



DENILQUIN EAST BATTERY ENERGY

Prepared for
GRANSOLAR DEVELOPMENT AUSTRALIA
May 2025



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SIGNED DECLARATION

Project details		
Project name	Deniliquin East Battery Energy Storage System	
Application number	SSD-61612229	
Address of the land in respect of which the development application is made	21356 Riverina Highway Deniliquin, 2710 (Lot 11 on DP 856212)	
Applicant details		
Applicant name	Seth Agar	
Applicant address	Level 4, 307 Queen Street, 4000 Brisbane QLD, Australia	
Details of people by whom this EIS was prepared		
Names and professional qualifications	Jennifer Cooper Bachelor Town Planning (Hons) (UNSW)	Clare Brown Bachelor Town Planning (UNSW) Bachelor of Law (UNSW) GAICD Diploma Circular Economy and Sustainability Strategy (Cambridge Judge Business School)
	Richard Barry Bachelor of Planning (Hons) (UNSW)	Pablo Yague Master of Environment (Macquarie University) Master of Marine Science and Management (USYD)
Address	Level 8, Angel Place, 123 Pitt Street, Sydney NSW 2000	
Declaration		
The undersigned declares that this EIS: - has been prepared in accordance with Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2021</i>; - contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; - does not contain information that is false or misleading; - contains the information required under the <i>Registered Environmental Assessment Practitioner Guidelines</i>;		

- addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project;
- identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments;
- has been prepared having regard to the Department's *State Significant Development Guidelines - Preparing an Environmental Impact Statement*;
- contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development;
- contains a consolidated description of the project in a single chapter of the EIS;
- contains an accurate summary of the findings of any community engagement; and
- contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.

Signatures

	
20.5.2025	Jennifer Cooper, Director (RPIA) (REAP 84249)

GLOSSARY AND ABBREVIATIONS

Reference	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACM	Asbestos Containing Material
AEP	Annual Exceedance Probability
AHD	Australia Height Datum
AHIMS	Aboriginal Heritage Information Management System
AIA	Arboricultural Impact Assessment
ANEF	Australian Noise Exposure Forecast
AQIA	Air Quality Impact Assessment
ARI	Average Recurrence Interval
ASS	Acid Sulphate Soils
BAM	Biodiversity Assessment Method
BC Act	<i>Biodiversity Conservation Act 2016</i>
BC Reg	<i>Biodiversity Conservation Regulation 2017</i>
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
CBD	Central Business District
CEEC	Critically Endangered Ecological Community
CDA	Concept Development Application
CEMP	Construction Environmental Management Plan
CIV	Capital Investment Value
CMP	Construction Management Plan
COPC	Contaminants of Potential Concern
CTMP	Construction Traffic Environmental Plan
DCP	Development Control Plan
DP	Deposited Plan
DPHI	New South Wales Department of Planning, Industry and Employment
DSI	Detailed Site Investigation
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>

Reference	Description
EPA Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EIS	Environmental Impact Statement
EPA	New South Wales Environment Protection Authority
EPI	Environmental Planning Instrument
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
GANSW	Government Architect New South Wales
GFA	Gross Floor Area
GTP	Green Travel Plan
HIPAP	Hazardous Industry Planning Advisory Paper
HIS	Heritage Impact Statement
km	Kilometres
LAeq	A frequency-weighted Equivalent Continuous Sound Level
LEC	Land Environment Court New South Wales
LEP	Local Environmental Plan
LGA	Local Government Area
LSPS	Local Strategic Planning Statement
m	Metres
MIL	Murray Irrigation Limited (operator of Murray Irrigation Channel)
MNES	Matters of National Environmental Significance
MUSIC	Model for Urban Stormwater Improvement Conceptualisation
NML	Noise Management Level
NRAR	Natural Resource Access Regulator
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
OEMP	Operational Environmental Management Plan
R&H SEPP	<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>
PAD	Potential Archaeological Deposit
PBP	Planning for Bushfire Protection

Reference	Description
PCT	Plant Community Type
PMF	Probable Maximum Flood
POM	Plan of Management
PSI	Preliminary Site Investigation
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems) 2021</i>
SAII	Serious and Irreversible Impacts
SARs	Commonwealth Supplementary Assessment Requirements
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SIDRA	Signalised & Unsignalised Intersection Design and Research Aid
Site	Lot 11 on DP 856212
SSD	State Significant Development
SSDA	State Significant Development Application
T&I SEPP	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
TFNSW	Transport for New South Wales
TIA	Traffic Impact Assessment
UXO	Unexploded Ordnance
VIA	Visual Impact Assessment
VIS	Vegetation Integrity Score
WCM	Water Cycle Management
WMP	Waste Management Plan
WSUD	Water Sensitive Urban Design
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) has been prepared on behalf of BESS Arctic Pty Ltd C/- Gransolar Group (**the Applicant**) in support of a State Significant Development Application (SSDA) for the construction and operation of the Deniliquin East Battery Energy Storage System (**the Project**) located at 21356 Riverina Highway, Deniliquin (**the Site**)

The Project is a 100MW battery energy storage system (BESS) facility with associated infrastructure for the purposes of 'electricity generating works' (electricity storage) and has the capacity to store and discharge approximately 100MW with 200MWh (2 hours) storage. As the Project has an estimated development cost of more than \$30 million, it is classified as a State Significant Development (SSD) under Schedule 1, section 20 of the *State Environmental Planning Policy (Planning Systems) 2021*.

This EIS has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the Project (SSD-61612229). This EIS concludes that the proposed development is suitable and warrants approval subject to the implementation of the following planning management and mitigation measures.

The Project seeks to deliver a best-practice BESS facility to support the energy transition towards net zero in NSW and Australia. The Project has been carefully designed to avoid adverse environmental impacts on the surrounding landscape and nearby sensitive receivers, whilst capitalising on the existing transmission infrastructure that is located near the Site. Specifically, the intended outcomes of the Project are to:

- Construct and operate a BESS while minimising environmental, social, and cultural impacts through adaptive design approaches.
- Store and dispatch electricity into the National Energy Market (NEM) from renewable sources to reduce the amount of greenhouse gases generated by the NSW power generation sector by:
 - Participating in the Frequency Control and Ancillary Services (FCAS) market – FCAS is the process used by the Australian Energy Market Operator to maintain the frequency of the NEM at 50Hz. The objective of the FCAS system is to provide rapid input of energy, or rapid reduction of energy, to manage supply and demand. Batteries can provide this service more effectively and at a lower cost than traditional FCAS suppliers.
 - Enhancing energy arbitrage – A BESS can store energy when there is an energy surplus (typically during the middle of the day when solar production is high) and release it when electricity demand is high (predominantly during the evening, and early morning).
 - Improving system strength – The Deniliquin East BESS will have grid-forming inverters that can provide system strength to the transmission network around Deniliquin. The transmission network around Deniliquin has some deficiencies relating to system strength.
- Leverage the strategic location of the Project site and utilise the existing transmission line infrastructure, minimising the reliance on construction of new infrastructure adjacent to the South-West Renewable Energy Zone (SWREZ).
- Encourage and enable community and stakeholder engagement and participation across the life of the Project.
- Provide local and regional employment opportunities and other social benefits during construction and operation of the Project and contribute to the local and regional economies.

The Project includes a benefit-sharing offer to provide an annual monetary contribution of \$150 per megawatt storage per annum for the life of the Project, consistent with the objectives of the *NSW Energy Policy Framework*.

Feasible Alternatives

A range of Project alternatives were considered and informed the final Project layout, location and component elements. Alternatives considered included other site locations, development footprint, access locations, component parts and options for workers accommodation.

The Site and Project layout were selected as they represent the best possible outcome and balance between achieving the Project's objectives and avoiding as much environmental impacts as possible.

Development Description

The Project comprises the construction and operation of a 100MW battery energy storage facility and associated infrastructure, including:

- Site preparation works including tree removal and earthworks.
- Construction and operation of a Battery Energy Storage System (**BESS**) including:
 - Containerised lithium-ion battery modules with approximately 100MW/200MWh nominal capacity.
 - Power conversion units, which convert the DC power from the battery modules to 33kV AC.
 - On-site 33/132 kV substation, including power transformer and oil containment system.
 - A 33kV switch-room.
 - Control room.
 - Maintenance container.
 - A 132 kV overhead transmission line connecting with the Deniliquin Substation.
- Permanent supporting infrastructure including:
 - Upgraded site vehicle access road and bridge to provide access to Riverina Highway
 - Internal access roads and car parking for maintenance vehicles.
 - Three 20,000-litre water tanks.
 - Security fencing and CCTV security system.
 - Acoustic barrier.
 - Landscape screening.
 - Lightning mast.
- Temporary construction facilities including:
 - Laydown area.
 - Construction materials storage.

Consultation

Community and stakeholder engagement has been undertaken by Urbis and the Project Team in the preparation of the SSDA. This includes direct engagement and consultation with:

- Adjoining landowners and occupants.
- Registered Aboriginal Parties (**RAPs**).
- State and Local Government, agency and utility stakeholders as listed within the SEARs.

The outcomes of the community and stakeholder engagement have been incorporated into the Project and are discussed in detail at **Section 5** of this EIS.

Justification of the Project

This EIS assesses the development as proposed with regard to relevant planning instruments, guidelines and policies, and outlines the mitigation measures to ensure the project does not result in unreasonable or adverse environmental effects. Additionally, the proposed development satisfies the Secretary's Environmental Assessment Requirements (**SEARs**) issued for the project.

The key issues for all components of the project identified in the SEARs have been assessed in detail, with specialist reports underpinning the key findings and recommendations identified in the Assessment of Impacts in **Section 6**. It has been demonstrated that for each of the likely impacts identified in the assessment of the key issues, the impact will either be positive or can be appropriately mitigated.

The proposal represents a positive development outcome for the site and surrounding area for the following reasons:

- The Project is consistent with State and local strategic planning policies:
 - NSW Electricity Strategy
 - Riverina Murray Regional Plan 2041
 - Edward River Local Strategic Planning Statement 2020
 - Draft Edward River Growth Strategy 2050
- The Project satisfies the applicable local and State controls and legislative frameworks.
- The Project is permissible with consent and meets the statutory and policy requirements relevant to the development of electricity generating works.
- The Project design responds appropriately to the opportunities and constraints presented by the Site:
 - Biodiversity – The Project footprint contains no ecologically sensitive areas.
 - Hydrology – The Project includes measures to minimise, mitigate and monitor any potential water quality and stormwater impacts.
 - Social and Economics – The Project will generate economic value to the State and region including local employment opportunities.
 - Amenity – The mitigation measures incorporated into the Project will minimise potential adverse impacts on the community, such as noise and visual impacts.
 - Transport – Following detailed assessment, it is considered that the project will be able to accommodate traffic-related movements into the road network.
 - Heritage – The Project will avoid impacts on historical and aboriginal cultural heritage.
 - Agriculture – The Project will result in partial and temporary loss of agricultural land. Following decommissioning, the agricultural value will be returned in its entirety after the Project lifespan.
- The Site is suitable for the Project:
 - The Project can be developed without significantly impacting surrounding land uses and the environment.
 - The Site has limited environmental values, and the Project seeks to avoid those present.
 - The proximity to the existing Deniliquin Substation will allow the Project to capitalise on existing electrical infrastructure and support sustainable energy as soon as possible.
 - The physical nature of the Site has allowed for the inclusion of mitigation measures.
- The Project is in the public interest as it:
 - Is consistent with the relevant Commonwealth's Renewable Energy Target, NSW's Climate Change Act, NSW's Climate Change Policy Framework and Net Zero Plan Stage 1: 2020-2030.
 - Will contribute grid firming to support renewable, low-carbon energy to the National Electricity Market. This will help achieve the Integrated System Plan 2024 long-term objectives.
 - Will provide flow-on benefits to the local community, including 52 construction jobs at its peak, up to two operational jobs, and contributions to the Edward River Council towards improved local services and infrastructure.
 - There will be broader benefits to the State and Commonwealth, with the injection of approximately \$118 million of capital into the NSW economy.
 - Will not result in any significant environmental, social and economic impacts. Residual impacts can be minimised, mitigated and/or offset where necessary.

The Project as presented in the EIS and SSD Application has significant merit and is able to be approved subject to the implementation of the mitigation measures described in this EIS and supporting documents.

Key Project details

The following Project details are provided for clarity:

What is the Deniliquin East BESS project?

The Deniliquin East BESS project is a battery only project with no solar or wind elements included in the proposal. This means the project will not generate energy, it will only be used to store excess energy in the grid during periods of high supply and low demand and discharge during low supply and high demand.

The intent of the project is to supply energy into the national east coast grid during times of high demand and low supply whilst taking excess energy out of the grid during times of excess supply. Similar projects are proposed across Australia including many in metropolitan areas of Adelaide, Brisbane, Sydney and Melbourne.

The project comprises approximately 3.5 hectares of unused rural land selected due to its proximity to the existing Deniliquin Substation. This reduces the scale of new overhead transmission infrastructure required to connect to the grid and therefore minimises disruption to land owners in the area. The project is expected to operate for 20-30 years before being decommissioned with the units then removed and recycled.

What is a BESS?

A Battery Energy Storage System (**BESS**) stores energy for later use, typically using lithium-ion batteries. It helps balance supply and demand, ensuring a stable and reliable energy supply. The battery units are self-contained keeping all elements within the shipping container sized unit using the same lithium battery technology as is standard in common household items like a mobile phone, laptop or a cordless drill.

What is grid-firming?

The Australian National Energy Market is increasingly requiring 'firming capacity' (such as fast-start generation, demand response and battery storage) to fill or stabilise gaps in energy generation and demand during the day, either due to changing weather patterns, or disruptions to fossil-fuel generators. Sophisticated demand and supply forecasting is also required to ensure sufficient firming capacity is available when needed and can be deployed immediately when required.

Are BESS safe?

Yes, modern BESS comprise of modules with battery racks inside containers with multiple safety features to prevent overheating, overcharging, and other potential hazards. This includes measures to sense fires and internal fire suppression systems. Regular maintenance and monitoring further ensure their safety and the risk of fire events occurring are low. A Preliminary Hazards Assessment has been prepared in support of this Application which assesses risk of hazards and mitigation measures to prevent fire and other hazards causing environmental impacts.

1. INTRODUCTION

1.1. APPLICANT DETAILS

The applicant details for the Project are listed in the following table.

Table 1 Applicant Details

Descriptor	Proponent Details
Full Name(s)	BESS Arctic Pty Ltd C/- Gransolar Group
Postal Address	Level 4 307 Queen Street, Brisbane 4000 QLD Australia
ABN	47 659 303 554
Nominated Contact	Richard Barry (Urbis) Level 8, Angel Place, 123 Pitt Street, Sydney, NSW, 2000

Founded in 2005, Gransolar Group is a leading international renewable energy company, with offices in 11 countries internationally and projects in 45 countries across Europe, Asia, Middle East Africa and Americas. Gransolar Group built its first solar farm project in Australia in 2017-2018 and became Australia's leading EPC contractor with more than 2GW between 2017 and 2025.

1.2. PROJECT DESCRIPTION

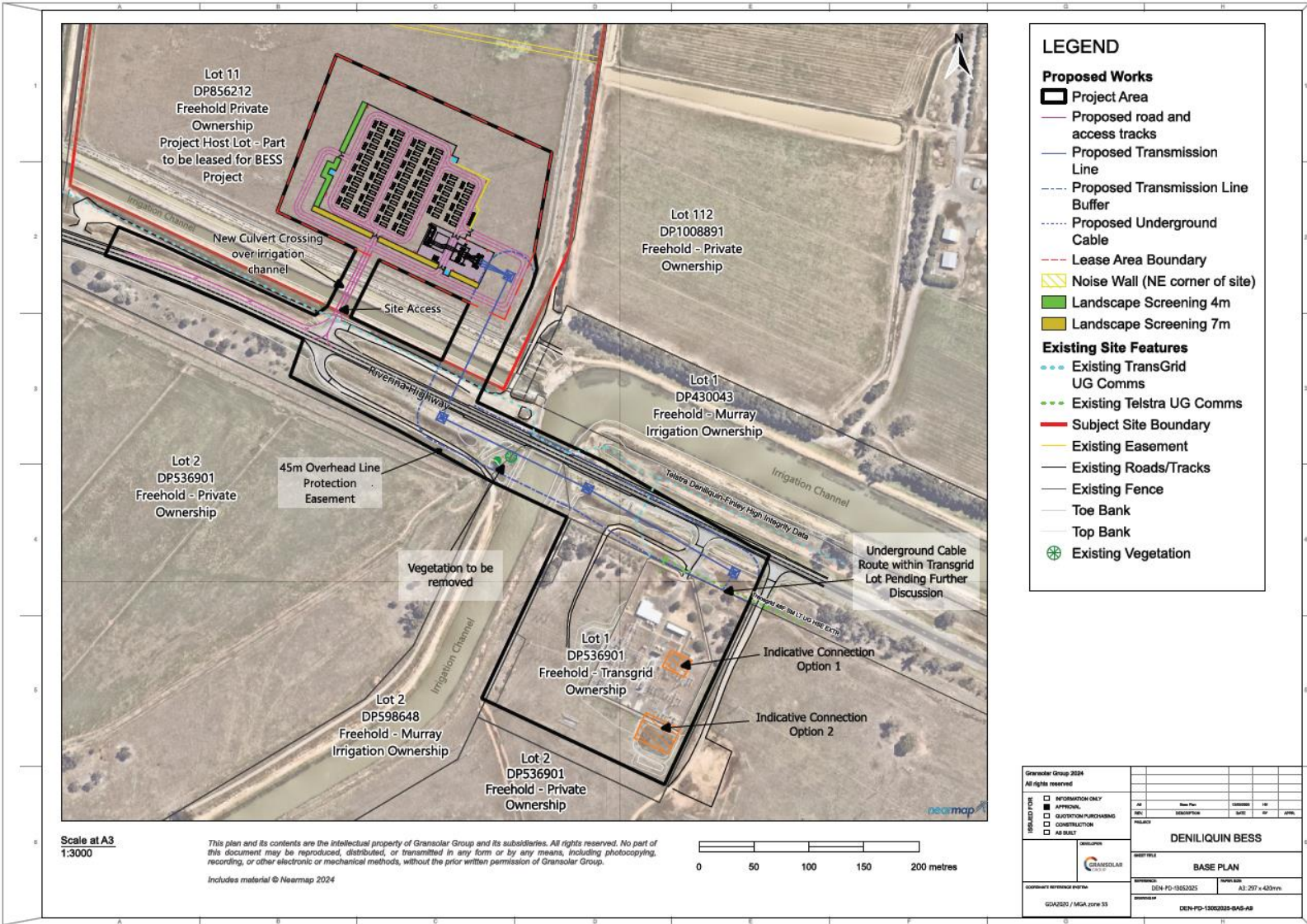
This Environmental Impact Statement (**EIS**) is submitted to the Department of Planning, Housing and Infrastructure (**DPHI**) on behalf of BESS Arctic Pty Ltd C/- Gransolar Group in support of a State significant development application (**SSDA**).

The SSDA seeks approval for the construction and operation of the **Deniliquin East Battery Energy Storage System (the Project)** located at 21356 Riverina Highway, Deniliquin (**the site**), including:

- Site preparation works including tree removal and earthworks.
- Construction and operation of a Battery Energy Storage System (**BESS**) including:
 - Containerised lithium-ion battery modules with approximately 100MW/200MWh nominal capacity.
 - Power conversion units, which convert the DC power from the battery modules to 33kV AC.
 - On-site 33/132 kV substation, including power transformer and oil containment system.
 - A 33kV switch-room.
 - Control room.
 - Maintenance container.
 - A 132 kV overhead transmission line connecting with the Deniliquin Substation.
- Permanent supporting infrastructure including:
 - Upgraded site vehicle access road and bridge to provide access to Riverina Highway
 - Internal access roads and car parking for maintenance vehicles.
 - Three 20,000-litre water tanks.
 - Security fencing and CCTV security system.
 - Acoustic barrier.
 - Landscape screening.

- Lightning mast.
- Temporary construction facilities including:
 - Laydown area.
 - Construction materials storage.
- The Project is to be constructed in a single stage (Figure 1)

Figure 1 Proposed Project Layout



Source: GDA, 2025

1.3. PROJECT OBJECTIVES

The key objectives of the Project are to:

- Construct and operate a BESS while minimising environmental, social, and cultural impacts through adaptive and collaborative design approaches.
- Store and dispatch electricity into the National Energy Market (**NEM**) from renewable sources to reduce the amount of greenhouse gases generated by the NSW power generation sector by:
 - Participating in the Frequency Control and Ancillary Services (**FCAS**) market – FCAS is the process used by the Australian Energy Market Operator to maintain the frequency of the NEM at 50Hz. The objective of the FCAS system is to provide rapid input of energy, or rapid reduction of energy, to manage supply and demand. Batteries can provide this service more effectively and at a lower cost than traditional FCAS suppliers.
 - Enhancing energy arbitrage – A BESS can store energy when there is an energy surplus (typically during the middle of the day when solar production is high) and release it when electricity demand is high (predominantly during the evening, and early morning).
 - Improving system strength – The Deniliquin East BESS will have grid-forming inverters that can provide system strength to the transmission network around Deniliquin. The transmission network around Deniliquin has some deficiencies relating to system strength.
- Leverage the strategic location of the Project site and utilise the existing transmission line infrastructure, minimising the reliance on construction of new infrastructure adjacent to the South-West Renewable Energy Zone (**SWREZ**).
- Encourage and enable community and stakeholder engagement and participation across the life of the Project.
- Provide local and regional employment opportunities and other social benefits during construction and operation of the Project and contribute to the local and regional economies.

1.4. KEY MITIGATION STRATEGIES

The following key strategies have been adopted to avoid, minimise or offset the impacts of the Project:

- The Project Site has been selected to avoid areas of biodiversity value and minimise impacts to natural resources. The Development Footprint has incorporated deliberate boundary setbacks in consideration of minimising the potential visual, and construction noise impacts to surrounding receivers. These constraints are shown on the Site Plan.
- Use of silencing equipment and acoustic barriers to mitigate acoustic impacts on sensitive receivers.
- Proposed Aboriginal Cultural Management Plan during construction.
- Appropriate Asset Protection Zones (**APZs**), water tanks and other bushfire mitigation measures.
- The preparation of a Waste Management Plan to avoid impacts on regional waste management facilities.
- Identification of suitable locations for short-term workforce accommodation to avoid adverse impact on housing demand and supply for residents in the region and locality.
- The proposed public benefit offer to Edward River Council to contribute annually to a community benefit fund administered by Council.

1.5. RELATED DEVELOPMENT

No other related development is being proposed under a separate planning application. The SSDA includes all enabling works, including road upgrades and a 132kV transmission line approximately 500m long and supporting connection to the Deniliquin Substation.

1.6. RESTRICTIONS AND COVENANTS

The following Easements are present on the Site.

- DP856212 – *Easement of access, water supply and services 20 metres wide & variable appurtenant to the land above described.*
- DP856212 – *Easement to drain water 5 & 10 metres wide affecting the part(s) shown so burdened in the title diagram.*
 - 3654343 *Variation of site of easement as shown in plan with 3654343.*
- DP856212 – *Easement to drain water 20 metres wide & variable appurtenant to the land above described.*

No easements will be impacted as a result of the Project.

1.7. PROJECT TEAM

The EIS should be read in conjunction with the following plans and technical consultant reports:

Table 2 Supporting Documentation

Document Title	Consultant	Appendix
SEARs Compliance Table	Urbis	Appendix A
Detailed Maps and Plans	GDA	Appendix B
Statutory Compliance Table	Urbis	Appendix C
Engagement Summary Table	Urbis	Appendix D
Mitigation Measures Table	Urbis	Appendix E
Biodiversity Development Assessment Report	Water Technology	Appendix F
Aboriginal Cultural Heritage Assessment	Urbis	Appendix G
Heritage Impact Statement	Urbis	Appendix H
Agricultural Impact Assessment	Premise	Appendix I
Landscape and Visual Impact Assessment	Urbis	Appendix J
Community and Stakeholder Engagement Outcome Report	Urbis	Appendix K
Noise Impact Assessment	WSP	Appendix L
Transport Impact Assessment	Urbis	Appendix M
Flood Risk and Impact Assessment	WaterTechnology	Appendix N
Preliminary Hazard Analysis	Riskcon	Appendix O
Bushfire Threat Assessment	BC&BHS	Appendix P
Social and Economic Impact Assessment	Urbis	Appendix Q
Waste Management Plan	Premise	Appendix R
Landowner's Consent	-	Appendix S
Estimated Development Cost Report	Mitchell Brandtman	Appendix T
Land Use Conflict Risk Assessment	Premise	Appendix U
Site Survey	Peak Surveyors	Appendix V
VPA Letter of Offer to Council	GDA	Appendix W

2. STRATEGIC CONTEXT

This section of the EIS describes the way in which the Project addresses the strategic planning policies relevant to the Site, including the way in which potential conflicts with future surrounding land uses have been avoided or minimised. It identifies the key strategic issues relevant to the assessment and evaluation of the Project.

2.1. PROJECT NEED

The Project responds to international, national, state and regional needs to deliver reliable, low-carbon and sustainable energy into the electricity grid.

International Need

In December 2015, Australia became a signatory to the United Nations Paris Agreement on climate change. The main objectives of the Paris Agreement are to:

- Limit the increase in global temperatures to well below two degrees and pursue efforts to limit the rise to 1.5 degrees.
- Achieve net-zero emissions, globally, by the second half of the century.
- Differentiate expectations for developed nations, including Australia, that they will reduce their emissions sooner than developing nations.

The Australian Government has committed to reduce greenhouse gas emissions by 26-28% on 2005 levels by 2030. The Project would contribute to meeting the nation's international commitments to reduce greenhouse gas emissions and to Australia's effort to meet the Paris Agreement by leveraging renewable energy resources from the nearby SWREZ, increasing storage and release of renewable energy.

National Need

The Renewable Energy Target (**RET**) is an Australian Government scheme designed to reduce emissions of greenhouse gases (**GHG**) in the electricity generation sector and encourage additional renewable energy generation. The Capacity Investment Scheme (**CIS**) incentivises the development of renewable energy power, including dispatchable power, such as BESS. The scheme has an annual target of 33,000 gigawatt hours (**GWh**) until the scheme ends in 2030.

The Project would contribute to meeting the RET targets and firm alternative power generation sources resulting in reduced GHG emissions, contributing to meeting the Paris Agreement and aiding the transition towards cleaner electricity generation.

State Need

With the objective of delivering cheaper, cleaner, and more reliable electricity to support future growth across the state, the NSW government established the following policies:

- NSW Transmission Infrastructure Strategy (DPE, 2018).
- NSW Electricity Strategy (DPIE, 2019).
- NSW Electricity Infrastructure Roadmap (DPIE, 2020).
- NSW Climate Change (Net Zero Future) Act 2023.

These policies facilitate transitioning the state into a modern, global renewable energy superpower through privatisation and development of energy zones and renewable energy zone (**REZ**). The Project would contribute to this transition. This *NSW Climate Change (Net Zero Future) Act 2023* legislates the Net Zero Plan Stage 1: 2020-2030 (**Net Zero Plan**), which is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's approach to balancing economic growth, creating jobs and helping to achieve NSW's objective to deliver a 70% cut in emissions by 2035 compared to 2005 levels.

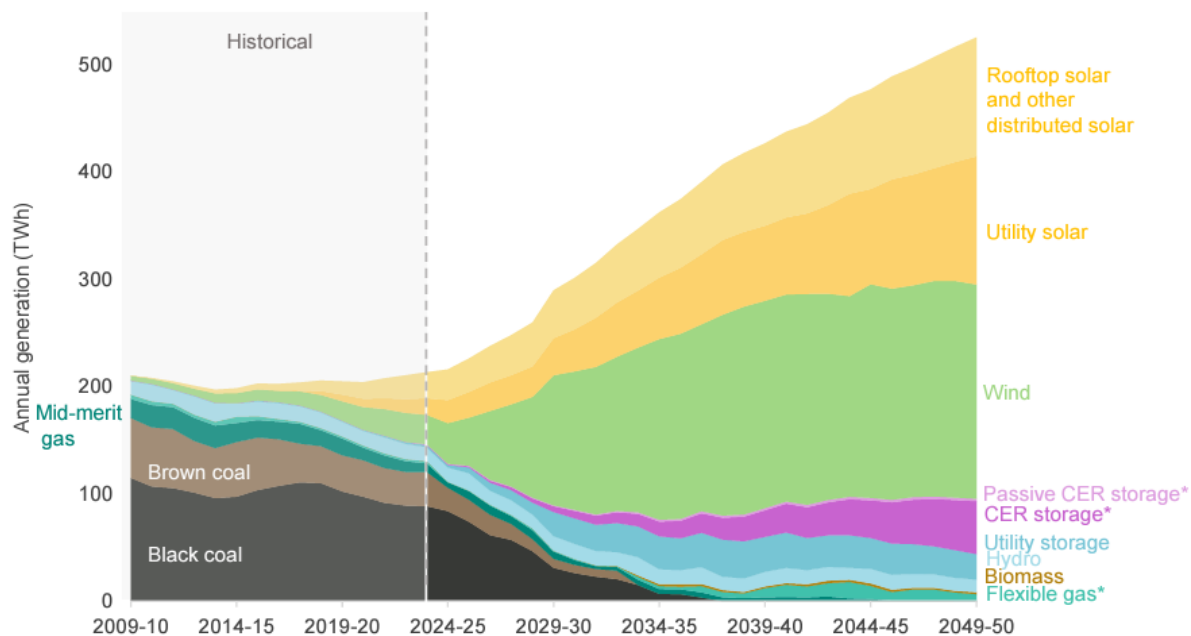
NSW is phasing out steadily coal-fired generation power stations, which the state has historically relied upon. Federal Government policy is a 43% reduction in 2005-level emissions by 2030, with 82% of electricity in the NEM supplied from renewable sources.

The energy transition underway is the biggest transformation of the NEM since it was formed 25 years ago. Wallerawang Coal Power Station closed in 2014, Liddell Coal Power Station closed in mid-2023 and other announced retirements include Eraring (2027), Vales Point (2029), Bayswater (2033) and Mt Piper (2040). With current planned closures and decommissioning this requires up to 10,240 MW of energy that would need to be replaced in the next fifteen years in NSW.

In parallel, future energy consumption from the NEM is projected to rise by approximately 108% by 2050, largely from business and industry. AEMO publishes every two years an updated Integrated System Plan (ISP). The 2024 Integrated System Plan was released in June 2024 and the NEM must nearly seven-fold the current renewable energy capacity and increase drastically the firming capacity that can respond to a dispatch signal, using utility-scale batteries and other emerging technologies to a total of 56 GW/660 GWh of dispatchable storage systems by 2050.

The NSW Electricity Infrastructure Roadmap requires the equivalent annual generation of at least 12 GW of new renewable generation and at least 2 GW/16 GWh of long-duration storage by 2030, beyond 2019 levels. By 2050, the NEM forecasts 126 GW of combined renewable energy output. As such, BESS projects would need to continue expanding fast but sustainably to meet long-term national and state needs and firm electricity generated by large-scale renewable energy sources (Figure 2).

Figure 2 Projected and Current Generation Mix in the NEM



Notes: Annual generation for 2023-24 has been estimated for the full financial year.
 "Flexible gas" includes gas-powered generation and potential hydrogen capacity.
 "CER storage" means consumer energy resources such as batteries and EVs.

Source: ISP, 2024

There is an imperative need for renewable energy generation to be developed in advance of NSW's coal power plants ceasing operation. With the potential acceleration of coal-fired electrical generation being phased out faster than expected, with coal owners only required to give three-and-a-half years' notice of closure, there is an urgent need for the Project in the short-term.

Once operational, the Project not only would assist in fulfilling energy security and stabilising current and future electricity prices but would also help reduce greenhouse gas emissions by approximately 129,133 tonnes of CO₂e per year.

Regional Need

The *Riverina Murray Regional Plan 2041 (RMRP)* aims to facilitate sustainable growth in the NSW Riverina Region by adapting to challenges posed by climate change, the housing market, and the economy.

Objective 13 of the RMRP is to support the State's transition to net zero by 2050 and deliver the SWREZ. In line with National and NSW objectives for cheaper, cleaner, and more reliable energy, and Australia's international commitments, the SWREZ is one of at least five REZs to be rolled out across NSW and is expected to attract \$2.8 billion in private investment to the region by 2030. As set out in the *Electricity Infrastructure Investment Act 2020*, the SWREZ has an intended network capacity of 2.5 GW.

The Project would support Objective 13 of the RMRP by leveraging its strategic position near the SWREZ network capacity and enhancing the dispatchable storage capacity needed to achieve net zero emissions by 2050.

Developed in 2024, the *Edward River Community Strategic Plan: Towards 2035 (ERCSP)* outlines Edward River Council's (**Council**) development and community vision for the Region, including the township of Deniliquin. The ERCSP outlines five themes that Council would work towards achieving by 2030 through plans and strategies including, but not limited to:

- Climate Change response.
- Waste Management.
- Workforce Strategy.

The Project would align with Theme 2: *Natural Environments* of the ERCSP by introducing dispatchable storage energy into the electrical grid and reducing the reliance on fossil fuels. The Project would also align with Theme 4: *Economy: Strong, diverse and sustainable* by creating work opportunities throughout the life of the Project and introducing visitors to the region during construction. Overall, the Project would support the strategies outlined in the ERCSP.

The following criteria were applied in the Site selection process for the Deniliquin East BESS:

- Proximity to and capacity of connection infrastructure, in close proximity to the Deniliquin Substation across the Riverina Highway.
- Availability of suitably sized lots.
- Topography is flat, minimising the need for extensive land clearing and earthworks.
- The Site is vacant and is almost exclusively exotic grassland cleared of native vegetation.
- Not identified as Biophysical Strategic Agricultural Land (**BSAL**).
- Ease of access to the Riverina Highway and other major transport connections for construction logistics.
- Expectation of low environmental and heritage constraints.

2.2. PROJECT JUSTIFICATION

The Project will contribute to firming capacity for clean and renewable energy supply in NSW.

2.2.1. NSW State Priorities

Climate Change (Net Zero Future) Act 2023

The *Climate Change (Net Zero Future) Act 2023* legislates the targets of the *Net Zero Plan Stage 1: 2020-2030 (Net Zero Plan)*, which has served as the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's approach to balancing economic growth, creating jobs and helping to achieve the State's objective to deliver a 70% cut in emissions by 2035 compared to 2005 levels.

Priority 1 of the Net Zero Plan is to drive uptake of proven emissions reduction technologies. A primary contributor to this priority is supporting NSW's movement away from fossil fuel-based energy generation and committing to new forms of renewable energy generation. To do this, the NSW Government is fast-tracking the delivery of NSW's first Renewable Energy Zones (**REZs**). The REZs are to coordinate investment and support regions open to renewable energy industry. This will involve expanding transmission infrastructure into those regions to open new parts of the grid for renewable energy projects such as wind and solar farms.

The five zones in the Central-West, South-West, Illawarra, Hunter-Central Coast and New England will play a critical role in replacing retiring generators in NSW over the next two decades and bringing up to 17,700 megawatts of renewable energy into the grid.

Whilst the Site is located in close proximity to the South-West REZ, it does not rely on the delivery of new infrastructure. The Project will capitalise on its proximity to the existing Deniliquin Substation.

NSW Electricity Strategy

The NSW Electricity Strategy is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The strategy encourages an estimated \$8 billion of new private investment in NSW's electricity system over the next decade, including \$5.6 billion in regional NSW. It will also support an estimated 1,200 jobs, mostly in regional NSW. The strategy aligns closely with the NSW Net Zero Plan.

The strategy supports the development of new transmission infrastructure to connect low-cost generation to the electricity system by developing REZs. The REZs will play a vital role in delivering affordable energy to help replace the state's existing power stations as they retire over the coming decades.

This translates into committed strategic planning for the area suitable for renewable energy, including securing access to transmission, holistic community engagement, and coordinating investment for infrastructure projects. It is therefore reasonable that the Site can leverage the resources and investment in the region and support the strategic priorities identified.

2.2.2. Riverina Murray Regional Plan 2041

The *Riverina Murray Regional Plan (RMRP)* provides the overarching strategic plan for growth and change in the Riverina Murray region. It is a 20-year plan that aims to better address the priorities for the area and provides a path for sustained progress and prosperity for the Riverina Murray community. It identifies objectives and strategies that focus on environmental preservation, supporting communities and places, and strengthening the regional economy.

The Region Plan includes objectives and strategies for infrastructure and collaboration, liveability, productivity and sustainability. The following matters are relevant to the proposed development:

- *Objective 11: Plan for integrated and resilient utility infrastructure.* The proposal would clearly align with this objective by ensuring a reliable electricity source that would enhance the resilience of the community by providing available power that meets the needs of the growing community.
- *Objective 13: Support the transition to net zero by 2050.* The proposal would enhance adaptation to the transition to renewable energy by providing a local energy storage system for clean energy in the region.

