.5.3 MITIGATION AND MANAGEMENT

7.5.3.1 PRIOR TO CONSTRUCTION

- Detailed modelling (including near-field, Fresnel zone, and 3D analysis) confirms that turbines do not encroach on critical technical zones for any identified communication links;
- Early and ongoing stakeholder consultation with telecommunications providers (Optus, Telstra, ElectraNet) to confirm all required separation distances and technical standards are met;
- Obtain final feedback from mobile network operators and record any requirements for site access or notifications;
- For associated dwellings within two km of WTGs, agree a process to resolve any signal issues for wireless and satellite internet services where possible impacts have been identified;
- Identify survey marks in the construction area. Where unavoidable, arrange for their protection or relocation in consultation with a South Australian Surveyor-General; and
- Maintain communication with the BoM to ensure any radar-related concerns can be promptly addressed.

7.5.3.2 DURING CONSTRUCTION AND OPERATION

- Avoid placing tall equipment or cranes in sensitive telecommunications corridors during construction and operation, and maintain exclusion zones around key sites;
- Implement a clear process for residents and service providers to report and resolve any EMI-related issues, with prompt investigation and resolution;
- Keep a record of any reported issues and actions taken, and share annual summaries with relevant stakeholders; and
- Reassess EMI risks if there are significant changes to WTG locations, heights, or if new telecommunications infrastructure is introduced, and inform stakeholders of any updates.

7.5.3.3 DECOMMISSIONING

- Inform all relevant stakeholders (including BoM, ACMA licensees, Telstra, Optus, and Geoscience Australia) ahead of any decommissioning works that could affect telecommunications; and
- Ensure any temporarily relocated survey marks are reinstated and certified by a registered surveyor.

7.5.4 SIGNIFICANCE ASSESSMENT

Table 7-2 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on telecommunication links and services.

The outcome of the significance assessment has been evaluated as having a **minor impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-10 EMI ENVIRONMENTAL SIGNIFICANCE ASSESSMENT

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
EMI1	Potential for electromagnetic interference with licensed communication infrastructure, geospatial services, and sensitive receivers	Construction and operation	No –impacts cannot be fully avoided, but are minimised through siting, design, and management strategies.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Indirect impact on telecommunications, geospatial, and broadcast services (e.g., signal degradation, service disruption). • Frequency of impacts is considered infrequent, but possible during construction, operation, or if infrastructure changes. • Duration of impacts would be long-term, spanning the operational life of the Project. • Extent is localised to wind farm site and immediate surrounds (e.g., dwellings within 2 km, nearby infrastructure). • Severity remains at low to medium, residual risks remain for dwellings in close proximity with wireless and satellite internet services and for licensed communication links, but robust mitigation and stakeholder engagement would reduce impact severity. Unplanned events: Unlikely, but possible in the event of unexpected changes to infrastructure, new services introduced, or unforeseen technical issues. Magnitude rating: Small			• Sensitivity increased for dwellings within 2 km of turbines, particularly for wireless/satellite internet services. • No broadcast services transmitters within 5 km. • Low sensitivity of meteorological radar and GNSS due to significant separation distances and compliance with siting guidelines. Sensitivity rating: Low to medium
Environmental Significance Assessment Outcome			
The anticipated effects on telecommunications, geospatial, and broadcast services during construction and operation are evaluated as having minor significance. The proposed control and management strategies are robust and subject to audit, minimising the impact to ALARP. Risks are assessed as acceptable and manageable with the recommended management measures implemented.			Minor

7.5.5 CUMULATIVE IMPACTS

There are no known concurrent or approved projects within the Project Area that would contribute to cumulative EMI effects. If turbine positions or heights significantly change, or if new telecommunications infrastructure is introduced near the Project, the EMI study should be reassessed. While dwellings within approximately 2 km of WTGs may be more susceptible to signal degradation, at the time of writing no additional projects or infrastructure are identified that would combine with the Project to produce cumulative EMI; therefore, no cumulative impacts are anticipated for telecommunications or geospatial services.

7.5.6 UNCERTAINTIES AND ASSUMPTIONS

- EMI Assessment completed as a desktop study;
- Locations, antenna parameters and licence details sourced from publicly available datasets (primarily ACMA) and stakeholder inputs; assumed accurate unless updated by stakeholders;
- Conservative design layout applied (tip height up to 300 m; rotor diameter up to 200 m) to test worst-case interactions;
- Fresnel zone calculations used conservative assumptions; closest case (Link 1 vs WTG1) confirmed non-encroachment through 3D, location-specific profiling;
- Telecommunication networks may change over time (new links, frequency shifts, antenna upgrades or microcells), potentially altering near-field clearances or Fresnel zone interactions and requiring EMI analysis updates;
- Receiver-side variability (tolerances, dish alignment, nearby structures) can affect susceptibility, particularly for dwellings within two km using wireless or satellite services;
- Occasional atmospheric phenomena (e.g., ducting) may influence long-range propagation and radar returns; BoM indicates risks are manageable under normal conditions, though transient artefacts cannot be entirely excluded; and
- During construction, temporary tall plant or cranes within near-field buffers or along radio paths could cause short-term obstruction or scattering if not managed.

7.6 FLORA AND FAUNA

Umwelt (formerly EBS Ecology) were engaged to undertake flora and fauna studies for the Project which have informed the *Ecological Constraints Assessment* (2025a; Appendix B) and *Bird and Bat Utilisation Summary Final Report* (2025b; Appendix C).

TABLE 7-11 OVERVIEW OF FAUNA AND FLORA MATTERS

Matter	Description
Views of Affected Parties	Consultation with the Department for Environment and Water (DEW) and Native Vegetation Council (NVC) regarding vegetation clearance and offset requirements. Consultation with DCCEEW regarding MNES and survey requirements. Landowner input on site access and land use. Community members raised concerns about potential impacts on native vegetation and fauna.

Matter	Description
Applicable Government Legislation	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i> <i>National Parks and Wildlife Act 1972 (SA)</i> <i>Native Vegetation Act 1991 (SA)</i> <i>Biodiversity Act 2025 (SA)</i> <i>Landscape South Australia Act 2019 (SA)</i> <i>Planning, Development and Infrastructure Act 2016 (SA)</i>
Applicable Non-Legislated Standards	EPBC Act Significant Impact Guidelines; Native Vegetation Council Bushland Assessment Manual; Onshore Wind Farms – Interim Guidance on Bird and Bat Management (DCCEEW, in draft); National Recovery Plans for listed species and communities (DCCEEW)
Environmental Receptor	Native vegetation Threatened flora and fauna species Migratory Birds Bats

7.6.1 METHODOLOGY

In preparing the 'Willogoleche Stage 2 Wind Farm Ecological Constraints Assessment', information was based on a combination of desktop review, database searches, and targeted field surveys, including:

- DCCEEW Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES), including threatened ecological communities and species;
- Biological Database of South Australia (BDBSA) for State-listed threatened flora and fauna;
- Review of previous ecological studies and reports for Willogoleche Wind Farm (Stage 1 and 2);
- Native vegetation surveys using the Bushland Assessment Method (BAM) at 32 sites, and targeted surveys for Iron-grass Natural Temperate Grassland (INTG) and Pygmy Blue-tongue Lizard (PBTL);
- Bird and bat utilisation surveys (BBUS) at 10 sites, including seasonal monitoring (2023-2025);
- Targeted surveys for raptors, Flinders Ranges Worm-lizard, and opportunistic recording of other flora and fauna; and
- Consultation with regulatory agencies and landowners regarding survey access and management requirements.

All fieldwork was conducted in accordance with relevant guidelines and best practice standards.

7.6.2 ASSESSMENT SUMMARY

While the final Project layout will be determined during the detailed design phase (and is subject to the OMP endorsement process), findings from the flora and fauna assessments have directly informed the current siting of the wind farm and its associated infrastructure. The mitigation hierarchy has been applied, with disturbance areas of high ecological value avoided

where practicable. An assessment of flora and fauna impacts, and associated mitigation and management, is discussed in the following sections.

7.6.2.1 FLORA

Native Vegetation

The Project Area contains native vegetation that will require some clearance for the construction of the Project. As the disturbance footprint of the Project will not be finalised until detailed design phase, an indicative calculation of Vegetation Associations present within the Project Area is provided in Table 7-12 and demonstrated spatially in Figure 7-2. The 'Civil Layout' column in Table 7-12 reflects the type of vegetation in areas that are likely to be disturbed for infrastructure within the wind farm site, most of which is exotic/pasture or cropping land.

TABLE 7-12 VEGETATION ASSOCIATIONS WITHIN THE PROJECT AREA

Ref.	Vegetation Association Description	Area (ha)			
		Wind Farm Site	Civil Layout	BESS	OTL
A1	Lomandra multiflora with Austrostipa sp. grassland ± Cryptandra campanulata ± exotic grassland ± Lomandra effusa	246.31	0.94	-	-
A2	Maireana aphylla shrubland with Lomandra multiflora ± exotic grasses ± Cryptandra campanulata ± Austrostipa sp.	496.68	29.48	-	1.05
A3	Austrostipa sp. and Rytidosperma sp. grassland with emergent Maireana aphylla ± exotic grasses	188.08	8.79	-	12.51
A4	Cryptandra campanulata shrubland ± Lomandra multiflora ± Bursaria spinosa and Chrysocephalum sp.	5.00	-	-	0.02
A5	Exotic grassland / Pasture	133.17	17.58	1.40	8.54
A6	Cropping	466.63	52.26	-	-
A7	Planted vegetation / infrastructure	6.55	-	-	0.73
A8	Enchylaena tomentosa open shrubland	-	-	-	1.04
NA	Native Scattered Trees	-	-	-	0.03
TOTAL		1571.05	109.05	27.24	23.89

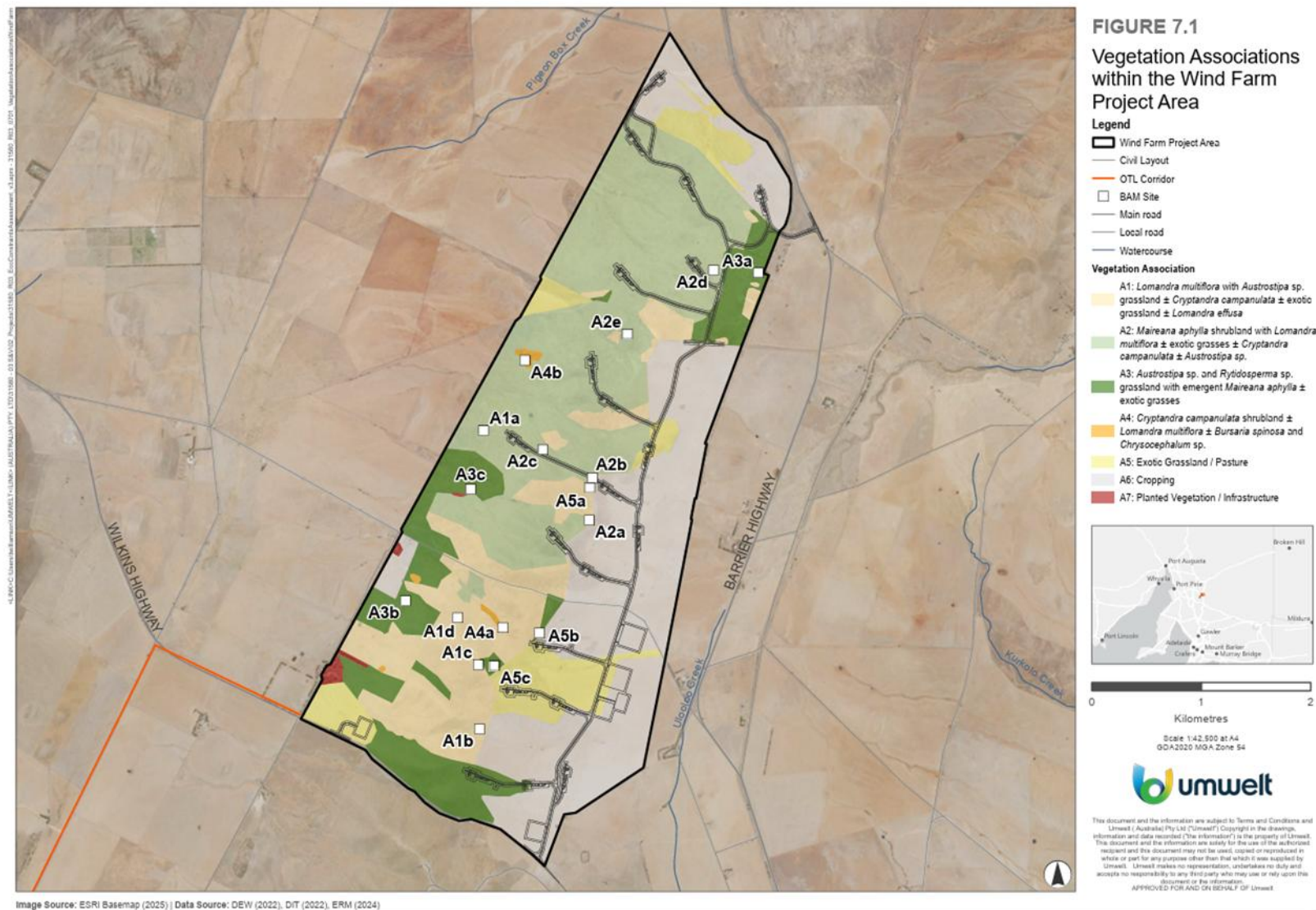


FIGURE 7-2 VEGETATION ASSOCIATIONS WITHIN WIND FARM SITE

Any clearance of native vegetation will require approval in accordance with the Native Vegetation Act and Regulations and will only be granted if the Applicant fulfils the offset obligations, or Significant Environmental Benefit. An application will be made to the Native Vegetation Council, under the Native Vegetation Act, post-detailed design phase when final clearance calculations can be accurately finalised. Additional flora surveys will be undertaken if there are any changes to the disturbance footprint at detailed design phase.

Threatened Flora

One state listed rare flora species, *Cryptandra campanulata* (Long-flowered Cryptandra), was observed within the Project Area. This species was observed throughout the shrublands in the Project Area and as scattered groups within grasslands. Three areas were highlighted as being dominated by this species (BAM sites A4a, A4b and A4c). One nationally Vulnerable and state endangered flora species has historical records within the Project Area, *Codonocarpus pyramidalis* (Slender Bell-fruit), but field surveys to date have not observed any individuals.



PHOTOGRAPH 7-1 CRYPTANDRA CAMPANULATE SHRUBLAND (UMWELT, 2025)

Critically Endangered INTG TEC is known to occur within the Project Area. Four areas of INTG were assessed as Condition Class B and six areas as Condition Class C Lomandra, which are not considered the INTG TEC.

Dry conditions leading up to the 2023 and 2024 field surveys and the current sheep grazing regime in the area means Class C areas may be amenable to rehabilitation. Therefore, further surveys may be undertaken to determine any changes to Class C areas prior to detailed design phase.

Informed by the ecological assessments, a site layout has been developed that avoids directly impacting Class B Lomandra. An estimated 0.94 ha of Class C Lomandra may be impacted by the Project, although may be subject to change during the detailed design phase.

Weeds

A total of 63 exotic plant species were identified within the Project Area. Among these, eight species are declared under the LSA Act, including one that is recognized as a Weed of National Significance. Additionally, 20 species are classified as Environmental Weeds.

Activities within the Project Area pose a risk of promoting the spread of invasive weeds, both within the area and beyond, due to the movement of plant material or soil on vehicles and equipment. This risk could result in heightened weed proliferation and a decline in the quality of habitat for native flora and fauna species.

Weed and biosecurity measures will be documented in the CEMP and OMP and will be developed to comply with the LSA Act and relevant requirements of Landscape Board regional plans.

7.6.2.2 FAUNA

Potential impacts to fauna can occur via direct and indirect impacts to suitable habitat and WTG collision (birds and bats) during construction and operation. The following section details the potential impacts to national and state listed fauna species that were identified in the Project Area or have a high potential to occur.

Avifauna and bats

As discussed in Section 5.7.3, no migratory bird species were observed, and the Project Area was not considered to provide suitable habitat.

No threatened bat species, listed under either the EPBC or NPW Act, were identified as part of the Bird and Bat Utilisation Surveys.

Overall, a total of four bat species were recorded over the eight surveys from spring 2023 to winter 2025, using echolocation sonograms to identify the following species:

- Gould's Wattled Bat (*Chalinolobus gouldii*);
- Lesser Long-eared Bat (*Nyctophilus geoffroyi*);
- Free tailed-bat species (*Ozimops* sp.); and
- Forest Bat species (*Vespadelus* sp.).

Bats were surveyed by recording calls of bats flying over the Project Area at night.

Nationally Listed Species

The Nationally Vulnerable Southern Whiteface was opportunistically recorded in the Project Area during both the 2023 (six individuals) and 2024 (two individuals) spring surveys, specifically in one location characterised by planted vegetation surrounding existing infrastructure. No Southern Whiteface observations were made during the 24-month BBUS program.

While the Southern Whiteface typically favours habitats with larger shrubs, scattered trees, or structural features—such as those found in areas with *Lycium ferocissimum* (African

Boxthorn)—open grasslands do not align with its preferred environment. Therefore, although the Project Area may offer some suitable habitat, the lack of regular consecutive observations of this species at any of the BBUS sites suggests that the species does not commonly reside within the Project Area. Furthermore, Southern Whiteface require hollow bearing trees for nesting, and the habitat within the Project Area lacks remnant habitat with an overstorey of hollow-bearing trees.

The Southern Whiteface has not been recorded or observed flying at rotor impact height.

State Listed Species

Three State listed threatened fauna species were observed within the Project Area during the BBUS program; the Black Falcon (*Falco subniger*, Rare) and Little Eagle (*Hieraaetus morphnoides*, Vulnerable) and Peregrine Falcon (*Falco peregrinus*).

The Black Falcon is found in woodlands, grasslands, and shrublands across arid and semi-arid regions, with a particular preference for wooded watercourses. These birds construct stick nests in the tallest living trees, especially within riparian woodlands and valley foothills. Known for their high mobility, Black Falcons have been observed twice within the Project Area. While suitable roosting and nesting habitats are limited in this region, the species may still traverse the area for foraging.

The Little Eagle is found in eucalypt forests, woodlands, and open woodlands, including sheoak and acacia woodlands, as well as riparian habitats. This species is widespread across most of Australia and has been observed on four occasions within the Project Area. While there is limited roosting and nesting habitat available for the Little Eagle in this region, similar to the Black Falcon, it may still traverse the area in search of foraging opportunities.

One Peregrine Falcon observation occurred opportunistically in Autumn 2025.

Both the Little Eagle and Black Falcon were recorded at a height that constitutes being within the rotor-swept area of a WTG (i.e. 30-300m above ground). However, the lack of preferred habitat and low number of observations indicates potential impact to the species would be low.

Although low numbers of observations over the 24-month BBUS program of nationally and state threatened avifauna species within the Project Area, the Project CEMP will include measures to minimise impacts to native vegetation that provide habitat to listed avifauna species.

Pygmy Blue Tongue Lizard

Targeted surveys were carried out in the spring of 2023 throughout the Project Area, concentrating on locations where historical PBTL records were documented. The survey conditions were optimal, characterised by relatively dry weather and grazing pressure that led to minimal vegetation cover, allowing for easy detection of spider burrows. The Project Area included suitable spider holes for PBTL, although certain regions were deemed too steep or rocky for PBTL presence. A total of 1,070 spider burrows were examined for PBTLs, yet no individuals were found despite the focused survey efforts.

Additional targeted surveys for PBTL were undertaken in March and April 2026. A total of 1,221 burrows were checked across the two targeted surveys, recording a total of nine burrows containing PBTL. Discussions with DCCEEW have commenced around a strategy to avoid impacts to PBTL and will be refined ahead of a referral under the EPBC Act.

Flinders Ranges Worm-Lizard

Opportunistic surveys for Flinders Ranges Worm-lizard (FRWL) were undertaken during the 2023 spring survey with no individuals observed.

Targeted surveys for FRWL (*Aprasia pseudopulchella*) were subsequently undertaken between 29 June and 2 July 2026 within and adjacent to the proposed disturbance footprint. Surveys comprised active searches at 38 sites, with between 5,200 and 7,100 rocks inspected across potentially suitable habitat. Two FRWL individuals were recorded, confirming the presence of the species within the Project Area. Both individuals were detected in *Lomandra multiflora* grassland habitat.

Visual inspections indicated that most of the BESS areas occur within cropped land unlikely to provide suitable habitat, although some grassland surrounding the proposed BESS site may support FRWL habitat. The report recommends that Project design continue to prioritise avoidance and minimisation of impacts to suitable FRWL habitat where practicable, and that targeted surveys be undertaken within accessible sections of the OTL corridor and BESS area.

7.6.3 MITIGATION AND MANAGEMENT

7.6.3.1 PRIOR TO CONSTRUCTION

- At detailed design stage, survey project impact footprint for NPW Act listed threatened flora prior to construction;
- Utilise existing disturbed areas (such as pasture or cropping land) for Project infrastructure and use mitigation hierarchy during detailed design phase to microsite and avoid high value ecological areas (such as INTG TEC and A4: *Cryptandra campanulata*) and MNES where possible;
- Where the removal of native vegetation is necessary, authorisation is secured in accordance with the Native Vegetation Act;
- Undertake targeted FRWL surveys during winter 2026 in suitable habitat to confirm presence or absence;
- Consider undertaking additional pre-construction targeted PBTL surveys in likely and possible habitat;
- Undertake an assessment of potential impacts against the EPBC Act Significant Impact Guidelines and refer the Project to DCCEEW for assessment once detailed design is finalised including micrositeing relevant infrastructure to avoid PBTL's known habitat;
- Appropriate consultation regarding weeds and pests is carried out with landowners and SA Government agencies (e.g. PIRSA, DEW, Northern and Yorke Landscape Board), including the sharing of data, where appropriate; and
- Livestock biosecurity measures, including measures relating to Emergency Animal Diseases, are developed through the OMP in consultation with affected landowners and PIRSA, where required, and consistent with the applicable requirements of the Livestock Act.

7.6.3.2 DURING CONSTRUCTION

- CEMP implements measures to minimise, rehabilitate and offset unavoidable impacts to native vegetation; and

- CEMP includes record keeping relating to the detection (whether introduced by an operator or not), monitoring, eradication or control of weeds and pests.

7.6.3.3 DURING OPERATION

- OMP includes record keeping relating to the detection (whether introduced by an operator or not), monitoring, eradication or control of weeds and pests; and
- Any cleared zones that are not necessary for the operational phase of the Project should be restored at the earliest opportunity.

7.6.3.4 DECOMMISSIONING

- Include relevant best practice management plans for management of native vegetation rehabilitation, fauna protection and weed and pest containment as part of the Decommissioning Management Plan.

7.6.4 SIGNIFICANCE ASSESSMENT

The tables below outline an assessment against the EIA Criteria to determine the overall significance of the potential impact on ecological values and fauna/flora species.

The outcome of the significance assessment has been evaluated as **minor impact** on flora and fauna.

TABLE 7-13 FLORA IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (NV1)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
NV1	Clearance, fragmentation and degradation of native vegetation resulting in biodiversity loss	Construction	No – avoidance is prioritised but some level of native vegetation clearance will be required, and some indirect disturbance to retained vegetation may occur.
Magnitude of Impact (Considering the proposed control and management strategies)			Sensitivity
• Type: Direct and indirect (direct clearance, plus indirect disturbance via dust deposition, erosion/sediment mobilisation and altered drainage/runoff). • Frequency Rarely, during construction. • Duration: Short-term, during construction, with impacts offset by implementation of SEB. Indirect effects on retained vegetation are temporary and managed through construction controls. • Extent: Local to Project Area. • Severity: Low, avoidance, mitigation and management of native vegetation clearance, together with controls on dust, erosion, sediment and drainage, will offset impacts and reduce severity. Unplanned events: Unlikely, vegetation clearance is a managed impact. Magnitude rating: Small			• The Project Area is predominantly cleared, agricultural land. • Patches of threatened ecological communities are present at the wind farm site. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
Native vegetation clearance areas are to be relatively small for a project of this nature, and indirect impacts on retained vegetation are minimised through construction controls. Vegetation clearance and infrastructure placement may result in some additional fragmentation and edge effects; however, the Project Area is predominantly agricultural land, and the Project has been designed to minimise clearance and retain habitat connectivity where practicable. Impacts are unlikely to cause substantial change in overall population of native threatened species or abundance of native vegetation.			Minor

TABLE 7-14 FLORA IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (NV2)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
NV2	Introduction and/or spread of weed species degrade/reduce the abundance of native vegetation	Construction Operation Decommissioning	No – weeds are present within the Project Area
Magnitude of Impact (Considering the proposed control and management strategies)			Sensitivity
• Type: Direct • Frequency Occasionally, spread of weed species has highest potential during times of increased activity/vehicle movements. • Duration: Short-term, management plans will be in place to identify and control the spread of weeds. • Extent: Local to Project Area. • Severity: Low, management plans will be in place to identify and control the spread of weeds. Unplanned events: Unlikely, management plans will mitigate impacts unplanned spread of weed species. Magnitude rating: Small			• The Project Area is predominantly cleared, agricultural land. • Patches of threatened ecological communities are present at the wind farm site. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
Potential impacts can be mitigated via commonly adopted management plans and are unlikely to cause substantial change in overall population of native threatened species or abundance of native vegetation.			Minor

TABLE 7-15 FAUNA IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (NF1)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
NF1	Reduced abundance of listed native fauna species due to habitat reduction.	Construction	No – controls will be in place to prevent impacts but unexpected impacts may occur.
Magnitude of Impact (Considering the proposed control and management strategies)			Sensitivity
• Type: Indirect, via habitat reduction. • Frequency Rarely, during construction only. • Duration: Short-term, potential impacts from habitat clearance during construction phase. • Extent: Local to Project Area. • Severity: Low, habitat clearance is avoided where possible in high value areas and minimised in other areas. Unplanned events: Unlikely Magnitude rating: Small			• The Project Area is predominantly cleared, agricultural land. • Habitats for species that are vulnerable or rare have a medium to high likelihood of occurrence across the Project Area. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
Impacts only a small area of habitat, such that there is no loss of viability of the habitat. Impacts are unlikely to cause substantial change in overall population of native threatened species.			Minor

TABLE 7-16 FAUNA IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (NF2)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
NF2	Reduced abundance of listed native fauna species due to operation activities	Operation	No – controls will be in place to prevent impacts but unexpected impacts may occur.
Magnitude of Impact			Sensitivity
Considering the proposed control and management strategies: • Type: Direct, via turbine impacts to bird species. • Frequency Rarely, potential isolated occurrences during operation when certain bird species may be present. • Duration: Long-term, potential impacts from WTG during lifespan of wind farm. • Extent: Local, to Project Area. • Severity: Low, WTG impacts are likely to be low (due to low presence of potentially impacted species at wind farm site) and not cause widespread impacts to species. Unplanned events: Unlikely Magnitude rating: Small			• The Project Area is predominantly cleared, agricultural land. • Species that are vulnerable or rare and have a medium to high likelihood of occurrence across the Project Area. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
Impacts are unlikely to cause substantial change in overall population of native threatened species.			Minor

7.6.5 CUMULATIVE IMPACTS

The possible cumulative impacts on local flora and fauna will be influenced by the extent of other projects in the vicinity. When several projects are located in close proximity, there is a potential for cumulative effects to affect biodiversity; however, these impacts are typically alleviated by the appropriate controls implemented.

7.6.6 UNCERTAINTIES AND ASSUMPTIONS

- Habitat suitability assessments assume that vegetation condition and structure observed during surveys accurately represent potential fauna use;
- Species presence is assumed based on regional records and habitat characteristics, even if not directly observed;
- Survey effort and timing are assumed to be representative of seasonal conditions for target species; and
- Although the BBUS survey period is short (two days), providing a snapshot in time, the eight seasonal BBUS conducted over two years is considered sufficiently robust to gather adequate data on bird and bat species in the Project Area.

7.7 LANDSCAPE AND VISUAL

Green Brean Design Pty Ltd (GBD) prepared the '*Willogoleche 2 Wind Farm Visual Impact Assessment*' (the VIA, 2025) to assess the potential impacts of the Project on landscape character and visual intrusion in the Project Area and surrounding region. This section summarises the methodology, key findings, and management strategies, referencing relevant legislative requirements, risks, and stakeholder considerations. For the full detailed assessment and photomontages, refer to the VIA at Appendix G.

TABLE 7-17 OVERVIEW OF VISUAL MATTERS

Matter	Description
Views of Affected Parties	Community feedback noted concerns about the visibility of turbines and overhead transmission lines from residences and roads.
Applicable Government Legislation	<i>Planning, Development and Infrastructure Act 2016</i> (SA) <i>Hydrogen and Renewable Energy Act 2023</i> (SA)
Applicable Non-Legislated Standards	PlanSA Assessment Requirements Library AEQ4 Visual Amenity, Landscape and Open Space UK Landscape Institute Guidelines for Landscape and Visual Impact Assessment 3rd Edition
Environmental Receptor	Local residents Landscape character

7.7.1 METHODOLOGY

The VIA follows established practice set out in the *Guidelines for Landscape and Visual Impact Assessment* (GLVIA3) and the *PlanSA AEQ4 Visual Amenity, Landscape and Open Space* requirements.

The VIA considers the full set of visible project elements, consisting of up to 20 wind turbines, electrical infrastructure including the BESS, overhead reticulation, and an overhead transmission line section that follows Wilkins Highway and then the Bluff Road. It also considers on-site access tracks and temporary construction facilities.

The VIA notes that a maximum wind turbine tip height of 300 m was adopted as an upper limit height, for a worst-case scenario assessment for visual impact. The 300 m tip height has also been adopted for the zone of theoretical visibility analysis, shadow flicker assessment and photomontage preparation.

The method combines a landscape character assessment with a visual effects assessment, using professional judgement to integrate receptor sensitivity and magnitude of change. Key components include:

- Fieldwork & photography: Site inspections (June 2024) with panoramic and single-frame photographs (Nikon D850, 50 mm lens), stitched and annotated to illustrate existing views and potential visibility bands;
- Zone of Theoretical Visibility (ZTV): Terrain-based geometric analysis of theoretical visibility for blade tip and hub height; conservative (does not include vegetation/structures), with

actual visibility reduced by screening and weather. Figures illustrate visibility behaviour with distance, movement, and relative position/backdrops;

- Photomontages: 120° panoramas and ~40° single-frame montages generated via DTM modelling, turbine geometry (tip 300 m; hub 209 m; blade 91 m), viewpoint registration, and Photoshop adjustments for haze and screening. LVIA notes limitations (perceived scale in flat images; FoV differences vs human vision);
- Landscape Character Area (LCA) analysis: Criteria assessing landform/scale, landcover, settlement, movement, rarity, and intervisibility (Tables 3–4 of Appendix G);
- Visual effects grading: Receptor sensitivity combined with magnitude via a matrix (Table 5 of Appendix G), applied to key receptor groups and viewpoints within approximately 6 km, informed by ZTV and field observations; and
- Shadow flicker and blade glint assessment: Geometric sun-path modelling (terrain-corrected) for 20 turbines to 10D (moderate-intensity) and 15D (low-intensity) distance thresholds; calculates theoretical (worst-case) and predicted-actual durations at two/six m receptor heights, reported as the maximum within 50 m of each dwelling; assessed against the *Draft National Guidelines* thresholds (≤ 30 hr/yr theoretical; ≤ 10 hr/yr actual), with a cumulative check against Willogoleche Stage 1 Wind Farm and blade-glint risk managed via low-reflectivity blade finishes.

7.7.2 ASSESSMENT SUMMARY

LANDSCAPE CHARACTERISTICS & VISIBILITY

The Project Area is a broadly scaled, rural/agricultural landscape with gently undulating landforms, simple landcover patterns, dispersed settlement, and intermittent tree cover concentrated in gullies and along drainage/road lines. Landform/vegetation deliver notable screening compartments. While visual effects materially diminish beyond 6 km, turbines may remain discernible at far greater distances under ideal conditions, occupying only a small fraction of the view cone.

HALLETT TOWNSHIP PUBLIC SPACES AND DWELLINGS

Views from the Oval, tennis courts, bowls club and golf course are moderated by mature trees and buildings. Where turbines are visible, effects are assessed as Moderate-Low. Ancillary infrastructure such as the BESS, the OTL and the substation are not visible from these public spaces. In accordance with the Planning & Design Code setback requirements, and consistent with the VIA and turbine assumptions (up to 300 m tip height), the nearest turbine is located more than 3.5 km from the Hallett Township Zone.

Extensive street trees and garden plantings filter or block many residential views; overall effects are assessed as moderate-low where turbines are visible. Ancillary infrastructure is not visible from dwellings.

NON-ASSOCIATED RURAL DWELLINGS

Most non-associated rural dwellings within 3 km of the wind farm site are assessed as moderate impact; a small subset with direct, proximate views may experience moderate-high effects. The VIA notes compliance with the setback of 1.5 km from nearest turbine to non-associated dwellings.

AGRICULTURAL LAND

Wind turbines and associated infrastructure would be visible to those undertaking predominantly farming activities around the wind farm site. The degree of visual impact would ultimately vary depending on the nature and location of these activities, as well as the extent of screening provided by local vegetation within the landscape.

HIGHWAYS & LOCAL ROADS

Views of the WTGs would be experienced from sections of the Barrier and Wilkins Highways. These views would generally be limited to the upper portions of the turbine structures where screened by undulating landforms; however, they would remain dynamic, varying in direction and distance as vehicles travel along the highways. Such views would also be transitory and typically short-lived from moving vehicles.

Ancillary electrical infrastructure, including the BESS facility, OTL and substation, would not be visible from the Barrier Highway. A short section of the OTL, approximately 1.5 km, would run alongside the Wilkins Highway between the Ashby Road and The Bluff Road intersections before continuing south-west along The Bluff Road corridor. Given the relatively short length of OTL adjacent to the Wilkins Highway and the posted speed limit of 110 km/h, it is unlikely to form a prominent element within highway views.

ANCILLARY ELECTRICAL INFRASTRUCTURE (BESS, TRANSMISSION LINE, SUBSTATION)

The BESS is proposed immediately east of the existing Willogoleche substation, approximately 9.5 km south of the wind farm site. The nearest dwelling (B34) is approximately 900 m to the west of the BESS site. There would be limited visibility toward the BESS facility due to distance and scattered tree cover within the landscape.

The final design and exact locations of the overhead transmission line, substation and O&M facility are to be confirmed. However, based on the current concept alignment, surrounding landform and intermittent planting, their visual effects are unlikely to be significant.

NIGHT LIGHTING

The Aviation Impact Assessment prepared for the Project found no obstacle lighting required for turbines due to low aviation risk. Security lighting at substation/BESS is limited and should meet AS 4282:2019; overall night-lighting effects are low.

SHADOW FLICKER AND BLADE GLINT ASSESSMENT

A shadow flicker assessment was undertaken in accordance with the *Draft National Wind Farm Development Guidelines* (2010), which recommend limits of 30 hours per year on the theoretical shadow flicker duration, and 10 hours per year on the actual shadow flicker duration.

Under the worst-case (conservative) modelling, maximum predicted actual annual shadow flicker duration for all hub height options considered for Project show exceedances at six associated dwellings (B156, B157, B158, B168, B169 and B170), each subject to agreements with Willogoleche 2 Pty Ltd as trustee for the Willogoleche 2 Operating Trust. One non-associated dwelling (B66) is modelled to marginally exceed the actual annual limit of 10 hours by up to 1.6 hours. The LVIA noted that B66 is uninhabited, with existing mature vegetation likely to further reduce any shadow flicker effect. Further, as the modelling is conservative, it may overestimate actual flicker due to property orientation, distance from turbines, sun position, weather conditions, and wind direction.

A cumulative assessment combining the Project turbines with the existing Willogoleche Wind Farm identified no overlapping effects at moderate or higher intensity.

Glint (specular reflection of sunlight) from turbine surfaces is typically very low to low because towers and blades are largely convex, which disperses reflected light rather than focusing it. Any residual potential for blade glint can be further reduced through the use of matt coatings on turbine surfaces, which can effectively mitigate visual impacts caused by glint.

For the full assessment, refer to Appendix A of the VIA at Appendix G.

7.7.3 MITIGATION AND MANAGEMENT

7.7.3.1 PRIOR TO CONSTRUCTION

- Further refine design and layout where possible to help mitigate perceived bulk and height of proposed structures;
- Use industry-standard white/off-white turbine colour with non-reflective finishes to minimise visual impacts from key public viewpoints;
- Select turbines with consistent height, appearance, and clockwise rotation to maintain uniform visual form;
- Space turbines to reflect landscape characteristics and minimise visual impacts, considering technical, environmental, land use, and regulatory requirements with offsets from sensitive locations; and
- Night-lighting design for ancillary structures to meet Australian Standard AS 4282:2019.

7.7.3.2 DURING CONSTRUCTION AND OPERATION

- Minimise tree removal wherever possible;
- Avoid temporary light spill beyond the construction site when lighting is required;
- Progressively rehabilitate disturbed areas during construction works;
- Protect mature trees within the Project Area where feasible;
- Maintain and repair constructed elements as needed;
- Replace damaged or missing elements promptly;
- Long-term maintenance and replacement of vegetation to preserve visual filtering and screening of external views where appropriate;
- Any changes to the proposed WTG layout will be reassessed for potential shadow flicker impacts; and
- A complaints register is maintained, and all visual amenity complaints, including shadow flicker, are investigated and addressed in a timely manner.

7.7.3.3 DECOMMISSIONING

- If decommissioned, remove above-ground infrastructure and rehabilitate disturbed land;
- Retain or remove access tracks per consultation with landowners; and
- Prepare a decommissioning plan for approval as required.

7.7.4 SIGNIFICANCE ASSESSMENT

Table 7-18 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impacts on visual amenity from the Project.

The outcome of the significance assessment has been evaluated as having an overall **minor to moderate impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-18 VISUAL IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
V1	Change to landscape character and visual amenity from wind turbines	Construction and operation	No – visual impacts cannot be fully avoided, but are minimised through siting and micro-siting, uniform turbine design/finishes, and the use of landform and vegetation for screening, with ongoing design controls.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Direct change to views and perceived landscape character. • Frequency of impacts is considered continuous during operation and intermittent during construction. • Duration of impacts would be long-term, spanning the construction and operational life of the Project. • Extent is localised to Project viewshed, with greatest potential effects within 6 km and progressively reduced with distance, landform and tree screening (as indicated by ZTV and photomontages). • Severity remains at low to medium, residual risks remain due to most receptors experiencing limited magnitude after siting, screening and lighting controls, with only a small subset of dwellings retaining moderate residual effects due to proximity. Unplanned events: Unlikely, but possible in the event of occasional visibility of cranes, abnormal loads and temporary compounds during construction and major maintenance. Magnitude rating: Medium			• Broad agricultural landscape with gently undulating landforms and simple landcover; gullies, shelterbelts and roadside trees frequently filter views. • Settlement is dispersed. Hallett township is partly enclosed by landform and mature vegetation, moderating exposure from many in-town locations. • Existing regional wind energy developments reduce the rarity of the character and slightly lower sensitivity to additional change. • Views from highways and local road corridors are typically brief and vary according to the direction of travel. • Ancillary elements are low-rise and often perceived in conjunction with the existing substation. Sensitivity rating: Low to medium
Environmental Significance Assessment Outcome			
The anticipated effects on visual amenity during construction and operation are evaluated as having minor to moderate significance. Residual visual effects are acceptable and manageable with the stated design and management measures. Effects reduce with distance and screening; no turbine obstacle lighting is required, further lowering night-time visibility. The proposed control and management strategies are robust and subject to audit, minimising the impact to ALARP. Risks are assessed as acceptable and manageable with the recommended treatments implemented.			Minor to Moderate

7.7.5 CUMULATIVE IMPACTS

A cumulative assessment identified several approved or operating wind farms within 30 km of the Project. The VIA found that there are opportunities for direct and indirect visibility between turbines on the Project site and other wind farms, including the existing Willogoleche Wind Farm, Goyder North Wind Farm, and the Hallett Wind Farm group, as well as others in the wider landscape. It concluded that cumulative visual effects would not be significant due to the separation distances between developments. While noting the proposed Whyte Yakowie Wind Farm to the north and northeast; the assessment, in accordance with standard industry practice, only considers approved, constructed, and operating wind farms in a cumulative impact assessment.

7.7.6 UNCERTAINTIES AND ASSUMPTIONS

- The assessment is based on the Project layout and design information available at the time of reporting; subsequent design refinements may alter visual outcomes;
- Photomontages and visual simulations are prepared using digital terrain models and available site data; actual field conditions may result in minor discrepancies;
- The Zone of Theoretical Visibility (ZTV) analysis is conservative as it assumes open visibility; screening effects are not represented;
- Assumptions regarding vegetation cover and land use are based on site inspections (June 2024) and current aerial imagery;
- Road-based views assessed under typical conditions;
- Weather conditions, atmospheric clarity, and seasonal changes are acknowledged but have not been in the modelling;
- The assessment assumes compliance with relevant Planning and Design Code, including setback distances based on maximum turbine tip heights;
- Cumulative visual effects are considered only for approved, constructed, or operating wind farms as of December 2025; future developments not yet approved are excluded; and
- The assessment of ancillary infrastructure, including the BESS facility and overhead transmission line, is based on indicative designs; final details may vary.

7.8 NOISE

Sonus Pty Ltd prepared the '*Willogoleche Stage 2 Wind Farm Noise Impact Assessment*' (the NIA, 2026) to assess the likely effects of operational noise on relevant receivers within and nearby the Project Area. Noise impacts were assessed on both *associated receivers* (i.e. those receivers with a Project commercial agreement) and *non-associated receivers* (i.e. those receivers without a Project commercial agreement). For the full detailed assessment, refer to the NIA at Appendix D.

In accordance with the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (Noise EPP):

- Noise from the wind farm site, including auxiliary infrastructure such as substations, is assessed against the '*Wind Farms Environmental Noise Guidelines*' (SA EPA, 2021) (Wind Farm Guidelines); and
- Noise from the BESS is assessed against the provisions of the Noise EPP.

TABLE 7-19 OVERVIEW OF NOISE MATTERS

Matter	Description
Views of Affected Parties	During early consultation on the Project, community stakeholders have raised concerns around noise nuisance, sleep disturbance, and rural amenity. Wind farm noise criteria are conservative and if met, are protective of noise amenity. Consultation has also occurred with DEM and the SA Environment Protection Authority. A summary of targeted consultation is provided in Appendix A.
Applicable Government Legislation	<i>Environment Protection Act 1993</i> <i>Hydrogen and Renewable Energy Act 2023</i> <i>Planning, Development and Infrastructure Act 2016</i> <i>Environment Protection (Commercial & Industrial Noise) Policy 2023</i>
Applicable Non-Legislated Standards	SA EPA Wind Farms Environmental Noise Guidelines (2021) SA EPA Indicative noise factor guidelines for the Environment Protection (Commercial and Industrial Noise) Policy 2023 World Health Organization (WHO) Guidelines for Community Noise
Environmental Receptor	Residential receivers Amenity values

7.8.1 METHODOLOGY

A summary of the assessment methodology is provided below. For full details around the approach and assumptions used refer to the NIA at Appendix D.

Wind Farm Noise Assessment Methodology

Noise from the wind farm component of the Project has been assessed in accordance with the Wind Farm Guidelines. The Wind Farm Guidelines specify that predicted wind farm noise levels ($L_{Aeq, 10min}$), including *auxiliary structures such as electrical substations, switches and service yards*, should not exceed the following:

- 35 dB(A) in localities which are primarily intended for rural living;
- 40 dB(A) in localities in other zones; or
- The background ($L_{A90, 10 min}$) noise by more than 5 dB(A).

whichever is the greater, at all relevant receiver for wind speeds from cut-in to rated power of the WTG and each integer wind speed in between. All relevant receivers (both associated and non-associated receivers) are located within the *Rural Zone*. According to the Planning and Design Code, the Desired Outcome of the 'Rural Zone' is:

A zone supporting the economic prosperity of South Australia primarily through the production, processing, storage and distribution of primary produce, forestry and the generation of energy from renewable sources.

Having regard to the Desired Outcome above, the Rural Zone is not intended for the purposes of rural living and is classified as a 'Rural Industry' Land Use Category under the SA EPA 'Indicative noise factor guidelines for the Environment Protection (Commercial and industrial

Noise) Policy 2023', and the 40 dB(A) baseline noise criterion applies to all nearby non-associated receivers.

For associated receivers the baseline noise criterion of 45 dB(A), to be met outdoors during the day or night, has been adopted to ensure the indoor noise levels at these receivers meets the 30 dB(A) limit recommended by the World Health Organisation '*Guidelines for Community Noise*'.

The wind farm noise assessment includes:

- Noise predictions made in accordance with ISO 9613-2 '*Acoustic – Attenuation of Sound during propagation outdoors – Part 2: General method of calculation*'.
- The following representative WTG and substation were assumed for noise assessment predictions:
 - Vestas V172-7.2 MW WTG with serrated blade trailing edges, at a hub height of 150 m, and a rotor diameter of 172 m;
 - Sound power level data for the representative WTG operating in 'PO7200' power optimised mode; and
 - Substation with a total sound power level of 98 dB(A).

Background Noise Monitoring within vicinity of wind farm site

Background noise monitoring was conducted over a six-week period at four representative locations near the wind farm component of the Project. Background noise monitoring locations B66, B67 and B166 were selected based on the non-associated receiver locations with the highest potential to be impacted by wind farm noise. Background noise monitoring at associated receiver B171 was selected to give a representative background noise for receivers located to the west of the proposed wind farm.

Data were filtered to exclude periods of rainfall, wind speeds below the cut-in and above the rated power of the indicative WTG model, and extraneous noise. The resulting background noise levels were correlated with wind speeds at hub height and used to establish noise criteria for receivers. Analysis confirmed that the existing WWF farm noise did not significantly affect background noise monitoring results, allowing use of all data for noise criteria setting.

BESS Noise Assessment Methodology

Noise from the BESS component of the Project has been assessed against the Noise EPP. The BESS site and all surrounding noise sensitive receivers are located within the Rural Zone of the Planning and Design Code where the following noise levels apply according to the SA EPA '*Indicative noise factor guidelines for the Environment Protection (Commercial and industrial Noise) Policy 2023*':

- An average (L_{eq}) noise level of 57 dB(A) during the day (7:00am to 10:00pm); and
- An average (L_{eq}) noise level of 50 dB(A) during the night (10:00pm to 7:00am).

The BESS noise assessment includes:

- Predications using the CONCAWE propagation model which considers noise source power levels and locations, separation distances to noise sensitive receivers, terrain factors, ground and air absorption, and worst case meteorological and atmospheric conditions;

- BESS noise sources comprising 45 power conversion system units and 180 BESS containers all operating at 100% fan speed, and two grid transformers; and
- A 5 dB(A) penalty using the conservative assumption that a tonal noise characteristic might be present if all BESS units operated simultaneously at the same fan speed.

7.8.2 ASSESSMENT SUMMARY

Wind Farm Noise Assessment

Based on the wind farm noise assessment methodology outlined above, Table 7-20 below shows the predicted noise levels at non-associated and associated dwellings. The locations of receivers, along with noise contours, are shown on Figure 7-3. Based on the assessment, noise from the wind farm component of the Project is predicted to achieve the baseline noise criterion at all non-associated and associated receivers in accordance with the Wind Farm Guidelines, without any reliance on background noise levels.