2.2.3. Edward River Local Strategic Planning Statement 2020

The *Edward River Local Strategic Planning Statement 2020 (LSPS)* sets out the 20-year vision for the Edward River local government area (LGA) to manage changes in the region to maintain high levels of liveability, landscape values and enhance shared community values. It sets the basis for strategic planning in the area, ensures that the local priorities align with other strategic plans that apply to the area and sets the actions required for achieving those planning priorities.

The LSPS includes planning priorities, strategic actions and timeframes to address different challenges. The following planning priorities are relevant to the proposed development:

- *Planning Priority 6: Infrastructure.* By enhancing the reliability of the electricity network, the existing utility infrastructure would benefit, and it will better the population.

2.2.4. Draft Edward River Growth Strategy 2050

The *Draft Edward River Growth Strategy 2050 (ERGS)* sets a goal to more than double the LGA's population by 2050, while enhancing the lives of the community, the environment and the local economy.

The ERGS identifies that the SWREZ and associated projects present the opportunity for Council to access clean and affordable energy to support residential and economic development. The Project aligns with the ERGS by improving access to renewable energy and promoting new full-time jobs which will increase the local economy.

2.3. THE SITE AND SURROUNDS

The Project site is located at 21356 Riverina Highway, Deniliquin within the Edward River local government area (LGA). The key features of the Site are summarised in Table 3 and illustrated in the Site photographs at Figure 6. An aerial figure and the regional context of the Site are shown in Figure 3 and Figure 5, respectively.

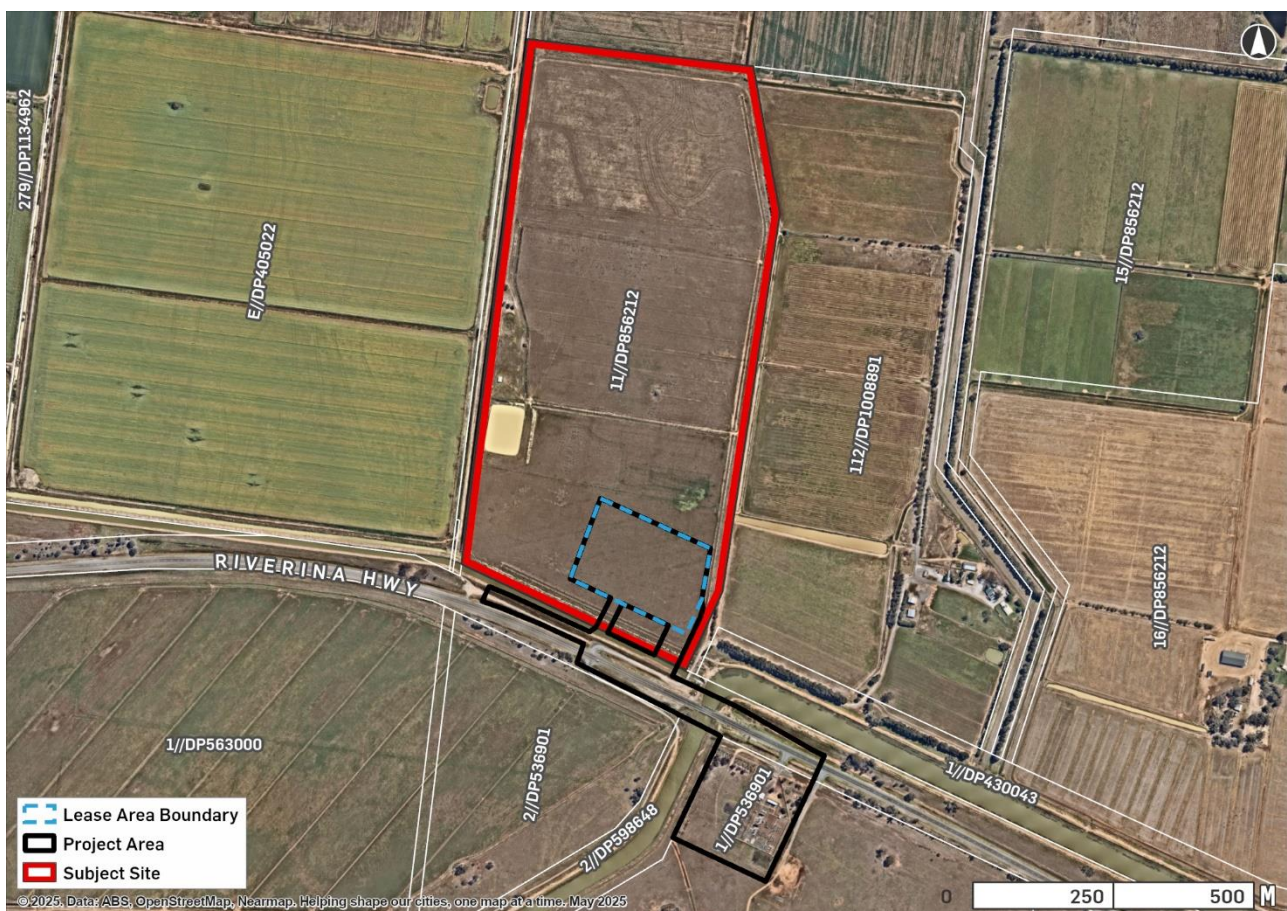
Table 3 Key Features of Site and Locality

Descriptor	Site Details
Land Configuration	The Project comprises of the following as illustrated in Figure 3: ▪ The 'Subject Site' relates to the land legally described as Lot 11 in Deposited Plan 856212 (the total land parcel area is approximately 47.5ha). The southern frontage of the Subject Site fronts the Riverina Highway and the Moulamein Channel, part of the Murray Irrigation. The topography of the land is flat and has been historically cleared of dense vegetation and native species. Extensive irrigation channels traverse within the region, the closest to the site being the Mulwala Canal, as part of the Murray Irrigation Area. ▪ The 'Project Area' is approximately 10.7ha in size and relates to the extent of the proposed development extending over the south-eastern corner of the Subject Site (the 'Lease Area' as described further below) and land within the Road Reserve of the Riverina Highway. This area encompasses the proposed development, including the BESS compound, the overhead transmission lines extending eastwards and the Deniliquin Substation on the south side of the Riverina Highway, and westwards to include a new deceleration lane proposed on the north side of the Riverina Highway. The Project Area does not extend into any other private properties other than the Deniliquin Substation compound. Consultation with Transgrid has been ongoing to establish the likely point of connection within the Deniliquin Substation compound, but this the point of connection is subject to detailed post approval, subject to relevant conditions of consent.

	The 'Lease Area' is located within the south-eastern corner of the Subject Site, fronting the Riverina Highway. This area is approximately 3.5ha and is sized to accommodate the proposed BESS development and ancillary equipment and associated construction works.
Land Ownership	Tanderra Enterprises Pty Ltd (Subject Site land parcel). TFNSW (road reserve). Land Owners consent to be issued prior to approval. Transgrid (Deniliquin substation). Land Owners consent to be issued prior to approval
Existing Development	Surrounding existing development includes the Deniliquin Substation and seven separate rural dwellings to the east within a 1.5km radius. The Moulamein Channel and Mulwala Canal irrigation channels are adjacent to the site.
Local Context	The surrounding locality is described below: - North: North of the Site is dominated by agricultural land for cropping. Flanagans Channel is located approximately 1.5km north of the Site. - East: East of the Site is dominated by agricultural land and limited built features. The closest non-associated residential dwelling is located approximately 500m east of the Site. - South: The Deniliquin Substation is approximately 500m south east of the Site, to which the Project is proposing to connect. The Moulamein Channel and Riverina Highway adjoin the southern border of the site. - West: Approximately 7km west of the Site lays the town of Deniliquin. Photographs of the surrounding land uses are provided in Figure 5.
Regional Context	The subject site is approximately 6.5km south-east from the town of Deniliquin and 50 km west from the town of Finley.
Infrastructure	The Riverina Highway, Moulamein Channel and the Mulwala Canal are located on the southern frontage of the site. The Mulwala Canal is part of the larger Murray Irrigation water supply network. The Deniliquin Substation is located approximately 500m south east.
Site Access	Site access will be via an existing unnamed road that accesses onto the Riverina Highway.
Easements and Covenants	Refer to Section 1.6.
Acid Sulphate Soils	The land is not included within the Acid Sulfate Soil Risk Mapping.
Contamination	There are no contaminated land records on site.

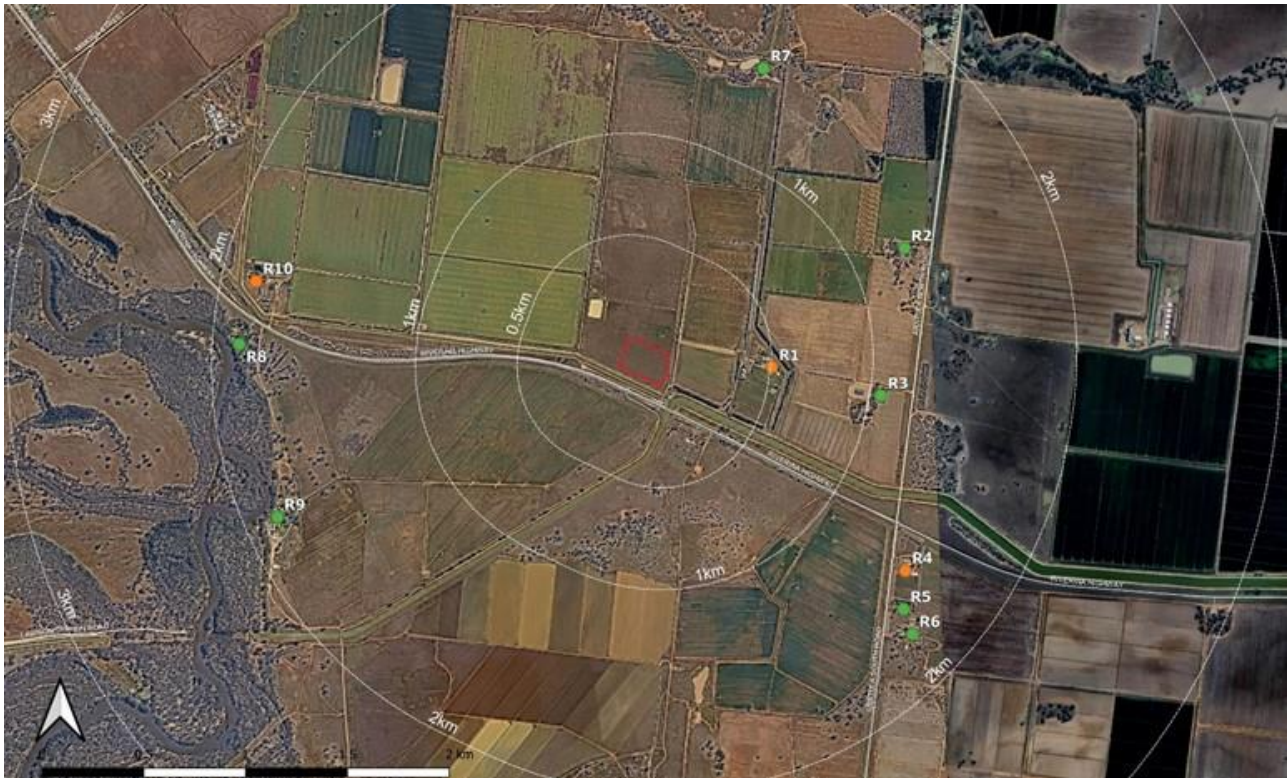
Stormwater and Flooding	The site is within the Probable Maximum Flood area within the Edward River at Deniliquin Flood Study. A Flood Risk and Impact Assessment has been undertaken (Appendix N).
Bushfire Prone Land	The site is mapped with a Bushfire Prone Category 3 land overlay. A Bushfire Assessment has been undertaken (Appendix P)
Flora and Fauna	The land has undergone through significant ecological alterations and decades of intensive farming. Little to no native vegetation cover remains, and the land only supports generalist fauna habitat.
Aboriginal Heritage	There are no present Aboriginal Cultural Heritage listed features on site.
European Heritage	There are no present European Heritage listed features on site.
Land Reserved under the <i>National Parks and Wildlife Act 1974</i>	The Murray Valley National Park lies approximately 5 km south of the Site. Established in 2010, it spans an area of approximately 42,000 ha. Part of the Murray Valley Regional Park is also found adjacent to the township of Deniliquin and sits approximately 2.5 km west of the Site.

Figure 3 Project Site



Source: Urbis

Figure 4 Surrounding sensitive receivers



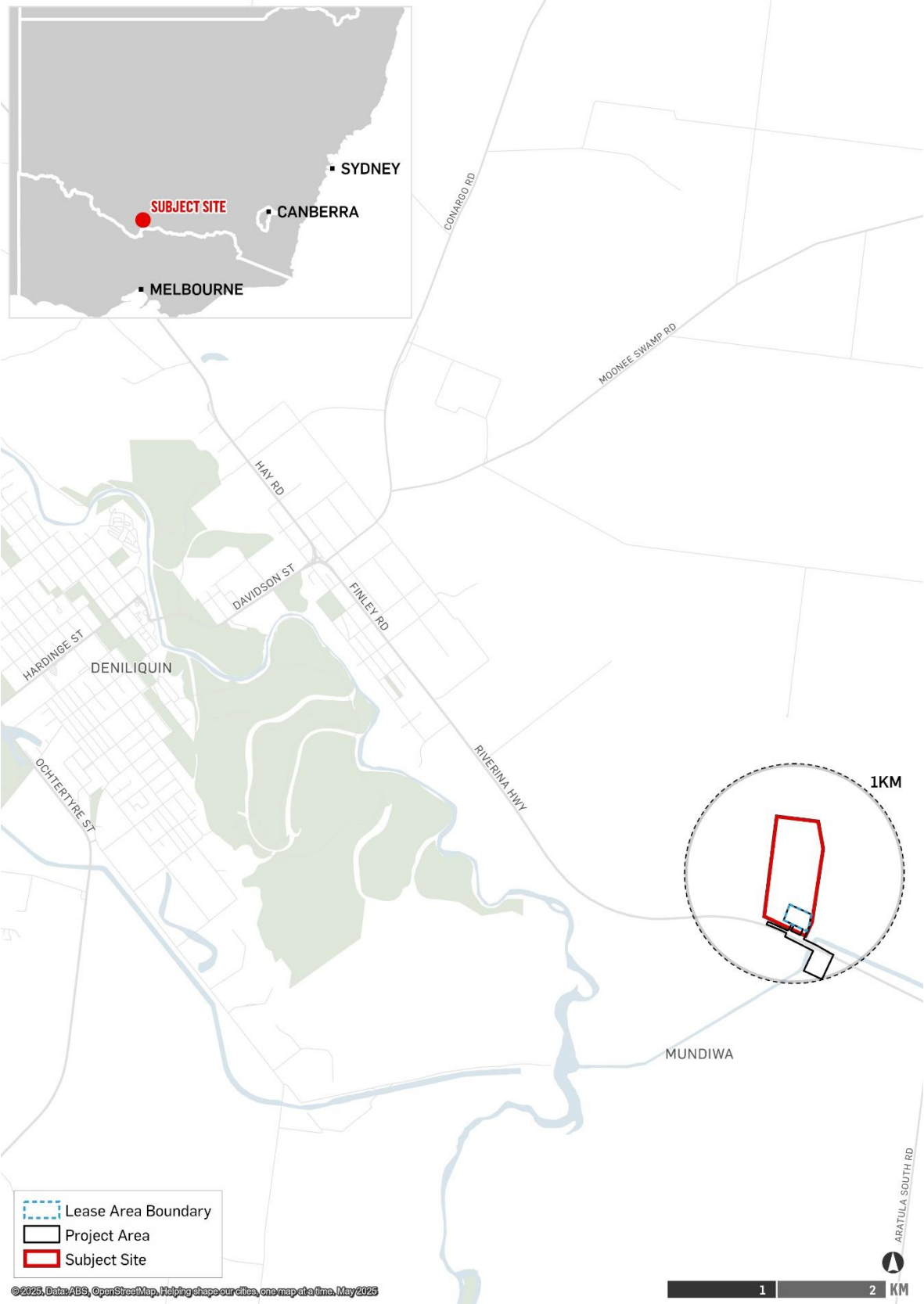
Source: Urbis

Table 4 Surrounding Sensitive Receivers

Receiver ID	Address
R1	21354 Riverina Highway, Deniliquin
R2	94 Aratula North Road, Deniliquin
R3	65 Aratula North Road, Deniliquin
R4	21 Aratula South Road, Deniliquin
R5	41 Aratula South Road, Deniliquin
R6	Aratula Road, Deniliquin
R7	221 Aratula North Road, Deniliquin
R8	21545 Riverina Highway, Deniliquin
R9	21541 Riverina Highway, Deniliquin
R10	21536 Riverina Highway, Deniliquin

Source: Urbis

Figure 5 Regional Map



Source: Urbis, 2025

Figure 6 Site Photographs



Picture 1 Northern view of the site



Picture 2 Eastern view of the site



Picture 3 View on to the Moulamein Channel



Picture 4 View from the Riverina Highway

Source: Urbis, 2023

2.4. NEARBY RENEWABLE ENERGY PROJECTS

The SWREZ is located approximately 20km north of the site, has been attracting renewable energy and storage development proposals and investment since its creation by the NSW Government. The area was selected for a REZ due to a combination of environmental, infrastructure and economic factors, which makes it advantageous when considering its renewable energy resources including solar irradiance and wind power.

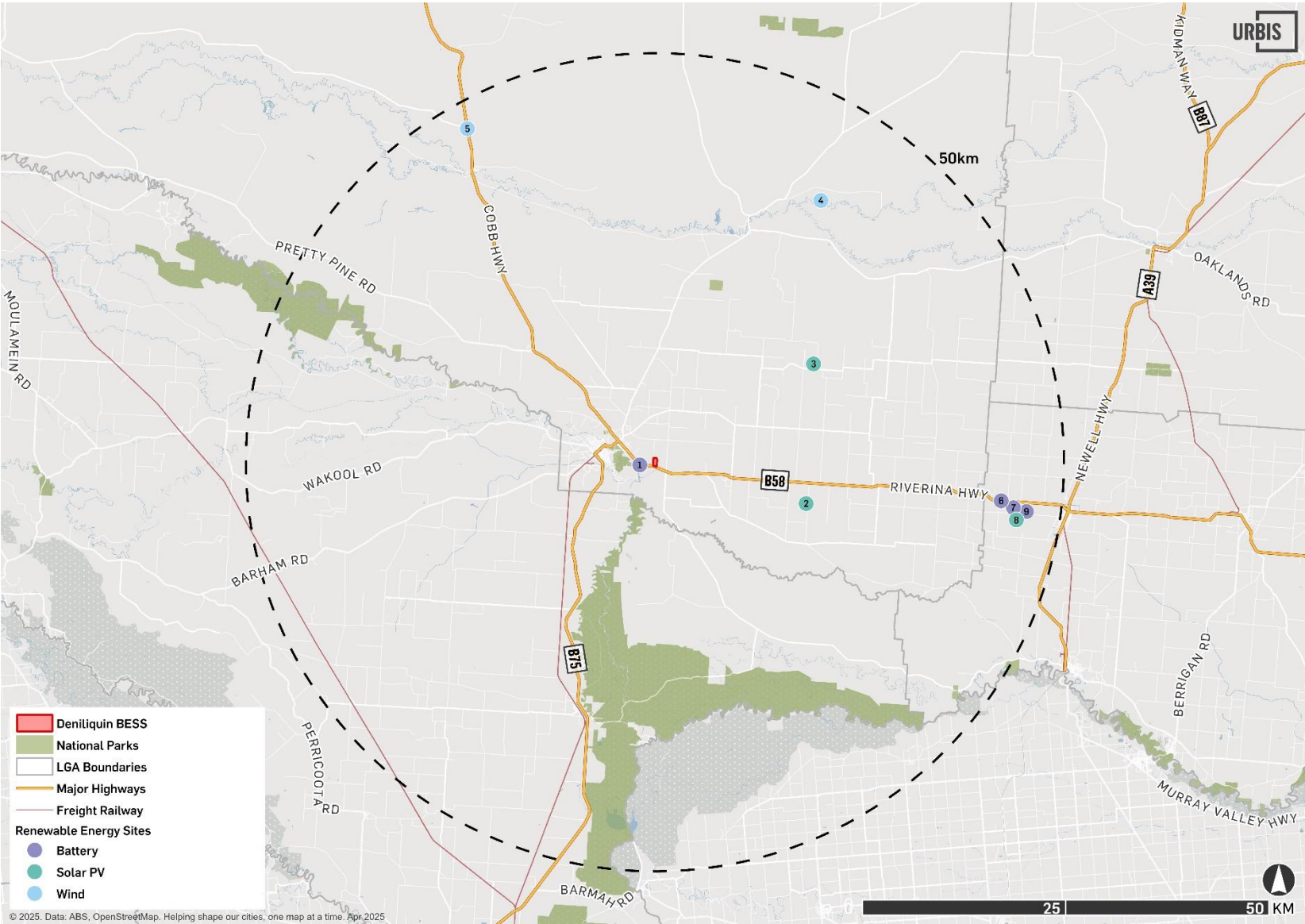
As a result, State Significant Development projects within a 50 km radius have been considered for potential cumulative impacts. Approved and likely future developments which may be relevant in the cumulative impact assessment of the proposal are summarised in Table 5 and Figure 7.

Table 5 Approved and Likely Future Developments State Significant Developments

ID	Project Name	Approximate Distance to Deniliquin East BESS Project (km)	Status
1	Deniliquin BESS	1.5	Response to Submissions
2	Tarleigh Solar Farm	20	Under Assessment
3	Currawarra Solar Farm	24	Under Construction
4	Conargo Wind Farm	37	Approved
5	Wanganella Wind Farm	43	EIS Phase
6	Finley BESS	44	EIS Phase
7	Berrigan BESS	48	Withdrawn
8	Finley Solar Farm	49	Operational
9	South Coree BESS	49	EIS Phase

The potential cumulative impacts of the project are addressed in **Section 6.3** of the EIS in accordance with the DPIE *Assessing Cumulative Impacts* guidelines.

Figure 7 Nearby SSD Projects



2.5. AGREEMENTS WITH OTHER PARTIES

The EIS is accompanied by a Public Benefit offer from the Applicant which if accepted by the Council would result in the execution of a Planning Agreement between the Applicant and Council for the payment of annual contributions to a community benefit sharing scheme administered by Council.

Refer to Section 3.2.12 for further information.

2.6. FEASIBLE ALTERNATIVES

Clause 192(c) of the *Environmental Planning and Assessment Regulation 2021* (**the Regulation**) requires an analysis of any feasible alternatives to the proposed development, including the consequences of not carrying out the development.

Gransolar Group identified two project alternatives which were considered in respect to the identified need for the BESS. Each of these options are listed and discussed in the following table.

Table 6 Project Alternatives

Option	Assessment
Option 1 - Do Nothing	This option involves not developing the BESS as intended. There are limited benefits of the 'do nothing' option as the site is vacant and not currently utilised for agricultural purpose. Not proceeding with the project would also translate into limiting the region's energy storage capacity and the regional and national transition to renewable energy. Therefore, given the critical status of the climate and energy challenges, this is not a preferred option.
Option 2 – Alternative Locations	Alternative sites were assessed during the early stages. However alternative sites were considered less suitable due to requiring further distance to connect to the Deniliquin substation. Moreover, alternative sites considered contained further constraints or possessed higher agricultural land and biodiversity values.
Option 3 – Alternative Technology	The use of alternative technology, such as a Vanadium battery (an alternative battery technology to lithium-ion batteries), was considered. While this technology would have provided longer storage duration of up to eight hours, it would also have required six times more land area than the currently proposed BESS. This could have resulted in greater impacts on the local environmental values and therefore was not selected as a preferred option.
Option 4 – Bridge Location	The proposed location of the bridge has changed from the original concept presented in the scoping phase. Consultation with Murray Irrigation resulted in identifying a preferred single bridge option to limit the number of assets over their channels. The single bridge option is adopted as the proposed point of access and egress. There are no proposed changes to the existing access bridge east of the Project.
Option 5 – Deceleration Lane	Consultation with TFNSW during the preparation of the EIS identified that the project design will need to incorporate a deceleration lane from the Riverina Highway to support safe vehicle movements entering the site.

Option	Assessment
	A deceleration lane has been incorporated in accordance with the relevant design standards.
Option 6 – Workforce Accommodation	Multiple alternative options for the provision of workforce accommodation were investigated including short and long-term accommodation options in nearby regional towns. It was concluded that there are sufficient opportunities in the region to accommodate all required construction workers needed. Additionally, discussions with local contractors identify there is available local workforce which will further reduce the demand for additional workforce accommodation. By leveraging regional resources and local skills, the demand on local services and infrastructure is also further reduced and will boost economic activity in the region.

3. PROJECT DESCRIPTION

3.1. PROJECT OVERVIEW

The key components of the proposed development are summarised in Table 7. A copy of the layout is provided as **Appendix B**.

Table 7 Project Details

Descriptor	Project Details
Project Description and Capacity	The Project is for a BESS facility with a capacity of approximately 100 MWac and 200MWh (two hours) nominal storage. Approximately 80 battery units will be installed to generate the proposed capacity. Associated infrastructure to be constructed as part of the Project includes a substation to connect the Project to the electricity network, all associated power conversion equipment such as inverters and transformers and internal access track, and the construction of a new 132kV overhead transmission line to connect to the existing Deniliquin Substation.
Project Area/Footprint	The 'Project Area' is approximately 10.7ha in size and relates to the extent of the proposed development extending over the south-eastern corner of the Subject Site; land within the Road Reserve of the Riverina Highway; and the Deniliquin Substation. The 'Lease Area' is located within the south-eastern corner of the Subject Site, fronting the Riverina Highway. This area is approximately 3.5ha and is sized to accommodate the proposed BESS and ancillary equipment and associated construction works.
Site Description	Lot 11 on DP 856212 (Subject Site) Lot 1 on DP 536901 (Deniliquin Substation) Riverina Highway road reserve
Site Access	Riverina Highway. Construction of a new culvert/ bridge crossing the Moulamein Channel and a new deceleration lane on the north side of the Riverina Highway is proposed to provide upgraded access to the Site.
Connection Point	Connection to the existing Deniliquin Substation via a 132kV line across the Riverina Highway.
Associated Infrastructure	Installation of a 33/132kV substation, power conversion equipment including inverters and transformers connected via underground medium to low voltage transmission cables.
Minor Ancillary Infrastructure	Ancillary development required to construct and operate the Project includes internal access tracks, security fencing and lighting, operations and maintenance buildings, operational vehicle access points, water tanks, stormwater retention works, landscaping.
Hours of Operation	24 hours a day, seven days a week.

Descriptor	Project Details
Estimated Development Costs (EDC)	\$118,000,000 excluding GST
Construction Staging	The Project will be constructed in a single stage.
Construction Period	Approximately 10-12 months.
Operational Lifespan	Up to 30 years.
Jobs	Construction: Approximately 52 full-time equivalent jobs at peak construction period. Operation: Up to two full-time equivalent jobs.

3.2. DETAILED DESCRIPTION

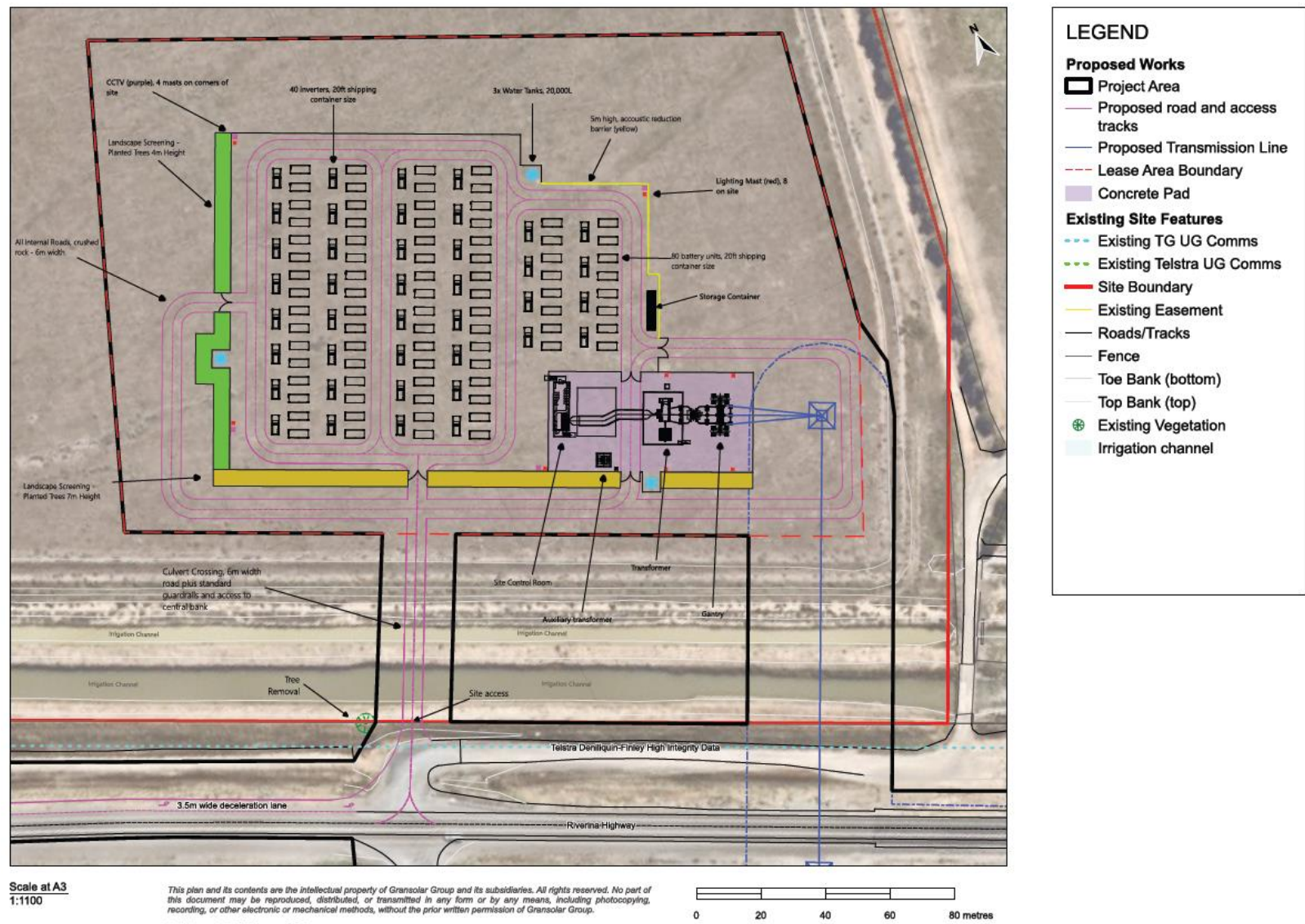
3.2.1. Physical Layout and Design

The proposed BESS compound will be located in the Lease Area, in the southern portion of Lot 11/DP856212 fronting the Riverina Highway as per Figure 8. The Lease Area of approximately 3.5ha is sized to accommodate the BESS compound and construction works including vehicle movement and laydown area will be completed within this area. There are no proposed impacts to the remaining area of Lot 11 DP 8586212, which will retain potential for agricultural activities.

The proposed BESS compound includes the following components:

- Containerised lithium-ion battery modules with approximately 100MW/200MWh nominal capacity.
- Power conversion units, which convert the DC power from the battery modules to 33kV AC.
- On-site 33/132 kV substation, including power transformer and oil containment system.
- A 33kV switch-room.
- Control room.
- Maintenance container.
- Permanent supporting infrastructure including:
 - Upgraded site vehicle access road and bridge to provide access to Riverina Highway
 - Internal access roads and car parking for maintenance vehicles.
 - Three 20,000-litre water tanks.
 - Security fencing and CCTV security system.
 - Acoustic barrier.
 - Landscape screening.
 - Lightning mast.
- Temporary construction facilities including:
 - Laydown area.
 - Construction materials storage.

Figure 8 Site Plan – BESS compound



Source: Gransolar, 2025

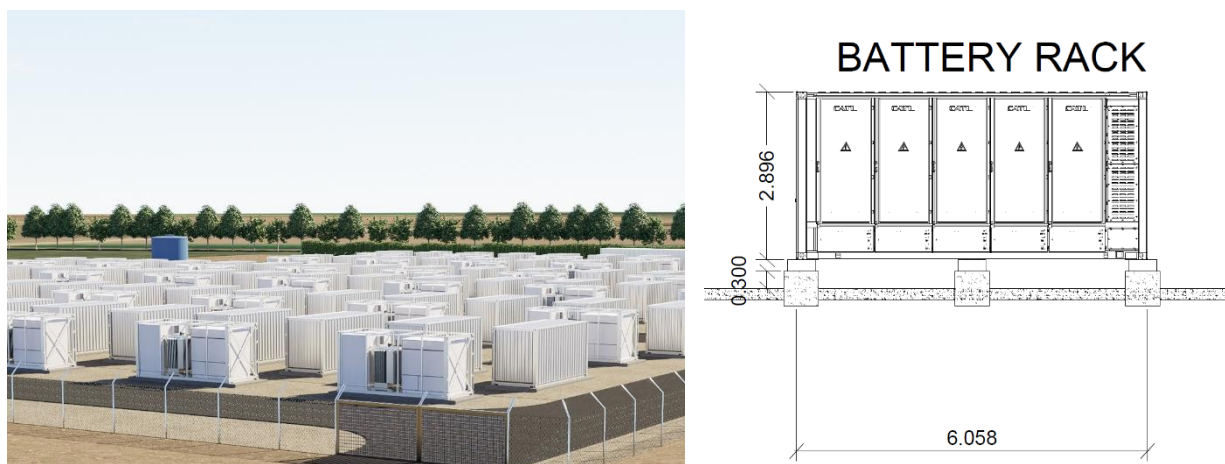
3.2.2. Battery Energy Storage System

The BESS comprises a series of lithium-ion battery modules (also referred to as battery racks) enclosed in containers, which will be manufactured off-site before being installed on-site. The BESS will consist of up to 80 containers, each standing at approximately 6m long x 2.5m wide x 2.9m high. All BESS containers will be separated more than 4.5m apart, which exceeds the manufacturer's recommended clearance distances of 1.5m.

It should be noted that even though the nominal capacity will be 100MW/200MWh, the installed cell capacity is expected to be around 120MW/240MWh. This is due to the electricity efficiency during the charging and discharging process of the battery and to compensate for the energy to be utilised within the compound itself.

The final arrangement of the proposed BESS will be confirmed during the detailed design phase and submitted to the Planning Secretary prior to construction in accordance with conditions of consent.

Figure 9 Example of a BESS



Source: Gransolar, 2025

3.2.3. Power Conversion Units and Cabling

Supporting the BESS will be 40 PCUs arranged throughout the Site to convert the direct DC electricity output from the batteries to AC electricity and transform the voltage to the collection system voltage. Each PCU contains one inverter, one transformer and the associated control equipment. The size of each PCU is approximately 6m long x 2.5m wide x 2.9m high, which will be mounted on a concrete slab or steel piles.

Underground cabling will connect PCUs and other infrastructure within the Project. While the layout of the electrical cabling will be subject to detailed design, all underground cabling will be designed in accordance with the relevant Australian and international standards and the manufacturer's specifications. The cabling will be installed over a sand bed, covered with a layer of sand and then backfilled with fill obtained on-site, all-in trenches which are approximately 0.6m wide and 0.8m deep.

3.2.4. Substation and Network Connection

A new 33/132kV substation will be located along the eastern edge of the Site, southeast of the proposed BESS. The substation will be in a compound mounted on a concrete pad and feature a busbar, site control room, gantry circuit breakers, current transformers, voltage transformers, switchgear/electrical protection, auxiliary transformer and a 33/132kV step-up transformer. The substation will also be surrounded by security fencing to restrict access, and vegetation will be planted in accordance with the landscaping plan to provide a visual screen.

3.2.5. Overhead Transmission Line and Point of Connection

A 132kV overhead transmission line will be constructed to connect the Project to the Deniliquin Substation and electricity grid. The proposed overhead transmission line will be approximately 500m in length and poles will be approximately 36m in height; and will traverse the Moulamein Channel and Mulwala Canal, as well as the Riverina Highway.