TABLE 7-20 WILLOGOLECHE STAGE 2 WIND FARM PREDICTED NOISE LEVELS

ID	Status	Baseline Noise Criterion [dB(A)]	Predicted Noise Level Willogoleche 2 [dB(A)]	Complies
B2	Non-associated	40	32	Yes
B66	Non-associated	40	37	Yes
B67	Non-associated	40	37	Yes
B128	Associated	45	32	Yes
B156	Associated	45	41	Yes
B157	Associated	45	40	Yes
B158	Associated	45	41	Yes
B166	Non-associated	40	35	Yes
B168	Associated	45	39	Yes
B169	Associated	45	41	Yes
B170	Associated	45	37	Yes
B171	Associated	45	38	Yes

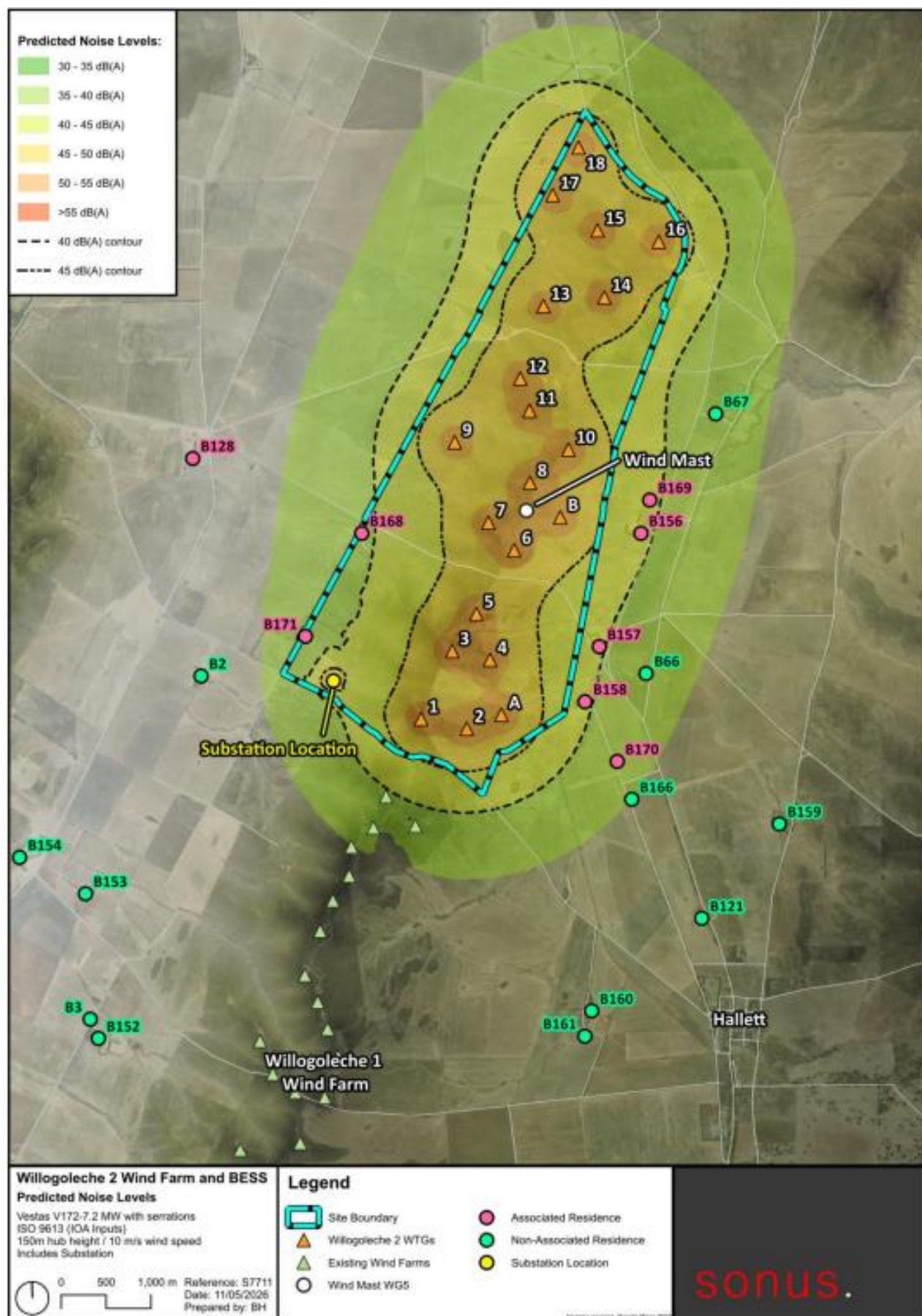


FIGURE 7-3 WIND FARM NOISE CONTOURS (SONUS, 2026)

BESS Noise Assessment

Based on the BESS noise assessment methodology outlined above, Table 7-21 shows the predicted noise levels for noise sensitive receivers near the BESS site with the location of receivers shown in Figure 7-4.

Table 7-21 uses the more conservative nighttime criterion of 50 dB(A) L_{eq} , to show compliance at all nearby noise sensitive receivers.

TABLE 7-21 WILLOGOLECHE STAGE 2 BESS PREDICTED NOISE LEVELS

ID	Status	Criterion [dB(A)]	Predicted Noise Level BESS [dB(A) L_{eq}]	Complies
B34	Non-associated	50	41	Yes
B35	Non-associated	50	33	Yes
B36	Non-associated	50	32	Yes
B37	Non-associated	50	34	Yes
B146	Non-associated	50	30	Yes
B148	Non-associated	50	31	Yes
B163	Associated	50	49	Yes
B164	Non-associated	50	39	Yes

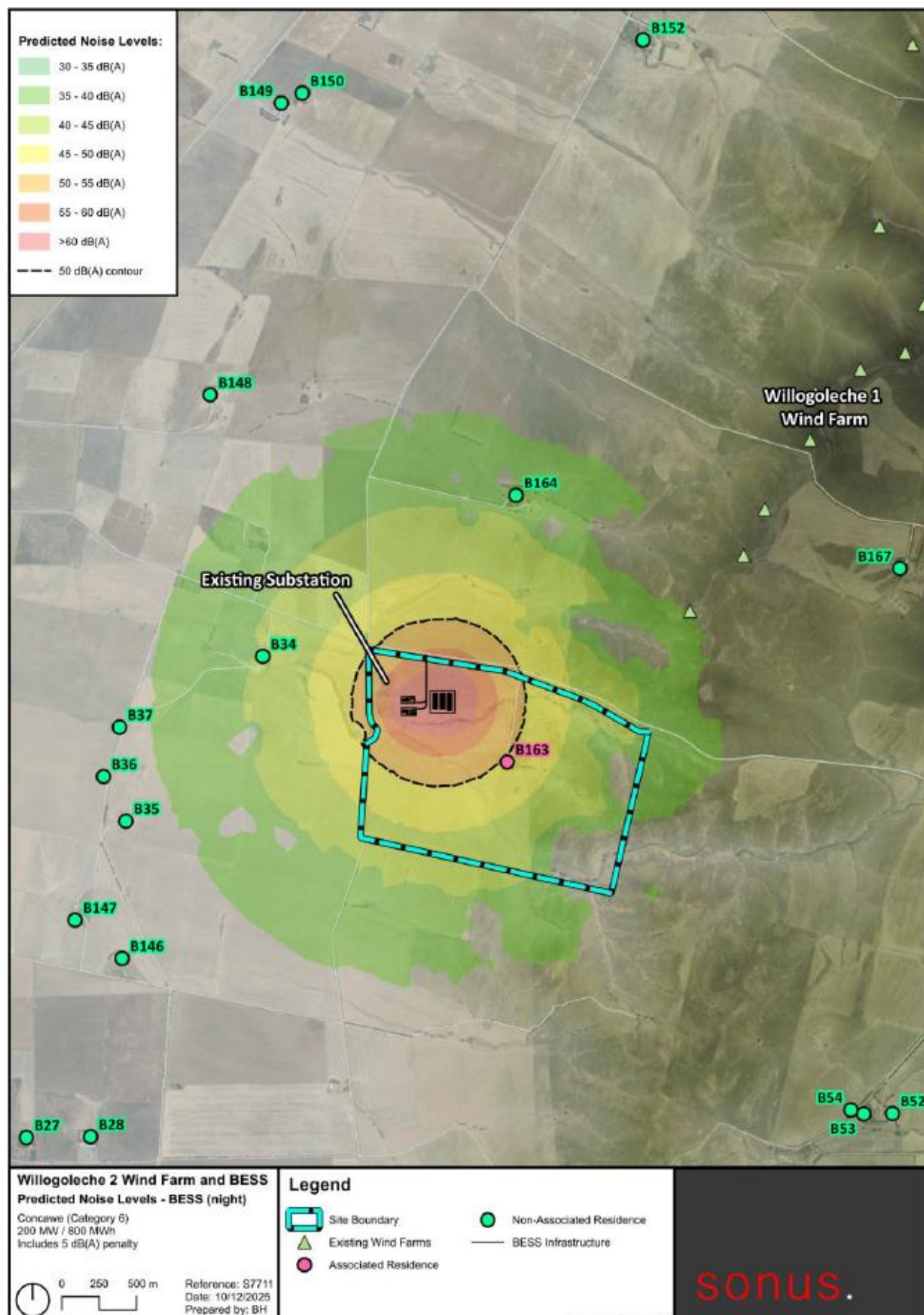


FIGURE 7-4 BESS NOISE CONTOURS

7.8.3 MITIGATION AND MANAGEMENT

7.8.3.1 PRIOR TO CONSTRUCTION

- Adopt conservative noise modelling approach to inform WTG siting allowing for micro-siting flexibility and WTG selection based on worst case noise prediction model;
- Once the wind farm and BESS equipment selection are finalised at the procurement stage of the Project, including sound power levels provided by the respective manufacturers, a final noise assessment will be conducted to confirm compliance with the relevant criteria; and
- A final noise assessment report will be submitted to DEM prior to the commencement of construction at the OMP stage.

7.8.3.2 DURING CONSTRUCTION

- Works will typically be undertaken during the hours of 7:00am to 7:00pm Monday to Saturday to limit noise impacts on nearby residents, noting some work outside these hours may be required particularly for concrete pours and other time critical construction elements; and
- Construction noise management would be documented as part of the CEMP forming part of the OMP.

7.8.3.3 DURING OPERATION

- Further, noise level monitoring during operation of the wind farm is also typically required to confirm ultimate compliance with the Wind Farms Guidelines.

7.8.4 SIGNIFICANCE ASSESSMENT

Table 7-22 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the Project on noise amenity for both the construction and operational phases.

The outcome of the significance assessment has been evaluated as having a **moderate significance** for the construction phase and a **minor significance** for the operational phase, and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-22 NOISE IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (N1)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
N1	Construction noise disturbance to nearby sensitive receivers	Construction	No – construction related noise impacts will be minimised but cannot be reasonably avoided.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct, noise impacts from fixed plant and other machinery may result from construction activities including along proposed construction access routes. • Frequency: Intermittently, some construction activities will be noisier than others. • Duration: medium-term, confined to some phases of the construction program where high volumes of construction traffic and machinery are on site. • Extent: localised, confined to the construction footprint and temporary construction laydown areas and site access routes. • Severity: medium, although only a small number of sensitive receivers are located within the Project vicinity potential still exists for noise nuisance during the construction phase if not managed appropriately. Unplanned events: Unlikely. Magnitude rating: Medium			• Although non-associated dwellings are setback at least 1,500 m from the nearest WTG, there is still potential for noise nuisance during the construction phase. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
The anticipated construction noise impacts on the surrounding area are evaluated as having moderate significance. Construction noise management would be documented as part of the CEMP forming part of the OMP to ensure noise impacts are minimised to ALARP.			Moderate

FIGURE 7-5 NOISE IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (N2)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
N2	Noise disturbance to nearby sensitive receivers	Operation	No – separation distances from the Project to relevant receivers provides some level of noise mitigation, but noise from the Project cannot be avoided entirely.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct, noise impacts from the Project components (wind farm, auxiliary infrastructure, and the BESS) will be experienced at nearby relevant receivers. • Frequency: intermittently, given the noise modelling adopts conservative assumptions and meteorological conditions the modelled noise impacts at relevant receivers represents a worst-case prediction. • Duration: long-term, noise impacts would remain for the duration of the Project. • Extent: localised, noise impacts are confined to the modelled extent shown in the wind farm and BESS noise contour figures. • Severity: medium, a number of relevant receivers will experience noise from the Project, but predicted noise impacts will meet applicable noise criteria. Unplanned events: Unlikely. Magnitude rating: Small			• The Rural Zone contemplates renewable energy facilities. • Non-associated dwellings are setback at least 1,500m from the nearest WTG. • Conservative noise modelling has demonstrated that noise criteria can always be met at non-associated receivers as well as associated receivers. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
The anticipated operational noise impacts on the surrounding area are evaluated as having minor significance. Pre-construction noise modelling and post construction noise monitoring should confirm compliance with the noise criteria at all relevant receivers ensuring impacts are minimised to ALARP.			Minor

7.8.5 CUMULATIVE IMPACTS

It is understood that, while the Project wind farm will be developed by and within the same ownership as the existing WWF, the two wind farms would operate as separate entities, and could therefore operate as separate wind farms. In the interests of a conservative assessment, this noise assessment considers the cumulative noise impacts from both WWF and Willogoleche Stage 2 wind farm.

This approach is consistent with the Wind Farms Guidelines, which recommends that the cumulative noise impact from all stages of the wind farm be assessed against the criteria if multiple stages of the same wind farm belong to the same owner.

The cumulative wind farm noise assessment demonstrates compliance with the baseline noise criterion at all non-associated and associated receivers. Refer to Section 4.5 (Cumulative Noise Impact) of the Sonus NIA at Appendix D for further details.

7.8.6 UNCERTAINTIES AND ASSUMPTIONS

A representative WTG model has been assumed for the purposes of the noise prediction modelling. The model evaluated in this assessment features a hub height of 150 m and a tip height of 236 m. Should a WTG model with different hub or tip heights be installed, it is anticipated that this will not significantly affect the assessment. This will be validated through a final noise assessment during the procurement phase of the project, based on the specific WTG model selected for installation.

7.9 SOCIAL IMPACT

ERM prepared the '*Willogoleche Stage 2 Wind Farm Social Impact Assessment Report*' (the SIA, 2025) to assess the potential social impacts associated with the construction and operation of the Project. This section summarises the SIA's methodology, key findings, and recommended management strategies, referencing all relevant issues, risks, and stakeholder considerations identified throughout the assessment process. For the full detailed assessment, refer to the SIA at Appendix I.

TABLE 7-23 OVERVIEW OF SOCIAL MATTERS

Matter	Description
Views of Affected Parties	Community concerns about accommodation, workforce influx, amenity, traffic, health, and cultural heritage. Council feedback on road safety, housing, and service pressures. First Nations engagement on heritage.
Applicable Government Legislation	<i>Planning, Development and Infrastructure Act 2016 (SA)</i> <i>Hydrogen and Renewable Energy Act 2023 (SA)</i> <i>Aboriginal Heritage Act 1998 (SA)</i>
Applicable Non-Legislated Standards	MG45 An Introduction to SIA (Government of SA, 2024) NSW SIA Guideline (2023) Social Impact Assessment International Principles, (Association for Impact Assessment (IAIA))
Environmental Receptor	Local residents, vulnerable groups, First Nations, local businesses, landowners, council, service providers

7.9.1 METHODOLOGY

The SIA was prepared in accordance with best-practice guidelines, including the NSW SIA Guideline (2023) and the IAIA SIA International Principles. The methodology adopted a structured, multi-phase approach.

A comprehensive scoping exercise was undertaken to define the social locality, identify key stakeholders and receptors, and determine the scope of potential impacts. This was followed by an extensive baseline data collection phase, which involved the analysis of Australian Bureau of Statistics (ABS) census data, local government reports, outcomes from stakeholder

engagement activities, and findings from relevant technical studies. Details of the social baseline can be viewed in Section 5 of the SIA at Appendix I.

The impact assessment phase evaluated potential social impacts across both the construction and operational phases of the Project. Stakeholder engagement was a continuous process throughout the assessment, involving regular consultation with the local community, Council, First Nations representatives, and service providers to ensure that a broad spectrum of views and concerns were captured and addressed. The significance of each identified impact was then rated using a matrix that compared pre- and post-mitigation scenarios, allowing for a clear understanding of the effectiveness of proposed management measures. Throughout the process, the SIA referenced a range of supporting technical reports, including those covering biodiversity, noise, and traffic, to ensure a robust and evidence-based assessment.

Social Locality

The social locality is a defined area that encompasses all communities, townships, and regions likely to experience social impacts from the Project. It includes:

- **Immediate Surroundings:** The townships of Hallett and Willalo, which are closest to the Project Area and most likely to experience direct impacts such as construction noise and visual changes;
- **Key Population Centres:** Nearby towns and regional centres within approximately one hour's drive – Burra, Clare, Jamestown, Peterborough, and Crystal Brook – which may provide infrastructure, services, and workforce for the Project;
- **Wider Region:** The broader Goyder Local Government Area (LGA), which governs the Project area and is relevant for regional planning, economic, and social context; and
- **Transport and Haulage Routes:** All proposed routes for transporting project components, as these may also experience increased traffic and associated impacts.

The social locality was determined based on proximity to the project, likelihood of experiencing amenity impacts, and the role of each area in supporting the Project's construction and operation. This approach ensures that the SIA considers all potentially affected communities, stakeholders, and service providers, allowing for a comprehensive assessment of social impacts and the development of targeted engagement and mitigation strategies.

7.9.2 ASSESSMENT SUMMARY

The SIA assessed both positive and negative impacts of the Project during the construction and operation phases arranged around themes such as livelihoods, way of life, surroundings, health and wellbeing, culture and community.

This assessment summary highlights the findings from the social impact themes of livelihoods, way of life, and community. The other themes of surroundings, health and wellbeing and culture draw heavily on the findings of the technical assessments such as noise, air quality and Aboriginal heritage, and although the SIA applies a social impact lens to the findings from those technical assessments, those findings have not been reproduced in the main body of this EIR. Refer to the SIA at Appendix I for further details.

Livelihoods

There is likely to be a range of positive and negative impacts of the Project on livelihoods within the social locality:

- Increased direct and indirect employment opportunities (high positive impact);
- Increased local business and procurement opportunities (medium / high positive impact); and
- Potential to create skills shortages (low negative impact).

These impacts are discussed below.

Increased direct and indirect employment opportunities

- The Project will create direct employment opportunities, especially during construction, and will also generate indirect jobs through increased demand for local goods and services (e.g., accommodation, restaurants, training, and community services);
- The influx of jobs will help diversify the local economy, which is currently shifting from agriculture and primary production towards more industrial and manufacturing services;
- Local workforce potential: About 35% of the local workforce is employed in occupations relevant to wind farm construction (technicians, trades workers, machinery operators, and labourers), providing a strong base for local hiring;
- Local councils and stakeholders expect the Project to result in local job creation, which was confirmed during engagement activities; and
- The positive employment impact is most significant during construction but will continue, to a lesser extent, during operations and eventual decommissioning.

Increased local business and procurement opportunities

- The Project will generate demand for local goods and services, including contractors, suppliers, and support businesses in the region;
- Construction is expected to support 150 FTE jobs per year for two years, with substantial value added to the South Australian and Goyder LGA economies;
- There are some challenges due to the limited size and capacity of local suppliers – only 48 out of approximately 567 businesses in Goyder LGA are active in construction, and many are sole traders or non-employing; and
- Regional Development Australia (RDA) York and other stakeholders have expressed support for connecting local businesses to renewable sector opportunities.

Potential to create skills shortage

- The Project requires a significant number of skilled workers (technicians, trades, machinery operators, labourers). About 35% of the local labour force has relevant skills, but if many are employed by the Project, other local businesses may struggle to find or retain staff;
- Local businesses, especially in construction and manufacturing, may experience short-term workforce shortages, potentially affecting their ability to fulfill contracts and commitments;
- Many workers in relevant trades are independent contractors, which increases workforce mobility and may lessen the risk of long-term shortages. The Project also expects to employ workers from outside the region (FIFO), which could help mitigate local shortages; and

- The region's aging population may make it harder to find or retrain local workers for renewable energy roles. Limited childcare options may also affect workforce participation.

Way of Life

There is likely to be a range of impacts of the Project on the way of life within the social locality.

Increased demand for short-term and long-term accommodation (medium negative impact)

- The local area already faces challenges with housing affordability, especially for renters. An influx of workers can drive up rental prices and reduce availability, particularly affecting vulnerable groups. Competition for accommodation is intensified in towns with ongoing wind farm and construction projects;
- Long-term rental availability is very low in the Social Locality, and short-term accommodation options are limited (47 options identified, mostly in Clare and Burra). With an average occupancy rate of 73%, it is estimated that around 144 rooms may be available at any time for the expected 150 direct workers—generally sufficient to meet demand noting the local employment target of 30%; and
- Many short-term accommodation options are not suitable for workforce housing and are important for tourism. Overlapping construction and festival/event periods could further reduce availability for visitors and tourists.

Increased demand for services and recreational facilities (low negative impact)

- The Social Locality has relatively limited emergency and health services due to its sparse population. Some areas lack mental health or 24-hour emergency services, which are important for supporting a large construction workforce;
- The arrival of workers may put additional pressure on existing services and facilities, especially as the local community (particularly the elderly) already has below-average health indicators and may require frequent care; and
- While the area's main towns have adequate primary and secondary schools, childcare options are limited, which may affect workforce participation and family wellbeing.

Community

Identified social impacts aligned to this theme are reduced community cohesion (which was assessed in the SIA as having a low negative impact), balanced with Engie's Community Benefit Sharing Program (which was assessed in the SIA as having a high positive impact).

Social Cohesion

- The change brought by the Project can be perceived differently by different stakeholders.
- Amongst some of the most important impacts in relation to community cohesion are those related to changes in the surroundings, lack of inclusion in engagement and decision making, and the community's experience with the arrival and accommodation of an external worker influx; and
- Although different views were expressed in relation to the arrival of the Project, there is currently no indication of existing issues of community division associated with the

Construction Phase of Project, noting there were mixed perceptions of the Project with some community members holding firm negative sentiments in relation to the Project.

Community Benefits Sharing Program

- Details of the community benefits sharing program link to the program are outlined in Section 3.8; and
- ENGIE proposes to collaborate with the Regional Council of Goyder to establish transparent governance for the Community Benefit Fund, including forming a committee with representatives from Bendigo Bank's Charitable Council, ENGIE, and local community members to meet annually for funding decisions.

Operational Phase

In the operational phase, many of the identified impacts on the social locality are expected to ease. Demand for accommodation and workforce will reduce, with ongoing local employment primarily related to maintenance activities and minimal traffic impacts. Amenity impacts will be managed through ongoing monitoring and compliance with relevant guidelines. The Project will continue to support local initiatives and maintain engagement with First Nations communities, ensuring that benefit sharing and cultural considerations remain central throughout the operational life of the wind farm.

7.9.3 MITIGATION AND MANAGEMENT

7.9.3.1 PRIOR TO CONSTRUCTION

Local employment and procurement

- Develop a Local Employment Plan for the Project to maximise local job opportunities and consider setting targets for local hiring;
- Promote local procurement through local content initiatives and awareness campaigns for businesses;
- Engage with local employment agencies and councils to connect workers and suppliers to project opportunities;
- Assist local businesses to become 'job ready' and encourage lead contractors to hire and purchase locally where possible; and
- Continue engagement with First Nations stakeholders for procurement opportunities.

Workforce accommodation and Community Services

- Prepare a Workforce Accommodation Strategy to manage demand on local housing and prioritise local options;
- Use the Community and Stakeholder Engagement Plan (CSEP) to focus on vulnerable groups and engage with local councils and service providers; and
- Coordinate with councils and service providers to address potential cumulative impacts from overlapping projects.

Community

- Develop a Worker Code of Conduct, that includes principals of behaviour, and work health and safety matters; and

- Continue implementation of the CSEP to facilitate appropriate, transparent, and meaningful stakeholder engagement.

7.9.3.2 DURING CONSTRUCTION AND OPERATION

- Implement the Local Employment Plan, Workforce Accommodation Strategy, and Worker Code of Conduct;
- Monitor and manage the use of local services and recreational facilities to avoid overburdening community infrastructure;
- Implement Engie's Community Benefits Sharing Program;
- Continue implementation of the CSEP to facilitate appropriate, transparent, and meaningful stakeholder engagement; and
- Implementation of a grievance mechanism to manage concerns that may arise during day-to-day construction and operational activities.

7.9.4 SIGNIFICANCE ASSESSMENT

Table 7-24 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on social amenity.