The proposed overhead transmission infrastructure will transition from overhead to an underground line at the northern frontage of the Deniliquin Substation with the intention for the underground line to be under bored to a new connection bay within the existing substation. Consultation with Transgrid indicates there is capacity to connect to the Deniliquin Substation, but that the specific location of the connection point within the Deniliquin Substation and associated works cannot yet be determined. The location of potential connection points are identified on Figure 1 and will be subject to detailed design in consultation with Transgrid prior to construction, subject to relevant conditions of consent.

Figure 10 Photomontage of proposed overhead transmission infrastructure



Source: Urbis, Visual Impact Assessment (2025)

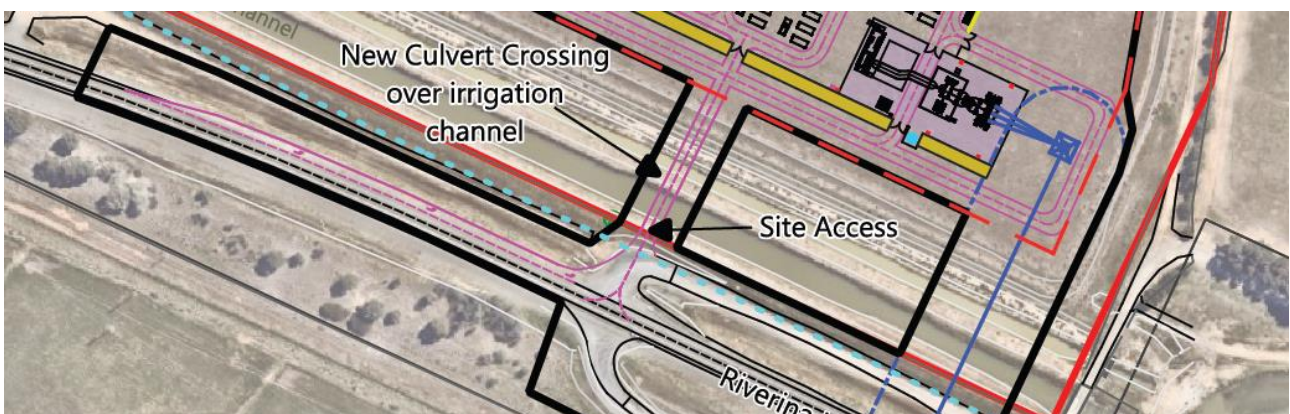
3.2.6. Site Access and Road Upgrades

Access will be via an existing unnamed road onto the Riverina Highway and onto a new 6m-wide bridge to be constructed over the Moulamein Channel. The bridge will be a culvert design subject to final design post approval and in accordance with Murray Irrigation Limited engineering standards for their continuous operations and maintenance requirements as well as compliant with the *Planning for Bush Fire Protection 2019 (PBP)* requirements.

A 181m long deceleration lane is also proposed on the Riverina Highway to allow heavy vehicles to safely enter the site from the west. The deceleration lane is designed in accordance with *Austrroads Guide to Road Design* and PBP requirements and in consultation with TFNSW.

No other road works are required to provide access into the Site, nor are there any required road upgrades along the haulage route identified in the Traffic Impact Assessment (Appendix M).

Figure 11 Proposed culvert crossing and deceleration lane

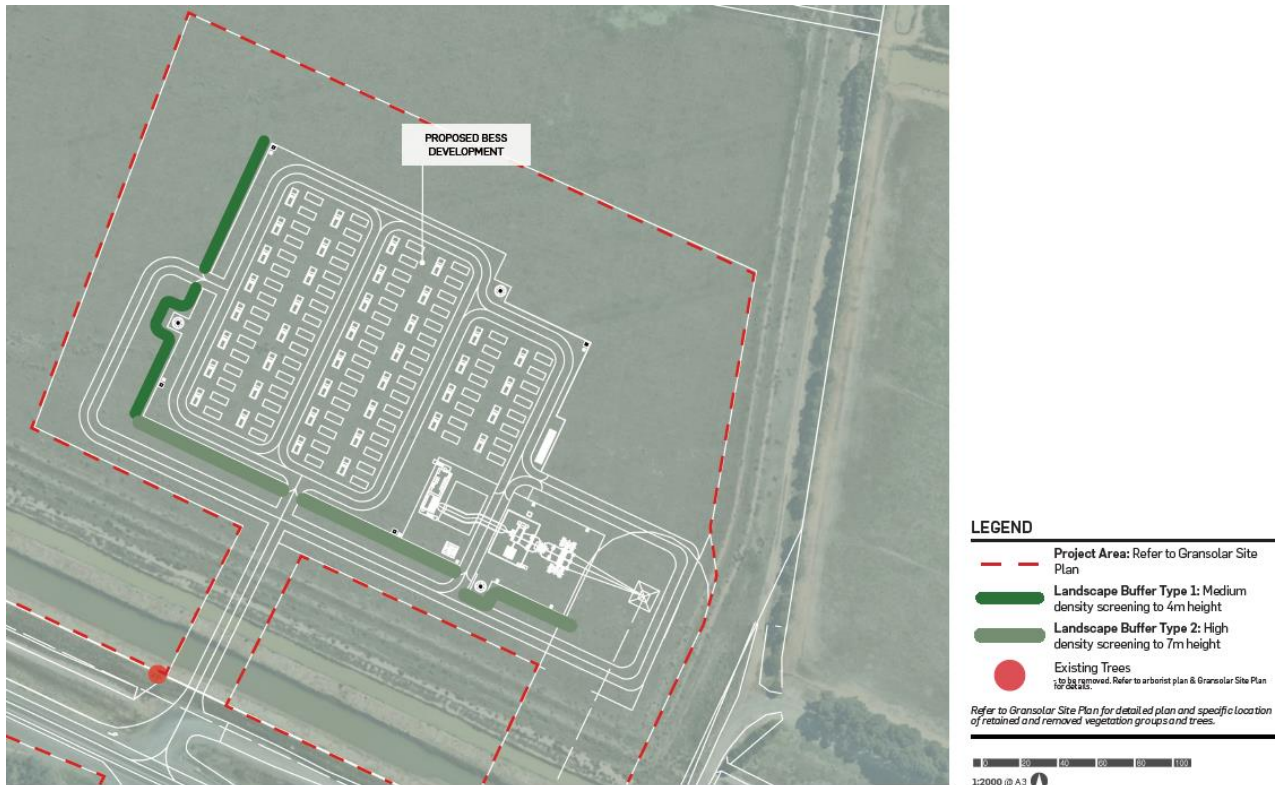


Source: Gransolar, 2025

3.2.7. Landscaping

The Project layout includes landscaping buffer zones to provide vegetation screening on the southern and western boundaries of the Site, which are most visible from the Riverina Highway. The landscaping buffer zones will be 5m wide and only use native species as indicated in the Landscape Visual Impact Assessment Report (Appendix J).

Figure 12 Proposed Landscape Plan



Source: Urbis, 2025

3.2.8. Security Fencing

The Site's perimeter will be fenced with chain link security fencing up to 3m high. Double gates are to be installed at the Site's access point at the end of the bridge crossing. No signage is proposed for the project.

3.2.9. Uses and Activities

3.2.9.1. Battery Energy Storage System Operation

The Project will operate 24-hours a day, seven days a week. This allows for the critical operations and discharge and storage of electricity.

The Project is anticipated to have an operational life of 40 years and create up to two full-time equivalent employment opportunities. This is a net increase of two full time jobs in the area, as the land is currently not utilised for agricultural activities.

Operational activities will primarily comprise routine operations and maintenance including:

- Routine visual inspections, general maintenance and cleaning operations of the components.
- Vegetation management growth up to PBP requirements.
- Site security.
- Replacement of equipment and infrastructure as required.
- It is likely that during operation, there will be no vehicles permanently present on the Site. Only occasional visits by standard light vehicles for maintenance will be required.

- Maintenance operations will be undertaken during the standard work hours listed below, unless emergency works are urgently required.

3.2.10. Construction

3.2.10.1. Earthworks

The proposed BESS components necessitate a relatively flat slope for its installation and therefore some site preparation and earthworks are required. As the slope of the site is already low, ground disturbance would be minimal and limited to:

- Removal of topsoil across the Site.
- Sedimentation and erosion control.
- Grass slashing, and removal of rock and timber debris as required in preparation for construction.
- Construction of internal access tracks.
- Concrete foundations for the inverter stations, BESS and substation.
- Trenches for the installation of cables.
- Construction laydown area.
- Construction of security fencing lining the perimeter.
- Construction of the bridge across the Moulamein channel.

3.2.10.2. Stormwater Management

A Flood Risk and Impact Assessment has been prepared as part of this EIS. A summary of the existing conditions, potential impacts and proposed mitigation measures is found in Section 6.1.7. To avoid significant impacts onto the local catchment area, the Project is proposing the following measures:

- Any sensitive infrastructure such as inverters and battery storage, would be located on raised fill pads with 300 mm freeboard above the maximum of the 1% AEP flood level.
- The footings should be designed to withstand the flood velocities described in this report, which are mostly low in the lease area.
- Consideration should be given to not restrict the movement of emergency vehicles on the Riverina Highway with any scheduled roadworks.

3.2.10.3. Tree Removal and Retention

Installation of the BESS and associated infrastructure will result in the removal of two small Eucalyptus trees adjacent to the Riverina Highway to facilitate the construction of the new deceleration lane and access, and the placement of a transmission pole. Due to the Site being heavily disturbed, populated by exotic species and vacant of vegetation, no other native vegetation removal is required.

3.2.10.4. Construction Activities

This Project is to be constructed in a single construction phase. Subject to environmental approvals and licensing and finalisation of the Project design following determination of the SSDA, the construction and commissioning phase will last approximately 12 months with the intention to commence construction in the first quarter of 2027 and have project energisation by the first quarter of 2028. A CEMP will detail the construction phasing across the Site.

The main activities of this phase include:

- Construction of a new bridge over the Moulamein Channel.
- Transportation of construction materials to the Site. Volumes are dependent on construction schedule.
- Establishing works including vegetation clearing, minor earthworks, construction of a temporary laydown area.
- Installation of transmission line towers and connecting overhead line to the Deniliquin Substation.

- Installation of underground cabling (trenching), battery units and inverter stations.
- Construction of the substation and switching station.
- Removal of temporary construction facilities and rehabilitation of disturbed areas.

3.2.10.5. Water and Waste Water

Water utilised during construction will be limited to that required for dust mitigation and/or moisture conditioning of material in addition to potable supply for the construction personnel. Water tanks will be installed to collect water for construction purposes only and this is to be incorporated into a Construction Stormwater Management Plan to be prepared post-approval as a condition of consent. The current site has an existing Water Access Licence (**WAL**) and an allocated water amount from the irrigation channel. Water from the channel may be used sporadically when the construction activities become water-intensive and for landscaping purposes, always under the conditions of the existing WAL.

Potable water will be trucked to the Project by a suitable contractor. Water utilised during the operation of the Project will be limited to dust mitigation, maintenance and fire management. Storage tanks will be located on site for this purpose.

Waste water is proposed to be collected in portable toilets and small portable sewage treatment tanks. The sewage and other nightsoil will be collected by truck every week and treated offsite. The Applicant will contact local independent contractors, and identify the most suitable site with the capacity to collect the sewage quantities produced by the construction personnel.

3.2.10.6. Hours of Construction

Works are to be undertaken during standard working hours:

- Monday to Friday: 7am – 6pm.
- Saturdays: 8am – 1pm.

Out of hours or night works are not anticipated, although this excludes emergency works. In the instance works need to be undertake outside of the above-described hours, the relevant authorities would be consulted, and neighbouring residents would be notified.

3.2.10.7. Personnel

The Project construction will span for up to 12 months and it will create 52 direct employment opportunities as well as support 106 supply chain indirect employment positions during this timeframe. It is estimated that the peak of 52 construction personnel during the peak construction period would be for approximately four months.

As far as practicable, the construction workforce would be sourced from the local area. Council and local business owners will be consulted throughout the development and assessment of the Project regarding managing potential impacts and opportunities for the employment of local construction workforce.

During the construction phase, to reduce vehicle congestion and requirements on public roads to and from the worksite, up to 20 workers will be accommodated in Moama and a private bus route will transport the personnel to and from the site. The rest of the personnel are expected to be accommodated within a 45-minute driving catchment in other nearby towns and utilise private vehicles for movement.

Any potential cumulative impacts on accommodation, infrastructure, and services are considered as part of the social impact assessment in Section 6.

3.2.10.8. Materials and Equipment

The following materials will be transported to the Site (quantities are approximate only and subject to final design):

- 80 containerised BESS units.
- 40 power conversion units.
- 33/132kV substation.
- Steel and construction materials for the bridge over Moulamein Channel.

- Gravel for access tracks.
- Sand for inverter stations and burying of cables into trenches.
- Underground cabling connecting each PCU to on-site substation.
- Security fencing.
- Concrete for the inverters, substation, and maintenance building foundations.
- Drinking water stored using a suitable food grade water-tank.
- Upgrade and sealing of the deceleration lane over the Riverina highway.
- Equipment used during construction including earth-moving equipment for civil works, diesel generators, trucks, cranes and a pile driving machine.

3.2.10.9. Transportation of Materials and Equipment

Any traffic generated by the Project is anticipated to be concentrated in the construction phase, associated with material deliveries, trade persons and staff. Access to the Site is to be from the identified access point across the proposed new bridge connecting onto the Riverina Highway.

Several construction vehicles will be required to transport bulkier items such as battery systems and substation components. There are five categories of vehicles identified to be used for the construction of the Project:

- OSOM vehicles: These will transport the largest plant materials, such as the substation components and transformer.
- B-Doubles: These will transport large plant materials such as battery packs.
- Construction Vehicles: These will serve both to deliver materials and for general construction activities on-site. These will include HRVs and AVs.
- Medium and Heavy Rigid Trucks: These will be utilised for delivering raw materials and smaller plant materials, waste collection and foundation laying.
- Light Vehicles: This category includes cars and light commercial vehicles. These vehicles will be used for personnel movement, including construction personnel, subcontractors and escort vehicles.

The materials required are to be transported from the Port of Melbourne. Some improvements to the local road network, including a deceleration lane from the Riverina Highway for safe access, will be needed to accommodate heavy vehicles to access the Site. As such, potential transport access routes are proposed; this is further discussed in Section 6 below. The nominated route is compatible with OSOM and B-Double vehicles and there will be adequate turning areas on-site for vehicle movement Figure 13.

3.2.10.10. Vehicular Movements

During the peak construction phase, the predicted construction vehicular movements generated by the Project are as follows:

- Daily traffic – 70 construction vehicles per day (in peak period).
- Peak hour traffic – 16 construction vehicles per hour.

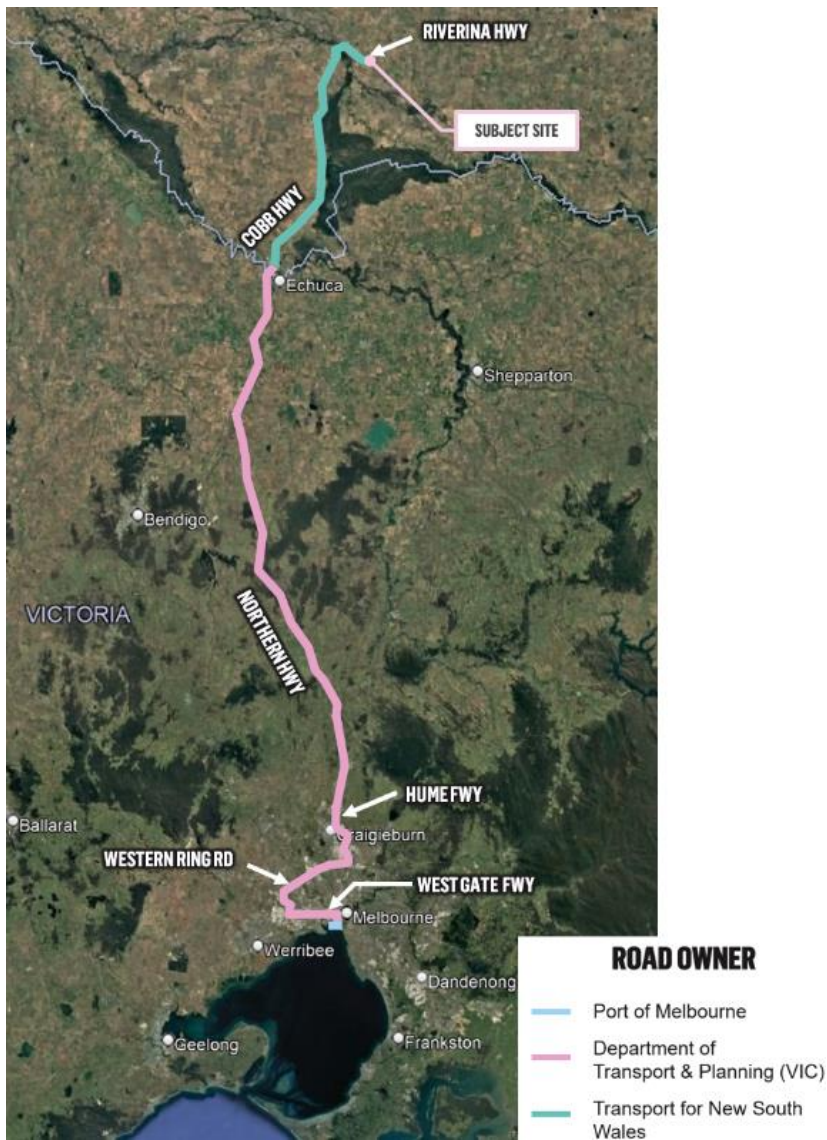
The following in and out splits are adopted for the AM and PM peak hours:

- AM – 100% In / 0% Out.
- PM – No construction trips anticipated during the peak hour.

Table 8 Anticipated Construction Vehicle Volumes Throughout the Construction Stage

Vehicle type	Number of daily movements (vpd)	AM Peak hour movements (vph)	PM Peak hour movements (vph)
Shuttle Buses	8	4	4
Utility Vehicles	12	6	6
HRV	20	2	0
Long Loaders	10	2	0
B-Doubles	20	2	0
Total Peak Vehicle Generation	70	16	0

Figure 13 Concept Haulage Route



Source: Urbis, 2024

3.2.10.11. Management Plans

Construction and Operational Environmental Management Plans (**CEMP** and **OEMP**) will be developed prior to construction and operation respectively.

The CEMP will document environmental procedures and controls that will be implemented during the construction phase, describing the role, responsibility, authority and accountability of all key personnel involved. Additionally, the CEMP will comprise various sub-plans detailing the specific mitigation measures that would be implemented to avoid and manage potential environmental impacts during the construction phase.

The OEMP will include procedures, reporting, and the allocation of responsibilities which are designed to minimise environmental impact in order to operate the BESS as a responsible rural land owner. The operation and monitoring of the facility will be governed by an adopted operational environmental management and monitoring plan that will clearly identify any matters that may require ongoing attention during the facility's operation.

3.2.11. Decommissioning

After an anticipated approximately 30 years of operation, decommissioning and rehabilitation of the Site would be undertaken. In this process, all above-ground infrastructure would be removed with exception of the substation and the bridge over the Moulamein Channel, as these would be at the discretion of the asset's owners, Essential Energy and Murray Irrigation respectively. Key elements of decommissioning include:

- Removal of battery units, including foundation posts.
- Removal of all on-site amenities and equipment including buildings, PCUs and all footings.
- Removal of all cabling, where practical.
- Some fencing would be removed. This would be coordinated with the landowner and their preference.
- Rehabilitation of disturbed surfaces in consultation with the landowner.
- Wherever possible, materials removed from the Site would either be re-used or recycled in accordance with the Waste Management Plan in Appendix R.

Traffic required for decommissioning would be similar in type but of shorter duration than that anticipated during the construction phase. A Decommissioning Management Plan, highlighting all environmental mitigation and avoidance measures during this phase, will be prepared and distributed to all relevant authorities at least three months before decommissioning works start.

3.2.12. Public Benefit Offer

The EIS is accompanied by a Public Benefit offer from the Applicant which if accepted by the Council would result in the execution of a Planning Agreement between the Applicant and Council for the payment of annual contributions to a community benefit sharing scheme administered by Council.

The public benefit offer is seeking to deliver on the objectives of the *NSW Energy Policy Framework Benefit Sharing Guidelines*, with a proposed benefit sharing rate of \$150 per megawatt per annum paid over the life of the Project, increasing annually with CPI for the operational life of the project. The Applicant is requesting the exclusion of section 7.11, 7.12 and 7.24 in accordance with section 3.5.2 of the Benefit Sharing Guidelines, which states:

- *When assessing the merits of projects, the consent authority should:*
 - *Not impose any additional conditions requiring other contributions under section 7.11 or section 7.12 of the EP&A Act unless they are specifically required to address direct impacts on services and infrastructure.*

Due to the proposed development land use not generating any long term demand on existing services and infrastructure, it is considered reasonable that section 7.11 and 7.12 contributions are excluded. Further, there are no regional infrastructure contributions in force under section 7.24 of the EP&A Act applicable to the proposed project and therefore is reasonable to be excluded in the Planning Agreement.

The Applicant recognises that the Minister for Planning is the consent authority for the proposed development, and therefore will be required to be party to the Planning Agreement in addition to Edward River Council, in accordance with Section 7.4(3A) of the EP&A Act.

4. STATUTORY CONTEXT

This section of the report provides an overview of the key statutory requirements relevant to the site and the project, including:

- *Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- *NSW Biodiversity Act 2016 (BC Act)*
- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- *Environmental Planning Assessment Regulation 2021 (the Regulations)*
- *NSW Protection of the Environment Operations Act 1997 (POEO Act)*
- *Local Land Services Act 2013 (LLS Act)*
- *Water Management Act 2000 (WM Act)*
- *State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)*
- *State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP)*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP)*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021 (B&C SEPP)*
- *NSW Noise Policy for Industry 2017*
- *Deniliquin Local Environmental Plan 2013 (DLEP 2013)*
- *Deniliquin Development Control Plan 2016*
- *Approval under Section 138 of the NSW Roads Act 1993.*

It identifies the key statutory matters which are addressed in detail within the EIS, including the power to grant consent, permissibility, other approvals, pre-conditions and mandatory considerations.

4.1. STATUTORY REQUIREMENTS

Table 9 categorises and summarises the relevant requirements in accordance with the DPHI *State Significant Development Guidelines*. A detailed statutory compliance table for the project is provided at **Appendix C**

Table 9 Identification of Statutory Requirements for the Project

Statutory Relevance	Action
Power to grant land use classification and consent authority	Schedule 1, Section 20 of the Planning Systems SEPP, identifies that development for 'electricity generating works', are to be considered State significant if the Project: (a) has an estimated development cost of more than \$30 million, or (b) has an estimated development cost of more than \$10 million and is located in an environmentally sensitive area. The Project is development for the purpose of electricity generating works using solar power and has an estimated development cost of approximately \$118,000,000 and therefore exceeds the \$30 million threshold. A QS report will be submitted under separate cover detailing the cost of the Project.

Statutory Relevance	Action
	The Project is State significant development under Part 4 Division 4.7 of the EP&A Act 1979. The consent authority is the NSW Minister for Planning or delegate. In circumstances where more than 50 unique submissions are received in response to the public exhibition of the SSDA the NSW Independent Planning Commission (IPC) will be the consent authority.
Permissibility	The broader Project area is zoned <i>RU1 – Primary Production</i> and <i>SP2 – Infrastructure</i> under the DLEP 2013. Electricity generating works are permitted with consent in the RU1 and SP2 zones under the Deniliquin LEP. In addition, section 2.6(1)(a) of the Planning Systems SEPP identifies that electricity generating works are permitted with consent within any land in prescribed zones under the T&I SEPP, which states in Part 2.3 Development Controls, division 4, section 2.35 that: <i>Electricity generating works means a building or place used for the following purposes -</i> (1) <i>Making or generating electricity,</i> (2) <i>Electricity storage</i> The T&I SEPP, states in section 2.36: ▪ <i>Development for the purpose of electricity generating works may be carried out by any person with consent on the following land –</i> (a) <i>In the case of electricity generating works comprising a building or place used for the purpose of making or generating electricity using waves, tides, or aquatic thermal as the relevant fuel source-on any land,</i> (b) <i>In any other case – any land in a prescribed non-residential zone.</i> The RU1 and SP2 zones are prescribed non-residential zones. The Project is therefore permissible with consent under section 2.36 (1) of the T&I SEPP.
Commonwealth Legislation	
EPBC Act	Under the EPBC Act any action (which includes a development, the Project or activity) that is considered likely to have a significant impact on Matters of National Environmental Significance (MNES) (including nationally threatened ecological communities and species and listed migratory species), must be referred to the Commonwealth Minister for the Environment. If an action is considered likely to have significant impact on any MNES, it is declared a “Controlled Action” for which formal Commonwealth approval is required. As outlined in the BDAR (Appendix F) several MNES were assessed. After careful assessment, no threatened flora or fauna species were identified as occurring on the Site. The BDAR concluded that the Project will not result in a significant impact on any threatened species.

Statutory Relevance	Action
	A protected matters search within 10km of the Site was undertaken to identify potential EPBC Act listed TECs that may occur on-site and wider area. The following TECs were identified for consideration: ▪ Natural Grasslands of the Murray Valley Plains. PCT 44, which is the only PCT impacted by the Project, is associated with the abovementioned EPBC-listed TECs As such, consideration is provided to the EPBC listing advice to determine if assessed vegetation meets the relevant criteria. No assessed vegetation meets the key diagnostic characteristics required for the EPBC listing of Natural Grasslands of the Murray Valley Plains TEC. No other EPBC-listed MNES were identified as potentially occurring on the Site. Accordingly, a referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water is not required for the Project.
<i>Native Title Act 1993 (Cth)</i>	The Native Title Act 1993 recognises and protects native title rights to the Aboriginal and Torres Islander people of Australia. It allows a native title determination application to be made for land and/or waters where native title has not been previously and validly extinguished. A native title grants rights to certain uses and negotiations over the land. There are currently no native title determinations over the Site. A search of the National Native Title Tribunal (NNTT) registers and databases was undertaken on 28 February 2024. The search identified no pending Native Title claims or Native Title registrations for the subject area. The NNTT was also contacted by email on 28 February 2024 to request a formal search of the NNTT Register. A reply was received on 28 February 2024 indicating that although there is one Native Title claim (VC2021/001) which intersects with the subject area, this claim was not accepted for registration. Therefore, there are no Native Title matters overlapping with the subject area.
Other Approvals – New South Wales	
<i>Conveyancing Act 1919</i>	The Project will require the execution of a lease by the owners of Lot 11 on DP 856212. A lease of the land for the Project is treated as a lease of premises, regardless of the duration of the lease.
Consistent Approvals	
<i>Roads Act 1993</i>	The Project will require consent from TfNSW as the road authority under Section 138 for works undertaken on Riverina Highway including the bridges. Section 4.42(1)(f) of the EP&A Act 1979, provides that consent under section 138 cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent under Division 4.7 and the road works are substantially consistent with the consent for the SSD.

Statutory Relevance	Action
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	As per Schedule 1 of the POEO Act, a licence is required for the activities listed within the schedule. Electricity generation – general electricity works is listed in section 17, meaning the generation of electricity by means of electricity plant that, wherever situated, is based on, or uses, any energy source other than wind power or solar power. A BESS does not participate in the generation of electricity, rather the Project will only store and discharge electricity to the grid. As such, no activities identified in Schedule 1 are proposed as part of this application. An Environment Protection Licence is not required.
Approvals not required as part of the SSD Application	
<i>Water Management Act 2000</i>	Pursuant Section 4.41 of the E&PA Act, the Project will not require a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91.
<i>Fisheries Management Act 1994</i>	Pursuant Section 4.41 of the EP&A Act, the Project will not require a permit under section 201, 205 or 219 of the FM Act to block fish passage, dredge or carry out reclamation work on water land.
<i>Heritage Act 1977</i>	Pursuant Section 4.41 of the EP&A Act, the Project will not require an approval under Part 4, or an excavation permit under section 139.
<i>National Parks and Wildlife Act 1974</i>	Pursuant Section 4.41 of the EP&A Act, the Project will not require an Aboriginal heritage impact permit under section 90.
<i>Rural Fires Act 1997</i>	Pursuant Section 4.41 of the EP&A Act, the Project will not require a bush fire safety authority under section 100B.

4.2. PRE-CONDITIONS

Table 10 outlines the pre-conditions to exercising the power to grant approval that are relevant to the project and the section where these matters are addressed within the EIS.

Table 10 Pre-Conditions

Statutory Reference	Pre-condition	Relevance	Section in EIS
<i>Environmental Planning and Assessment Regulation 2021</i>	An EIS must be prepared in accordance with the SEARs issued for the Project, and contain the relevant information identified in sections 190 and 192 of the EP&A Reg. 2021.	This EIS addresses the SEARs issued by the Secretary pursuant to section 175 and contains the detailed information identified in section 190 and section 192 of the EPA Regulation. Specifically, this includes a statement prepared by a Registered	Signed Declaration. SEARs Table in Appendix A

Statutory Reference	Pre-condition	Relevance	Section in EIS
		Environmental Assessment Practitioner. This SSDA will be placed on public exhibition on the NSW Major Projects Portal.	
R&H SEPP - section 4.6(1)	A consent authority must be satisfied that the land is suitable in its contaminated state - or will be suitable, after remediation - for the purpose for which the development is proposed to be carried out.	The Project involves a change of use from agricultural activities to electricity generation works (renewable). An assessment of land use site history has been conducted by Premise, indicating the site has been used for grazing for the last 30 years and there is no indication of land use activities, land disturbance or practices that would potentially result in contaminative locations or activities.	Section 6.1.3
<i>DLEP 2013</i> <i>Clause 6.1 (3)</i> <i>(Earthworks)</i>	(3) Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters— (a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development, (b) the effect of the development on the likely future use or redevelopment of the land, (c) the quality of the fill or the soil to be excavated, or both, (d) the effect of the development on the existing and likely amenity of adjoining properties,	The Project includes minor earthworks for site preparation. The impacts of the earthworks have been devised with consideration of the environment, managing stormwater and minimising the likelihood of disturbing relics. Mitigation measures to avoid and minimise erosion are outlined in Appendix I and Appendix N	Section 6.1.3 and 6.1.7

Statutory Reference	Pre-condition	Relevance	Section in EIS
	(e) the source of any fill material and the destination of any excavated material, (f) the likelihood of disturbing relics, (g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area, (h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.		
<i>DLEP 2013</i> <i>Clause 6.3(4)</i> <i>(Terrestrial Biodiversity)</i>	(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that— (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or (b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.	The Project footprint has been designed to avoid all Biodiversity Sensitivity as identified in the Deniliquin LEP.	Section 6.1.1, Appendix F
<i>DLEP 2013</i> <i>Clause 6.7 (Essential services)</i>	Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements	The supply of electricity, stormwater drainage and suitable road access have been considered and are described within the Detailed Description of this EIS and relevant technical assessments.	Section 0

Statutory Reference	Pre-condition	Relevance	Section in EIS
	have been made to make them available when required— (a) the supply of water, (b) the supply of electricity, (c) the disposal and management of sewage, (d) stormwater drainage or on-site conservation, (e) suitable road access.	The supply of potable water and disposal and management of sewage are proposed to be arranged on a regular basis by independent contractors. Water is proposed to be trucked from an off-site source, while sewage will be collected on-site and treated off-site. The logistic details of these arrangements are subject to the detailed design phase and are proposed to be submitted as part of the Construction Environmental Management Plan prior to construction due to the high level of uncertainty regarding the extent of these services at this stage.	

4.3. MANDATORY CONSIDERATIONS

Table 11 outlines the relevant mandatory considerations to exercising the power to grant approval and the section where these matters are addressed within the EIS

Table 11 Mandatory Consideration

Statutory Reference	Mandatory Consideration	Section in EIS
Consideration under the EP&A Act and Regulation		
Section 1.3	Relevant objects of the EP&A Act <i>(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,</i> <i>(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i>	Section 7, Appendix C

Statutory Reference	Mandatory Consideration	Section in EIS
	<i>(c) to promote the orderly and economic use and development of land,</i> <i>(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</i> <i>(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i> <i>(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i> <i>(j) to provide increased opportunity for community participation in environmental planning and assessment.</i>	
Section 4.15	Relevant environmental planning instruments: ▪ Planning Systems SEPP. ▪ T&I SEPP. ▪ R&H SEPP. ▪ B&C SEPP. ▪ DLEP 2013. ▪ Relevant draft environmental planning instruments.	Sections 6 and 7; Appendix C
	Relevant planning agreement or draft planning agreement: ▪ Planning agreement for the Project between the Applicant and Council.	Section 3.2.12 and Section 6.2.3
	Development control plans: ▪ Deniliquin DCP 2016.	Section 7
	The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.	Section 6
	The suitability of the Site for the development.	Sections 2.6 and 6
	The public interest.	Section 7
Environmental Planning and Assessment	<i>(1) A development application must—</i> <i>(a) be in the approved form, and</i>	Signed Declaration

Statutory Reference	Mandatory Consideration	Section in EIS
Regulation 2021	<i>(b) contain all the information and documents required by—</i> <i>(i) the approved form, and</i> <i>(ii) the Act or this Regulation, and</i> <i>(c) be submitted on the NSW planning portal.</i>	
Mandatory relevant considerations under EPIs		
R&H SEPP - section 3.7	<i>In determining whether a development is—</i> <i>(a) a hazardous storage establishment, hazardous industry or other potentially hazardous industry, or</i> <i>(b) an offensive storage establishment, offensive industry or other potentially offensive industry,</i> <i>consideration must be given to current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development.</i>	Section 6.1.9
R&H SEPP - section 4.6(1)	<i>(1) A consent authority must not consent to the carrying out of any development on land unless—</i> <i>(a) it has considered whether the land is contaminated, and</i> <i>(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and</i> <i>(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.</i>	Section 6.1.3
T&I SEPP section 2.122 (4)	<i>(4) Before determining a development application for development to which this section applies, the consent authority must—</i> <i>(a) give written notice of the application to TFNSW within 7 days after the application is made, and</i> <i>(b) take into consideration—</i> <i>(i) any submission that RMS provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, TFNSW advises that it will not be making a submission), and</i> <i>(ii) the accessibility of the Site concerned, including—</i>	Section 6.1.6

Statutory Reference	Mandatory Consideration	Section in EIS
	(A) the efficiency of movement of people and freight to and from the Site and the extent of multi-purpose trips, and (B) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and (iii) any potential traffic safety, road congestion or parking implications of the development.	
Deniliquin LEP 2013	Objectives and land uses for RU1 – Primary Production and SP2 – Infrastructure Zones. Part 4 – Principal development standards. Part 5 – Miscellaneous provisions. Part 6 – Additional local provisions.	Appendix C
Considerations under other legislation		
BC Act – section 7.14	(1) This section applies to an application for development consent for State significant development under Part 4 of the Environmental Planning and Assessment Act 1979, or an application for approval for State significant infrastructure under Part 5.1 of the Environmental Planning and Assessment Act 1979, that is required under Division 2 to be accompanied by a biodiversity development assessment report. (2) The Minister for Planning, when determining in accordance with the Environmental Planning and Assessment Act 1979 any such application, is to take into consideration under that Act the likely impact of the proposed development on biodiversity values as assessed in the biodiversity development assessment report. The Minister for Planning may (but is not required to) further consider under that Act the likely impact of the proposed development on biodiversity values.	Section 6.1.1
Development Control Plans		
Deniliquin DCP 2016	Clause 2.10 of the Planning Systems SEPP states that development control plans (whether made before or after the commencement of this Policy) do not apply to SSD. As such, there is no requirement for assessment of the Project against the Deniliquin DCP 2016 for this SSDA. Notwithstanding this, best-practice consideration has been given to the DCP.	Section 7

5. COMMUNITY ENGAGEMENT

The following sections of the report describe the engagement activities that have been undertaken during the preparation of the EIS and the community engagement which will be carried out if the project is approved.

5.1. ENGAGEMENT CARRIED OUT

Community and stakeholder engagement has been undertaken by the Project Team in the preparation of the SSDA. This includes direct engagement and consultation with:

- Government stakeholders as listed within the SEARs, including TFNSW regarding the connection of the site to the Riverina Highway intersection.
- Aboriginal stakeholders, including the Deniliquin Local Aboriginal Land Council (**DLALC**) and registered Aboriginal parties (**RAPs**).
- Surrounding landowners and community members and groups.

Consultation was also undertaken with the following stakeholders to inform the detailed assessment of key matters including:

- Department of Planning, Housing and Infrastructure
- Edward River Council
- State and federal members of parliaments
- NSW Fire and Rescue
- Transport for NSW
- TransGrid
- NSW Fire and Rescue – Deniliquin Fire Station

The following actions were taken to inform the community regarding the project and seek feedback regarding the proposal:

- A community newsletter
- A community survey to inform the social impact assessment (SIA)
- A notice in the local newspaper over two editions
- Two pop-up community information sessions
- A project website
- A dedicated phone line and mailbox for enquiries.

This engagement was consistent with the community participation objectives in the Undertaking Engagement Guidelines for State Significant Projects and complied with the community engagement requirements in the SEARs.

In accordance with the Regulations, the EIS will be placed on formal public exhibition once DPHI has reviewed the EIS and deemed it 'adequate' for this purpose. Following this exhibition period, the applicant will respond to any matters raised by notified parties.

5.2. COMMUNITY VIEWS

The key issues raised by the community and key stakeholders are summarised in the table below. A detailed community engagement table is provided as Table 12 which details the way in which these issues have been addressed in the EIS.

Table 12 Community Feedback

Key Issue	Respondent	Applicant Response
Strategic Context		
Reliable Power Supply	Major power outage recently in town and interested in whether the proposal will contribute to more reliable power.	BESS technology contributes to network stability by providing fast and reliable response times to prevent blackouts and other disruptions, ensuring a more reliable and secure power supply.
Local Employment Opportunities	Enquiry as to whether local construction companies will be engaged, noting this would be a benefit.	Should the proposal be approved, local construction jobs will be advertised in Deniliquin as well as surrounding nearby towns.
Loss of Agricultural Land	Concern regarding renewable developments taking up agricultural land.	The proposal site has not been used as productive agricultural land for the past 25 years and has no future planned agricultural use. An AIA and LUCRA are enclosed as Appendix I and Appendix U respectively.
Enquiries	Whether the proposal will power local homes.	Should the proposal be approved, the BESS will contribute to general grid stability, reliability and affordability.
Enquiries	The source of the energy stored in the BESS.	Should the proposal be approved, the existing Deniliquin Substation is the source of the energy which will be stored in the BESS.
Support for the Proposal	Community support for the proposal due to its contribution to a more sustainable energy supply, including positive sentiment with regards to BESS technology. Community support for the proposal given the low risk of potential impacts.	Noted
Project and Any Alternatives Considered		
Nil	Nil	Nil
Relevant Statutory Issues		
Councillor Briefing	Recommendation to brief councillors on the first Tuesday of month,	Councillors were individually emailed and provided information about the proposal along with the community newsletter, details for how to provide

Key Issue	Respondent	Applicant Response
	working through CEO's office to confirm attendance.	feedback, and an invitation to an individual online briefing. At the time of writing, no responses have been received from councillors.
DPHI (Energy and Resource Assessments Team)	Acknowledged the targeted timing for submission of the EIS and that further updates are welcome. Acknowledged the approach of the design for the proposal and that GDA is continuing consultation with TransGrid to identify the preferred alignment for connection to the existing substation. Confirmed that a BDAR is required.	The Applicant has continued consultation with TransGrid and finalised the alignment of the proposed connection to the existing substation. A detailed BDAR has been prepared in accordance with the SEARs and is enclosed with this EIS as Appendix F
Edward River Council (Development Services and Major Projects Branch)	The Applicant to investigate any potential flooding impacts. Council advised community views, including that: ▪ Solar farm was refused last year on visual impact grounds ▪ The community does not have consultation fatigue but has expressed views against solar infrastructure. Council asked if there is consideration of any planning agreement. Council asked about waste generation, advising that Council does not want to accept waste in landfill. Council asked whether TFNSW has been consulted. Council asked if service road will be sealed.	A flood risk and impact assessment report detailing likely impacts of the proposal, including flooding, on surrounding watercourses and groundwater resources, is enclosed as part of this EIS as Appendix N The proposal does not involve solar infrastructure. The design of the proposal has incorporated landscaping to build upon existing screening and mitigate any potential visual impacts. Further details can be found in the Visual Impact Assessment and Landscape Plan, both enclosed as part of this EIS as Appendix J The proposal is not expected to generate any long-term community needs. Further details in relation to community needs are included in the Social Impact Assessment, submitted as part of the EIS. The Applicant will manage disposal of waste and decommissioning at the end of the project lifecycle. TFNSW provided comment for SEARs and have been consulted to inform the Transport Impact Assessment.

Key Issue	Respondent	Applicant Response
		The service road from the Riverina Highway to the subject site will be sealed.
Community Engagement		
Continuing Engagement	DLALC expressed agreement with the preliminary findings of the ACHA.	The Applicant used the ACHA to inform the proposal's approach to, and understanding of, the potential impacts affecting this community. The Applicant will continue to engage and provide project updates to the DLALC, in addition to providing the opportunity for DLALC to provide comment or feedback. Further details about engagement with the DLALC are provided in the ACHA, submitted as part of the EIS.
Economic, Environmental and Social Impacts		
Hazards and Safety	Some residents expressed interest in the mitigation of risks of contamination of the irrigation channel, and concerns around potential health impacts of the proposal, in particular - Fire safety measures - Radiation risks. Concerns around battery safety risks due to an increase in solar flares, advising solar flares create a risk of batteries exploding. The community member suggested inspections of the BESS after any solar flare events.	A Preliminary Hazard Assessment (PHA) is enclosed as Appendix O which has assessed risks of hazardous materials associated with the proposal. The proposal does not pose any risk of contamination to the irrigation channel, nor any human health impacts. A bushfire assessment report is enclosed as Appendix P and provides details of the proposal's fire safety measures. The PHA has assessed risks of hazardous materials in relation to radiation risks and found that the proposal does not pose any radiation risks. The BESS will be remotely monitored during operation, with maintenance personnel on call to visit the site in the event of any alarms or alerts.
Fire Safety	Recommendation to erect a shed on site with a fire truck for public perception of fire safety.	The proposal includes multiple on-site 20,000L firefighting water tank as part of the fire safety measures of the proposal. Whilst the proposal does not include a new shed on-site with a fire truck, the

Key Issue	Respondent	Applicant Response
		Deniliquin Fire Station has been informed of the proposal through the engagement period, and GDA will continue to inform the Deniliquin Fire Station as plans progress.
Flooding	Deputy Mayor noted that existing flood models are out of date and that flooding is a risk across the whole area. During the last flood, the substation was protected through sufficient levees.	A flood risk and impact assessment report is enclosed as Appendix N. It uses flood mapping from Edward River Council, dated 2014, to inform the assessment of flood risk associated with the proposal. The Flood Risk and Impact Assessment Report has also developed flood risk modelling using hydraulic modelling software TUFLOW. Flood risk associated with the proposal has been assessed as having little to no potential impacts to Deniliquin.
Detrimental Impact to Private Property and Business Operations	One resident expressed concerns about potential impacts including: 1. Property devaluation 2. Impacts on beekeeping business and farming practices 3. Proximity of commercial power poles increasing costs for private power connection and preventing future building plans for a new dwelling in desired location. 4. View loss across the paddock.	1. A social and economic impact assessment has been prepared as part of the EIS. The assessment did not find evidence to suggest any negative impacts to property value in proximity of the proposal. 2. The proposal will not impact business practices located on adjoining properties. 3. The Applicant is committed to working with neighbouring dwellings to mitigate any potential impacts associated with private access to power connection. 4. The proposal design has incorporated extra vegetative buffer to mitigate visual impacts for neighbouring dwellings.
Social and Site Context	Solar proposals and projects located close to the town have received some negative community sentiment due to concerns around repurposing productive agricultural land for renewable development. Council also suggested the DLALC as an important contact for	The proposal does not involve solar infrastructure. The proposal site has not been used as productive agricultural land for the past 25 years and has no planned agricultural use. The DLALC was engaged during the preparation of this SSDA. Further

Key Issue	Respondent	Applicant Response
	engagement in relation to the proposal.	details can be found in this EIS, as well as the ACHA enclosed with this EIS as Appendix G
Workforce and Housing	There are opportunities to advertise local construction jobs should the proposal be approved, although there is a noted limited supply of workers in the area. Construction could be shared across contractors within Deniliquin as well as surrounding nearby towns, to ensure the proposal does not take all the local construction capacity. Coordinating construction times with peak tourism travel times to ensure that peak construction overlaps with low tourist season to provide an influx of money for local hotel and motel operators. For example, do not have peak construction times during Easter or the Deni Ute Festival in October. Council did not oppose temporary workforce accommodation but, requested details of repurposing after the construction period. Nearby towns should also be considered in the workforce housing strategy.	An assessment of workforce and housing considerations is provided in Section 6.1.11.2. of this EIS. Local construction jobs will be advertised in Deniliquin as well as surrounding nearby towns. Construction will be coordinated with peak tourism periods.
Social, Economic and Community Benefits	Opportunities for positive social and economic impacts, including: 1. Employment and education for local construction workers and young people seeking apprenticeships and upskilling. 2. To give back to the community, such as rebate on energy to support local households 3. To provide financial support/funding to support local infrastructure, services and events.	The Applicant has used Council's suggestions to inform the proposal and will work with Council under a planning agreement to deliver community benefits. A landscape plan is enclosed with this EIS as Appendix J

Key Issue	Respondent	Applicant Response
	To enhance potential positive social and economic impacts, and prevent or minimise potential negative impacts, including: 1. Education around renewable developments in the community. 2. A suggestion that trees should be provided to screen views from the street.	
Justification and Evaluation of Project as a Whole		
Nil	Nil	Nil
Issues Beyond Scope or Not Relevant to Project		
Solar and/or wind infrastructure	There were expression of negative sentiment towards renewable developments such as solar and wind.	The proposal does not involve solar or wind infrastructure.

5.3. ENGAGEMENT TO BE CARRIED OUT

The applicant will keep stakeholders and the community informed of the project approval process through the exhibition and determination phases by:

- Continuing to engage with the community about the project, its impacts and the approval process
- Enabling the community to seek clarification about the project through the two-way communication channels.

6. ASSESSMENT OF IMPACTS

This section describes the way in which the key issues identified in the SEARs have been assessed. It provides a comprehensive description of the specialist technical studies undertaken regarding the potential impacts of the proposed development and recommended mitigation, minimisation and management measures to avoid unacceptable impacts. Further detailed information is appended to the EIS, including:

- SEARs compliance table identifying where the SEARs have been addressed in the EIS (**Appendix A**).
- Statutory compliance table identifying where the relevant statutory requirements have been addressed (**Appendix C**).
- Community engagement table identifying where the issues raised by the community during engagement have been addressed (**Appendix D**).
- Proposed mitigation measures for the project which are additional to the measures built into the physical layout and design of the project (**Appendix E**).

The detailed technical reports and plans prepared by specialists and appended to the EIS are individually referenced within the following sections.

6.1. DETAILED ASSESSMENT IMPACTS

This section of the EIS provides a detailed assessment of the key issues that could have a significant impact on the Site and locality. This section provides a summary of the existing environment, findings, potential impact avoidance and mitigation measures for the Project.

6.1.1. Biodiversity

A Biodiversity Development Assessment Report (**BDAR**) has been prepared by Water Technology (**WT**). The BDAR has been prepared to meet the requirements of the Biodiversity Assessment Method (**BAM**) 2020 and signed by an accredited BAM Assessor.

The BDAR has been prepared using the Streamlined Assessment Modules for 'small area,' as outlined in Appendix B and Appendix C of the BAM. According to Appendix B of the BAM, the 'small area' module can be used when the development does not exceed the area clearing threshold for small area developments as prescribed in the BAM, which, in the case of the Site with a minimum lot size of 40ha, is 3ha.

6.1.1.1. Existing Environment

The BDAR was undertaken following a desktop and site assessment. During the desktop assessment, several key items were identified, including the presence of mapped vegetation (DCCEE 2023).

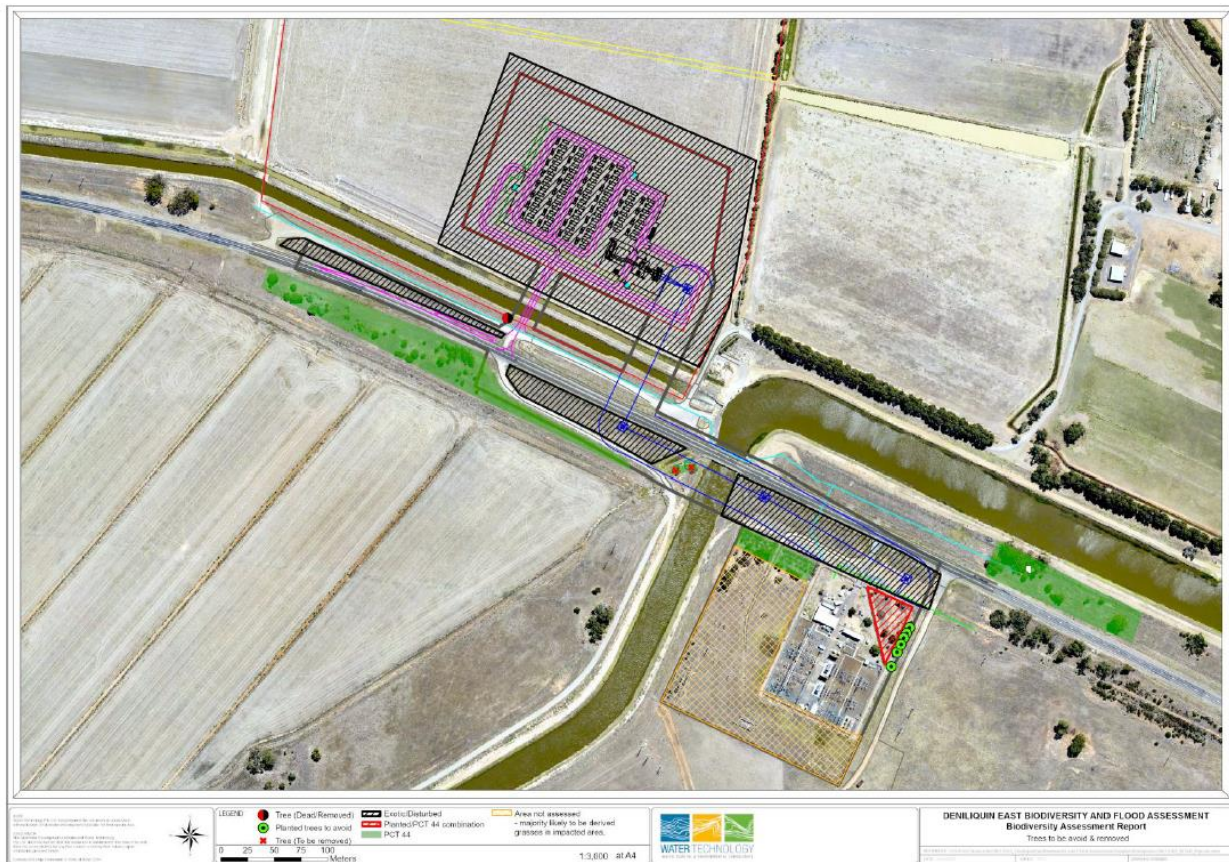
Field surveys indicated that the site is highly disturbed and supports little to no native vegetation. This is consistent with the widely modified agricultural landscape of the Site, with evidence of intensive irrigation and use. The vegetation on the Site was not diverse and was dominated by exotic grasses such as Wild oat (*Avena fatua*), Great Brome (*Bromus diandrus*) and Rye Grass (*Lolium* sp.). Exotic forbs were also present such as Spear Thistle (*Cirsium vulgare*) and Sow Thistle (*Sonchus oleraceus*). Bathurst Burr (*Xanthium spinosum*) was also observed. This species is a common weed of disturbed soil, flood plains and agricultural land in Australia.

Native vegetation on the Site was limited to rarely occasional Tall Copperburrs (*Sclerolaena muricata* var. *villosa*), Pink Bindweed (*Convolvulus angustissimus*) and Wood Sorrel (*Oxalis* sp.). Native species comprised less than 5 % cover of the site and no threatened species were observed at the time of the survey.

The patch size for native vegetation within the BAM assessment area located in the Deniliquin substation land has been estimated as 0.135 ha. Refer to Figure 14 (red triangle). This is a mixture of planted trees and shrubs planted as aesthetic buffers for shielding the site. Remnants of a watering system are present at the location. This is proposed to be retained using underground boring and therefore is not considered a loss of native vegetation. At the time of the EIS submission, TransGrid had not approved a location of the powerline easement and therefore GranSolar have agreed to use underground boring to whichever connection is required to the Substation. Therefore, regardless of assessment there will be no loss of native vegetation as a result of connection to the substation. It is noted that the lands appear heavily disturbed and although have

been mapped as PCT 44, may be derived native grasses which have been mapped in adjacent areas to the east of the Deniliquin substation.

Figure 14 Area of Biodiversity Assessment



Source: WaterTech

There is some other native vegetation that was not assessed in detail adjacent to roads that is outside the construction area and has been mapped PCT 44, and is shaded green in Figure 14. There will be a requirement to fence these areas during construction management so they are not impacted.

Planted trees were recorded along the eastern border of the substation, species which are known to occur in PCT's nearby. These trees are a mixture of locally common species and screening trees not endemic to NSW nor the area. All of the endemic trees will be avoided during proposed underground cable installation.

6.1.1.2. Potential Impacts

Due to the highly disturbed nature of the site, potential impacts on native biodiversity values are extremely limited. Direct impacts are constrained to 0.01 ha of *Plant Community Type (PCT) 44 - Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion* which has associations with the *Natural Grasslands of the Murray Valley Plains* and two small trees within the proposed transmission line route.

The extent of PCT 44 being removed is highly degraded and in poor condition and is not commensurate to any Threatened Ecological Community (TEC) listed under the BC Act or EPBC Act.

No suitable habitat has been found for any threatened species under the BC Act or EPBC Act, thus no indirect impacts will arise from the Project on the biodiversity values of the land.

No prescribed impacts will arise from the removal of exotic vegetation. No other prescribed impacts as listed under clause 6.1 of the BC Regulation occur on the site or will arise from the project.

6.1.1.3. Mitigation Measures

The Project location and footprint are the result of a carefully considered and iterative design process that prioritised the avoidance of impacts on areas of high biodiversity value. As such, the Project has a limited

impact on the native biodiversity values of the Site. The Project has been assessed as not triggering the Biodiversity Offset Scheme due to the vegetation proposed to be removed not qualifying for its entry.

Notwithstanding, due to the widespread presence of exotic weeds, appropriate hygiene protocols to avoid their spread will be implemented.

It is recommended that the Biodiversity Management Plan (**BMP**) is prepared prior to construction to detail all measures required to mitigate any residual impacts from the construction stage. A suitably experienced and qualified Project Ecologist will be appointed to oversee ecological works to mitigate construction impacts on residual impacts and monitor the hygienic measures implemented to avoid the spread of noxious weeds.

No-go zones will be appropriately marked and avoided during construction to prevent disturbance on adjacent areas and their biodiversity values.

6.1.2. Aboriginal Heritage

Urbis has undertaken an Aboriginal Cultural Heritage Assessment (**ACHA**) in accordance with the requirements of regs. 60 and 61 of the *National Parks and Wildlife Regulation 2019* (NSW) and the following guidelines:

- *Applying for an Aboriginal Heritage Impact Permit guide for applicants* (OEH 2011a)
- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011b) ('the Assessment Guidelines').
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010a) ('the Consultation Guidelines')
- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b) ('the Code of Practice').

The aim of the ACHA is to investigate whether future development of the subject area is likely to impact any Aboriginal objects or Aboriginal places that may exist within the subject area and to formulate measures for avoiding or minimising any such impacts.

Consultation with the Aboriginal community is required under reg. 60 of the *National Parks and Wildlife Regulation 2019* and the Consultation Requirements. The purpose of consultation with Aboriginal people is to understand their views and concerns about the proposed project and to understand the cultural values present in the area that may be harmed. Consultation ensures that Aboriginal people have the opportunity to improve assessment outcomes by providing relevant cultural information, influencing assessment methodology, contributing to the development of cultural heritage management options and reviewing and commenting the draft assessment report.

The Consultation Requirements outline a four-stage consultation process that includes the following:

- Stage 1 – Notification of project proposal and registration of interest.
- Stage 2 – Presentation of information about the proposed project.
- Stage 3 – Gathering information about the cultural significance.
- Stage 4 – Review of draft cultural heritage assessment report.

A total of 6 RAPs registered interest in the project as a result of Stage 1. The RAPs are detailed in the ACHA.

The aim of Stages 2 and 3 of the community consultation process is to provide RAPs with information about the scope of the proposed project and the proposed ACHA methodology, to gather feedback on the proposed project and proposed methodology and to gather any cultural information that the RAPs wish to share.

A separate communication was sent on 16th May 2024 to all RAPs who had expressed an interest to register for a site visit and meeting to be held on 22nd May 2024 as part of the consultation process. The purpose of the site inspection and meeting was to conduct a thorough briefing with the RAPs about the proposed development, to conduct a walkover of the subject area with the RAPs, to discuss the information provided and to discuss potential archaeological mitigation strategies.

Two responses were received to the invitation to attend the site visit and meeting. In general, all the RAPs present agreed that the subject area has sustained considerable disturbance over time, which would have lowered the potential for Aboriginal objects to be retained at the site; however, no specific comments regarding the cultural significance of the place were shared.

6.1.2.1. Existing Environment

Desktop Assessment

Due to the absence of written records, much of our understanding of Aboriginal life pre-colonisation is informed by the histories documented in the late 18th and early 19th century by European observers. Prior to the arrival of Europeans in the area in the 1840s, the subject site was within the traditional lands of the Perrepa Perrepa and the Wampa Wampa people, which covered the area from the north-east (Perrepa Perrepa) and the south-west (Wampa Wampa) regions of the Edward River (Weir et.al 2013). The Edward River, traditionally known as *Kolety*, and the neighbouring Wakool River form an anabranch and floodplain of the Murray River, establishing a resource-rich and fertile landscape in which Aboriginal people seasonally exploited.

Eucalyptus Forests became established in the subject area 25 000 years ago resulting from the changing path of the Murray River. The establishment of this tree-dominated wetland environment provided key resources for the inhabiting Aboriginal Groups. Ethnographic records in conjunction with the archaeological record suggest that the River Red Gum (*Eucalyptus camaldulensis*) and the Red-Box Tree (*Eucalyptus polyanthemus Schauer*) were utilised extensively as a resource for the construction of canoes and ceremonial carving (Weir et.al 2013). Additionally, the sandhill environment that characterised the riverplains, was favoured for use as primary burial sites. Further, oven mounds served a similar purpose, and provided a readily available burial location.

Archaeological excavation has uncovered site types that are more numerous than others, including oven mounds, burials and scarred trees that have been associated with specific locations within the subject area's contextual landscape. These past archaeological findings indicate the past use of the subject area by its original occupants pointing to a primarily sedentary habitation pattern that relied on the seasonal exploitation of resources for sustenance.

Based on the above background, it is possible that similar evidence of Aboriginal occupation will also be present within original and/or intact topsoils within the present subject area.

The NSW State Heritage Inventory (SHI) includes all declared Aboriginal places within NSW, in addition to historic heritage items listed on the State Heritage Register (SHR), listed Interim Heritage Orders (IHOs) and items listed on Local Environment Plans (LEPs) and State Environmental Planning Policies (SEPPs).

A search of the SHI was undertaken on 29th February 2024. The search identified no heritage items within the curtilage of the subject area.

The Aboriginal Heritage Information Management System (AHIMS) is a database of registered Aboriginal sites in NSW. Each registered Aboriginal site includes one or more site 'features', which may be considered an Aboriginal object under the NPW Act. An Aboriginal site may include one or more site features.

A search of the Aboriginal Heritage Information Management System (AHIMS) was carried out on 29 February 2024 (AHIMS Client Service IDs: 868469 and 868495) for an area of approximately 20 km x 20 km centred on the subject area.

The search identified no Aboriginal objects or Aboriginal places within the curtilage of the subject area. None of the identified Aboriginal objects or Aboriginal places occurred within 50m of the subject area. All registered Aboriginal sites in the search area are in an open context, representing 100 % (n = 53) of all sites. Full AHIMS results can be viewed in **Appendix G**.

No previous archaeological investigations of the subject area have been identified during the preparation of the present report. However, several regional investigations have been undertaken in the broader region during the past 30 years, the most important ones being:

- **3Rivers (2023)** undertook an archaeological investigation of Tuppal Creek as part of the Mid-Murray Anabranches (MMA) Project, located approximately 25km south-east of the subject area.

In the course of the field survey, 17 Aboriginal sites were recorded. Together with previously registered Aboriginal sites in the vicinity of the study area, the survey concluded that the main site type was

modified trees (12), two of which were ring trees, advised by the RAPs as being highly significant; earth features (5); PADs (2); Isolated artefacts (2) and artefact scatter (1). The subsequent archaeological test excavation comprised excavating a total of 21 test pits across three locations. Overall, the test excavation identified three stone artefacts, two bone fragments, charcoal, burnt clay and shell fragments. Although a detailed cultural significance assessment of the identified Aboriginal sites remains unpublished, the report notes that the RAPs considered the general study area a meaningful place to the local Aboriginal communities.

Given the subject area's location and known archaeological context, this study indicates a high likelihood for earth features, culturally modified trees and artefact scatters to occur within the site. Due to the subject area's clearance of mature trees suitable for cultural modification, it is unlikely for such sites to be identified at the Deniliquin East BESS site.

- **Archaeological Consulting Services (1996)** undertook an archaeological investigation of three stretches of the Edward River between Smart and Robinson Streets, Deniliquin; Browning and Wanderer Streets, Deniliquin; and between Lagoon St. and Brick Kiln Creek, Deniliquin. Overall, these areas are located approximately 4.3km west of the subject area.

Overall, a total of 10 Aboriginal sites were identified, including culturally modified trees and one burial. Modified trees were identified on river red gums located along embankments of the Edward River and along creek banks. Modified trees were also identified on black box trees located within the floodplain and along linear depressed soil. The burial was located in a source bordering dune.

Given the subject area's location and known archaeological context, this study indicates a high likelihood for earth mounds, culturally modified trees and artefact scatters to occur within the site. Due to the subject area's clearance of mature trees suitable for cultural modification, it is unlikely for such sites to be identified at the site.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010c) (The Due Diligence Code) provides an overarching predictive model for the entirety of NSW. The Due Diligence Code specifies the following 'relevant landscape features' that are considered indicative of likely past Aboriginal land use:

- Areas within 200 m of waters including freshwater and the high tide mark of shorelines.
- Areas located within a sand dune system.
- Areas located on a ridge top, ridge line or headland.
- Areas located within 200 m below or above a cliff face.
- Areas within 20 m of or in a cave, rock shelter, or a cave mouth.

Historical land use and associated disturbance has the potential to impact on the original soil profiles and consequently on the spatial and vertical integrity of archaeological resources. The level and intensity of historical land use may also have various effects of the survival of archaeological material and can also expose sub-surface deposits of archaeological resources.

One way of assessing the level of soil disturbance is to analyse historical aerial photographs which can provide vital information on the changing environment and the impacts of historical land use within a given area. Aerial photographs between 1968-2022 were obtained and analysed to evaluate previous land use and associated impacts.

Considering the historical context of the area during the construction of irrigation channels and intensive agricultural practices, it is considered that the historical ground disturbance ranges from **moderate to high**. It is determined that there is:

- **Very low potential** for Aboriginal objects to occur in areas of high historical ground disturbance on the low-lying floodplains of the aggraded Shepparton Formation geological unit.
- **Low potential** for Aboriginal objects, such as Isolated Finds and low artefact scatters to occur in areas of moderate historical ground disturbance on the low-lying floodplains of the aggraded Shepparton Formation geological unit.

Archaeological Survey

An archaeological survey of the subject area was undertaken on 22nd May 2024 by a team of RAPs, client representatives and Urbis personnel.

The archaeological survey was conducted on foot and covered the entire subject area. The subject area was divided into two survey units, the cleared paddock north of the Riverina Highway (#1), and the road easement and surroundings of the substation south of the highway (#2).

There were no Aboriginal objects found during the survey, nor were any areas within Survey Unit 1 or Unit 2 that were identified as potential archaeological deposits (PADs).

No additional investigation, including test excavation was deemed required, as the desktop assessment did not find potential for Aboriginal objects, and the survey confirmed the high to extreme level of disturbance across the subject area.

6.1.2.2. Potential Impacts

The potential harm to Aboriginal objects and Aboriginal places that is likely to be caused by a proposed activity is the effect of that activity on the Aboriginal heritage values identified above. According to the NPW Act, 'harm' to an object or place includes any act or omission that:

- Destroys, defaces, or damages the object or place.
- Moves the object from the land on which it had been situated.
- Causes or permits the object or place to be harmed.

The Assessment Guidelines define harm to Aboriginal objects and Aboriginal places as being either 'direct' or 'indirect':

- **Direct harm** may occur as the result of any activity which disturbs the ground including, but not limited to, site preparation activities, installation of services and infrastructure, roadworks, excavation, flood mitigation measures.
- **Indirect harm** may affect sites or features located immediately beyond or within the area of the proposed activity. Examples include, but are not limited to, increased impact on art in a shelter from increased visitation, destruction from increased erosion and changes in access to wild food resources.

Consideration of potential harm to Aboriginal objects and Aboriginal places according to ecologically sustainable development (**ESD**) principles allows for an understanding of the cumulative impact of the proposed activity and an understanding of how harm can be avoided or minimised, if possible.

Due to high a level of disturbance across the entire subject area, it is unlikely that any as yet unknown Aboriginal objects are retained anywhere within the subject area. Therefore, the proposed physical works within the subject area, are unlikely to cause either direct or indirect harm to Aboriginal objects.

Furthermore, as there are no known Aboriginal objects within the subject and there is very low potential for unknown Aboriginal objects to be retained, the proposed works are unlikely to negatively impact inter-generational equity.

6.1.2.3. Mitigation Measures

To mitigate harm to any unknown Aboriginal objects within the subject area, it is recommended that the following unexpected archaeological finds procedure should be followed in the unlikely event that any archaeological material, or suspected archaeological material, is uncovered during any works within the subject area:

1. All works within the vicinity of the find must immediately stop. The find location and minimum 5m buffer should be cordoned off with signage identifying the area as a 'no-go zone' to prevent accidental impact. The find must not be moved 'out of the way' without assessment.
2. The site supervisor or another nominated site representative must contact either the project archaeologist (if relevant) or Heritage NSW (Enviroline 131 555) to contact a suitably qualified archaeologist.
3. The nominated archaeologist must examine the find, provide a preliminary assessment of significance, record the item and decide on appropriate management measures. Heritage NSW should be notified of the find through a Section 146 notification. Such management may require further consultation with the

approval authority, preparation of a research design and archaeological investigation/salvage methodology.

4. Depending on the significance of the find, reassessment of the archaeological potential of the subject site may be required and further archaeological investigation undertaken.
5. Reporting may need to be prepared regarding the find and approved management strategies.
6. Works in the vicinity of the find can only recommence upon receipt of approval from Heritage NSW.

Should clearly identifiable human remains be uncovered anywhere within the subject site, the following procedure should be implemented:

1. All works within the vicinity of the find must immediately stop. The find location and minimum 2m buffer should be cordoned off with signage identifying the area as a 'no-go zone' to prevent accidental impact. The find must not be moved 'out of the way' without assessment.
2. The site supervisor or other nominated manager must notify the NSW Police and Heritage NSW.
3. The find must be assessed by the NSW Police, which may include the assistance of a qualified forensic anthropologist.
4. Management recommendations are to be formulated by the NSW Police, Heritage NSW and site representatives.
5. Works are not to recommence until the find has been appropriately managed.

In the event that bones are uncovered which may be human but cannot be confirmed by onsite staff, a suitably qualified archaeologist or heritage specialist should be contacted in the first instance to determine how to proceed.

Following the implementation of the unexpected finds procedure, it is considered that the Project will be able to appropriately manage any potential aboriginal heritage impact.

6.1.3. Land

6.1.3.1. Existing Environment

A detailed Agricultural Impact Assessment was undertaken by Premise, which was accompanied by soil testing on the subject site to evaluate the inherent agricultural value and condition of the existing pedology.

An assessment of land use has been conducted by Premise with consideration to existing and past agricultural land uses. The Site is speculated to have been used for growing rice in the 1970s and subsequently been used as dryland grazing ground for the past 30 to 40 years. There is no indication of land use activities, land disturbance or practices involving use of chemicals or associated chemicals identified in the draft *Contaminated Land Planning Guidelines* that may result in contaminative locations or activities.

Underlying geology influences agricultural productivity as parent rock contributes to soil fertility, minerology, and hydrogeological activity. The entirety of the site is within the Shepparton Formation which is described by eSpade mapping as:

"Unconsolidated to poorly consolidated mottled variegated clay, silty clay with lenses of polymictic, coarse to fine sand and gravel; partly modified by pedogenesis, includes intercalated red-brown paleosols."

Soil information was assessed with a combination of desktop research and a site inspection. Information was assessed online from:

- Australian Soil Classification system soil type mapping of NSW (DPE, 2024)
- Land and Soil Capability Assessment Scheme (OEH 2012)
- Estimated Inherent Soil Fertility of NSW mapping (DPIE, 2021)
- The Central Resource for Sharing and Enabling Environmental Data in NSW (SEED Mapping, 2020)
- NSW Soil and Land Information (eSpade Mapping, 2020)
- NSW Planning Portal Spatial Viewer (NSW ePlanning Spatial Viewer, 2024)

- The Soil Landscapes of Central and Eastern NSW mapping (DPIE 2020) did not contain information on the study area and was excluded from the desktop assessment.

A site inspection was conducted on 23rd April 2024, including visual survey of the full extent of the 3.5-hectare area of the proposed activity and analysis of four soil profile cores located to best represent all soil types present within the survey area. Sample locations were determined using soil and geology mapping, landform features, vegetation changes and other biophysical markers in the landscape.

The *Land and Soil Capability Assessment Scheme* (OEH, 2012) ranks the capacity of land to sustain a range of land uses without causing degradation of the land and soil at the site and off-site environment. The LSC Scheme considers the biophysical features of the land and soil including landform position, slope gradient, drainage, climate, soil type and soil characteristics. The final LSC class of the land is based on the most limiting factor.

The *Land and Soil Capability Assessment Scheme* (OEH, 2012) maps the soil of the site as Class 3- High capability land, as described in **Table 13** and mapped in **Figure 15**. The site visit confirmed that the soil is considered Class 3- High capability, but the site is mainly limited in agricultural use by climate, rainfall and lack of irrigation.

Table 13 LSC Definition

Class	General definition
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, conservation)	
3	High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.

The Estimated Inherent Soil Fertility of NSW mapping (eSpade portal, 2020) provides an approximation of the inherent soil fertility of soils in NSW. The soils of the study area are mapped with an inherent soil fertility of 'Moderate (3)'.

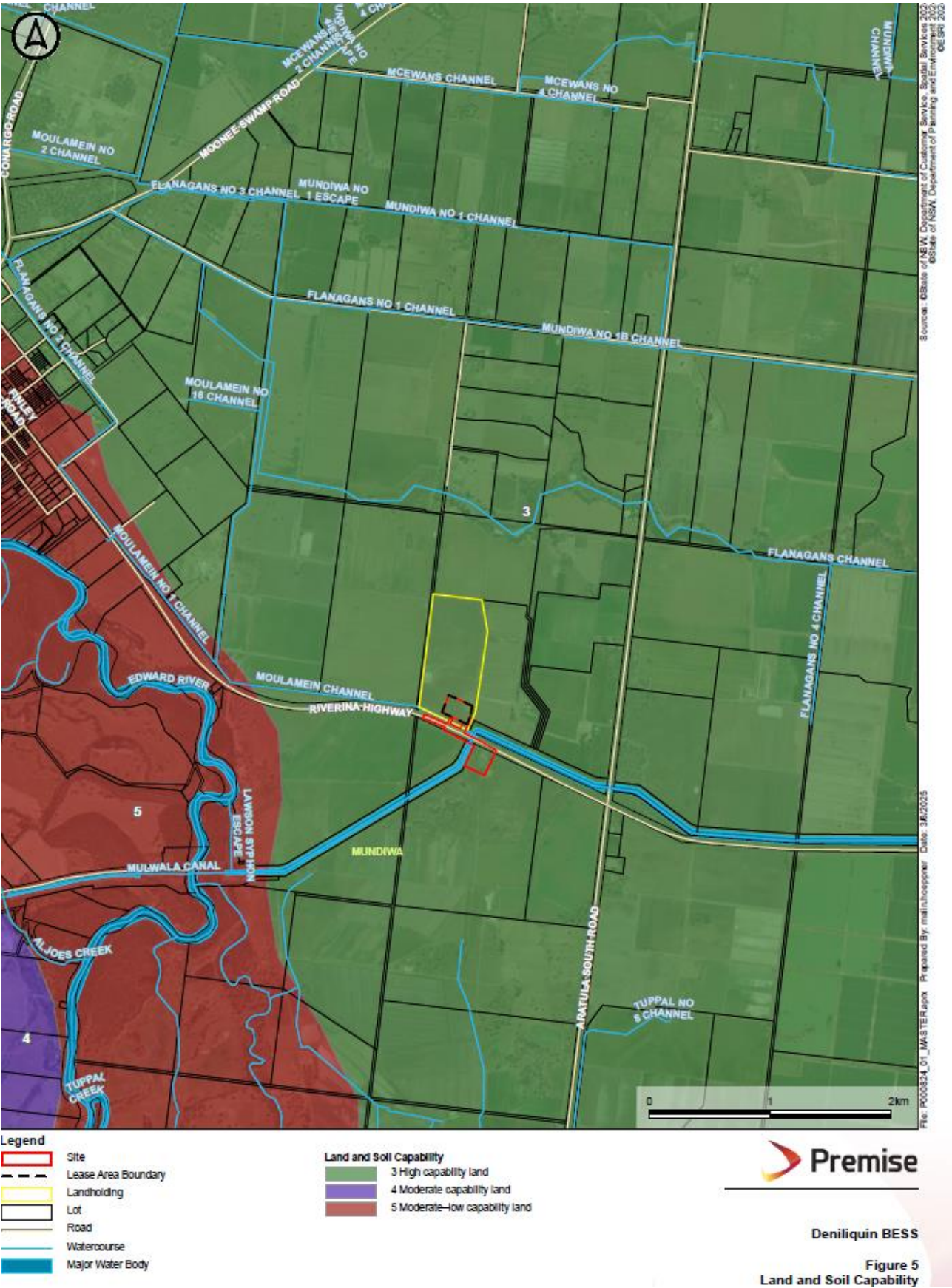
A review of the NSW ePlanning Spatial Viewer (2024) and the SEED portal (2020) mapping did not identify any known geological hazards within the development site or locality, including:

- Acid sulfate soils are not mapped within the development site or locality (SEED portal, 2020).
- No mine subsidence districts, or underground coal mining is mapped at or within 1 km of the development site (NSW ePlanning Spatial Viewer, 2024).
- No landslide risk land is mapped within the development site or locality (NSW ePlanning Spatial Viewer, 2024).
- No Naturally Occurring Asbestos (NOA) at or within one (1) kilometre of the development site (SEED Portal, 2020).