The outcome of the significance assessment has been evaluated as having a **moderate significance** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-24 SOCIAL IMPACT SIGNIFICANCE ASSESSMENT SUMMARY

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SE1	Disruption of social locality (both positive and negative impacts) due to increase in local activity and change in landscape during construction and operation	Construction and operation	No – Balancing both positive and negative impacts on the social locality will be required particularly noting a large short-term workforce will be required to construct the Project.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct and indirect; social impacts arise both directly (e.g., workforce influx, demand on housing/services) and indirectly (e.g., changes to community cohesion, local business environment) from project activities during construction and operation. • Frequency: Intermittently; some impacts (e.g., workforce influx, accommodation demand, community disruption) occur intermittently, especially during peak construction periods. Some impacts (e.g., local employment, business opportunities) are ongoing but fluctuate with project phase. • Duration: medium-term (construction), long-term (operation); construction-related impacts are medium-term (24 months), while some operational impacts (e.g., local employment, community benefit sharing) persist long-term (35 years). Most negative impacts (e.g., accommodation pressure) ease after construction. • Extent: local to regional; impacts are localised to the social locality (Hallett, Willalo, Goyder LGA), but some (e.g., workforce, procurement, accommodation) extend to regional centres (such as Burra, Clare, Jamestown). • Severity: medium, positive impacts (employment, procurement, community benefit) are significant, but negative impacts (accommodation pressure, service demand, potential for reduced cohesion) are also notable. Most are manageable with mitigation. Unplanned events: Unlikely. Magnitude rating: Medium			• Around 35% of the local workforce is employed in occupations relevant to wind farm construction, providing a strong base for local hiring. • Local businesses, may experience short-term workforce shortages, potentially affecting their ability to fulfill contracts and commitments. • The Project will generate demand for local goods and services, including contractors, suppliers, and support businesses in the region. • There are some challenges due to the limited size and capacity of local suppliers – only 48 out of approximately 567 businesses in Goyder LGA are active in construction, and many are sole traders or non-employing. • Long-term rental availability is very low in the social locality, and short-term accommodation options are limited. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
The anticipated social impacts are of moderate significance, with the potential for both positive and negative effects. With the implementation of targeted mitigation and management measures – such as local employment plans, workforce accommodation strategies, and ongoing stakeholder engagement – these impacts are reduced to ALARP.			Moderate

7.9.5 CUMULATIVE IMPACTS

Overlapping construction periods with other major developments in the area (e.g., other wind farms, solar projects) may:

- Increase competition for local suppliers and procurement opportunities;
- Intensify competition for skilled workers, with an estimated additional demand for approximately 2,000 construction workers across projects;
- Increase competition for accommodation and potentially raising rental prices; and
- Increase demand and strain on local services and facilities.

7.9.6 UNCERTAINTIES AND ASSUMPTIONS

- Qualitative data can be influenced by community perceptions, biases, and values. Whilst these aspects have sought to be validated through the data analysis conducted there always remains the possibility of these influences remaining;
- Time and resource constraints, and concern about consultation fatigue in communities make best practice social science data collection difficult to achieve;
- Cumulative impact assessments are typically based on the limited amount of publicly available information of surrounding projects applying for Development Approval. The limited extent of information, and associated knowledge gaps, results in a fragmented approach to forecasting cumulative social impacts. For example, there is limited data surrounding the various factors affecting the future supply and demand for housing, which could have an impact on the availability of accommodation for the non-local workforce; and
- SIAs are conducted before a project is implemented and subsequently prior to the community experiencing both project benefits and impacts.

7.10 SURFACE WATER

Water Technology Pty Ltd prepared the following assessments to evaluate the potential impacts of the Project on surface water hydrology and to inform design considerations.

- 'Willogoleche 2 Wind Farm Surface Water Impact Assessment' (WF Flood Assessment, 2025); and
- 'Willogoleche 2 BESS Surface Water Impact Assessment' (BESS Flood Assessment, 2025).

This section summarises the methodology, key findings, and management strategies, referencing relevant issues, risks, and stakeholder considerations. For the full detailed assessments, refer to the WF Flood Assessment and BESS Flood Assessment at Appendix E.

TABLE 7-25 OVERVIEW OF SURFACE WATER MATTERS

Matter	Description
Views of Affected Parties	To be updated post-consultation of EIR and SEO
Applicable Government Legislation	<i>Landscape South Australia Act 2019 (SA)</i> <i>Environment Protection Act 1993 (SA)</i> <i>Water Resources Act 1997 (SA)</i>

Matter	Description
Applicable Non-Legislated Standards	SA EPA Stormwater Management Guidelines
Environmental Receptor	Surface water Local groundwater

7.10.1 METHODOLOGY

The WF and BESS Flood Assessments both undertook a baseline surface water assessment to characterise the existing hydrological environment (flow paths, depths, velocities, water levels) across the Project Area and immediate surrounds. The baseline assessment collates available topography (e.g., LiDAR), rainfall and catchment data, and maps overland flow paths and potential flood-affected areas relevant to turbine locations, the indicative civil layout, and the BESS footprint.

Indicative developed-conditions modelling has been undertaken for the wind farm site, and will be completed once design inputs (road elevations, fill pad levels, culvert locations/sizes) are finalised at the detailed design phase of the Project, to quantify potential changes to flood behaviour.

The assessment references Australian Rainfall & Runoff 2019 (ARR) and considers multiple design storm events and temporal patterns. Where appropriate, hydrological inflows are coupled with hydraulic modelling of the site to evaluate depths, velocities and hazard across key assets and corridors. The assessment of direct/localised catchment inundation adopted a Rain on Grid (RoG) modelling approach using TUFLOW, an industry-standard tool widely applied in Australian flood studies.

7.10.2 ASSESSMENT SUMMARY

Wind farm site

Characterisation of Existing Conditions

The wind farm site is situated on a ridgeline in the upper reaches of the River Murray and Broughton River catchments. Surface water runoff within the site flows to the west (Broughton River catchment) and to the east (River Murray catchment).

The wind farm site contains no natural waterways, and excess rainfall typically drains across the surface rather than pooling. The terrain is highly variable, with frequent elevation changes throughout the Project Area. Given the wind farm site spans two catchments, there is no upstream catchment contributing flow.

Riverine flooding

There are no riverine areas affecting or being affected by the wind farm site.

Direct/localised catchment inundation

The RoG modelling approach using TUFLOW applies rainfall directly to a topographic grid of the catchment, enabling identification of major flow paths, depressions and wetlands, and mapping of depth, velocity and flood hazard in accordance with ARR guidelines.

The modelling incorporated infiltration losses, hydraulic roughness and design rainfall intensities to calculate runoff volumes and discharge rates for the site and downstream areas. Development of the TUFLOW model included the following key components:

- Model extent;
- Topography;
- Material layer (representing hydraulic roughness);
- Model boundaries (flows exiting the model); and
- Rainfall.

This approach provides a robust basis for determining runoff volumes, peak flow rates and areas of high flood risk across the project site. Initial modelling confirmed multiple flow paths exist within the wind farm site. These flow paths direct the water to each boundary of the site, with the model extent limited to cover this area.

Summary of Existing Conditions - Modelled Scenarios

Three scenarios were modelled based on existing conditions across the wind farm site, considering future climate change scenarios. Both the 2030 and 2100 horizon for the Shared Socioeconomic Pathway 5 (SSP5-8.5) were modelled for the 1% Annual Exceedance Probability (AEP). SSP5-8.5 represents a high-end, worst-case climate change scenario. Modelled results are shown below:

- Scenario - 2030 SSP5-8.5 (1% AEP)
 - Max flood depth: up to 1.1 m (excluding storage areas), confined to concentrated flow paths; and
 - Velocities: up to 4 metres per second (m/s); overland flow impacts Wilkins Highway with depths generally less than 200 mm.
- Scenario - 2100 SSP5-8.5 (1% AEP)
 - Max flood depth: up to 1.6 m, confined to concentrated flow paths; and
 - Velocities: up to 4.5 m/s; overland flow impacts Wilkins Highway with depths generally less than 250 mm.
- Scenario - Probable Maximum Flood (PMF)
 - Max flood depth: up to 2.5 m, confined to concentrated flow paths; and
 - Velocities: up to 5.5 m/s; overland flow impacts Wilkins Highway with depths generally less than 320 mm.

Figure 7-6 below illustrates the modelled flood hazard in the 2030 SSP5-8.5 (1% AEP) scenario. For all the modelled scenario, please refer to Chapter 4 of the WF Flood Assessment at Appendix E.

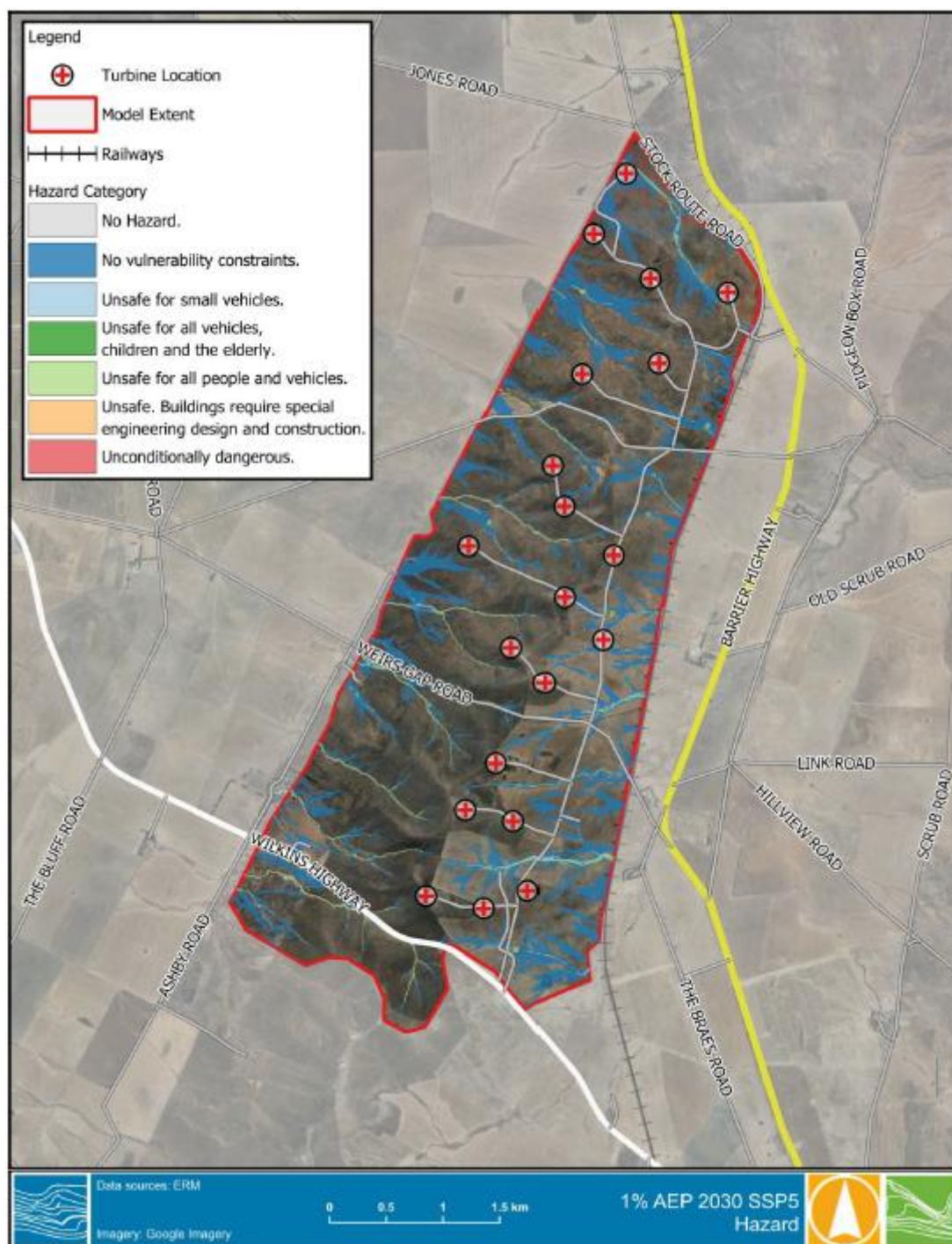


FIGURE 7-6 1% AEP FLOOD HAZARD (2030 SSP5-8.5) – EXISTING CONDITIONS

Developed Conditions

The 2030 SSP5-8.5 (1% AEP) hydraulic model results compared peak flows and water surface levels against the proposed wind farm and indicative civil layout to identify potential impacts, highlighting significant flow paths intersecting proposed infrastructure at P02, P04, P05 and P06, and insignificant flows at P11, P16, P21 and P22. Peak flow data informs recommended pipe and culvert capacities, while water surface levels indicate minimum infrastructure elevations; however, further modelling of developed conditions is required once the final layout is defined. Overland flow impacts developed roads with depths up to 500 mm, though most flows across the site are characterised by high velocity and shallow depths (generally under 300 mm).

Table 7-26 below outlines locations of peak flows along significant flow paths (P02, P04, P05, P06) and valley depressions and channels where peak flows are insignificant (P11, P16, P21, P22), with all site impact locations shown in Figure 7-7.

TABLE 7-26 WILLOGOLECHE 2 WIND FARM SURFACE WATER IMPACTS UNDER 1% AEP (2030 SSP5-8.5)

ID	Maximum			Location	
	Flow (m ³ /s)	Depth (m)	Water Level (m AHD)	Longitude	Latitude
P01	8.38	0.35	574.95	301315.919	6304056.541
P02	22.68	0.36	572.05	301581.984	6304859.866
P03	2.01	0.12	576.32	301780.319	6305270.546
P04	10.41	0.31	575.46	301830.438	6305552.217
P05	11.02	0.39	574.06	301872.864	6305568.51
P06	13.40	0.49	565.30	302068.195	6306160.554
P07	4.20	0.26	567.32	302125.107	6306408.814
P08	3.98	0.20	570.11	302130.341	6306727.52
P09	1.56	0.20	567.72	302159.521	6307005.586
P10	4.13	0.24	567.89	302166.771	6307047.487
P11	0.99	0.04	574.93	302191.201	6307278.582
P12	2.38	0.07	569.26	302408.172	6307902.85
P13	2.97	0.12	566.49	302498.08	6308231.877
P14	3.14	0.27	565.93	302769.547	6308516.49
P15	3.73	0.23	563.82	302892.654	6308463.187
P16	0.25	0.02	566.73	302809.148	6308665.423
P17	6.38	0.23	567.58	302827.073	6308732.871
P18	2.22	0.08	576.97	302951.283	6309407.73
P19	2.75	0.09	543.51	302149.05	6310527.077
P20	5.25	0.40	570.11	302715.484	6308762.238

ID	Maximum			Location	
	Flow (m ³ /s)	Depth (m)	Water Level (m AHD)	Longitude	Latitude
P21	1.19	0.08	571.73	302185.583	6307761.527
P22	1.02	0.03	566.56	301466.446	6307359.142

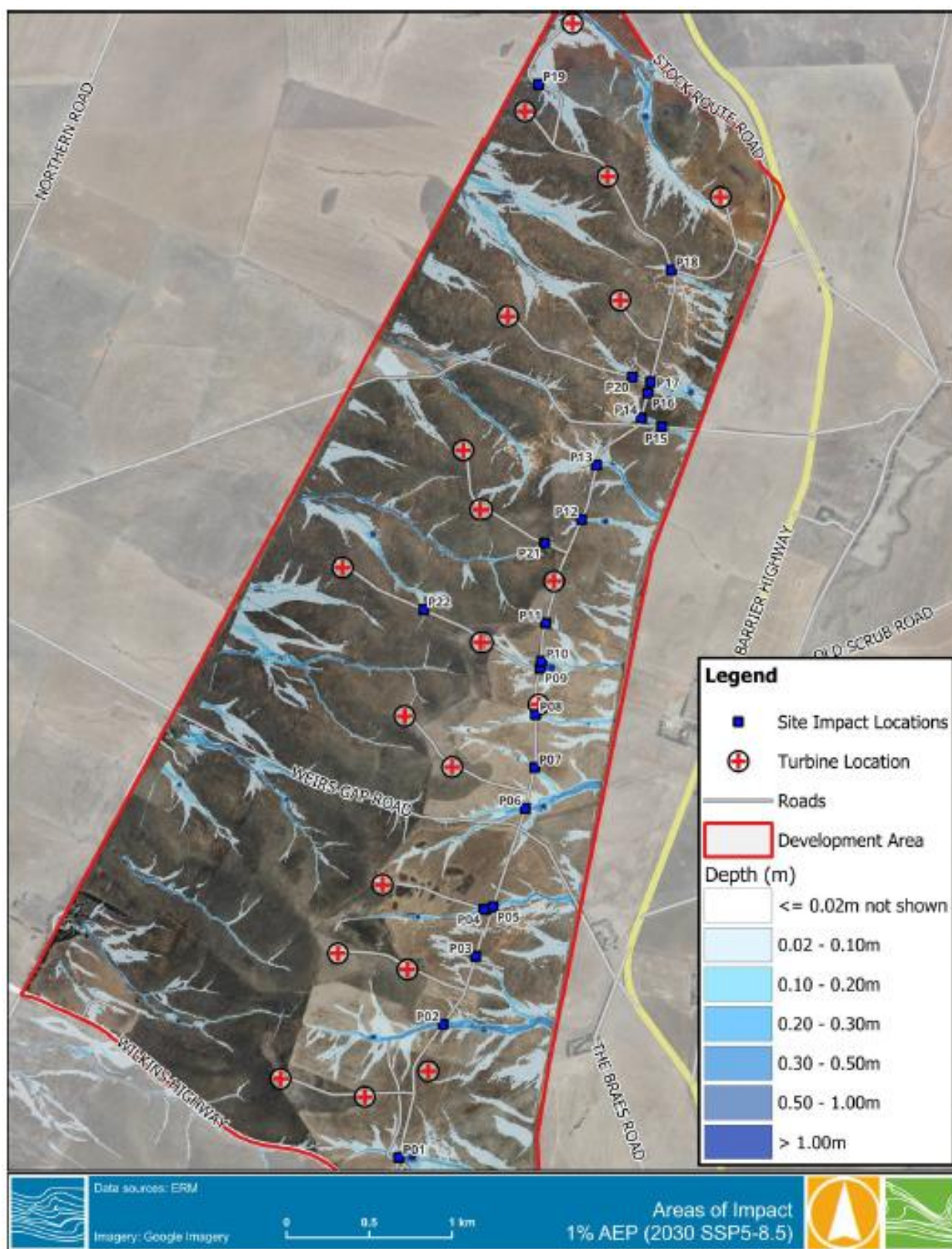


FIGURE 7-7 WILLOGOLECHE 2 WIND FARM IMPACTED INFRASTRUCTURE LOCATIONS UNDER 1% AEP (2030 SSP5-8.5)

BESS site**Characterisation of Existing Conditions**

The BESS site is located approximately 10 km southwest of Hallett, adjacent to Willalo Creek at Ashby Road, within a rural catchment of about 13.35 km². The upstream catchment drains towards the site, but topographic barriers prevent significant overland flow from inundating the proposed BESS area. The terrain is steep, resulting in generally high velocities in local flow paths, though depths under existing conditions do not exceed 30 mm and are considered insignificant.

Developed Conditions

Overall, flood impacts due to the proposed BESS development under the 1% AEP with and without considering climate change would be insignificant, with impacts above 300 mm difference limited to 50 m away from the site, and minimal impacts up to 100 m away. The BESS site will be required to achieve levels from 476.64 m AHD to 474.04 m AHD including 300 mm freeboard in the 1% AEP with climate change case. Refer to Figure 7-8 for the 1% AEP with climate change scenario which shows the difference between existing and developed conditions.

Increased impacts are observed under the PMF due to higher flows, resulting in more significant impacts due to the BESS site. Mitigation infrastructure is not proposed for events greater than the 1% AEP inclusive of climate change. The PMF is presented as the worst case scenario for information purposes only. Refer to the full BESS Flood Assessment at Appendix E for further details.

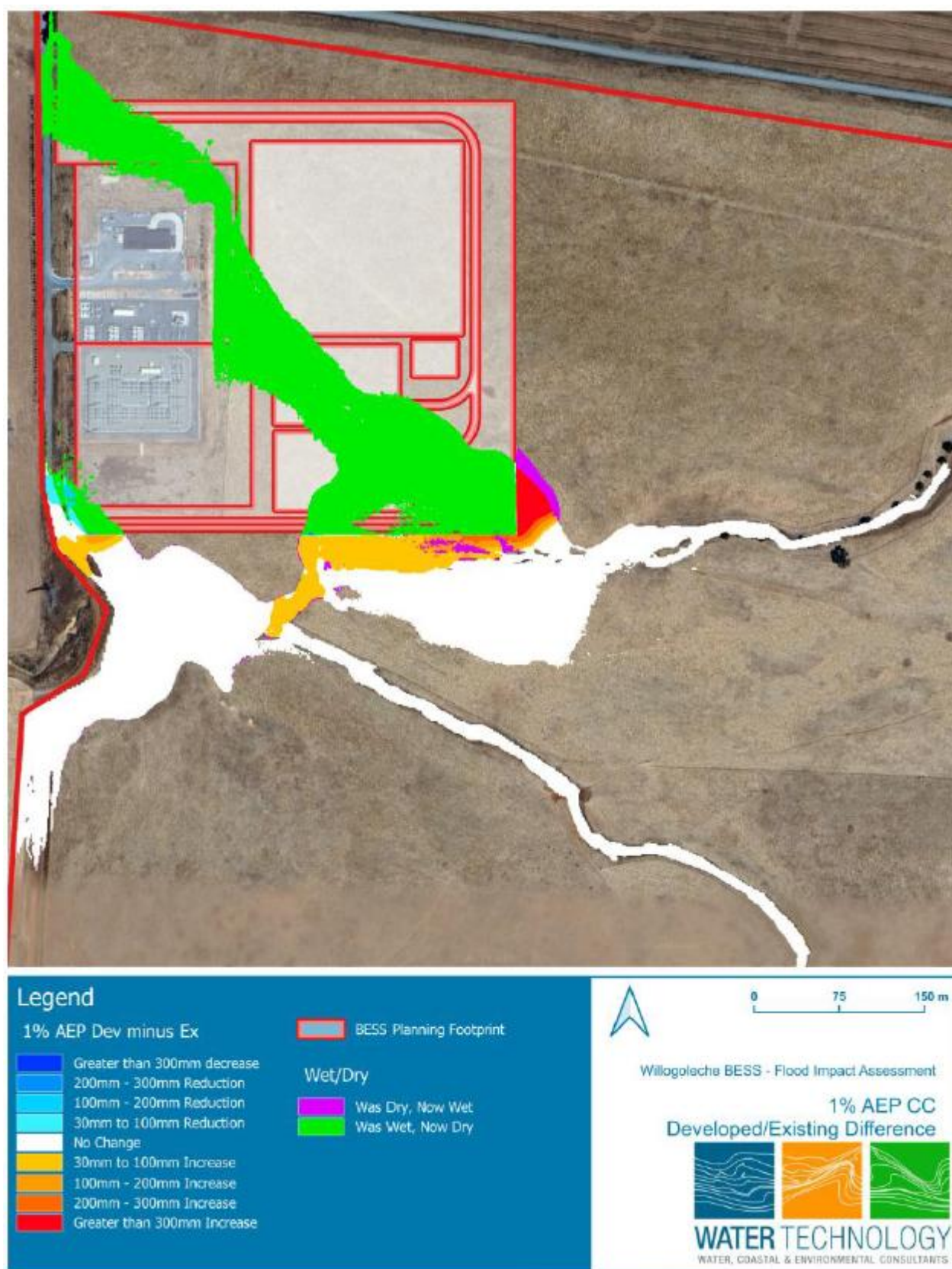


FIGURE 7-8 WILLOGOLECHE 2 BESS SITE 1% AEP CLIMATE CHANGE SCENARIO - DEVELOPED AND EXISTING DIFFERENCE

7.10.3 MITIGATION AND MANAGEMENT

7.10.3.1 PRIOR TO CONSTRUCTION

- Undertake surface water assessment to identify any permanent and ephemeral surface water features in the vicinity of the site;
- Undertake stormwater and flood modelling where required to determine surface water characteristics as an important consideration in determining the site suitability and informing design options;
- Site selection to avoid permanent or ephemeral surface water features and minimise or avoid potential for indirect impacts; and
- Where proposed infrastructure is predicted to be impacted by overland flows investigate mitigation measures during the detail design phase such as bunds, swales, sumps, detention or retention basins, and road culverts.

7.10.3.2 DURING CONSTRUCTION AND OPERATION

- Where proposed infrastructure is predicted to be impacted by overland flows investigate mitigation measures during the detail design phase (e.g. bunds, swales, sumps), as required; and
- Locate sensitive infrastructure including the BESS and structures to store hazardous materials storage outside of the 1% AEP flood plain or flow path, with an appropriate freeboard to be applied based on engineering advice.

7.10.4 SIGNIFICANCE ASSESSMENT

Table 7-2 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on surface water from the wind farm site and the BESS site.