Biophysical Strategic Agricultural Land (BSAL) is land with high quality soil and water resources capable of sustaining high levels of productivity.

A review of relevant mapping indicates that no BSAL is located within the development site.

Figure 15 Land and Soil Capability



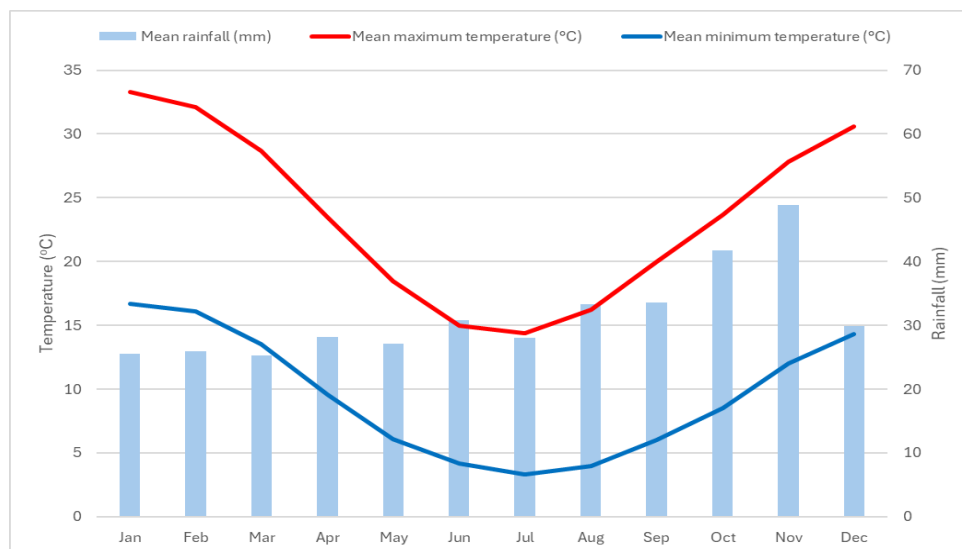
Climate

The closest Australian Bureau of Meteorology (**BoM**) weather station with daily weather observations is Deniliquin Airport AWS (Station 074258), located approximately 7.2 km west of the site, south of the centre of Deniliquin. Other BoM weather stations are closer to the site but only provide daily rainfall and solar exposure statistics.

Summary climate statistics are provided below and depicted in Figure 16:

- The mean annual maximum temperature is 23.7°C and the mean annual minimum temperature is 9.5°C. Records indicate that January is the warmest month and July is the coldest (BoM, 2024).
- Mean annual rainfall is 378.6 mm and records indicate monthly mean rainfall received at the site is highest in the months of August through to November (BoM, 2024).

Figure 16 Climate Statistics of the Locality



Land Use

The surrounding area primarily consists of land used for irrigated cropping and grazing, and the substation on the adjacent land. Land uses within the site and locality (1 km radius of the site) are outlined in Table 14 and Figure 17.

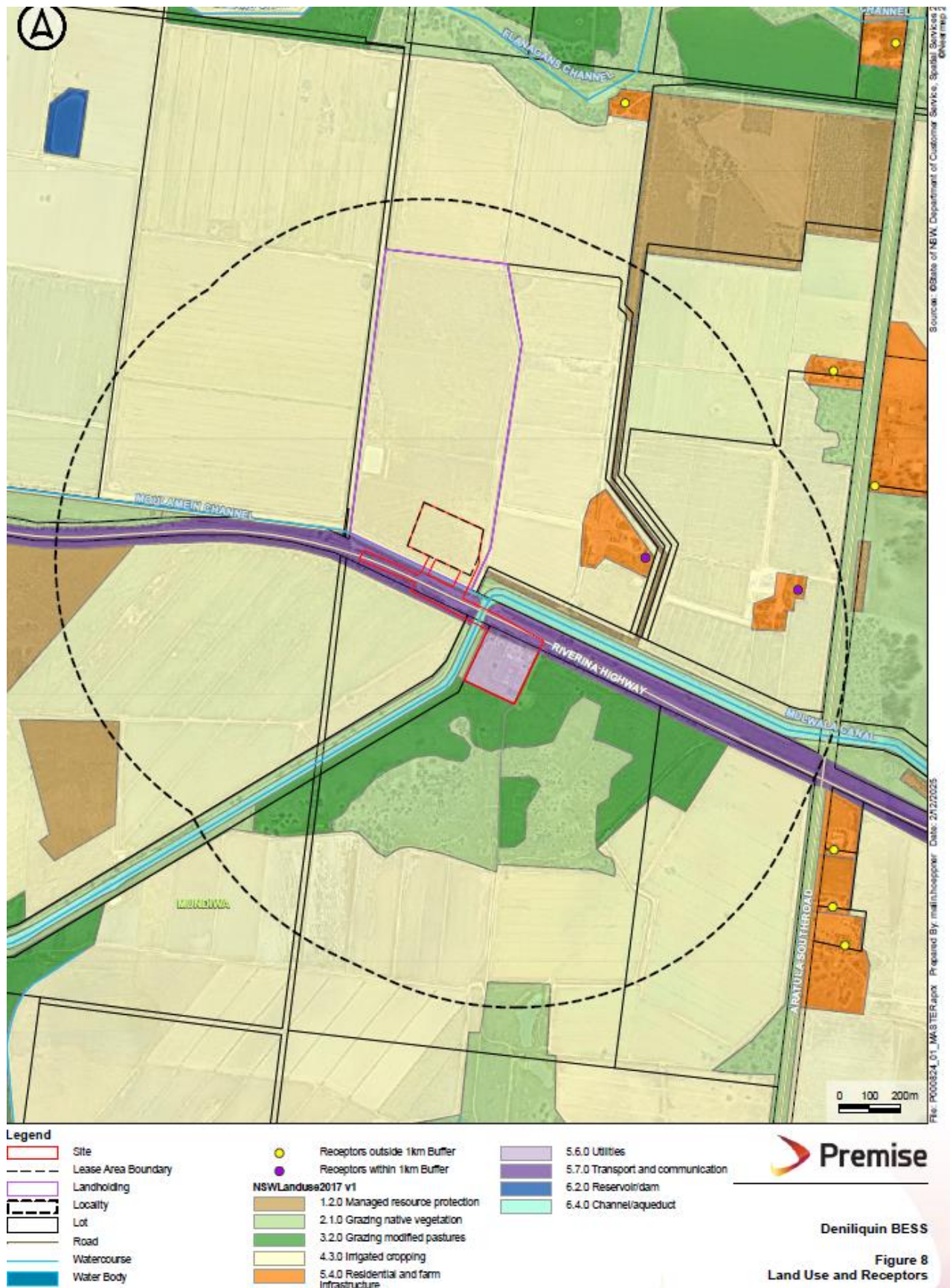
Other notable land uses throughout the locality include transport and communication along the Riverina Highway, channel/aqueduct along Mulwala Canal, utilities near Deniliquin Substation and Residential and farm infrastructure to the east.

Review of land uses within the locality indicate that land use is predominately used for the purposes of irrigated cropping, with grazing modified pastures the next largest land use.

Table 14 Land uses within the locality

Land Use	Area (ha)	%
1.2.0 Managed resource protection	4.09	1.04
2.1.0 Grazing native vegetation	34.64	8.81
3.2.0 Grazing modified pastures	32.29	8.21
4.3.0 Irrigated Cropping	287.01	73.02
5.4.0 Residential and farm infrastructure	4.90	1.25
5.6.0 Utilities	3.47	0.88
5.7.0 Transport and communication	19.22	4.89
6.4.0 Channel/aqueduct	7.45	1.89
TOTAL	393.07	100%

Figure 17 NSW Landuse 2017



Agricultural Value and Productivity

Based on the 2020-21 Australian Agricultural Census (ABARES, 2021), the most important agricultural commodities with the highest gross value for the Edward River LGA were wheat (\$51 million), sheep and lambs (\$49 million), meat cattle, and barley (\$27 million each). These four commodities represent about half of the total agricultural revenue of the Edward River LGA (\$308 million).

The paddock on which the study area is located was purchased by the property manager approximately 5 years ago. It has been used primarily for dryland sheep grazing for the past 30 years. Deniliquin experienced a boom in the rice industry in the 1970's and it is speculated that the paddock was used for irrigated rice cropping during this time. The paddock has been levelled flat in the past and contains evidence of previous irrigation including channels on each boundary.

Current land management practices are primarily for occasional time-controlled rotational grazing of sheep. The paddock only has feed suitable for grazing for a short period in winter during the wetter months. Sheep are rotated onto the paddock at approximately 5 Dry Sheep Equivalent per hectare (DSE/ha) for a few weeks in winter when conditions are favourable.

Most of the current pastures on the site are annual ryegrass and perennial weeds including Bathurst burr. There is no other evidence of previous pasture improvement. The current property manager has not applied any soil amendments and it is speculated that soil amendments including fertiliser, lime or gypsum have not been applied to the paddock since it was potentially used for irrigated rice cropping in the 1970's.

The study area is subject to a 113ML Water Access Licence (WAL). This water allocation is currently being transferred to other parts of the property when available. There was intent to convert parts of the property to irrigated farming, however the paddock that the study area lies within was not considered for irrigation. Although the soil in this paddock is considered moderately capable, water access limits the agricultural capacity of the study area.

Consideration of income generated from the study area has considered an area of 3.5 ha, inclusive of the entire area of the proposed BESS development. The property manager intends to continue using the remainder of the paddock outside of the fenced development for sheep grazing.

The entirety of the income generated by the study area is from dryland sheep grazing. The following information was determined in consultation with the property manager and landowner:

- The carrying capacity of sheep within the study area is estimated to be 1.5 DSE/ha. The study area covers 3.5 hectares and would therefore represent 5.25 DSE.
- It can be extrapolated from the 2020-21 Australian Agricultural Census (ABARES, 2021) that the average value of sheep and lambs in the Edward River LGA is \$86.35 per head (Table 15).
- Assuming that there are 5.25 Dry Sheep Equivalent (DSE) produced annual from the study area, the estimated annual agricultural production of the Site is **\$453.33**.

Table 15 2020-21 Commodity Production Value for the Edward River LGA (ABARES, 2021)

Commodity	Production Value (\$m)	Animal Numbers	Av. Per Animal
Sheep and Lambs	\$49 million	567,453	\$86.35

Site Verification – Soil Survey

Although there are currently no guidelines relating specifically to soil survey for the development of BESS, this AIA has been prepared generally following guidelines contained in:

- *Large-Scale Solar Energy Guideline* (NSW Department of Planning and Environment, August 2022)
- *Australian Soil and Land Survey Field Handbook* (National Committee on Soil and Terrain, 2009)
- *Guidelines for Surveying Soil and Land Resources* (McKenzie et al, 2008)

The soil survey was conducted on 23rd April 2024 by Premise and conditions were dry and sunny. The soil survey entailed the full extent of the proposed 3.5-hectare area disturbance area and used a free-survey technique with soil profile and observation sites located to best represent all soil types present within the survey area.

Samples were collected with a trailer-mounted hydraulic soil corer to a maximum depth of one metre. The location of all observation and sample sites was recorded via GPS. Photographs were taken at all sample sites and for all soil cores (Appendix I).

Four cores were analysed for physical properties on site, and one representative core which best reflected the conditions across the site was selected and sent for laboratory analysis. Selected samples were analysed to provide sufficient information to classify soils in accordance with the Australian Soil Classification (**ASC**) (Isbell, 2002) and soil taxonomic class.

Samples were analysed by a National Association of Testing Authorities Australia (**NATA**) accredited laboratory (**SGS**). Samples selected for analysis are identified in the following section (Figure 18).

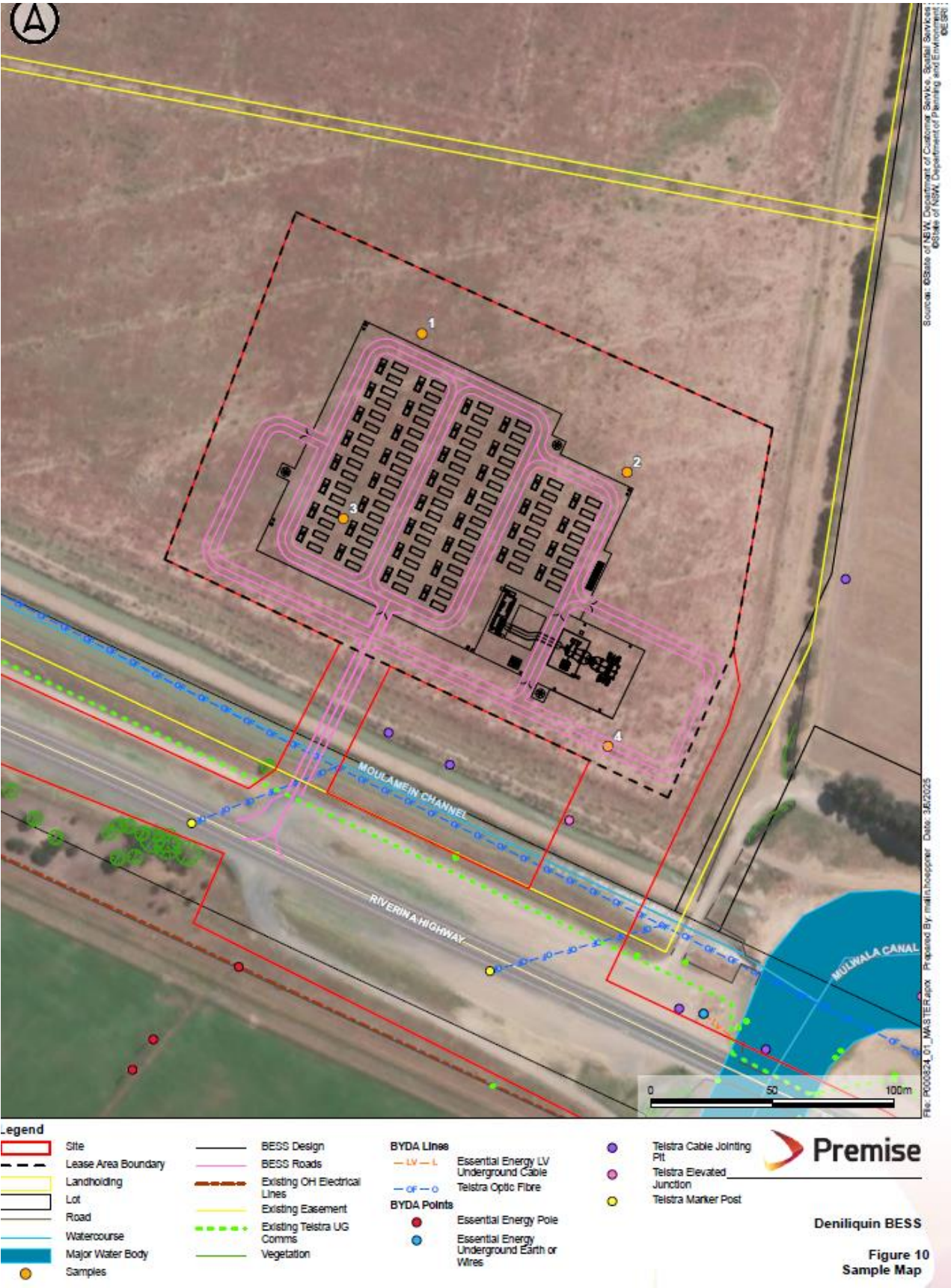
Sites 1, 2 and 3 had similar field characteristics across the flat paddock. Topsoil pH (tested in field with a Manutec soil pH test kit) was pH 6 (moderately acid) across all sites, with alkalinity increasing through the subsoil down to pH 9 (strongly alkaline). Gypsum crystals were visible in the subsoil, likely contributing to the increasing alkalinity at depth. Soil texture across these sites was dominated by fine sandy loam topsoil, gradually changing to medium to heavy clay subsoils. Soil colour was dark reddish grey (7.5 R 4/3) (Munsell Soil Colour Book, 2012). These soils are classified under the Australian Soil Classification (Isbell, 2002) as Red Chromosols. These soils were considered to be the dominant soil type throughout the site and Sample 3 was selected as a representative sample sent for laboratory analysis.

Site 4 was located in a slight depression and had unique field characteristics that were not considered to represent the dominant soil type of the site. Topsoil pH (tested in field with a Manutec soil pH test kit) was pH 6.5 (slightly acid), with alkalinity increasing through the subsoil down to pH 9 (strongly alkaline). Gypsum crystals were visible in the subsoil, likely contributing to the increasing alkalinity at depth. Soil texture at this site was dominated by cracking clays, including a loamy clay topsoil, to medium to heavy clay subsoils. Soil colour was lighter, indicating waterlogging. These soils are classified under the Australian Soil Classification (Isbell, 2002) as Brown Vertosols, due to their high clay content.

The sample sent for laboratory analysis was Sample 3 as it was considered to best represent the dominant soil type across the site. Two National Association of Testing Authorities (NATA) accredited laboratories, SGS Australia and Nutrient Advantage, were used to analyse this sample.

The sample was split into and four standard depths of 0-15, 15-30, 30-60, and 60-90cm. Each layer was sent for basic analysis and the topsoil (0-15cm) was sent for additional laboratory analysis. Detailed Soil Chemistry results can be outlined in Appendix I.

Figure 18 Australian Soil Classification and Samples



Erosion Assessment

RUSLE is specified in the IECA 'Best Practice Erosion and Sediment Control Guidelines' (2008) ('IECA Manual') to predict the long-term, average, annual soil loss from rill and sheet erosion. The RUSLE equation provides an estimate of the annual soil loss and does not consider individual storm events. The annual soil loss due to erosion (A) is used to determine the erosion risk rating, stabilisation requirements and the level of sediment control required for the site.

Soil testing was undertaken as part of the soil assessment for this project but it did not specifically include testing for a K-factor value. As some Emerson testing was carried out to adjust for dispersive soils, K-factors should be increased by 20% for all Emerson Aggregate Class 1 and 2 soils (*Managing Urban Stormwater: Soils and construction - Volume 1*, Landcom, 2004). The adoption of a conservative K factor of 0.03 +20% to 0.036 was estimated by using the default value in the IECA Manual.

R-factor is a measurement of the energy associated with rainfall events, i.e. the erosive energy of the median rainfall for the area. The R-factor can be found in the IECA Manual or calculated using the methodology for estimating R factors from rainfall intensity. Based on BOM data rainfall erosivity (R factor) of 1,392 (MJ.mm/ha.t.yr) was calculated for the project area.

The LS factor is a combination of the length (L) and steepness (S) of a slope. The way the formula uses this number is to assume that the whole catchment has this ratio. For safety generally the highest LS factor for the catchment is used. This gives the worst possible case of soil loss. Within the project area this will be calculated be 0.24.

The P-factor refers to Erosion Control Practice. This allows the user of the formula to adjust the total soil loss as a factor based on practices the erosion control with regards to the compactness of the ground. The industry standard for construction is default at 1.3, defined as 'Compacted and smooth'.

The C-Factor is a function of cover over the soil. It represents methods for controlling erosion other than altering the soil. As standard practice there is no cover while areas are under construction.

Thanks to the aforementioned considerations, calculated soil loss (**RUSLE**) was used to determine the erosion risk rating for implementation during the construction phase of the project and are presented in Table 16.

Table 16 Calculated Soil Loss

Factor	Units	Study Area Value
Catchment size	Hectares	3.5
Soil erodibility (K Factor)	t ha h ha ⁻¹ MJ ⁻¹ mm	0.036
Rainfall erosivity (R Factor)	MJ.mm/ha.t.yr	1,392
Cover (C Factor)	Factor (Landcom 2004)	1.0
Conservation practice (P Factor)	Factor (Landcom 2004)	1.3
Length/slope (LS Factor)	Factor (Landcom 2004)	0.24
Average soil loss	t/ha/yr	15.6
Average soil loss for area	t/yr	54.7
Erosion Risk Rating	Rating (Landcom 2004)	Very Low

Based on the above analyses the site has been assessed as a very low erosion risk site by the RUSLE guideline from the *Managing Urban Stormwater: Soils and construction – Volume 1* (Landcom, 2004).

6.1.3.2. Potential Impacts – Agriculture

Agricultural Impact

As previously discussed, given the relatively small area and low annual production value of the site, this change of land use is not considered likely to have a significant impact on the agricultural production of the region or adjacent agricultural land. Once the project is decommissioned, land on the study area will be rehabilitated and returned to its pre-existing land use or another land use as agreed between the landholder and the project owner

Soil Impacts

The Project has potential to cause the following impacts to soil:

- Reduced soil stability after vegetation clearing which causes soil exposure;
- Exposure of subsoils which may be saline or sodic and dispersive during excavation and trenching;
- Mixing of soil horizons, impacting soil quality and erosion hazard;
- Soil compaction during operation of heavy machinery;
- Excavation of buried soil contaminants (heavy metals, pesticides, hydrocarbons);
- Unintended leakage of contaminants into the soil (e.g. hydrocarbons from heavy machinery, heavy metals from battery).

The operation of a BESS is considered unlikely to involve disturbance to soils if proper design principles are followed. However, potential impacts related to poor design could include:

- Erosion, soil loss and sedimentation following excavation;
- Localised erosion under structures during water run-off;
- Reduced soil permeability and localised run off due to compaction from machinery traffic;
- Unintended leakage of contaminants into the soil (e.g. hydrocarbons from heavy machinery, heavy metals from battery).

Potential impacts to soil during decommissioning are anticipated to be similar to construction impacts. Long term impacts of decommissioning may include:

- Failure to return the site to the existing or improved land and soil capability;
- Failure to return the site to a safe, stable and non-polluting landform.

6.1.3.3. Potential Impacts – Land Use

A Land Use Conflict Risk Assessment has been prepared as part of the EIS and included in Appendix U. The LUCRA process evaluates risk between the probability and consequence of potential land use conflicts and uses a matrix to estimate risk in accordance with the *Land Use Conflict Risk Assessment Guide – DPI 2011*.

The risk rating ranges between 25 (highest) and 1 (lowest). A risk between 1-10 is considered 'low', between 11-19 is considered 'medium' and between '20-25' is considered high.

A summary of the detailed risk assessment is in Table 17, which includes an assessment of the risk before and after the implementation of appropriate mitigation measures.

Table 17 Summary of detailed risk assessment.

Land Use	Stakeholders	Category	Initial Risk (Section 4)	Revised Risk (Section 5)
All Land Uses	All Stakeholders	Health and safety - EMF	14	10
		Risk to property - fire	18	9
		Risk to property - flood	13	5

Agriculture	- Private property owners - Individuals - Business operators - Associations	Competing industries – Cumulative Impacts	18	13
		Competing industries – agricultural expansion	13	9
		Competing industries – land suitability	13	5
		Access and traffic - interaction	13	5
		Nuisance – livestock behaviour	13	5
		Nuisance – air quality (dust)	8	5
		Environmental concern – weeds	13	9
		Nuisance - waste	5	3
		Amenity - waste	8	5
		Risk to property - infrastructure	13	9
Infrastructure	- Public Authorities - Service Providers - Individuals	Land ownership – public authorities	17	8
		Access and traffic – access/services	17	13
		Competing industries – future project expansion	17	8
		Economic interest – demand	13	8
		Access and traffic - commute	8	5
		Access and traffic - access/services	8	5
		Nuisance - noise	17	9
		Nuisance - waste	5	3
		Quality of life	13	8
		Security	13	8
Residential	- Private Property Owners - Individuals (i.e occupants of residential dwellings) - Public Authorities - Service Providers	Privacy	13	9
		Health and safety – air quality	8	5
		Nuisance – air quality (dust)	8	5
		Amenity - visual	13	8

		Land ownership - foreign	8	2
		Economic interest - insurance	17	13
Resource Protection	Public authorities	Environmental concerns - heritage	13	9
	Associations	Environmental concerns - water	13	9
	Individuals	Environmental concerns - biodiversity	13	9
	Indigenous community	Environmental concerns - biodiversity	13	9
Water Storage and Resources	Public authorities	Competing industries – expansion	13	9
	Associations	Health and safety - water	13	9
	Individuals	Economic interests - insurance	17	13
	Indigenous community	Economic interests - insurance	17	13

6.1.3.4. Mitigation Measures

Potential Impact	Commitment	Timing	Responsibility
Erosion and Sedimentation	A Soil and Water Management Plan (SWMP) is to be prepared in accordance with <i>Managing Urban Stormwater – Soils and Construction Volume 1 (Landcom, 2004)</i>. The SWMP will be prepared as part of a Construction Environmental Management Plan (CEMP) to manage potential risks to soils, surface and ground water. The construction SWMP is to be prepared with reference to relevant development controls within the Deniliquin DCP. Recommended measures for the construction SWMP include but are not limited to: Measures to minimise and manage the potential for erosion and sediment transport within and from the Project area. Measures to manage accidental spills and waste storage. Measures to manage stormwater and the potential for contaminated runoff from the Development site. Measures to ensure that excavation activities and any stockpiling are managed to minimise the potential for downstream contamination.	Prior to Construction During Construction	Contractor

Potential Impact	Commitment	Timing	Responsibility
	Measures to ensure that areas of exposed soil and the time in which they are exposed are minimised as far as practical.		
Soil disturbance and sedimentation associated with vegetation clearing, excavation, stockpiling activities	The construction of the development shall be managed in compliance with measures specified within the construction SWMP to ensure impacts to water quality are appropriately managed. Measures shall be implemented to ensure that areas of exposed soil and the time in which they are exposed, are minimised as far as practical during construction.	Prior to Construction During Construction	Contractor
Wastes, Spill and Emergency Management	Construction The construction SWMP shall include procedures to reduce and manage the risk of emergency events and the potential for wastes and spills to contaminate soils. Recommended measures to manage the potential for contaminated discharge include: The storage of all fuel chemicals and liquids in sealed bunded areas on level ground away from stormwater drainage lines and waterways Ensuring refuelling and maintenance activities are restricted to designated areas with appropriate bunding and spill capture controls Implementing controls as part of the construction SWMP that provide procedures to respond to emergencies and spills. Ensuring visual inspections of drainage lines and disturbed areas are undertaken during construction to assess any potential soil or surface water issues. The installation and maintenance of stormwater control measures including drainage networks that segregate stormwater runoff according to its contamination.	During Construction	Contractor
	Operation During operation procedures shall be developed to reduce the potential contamination of soils, surface and ground water, resulting from wastes, spills	Operation	Proponent

Potential Impact	Commitment	Timing	Responsibility
	and/or emergency incidents. Suggested measures to control the potential for contamination during operation include: The appropriate storage of equipment and hazardous substances during operation. Ensuring that plant and stormwater control measures are maintained to prevent contamination of soil. Preparation of appropriate procedures to response to emergency incidents, spills and leaks from the Development site, including operational equipment and maintenance activities.		
	Decommissioning A decommissioning plan shall be developed which minimises the contamination of soils, surface and ground water, resulting from wastes, spills and/or emergency incidents. Suggested measures to control the potential for contamination during decommissioning including: A soil sampling plan to be undertaken prior to decommissioning to assess any risk of contamination. Preparation of procedures to minimise risk of contamination	Decommissioning	Proponent
Soil mixing / topsoil loss	As part of the CEMP for the Project, soil management measures should include: Assessment of topsoil depth prior to stripping to minimise mixing of topsoil and subsoil Topsoil and subsoil should be stripped and stockpiled separately for rehabilitation works following excavation Avoid stripping and stockpiling soil following heavy rain periods Avoid compaction of topsoil during stripping and stockpiling operations If required, amelioration of topsoil and/or subsoil during stripping in accordance with a soil scientist's recommendations. Prevent erosion of stockpiles using soil stabilising biopolymers, cover crops or other forms of stabilisation	Prior to Construction During Construction During Decommissioning	Contractor

Potential Impact	Commitment	Timing	Responsibility
	Test stockpiled soils to determine amelioration requirements prior to reinstatement.		
Soil compaction	As part of the CEMP for the Project, soil compaction management measures should include: Development of controlled traffic practices for plant machinery movements Avoid excavation and plant machinery movements on wet soils following heavy rain periods Prevent long term storage of plant machinery on clay or wet soils Avoid long term exposure of subsoils which are more susceptible to compaction Progressively stabilise and rehabilitate soil as soon as practically possible after excavation Ensure soil is replaced in correct subsoil/topsoil orders Ensure vegetative cover is re-established after soil rehabilitation	Prior to Construction During Construction During Decommissioning	Contractor

6.1.4. Landscape and Visual

Urbis has prepared a Landscape and Visual Impact Assessment (LVIA), found in Appendix J.

6.1.4.1. Methodology

The LVIA includes a methodology statement regarding the preparation method and accuracy of photomontages. The photomontages have informed the analysis of visual effects and impacts.

The LVIA follows the guidance and methodology as set out in:

- The Landscape Institute Technical Guideline Note- Visual Representation of Development Proposals (AILA 2019)
- Guidelines for Landscape Character and Visual Impact assessment, Environmental Impact Assessment practice note EIA -NO4 (RMS 2018).
- Guidance Note for Landscape and Visual Assessment (AILA 2018).

The methodology used to assess the Project is based on a combination of widely accepted concepts and terms used in LVIA and VIA in NSW. The method considers additional relevant factors such as visual compatibility with both the existing and wider visual context and the strategic planning context for the Site. The Urbis method also distinguishes and places 'weight' on key factors such as view place and viewer sensitivity, physical absorption capacity and considers impacts on unique settings near the Site that could be potentially affected, for example heritage items, conservation areas, landscape character areas, views to icons and areas of high scenic quality.

The measurement of visual impact determined for the Project is based on a combination of viewer sensitivity relative to the proposed visual change or magnitude of the Project against a particular composition or visual setting.

6.1.4.2. Existing Environment

The Site is located in the Riverina Region of New South Wales which includes agricultural and pastoral areas west of the Great Dividing Range and the drainage basin of the snow-fed Murray and Murrumbidgee Rivers.

The surrounding visual context is characterised by open, flat pastoral land which contributes to expansive plains that extend to the north, east and south. The landscape is heavily modified and predominantly used for cropping and grazing. Paddocks show signs of regular intensive use, such as crop lines and ploughed soil.

Natural and constructed water bodies surrounding the Site are visually distinct from one another. Constructed irrigation channels such as Moulamein Channel and Mulwala Canal (south of the site) do not include any distinctive surrounding vegetation. The channels are linear, typically adjacent to roadways or traversing open sections of cropping land.

Vegetation patterns that influence the immediately surrounding visual character are heavily modified and structured, including linear roadside vegetation, shelterbelts and property boundary plantings.

There are a limited number of residential dwellings located within 5km of any Site boundary. The closest group of dwellings are located immediately east of the Site and are characterised by single-storey detached dwellings on large lot sizes which include perimeter or on-site plantings, and multiple sheds and outbuildings. Properties are typically accessed via long driveways which adjoin the main road network.

The nearest major town is Deniliquin, approximately 6.5km north-west of the site. Development within Deniliquin follows a grid system, either side of a long and narrow section of the Murray Valley Regional Park which includes elevated ridgelines and the Edward River. Built form is predominantly single and double storey detached dwellings, transitioning to rural residential properties along the outskirts of town.

Prior to undertaking fieldwork, Urbis undertook a desktop review of all relevant statutory and non-statutory documents, an analysis of aerial imagery and topography and lidar data to establish the potential visual catchment to inform fieldwork inspections. Following fieldwork Urbis selected and recommended 3 public view locations for further analysis (Figure 19).

After undertaking the fieldwork and assessing the landscape area, photomontages were prepared in accordance with the Land and Environment Court of New South Wales photomontage policy to assess the potential impacts of the Project.

Figure 19 View point map showing locations of modelled views



Source: Urbis, 2025

Figure 20 Photomontages for relevant viewpoints



Picture 5 View 01 Photomontage



Picture 6 View 02 Photomontage



Picture 7 View 03 Photomontage

Source: Urbis, 2025

6.1.4.3. Potential Impacts

Having determined the extent of the visual change based on the three representative modelled views, Urbis applied relevant weighting factors to determine the overall level of visual impacts or importance of the visual effects. The factors have been considered in relation to the visual effects to provide up-weight or down-weights and to determine a final impact rating.

The weighting factors include public domain sensitivity, visual absorption capacity and compatibility of the proposal with the existing and intended landscape character of the area.

Sensitivity

Public domain sensitivity was rated as low for all views assessed, where visibility to the site is experienced for limited periods of time from moving viewing situations. The Project is not visible from public locations with high view place sensitivity, such as popular lookouts or public hiking trails, or by members of the public with high sensitivity to visual change such as people engaged in outdoor, scenic recreation.

There are a limited number of dwellings in close proximity to the Site. The closest group of dwellings, located immediately east of the site, are characterized by large lot sizes, wide setbacks, with perimeter or on-site vegetation, which limit views into the site. Dwellings located south-west of the site along a limited section of Aratula S Road experience north-westerly views to the site characterised by existing infrastructure such as overhead powerlines and poles and the Deniliquin substation.

Visual absorption capacity (VAC)

The VAC of the existing visual environment including its landscape features, vegetation patterns and topography has a moderate capacity to physically and visually absorb the proposal.

From close viewing locations along the Riverina highway the VAC is limited, where the BESS structures and control rooms appear as newly built form within a predominantly flat landscape. The upper edge of the 5m high acoustic wall on the eastern side of the proposed BESS compound will protrude above the BESS containers, appearing as a narrow horizontal element in the mid-ground, which will be difficult to perceive.

Further the acoustic wall remains below the land-sky horizon and visibility of the wall from the east will be blocked by existing vegetation screening to the east.

From more distant locations, the VAC increases, where opportunities to overlook the Project in this flat landscape are limited and components of the development are more difficult to distinguish within their landscape setting. In the majority of views, the maximum height of the development sits below the tree line and does not create a new built form horizon.

Visual compatibility

The Project is visually compatible with the immediate visual context which includes existing energy infrastructure. The Project is seen in the context of existing surrounding infrastructure including the Deniliquin substation, overhead powerlines, the Riverina Highway overpass and the Mulwala Canal. The proposal is appropriately located in proximity to existing infrastructure such that it is not inconsistent with viewer expectations.

The Project is located approximately 30km south of the South West REZ, where the presence of renewable energy infrastructure is likely to increase across the landscape. In this regard, the Project is compatible with the broader future visual character of this part of NSW.

Overall visual impacts

Taking into consideration the existing visual context and baseline factors against which to measure change, the level of visual effects of the proposed development and the context of additional weighting factors, the visual impacts of the proposed development were found to be low and acceptable. A summary of the impacts according to each location is shown on Table 18.

Table 18 Summary of overall visual impact ratings

View Reference	Location	Weighting Factors			Overall Rating of Significance of Visual Impact
		Public Domain Sensitivity	Visual Absorption Capacity	Visual Compatibility	
View 01	View north-west from Riverina Highway	low (down-weight)	medium (up-weight)	high (down-weight)	low
View 02	View east from Riverina Highway	low (down-weight)	medium (up-weight)	high (down-weight)	low
View 03	View east from Riverina Highway	low (down-weight)	medium-high (down-weight)	high (down-weight)	low

6.1.4.4. Mitigation Measures

The Project includes on-site amelioration, based on planted screening to mitigate any potential residual visual impacts (Figure 21). The proposed mitigation planting strategy will comprise two Types depending on the height and density of screening required to sufficiently screen views to the proposal:

Western Perimeter

The western boundary is screened by Type 1 which comprises a medium-density of medium and large shrub species, as well as groundcovers. The planting strategy will mitigate visual impacts for road users along the Riverina Highway on approach to the Site from the west.

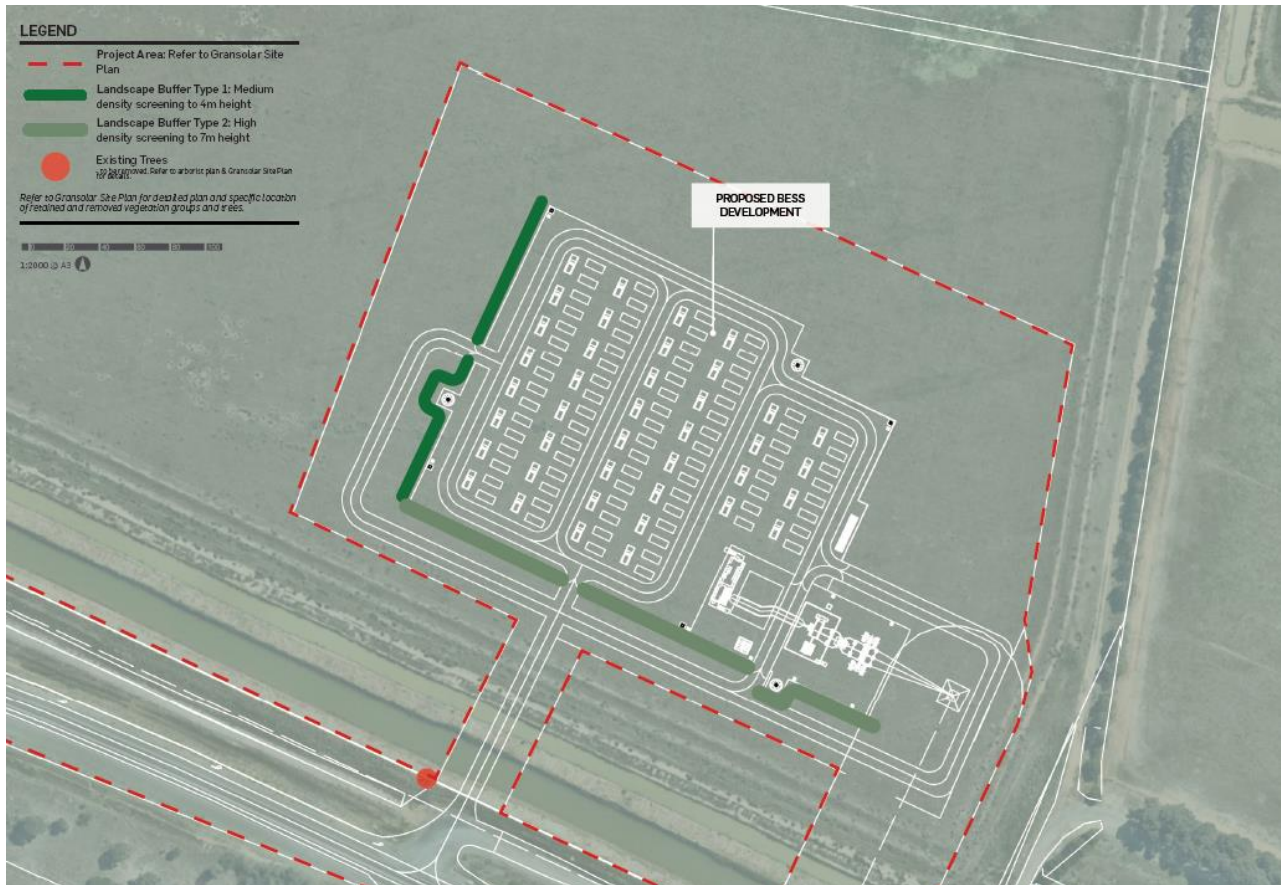
Southern Perimeter:

The southern boundary is screened by Type 2 which comprises a high-density of small trees, medium and large shrubs, as well as groundcovers. The planting strategy will mitigate visual impacts for road users along the Riverina Highway

Western & Southern Boundary:

Both the western and southern boundary are screened by Landscape Buffer Type 1 which comprises a variety of shrub species that screen views of the Project from the south and west.

Figure 21 Landscape Planting Strategy



Source: Urbis, 2025

After amelioration is established, it is considered that the residual visual impacts will be appropriately mitigated and that the Project will have a negligible impact on the visual amenity of the locality.

Figure 22 Photomontages Post-Amelioration at 10 years



Picture 8 Viewpoint 01 – Proposed mitigative planting



Picture 9 Viewpoint 02 – Proposed mitigative planting



Picture 10 Viewpoint 03 – Proposed mitigative planting

Source: Urbis, 2025

6.1.5. Noise

A Noise Impact Assessment was prepared by WSP, found in Appendix L.

6.1.5.1. Existing Environment

The baseline environmental noise survey involved a combination of unattended and attended noise monitoring to quantify the existing noise environment at locations representative of the Noise Catchment Areas (**NCA**s). The monitoring was carried out in accordance with the:

- Australian Standard 1055:2018 Acoustics – Description and measurement of environmental noise
- Noise Policy for Industry (2017), NSW EPA (NPfI)
- Approved methods for the measurement and analysis of environmental noise in NSW (2022), NSW EPA

Equipment was installed at 1.5m above ground, a minimum of 3m away from any reflective structure, and as far as practical from vegetation (e.g., trees and bushes). Monitoring locations are presented graphically in Figure 23.

Figure 23 Noise monitoring locations



Source: WSP, 2024

Unattended noise monitoring was carried out at two locations representative of each NCA between 27th March and 11th April 2024. Unattended monitoring results are summarised in Table 19.

In accordance with the *Protection of the Environment Operations Act 1997*, the lowest calculated 'period-average' LA90, 1 hour for each of the day, evening and night periods (during the time the premises operates) has been adopted. Closest BOM station (Deniliquin Airport Aws, ID 074258) was used to filter the captured data for the meteorological conditions. Time periods where wind exceeded 5m/s or there was any observable rainfall were excluded from the processed noise monitoring data.

In addition to this, in accordance with Section B1.3 of the NPfI, the entire period has been omitted if it contains excluded 15-min periods over 8, 2, and 4 for day, evening, and night respectively. The required amount of data (one week) from NPfI is achieved for each time period after data filtering.

Table 19 Unattended noise measurement results

NCA	Measured lowest 'period-average' background noise level, dB LA90,15min		
	Day	Evening	Night
NCA 1 (21545 Riverina Hwy)	33	31	32
NCA 2 (21356 Riverina Hwy)	29	30	30

Source: WSP, 2024

In addition to unattended noise monitoring, short-term attended monitoring was carried out to provide additional information on the primary noise sources and assist with the characterisation of the noise

environment of the area surrounding the project. This monitoring was undertaken for a 15-minute period, during daytime and evening hours. Attended monitoring results are summarised in Table 20 with a description of the observed noise sources at the time of the measurement.

Table 20 Attended noise measurement results

NCA	Time Period	Date and start time	Measured sound pressure level, dBA			Observations by operator
			L90,15MIN	Leq,15MIN	L10,15MIN	
NCA 1 (21545 Riverina Hwy)	Day	27 th March 2024 2:51pm	36	51	55	Traffic at distance dominating background noise levels. Noise events noted as passbys at Riverina Hwy (55 to 75 dBA, relatively even mix between cars and trucks), and nature sounds e.g., birds (35 to 50 dBA).
	Evening	26 th March 2024 7:01pm	36	55	57	Traffic at distance dominating background noise levels. Noise events noted as passbys at Riverina Hwy (65 to 75 dBA, mostly cars but occasional trucks), and nature sounds e.g., birds and dogs barking (35 to 50 dBA).
NCA 2 (21356 Riverina Hwy)	Day	27 th March 2024 10:34am	38	47	51	Traffic at distance dominating background noise levels. Noise events noted as occasional wind in vegetation (40 to 50 dBA), passbys at Riverina Hwy (50 to 60 dBA, mostly cars but occasional trucks), and nature sounds e.g., birds and insects (35 to 40 dBA).
	Evening	26 th March 2024 6:25pm	36	61	63	Traffic at distance dominating background noise levels. Noise events noted as passbys at Riverina Hwy (65 to 80 dBA, a relatively large portion of trucks), and nature sounds e.g., insects, birds, and other animals (35 to 50 dBA).

Source: WSP, 2024

Overall, the existing noise environment within the Site is generally characterised as rural and is primarily dominated by agricultural and rural residential land uses. The primary local noise sources that dominate the existing noise environment levels include road traffic noise from the Riverina Highway, local road traffic, and agricultural activities. Other noise sources would include natural noises (for example birds and insects).

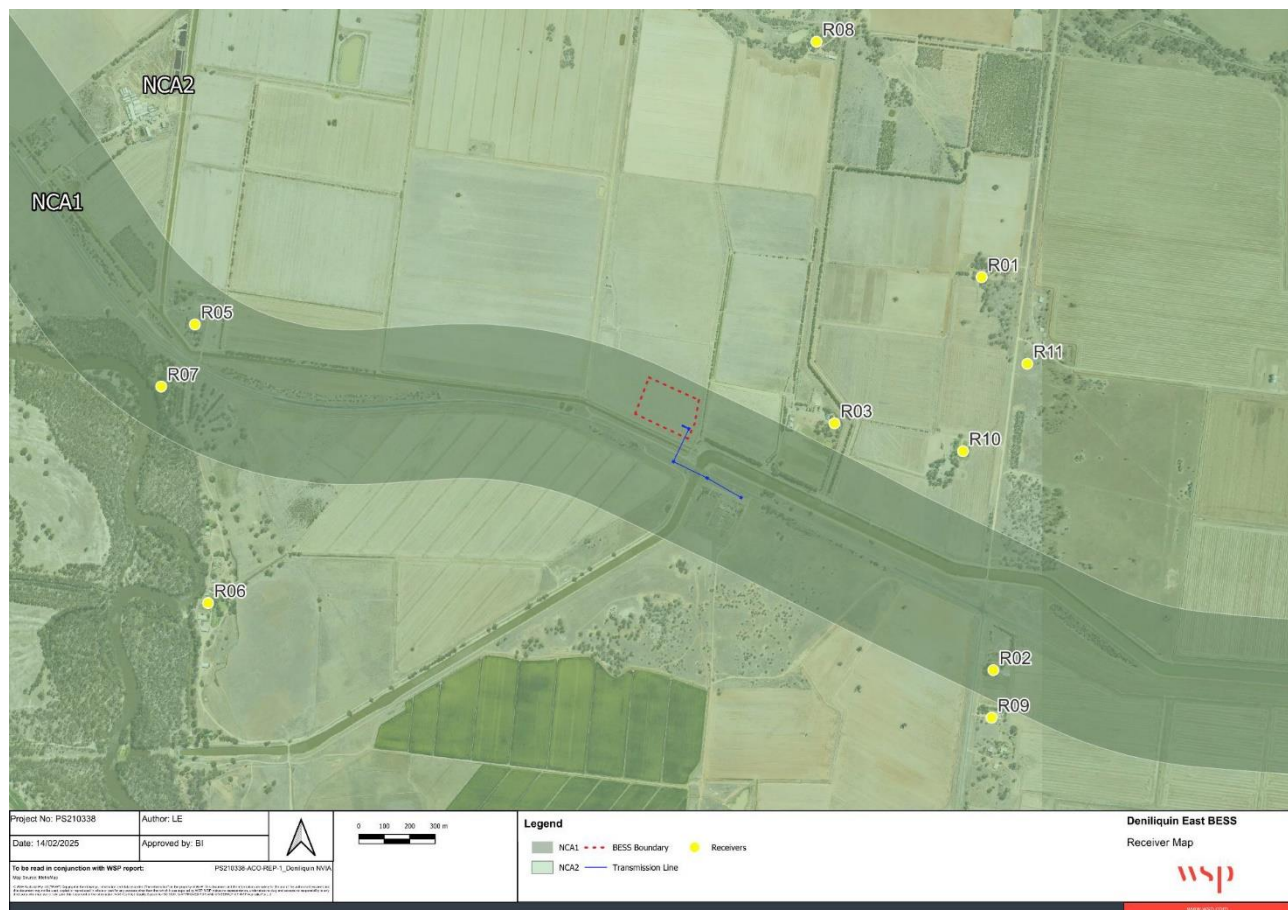
6.1.5.2. Potential Impacts

The assessment has been conducted with reference to the following primary guidelines, as outlined in the SEARs, in addition to other relevant guidelines and standards:

- NSW Environmental Planning and Assessment Act 1979 (EP&A Act)
- NSW EPA Noise Policy for Industry 2017 (NPfl)
- Interim Construction Noise Guideline (DECC 2009) (ICNG).
- NSW Cumulative Impact Assessment Guidelines for State Significant Projects, October 2022
- Assessing Vibration: a technical guideline (DECC, 2006)
- Transport for NSW's Construction Noise and Vibration Guideline, July 2023 (CNVG)
- NSW Road Noise Policy (DECCW 2011).

The assessment has considered impacts during construction and operation, as well as the potential for cumulative impact with future projects. A map of potential sensitive receivers is included in Figure 24.

Figure 24 Sensitive Receivers



Source: WSP, 2024

The sensitive receivers have been outlined in Table 21 below. It should be noted that R04 was previously identified on site, but it was removed upon confirming the structure was a sheep shearing shed, thus was not a sensitive receiver for the purpose of the acoustic assessment.

Table 21 Identified Receivers

ID	NCA	Receiver type	Noise sensitive	Address	Lot / DP	Approximate distance from the Project, m
R01	2	Residential	Yes	135 Aratula North Rd	Lot 15 / DP856212	1,200
R02	1	Residential	Yes	21 Aratula South Rd	Lot 32 / DP812941	1,500
R03	2	Residential	Yes	21354 Riverina Hwy	Lot 112 / DP1008891	500
R04	2	Shed ⁽¹⁾	No	21356 Riverina Hwy	Lot 11 / DP856212	300
R05	1	Residential	Yes	21536 Riverina Hwy	Lot 279 / DP1134962	1,800
R06	2	Residential	Yes	21541 Riverina Hwy	Lot 1 / DP563000	1,800
R07	1	Residential	Yes	21545 Riverina Hwy	Lot 12 / DP840477	1,800
R08	2	Residential	Yes	221 Aratula North Rd	Lot 113 / DP1008891	1,500
R09	2	Residential	Yes	41 Aratula South Rd	Lot 31 / DP812941	1,600
R10	2	Residential	Yes	65 Aratula North Rd	Lot 16 / DP856212	1,000
R11	2	Residential	Yes	94 Aratula North Rd	Lot 72 / DP756269	1,300
R12	2	Residential	Yes	Hogans Ln	Lot 5 / DP778062	1,900

(1) Sheep shearing shed would not be suitable for occupation and therefore not considered noise sensitive.

Source: WSP, 2024

Noise levels have been calculated assuming all construction activities within each work stage occur simultaneously, anywhere within the construction area. Therefore, construction noise predictions have been presented as a worst-case, conservative scenario to represent the potential construction noise impact. A summary of total number of properties exceeding the Project Noise Management Levels (NMLs) is presented in Table 22.

Table 22 Summary of total exceedances for the different construction stages

Work Stage	Predicted number of properties exceeding NML			
	0 to 10 dB	10 to 20 dB	>20 dB	Highly affected (>75dBA)
SC1: Vegetation clearance	6	1	0	0
SC2: Access and earthworks	9	1	0	0
SC3: Foundations and pads	7	1	0	0
SC4: Equipment installation	5	1	0	0
SC5: Demobilisation and rehabilitation	2	0	0	0

Source: WSP, 2024

Where: 0 total exceedances, 1-5 total exceedances, 6-10 total exceedances

The assessment shows that construction noise levels are predicted to be the highest during the first three construction stages. Noise levels during this stage have been predicted to potentially exceed NMLs at up to nine properties, but only at one property is the exceedance predicted to be above 10 dB. As such, all exceedances but the one, are considered minor with levels ≤10 dB above NMLs. One property (R03) is predicted to experience a more notable noise impact with levels predicted between 10 and 20 above NMLs.

Regarding construction vibration impacts, all identified receivers are more than 300 metre away from the subject site which is well beyond the safe working distances outlined in the Construction Noise and Vibration Guidelines. All receivers are therefore considered to not be at risk of being affected by construction-induced vibration.

In consideration of existing road traffic on the proposed access routes to the Site, it is considered highly unlikely that the project would generate increases in road traffic numbers of more than 60 per cent along the Riverina Highway, thus the dB generated by both construction and operational traffic is expected to be below 2dB and as such would comply with the NSW Road Noise Policy along this route.

During the operational phase, the BESS is likely to only operate at full capacity during periods of charging and discharging. The assessment has, however, been based on the conservative assumption that all plant has is required be available to operate at 100% at all times (24-hour operation). As such, the project will need to demonstrate that it is able to comply with the most stringent criteria (nighttime).

Based on provider information and assumed specifications for the substation transformer, a summary of the predicted noise levels without any mitigation controls in place at each receiver is provided in Table 23. Noise contours are presented in Appendix L.

The modelling results were undertaken using CONCAWE, a noise propagation model embedded in the software SoundPLAN. The results show:

- Compliance with guidelines requirements is predicted for the day, evening, and night time periods at all receivers except three locations: R01, R03, and R10. Exceedances of up to 9 dB are predicted (including noise corrections).
- It is also noted that tonal correction has been applied to a strong majority of the receiver locations (+5 dB correction), with one location also having the low-frequency correction triggered (+10 dB correction). The 1/3 octave analysis show that these corrections are driven by the substation transformer.
- Analysis of the contributing noise sources show that all three key noise emitters contribute to the predicted noise level at the most affected receivers (BESS battery, BESS PCU, and substation transformer). The noise emitter with the highest contribution is the substation transformer.
- It should be noted that the predicted noise levels are presented as a range, this due to the transformer and circuit breaker make and model not yet being selected. A likely noise emission range for this equipment has therefore been modelled, please refer to Appendix L.

Table 23 Predicted operational noise levels and assessment – Unmitigated levels at noise sensitive receivers

ID	Address	Operational noise level, Leq,15min dBA (night)			Impulsive noise level, Lmax dBA		
		Criteria	Predicted Level	Compliant?	Criteria (awaken.)	Predicted level	Complaint?
R01	135 Aratula North Rd	35	34 to 37	No	52	≤42	Yes
R02	21 Aratula South Rd	36	28 to 33	Yes	52	≤40	Yes
R03	21354 Riverina Hwy	35	42 to 44	No	52	≤50	Yes
R04	21536 Riverina Hwy	36	31 to 33	Yes	52	≤38	Yes

ID	Address	Operational noise level, Leq,15min dBA (night)			Impulsive noise level, Lmax dBA		
		Criteria	Predicted Level	Compliant?	Criteria (awaken.)	Predicted level	Complaint?
R05	21541 Riverina Hwy	35	30 to 32	Yes	52	≤38	Yes
R06	21545 Riverina Hwy	36	28 to 30	Yes	52	≤35	Yes
R08	221 Aratula North Rd	35	33 to 35	Yes	52	≤40	Yes
R09	41 Aratula South Rd	35	28 to 32	Yes	52	≤39	Yes
R10	65 Aratula North Rd	35	36 to 38	No	52	≤44	Yes
R11	94 Aratula North Rd	35	32 to 35	Yes	52	≤42	Yes
R12	Hogans Ln	35	25 to 27	Yes	52	≤35	Yes

Source: WSP, 2024

Regarding operational noise of the transmission line, the noise emission is expected to be below 25 dBA at all receivers and is considered low risk. Current predicted noise levels would not have any impact on the cumulative levels and are expected to be inaudible at the receiver locations.

Similarly, the risk of inducing vibration impact within the site (e.g., affecting equipment and/ or structures) is assessed to be low risk and standard vibration isolation mountings nominated by the respective manufacturers are expected to be sufficient.

The review of current proposed projects revealed that the proposal known as Deniliquin BESS by Avenis Energy is proposed to be located in close proximity to the Deniliquin East BESS. The cumulative impacts during its operational phase have been considered. The predicted contribution from the Deniliquin Bess to assessed sensitive receivers is outlined in Table 24.

Table 24 Predicted Contribution from Deniliquin BESS

ID (1)	NCA	Address	Approximate distance to Avenis Deniliquin BESS, m	Dominant site (estimated)	Predicted increase to the Project noise levels, dB
R01	2	135 Aratula North Rd	1,400	Close to equal contribution	+2
R02	1	21 Aratula South Rd	850	Avenis Deniliquin BESS	N/A
R03	2	21354 Riverina Hwy	600	Close to equal contribution	+2
R05	1	21536 Riverina Hwy	2,300	Deniliquin East BESS	+1
R06	2	21541 Riverina Hwy	2,000	Close to equal contribution	+2
R07	1	21545 Riverina Hwy	2,300	Deniliquin East BESS	+2
R08	2	221 Aratula North Rd	2,000	Deniliquin East BESS	+1
R09	2	41 Aratula South Rd	950	Avenis Deniliquin BESS	N/A
R10	2	65 Aratula North Rd	800	Close to equal contribution	+3
R11	2	94 Aratula North Rd	1,200	Close to equal contribution	+3
R12	2	Hogans Ln	2,500	Deniliquin East BESS	+1

The predicted operational noise contribution does not exceed the Project Noise Trigger Levels (**PNTLs**), concluding that the cumulative impact is unlikely to exceed the enmity noise level at any receiver.

Given separation distances between the two sites and nearby vibration-sensitive receivers, cumulative ground vibration impacts are considered very low risk and have not been predicted.

No schedule for construction has been made available, and as such a quantitative assessment of construction noise and vibration cannot be made at this stage. If construction schedules for the two projects overlap it will need to be closely managed.

6.1.5.3. Mitigation Measures

As part of the project detailed design and prior to the commencement of works, a project-specific Construction Environmental Management Plan (**CEMP**) should be prepared and implemented. This would include measures for the mitigation and management of noise in accordance with the requirements of the ICNG.

It is proposed that work be carried out only during standard hours. Further reasonable and feasible noise mitigation measures would include:

- Ensuring deliveries are made during standard hours.
- The selection and duration of use for equipment that is generating noise.
- Switching off any equipment not in use for extended periods.
- Keeping truck drivers informed of designated vehicle routes, parking locations, and acceptable delivery hours for the site.
- Using the most suitable equipment necessary for the works at any one time.
- Regularly inspecting and maintaining plant to avoid increased noise levels from rattling hatches, loose fittings etc.
- Use of quieter methods where feasible and reasonable.
- Use of temporary noise screens around noisy construction plants. Screens will be positioned to interrupt a direct line of sight between the major noise source and potentially affected receivers.

Mitigation measures implemented during operation will include measures for noise control at the source as well as the transfer path. This will include:

- Selecting a substation transformer with a Sound Power Level (**SWL**) of equal or less than 90 dBA.
- Optimising the detailed design and facing the PCUs towards the north-west.
- The installation of a 5m tall acoustic barrier along the eastern side of the site.

Upon implementation of all mitigation measures it is considered that the acoustic amenity of the local area will be effectively managed and that the project won't have a significant noise impact onto adjacent sensitive receivers.

6.1.6. Transport

This section addresses the specific SEARs as relating to transport impacts for the Project and the Transport Impact Assessment (**TIA**) prepared by Urbis is in Appendix M.

6.1.6.1. Existing Environment

Public Transport

There is no public transport infrastructure or services that connect directly to the site. The closest public transport infrastructure is located in the town of Deniliquin and comprises of one local bus service (route DTS), none of which service the site.

Walking and Cycling network

There is limited active transport infrastructure surrounding the site, with no footpaths on the roads immediately surrounding the site to enable walking. Cycling is permitted on the shoulder of roads; however, the nature of these roads (often being unsealed or having an unsealed shoulder) makes cycling on these roads challenging even for experienced riders.

Road Network

The Site has direct access onto the Riverina Highway, which is a State classified road managed by TfNSW. The Riverina Highway continues west to the township of Deniliquin, approximately 7km and intersects with Davidson Street. The characteristics of the surrounding road network are detailed in Table 25 below.

Table 25 Characteristics of surrounding roads

Road Name	Aratula Rd	Riverina Hwy	Finley Road	Davidson Street
Classification / Function	Local	Arterial	Arterial	Arterial
Sealed (yes/no)	Yes	Yes	Yes	Yes
Movement lanes	One lane in each direction	One lane in each direction	One lane in each direction	One lane in each direction
Parking lanes	No	No	Yes	Yes
Approximate Carriageway width (m)	6	11	15	15
Signposted speed (km/h)	60	100	60	60

Road Name	Aratula Rd	Riverina Hwy	Finley Road	Davidson Street
Line marking / divided lanes	No	Yes	Yes	Yes
Pedestrian pathways	No	No	Yes	Yes
Bus stops	No	No	Yes	Yes

Source: Urbis, Transport Impact Assessment (2025)

Traffic Volumes

Traffic movement surveys were collected on 27th August 2024 during peak periods at the Hay Road/ Albert Street/ Finley Road/ Davidson Street roundabout intersection and Finley Street (Riverina Highway) / Wanderer Street T-intersection.

The existing operation of the key intersections Cobb Highway / Albert Street / Finley Road / Davidson Street (roundabout intersection) and Finley Road / Wanderer Street (T-intersection) have been assessed using SIDRA INTERSECTION 9.1, a computer-based modelling package which calculates intersection performance.

Peak hour midblock volumes on Riverina Highway, along the site frontage, were derived from traffic survey data collected at the intersection of the Finley Road / Wanderer Street intersection given that:

- There are limited traffic generators between this intersection and the site.
- Most intersections between this intersection and the site are associated with farm access.

These derived midblock traffic volumes are shown below:

- AM Peak
 - Eastbound – 134 vph.
 - Westbound – 77 vph.
- PM Peak
 - Eastbound – 148 vph.
 - Westbound – 92 vph.

While the roads in Table 26 are key roads near the site, Davidson Street and Finley Road form localised parts of the road network within the Deniliquin town centre and are considered to identify any potential impacts. The TIA assesses the following key intersections within proximity to the site:

- Aratula Road / Riverina Highway.
 - Priority controlled intersection.
- Finley Road / Davidson Road / Cobb Highway / Albert Street.
 - Roundabout intersection.
- Finley Road / Wanderer Street.
 - Priority controlled intersection.

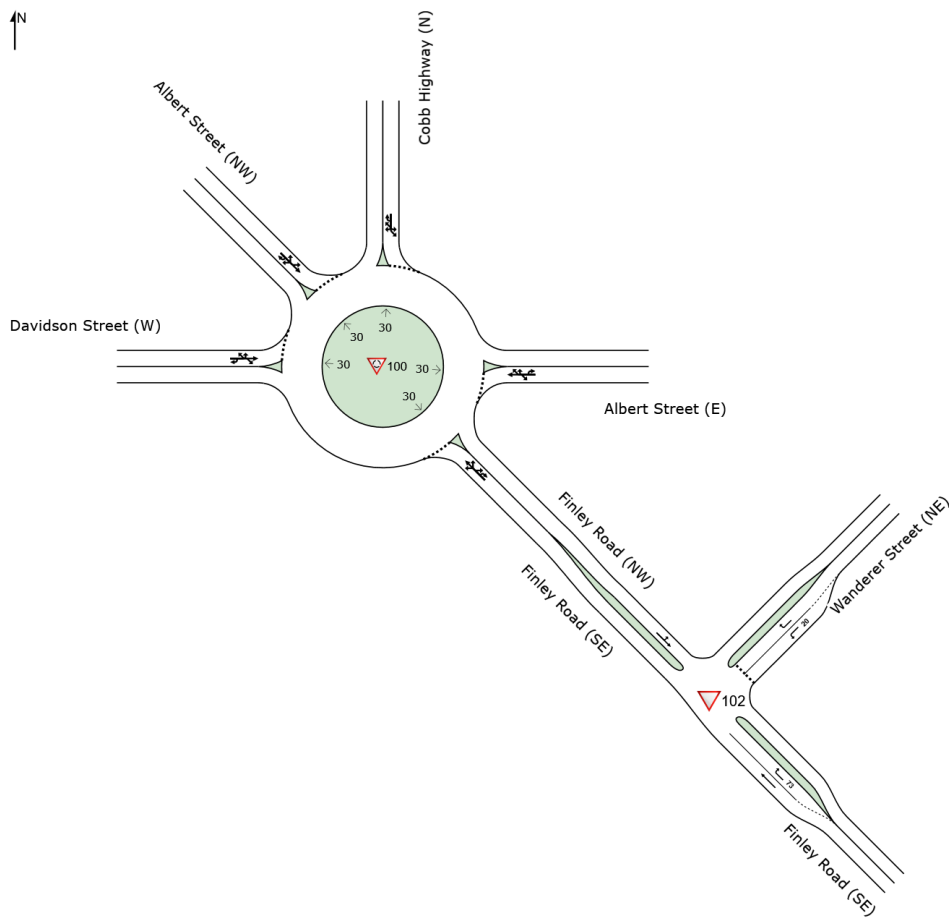
The TIA concludes that during peak periods the above intersections all operate well below capacity, with a degree of saturation (**DOS**) below 0.25 and Level of Service A. Refer to Figure 26 and Table 26 in relation to the results for existing conditions.

Figure 25 Surrounding intersections



Source - Nearmap modified by Urbis

Figure 26 Existing SIDRA network layout for Cobb Highway / Albert Street / Finley Road / Davidson Street roundabout intersection and Finley Road / Wanderer Street T-intersection



Source: SIDRA modified by Urbis

Table 26 SIDRA Intersection results for existing conditions

Intersection	Peak Hour	Approach	Level of Service	Degree of Saturation	Average Delay (s)	95 th Percentile Queue Length (m)
Hay Road / Albert Street / Finley Road / Davidson Street	AM	Finley Road (southeast)	A	0.21	2 sec	9
		Albert Street (east)	A	0.01	5	1
		Cobb Highway (north)	A	0.08	8	3
		Alber Street (northwest)	A	0.02	4	1
		Davidson Street (west)	A	0.13	6	6
Finley Road / Wanderer Street	AM	Finley Road (southeast)	A	0.07	1	1
		Wanderer Street (northeast)	A	0.18	7	6
		Finley Road (northwest)	A	0.09	2	0
Hay Road / Albert Street / Finley Road / Davidson Street	PM	Finley Road (southeast)	A	0.15	2	6
		Albert Street (east)	A	0.01	4	1
		Cobb Highway (north)	A	0.07	8	3
		Alber Street (northwest)	A	0.02	5	1
		Davidson Street (west)	A	0.21	6	9
Finley Road / Wanderer Street	PM	Finley Road (southeast)	A	0.05	1	0
		Wanderer Street (northeast)	A	0.14	7	5
		Finley Road (northwest)	A	0.14	2	0

Crash History

Crash statistics from the TFNSW allows users to analyse crash data based on time, location, conditions, crash type, and road user type. This data was analysed for the surrounding road network for the latest available five years period from 2018 to 2022.

The crash history identifies three crashes occurred along Riverina Highway in the vicinity of the site. They were moderate injuries and minor injuries. None of these crashes involved heavy vehicles, pedestrians or cyclists. The crash history does not indicate any inherent road safety issue along Riverina Highway in the vicinity of the site.

6.1.6.2. Proposed vehicle movements

The TIA included a review of the local road network with regard to road safety, junction controls, access constraints, access to the state and regional road network, sight distances, turn warrant assessment and intersection assessment, construction vehicles routes, construction worker management, construction laydown area and parking.

Construction Vehicle Movements (Heavy Vehicles)

The construction period for the proposed development will be approximately 11 months with a peak period of three months.

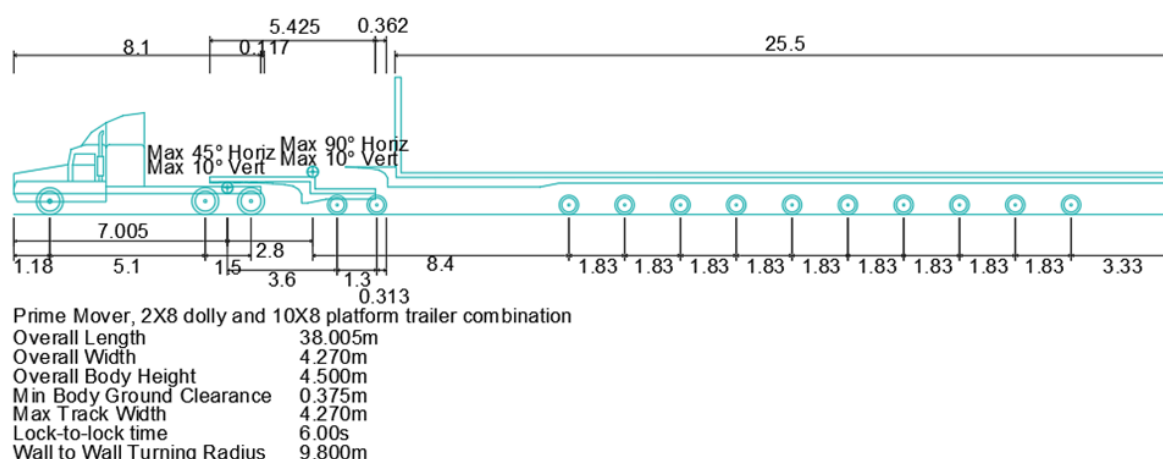
Traffic that will be generated during the construction of the Project will largely be associated with the transportation of materials/equipment. Several construction vehicles will be required to transport the materials and equipment to the site, including the substation components and step-up transformers. The largest vehicle to be utilised in the construction process will be a 38m long 10-axle platform trailer and dolly as outlined in Figure 27. This vehicle is an OSOM vehicle. This delivery will be a one-off single vehicle movement and is not considered in the daily construction vehicle trip generation.

Standard construction vehicle movements will comprise of two categories of vehicles as follows:

- Construction vehicles: These vehicles will be responsible for transporting batteries, inverters, substation components, step-up transformers, steel, road construction materials, concreting supplies, and water. They will be larger than personnel vehicles and include oversized vehicles. These vehicles will serve both for the delivery of materials and for general construction activities on site.
- Worker vehicles: This category includes utility vehicles and shuttle buses. These vehicles will be used for personnel movement, including construction personnel, subcontractors, and escort vehicles.

It is expected that construction material delivery vehicles will originate from the Port of Melbourne and these routes are shown in Figure 28.

Figure 27 Anticipated OSOM vehicle dimensions



Source: Gransolar Group

A detailed concept route assessment for the suitability of this route to accommodate the OSOM vehicle has been completed and is appended to the TIA. The detailed route assessment outlines the largest vehicle, the route selection process, key constraints, and vehicle manoeuvrability of the largest vehicle at all key intersections and rest stops. The detailed route assessment also considers support vehicles and a single

escort vehicle (with three certified pilots to allow for rotation) accompanying the OSOM vehicle. An extract from this report is shown below detailing how the route was selected, as well as some critical constraints for structures. Note, that while this assessment has been completed in the context of the OSOM, all other construction vehicles will be utilising this route for haulage as Port Melbourne will be the port of origin for all materials.

The route selection has been conducted with the assistance of the NHVR Route Planner. The majority of the Victorian portion of the proposed route uses the Northern Highway between Wallan and Echuca, and the majority of the New South Wales (NSW) portion uses the Cobb Highway between Echuca and Deniliquin.

Within Victoria, the route is conditionally pre-approved from the Port of Melbourne to the Victorian / NSW border at Echuca for a Class 1 2x8 Dolly & 10x8 Platform Trailer up to 206 tonnes (Reference Vehicle 8). The conditions applicable to the pre-approved route include:

- *A bridge assessment for the West Gate Bridge (SN6225).*
- *Liaison with West Gate Tunnel Project team on the West Gate Freeway prior to travelling through the corridor due to potential overnight lane width reductions.*
- *Speed restriction to five kilometres per hour for an approximate two kilometre long section of the Northern Highway between Tooborac and Heathcote.*
- *Speed restriction to five kilometres per hour and requirement to straddle centreline of road for an approximate 1.9 kilometre long section of the Northern Highway immediately south of Echuca-Mitiamo Road.*
- *Various operational conditions on bridges along the route, specifying operating speed restriction and/or required positioning of combination on the structure, highlighted in Table 2.*

Given the proposed combination does not comply with the Multi-State Class 1 Load Carrying Vehicle Mass or Dimension Exemption Notices, the route is not pre-approved within NSW and requires assessment and subsequent permit via the NHVR.