The outcome of the significance assessment has been evaluated as having a **minor significance** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-27 SURFACE WATER IMPACT SIGNIFICANCE ASSESSMENT (SW1)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SW1	Changes to surface water flow paths, depths, and velocities due to wind farm infrastructure	Construction, operation and decommissioning	No – the Project design seeks to minimise impacts by siting infrastructure to avoid major flow paths where possible, but some intersections with flow paths and minor localised inundation may still occur.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct impact from construction and operation, with infrastructure intersecting overland flow paths. • Frequency: rare, given the design methodology will seek to microsite infrastructure and internal roads to avoid areas of concentrated flow paths and local depressions. • Duration: short-term during construction; long-term during operation. • Extent: localised, confined to identified potential flood areas. • Severity: low to medium, as most impacts have limited extent with some localised increases in surface water depth and velocity in modelled scenarios. Unplanned events: Unlikely, noting the flood assessment used the conservative climate change scenario SSP5-8.5 to predict future flood inundation impacts. Magnitude rating: Small to medium			• The wind farm site is on a ridgeline with variable topography and no upstream catchment inflow. • No riverine flooding; all inundation is from rainfall on site. • Overland flow impacts are generally minor and localised. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated effects on surface water within the wind farm site are evaluated as minor significance. Impacts are localised and can be managed through design and standard mitigation measures. Further modelling will confirm final significance and mitigation requirements.			Minor

TABLE 7-28 SURFACE WATER IMPACT SIGNIFICANCE ASSESSMENT (SW2)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SW2	Changes to surface water flow paths, depths, and velocities due to BESS development	Construction, operation and decommissioning	No – the Project design seeks to minimise impacts, but some displacement of water and localised increases in flood depth may still occur.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Direct impact from construction and operation, altering local flow paths and flood extents. • Frequency: Rare, given the design and modelling indicate impacts are localised and mostly contained. • Duration: Short-term during construction; ongoing during operation. • Extent: Localised, limited to within 50m to 150 m of the BESS site. • Severity: Low to medium, with most impacts assessed as insignificant. Unplanned events: Unlikely, noting the flood assessment used the conservative climate change scenario SSP5-8.5 to predict future flood inundation impacts. Magnitude rating: Small to medium			• The BESS site is adjacent to the Willalo Creeks with a 1,335 ha upstream catchment inflow. • Topographic barriers prevent flows from inundating the existing site where the BESS is proposed. • Overland flow impacts are generally minor and localised. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated effects on surface water within the BESS site are evaluated as negligible to low significance. Further investigation may be needed for PMF scenarios. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Minor

7.10.5 CUMULATIVE IMPACTS

Although not directly addressed in the Flood Assessments, cumulative impacts are considered unlikely for the Project Area, as flood modelling indicates that changes in depths and velocities are highly localised to turbine infrastructure and internal roads, with low downstream effects.

Given that predicted changes in flood behaviour are contained within the site (up to 150 m buffer) and do not materially alter regional flow paths, cumulative impacts with other developments are unlikely.

7.10.6 UNCERTAINTIES AND ASSUMPTIONS

Wind farm site

- The wind farm site has no riverine flooding risk as no waterways exist within or close to the site; all inundation is produced by rainfall falling directly onto the site;
- Rainfall and flood modelling are based on Bureau of Meteorology (BoM) data and ARR2019 guidelines; local gauge data is assumed representative of site conditions;
- RoG modelling applies rainfall directly to the topographic grid, assuming accurate representation of terrain via LiDAR (to a 0.5 m resolution);

- Hydraulic roughness coefficients and rainfall loss values are assigned based on ARR2019 recommendations and previous studies; open space areas use conservatively adjusted values;
- Wet antecedent conditions are assumed to influence peak flood levels; lower losses are adopted to provide a conservative assessment;
- Pre-burst rainfall depths are removed from initial loss values for 1% AEP events; PMP is applied without loss values for PMF scenarios;
- Model boundaries allow water to leave the domain without influencing flood levels; downstream impacts are assumed negligible;
- Temporal rainfall patterns are selected based on ARR ensemble simulations; median peak depths are used to represent localised climate characteristics;
- Full developed conditions scenario modelling is subject to final civil layout (yet to be confirmed); current assessment is based on existing conditions and preliminary infrastructure layout; and
- Further modelling is required to confirm impacts and inform specific mitigation measures (e.g., culvert and minimum level specifications).

BESS site

- The upstream catchment area is defined using National 10 m LiDAR and ARR2019 guidelines; catchment is assumed fully rural with pervious farming land and roads;
- Hydrological modelling uses RORB with parameters validated against regional flood frequency analysis and previous studies; adopted Kc value is based on local catchment characteristics;
- Rainfall data is scaled for climate change scenarios (SSP5-8.5, 2100) using ARR2019 recommendations; future rainfall and loss values are projections;
- Hydraulic modelling (TUFLOW) assumes topography and land use layers accurately represent developed and existing conditions;
- Material layer for hydraulic roughness is assigned based on ARR2019 recommendations; aerial imagery is used for land use classification;
- Topographic barriers present on the BESS site are assumed to prevent flows from inundating the site;
- Difference mapping of developed and existing conditions assumes impacts are contained within a 150 m envelope adjacent to the site; downstream impacts are considered minimal (<100 mm up to 100 m from site);
- PMF scenario uses conservative extrapolation for downstream impacts; further investigation is recommended for high-flow events; and
- Overall, flood impacts are considered localised and insignificant under 1% AEP (with/without climate change).

7.11 SOILS AND HYDROGEOLOGY

ERM has undertaken a soil and hydrogeology impact assessment using a qualitative, risk-based desktop assessment approach, in alignment with SA EPA guidelines.

TABLE 7-29 OVERVIEW OF SOIL AND HYDROGEOLOGY MATTERS

Matter	Description
Views of Affected Parties	To be updated post-consultation of EIR and SEO
Applicable Government Legislation	<i>Environment Protection Act 1993</i> <i>Environment Protection (Water Quality) Policy 2015</i> <i>Landscape South Australia Act 2019</i> <i>Planning, Development and Infrastructure Act 2016</i> <i>Work Health and Safety Act 2012</i>
Applicable Non-Legislated Standards	SA EPA Environmental management of dewatering during construction activities Guidelines; SA EPA Construction Environmental Management Plan Guidelines National Environment Protection Measures (NEPM) SA EPA Standard for the Production and Use of Waste Derived Fill SA EPA (2010) Current Criteria for the Classification of Waste including Commercial and Industrial Waste (Listed) and Waste Soil
Environmental Receptor	Sensitive receptors (e.g. residences, fauna, stock)

7.11.1 METHODOLOGY

This assessment is based on a desktop review of publicly available geological and soils mapping (e.g., DEW, SARIG), EPA site contamination registers, and WaterConnect groundwater data. No intrusive investigations have been undertaken at this stage. The assessment considers the requirements of the EP Act, LSA Act, and relevant EPA guidelines.

7.11.2 ASSESSMENT SUMMARY

7.11.2.1 SOILS

The Project Area is within the Broughton subregion of the Flinders Lofty Block IBRA bioregion, with subdued ranges and undulating plains underlain by sedimentary rock.

Key soil–landscape associations are:

- Bald Hill Range: Low hills/rises on fine-grained sedimentary rock, slopes 10–50%, shallow stony loams, calcareous loam over rock, gradational loam, sandy loam over red clay. Soils are hard-setting, calcareous, and erosion-prone, especially where vegetation is cleared.
- Hansen association: Gently undulating rises, moderately deep red duplex soils, shallow calcareous loams, texture contrast profiles. Land use is mainly dryland cropping and grazing.

Soils are generally shallow, stony, and susceptible to erosion. Standard CEMP mitigation measures will be implemented to minimise soil disturbance and control erosion throughout the project lifecycle.

7.11.2.2 SITE CONTAMINATION

No properties within 15 km of the site are listed on the SA EPA Site Contamination Index, with the nearest records (Terowie, approximately 19 km north of the Project Area) relating to railway operations and fill/soil importation.

7.11.2.3 HYDROGEOLOGY

Groundwater levels across the site range from approximately nine m to 21 m below ground level (historic records).

The site is not within a prescribed groundwater area and is not known for significant groundwater resources.

7.11.2.4 POTENTIAL IMPACTS

Construction activities, including earthworks, vegetation clearance and heavy vehicle movement, may disturb surface soils, resulting in potential localised erosion, sediment mobilisation, soil compaction and changes to surface drainage. The potential for soil contamination is considered low, as no properties within 15 km of the site are listed on the SA EPA Site Contamination Index; however, accidental spills of fuels, lubricants or construction materials during works could result in localised contamination if not appropriately managed.

Groundwater levels across the wind farm site are significantly below ground level, reducing the likelihood of direct groundwater impacts from construction activities. While regional groundwater contamination is highly unlikely, localised perched water or groundwater inflows may be encountered during earthworks, with potential for sediment mobilisation if not properly controlled.

The project will use potable water for turbine foundations and is likely to use bore water for dust suppression.

During operation, exposed surfaces such as access tracks and hardstands may be subject to erosion if not stabilised and maintained. Decommissioning activities may temporarily re-disturb soils and increase erosion or compaction risks until rehabilitation is completed.

Potential impacts to soils and groundwater are well-understood for wind farm developments and are managed through standard mitigations measures through a CEMP, consistent with SA EPA guidance for soil, erosion, drainage and contamination management.

7.11.3 MITIGATION AND MANAGEMENT

7.11.3.1 PRIOR TO CONSTRUCTION

- Prepare a CEMP for the Project, detailing soil, erosion, drainage and contamination controls prior to earthworks commencing;
- If required, develop a Soil Erosion and Drainage Management Plan (SEDMP) as part of the CEMP;
- Identify sensitive receptors and watercourses on and adjacent to the site to inform SEDMP; and
- Induct all contractors and workers on erosion, sediment and spill protocols to ensure awareness of CEMP/SEDMP requirements.

7.11.3.2 DURING CONSTRUCTION

- Limit the extent of exposed areas and stabilise disturbed surfaces where practicable, including the use of erosion and sediment controls on fill and cut batters as required;

- Stormwater and drainage will be managed by directing clean runoff around disturbed areas and through sediment controls where feasible, with direct discharge of untreated water to watercourses avoided;
- The applicant will consult local landowners, Council and other commercial water suppliers regarding water availability and supply;
- Locate stockpiles away from drainage paths, stabilising key access tracks, and limiting vehicle movement to defined routes as required;
- Storing fuels, oils and chemicals in bunded or contained areas where practicable, using designated refuelling and maintenance areas, and maintaining spill response measures in accordance with EPA guidance; and
- If blasting is required, potential impacts on surrounding land uses and the environment will be managed in accordance with best practice and regulatory requirements.

7.11.3.3 DURING OPERATION

- Monitor access tracks, hardstands and disturbed areas for signs of erosion and reinstate or stabilise as necessary; and
- Maintain surface and drainage management systems to allow long-term control of sediment and runoff.

7.11.3.4 DECOMMISSIONING

- If decommissioned, remove above-ground infrastructure and rehabilitate disturbed land; and
- Manage decommissioning waste and any potentially contaminated materials in accordance with SA EPA management requirements.

7.11.4 SIGNIFICANCE ASSESSMENT

Table 7-30 to Table 7-32 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impacts on soils and hydrogeology.

The outcome of the significance assessment has been evaluated as having a **minor to moderate significance** for soil erosion impacts and a **negligible to minor significance** for potential groundwater contamination and waste generation and handling. These impacts have been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-30 SOILS AND HYDROGEOLOGY IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (SH1)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SH1	Soil erosion, compaction, and disturbance during authorised activities	Construction, operation and decommissioning	No – impacts can be mitigated but not fully avoided; soil disturbance is inherent to earthworks and site activities.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct impact on soil structure and stability, associated with earthworks, vehicle movement, and vegetation clearance. • Frequency of impacts is considered intermittent, mainly during construction and decommissioning, with occasional maintenance during operation. • Duration of impacts would be short-term, spanning mostly active works during construction and decommissioning. • Extent is localised to disturbed areas within the Project footprint. • Severity remains at low to moderate; with appropriate controls, erosion and compaction are expected to be minimised and localised. Unplanned events: Possible, in the event of severe weather or failure of controls, which could temporarily increase erosion or sediment mobilisation. Magnitude rating: Small to medium			• The Project Area is in a rural, erosion-prone landscape with shallow, stony soils. • Sensitive receptors include adjacent watercourse (BESS site only), agricultural land, and local fauna. • Control measures are consistent with best practice for soil and erosion management. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
The anticipated soil impacts are assessed as minor to moderate environmental significance. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Minor to moderate

TABLE 7-31 SOILS AND HYDROGEOLOGY IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (SH2)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SH2	Groundwater contamination from accidental spills, perched water mobilisation, or disturbance of unknown contaminated material	Construction, operation and decommissioning	Likely – risk can be minimised through controls and depth to groundwater (~9m) but not fully excluded due to unforeseen events.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: indirect impact on groundwater quality from infiltration of contaminants. • Frequency of impacts is considered rare, associated with accidental events or unexpected perched water inflows. • Duration of impacts would be short-term if promptly managed; potential for longer-term effects if not contained. • Extent is localised to areas of spill or perched water interaction. • Severity remains at low; with appropriate controls, erosion and compaction are expected to be minimised and localised. Unplanned events: Unlikely, but possible in the event of a major spill, unexpected perched water, or discovery of contaminated material. Magnitude rating: Small			• Groundwater is not anticipated to be shallow. Review of publicly available wells data show records of depths of 9-21 within the site. • Sensitive receptors are limited; the main risk is to localised perched water or shallow flows. • Proposed controls are consistent with SA EPA guidance. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated risk of groundwater contamination, including from perched water, is assessed as negligible to minor environmental significance. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Negligible to minor

TABLE 7-32 SOILS AND HYDROGEOLOGY IMPACT ENVIRONMENTAL SIGNIFICANCE ASSESSMENT (SH3)

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
SH3	Generation, handling, and disposal of waste material from authorised activities.	Construction, operation and decommissioning.	No – waste generation is inherent to construction and decommissioning, but can be minimised and managed through waste hierarchy approach.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: direct impact from waste generation, storage, and offsite disposal. • Frequency of impacts is considered intermittent, primarily during construction and decommissioning. • Duration of impacts would be short-term, aligned with active works. • Extent is localised to site and approved waste facilities. • Severity remains at low; with appropriate segregation, storage, and disposal in accordance with EPA requirements, risk of environmental impact is minimal. Unplanned events: Unlikely. Magnitude rating: Low			• The Project Area is rural, with limited sensitive receptors. • Regional waste facilities are regulated and licensed. • Controls align with SA EPA and NEPM standards. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated waste impacts are assessed as negligible to minor environmental significance. The proposed control and management strategies are strong, feasible, and subject to audit, indicating that the impact can be minimised to ALARP.			Negligible to minor

7.11.5 CUMULATIVE IMPACTS

No known nearby projects are expected to interact with the Project to cause cumulative impacts on soils or groundwater. Given the expected depth to groundwater across the site (9 – 21 m), localised nature of potential impacts and standard mitigation measures proposed, significant cumulative impacts from other regional developments are considered unlikely.

7.11.6 UNCERTAINTIES AND ASSUMPTIONS

- Assessment is based on a desktop review only; no intrusive soil or groundwater investigations have been undertaken at this stage;
- Publicly available datasets (DEW soils/geology mapping, SARIG, WaterConnect, EPA registers) are assumed to be current and representative of site conditions;
- Groundwater depths of ~9 – 21 m bgl from historic records are assumed to be broadly applicable across the Project Area;
- No known contaminated sites occur within 15 km of the Project Area, based on the SA EPA Site Contamination Index;

- Construction activities will be typical of wind farm developments and managed through a CEMP consistent with SA EPA guidance;
- Perched groundwater may be encountered during excavation despite deeper regional groundwater levels;
- Extreme rainfall events could temporarily exceed the capacity of erosion and sediment controls; and
- Final construction methods (e.g. need for blasting, extent of cut/fill) are not yet fully defined; and will be finalised at the OMP stage.

7.12 TRAFFIC

CIRQA Pty Ltd prepared the '*Willogoleche Stage 2 Wind Farm Traffic Impact Assessment Report*' (the TIA, 2025) to evaluate the potential traffic impacts on the road network arising from the construction and operation of the Project. This section summarises the methodology, key findings, and management strategies, referencing relevant issues, risks, and stakeholder considerations. For the full detailed assessment, refer to the TIA at Appendix J.

TABLE 7-33 OVERVIEW OF TRAFFIC MATTERS

Matter	Description
Views of Affected Parties	Stakeholders expressed concerns about increased traffic volumes and associated safety risks. Issues raised included potential noise and dust impacts linked to traffic and the condition of local road surfaces. Ongoing discussions will occur with the Goyder Regional Council and DIT regarding traffic matters as the Project progresses.
Applicable Government Legislation	<i>Road Traffic Act 1961 (SA); Heavy Vehicle National Law (SA); Local Government Act 1999 (SA).</i>
Applicable Non-Legislated Standards	Austrroads "Guide to Road Design"; ARRB "Best Practice Guide for Unsealed Roads".
Environmental Receptor	Local road network; Adjacent landowners.

7.12.1 METHODOLOGY

In preparing the TIA, with the objective of evaluating the potential impacts of increased traffic movements associated with both the construction and operational phases of the Project, a comprehensive range of data sources and inputs were utilised, including:

- Review of existing traffic volumes and conditions;
- Forecasting construction and operational traffic, including oversize over mass (OSOM) vehicles, trucks, and light vehicles;
- Route assessment for preferred and alternative access (Routes D1 and D3);
- Site inspection and review of access points, including swept path and sight distance analysis;
- Reference to relevant standards and guidelines; and

- Consideration of Council and stakeholder feedback during consultation.

Since the TIA was completed, the OSOM route assessment has progressed and continues to be refined, including access recommendations. Consultation with Goyder Regional Council and the DIT will continue, and a Traffic Management Plan (TMP) will be prepared as part of the OMP.

7.12.2 ASSESSMENT SUMMARY

Site Access

Construction access to the wind farm site is expected to be primarily via a new direct access from Wilkins Hwy, opposite the Willogoleche 1 Wind Farm former laydown area. This access would require a new intersection and turning treatments for OSOM vehicles. A secondary, or contingency access, is available from Barrier Highway via Weirs Gap Road for deliveries arriving via OSOM Route D1. The TIA notes that access to the surrounding road network can generally be achieved, provided access points are designed for the relevant design vehicles.

The TIA also notes that direct access to Wilkins Highway could be safely accommodated at the wind farm site's westernmost frontage on Wilkins Highway. Use of Wilkins Highway via the eastern portion of the wind farm site for construction access should be managed under a TMP (e.g. temporary speed reductions, escort arrangements), and ongoing maintenance access is not encouraged unless a higher-order access treatment is provided, noting the updated OSOM route assessment recommends a new intersection and turning treatment at this location supporting the TIA findings.

For local road connections, the TIA identifies sight distance constraints at the Weirs Gap Road/Wilkins Highway intersection, meaning this route can be managed during construction with traffic control but is less suitable for operational use without upgrades. The Barrier Highway/Stock Route Road intersection is considered to provide acceptable access, subject to traffic management if required for OSOM movements.

Access to the BESS site via Willalo Road and McAskill Road has been assessed as adequate and can be safely managed, with turn-path checks confirming semitrailer movements and OSOM feasibility, subject to detailed design, potential local widening, and standard traffic management controls.

Site access to the both the wind farm site and the BESS site would be confirmed at the OMP stage and incorporated into the Project's TMP.

Traffic Impact - Construction Phase

During the construction phase of the Project, it is anticipated that there will be a significant increase in traffic movements within the vicinity of the Project Area. Forecasts indicate an average of 506 daily vehicle trips, comprising approximately one OSOM vehicle movement, 105 truck trips, and 400 light vehicle trips. These estimates are based on a 24-month construction period.

Traffic generated during construction will be distributed across several key routes, with the greatest impacts anticipated for Wilkins Highway and Barrier Highway. The distribution of construction traffic, including OSOM vehicles, trucks, and light vehicles, is detailed in Table 5 and Table 6 of the TIA.

The TIA confirms the existing road network, including both sealed and unsealed roads, is capable of accommodating the forecast traffic volumes without significant adverse effects on travel times or the function of intersections.

Construction traffic impacts and associated road and intersection upgrades required to accommodate the OSOM transport route would be discussed in greater detail in the Project's OMP, noting that road works outside the Project's REIL licence area would be developed in consultation with the DIT and Goyder Council with necessary approvals, and agreements (where required), in place prior to works commencing.

In addition, a dilapidation survey will be undertaken prior to construction to document the existing condition of road infrastructure, providing a baseline to ensure roads are maintained and returned to a comparable condition following construction, in consultation with Council.

Overall, with the implementation of recommended management strategies, the construction-related traffic generation impacts are expected to be manageable and within the acceptable capacity of the existing road network.

Traffic Impact - Operational Phase

Once construction is complete, traffic volumes associated with the wind farm and BESS will decrease substantially. During the operational phase, ongoing traffic is expected to be minimal, typically ranging from 8 to 20 daily vehicle trips, primarily involving light vehicles for site monitoring and routine maintenance activities. The requirement for staff attendance on site will be limited, as typically wind farms are designed for remote operation wherever possible.

Occasionally, OSOM vehicle access may be required for the replacement of major turbine components or other significant maintenance tasks. These movements will be infrequent and will follow the same access routes and management protocols established in the TMP during construction.

It is also noted that the proximity of the Project to the existing Willogoleche Wind Farm may allow for shared maintenance activities, further reducing the number of additional vehicle trips generated by the Project.

Cone of Vision Assessment

A cone of vision assessment was undertaken in accordance with Austroads *'Guide to Road Design – Part 6B: Roadside Environment'* (2024). Applying the 64 km/h, 80 km/h and 100 km/h travel speeds vision envelopes to sealed and unsealed roads adjoining the wind farm site identified two proposed turbines, WT16 and WT18, that intersect the relevant cones of vision. Figure 7-9 below shows the areas within the wind farm site that are within the cone of vision of drivers on the surrounding road network.

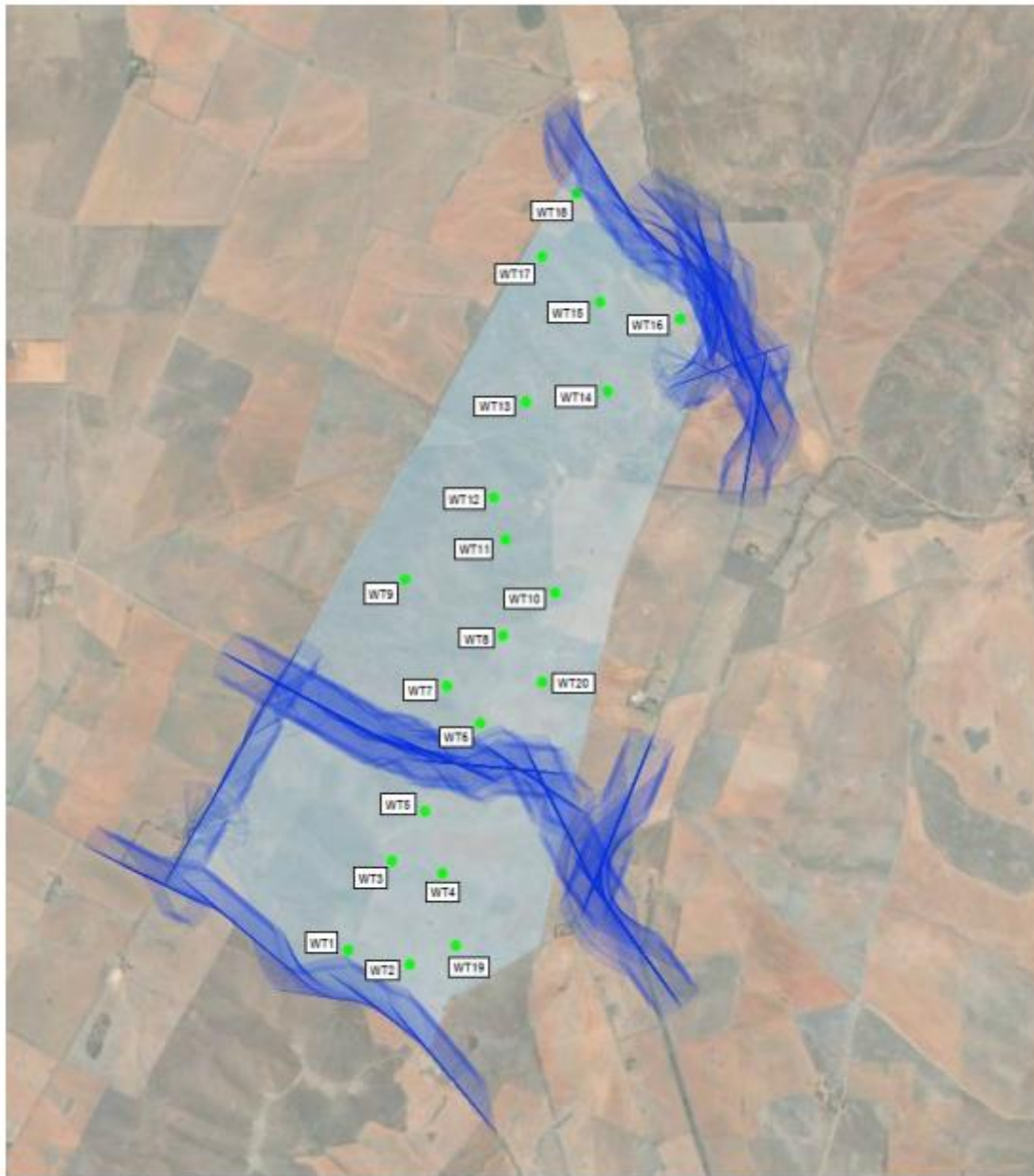


FIGURE 7-9 CONE OF VISION ASSESSMENT FOR ADJACENT ROADS

Based on realistic travel speeds at these locations and the very low traffic volumes on the adjacent local roads, the distraction risk is assessed as very low and the turbine locations are considered acceptable (refer to Figures 13–14 of the TIA). It was noted that all turbines in proximity to higher-order roads (Wilkins Highway and Barrier Highway) are outside the cone of vision envelopes. Any residual risk will be managed through the TMP, by establishing temporary controls during OSOM movements and avoiding additional roadside visual clutter at access points.

7.12.3 MITIGATION AND MANAGEMENT

7.12.3.1 PRIOR TO CONSTRUCTION

- Early and ongoing consultation with local council, DIT, and community stakeholders;

- Select preferred access locations and site entry points, considering sight distance and safety;
- Development of a TMP detailing construction traffic routes, speed controls, and OSOM vehicle escort requirements, and secure necessary approvals for any road works within the REIL licence area; and
- Roadworks outside the Project's REIL licence area would be developed in consultation with the DIT and Goyder Council with necessary approvals, and agreements (where required), in place prior to works commencing.

7.12.3.2 DURING CONSTRUCTION

- Implement TMP, including temporary speed reductions, traffic control at key intersections, and escorted OSOM vehicle movements; and
- Maintain transparent communication with stakeholders regarding construction activities and mitigation measures.

7.12.3.3 DURING OPERATION

- Continue routine monitoring of road condition and traffic volumes associated with maintenance activities;
- Use alternative access routes or implement higher order access treatments for ongoing maintenance, especially where sight distance limitations persist;
- Maintain engagement with stakeholders to address any ongoing concerns about road safety and access; and
- Coordinate maintenance activities with existing Willogoleche Wind Farm, where possible, to reduce additional vehicle trips.

7.12.3.4 DECOMMISSIONING

- Impacts are expected to be similar to those during construction but will last for a shorter period of time.

7.12.4 SIGNIFICANCE ASSESSMENT

Table 7-34 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impact on traffic.

The outcome of the significance assessment has been evaluated as having a **minor impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-34 TRAFFIC IMPACT SIGNIFICANCE ASSESSMENT SUMMARY

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
T1	Increased traffic volumes of the local road network including safety risks at intersections.	Construction, operation and decommissioning.	No – Impacts can be mitigated but not fully avoided; residual risks remain due to increased traffic volumes and road conditions.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Direct impact on road network, including increased traffic volumes, congestion. • Frequency: Intermittently; during certain phases of activity. • Duration of impacts would be short-term, mostly during the construction phase, which is time-bound. • Extent: Local, primarily affecting Wilkins Highway, Barrier Highway, the local road network, and site access points. • Severity: Low, most impacts can be managed via a Traffic Management Plan. Unplanned events: Unlikely (logistics and transport typically well planned) Magnitude rating: Small			• Road network is important for local community and regional business operations. Sensitivity rating: Medium
Environmental Significance Assessment Outcome			
The anticipated effects on the road network during construction will be noticeable but manageable with mitigation. The proposed control and management strategies are robust and subject to audit, minimising the impact to ALARP. A Traffic Management Plan will be developed as part of the OMP for the Project.			Minor

7.12.5 CUMULATIVE IMPACTS

There are no approved projects within or immediately adjacent to the Project Area that would create significant cumulative traffic impacts when combined with the Project. However, the Project could potentially be constructed during the same timeframe as the approved Goyder North Renewable Energy Facility, comprising 135 wind turbines located south-east of Hallett. Both projects may utilise the Barrier Highway for site access.

The Project is expected to generate an additional 129 to 321 daily vehicle movements above baseline levels during the construction phase on sections of Wilkins Highway and Barrier Highway. If both projects are built concurrently and peak traffic-generating activities overlap, the cumulative impact from the Project would be manageable via a TMP, given the relatively small scale of this Project compared to Goyder North and other developments in the region.

The TIA concludes that existing and forecast traffic volumes associated with the Project are expected to be manageable with negligible effects on travel times and intersection operation, provided recommended controls are implemented.

7.12.6 UNCERTAINTIES AND ASSUMPTIONS

- The TIA for the Project is founded on project-specific provided data and public information available at the time of reporting. This includes traffic data sourced from the DIT, route evaluations, and forecasts related to construction and operations specific to the Project;
- The assessment assumes a 24-month construction period, but this could be extended depending on final Project scheduling and contractor input. The actual duration will influence the distribution and intensity of traffic impacts;
- Forecasts of daily vehicle trips, including OSOM, truck, and light vehicle movements, are based on preliminary construction methodologies and workforce estimates. Any changes to construction methodology, workforce size, or material sourcing could alter these forecasts; and
- The TIA does not account for unapproved or unforeseen future developments in the region that may contribute to cumulative traffic impacts.

7.13 PUBLIC HEALTH AND SAFETY

A public health and safety impact review has been undertaken, informed by industry knowledge and experience, regulatory guidance, and incident data associated with wind farm developments in Australia.

TABLE 7-35 OVERVIEW OF PUBLIC HEALTH AND SAFETY MATTERS

Matter	Description
Views of Affected Parties	Stakeholder expressed concerns about potential increased risks associated with traffic (refer to Table 7-33) and aviation safety (refer to Table 7-7).
Applicable Government Legislation	<i>Work Health and Safety Act 2012</i> <i>Environment Protection Act 1993</i> <i>Road Traffic Act 1961</i> <i>Civil Aviation Safety Regulations 1998</i>
Applicable Non-Legislated Standards	SafeWork SA Codes of Practice SACFS Guide – Renewable Energy Facilities
Environmental Receptor	Workers, nearby residents, landowners, road users, emergency services, aviation safety

7.13.1 METHODOLOGY

The review comprised:

- Review of typical wind farm construction, operation, and decommissioning activities with potential to pose health or safety risks;
- Desktop review of publicly available wind farm EIS/EIR documentation, regulator guidance, and published incident types associated with wind energy projects;
- Consideration of the receiving environment, including rural land use, dispersed receptors, road conditions, and separation distances; and
- Application of professional judgement to assess the likelihood and consequence of risks, accounting for standard control measures routinely applied in the wind energy sector.

7.13.2 ASSESSMENT SUMMARY

Construction

The primary public health and safety risks relate to:

- Construction traffic and oversized vehicle movements;
- Operation of cranes, heavy plant, and lifting equipment;
- Working at heights and electrical installation activities;
- Fire risk associated with hot works, vegetation disturbance, and temporary construction infrastructure; and
- Temporary aviation risks during turbine erection.

These risks are well understood and routinely managed through certified design, approved management plans, and regulatory oversight. With controls in place, risks to the public and third parties are considered minor to moderate and temporary.

Operational Phase

During operation, risks are reduced and limited to:

- Maintenance activities undertaken by trained personnel only;
- Residual aviation risk, managed through turbine marking, lighting and CASA notification;
- Fire events associated with electrical infrastructure failure; and
- Occasional oversized vehicle movements for turbine repairs.

No ongoing public access to operational infrastructure is proposed. The risk of injury or health impacts to third parties is considered minor.

Decommissioning Phase

Decommissioning activities would involve risks similar to construction but over a shorter duration and at a reduced intensity. These risks would be managed through standard safety and traffic management controls as outlined in the OMP.

Overall, with the implementation of standard industry controls and regulatory compliance, the Project is not expected to result in significant adverse public health or safety impacts.

7.13.3 MITIGATION AND MANAGEMENT

7.13.3.1 PRIOR TO CONSTRUCTION

- Project infrastructure constructed and verified as compliant with certified design standards;
- Aviation risk assessed in accordance with CASR 1998, MOS Part 139 and NASF Guideline D;
- Preparation of a Construction Work Health and Safety Management Plan (WHSMP) in accordance with SafeWork SA requirements, as part of the OMP/CEMP;
- Preparation of a Traffic Management Plan (TMP) in consultation with Council and DIT, addressing heavy vehicle routes, intersections, and signage;
- An Emergency and Bushfire Management Plan included within the OMP, addressing Project-related and offsite fire threats in consultation with the CFS and other local emergency services, applicable across all Project phases; and

- Contractor induction and training covering site-specific hazards and emergency procedures.

7.13.3.2 DURING CONSTRUCTION AND DECOMMISSIONING

- Implementation of site access controls and exclusion zones around active works;
- Use of qualified and licensed operators for cranes, lifting operations, and electrical works;
- Final WTG coordinates, elevations, and construction timelines reported to CASA under CASR Part 139.165 and to Airservices Australia via ATS FORM0085;
- WTGs marked and/or lit in accordance with MOS Part 139 Sections 8.110 and 9.30–9.33, where applicable;
- Project details published in ERSA and communicated to local and regional aircraft operators prior to construction;
- Management of oversize vehicle movements, speed controls and signage on access tracks and public roads in accordance with approved TMP;
- Application of fatigue management and fitness-for-work procedures for workers;
- Noise management measures to reduce indirect health and wellbeing effects on nearby residents;
- Ongoing engagement with landowners and the community to manage any safety-related concerns;
- Incident reporting and investigation procedures consistent with WHS legislation and OMP procedures; and
- Risks and controls during decommissioning are expected to be similar to those during construction but of shorter duration.

7.13.3.3 DURING OPERATION

- Restriction of site access to authorised personnel only;
- Routine inspection and maintenance of turbines and BESS, electrical infrastructure, and access tracks;
- Continued compliance with WHS requirements for working at heights and electrical safety;
- Maintenance of setback distances and safety zones around turbines; and
- Battery containers fitted with built-in fire suppression systems.

7.13.4 SIGNIFICANCE ASSESSMENT

Table 7-36 below outlines an assessment against Criteria 4 and Criteria 5 of the EIA Criteria to determine the overall significance of the potential impacts on public health and safety.

The outcome of the significance assessment has been evaluated as having a **minor to moderate impact** and has been acceptably reduced to a level that is ALARP based on current information.

TABLE 7-36 PUBLIC HEALTH AND SAFETY SIGNIFICANCE ASSESSMENT SUMMARY

Impact ID	Impact Event	Project Phase	Can Impact be Avoided
PH1	Injury, fatality or adverse health impact to members of the public or third parties.	Construction, operation and decommissioning.	No – risks cannot be fully avoided but can be effectively managed through established controls.
Magnitude of Impact (considering control and management strategies)			Sensitivity of receiving environment
• Type: Direct; occupational and public health and safety risk associated with construction traffic, plant and equipment, working at heights, electrical infrastructure, fire and aviation interactions. • Frequency: Intermittent; highest during construction and decommissioning, low frequency during operation. • Duration: Short-term, during construction and decommissioning; long-term but low frequency during operation. • Extent: localised to the Project Area. • Severity: low to medium, risks are well understood and can be effectively managed through standard safety systems and regulatory controls. Residual uncertainty relates to unplanned incidents and human factors. Unplanned events: Unlikely, but possible considering human error factors. Magnitude rating: Small to large			• The Project is located in a rural setting characterised by low population density and limited public access to operational infrastructure. Receptors are generally accustomed to agricultural machinery, traffic movements and other rural activities. Sensitivity rating: Low
Environmental Significance Assessment Outcome			
The anticipated public health and safety risks associated with Project activities are well understood and manageable with the implementation of standard, proven safety controls. The proposed control and management strategies are robust and subject to regulatory oversight and audit, reducing residual risks to ALARP. Work Health and Safety, Emergency Response and Fire Risk Management Plans will be implemented as part of the Project's CEMP/OMP.			Minor to moderate

7.13.5 CUMULATIVE IMPACTS

Cumulative public health and safety impacts may arise if construction activities overlap with other regional projects, particularly in relation to traffic and emergency response demand. These impacts are expected to remain low and manageable with coordination between proponents, Council, and emergency services.

7.13.6 UNCERTAINTIES AND ASSUMPTIONS

- The Project will comply with WHS legislation, certified design standards, CASA aviation requirements, and approved TMP, CEMP, OMP and FRMP;

- The rural setting, low population density and limited public access result in low sensitivity to change;
- Regulatory oversight, auditing and emergency response arrangements will be maintained throughout the Project lifecycle; and
- Residual uncertainty relates to unplanned incidents and human factors; however, the likelihood of serious public or third-party harm is low given well-established safety procedures and regulatory framework.

8. ENVIRONMENTAL OBJECTIVES

Table 8-1 below outlines the proposed environmental objectives, assessment criteria and leading performance criteria for each potential impact event identified through the EIA process.

Leading performance criteria are particularly important for potential impact events that rely heavily on management control measures, or where a 'moderate' environmental significance outcome was assigned through the assessment process.

Collectively, these requirements are carried through to the SEO report for the Project (ERM, 2025a), and once published in the South Australian Gazette, will commit the authorised operations to the environmental objectives.

Some objectives include performance indicators and assessment criteria that relate to the development of an OMP. The Project OMP is required to be reviewed and endorsed by DEM prior to commencement and will align with regulation 34(2)(f) requirements and procedures, controls, monitoring, reporting and auditing requirements.

TABLE 8-1 STATEMENT OF ENVIRONMENTAL OBJECTIVES (C6)

SEO ID	Proposed Environmental Objective	Impact ID	Assessment Criteria	Leading Performance Criteria
1	No unauthorised damage, disturbance or interference to Aboriginal heritage and historic heritage.	AH1 HH1	- Survey in consultation with the Ngadjuri Nation Aboriginal Corporation (NNAC) is undertaken prior to ground disturbance works. - Records of audits/inspections carried out in accordance with the OMP demonstrate no damage, disturbance or interference with any Aboriginal sites, objects and remains unless authorisation has been obtained under the s23 of the <i>Aboriginal Heritage Act 1988</i> (AH Act). - Any Aboriginal sites, objects and remains discovered during operations have been appropriately reported and responded to, consistent with the AH Act. - Records demonstrate that activities are confined to culturally cleared areas and conducted under survey/work-clearance conditions.	- Evidence of NNAC survey completed and documented prior to construction. - Development of and adherence to a CHMP. - Records demonstrate that ground disturbance activities are confined to areas subject to cultural heritage survey or work area clearance and undertaken in accordance with conditions of the survey or work area clearance. - Unexpected Finds Protocol is included in the OMP that covers both Aboriginal and historic heritage matters. - Evidence of cultural heritage awareness is documented in staff/contractor site induction. - In the event the conditions of a cultural heritage survey or work area clearance(s) are not complied with, the incident is appropriately reported, investigated and remediated in consultation with the NNAC.
2	No injuries, deaths or health impacts to the public or third parties from regulated activities that could have been reasonably prevented by the operator.	AV1 PH1	- Maintain aviation safety; no incidents involving impacts to aircrafts. - WTG/WMT aviation risk assessed per CASR 1998, MOS Part 139, NASF Guideline D; management treatments implemented to reduce collision risk. - OMP/CEMP include an emergency response plan covering Project-related and offsite fire threats and developed in consideration of SACFS Guide – Renewable Energy Facilities. - No uncontrolled fires from authorised activities; <i>Fire and Emergency Services Act 2005</i> obligations met. - Project infrastructure constructed and verified as compliant with certified design.	- Evidence of stakeholder consultation for AIA is documented. - Final WTG coordinates, elevations, and construction timelines are reported to CASA under CASR Part 139.165 and to Airservices Australia via ATS FORM0085. - WTGs are marked and/or lit in accordance with MOS Part 139 Sections 8.110 and 9.30–9.33, where applicable. - Project details are published in ERSA and communicated to local and regional aircraft operators prior to construction. - Battery containers to have built-in fire suppression system and fire water to be available on-site for emergency services to utilise. - Fire prevention and firefighting equipment is present, certified and maintained in accordance with applicable standards. - Development of a Emergency and Bushfire Management Plan (EBMP) in consultation with the CFS to be followed by all staff and contractors during the Project lifecycle.
3	No unacceptable construction and operational noise impacts.	N1 N2	- Works expected to generate construction noise that causes an adverse impact on amenity to nearby sensitive receptors is only permitted between 7:00am and 7:00pm Monday to Saturday. Where unavoidable night/evening works are to occur, consultation with affected receptors is carried out. - Generation of noise during construction is consistent with the EPA 425/23 Construction Noise Information Sheet (EPA, 2023c) and the <i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i>. - Noise from the BESS complies with the <i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i>. - Pre-construction updated noise report confirming compliance using manufacturer-certified sound power levels for selected WTGs, substation transformers, and BESS equipment submitted to DEM/SA EPA, if required. - Post-construction wind farm noise monitoring is undertaken to confirm compliance with the noise criteria established under the <i>Wind farms environmental noise guidelines</i> (SA EPA, 2021), if required.	- Location of sensitive receptors considered when planning activities, and avoidance or mitigation measures implemented where required through the OMP/CEMP. - Pre- and post-construction noise compliance verification accepted by DEM/SA EPA in accordance with the <i>Wind farms environmental noise guidelines</i> (2021), if required. - Maintain a complaint register and corrective-action log for noise complaints. - Records demonstrate that no reasonable complaints received about noise levels are left unresolved.

SEO ID	Proposed Environmental Objective	Impact ID	Assessment Criteria	Leading Performance Criteria
4	No unacceptable electromagnetic interference in licensed communication infrastructure and geospatial services.	EMI1	- EMI analysis incorporates conservative turbine dimensions (tip height up to 300 m; rotor diameter up to 200 m) to test worst-case interactions. - Fresnel zone clearance confirmed through 3D profiling for closest link cases. - Turbine siting avoids near-field zones and Fresnel zone intrusions. - Project complies with ACMA, WMO, and ABA siting guidelines. - Stakeholder engagement with ElectraNet, BoM, Geoscience Australia, Telstra, and Optus confirm no adverse impacts are expected.	- Final turbine coordinates/dimensions provided to ACMA and stakeholders. - Fresnel clearance maintained per ABA/Bacon (2002) guidance; ≥5 km setback from meteorological radars per WMO/OPERA. - GNSS station proximity confirmed with no impact within 20 km. - Stakeholder feedback recorded and incorporated into the final EMI assessment report. - CEMP to include controls for temporary tall plant/cranes to avoid near-field obstruction.
5	No clearance of native vegetation or disturbance to native fauna unless prior approval under the relevant legislation is obtained.	NV1 NV2 NF1 NF2 NF3	- Potential impacts on native flora and fauna will be avoided and minimised where practicable through detailed design. - Any native vegetation clearance will only occur where authorised, including any clearance affecting listed threatened flora or fauna habitat in accordance with the <i>Native Vegetation Act 1991</i> and <i>Environment Protection and Biodiversity Conservation Act 1999</i>. - All biodiversity data collected by an appropriately qualified professional and reported to the Biological Databases of South Australia and DEM pursuant to HRE Regulation 32(2)(c) - Construction and decommissioning activities will avoid unauthorised loss or degradation of native vegetation, including indirect impacts such as dust deposition that could constitute clearance. - Ecological surveys and reporting will be undertaken by suitably qualified professionals in accordance with relevant regulatory requirements. - Rehabilitation will be undertaken where required, in consultation with landowners and in accordance with applicable State and Commonwealth legislation. - Incidents involving injury or mortality of native fauna during construction and operation will be recorded and managed in accordance with the CEMP and OMP. - Avifauna and bat interactions (including collision and barotrauma) will be monitored and investigated in accordance with an approved Bird and Bat Management Plan (if required).	- Detailed design has applied the mitigation hierarchy to avoid impacts on native vegetation, native fauna and MNES where practicable and minimise impacts that cannot be avoided. Any residual native vegetation clearance will be undertaken in accordance with applicable State and Commonwealth legislation. - Pre-clearance checks for native vegetation and fauna will be undertaken by suitably qualified personnel, with fauna managed in accordance with relevant Commonwealth and/or State legislation. - Construction and decommissioning activities will be managed to minimise dust generation, consistent with the <i>Environment Protection Act 1993</i>. - Vehicle movements will be managed through designated access tracks and appropriate speed limits where practicable. - Injured native fauna encountered on site will be managed in consultation with appropriate wildlife rescue organisations, as required. - Avifauna and bat presence, collisions and barotrauma will be monitored and reported in accordance with an approved Bird and Bat Management Plan (if required).
6	No introduction or spread of pest plants, pest animals or pathogens.	NV2	- Pest plants, pest animals and pathogens identified on site will be managed in accordance with agreed biosecurity measures, in consultation with landowners and the Northern and Yorke Landscape Board. - Livestock biosecurity risks associated with authorised activities will be managed in accordance with the applicable requirements of the <i>Livestock Act 1997</i>. - Transport and spread of declared weeds will be avoided where practicable and managed in accordance with the <i>Landscape South Australia Act 2019</i>. - Any declared plants identified as being spread or introduced as a result of authorised activities will be managed and reported as required under relevant legislation. - Periodic inspections will be undertaken in accordance with the CEMP and OMP to monitor weeds, pests and pathogens, with management actions implemented as necessary and informed by relevant authority guidance.	- Biosecurity measures, including weed management processes, have been developed and implemented in consultation with landowners and the Northern and Yorke Landscape Board. - Measures relevant to livestock biosecurity will be incorporated into the CEMP and OMP, with PIRSA consultation where required. - Vehicles and equipment entering the site will be managed to minimise the introduction or spread of soil and plant material. - Areas of native vegetation to be retained will be clearly delineated where practicable to limit unauthorised access and reduce weed spread. - Vehicle access will be restricted to designated tracks where feasible. - Periodic inspections will be undertaken during construction, operation and decommissioning, in accordance with the CEMP and OMP, to identify potential weed spread, with control measures implemented as required.

SEO ID	Proposed Environmental Objective	Impact ID	Assessment Criteria	Leading Performance Criteria
7	No unacceptable impacts to air quality.	AQ1	- Construction air emissions are managed in accordance with the Environment Protection (Air Quality) Policy 2016, relevant SA EPA guidance (e.g., CEMP guidance; mobile/concrete batching guidance where applicable). - Records of audits/inspections under the CEMP/OMP demonstrate dust is effectively controlled and no visible dust leaves the site under typical operating conditions. - Records demonstrate that reasonable dust/air-quality complaints (if any) are addressed and closed out.	- A CEMP includes dust controls suited to local conditions (e.g., water carts, progressive stabilisation/rehabilitation, speed limits on unsealed roads, stockpile management, load covering, and wind-triggered work adjustments). - If a temporary batch plant is used, operate to SA EPA guidance and keep compliance records. - Maintain a complaint register and corrective-action log for air quality.
8	Minimise visual impact of regulated activities.	V1	- Project infrastructure is sited and designed to minimise visual impact from key public viewpoints, sensitive receptors, and local roads, as demonstrated by a Landscape and Visual Impact Assessment (LVIA). - Turbine layout, colour, and finishes are selected to reduce prominence and visual contrast, consistent with industry standards and the LVIA recommendations. - Vegetation screening and landform are used where practicable to further reduce visual exposure of infrastructure. - Lighting for ancillary structures complies with AS/NZS 4282: Control of the obtrusive effects of outdoor lighting to minimise night-time visual impacts.	- LVIA demonstrates that turbine siting, layout, and finishes minimise visual impact, with photomontages supporting design decisions, including consideration of appropriate separation from the Hallet Township Zone (such as those included in Planning and Design Code policy). - Turbines are finished in non-reflective, off-white colour and are of consistent height and appearance. - Vegetation screening is established and maintained where required to filter views from sensitive locations. - Night-lighting for ancillary structures is limited and designed to avoid light spill beyond the site boundary. - Any material changes to turbine layout or design are reassessed for visual impact, including shadow flicker. - A complaints register is maintained, and all visual amenity complaints, including shadow flicker, are investigated and addressed in a timely manner.
9	No significant disturbance to surface drainage patterns and no adverse impacts to surface water and groundwater quality or quantity.	SW1 SW2 SH2	- Management and monitoring measures for erosion, sedimentation, stormwater management and surface water impacts documented in the CEMP, where required. - Records of audits/inspections carried out in accordance with the OMP demonstrate no deterioration of surface water quality within or near the activity location when compared with adjacent areas. - No water affecting activities as defined under the Landscape South Australia Act undertaken unless applicable permits have been obtained.	- Desktop assessment undertaken to ensure proposed Project infrastructure is appropriately located (e.g. location minimises or avoids impact to surface water features). - Desktop assessments undertaken to identify if a Water affecting activity permit is required under the relevant Water Affecting Activities Control Policy. - Sediment and erosion control measures installed, maintained and monitored where necessary. - Integrity of sediment and erosion controls and stormwater management measures inspected following significant rainfall events and any necessary maintenance implemented.
10	Minimise soil erosion and contamination of soils as a consequence of authorised operations.	SH1 SH2	- Erosion and sediment control measures are installed, maintained and effective. - No confirmed contamination incidents to soil as a result of Project activities; spill events (if any) are contained and remediated consistent with the CEMP and relevant SA EPA legislation.	- Develop and implement project-specific SEDMP with site-appropriate erosion and sediment controls. - Plan and manage topsoil stripping, stockpile management, and reinstatement sequencing. - Implement a spill prevention and response procedure covering containment, cleanup, and reporting. - Keep spill kits accessible, train staff, and log incidents with timely close-out actions. - Constrain vehicle and plant movements to designated access tracks to limit soil disturbance.