There are no known planned upgrades along the route.

Urbis has been informed that there will be up to 50 heavy vehicles accessing the site during the peak construction phase per day. This will result in the following generation:

- Daily traffic – 50 heavy vehicles per day.
- Peak hour traffic – six heavy vehicles per hour.
- The following in and out splits are adopted for the AM and PM peak hours.
- AM – 100 per cent in / 0 per cent out. (assuming entries will only occur towards the end of the AM peak after site set up).
- PM – No construction trips anticipated during the peak hour.

Based on the construction haulage route, heavy vehicles are assumed to be accessing the site from the west in the morning.

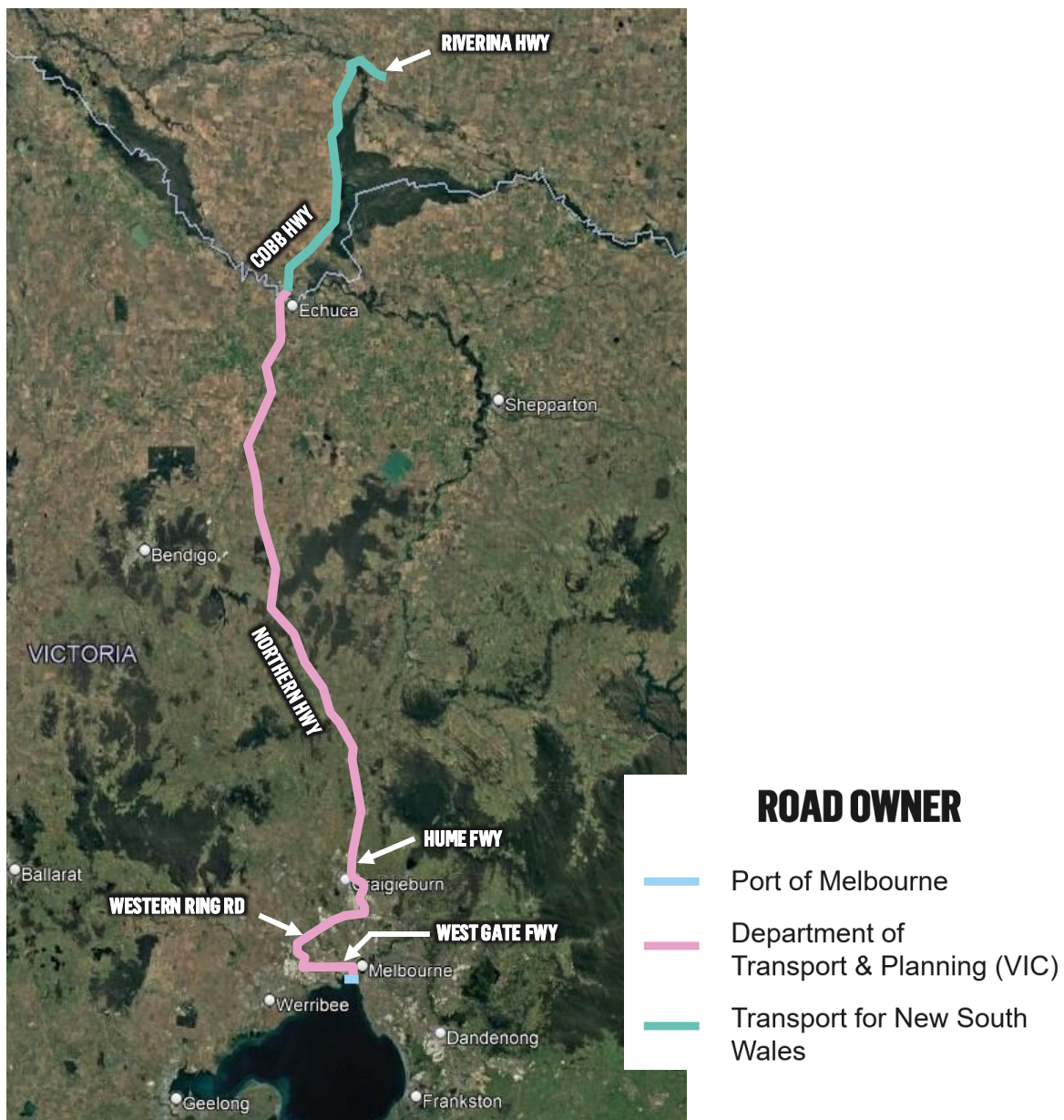
Further estimated vehicle trip generation for heavy vehicles during the peak construction phase is detailed in Table 27. This summarises the type of vehicle used, and the estimated total number of movements.

Table 27 Heavy vehicle trip generation during peak construction stage

Vehicle type	Number of daily movements (vpd)	AM Peak hour movements (vph)	PM Peak hour movements (vph)
HRV's	20	2	0
Long Loaders	10	2	0
B-Doubles	20	2	0
Total Heavy Vehicle Generation	50	6	0

Source: BESS Arctic Pty Ltd

Figure 28 Proposed haulage route



Source: Urbis

Construction Worker Movements (Light Vehicle)

All workers will be housed in accommodation in Deniliquin and other surrounding towns. These workers will be shuttled to site using shuttle buses. It is acknowledged that some workers, particularly site managers and foremen will be using light vehicles such as utility vehicles to access the site. It has been assumed that during peak construction, 52 workers will be on site. Two shuttle buses will be used to shuttle most workers to the site (20 workers per bus), and each shuttle bus is expected to arrive from and return to the west during both peak hours, creating four movements during both the morning and afternoon peak hours.

The remaining workers (foreman / site managers) will driver utility vehicles individually to the site with two persons per vehicle, this means a total of six vehicles will be used with a total of 12 movements. To remain conservative, it is assumed that all trips by utility vehicles will be arriving from the west and returning west towards Deniliquin after a day of work.

Construction hours are proposed as below:

- Monday – Friday (7:00 AM – 6:00 PM).
- Saturday (8:00 AM – 1:00 PM).
- Sunday – No work.

Construction worker trips during the peak construction stage are detailed in **Table 28**.

Table 28 Vehicle trip generation for light vehicles during peak construction stage

Vehicle type	Number of daily movements (vpd)	AM Peak hour movements (vph)	PM Peak hour movements (vph)
Shuttle Buses	8	4	4
Utility Vehicles	12	6	6
Total Light Vehicle Generation	20	10	10

Source: BESS Arctic Pty Ltd

The above table outlines the light vehicle (construction worker) traffic during peak construction. A total of ten vehicle trips are expected during both peak hours, reflecting the arrival and departure of workers.

Construction Traffic Generation

The following Table 29 summarises the estimated total daily and peak hour traffic general of the site over the peak construction period.

Table 29 Total vehicle trip generation during peak construction stage

Vehicle type	Number of daily movements (vpd)	AM Peak hour movements (vph)	PM Peak hour movements (vph)
Shuttle Buses	8	4	4
Utility Vehicles	12	6	6
Total Light Vehicles	20	10	10
HRV's	20	2	0
Long Loaders	10	2	0

Vehicle type	Number of daily movements (vpd)	AM Peak hour movements (vph)	PM Peak hour movements (vph)
B-Doubles	20	2	0
Total Heavy Vehicles	50	6	0
Total Peak Vehicle Generation	70	16	10

Source: BESS Arctic Pty Ltd

6.1.6.3. Traffic impact assessment

Cumulative construction vehicle movements

The SEARs for Deniliquin BESS requests undertaking a cumulative assessment having regarded the other nearby developments. As such, developments within the 50km radius have been considered. The cumulative assessment for the 50km radius incorporates developments that are likely to utilise the proposed access / haulage routes in the surrounding road context.

Given the challenges of obtaining development information, the extent of this review has focused on the impacts along the Riverina Highway. The Riverina Highway has a capacity of 900 vehicles per hour in each direction based on Austroads Guide to Traffic Management Part 3 Section 5.3 Multi Lane Roads.

Most of the other surrounding developments have limited information on timing and trip generation, except for Deniliquin BESS, Tarleigh Park Solar Farm and Currawarra Solar Farm. Deniliquin BESS is the only approved project with a clear estimated construction timeframe. The Tarleigh Park and Currawarra Solar Farms have been cancelled, while other projects are still in the early development stages.

However, to assess the worst-case scenario, all surrounding developments, including cancelled projects, have been considered to evaluate the cumulative impact during construction.

The only development to the west of Deniliquin that will likely use Riverina Highway will be the Deniliquin BESS site, of which the traffic impact is estimated to be minimal. Developments to the east of the site, such as Tarleigh Park and Currawarra Solar Farms will likely use Riverina Highway, however preliminary investigations available show that construction traffic are likely to access the sites from the east, which indicates that the impact on Deniliquin is likely to be minimal.

While the cumulative traffic impact is anticipated to be minimal, it is recommended that the construction contractor review new information once it comes into the public domain and coordinate with other nearby developments should any overlapping construction works occur

Construction traffic impact on Riverina Highway

The total traffic generated during the construction phase has been added to the estimated existing midblock volumes to understand the expected impact of construction vehicles on the Riverina Highway and wider road network.

Table 30 Total peak hour construction traffic generation on Riverina Highway

Peak Hour Period					
Eastbound (inbound)	Estimated Existing Traffic Volume (vph)	Total Construction Traffic Generation (vph)	Cumulative Construction Traffic (vph)	Total Traffic Volume (vph)	Percentage Increase
AM	134	14	17	165	22.8%

Peak Hour Period					
PM	148	2	0	150	1.4%
Westbound (outbound)					
AM	77	2	0	79	2.6%
PM	92	8	0	100	8.7%

Source: BESS Arctic Pty Ltd, TIA, Urbis

The above table indicates increases of approximately 20% in the eastbound direction in the AM peak, and negligible increases of between 1% and 9% in the AM westbound direction and in the PM peak. This will only be observed during the peak construction period. However, the total volume is well below the capacity of a single lane road (900 vph as referenced from *Austroads Guide to Traffic Management Part 3 Section 5.3 Multi Lane Roads*). As a result, the TIA concludes the estimated traffic generation impact from construction traffic on the surrounding road network is anticipated to be minimal.

Construction Traffic Impact on Surrounding Intersections

The intersections of Cobb Highway / Albert Street / Finley Road / Davidson Street roundabout intersection and Finley Road / Wanderer Street T-intersection have been assessed using SIDRA INTERSECTION to determine the impact of construction traffic on the surrounding road network. Estimated construction traffic volumes and derived existing midblock volumes have been used, along with an assumed vehicle distribution of construction traffic.

All construction vehicles will be heading inbound during the AM peak hour as it is not anticipated that the return trips will be completed during the peak hour given the time it will take to unload / reload vehicles. Additionally, the first construction deliveries will likely occur towards the end of the peak hour after site set up. The critical peak hour will be during the AM peak period as both workers and construction materials will be arriving on site during this hour. During the AM peak hour, 16 vehicle movements are expected to be generated by the site.

During the PM peak period, it is assumed that only the worker vehicles will be passing through the intersections as workers return to their accommodation. During the PM peak hour, ten vehicle movements are expected to be generated by the site.

Based on the construction vehicle generation, 70 vehicle movements will occur across the working day. However, given the associated site shutdown period, it is unlikely that any deliveries will occur in the late afternoon.

Based on the above analysis, the proposed increase in trip generation resulting from site generated construction vehicles is expected to have a minimal impact on the operation of the assessed intersections which will all continue to operate at LoS A. As a result, no upgrades to existing intersections are necessary.

6.1.6.4. Site Access Intersection Requirements

The safe intersection sight distance (**SISD**) is defined in Section 3.2.2 of the *Austroads Guide to Road Design, Part 4A, Signalised and Un-signalised intersections*, as the minimum standard to be provided at an intersection with a major road. A SISD assessment was undertaken at the intersection of the proposed site access with the Riverina Highway.

The SISD assessment is assessed based on the following parameters:

- An observation time of 3 seconds.
- A reaction time of 2.5 seconds.
- Deceleration coefficients for the purpose of SISD calculations are 0.46 for light vehicles and 0.24 for heavy vehicles.
- Driver eye height is 2.4m for trucks and 1.1 m for cars.
- Speed zone of 100 km/h on the Riverina Highway along the subject section being assessed.

The results are summarised in **Table 31**.

Table 31 Safe intersection sight distance requirements

Location	Vehicle Type	Design Speed	Decision time	Grade	Required Sisd
Riverina Highway	Truck	100 km/h	3.0 + 2.5 s	0 %	316 m
	Car	100 km/h	3.0 + 2.5 s	0 %	238 m

Source – Urbis

Near the site access point, the Riverina Highway is a straight road with a sight distance of more than 350m in both eastbound and westbound directions. This length satisfies the Sisd requirements. Accordingly, the available sight distance from the driveway can be considered adequate for the proposed site access.

Following from the sight distance assessment of the proposed new access point from the Riverina Highway, a review of access requirements using a turn warrants assessment outlined Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management Section 3.3.6 Warrants for Basic Access (BA), Auxiliary Lanes (AU) and Channelised Lanes (CH) Turn Treatments was undertaken.

The traffic volume on the Riverina Highway (QM) has been calculated as 382 vehicles per hour (vph) for right-hand turns and 68 vph for left-hand turns. These figures were obtained by combining the construction trip generation data with the background traffic volumes detailed in Section 2.4.4 of this report, specifically during the AM peak hour.

The maximum construction traffic approaching the site from Deniliquin is 16 vph. This value has been used in the assessment of the Riverina Highway intersection. The TIA has concluded that a basic left turn treatment for the left turn into the site would be sufficient. However, a full deceleration lane is proposed to support the left turn movement into the site to better support the safe and efficient access of vehicles, particularly heavy vehicles. During construction, no vehicles are proposed to be making a right turn into the site. As a result, no change to the current arrangement associated with the right turn is proposed.

6.1.6.5. Decommissioning

After an anticipated forty years of operation, decommissioning and rehabilitation of the site would be undertaken. In this process, all above ground infrastructure would be removed with the possible exception of the 132kV substation, as this would be at the discretion of the asset's owner. Key elements of decommissioning include:

- Removal of battery containers, including concrete pads.
- Removal of all on site amenities and equipment including buildings all footings.
- Removal of all overground and underground cabling, where practical.
- Some fencing would be removed. This would be coordinated with the landowner and their preference.
- Rehabilitation of disturbed surfaces in consultation with the landowner.
- Wherever possible, materials removed from the Site would either be re-used or recycled in accordance with the Waste Management Plan.

Traffic management required for decommissioning would be similar in type but of shorter duration than that anticipated during the construction phase. Detailed trip generation and vehicle types will be prepared in a Decommissioning TMP and submitted to relevant authorities near the decommissioning time of the site.

6.1.6.6. Mitigation Measures

Traffic Management Plan

A traffic management plan will be prepared by the contractor, prior to the issue of a Construction Certificate. This will include details of on-road management, location of workers and other relevant traffic management associated with major deliveries.

Dilapidation Survey

Before starting the construction, the contractor will conduct a dilapidation survey of the nearby roads within a two-kilometre radius of the Site. This survey will involve creating a written report and taking photos of any existing damage to public infrastructure. The report will cover the condition of table drains, gravel road surfaces, seals, signs, and other public infrastructure in front of the property, neighbouring properties, and along the designated haulage route.

During and after construction, the Site management team and an independent appointed party shall monitor the road conditions utilised by construction vehicles. If any significant damage is caused by the Applicant or its subcontractors, the Site manager shall engage a contractor to repair the roads.

The log of photographic evidence shall be used as a reference in determining the extent of road dilapidation. Unless identified in the written report, any damage to infrastructure identified post-construction will be attributed to the Project. A copy of the road dilapidation report shall be submitted to the Council prior to the commencement of works and once construction works are completed.

Construction Vehicle Movements Management

During construction, all vehicles and machinery associated with the construction of the site will be contained within the site. All vehicles associated with construction works, including the delivery and removal of materials and debris, will use the haulage route identified. Appropriate traffic control measures will be taken to notify other road users of large vehicles entering and exiting the site. All appropriate mitigation measures will be taken to support the use of oversized vehicles including the use of support cars and pilots. An OSOM vehicle permit may need to be obtained from the NHVR. During the delivery of oversized materials, short-duration traffic control temporarily blocking access to certain sections of the Riverina Highway may be required.

The use of mobile cranes will be required during the unloading of batteries, which will take place only within the Site. The contractor will further outline the nature and method of unloading the batteries.

To minimise disruptions and congestion, the project will schedule the movement of oversized vehicles outside of peak traffic periods. A detailed route assessment of the OSOM route has been completed. TFNSW raised concerns about the suitability of structures along the route. Details of the haulage route will be provided to both DTP and TFNSW assets teams for assessment and have confirmed that the route is suitable.

A bridge will be constructed over the irrigation canal to support site access. Detailed drawings of this bridge will be provided during the post-approval stage.

Worker Vehicle Management

Two shuttle buses and six utility vehicles will be used to ferry staff to and from the site. The shuttle buses will be used to transport the majority of workers. The process for worker collection will be as follows:

- Workers travelling on shuttle buses will be housed in accommodation in Deniliquin or nearby towns, they will be grouped in nearby accommodation to ensure easy pick up.
- Workers will arrive a designated must point 45 minutes before the start of the work day.
- Buses will collect staff 30 minutes prior to the on site start time to allow for travel.
- In the evening, workers will be collected from site and ferried back to the muster point.

Workers travelling in utility vehicles will be car pooling with two people per vehicle. To ensure that this is maintained, staff will be accommodated together in the same accommodation in Deniliquin or surrounding towns.

Nature of Loads and Monitoring

Traffic monitoring during the construction phase will include daily pre-start visual inspections of vehicles to ensure that the vehicles are in good working order and follow manufacturer specifications. Noise controls (efficient silencers, low-noise mufflers, etc.) must be installed and maintained (where reasonable and practicable).

Deliveries to the site will be tracked in a register to ensure that allowable limits outlined in the conditions are maintained.

Civil works vehicles, including standard construction materials, concrete, prefabricated components, and steel reinforcement, shall cover their loads.

Street sweeping shall be undertaken following sediment tracking from the site if required. Soil is loaded onto trucks using machinery such as diggers, loaders and excavators. All trucks used to transport contaminated soil are licenced by the EPA. All trucks removing soil and material from the construction work site are covered to prevent dirt and dust from escaping. The project also aims to minimise the length of time that spoil is stockpiled on site.

No building materials, waste, machinery, or related matter shall be stored on the road. All loading and unloading of vehicles shall occur within the boundaries of the site. Truck tyres will need to be washed prior to entering the public roadway from the site.

The construction contractor is obligated to manage any debris or damage to roads in which vehicles associated with construction travel. Mitigation measures such as sediment tracking, dust suppression and wheel cleaning will be implemented to ensure debris from the site is managed. Remediation to public roads if required due to damage caused by vehicles associated with the site will be undertaken by the proponent.

Community Consultation

The Project Manager will consult with and notify the surrounding property owners and any affected businesses of the proposed works and the proposed traffic management strategy.

A project-specific communication strategy will be prepared to determine the most effective way of notifying all affected parties. Consultation will also be undertaken with the responsible road authority to determine suitable communication methods.

Possible communication methods that could be utilised are as follows:

- Mail drop to local residents.
- Email lists.
- Variable Message Signage.
- Noticeboard/Poster signage.
- Media advertisement (radio/newspaper).
- Website.

Hazardous Goods

According to *State Environmental Planning Policy (Resilience and Hazards) 2021*, PHA lithium batteries are identified as a Class 9 Dangerous Goods. When transporting these goods, compliance with the *Australian Code for Transport of Dangerous Goods by Road and Rail* needs to be achieved by the contractor. As stated in the Preliminary Hazard Assessment prepared by RiskCon for this development, the batteries will comply with testing in accordance UL9540A to ensure safety during transport.

6.1.7. Water – Flooding

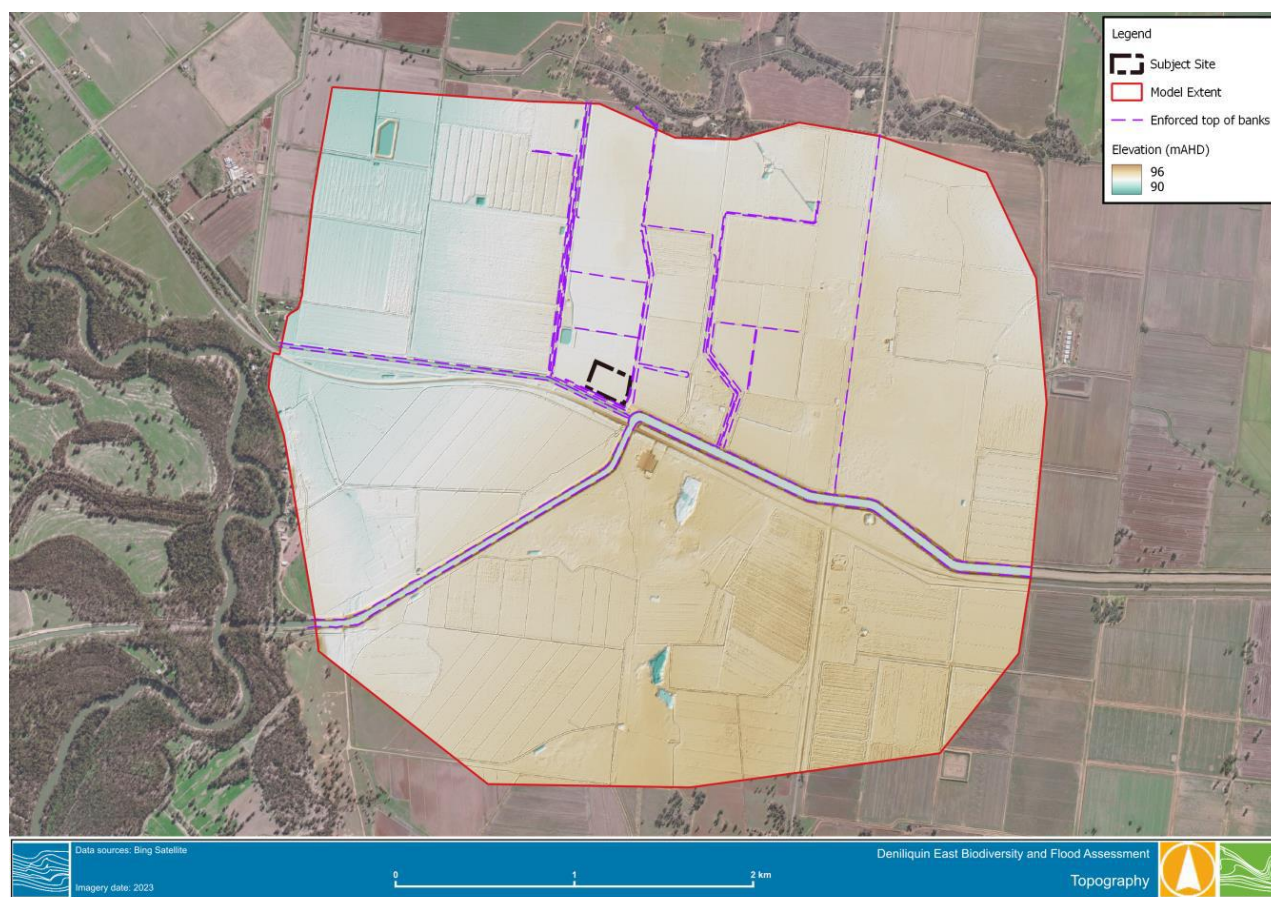
The site is located near the intersection between the Moulamein Channel and the Mulwala Canal. In accordance with the SEARs, an assessment of the likely impacts of the development, including flooding and groundwater resources was undertaken by Water Technology. This assessment included flood modelling of the site to estimate the nature of the flooding conditions during the existing environment and likely changes due to the proposed development.

In preparing the flood study, Water Technology has taken guidance from the *Edward River at Deniliquin Flood Study 2014*, the *Australian Rainfall and Runoff 2019 Book 6 Chapter 7*, and the *NSW Flood Risk Management Manual 2023*.

The software program TUFLOW was utilised for the Hydraulic and Hydrological models. The model domain covered an area of approximately 14.35 km² and comprised a uniform grid of 5m resolution square cells. Sub-grid sampling was also utilised to take advantage of the 1m high-resolution LiDAR to derive a non-linear storage relationship. The models were created for the 10%, 5%, 1%, 0.5% and 0.2% Annual Exceedance Probability (AEP) event plus climate change, including a worst-case scenario of Representative Concentration Pathway (RCP) 8.5.

Figure 29 Illustrates how the model uses changes in the terrain as part of the proposed development.

Figure 29 Model Extent and Topography



Source: Water Technology, 2024

Both the Mulwala and Moulamein Channels were noted to maintain a regular water level managed by downstream control structures to the Edward River. The Rain on Grid (**RoG**) method was used, which applies the rainfall directly onto the catchment land surface. This approach is particularly beneficial for catchment-based studies and the impact of dry and saturated ground conditions can be assessed, as well as the influence of groundwater levels.

To account for the changes in landscape because of the BESS, the baseline RoG model included topographic and land use changes to the hydraulic model. The proposed design incorporates tarmac areas and concrete pads for the battery and other infrastructure. No major earthworks are expected that would

alter the flooding mechanism in or around the site. A summary of the changes made to the TUFLOW hydraulic model is noted below and in Figure 30:

- One road from the Riverina Highway is proposed to enable access and egress from the site – the access road was represented by a small topographic uplift over each drainage channel to the BESS lease area. The remaining roads around the site have included a 0.05m uplift to account for a raised tarmac surface.
- A series of culverts under the access road were represented to enable the conveyance of channelised runoff. Each culvert size was selected to provide some level of cover from the obvert to the modelled road surface. It is expected that the culvert capacity will be assessed as part of the detailed design. The modelled culverts included:
 - 1x0.6m diameter circular culvert.
 - 2x1.2 diameter circular culvert (within the Moulamein Channel).
 - 3x 0.3 H x 0.6W box culvert (through the swale).
- Each concrete pad has been represented by a small uplift in the underlying DTM by 0.15m.
- The material land use has been adjusted to account for any crushed rock and road surface based on industry-standard Manning's values.

Figure 30 Hydraulic model changes for the design scenario



Source: Water Technology, 2025

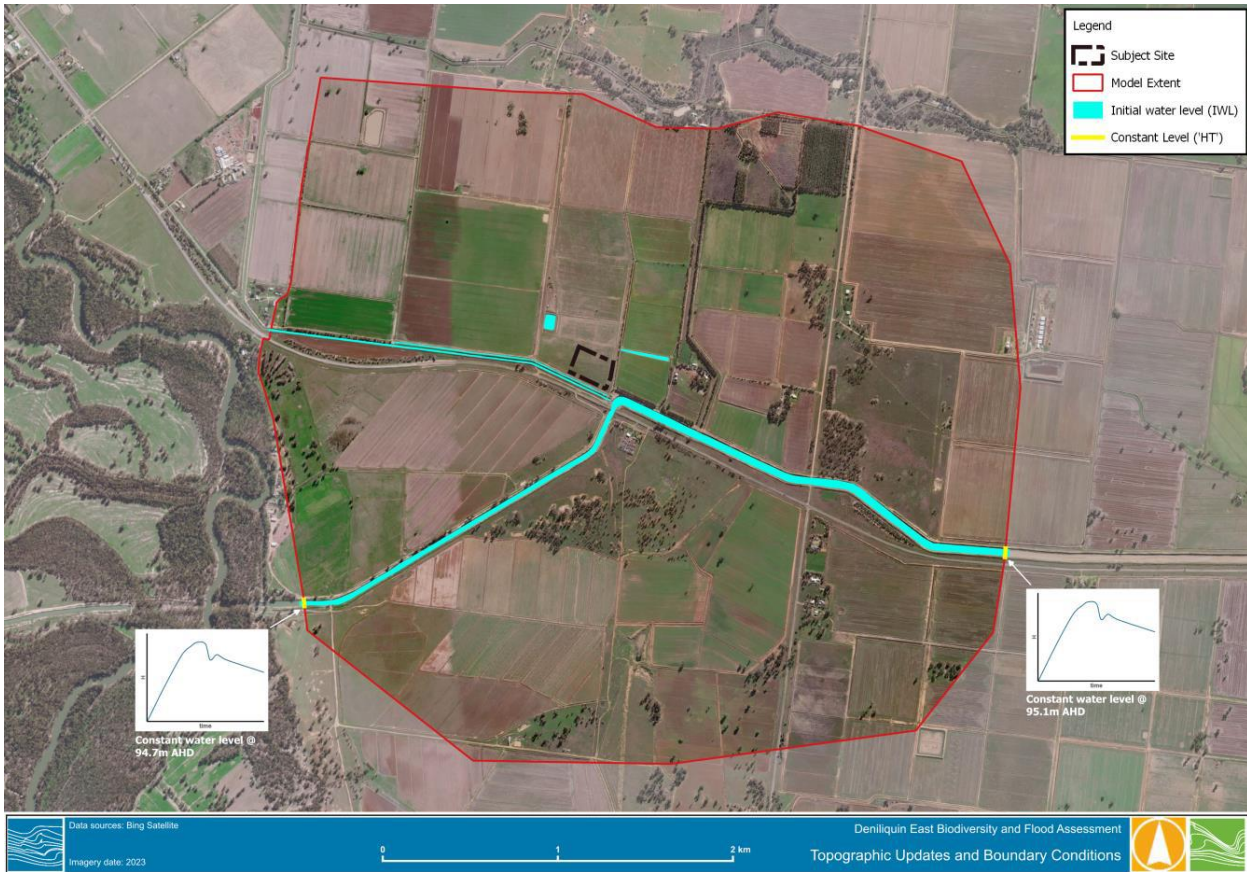
6.1.7.1. Existing Environment

A desktop review was undertaken to determine existing flood risk from riverine sources to the Site. Two likely sources of riverine flooding were identified near the Site, namely the Edward River to the west and Flanagan's Channel to the north. An existing Edward River flood study was commissioned by Deniliquin Council in 2014, highlighting the proposed BESS location remains flood-free up to the 0.5% AEP design event as part of the hydraulic assessment. The results indicated the protection provided by the Riverina

Highway and Moulamein Channel embankments. Results from the Probable Maximum Flood (PMF) event suggested the Site is inundated by depths ranging from 0-0.2m.

Initial water levels (IWLs) were set to specify the initial conditions at the start of the simulation (Figure 31). Both the Mulwala and Moulamein Channels were noted to maintain a regular water level managed by downstream control structures to the Edward River. For the purpose of the surface water assessment, a constant IWL driven by a Head-Time boundary on the Mulwala Channel was applied to the model. Initial water levels were approximated relative to the embankment levels to fill the storage within these channels over the course of the simulation and act as an antecedent condition.

Figure 31 Boundary conditions and initial water level areas



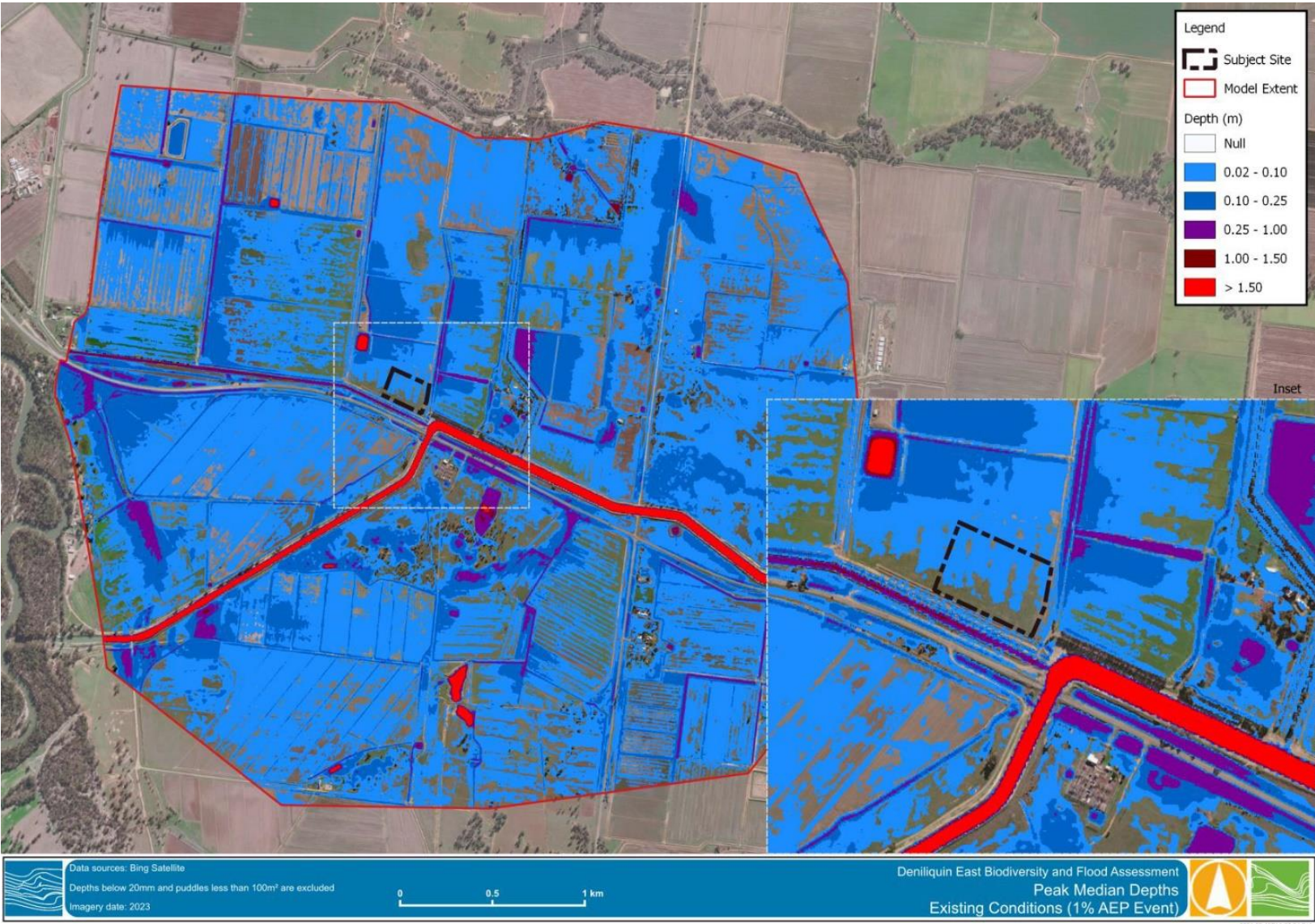
Source: Water Technology, 2024

The 1% AEP hydraulic model results outlined in Figure 32 to Figure 34 indicate that the 1% AEP event does not produce any major external catchment flow paths through the Site. The general fall across the topography is from the bottom-right to the top-left, indicative of the accumulation of ponded water near the adjacent field dam. The results highlight the shallow depths of flooding produced across the Site sheet off to the north-west and pond against the nearby channels embankments. A similar flooding mechanism is seen in all events up to the 0.2% AEP plus climate change allowance.

The velocities and hazard classification follow a similar pattern, with peak velocities across the lease area site ranging from 0.03-0.1 m/s. This is considered slow and reflective of the H1 hazard classification. Risk to people and vehicles within the Site area in existing conditions would therefore not be considered a concern.