SEO ID	Proposed Environmental Objective	Impact ID	Assessment Criteria	Leading Performance Criteria
11	Minimise adverse traffic impacts to road users during authorised operations.	T1	- A Traffic Impact Assessment (TIA) has informed access routes and intersection controls; a Traffic Management Plan (TMP) is prepared in consultation with Council and DIT and implemented prior to construction. - Construction and operational traffic volumes do not exceed road network capacity. - OSOM movements are escorted and managed under the TMP (e.g., temporary speed reductions, traffic control at key intersections), with no unplanned road closures attributable to the Project. - Stakeholder engagement and notifications are undertaken for peak traffic periods/OSOM convoys; reasonable traffic-related complaints are addressed and closed out.	- Undertake a Traffic Impact Assessment to confirm road and intersection suitability, including see-through for OSOM movements where required. - Prepare and implement a Traffic Management Plan in consultation with Council, DIT and relevant authorities; incorporate the TMP into the Operational Management Plan (OMP). - Obtain necessary approvals from the DIT and Council for any road works within the REIL licence area. - Implement traffic and journey management procedures, including driver induction and road safety awareness training for all personnel. - Manage OSOM movements in accordance with approved permits and the TMP (e.g. escorts, traffic control and temporary speed reductions). - Engage early and on an ongoing basis with Council, DIT and affected stakeholders regarding traffic arrangements. - Record, investigate and respond to stakeholder feedback and complaints. - Audit and review TMP implementation to ensure ongoing effectiveness and compliance.
12	Minimise disturbance to stakeholders.	SE1	- Stakeholder engagement is conducted in accordance with a Community and Stakeholder Engagement Plan (CSEP), with records of consultation, issues raised, and responses maintained. - Local employment and procurement opportunities are maximised, as evidenced by implementation of a Local Employment Plan and reporting of local workforce participation. - Workforce accommodation is managed to avoid significant adverse impacts on local housing availability and affordability, as demonstrated by a Workforce Accommodation Strategy and monitoring of accommodation usage. - Community Benefit Sharing Program is implemented and accessible to eligible local residents and groups. - No unresolved reasonable complaints regarding social impacts (e.g., amenity, accommodation, service access, community cohesion) during construction or operation.	- CSEP is implemented, with regular updates provided to stakeholders and a grievance mechanism in place for community concerns. - Local Employment Plan and Workforce Accommodation Strategy are developed in consultation with Council and the RDA, and enacted prior to construction, with targets for local hiring and accommodation usage monitored and reported. - Community Benefit Fund are operational, with transparent governance and annual reporting of fund allocation. - All reasonable complaints or grievances related to social impacts are logged, investigated, and resolved in a timely manner, with outcomes communicated to affected parties.
13	Minimise waste generation and optimise waste management.	SH2 SE1	- Waste is managed in accordance with the waste management hierarchy model: avoidance; reduction; reuse; recycling; treatment; and disposal. - Waste management measures during the construction and decommissioning stages documented in the Construction Environmental Management Plan and decommissioning and rehabilitation plan. - Records of audits/inspections carried out in accordance with the OMP demonstrate wastes have been segregated and transported to an EPA licensed waste disposal facility for recycling or disposal. - Hazardous wastes (if generated) are handled in accordance with relevant legislation and standards.	- Waste is securely contained prior to removal from site. - Waste management is undertaken in accordance with the waste management hierarchy, the <i>Environment Protection (Waste to Resources) Policy 2010</i> and the <i>Public Health (Wastewater) Regulations 2013</i>. - Records of waste disposal to licensed contractors kept for proof of compliance.
14	Rehabilitate land adversely affected by regulated activities.	SH1 NV2 SE1	Records of audits/inspections carried out in accordance with the decommissioning and rehabilitation plan demonstrates that land has been appropriately rehabilitated, including removal of surface structures and waste, re-contouring of the ground surface and revegetating (where required) consistent with pre-existing conditions (unless alternative agreement is reached with the regulator and landowner).	- Restoration of land disturbance in consultation and as agreed with the landowners and relevant legislation. - Final decommissioning and rehabilitation plan to be provided for DEM approval at least one year prior to decommissioning activities commencing.

9. CONSULTATION

This chapter summarises the consultation completed, ongoing and to be undertaken for the Willogoleche Stage 2 Wind Farm. It outlines targeted engagement with key stakeholders, broader community engagement activities, and how feedback has informed project planning and mitigation measures. The approach aligns with legislative requirements under the HRE Act and best practice guidance as detailed in the SIA at Appendix I.

9.1 EIR/SEO TARGETED CONSULTATION

A Consultation Plan was submitted on 22 December 2025 seeking the DEM's endorsement to commence targeted consultation for this EIR and the associated SEO.

ENGIE has undertaken targeted consultation with key stakeholders regarding the Project, in accordance with applicable legislative requirements under the HRE Act and associated regulations.

In line with Regulation 33(4) of the HRE Regulation, a Consultation Report has been prepared and included in Appendix A of this EIR. The Consultation Report details:

- The stakeholders who were consulted;
- The concerns or issues they raised (if any); and
- The measures taken, or proposed, by the Applicant to address these concerns.

9.2 BROADER CONSULTATION TO DATE

9.2.1 COMMUNITY ENGAGEMENT

Stakeholder engagement for the Project has included consultation with a broad range of stakeholders, including:

- Traditional Owners (Ngadjuri Nation Aboriginal Corporation, SANTS);
- Local government (Regional Council of Goyder, Mayor, Deputy Mayor, CEO);
- Neighbouring landowners and host landowners;
- Community groups (e.g., Burra Agricultural and Horticultural Society, local schools, religious organisations, sporting clubs);
- State and Federal government agencies (Department of Energy and Mining, Department of Environment and Water, State Planning Commission, EPA, DCCEEW); and
- Local businesses and service providers.

Engagement methods have included:

- In-person meetings and site visits (ENGIE has maintained an active presence in the local area, undertaking regular bi-monthly site visits throughout 2024 and 2025);
- Pre-lodgement and pre-referral meetings with agencies;
- Community information sessions (e.g., Hallett Community Hub event, Burra Town Hall event);
- Direct correspondence (letters, emails, phone calls);
- Distribution of project updates (newsletters, flyers); and

- Publication of Willogoleche 2 Wind Farm website: [Willogoleche 2 Wind Farm | ENGIE in Australia](#).

A Community and Stakeholder Engagement Plan was prepared for the Project by ENGIE and is reviewed annually.

ENGIE will continue to engage with stakeholders through:

- Regular project updates and newsletters, through the Project's website;
- Community information sessions prior to major project milestones;
- Ongoing meetings with council, landowners, and community groups;
- Continued collaboration with the NNAC and SANTS on cultural heritage matters; and
- Implementation of the grievance mechanism and feedback channels (multiple access points, including online form, phone, and in-person).

9.2.2 TRADITIONAL OWNER ENGAGEMENT

ENGIE commenced engagement with the Ngadjuri Nation Aboriginal Corporation and SANTS in November 2023.

Consultation has included Project introductions, a cultural heritage survey for the met mast installation, and the proposed collaborative development of a Cultural Heritage Management Plan. Ongoing engagement is planned throughout the Project lifecycle to ensure that First Nations perspectives are incorporated and that cultural heritage is protected.

9.2.3 PROJECT SENTIMENT AND KEY ISSUES RAISED

Community sentiment towards the Project is mixed. While some stakeholders recognise the potential economic and employment benefits, others have expressed concerns regarding amenity, heritage, and cumulative impacts from multiple developments in the region.

Feedback from stakeholders and the community has highlighted several recurring themes:

- Concerns about noise and visual impacts from wind turbines and associated infrastructure;
- Potential impacts on biodiversity, including flora, fauna, and water resources;
- Increased traffic and road safety during construction;
- Poor TV and internet reception and expressed concern that WTGs may further disrupt signals;
- Pressure on local accommodation and services due to workforce influx;
- Impacts on Aboriginal and historic heritage; and
- Need for transparent community benefit sharing and opportunities for local employment and procurement.

Stakeholder input has informed site selection, Project layout, and the development of mitigation and management strategies. For example, the Project layout was refined to reduce biodiversity impacts, and a CHMP will be developed in collaboration with the NNAC.

ENGIE has committed to ongoing engagement, transparent communication, and the implementation of a grievance mechanism. The Community Benefit Programme (CBP) is being co-designed with local stakeholders to ensure benefits are targeted and equitable.

10. CONCLUSION

The potential environmental impacts of the Project have been identified, accompanied by appropriate mitigation and management measures. The significance of these impacts has been assessed in accordance with the EIR Criteria. Summary findings are detailed below:

Environmental Aspect	Potential impacts / Key mitigation and management measures	Significance assessment
Aboriginal heritage	Potential disturbance of unrecorded Aboriginal cultural heritage during construction. Mitigation includes ongoing consultation with Ngadjuri representatives, predictive modelling, archaeological surveys, cultural heritage management plans, and an Unexpected Finds Protocol.	Moderate
Historic Heritage	Potential impacts to the Cappeedee Homestead and Woolshed State-heritage sites are avoided by maintaining a 100-meter buffer, and implementing an Unexpected Finds Protocol.	Minor
Air quality	Dust emissions during construction are the primary concern, with impacts expected to be localised and temporary. Standard dust suppression measures and a CEMP will be implemented. Operational air quality impacts are negligible.	Negligible to minor
Aviation safety	Risks include physical obstruction, wake turbulence, and interference with emergency aviation operations. Mitigation involves regulatory notifications, marking and lighting of turbines and meteorological masts, emergency protocols, and ongoing stakeholder engagement.	Minor to moderate
Electromagnetic Interference	Potential interference with communication links, meteorological radar, mobile networks, and satellite services is assessed. Mitigation includes turbine siting to avoid critical zones, stakeholder consultation, and management plans for reported issues.	Minor
Flora and fauna	Native vegetation clearance will occur but is minimised through design and offset requirements under the Native Vegetation Act. Threatened flora and fauna are present but impacts are assessed as minor with appropriate management. Bird and bat collision risks are low. Weed spread will be controlled.	Minor
Landscape and Visual Amenity	The rural landscape features gentle undulations and agricultural land use. Visual impacts of turbines and infrastructure are assessed as minor to moderate, with mitigation including turbine colour selection, layout optimisation, vegetation screening, and lighting controls. Shadow flicker and blade glint are managed through design and monitoring.	Minor to moderate
Noise	Construction-phase noise is anticipated to result in short-term disturbance. Operational noise levels are expected to meet the requirements of the SA EPA Wind Farms Environmental Noise Guidelines, with overall impact assessed as minor. Noise limits are set in accordance with these guidelines, and ongoing noise monitoring and management measures will be implemented.	Minor (operation) to moderate (construction)

Environmental Aspect	Potential impacts / Key mitigation and management measures	Significance assessment
Social Impact	The project is expected to generate positive impacts such as employment and local business opportunities, alongside challenges including accommodation demand and service pressures. Community engagement is ongoing, with mitigation strategies including local employment plans, workforce accommodation strategies, and a Community Benefit Fund.	Moderate
Surface Water	Flood modelling indicates localised and manageable changes to surface water flow paths and flood extents due to Project infrastructure. Design measures will avoid or mitigate impacts on flow paths.	Minor
Soils and Hydrogeology	Soil disturbance, erosion, and potential groundwater contamination risks are inherent but managed through a Construction Environmental Management Plan and best practice. No significant contamination is known nearby.	Negligible to minor
Traffic	Construction traffic will increase local road use, with management plans ensuring safety and minimising disruption. Operational traffic is minimal.	Minor

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APPENDIX A CONSULTATION REPORT

This Consultation Report has been prepared in accordance with Regulation 33(4) of the *Hydrogen and Renewable Energy Regulations 2024*. It summarises the outcomes of consultation undertaken on the draft EIR and SEO for the Willogoleche Stage 2 Wind Farm Project.

Consultation was undertaken by ENGIE between 20 February and 20 March 2026, in accordance with the approved Consultation Plan endorsed by the DEM. Some consultation timeframes were extended to 13 April 2026 to ensure all agencies had the opportunity to provide feedback.

Consistent with Regulation 33(2) of the HRE Regulations, the Consultation Report identifies the stakeholders who were consulted, the concerns or issues they raised (if any); and the measures taken, or proposed, by the Applicant to address these concerns.

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
1	Host landowners (associated)	Ongoing	Submissions raised queries regarding potential noise and visual impacts from the proposed substation and BESS, the location and rehabilitation of construction laydown areas, and the need for clarity on decommissioning and site rehabilitation at the end of the project life / construction activities.	- Direct and on-going engagement is occurring with landowners with agreements in place to accommodate project infrastructure and associated impact. - This engagement has informed a range of Project commitments, including substation siting, noise considerations at associated residences, the location of access, laydown and mobilisation areas, sequencing of works around agricultural activities, and design responses to landowner feedback on perceived impacts. The noise impact assessment confirms compliance at associated residences, and the visual impact assessment concludes that residual impacts are acceptable and manageable with the stated design and standard management measures.	EIR Section 7.8 (Noise), Table 7-19, SEO 3, SEO 12 EIR Section 7.7 (Visual), SEO 8 EIR Section 3.6 (Decommissioning), SEO 14 Raised directly with host landowners
2	Adjacent landowners (non-associated)	N/A	No applicable submissions were received from non-associated adjacent landowners.	N/A	N/A
3	Ngadjuri Nation Aboriginal Corporation	N/A	No written submissions were received during the consultation period.	- ENGIE initiated engagement with the Ngadjuri Nation Aboriginal Corporation (NNAC) and SANTS in November 2023. To date, consultation activities have included project introductions, a cultural heritage survey related to the installation of the meteorological mast, and discussions focused on developing a Cultural Heritage Management Plan. - Although no written submissions were received during the targeted consultation period, ENGIE met with the Ngadjuri Board on 1 April 2026 to reaffirm the opportunity to comment on the draft EIR/SEO; no feedback has been received to date. - ENGIE remains committed to ongoing engagement throughout the project lifecycle. This includes plans for additional cultural heritage surveys of the wind farm and transmission line areas, to be conducted in partnership with NNAC representatives. - A heritage agreement has been established with NNAC which will include ground works disturbance monitors during construction works and unexpected find procedures.	N/A
4	Regional Council of Goyder	13/3/2026	Traffic & Transport – required an updated TIA in consultation with Council and DIT. Clarifications on TIA aspects requested.	A Traffic Management Plan (TMP) will be developed in consultation with Council and the Department of Infrastructure and Transport (DIT) and will be incorporated into the Project’s OMP. The TMP would include clarification requested by Council, noting Council discussions are ongoing.	EIR Section 7.12.1 and through direct discussions with the Council Table 8-1 STATEMENT OF ENVIRONMENTAL OBJECTIVES (C6)Table 8-1, SEO 11
			Visual – requested that SEO 8 reflect the requirement to maintain a 3,500 m buffer from the turbines to the Hallett township.	The leading performance criteria has been updated to reflect the P&D Code policy relating to setbacks from the Hallett Township Zone.	Table 8-1, SEO 8

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Community Benefit Sharing Program – requested to discuss the CBS further with Council. Also requested that the SEO confirm that the CBS be operational from commencement of construction, for the life of the project.	ENGIE will continue to discuss community benefits sharing arrangements with Council.	No changes to EIR/SEO
			- Local Employment – Council supports the initiative of developing a Local Employment Plan, and suggests the plan is developed in conjunction with the Regional Development Australia (RDA) Yorke and Mid North. - Accommodation – potential impact of workers accommodation on local accommodation were noted and appreciated by Council. Council encourages that cumulative impacts are considered in the proposed Workforce Accommodation Strategy for the project.	The comments regarding local employment and accommodation are acknowledged. ENGIE will consult with the Council and the RDA to explore employment and workforce strategies at the appropriate stage of the project, following approval. Input from the appointed contractor will also be sought to ensure a comprehensive approach.	Table 8-1, SEO 12
			Community Engagement – Council appreciated in-person engagement undertaken by ENGIE in 2024-2025. Council encourages further engagement with the community prior to the statutory consultation process.	Community Engagement – ENGIE will facilitate dedicated community sessions and continue to hold regular meetings with landowners and neighbouring stakeholders as required.	No changes to EIR/SEO
5	Department for Housing and Urban Development (DHUD)	4/3/2026	Land Use Context – noted the site is within the Rural Zone of the Planning and Design Code, which anticipates renewable energy facilities co-existing with primary production while minimising fragmentation and displacement of rural land uses.	DHUD submitted a comprehensive written response expressing support for the Project.	No changes to EIR/SEO
			Primary Production Compatibility – advised that wind farms generally allow continued primary production activities within the project area and that land should be rehabilitated at end of project life to enable return to agricultural use.	Noted.	No changes to EIR/SEO
			Project Life & Decommissioning – noted the 35-year project life and that decommissioning or repowering will occur in accordance with a Decommissioning and Rehabilitation Plan.	Noted.	No changes to EIR/SEO
			Setbacks – Township Zones – confirmed the proposal complies with PO 8.1(a) setback requirements, achieving a minimum 3.5 km separation between turbines and the Hallett Township Zone, based on a 300 m tip height.	Noted. The confirmation that the project satisfies PO 8.1(a) is acknowledged.	No changes to EIR/SEO
			Setbacks – Dwellings – confirmed compliance with PO 8.1(b), with all non-associated dwellings located more than 1.5 km from wind turbines; dwellings within 1.5 km are associated with the project.	Noted. The confirmation that the project satisfies PO 8.1(b) is acknowledged.	No changes to EIR/SEO
			BESS Siting Considerations – noted the BESS is co-located with an existing substation and approximately 900 m from the nearest dwelling; proximity to Willalo Creek may increase the likelihood of Aboriginal heritage and surface water impacts, requiring consideration during detailed design.	Noted.	No changes to EIR/SEO

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Environmental Mitigation – advised that mitigation and management measures outlined in the EIR and SEO are appropriate to address environmental, social and heritage impacts during construction and operation.	Noted.	No changes to EIR/SEO
			Regional Planning Alignment – noted the project is consistent with the Eyre and Western Region Plan (January 2026), which supports renewable energy generation and storage to contribute to decarbonisation and climate change mitigation.	Noted.	No changes to EIR/SEO
			State Planning Policies – confirmed alignment with State Planning Policy 12 (Energy), with impacts on biodiversity to be addressed under the NV Act and EPBC Act.	Noted.	No changes to EIR/SEO
			EPBC Act Referral – noted the proposal will be referred to DCCEEW under the EPBC Act 1999 for consideration of MNES, including Iron-grass Natural Temperate Grassland TEC, Southern Whiteface, Pygmy Blue-Tongue Lizard and Flinders Ranges Worm-Lizard.	Noted.	No changes to EIR/SEO
6	SA Country Fire Service	18/3/2026	Asset Protection Zones (APZs) – APZs required around all infrastructure with minimum setbacks (17 m for buildings/BESS, 10 m for WTGs); current proposal is non-compliant.	The CFS requirements for APZs are noted. APZ requirements for the BESS, WTGs and other Project infrastructure will be considered during detailed design, in consultation with the CFS and the applicable SA CFS guidance. The final APZ dimensions and arrangements will be confirmed through the detailed design and OMP process.	No changes to EIR/SEO - addressed via the Project OMP
			Access & Egress – Firefighting access and perimeter roads are inadequate; upgrades required to meet detailed CFS standards.	The current layout is indicative; the final BESS design and site layout will be prepared in consultation with CFS.	No changes to EIR/SEO
			Vegetation Management – Specific requirements for fuel reduction, understorey limits, grass height and screening vegetation within APZs.	The CFS vegetation and fuel management requirements are noted. Appropriate vegetation and fuel management measures, including requirements within and around APZs, will be developed through the OMP in consultation with the CFS.	No changes to EIR/SEO – addressed via Project OMP
			Firefighting Water Supply – No reticulated supply; 72,000 L static fire water tanks required; current proposal does not comply.	The CFS requirements for a dedicated firefighting water supply are noted. The required capacity, location, configuration and access arrangements for the firefighting water supply will be confirmed during detailed design and documented through the OMP, in consultation with the CFS.	No changes to EIR/SEO – addressed via Project OMP
			Emergency & Bushfire Planning – Bushfire and Emergency Management Plans required, with regular review, remote shutdown capability and first-responder safety prioritised.	An Emergency and Bushfire Management Plan will be developed in consultation with the CFS and will be incorporated into the Project's OMP.	No changes to EIR/SEO - addressed via the Project OMP and EIR Section 3.5 Addressed in Table 8-1 SEO 2. Reference to the SACFS Guide – Renewable

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
					Energy Facilities has been added to SEO 2.
			BESS Fire Safety – Additional fire safety, access and shutdown requirements; BESS containers not to be opened by fire services.	The final BESS design and associated emergency response measures will be developed during detailed design and documented through the OMP, in consultation with the CFS.	No changes to EIR/SEO - addressed via Project OMP
			Construction & Operations – On-site firefighting equipment and emergency services training required during construction and maintenance.	Appropriate equipment, procedures and training requirements will be determined through the OMP and associated emergency response planning, in consultation with the CFS.	No changes to EIR/SEO – addressed via the Project OMP
			Aerial Firefighting & Tall Structures – WTGs to shut down during bushfires; met masts to be registered and visibly marked.	Appropriate shutdown protocols and notification, registration and marking requirements will be confirmed through detailed design and emergency response planning, in consultation with the CFS.	No changes to EIR/SEO – addressed via the Project OMP
			Manifest Box – Manifest Box recommended at site entrance with plans, contacts and fire infrastructure details.	The requirement, location and information to be provided for emergency services will be considered during detailed design and preparation of the OMP, in consultation with the CFS.	No changes to EIR/SEO – addressed via the Project OMP
7	Department of Primary Industries and Regions	20/3/2026	Livestock biosecurity – PIRSA noted the project area is used for livestock production and requested consideration of livestock disease and biosecurity risks, including Emergency Animal Diseases, within the EIR and emergency protocols, consistent with the <i>Livestock Act 1997</i>.	Livestock biosecurity risks, including Emergency Animal Diseases, would be consistent with the <i>Livestock Act 1997</i> and incorporated into the Project's OMP, which will be subject to review and approval by DEM and PIRSA (as relevant).	EIR Section 7.6.3.1 Table 8-1, SEO 6
8	Aboriginal Affairs and Reconciliation	20/3/2026	Aboriginal Heritage Records – noted that the AAR Central Archives Database is not exhaustive and should not be relied on as a complete record of Aboriginal heritage.	Noted.	No changes to EIR/SEO
			Heritage Impact Assessment Tables – advised that Aboriginal and historic heritage are incorrectly conflated in Tables 6-4 and 6-6, and that the matrix assumptions do not reflect the requirements of the <i>Aboriginal Heritage Act 1988</i>.	Tables 6-4 and 6-6 within the EIR have been adjusted to make clear definition between Aboriginal and historic heritage including reference to requirements of the <i>Heritage Places 1993 Aboriginal Heritage Act 1998</i>.	EIR Table 6-4 EIR Table 6-6
			Sensitivity Classification for Aboriginal Heritage – recommended revised sensitivity criteria for Aboriginal heritage (low, medium, high), explicitly recognising the potential for unrecorded heritage and the need for section 21 and 23 authorisations where impacts may occur.	These issues have been considered with adjustments made to the various sections of the EIR, in particular pre-construction obligations have been strengthened to recognise the potential for unrecorded heritage as well as consideration of authorisations under the <i>Heritage Places 1993 Aboriginal Heritage Act 1998</i>.	EIR Table 6-4 EIR Table 6-6
			Avoidance and Authorisations (Pre-construction) – advised that where Aboriginal heritage or potential heritage cannot be avoided, authorisations under sections 21 and 23 of the <i>Aboriginal Heritage Act 1988</i> should be obtained.	Noted. This has been considered with adjustments made to the EIR.	EIR Table 6-4 EIR Table 6-6
			Unexpected Finds Protocol – confirmed that the provided AAR Heritage Discovery Protocols are suitable for use as an Unexpected Finds Protocol and should be incorporated into the OMP.	Noted.	No changes to EIR/SEO

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Historic Heritage Section Clarification – identified a typo in Section 7.2 incorrectly cross-referencing Aboriginal heritage, noting Aboriginal heritage is addressed in Section 7.1.	Typo amended.	EIR Section 7.2
			Recognised Aboriginal Representative Bodies – clarified that NNAC has not been approved by the SAHC as a RARB under section 19B(5) of the AH Act.	Noted, NNAC have not been referred to as a RARB in the EIR/SEO.	No changes to EIR/SEO
9	Northern and Yorke Landscape Board	20/3/2026	Mitigation Hierarchy & MNES – requested explicit embedding of the mitigation hierarchy (avoidance first) within SEO 5 and project principles, given increasing cumulative MNES impacts in the Mid North.	The mitigation hierarchy has been a guiding principle in project development, with various WTG design iterations seeking to first avoid and then mitigate impacts to MNES alongside other design constraints. SEO 5 has been updated to expressly reference application of the mitigation hierarchy, with avoidance prioritised where practicable.	EIR Section 7.6.3.1 Table 8-1, SEO 5
			Habitat Fragmentation & Access Tracks – requested clearer assessment of fragmentation from WTG access tracks, including effects on small fauna, weeds and edge impacts.	Direct and indirect impacts including fragmentation and cumulative impacts, will be considered in detail in NVC and EPBC applications once final layout is confirmed.	No changes to EIR/SEO
			Offsets Strategy & Availability – flagged limited and competitive offset availability (notably Iron-grass NTG) and recommended early offset strategy development and stakeholder workshopping.	The Project layout has undergone iterative design refinement to avoid and minimise impacts on MNES, including Iron-grass NTG, where practicable. Further avoidance is constrained by civil design and constructability requirements. Where residual impacts require offsets, ENGIE will consult and work with the host landowners to identify and secure suitable offset opportunities within or in proximity to the Project area where practicable.	No changes to EIR/SEO
			INTG Mapping & Surveys – commented on mapping underestimates INTG extent and requested a more conservative approach and consultation with MRLB and Board ecologists.	Any data discrepancies between INTG mapping at a regional scale and what is presented in project reporting can be addressed as part of the EPBC Act referral.	No changes to EIR/SEO
			Cumulative Flora & Fauna Impacts – considered cumulative impacts underestimated, particularly for grasslands and raptor foraging habitat (e.g. Wedge-tailed Eagle).	- At present there is no regulatory body within South Australia that pools post-construction monitoring data from all current/proposed wind farms within the state. - Pre-approval conditions of existing windfarms within South Australia have not all included post-construction monitoring data (i.e. associated with a Bird and Bat Management Plan) and therefore there has not been a consistent approach across the state.	No changes to EIR/SEO
			Bat Surveys – noted survey effort included one case of equipment failure and requested clarifications.	- The project site was described by DEW as having suitable habitat and recent records reflecting the presence of the Grey-headed Flying Fox (GHFF) (<i>Pteropus poliocephalus</i>) (EPBC Vulnerable). GHFF feed on a range of plant species consuming nectar, pollen and fruits. Given the cleared nature of the site and lack of food resources, the species is considered unlikely to utilise the site. - No threatened bat species, listed under either the EPBC or NPW Act, were identified as part of the Bird and Bat Utilisation Surveys. - Overall, a total of four bat species were recorded over the eight surveys from spring 2023 to winter 2025, using echolocation sonograms to identify the following non-threatened species: - Gould’s Wattled Bat (<i>Chalinolobus gouldii</i>) - Lesser Long-eared Bat (<i>Nyctophilus geoffroyi</i>) - Free tailed-bat species (<i>Ozimops</i> sp.) - Forest Bat species (<i>Vespadelus</i> sp.)	EIR Section 7.6.2.2

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
				Bats were surveyed by recording calls of bats flying over the Project Area at night.	
			BBUS – identified inaccuracies in Southern Whiteface habitat and nesting assumptions and requested amendments to reflect current knowledge.	- The Southern Whiteface is not protected under the SA NPW Act and will be assessed as part of the EPBC Act referral. - Noting it is current best practice to rely on the available literature, there is scope to expand on the discussion around the use of hollow-bearing trees for nesting.	No changes to EIR/SEO
			Declared Pest Plants & Soil Movement – highlighted declared pest species and permit requirements under the Landscape Act, recommending early engagement to avoid delays.	- The movement of soil and pest plant material would typically be addressed through a Construction Environmental Management Plan (CEMP) as part of the OMP. - This consideration, and the relevant reference to the Landscape South Australia Act 2019 is included in the EIR.	No changes to EIR/SEO
			Design Refinement – encouraged further refinement of WTG and access track layouts to minimise MNES impacts and fragmentation.	Further design requirements will be undertaken to minimise MNES impacts and habitat fragmentation.	EIR Section 3.2.1 EIR Section 7.6.3.1
			Pygmy Blue-tongue Lizard – suggested impacts to known or potential habitat would be a significant MNES impact and requested expanded habitat classification, targeted surveys and clarification of records.	- The habitat mapping for the Pygmy Blue-tongue Lizard (PBTL) (<i>Tiliqua adelaidensis</i>) (EPBC Endangered) within the project site, previously showed the potential for this species to occur. Since the REIL was submitted, Umwelt has undertaken targeted surveys in March-April 2026 to update historical mapping. As part of these targeted surveys, several PBTL were recorded within proximity to the historic records and within the habitat that was previously mapped as Likely PBTL habitat. - The results are to be summarised in the Targeted Pygmy Blue-tongue Lizard Survey Report (Umwelt, 2026), which will be submitted as part of the EPBC Referral Documentation.	Section 7.6.3.1
			Pale Sun-moth – requested targeted surveys due to likely suitable habitat, noting the species' rarity and potential threat status.	- Pale Sun-moth is not a listed species under the NPW or EPBC Act. - Potential impacts to threatened species will be considered in the SIA which will inform the EPBC referral.	No changes to EIR/SEO
10	SA Environment Protection Authority (EPA)	20/3/2026	Acoustic Background Noise Assessment – sought clarification on whether “downwind” conditions refer to existing wind farms or the proposed turbines, as this affects interpretation of background noise analysis.	The additional analyses were conducted primarily to gain an understanding of whether the background noise monitoring was impacted by noise from existing wind farms, primarily Willogoleche 1. The analysis was conducted for the upwind and downwind directions relative to the existing turbines.	EIR Section 7.8 Appendix D
			Turbine Height and Noise Modelling – noted discrepancies between maximum hub heights in the planning and acoustic reports, and recommended that alternative turbine height scenarios be discussed or modelled to better reflect potential noise impacts.	- While a taller turbine may not necessarily be noisier, background noise levels correlated against a taller hub height will typically result in more stringent criteria compared with a lower hub height (for wind speeds where the criteria are based on the background noise levels plus 5 dB(A)). While unlikely in this circumstance, a taller hub height may in some circumstances also result in some turbines no longer benefiting from terrain shielding. - It is noted that cumulative noise levels are predicted to achieve compliance with the baseline criterion (40 dB(A)) at all wind speeds from cut-in to rated power, and therefore compliance is not reliant on higher background noise levels at higher wind speeds. From this perspective, an increased hub height is unlikely to result in non-compliance (for the same make/model of turbine).	SEO 3

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
				Notwithstanding, the acoustic report recommends that a final assessment which considers the final wind turbine generator selection, hub height and layout be conducted at the procurement stage (prior to commencement of construction of the wind farm). This is consistent with the approach taken on other recent wind farm projects within SA.	SEO 3
			Turbine Selection and Final Noise Assessment – observed that the planning report does not clearly confirm the turbines under assessment and recommended finalising the noise assessment once turbine models are known, including provision of certified sound power level data for any turbines considered.	The noise assessment considered an indicative WTG and demonstrated that compliance with the Wind Farms Guidelines can be achieved based on the considered hub height and layout. A noise assessment will be conducted at the OMP stage once WTG selection is finalised.	
11	Native Vegetation Council (NVC)	2/4/2026	Data Report Requirement – identified the absence of a Native Vegetation Data Report and advised this will be required to demonstrate application of the mitigation hierarchy, SEB calculations and how the SEB will be achieved.	The Native Vegetation Data Report is not required at this stage in the approval process. The EIR states that any native vegetation clearance required for the Project will remain subject to the applicable approval process under the Native Vegetation Act and Native Vegetation Regulations.	EIR Section 7.6.3.1 Table 8-1, SEO 5
			Bushland Assessment Method – requested provision of the Bushland Assessment Method (BAM) scoresheet (current version dated 9 September 2025) to assess the adequacy of SEB calculations.	The Native Vegetation Data Report, BAM scoresheets and GIS files will be provided with the native vegetation clearance application once final design is confirmed.	No changes to EIR/SEO
			TECs & Protected Flora – noted the presence of INTG (including 205.42 ha of Class B to be avoided and 0.94 ha Class C potentially impacted), rare flora (Cryptandra campanulata), and potential presence of Peppermint Box Grassy Woodland and other threatened flora, with insufficient detail on proposed clearance extents.	Any clearance of Iron-grass Natural Temperate Grassland will be minimised where possible, with impacts, mitigation and SEB requirements to be detailed in the Data Report and EPBC Act referral. As the disturbance footprint has not been confirmed yet, proposed clearance extents will be included in future applications to the NVC and via EPBC referral.	No changes to EIR/SEO
			Fauna Values – acknowledged survey results, including Southern Whiteface observations and other state-listed birds, noting potential habitat values despite limited nest identification.	Noted.	No changes to EIR/SEO
			Mitigation Hierarchy – strongly urged continued avoidance and minimisation of native vegetation clearance in final design, with clearer documentation of design responses, rehabilitation and mitigation measures.	Noted. Detailed design and micro-siting will continue to avoid and minimise clearance impacts, taking into account environmental, civil and constructability constraints.	No changes to EIR/SEO
			Road Reserves & Buffers – recommended avoiding clearance within road reserves where possible, noting a roadside Significant Site and encouraging protective buffers where impacts cannot be avoided.	This presence of the Significant Sites was referenced in section 5.7.5 and avoided where possible.	No changes to EIR/SEO
			Riparian & Creekline Vegetation – encouraged maintenance of a minimum 50 m buffer to riparian and creekline vegetation to prevent damage and maintain ecological function.	Setbacks to riparian vegetation will be considered as part of the final design process.	No changes to EIR/SEO
			Offsets & SEB Delivery – recommending on-ground offsets be prioritised over fund payments and secured via a Native Vegetation Heritage Agreement, where possible.	This is noted and will be further detailed via application to the NVC, as relevant.	No changes to EIR/SEO

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Principles of Clearance – advised the EIR does not provide enough information to demonstrate consistency with the Principles of Native Vegetation Clearance under the Native Vegetation Act 1991.	This is noted. Once the final design is confirmed, an application will be submitted to the NVC which will consider consistency with the Principles of native vegetation clearance.	No changes to EIR/SEO
			Cumulative Impacts – acknowledged potential cumulative impacts from approved clearance in the surrounding area and potential for cumulative impacts.	Noted, cumulative impacts, once understood with final design, will be considered as part of a native vegetation clearance application.	No changes to EIR/SEO
			Legislative Coverage – advised updating flora and fauna tables to include the Biodiversity Act 2025 (SA) and the Policy for a Significant Environmental Benefit.	The EIR has been updated with the inclusion of the Biodiversity Act and reference to the SEB policy (noting that the Act has not yet commenced and will replace the Native Vegetation Act, which is the applicable Act relating to native vegetation clearance).	EIR Table 6-9
			Secondary Impact Pathways – identified that dust, hydrology changes, erosion, sediment mobilisation and contamination may indirectly affect native vegetation and biodiversity and should be recognised as potential impact pathways.	Secondary, or indirect impact pathways, would be considered as part of a native vegetation clearance application and also mitigated via management plans (such as dust, erosion etc.).	No changes to EIR/SEO
			Blade Glint – noted the EIR does not address potential blade-glint impacts on environmental receptors and requested further consideration and mitigation.	Non-reflective paint is industry standard for modern wind farms with the specific purpose to avoid blade glint impacts. This is discussed in the submitted visual impact assessment and EIR in several locations. The specific sections where this is referenced is included the table.	EIR Section 7.7.1 and 7.7.2
			Weed Management – requested greater specificity in weed management measures, particularly for African boxthorn (Weed of National Significance).	The EIR has been updated to clarify that a Weed Management Plan will be developed in consultation with the NYLB and will outline an appropriate approach to management of the African Boxthorn (<i>Lycium ferocissimum</i>).	EIR Table 8-1, SEO 6
			SEO Assessment Criteria – recommended strengthening SEO 5 and 14 criteria to clearly reflect legislative requirements, explicit avoidance/minimisation intent, SEB obligations and rehabilitation in accordance with legislation.	Clarifications have been made to SEO 5 and 14.	EIR Table 8-1, SEO 5 and SEO 14
12	Department for Environment and Water (DEW)	9/4/2026	Biodiversity Data Currency – noted the desktop assessment relies on data up to 2023 and should be updated to include more recent records (to 2025), including additional flora and fauna records within 10 km and available sensitive fauna data.	- Data currency is being reviewed with any additional records to be captured in an updated ecology report. - The SEO relating to flora and fauna are designed to mitigate impacts to all protected flora and fauna and will not change with updated data.	No changes to EIR/SEO
			Threatened Native Fauna Presence – identified multiple threatened fauna species recorded within 10 km, with suitable habitat for EPBC-listed species including Pygmy Blue-tongue Lizard, Flinders Ranges Worm Lizard and Grey-headed Flying Fox, requiring further consideration in impact assessments.	- Targeted surveys have been completed for Pygmy Blue-tongue Lizard, with further targeted winter surveys completed for the Flinders Ranges Worm Lizard. - The Grey-headed Flying Fox (GHFF) (<i>Pteropus poliocephalus</i>) (EPBC Vulnerable) feed on a range of plant species consuming nectar, pollen and fruits. Given the cleared nature of the site and lack of food resources, the species is considered unlikely to utilise the site.	EIR Section 7.6 (Flora and Fauna)
			Survey Effort & Commitment – recommended firm commitment to additional, species-specific targeted surveys with appropriate timing, methods and effort.	As per above, targeted surveys have been completed for Pygmy Blue-tongue Lizard, with further targeted winter surveys completed for the Flinders Ranges Worm Lizard (2 individual found, reporting not finalised). This is reflected in the EIR.	EIR Section 7.6 (Flora and Fauna) EIR Section 5.7.3 (Fauna)

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Cumulative Impacts – advised cumulative biodiversity impacts from multiple wind farms in the region are underestimated and require more robust assessment.	- At present there is no regulatory body within South Australia that pools post-construction monitoring data from all current/proposed wind farms within the state. - Preapproval conditions of existing wind farms within South Australia have not all included post-construction monitoring data (i.e. associated with a Bird and Bat Management Plan) and therefore there is no consistency across the state.	No changes to EIR/SEO
			Pygmy Blue-tongue Lizard – supported targeted late summer/autumn surveys and avoidance of likely habitat, and recommended consultation with the PBTL Recovery Team.	- PBTL surveys were undertaken in the recommended seasonal window and reflected in the EIR. - Applicant is seeking to avoid possible impacts to PBTL in final design and are committed to engaging with the PBTL Recovery Team as part of the EPBC Referral process.	EIR Section 7.6 (Flora and Fauna)
			Raptors & Bird Strike Risk – noted seven raptor species (including three NPW Act-listed threatened species) recorded on site; advised current mitigation focuses on monitoring and recommends further mitigation measures to reduce collision risk.	- Detailed design and turbine micro-siting will seek to minimise impacts to avifauna habitat. - Turbine placement will seek to reduce interactions between raptors and turbines where possible.	No changes to EIR/SEO
			Bird & Bat Mitigation Measures –recommending design-based mitigation, refined layouts, and stronger commitments beyond post-construction monitoring.	- As per above, detailed design and turbine micro-siting will seek to minimise impacts to avifauna habitat. - Turbine placement will seek to reduce interactions between raptors and turbines where possible. - The OMP will detail the monitoring and investigation of bird and bat impacts, and consider adaptive management framework, where required.	No changes to EIR/SEO
			Long-term Monitoring – recommended bird and bat monitoring be undertaken over a 10–20 year timeframe, with sufficient turbine sample size (or all turbines), improved detection methods (e.g. trained dogs), and data pooling across wind farms to inform cumulative impact management.	As per above, the OMP will detail the proposed monitoring and investigation methods relating to bird and bat impacts, and consider adaptive management framework, where required.	No changes to EIR/SEO
			Risk Modelling – recommended quantitative modelling of raptor collision risk, including turbine design and layout sensitivity and cumulative population-level impacts.	Survey evidence indicates low collision exposure and limited conservation consequence. In these circumstances, utilisation surveys, habitat assessment, design avoidance measures and operational monitoring provide a proportionate level of assessment. Additional quantitative risk modelling would be unlikely to materially assist determination of environmental risk.	No changes to EIR/SEO
			Water Resources & Wells – advised that legacy and potential groundwater wells may pose contamination risks; noted permits are required for any well works and recommended engagement with DEW Water Licensing if water is required or wells are affected.	- Noted, the EIR reflects the need for water permits under the Landscape Act. - The project will use potable water for turbine foundations and is likely to use bore water for dust suppression. - Expected construction water demand and sourcing will be assessed during the OMP phase. - The applicant will consult local landowners, Council and other commercial water suppliers regarding water availability and supply. - Any bore-water extraction or dewatering will be undertaken subject to applicable approvals and controls.	EIR 7.11.2 and 7.11.3.2
			Non-Aboriginal Heritage – noted two State-listed heritage places and recommended strengthening assessment criteria, including unexpected finds procedures, archaeologist inductions and on-call support.	Section 7.2.3 has been updated to strengthen the assessment criteria and to includes provisions for an unexpected finds protocol preparation (prior to construction) and implementation (during construction) that includes provision for an 'on call' archaeologist.	EIR Section 7.2.3 (Historic heritage)

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Environmental Objectives – recommended amendments to SEO 1 (to explicitly include non-Aboriginal heritage instead of historic) and SEO 9 (to include impacts to water quality and quantity).	- The recommendation regarding SEO 1 is noted but not adopted. - SEO 9 has replaced 'resources' with 'quantity'.	EIR Table 8-1, SEO 9
			Assessment Criteria for Fauna – recommended clearer criteria reflecting DEW biodiversity mapping, explicit avoidance /minimisation for threatened species.	SEO 5 has been updated to reflect clearer assessment and performance criteria.	EIR Table 8-1, SEO 5
			Animal Welfare & Codes of Practice – recommended inclusion of relevant humane destruction codes and wildlife management guidance in the EIR and SEO.	<i>Animal Welfare Act 1985</i> and reference to the relevant humane destruction codes and wildlife management have been added to the EIR.	EIR Table 6-9
			Overhead Transmission Line (OTL) – further detail requested regarding OTL impacts, recommending identification and retention of scattered trees and clarification of fauna values within the corridor.	- The OTL corridor remains under investigation, with impact detail to be confirmed at the OMP stage following detailed design and further engineering and ecological inputs. - Surveys undertaken by Umwelt have identified vegetation associations within the corridor as presented in Appendix C of the Ecological Constraints Assessment (2025a; Appendix B of EIR). - Final design will consider these constraints, with pre-clearance assessments and Native Vegetation Council approval required prior to disturbance. - Native fauna will also be addressed within the Data Report as it relates to native vegetation providing habitat for native fauna species. - The EPBC referral SIA will also address any MNES (flora or fauna) relevant to the OTL.	No changes to EIR/SEO
			Indirect & Fragmentation Impacts – advised impact descriptions focus on direct clearance only and should be updated to address indirect, fragmentation and cumulative impacts across multiple wind farms.	Direct and indirect impacts, including fragmentation and cumulative impacts, will be understood with final design and included in the SIA Referral Documentation being submitted to DCCEEW for approval.	EIR Table 6-10 (NV1), Table 7-13
13	Department for Infrastructure and Transport (DIT)	13/4/2026	DIT were supportive of the proposal and offered potential conditions for consideration (as outlined below)		
			Intersection & Road Upgrades – advised that multiple intersections on Wilkins and Barrier Highways will require upgrades to Austroads and DIT standards to support heavy vehicles and ensure safety.	The requirement for intersection and road upgrades will be confirmed during detailed design. Any required works will be developed in consultation with DIT and Goyder Council and undertaken in accordance with applicable DIT and Austroads standards and approval requirements.	No changes to EIR/SEO – addressed via the Project OMP
			OSOM Transport – noted OSOM vehicles will be required for turbine blades and towers, with further assessment needed once vehicle types are confirmed; recommended further review of OSOM timing and routing during approvals.	Noted.	No changes to EIR/SEO
			Traffic Management Plan – required submission of a detailed Traffic Management Plan to DIT for approval prior to construction, covering vehicle types, routes, road upgrades, staging, and safety measures.	A Traffic Management Plan will be developed in consultation with the DIT and Goyder Council and will be incorporated in the Project OMP.	EIR Section 7.12.1

Ref.	Stakeholder Name	Date Received	Summary of Submission	Applicant Response	Where Addressed (EIR, SEO)
			Cost Responsibility – confirmed all costs associated with road, access, and intersection upgrades (including reinstatement and drainage works) are to be borne by the proponent, with a Deed of Agreement required for works on DIT roads.	Noted.	No changes to EIR/SEO
			Shadow Flicker & Glare – required a shadow flicker assessment prior to construction to assess impacts on Wilkins and Barrier Highways, with mitigation to the satisfaction of the Commissioner of Highways.	The Traffic Management Plan will be developed in consultation with the DIT and Goyder Council, including consideration of shadow flicker and glare on Wilkins and Barrier Highways, and will be incorporated into the Project's OMP.	No changes to EIR/SEO – addressed via the Project OMP
			Transmission Infrastructure – required approval of the final transmission route, preference for locating transmission poles on private land, minimum 7.5 m clearance over arterial roads, and undergrounding under DIT roads where applicable.	The final pole heights, easement width, and exact locations of the transmission lines will be determined during the design stage, based on terrain conditions, final engineering design, and findings from vegetation and cultural heritage surveys.	EIR Section 3.3.3.3
			Permits & Notifications – advised OSOM and Restricted Access Vehicle permits must be obtained from the NHVR, and DIT's Traffic Management Centre must be notified of any roadworks or traffic controls affecting arterial roads.	Noted. The TMP will consider OSOM and RAV requirements.	No changes to EIR/SEO– addressed via the Project OMP
14	Tenements Holder (EcoSsaus)	20/2/2026	Noted development with no specific comments.	N/A	N/A
15	Tenements Holder (Flinders Prospecting)	N/A	No comments received during the consultation period.	N/A	N/A
16	Tenements Holder (S.C. Heinrich & Co)	11/3/2026	Noted development with no specific comments.	N/A	N/A



APPENDIX B

ECOLOGICAL CONSTRAINTS ASSESSMENT



APPENDIX C

BIRD AND BAT UTILISATION SUMMARY
FINAL REPORT



APPENDIX D

NOISE IMPACT ASSESSMENT



APPENDIX E

SURFACE WATER IMPACT ASSESSMENT



APPENDIX F

ELECTROMAGNETIC INTERFERENCE
ASSESSMENT



APPENDIX G

VISUAL IMPACT ASSESSMENT



APPENDIX H

AVIATION IMPACT ASSESSMENT



APPENDIX I

SOCIAL IMPACT ASSESSMENT



APPENDIX J

TRAFFIC IMPACT ASSESSMENT



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India	Taiwan
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ERM's Adelaide Office

2/153 Flinders Street
Adelaide
SA, 5052

www.erm.com