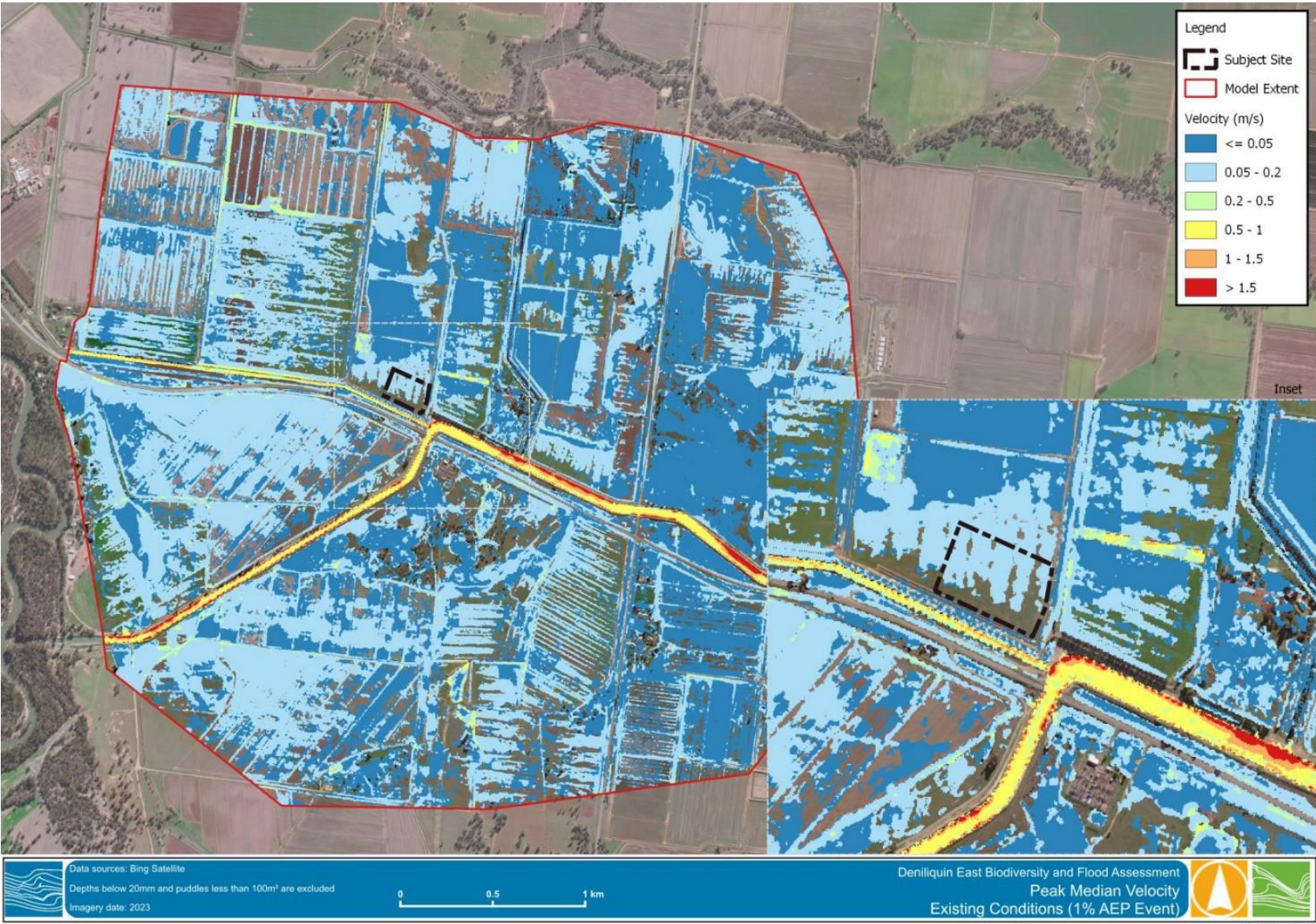
Consideration of climate change was applied to the 0.5% and 0.2% AEP events. In each case, the flooding mechanisms were identical and resulted in a shallow level of flooding across the Site. The 0.2% AEP plus climate change event resulted in a peak depth of 0.08m in in the north-west corner of the lease area.

Figure 32 Existing conditions – 1% AEP flood depth



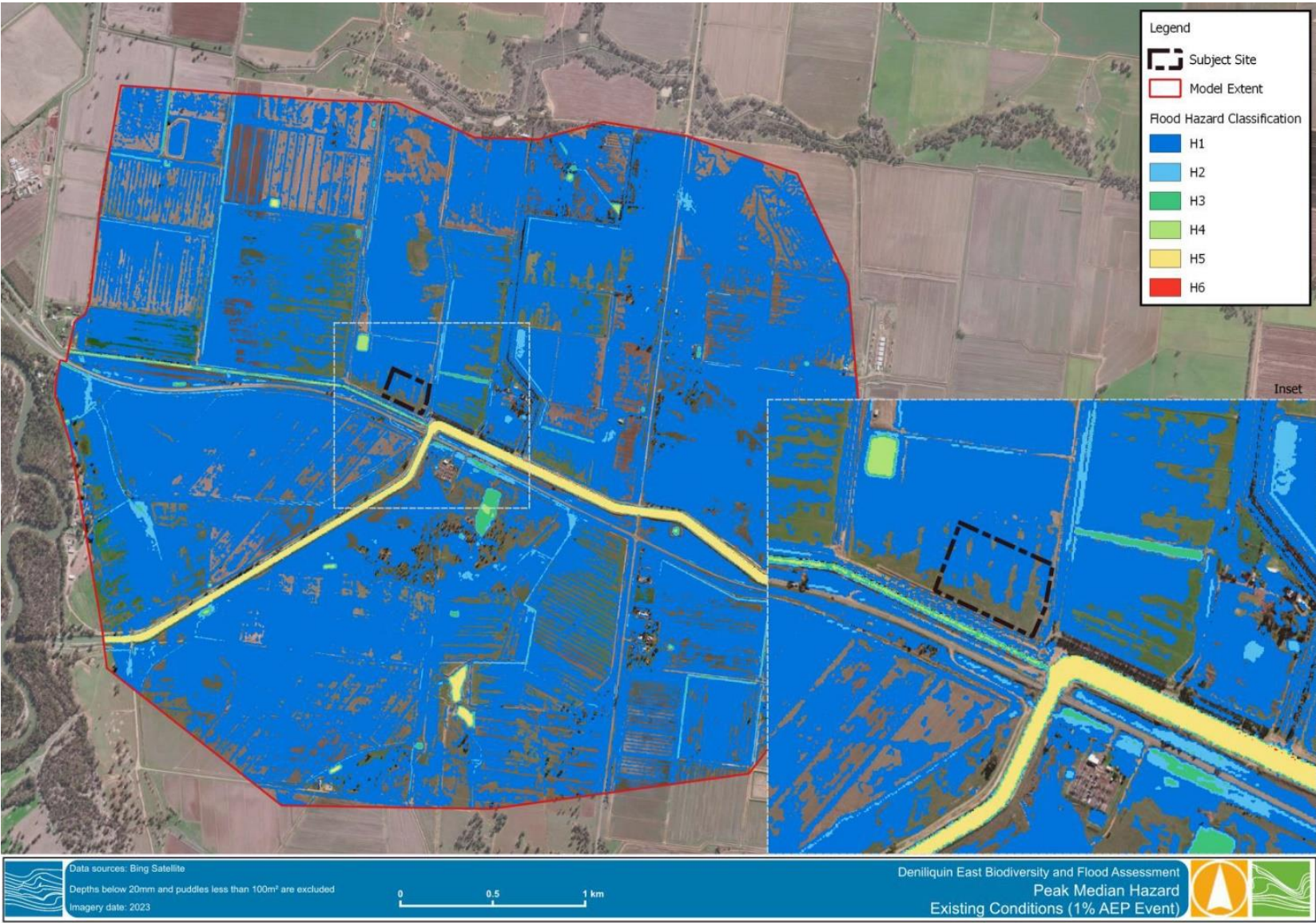
Source: Water Technology, 2024

Figure 33 Existing conditions – 1% AEP flood velocity



Source: Water Technology, 2024

Figure 34 Existing conditions – 1% AEP flood hazard



Source: Water Technology, 2024

6.1.7.2. Potential Impacts

The impact of the Project on the flood behaviour is likely to be very low as no major changes to the land topography (cut/fill) are expected or have been assumed within the hydraulic modelling.

Developed conditions output from the hydraulic model were compared to that of existing conditions to show the change in water levels and inundation extents caused by the development for a 1% AEP event. The flooding mechanisms across the AEP events display a similar behaviour and preferential flow path north-west towards the low-lying areas of the field.

The inclusion of the proposed BESS and adjustments to the local topography resulted in areas of increased attenuation behind the access road and elevated platform (Figure 35). The low-level runoff becomes entrapped behind the raised platform and results in upwards of 0.05m increase within the Site. Off-site, small pockets of increased flood levels can be observed adjacent to the access road crossing within the field channels where peak water level differences range from 0.02 – 0.12m.

Figure 35 Change in 1% AEP peak depth



Source: Water Technology, 2025

The PMF displays negligible difference in the peak water levels across the Site and wider model domain, other than an increase in water levels within the Moulamein Channel. The inclusion of culverts within Moulamein Channel and the swale has helped reduce attenuated water in these areas by facilitating flow to the west. The Applicant has consulted with Murray Irrigation Limited (MIL) and identified that the Moulamein Channel can be drained for maintenance works when required. Therefore, coordination with MIL to drain the channel during construction can enable avoidance of water movements or sediment disbursement impacts during construction of the culvert crossing. This can be coordinated prior to construction.

The proposed development is not predicted to result in indirect or direct damage to the local community in the event of significant flooding. No other detriment is observed that would impact other nearby receptors or emergency management within the local region. Access and egress from the Site are not expected to be impacted by surface water flood risk up to the 1% AEP event.

6.1.7.3. Mitigation Measures

Regarding access implications, the construction phase and resurfacing of access roads may create a bottleneck to any evacuation and emergency services. Therefore, it is recommended to not impede the movement of vehicles on the Riverina Highway more than necessary during the construction and operation of the proposed BESS.

Based on the flood depth, velocity and hazard levels estimated in the flood modelling of the site, the Site is generally categorised as low risk to surface water flooding. The following measures are proposed to be adopted:

- Any sensitive infrastructure such as inverters and battery storage, is to be located on raised fill pads with 300 mm freeboard above the maximum of the 1% AEP flood level. It is common for this type of infrastructure to be housed within shipping containers or small sheds with relatively small footprints. Given the shallow depths across the site, raising these small fill pads is highly unlikely to result in any adverse impacts offsite.
- The footings should be designed to withstand the flood velocities described in this report, which are mostly low in the Site.
- It is recommended that the best practice principles for stormwater and sediment control be incorporated into the design, construction, and operation phases of the BESS site.
- It is anticipated that vehicles can safely access and egress from the Site, however consideration should be given to not restrict the movement of emergency vehicles on the Riverina Highway with any scheduled roadworks.
- Monitoring and maintenance of any installed culverts to avoid blockage is recommended to facilitate conveyance to the west.

Upon implementation of the mitigation measures, it is anticipated that the project will not have any residual adverse impact on the flood risk and its appropriate management of the local area.

6.1.8. Water – Groundwater

A Groundwater Impact Assessment was undertaken by IGS in collaboration with Water Technology to address the requirements detailed in the SEARs. Specifically, the hydrogeological conceptual model consolidates key geological and hydrogeological information at the Subject Site, including depth to and quality of the local groundwater system, as well as any seasonal variation to inform an assessment of:

- The likelihood of groundwater contamination.
- Potential impacts, if any, on the environment including groundwater-dependent ecosystems (**GDEs**).
- Potential impacts, if any, on and from acid sulfate soils.
- Potential cumulative impacts, if any, on the groundwater system (including impacts on nearby groundwater extraction for potable water supply or stock water supply (Water Access Licences (**WALs**)).

Although the site is not located within a 'groundwater vulnerable' area as mapped in the Deniliquin LEP 2013, groundwater vulnerability at the Site was assessed to ensure the groundwater systems are maintained and to protect resources from depletion and/or contamination due to the proposed development. Additionally, the assessment considers whether the proposed development has any likely impacts on groundwater salinity.

6.1.8.1. Existing Environment

Historical rainfall data was taken from the Scientific Information for Landowners (**SILO**) database for the grid point nearest to the study area. The dataset covers a 67-year period from 1957 to 2024, which is deemed adequate to identify long-term rainfall trends. The mean annual rainfall is highly variable and sits around 400.2 mm/yr, with monthly average rainfall ranging between 25.1 mm in February and 40.4 mm in October.

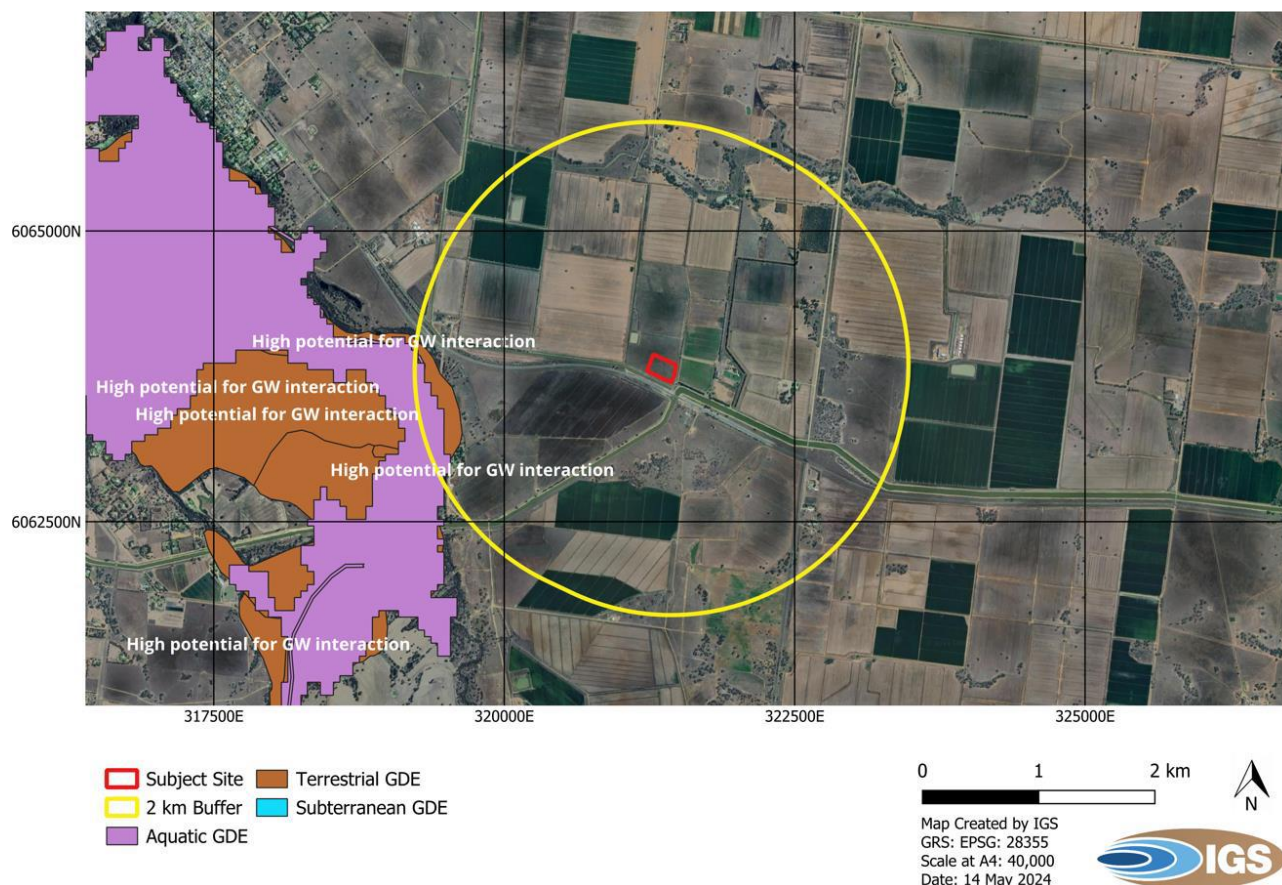
The Site is located within an area classified as the Lower Murray Alluvium, specifically defined as the shallow alluvium (CS27a), and deep alluvium (CS27b). The geology of the Lower Murray Alluvium comprises Cenozoic alluvial deposits overlying Ordovician basement rock of the Lachlan Fold Belt. The shallow aquifer is composed of clay and silty clay interbedded with sand layers, which matches the alluvial floodplain

Groundwater bore information including geology, water levels, yields and salinity (where available) were collated within an approximate 2 km radius of the Site (Figure 36). No current water levels were available at bores directly adjacent to the Subject Site. However, WaterNSW monitors numerous bores constructed in the Lower Murray Alluvium with three monitoring sites located between 7.5 – 12km from the Subject Site. It is estimated that groundwater levels in the shallow aquifer may occur within 3 – 5m below ground level (mgb).

Groundwater quality in the shallow aquifer varies from fresh to brackish with an average salinity of approximately 5,000 mg/L Total Dissolved Solids (**TDS**) and no obvious long-term freshening or salinisation trends.

No potential GDEs are located within the Site, however potential terrestrial and aquatic GDEs are located along the western boundary of the 2 km buffer around the Subject Site, although associated with the Edward River (Figure 37).

Figure 37 Groundwater Dependent Ecosystems near the site – GDE Atlas



Source: IGS, 2024

6.1.8.2. Potential Impacts

It is anticipated that no groundwater extraction will occur at the Site for construction or ongoing operation of the development and that all water requirements during construction will be taken from the Mulwala Irrigation Canal under the owner's existing licence.

It is determined that a water balance assessment is not required as it would be negligible due to the following factors:

- no groundwater extraction is proposed.
- the small catchment size and no stormwater reuse on site is proposed.
- minimal water demand during construction and operation that can be met using the existing water licence from the Mulwala Irrigation Canal.

Potable water during construction will be trucked to the Site by a private supplier from Albury, NSW (truck movements are accounted for in the construction vehicle movements in the Traffic Impact Assessment), and rainwater will be collected for amenity use during the operational phase of the development. It is anticipated that groundwater dewatering activities will not be required during the construction of shallow excavations (1.5 m maximum depth).

Groundwater-surface water interactions at the Site are likely to be limited due to the expected thickness of the underlying clay layer and the anticipated depth to groundwater of around 3 mbgl. No free groundwater was observed during pit excavations for the soil survey. The maximum depth of the survey was 1 metre.

During construction, there will be no significant stored volumes of chemicals or fuels (less than 100 L) and no refuelling or washing of vehicles. The potential risks of contamination would be from minor fuel or hydraulic hose leaks. Once operational, more than 100L of fuel will be stored onsite, which is a potential source of contamination. However, strong management practices will be in place to ensure that the fuel is stored in a bunded enclosure with a minimum of 110% of the stored volume to ensure the bund can contain the entire volume of the stored fuel. Therefore, it is expected that the risk of a fuel leak will be minimal.

A 0.9 m deep oil bund will be constructed, which also has the potential to be a source of contamination. However, the bund will be constructed to the current standards and will be subject to regular inspection and maintenance, thus not considered to be a significant source of contamination.

Furthermore, as they are self-contained units, the opportunity for external water to interact with the internal battery is deemed minimal and, therefore, the batteries are not considered a significant source of contamination.

6.1.8.3. Mitigation Measures

The risk of aquifer contamination associated with the proposed development during construction and operation is considered low due to the Site only storing a small volume of bunded fuel and no other sources of contamination during operation and no stored materials or refuelling/maintenance or washdowns etc. occurring during construction and therefore having no sources onsite.

Further, the locally thick clay layer will retard vertical migration through the unsaturated zone allowing time for removal of any spills to occur and be made good before contact with the groundwater. It is recommended that a shallow monitoring bore(s) be installed at the Site to verify the thickness of the overlying clay and depth to water in the shallow aquifer.

Mitigation measures are focused primarily on preventing chemical spills from reaching the groundwater system in the unlikely event of leakage. It is anticipated that some of these measures will be contained as part of an Environmental Management Plan post-approval as contingency measures. These include:

- Regular maintenance and inspection of fuel bund, oil bund and battery storage units.
- Development of site management plans detailing responses to leaks such as spill kits, removal and appropriate testing and disposal of impacted soils, and options for installing groundwater monitoring bores in the case of a significant fire or unexpected leak.
- Drilling of a shallow monitoring bore(s) at the Site to understand the thickness of overlying clay and water level in the shallow aquifer prior to construction. Should an onsite shallow monitoring bore identify an absence of clay and/or shallow water level at the Site, further shallow monitoring bores may be required and further consideration of potential impacts from proposed excavations.
 - Failing the above measure, measure water level in the shallow aquifer as close to the Site as possible to attain current water levels and verify whether construction works may intersect the groundwater system.
- If possible, excavate during summer or autumn when water level in the shallow aquifer is likely to be lowest to further reduce the already low likelihood of intersecting groundwater when excavating for the battery and substation footing (maximum 1.5 mbgl) and oil bund (0.9 mbgl).
- If a significant contaminant release or major fire occurs, then additional shallow bores should be installed up- and downgradient of the development to determine local groundwater flow direction and verify impacts to the local groundwater system.

Upon implementation of mitigation measures, it is considered that the Project will have a negligible impact on the groundwater resources of the locality, resulting in no impacts on groundwater quality and quantity during the construction, operation or decommissioning.

6.1.9. Hazards

A Preliminary Hazard Assessment (PHA) has been prepared by Riskcon (Appendix O) in accordance with the *Hazardous Industry Planning Advisory Paper No 6 – Guideline for Hazard Analysis (DoP, 2011)* and *Multi-Level Risk Assessment (DoP, 2011)*. This included an assessment of potential hazards that electromagnetic fields could have against the *International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields*.

The PHA also included a *preliminary risk screening completed in accordance with the State Environmental Planning Policy (Resilience and Hazards)* and *Applying SEPP 33 (DoP, 2011)*, which outlines the components and quantities that would be considered as 'Dangerous Goods'.

6.1.9.1. Existing Environment

There are several residential dwellings that are in relatively close proximity to the subject site. The closest dwelling is located 500m west of the site boundary. As the land is undeveloped, there are no existing hazards nor associated risks to the land.

6.1.9.2. Potential Impacts

Several components of the proposed development have the potential to raise the risk to the existing environment according to their identified hazards, which are generally related to ignition or explosive consequences.

Potential Dangerous Goods quantities have been outlined in Table 32 below. Additionally, the SEPP threshold of the individual classes have been provided for the purposes of the SEARs.

Table 32 Maximum Quantities of Dangerous Goods Stored & Preliminary Risk Screening

Area	Class	Description	Quantity	SEPP Threshold
BESS	9	Lithium Batteries	2,800 T	N/A
MV Transformer	C2	Transformer oils	80 kL	N/A
HV Transformer	C2	Transformer oils	60 kL	N/A
Control room generator	C1	Diesel	300 kL	N/A

Source: Riskcon, 2024

Based on the hazard identification table presented in Appendix O, the following hazardous scenarios have been developed:

- **Li-ion battery fault, thermal runaway and fire.**

Despite the improvement in battery technology, several degradation mechanisms are still present within the battery which can result in thermal runaway. These effects arise primarily as a result of high discharge, overcharging, or water ingress into the battery which results in a host of by-products being formed within the battery during charge and discharge cycles.

As a result, Li-ion battery containers are equipped with several safety features to prevent the batteries from charging or discharging at voltages which result in battery degradation, leading to shorting of the battery and thermal runaway. Should fire be developed within one BESS container, it would not transfer to nearby containers due to the fire safety design features.

- **Victorian Big Battery (VBB) fire review.**

According to the independent investigation report on its fire incidence, the main reason for fire propagation was strong wind blowing flames from one Megapack into the unprotected vent atop an adjacent Megapack which resulted in the ignition of the plastic fan which was able to impact the battery modules directly beneath the fan.

Lessons learnt from the VBB incident resulted in fire safety precautions on the design of the Project.

- **Li-ion battery fire and toxic gas dispersion.**

If a BESS failure occurs resulting in a fire, toxic by-products of combustion may form. These by-products include:

- Carbon dioxide.
- Carbon monoxide.
- Fluorine gases.

Both oxocarbons are considered unlikely to be formed at concentrations that would result in a substantial downwind impact in the event of ignition. Hydrogen fluoride, on the other hand, could cause danger to life

in concentrations above 30 ppm and the 10-minute lethal concentration is 170 ppm. Nevertheless, provided all security systems recommended are in place, the potential for the initiating event is considered unlikely.

- **Electrical equipment failure and fire.**

The type of equipment used for the proposed development is standard across industry segments and is therefore not a unique fire scenario. Based upon fire development within switch rooms the fire would be considered to be relatively slow in growth and would be unlikely to result in substantial impacts in terms of offsite impact or incident propagation.

- **Transformer internal arcing, oil spill, ignition and bund fire.**

Transformers contain oil which is used for insulation during operation. If arcing occurs within the transformer (e.g. due to a low oil level), the high energy passing through the coolant vaporises the oil into light hydrocarbons (methane, ethane, acetylene, etc.) resulting in rapid pressurisation within the reservoir.

Notwithstanding, considering the low potential for failure and the separation distance given to the site boundary and other adjacent components of the proposed development, it is considered unlikely that they would result in incident propagation and offsite impacts.

- **Transformer electrical surge protection failure and explosion.**

If the transformer gets an extreme surge of energy, such as that which could occur due to a lightning strike, and the electrical surge protection measures fail, the mineral oil may start to decompose and vapourise, resulting in gas bubbles of hydrogen and methane as temperatures above the autoignition of the gases. This could lead to an event chain in which concentration of flammable gases increase towards their explosive limits.

To protect against overheating and explosions, transformers generally have surge protection devices that shunt electrical surges safely to the ground. Although these measures are not universal, as previously mentioned, these units have a low potential for failure and are considered safe during these events.

- **Electromagnetic field Impacts.**

Electric and Magnetic fields (**EMFs**) can appear naturally or man-made wherever there may be electricity sources. BESS create EMFs from operational electrical equipment and has the potential to produce extremely low frequency (**ELF**) EMFs in the range of 30 to 300 Hz.

The *International Commission on Non-Ionizing Radiation Protection (ICNIRP)* has provided some guidelines around exposure limits for prolonged exposure which limits the exposure to 2,000 milligauss (**mG**) for members of the public in 24 hours.

Based upon the typical levels which may be generated by transmission equipment the cumulative effect would not exceed the 2,000 mG limit for prolonged exposure. In addition, the closest residence is over 500 m away from the EMF generating sources at the BESS. Hence, the potential for EMF to exceed the accepted levels is considered negligible.

6.1.9.3. Mitigation Measures

Based on the assessment conducted by Riskcon, it is concluded that the risks at the site boundary are not considered to exceed the acceptable risk criteria. The Project would only be classified as potentially hazardous and is permitted within the current land zoning for the site.

The following recommendations have been made as a result of the assessment to mitigate any potential hazards that could result during the construction and operation of the development:

- BESS will be tested in accordance with UL9540A.
- Testing to demonstrate clearances required to prevent the propagation of fires between separated units.
- BESS is to be installed in accordance with the manufacturer and UL9540A report recommended clearances based on testing.
- BESS to be installed with fire protection systems specified by the manufacturer and UL9540A report.

- Before construction, a detailed design to validate the system can be installed in the project area whilst meeting the recommended clearances.
- UL testing information shall be made available to the certifying authority. It is noted that a confidentiality agreement may be required.
- The vent covers of the BESS shall be constructed of non-combustible material.
- The vents shall not be located above battery packs within the BESS container.

6.1.10. Bushfire

A Bushfire Assessment Report (BAR) has been prepared by Building Code & Bushfire Hazard Solutions Pty Limited and is enclosed as Appendix P.

6.1.10.1. Existing Conditions

The BAR advises that the vegetation within the subject site and neighbouring allotments was found to comprise periodic management, crops and grazing. The vegetation in the broader landscape was found to be like that of the subject site and neighbouring properties.

The slope of the land under the classified vegetation (Category 3 Vegetation and Vegetation Buffer) has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the Site.

For the Site, the closest recorded wildfire was found to be located more than 3km to the west of the subject site and this fire occurred in the 1989-90 fire season. The Site is therefore not considered to be within a known fire path.

An aerial view of the subject site and wider assessment area is shown in Figure 38 below.

Figure 38 Aerial view of the locality overlayed with vegetation assessment within the 140m assessment area.



6.1.10.2. Potential Impacts

The BAR has assessed bushfire risk against the Rural Fire Service's *Planning for Bushfire Protection 2019* as required by the Planning Secretary's Environmental Assessment Requirements. A BESS is not a specified use in *Planning for Bushfire Protection 2019* and the BAR assesses the proposed development against the objectives of "wind and solar farms" in relation to asset protection zones (**APZ**); construction (not applicable); access; services, including water, electricity and gas services; and management plan.

6.1.10.3. Mitigation Measures

The proposed development has implemented the following to mitigate potential bushfire impacts and the BAR concludes that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development and satisfies all relevant specifications and requirements of *Planning for Bushfire Protection 2019*.

- At the commencement of construction, and in perpetuity, all ground within the subject site shall be maintained as an Inner Protection Area as detailed in the NSW Rural Fire Service's document *Standards for Asset Protection Zones* and Appendix 4 of *Planning for Bush Fire Protection 2019*.
- New access roads shall comply with the requirements for Non-Perimeter Roads as detailed in Table 5.3b of *Planning for Bushfire Protection 2019*, specifically:
 - property access roads are two-wheel drive, all-weather roads;
 - traffic management devices are constructed to not prohibit access by emergency services vehicles;
 - maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient;
 - the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.
 - hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
 - hydrants are provided in accordance with the relevant clauses of AS 2419.1:2021 - Fire hydrant installations System design, installation and commissioning;
 - minimum 5.5m carriageway width kerb to kerb;
 - parking is provided outside of the carriageway width;
 - curves of roads have a minimum inner radius of 6m;
 - the road crossfall does not exceed 3 degrees; and
 - a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
- Static water supplies shall comply with the requirements of *Planning for Bushfire Protection 2019*, specifically:
 - a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet;
 - ball valve and pipes are adequate for water flow and are metal;
 - supply pipes from tank to ball valve have the same bore size to ensure flow volume;
 - underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;
 - a hardened ground surface for truck access is supplied within 4m;
 - above-ground tanks are manufactured from metal;

- raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959);
 - unobstructed access can be provided at all times;
 - underground tanks are clearly marked;
 - tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and
 - all exposed water pipes external to the building are metal, including any fittings.
- Any new electrical services must comply with the relevant Australian Standards in specific *AS/NZS 7000 Overhead Line Design*.
 - Post-approval but, prior to occupation, a bushfire emergency management and operations plan is to be prepared consistent with the NSW Rural Fire Service Guide to developing a Bush Fire Emergency Management and Evacuation Plan. This assessment shall also include the additional detail required within s8.3.5 of *Planning for Bushfire Protection 2019*.

Upon implementation of the mitigation measures, it is considered that the bushfire risk can be appropriately managed in relation to the Project.

6.1.11. Social and Economic

This section provides a summary of the Social and Economic Impact Assessment (**SEIA**) in Appendix Q that identifies and analyses the potential positive and negative social and economic impacts associated with the development and operation of the Project. The two components of the SEIA are a Social Impact Assessment (**SIA**) and an Economic Impact Assessment (**EIA**) each of which addresses the specific SEARs for the Project.

The scope of the SIA has been developed in accordance with the:

- SEARs for the Project.
- SIA Guideline (DPHI 2023).
- The social characteristics and community values of the local area and Mid-Western Regional Council.

The methodology was informed by the guidance contained within the SIA Guideline and Technical Supplement (DPHI 2023).

6.1.11.1. Existing Environment

Social Locality

The social localities identified in the Project include:

- **The immediate social locality** includes residents within a 2-kilometre radius of the subject site who may be directly impacted by construction and operational activities, such as potential noise and changes to the visual landscape.
- **The broader social locality** includes the Deniliquin town centre and the surrounding rural areas, where workers and residents may experience temporary disruptions due to an influx of construction workers, but are also likely to benefit from the long-term advantages of the BESS operation and associated community benefits.

Population and Demography

A demographic profile has been developed for the combined area of 24 Statistical Area 1 within Deniliquin (referred to as the 'study area' from here on). The study area captures residents immediately surrounding the proposal and those living within the Deniliquin town centre. In 2021, 7,394 people lived in the study area, representing 87.4% of residents in Edward River LGA. The largest age group is 60-64-year-olds, comprising 7.9% of the study area population. There is a higher proportion of people aged 55+ in the study area (40.9%) compared to non-Metro NSW (35.8%).

Culture and Diversity

The study area has a lower proportion of Aboriginal and/or Torres Strait Islander People (4.9%), compared to Non-Metro NSW (6.1%). The study area has slightly lower levels of cultural and linguistic diversity than Non-Metro NSW, with 3.3% of households in the study area speak a language other than English at home compared to Non-Metro NSW (7.1%).

Housing and income

The median household income is similar in Deniliquin (\$1,221) and Edward River LGA (\$1,240) but lower compared to Non-Metro NSW (\$1,434). The study area has a similar proportion of people in the labour force (60.3%) compared to Non-Metro NSW (60.4%).

The majority of study area residents live in separate houses (78.8%), which is similar to Non-Metro NSW (73.3%). Almost a third of households within the study area are experiencing rental stress, with 31.5% of households spending more than 30% of their household income on rent. This proportion is lower compared to Non-Metro NSW (36%). A lower proportion of households within the study area are experiencing mortgage stress, with 6.5% of households spending more than 30% of their household income on mortgage repayments (compared to 12.7% in Non-Metro NSW).

Health and wellbeing

Over one-third (39.1%) of residents in the study area have at least one long-term health condition, which is slightly higher than the non-Metro NSW proportion (37.0%). The three most common long-term health conditions within the study area are arthritis (13%), mental health conditions (10.5%), and asthma (10.4%). Of the total study area population, 7.9% (556 people) identified as needing assistance due to disability, old age, or long-term health condition.

Community and Council Feedback on the Project

As specified in the DPHI Guideline, SIAs require community and stakeholder engagement to be undertaken to develop an understanding of impacts on communities and people as a result of a project.

A SIA community survey, coffee catch-up session with neighbours, a community pop-up at Deniliquin Plaza, and an interview with an Edward River Council representative were used to engage and consult the community and key stakeholders in relation to social impacts. Additional communication and engagement activities were also undertaken by representatives from the Urbis Engagement Team with nearby landholders, key community stakeholders, and other agencies.

The methods of engagement and consultation with community and key stakeholders and details of participation are provided in Appendix Q.

In general, feedback from the community and key stakeholders raised some concerns on potential impacts on local residents and the locality aligned with the findings in Section 5.

6.1.11.2. Potential Economic Impacts

Project Construction Economic Benefits

Total expenditure estimates for the Project have been provided by the Applicant. The total estimated capital investment value of the Project is \$118,000,000 (excluding GST). For the purposes of assessing economic impacts, however, GST must be included. As such, the Project is estimated to generate approximately \$59.83million of direct expenditure gross value added (**GVA**) for the local region and State. The Project has an estimated construction period of 9-12 months. For the purposes of modelling the construction phase economic benefit, Urbis has adopted a period of 11-months.

New jobs will be supported during the construction period by the direct expenditure on the Project. The direct (mostly on-site construction jobs) and indirect employment benefits according to the Urbis REMPLAN analysis are shown below:

- Direct Jobs = 52 (at peak)
- Indirect Jobs = 117
- Total Jobs = 169

Project Operation Economic Benefits

When construction of the Project is complete, operation of the BESS will support new jobs in the form of staff required to operate the facility. The direct and indirect employment benefits are shown below:

- Direct Jobs = 2
- Indirect Jobs = 6
- Total Jobs = 8

This direct employment and economic benefit, in turn, can support up to \$1.88 million in supply chain GVA across NSW each year. Supply chain GVA reflects increased economic activity in supporting and supplying businesses due to jobs and output from the facility.

Therefore, the total economic benefit from the operational phase could be in the order of \$2.76 million in GVA in each year of operation.

This is in contrast to the subject site's historical primary use as dryland sheep grazing. The income generated from the Existing Use of the subject site has been considered for an area of 3.5 ha, including the entire area of the proposed BESS development.

6.1.11.3. Workforce Accommodation

It is imperative that the proposed development causes no adverse impact on housing demand and supply during the construction phase of the project, including mitigating cumulative impact from other projects overlapping the locality and timeframe of construction. Urbis has undertaken an assessment to identify:

- Local employment capacity that the proposed development can draw upon, highlighting employment within relevant occupations.
- Major projects the proposed development will compete with for local employment.
- Confirm sufficient capacity for short term workforce accommodation to support the project without adverse impact on the community.

The SEIA prepared by Urbis undertook to catchment assessments of 150km and 50km to identify potential cumulative impact. However, the 150km catchment is unlikely to fully show the potential impact relative to the project as it is unlikely (and potentially unsafe) for workers to complete a 1.5 hour drive time both and from work. Subsequently the 50km catchment is selected as the optimal catchment for assessment, which equates to a 54-minute drive time. The catchment is shown in Figure 39 and encompasses all major renewable energy projects within the selected catchment. Of these seven competing projects within a 45-minute drive time of the Site, only one other project is likely to coincide with the development of the Site and, therefore, will be competing for the available workforce and short-term accommodation.

Projected Workforce Breakdown

Table 33 illustrates the construction worker requirements for the subject site split by expected Specialist Workers and Civil/Mechanical Workers over the proposed development timeline. Based on the Applicant's experience in procuring the workforce for similar projects in the Region, it was found that they were generally able to source all the civil/mechanical workers locally, while Specialist workers have been more difficult to source from the local population.

Table 33 Subject site required workforce over the proposed development timeline

Month	1	2	3	4	5	6	7	8	9	10	11
Onsite Total Workers	5	15	22	32	50	52	52	38	34	9	4
Specialist Workers– HSE/QA/Electrical/Grid (Specialty workers likely from outside of the region)	3	9	12	15	32	34	41	29	32	9	4
Civil/Mechanical Workers – (Local Contractors May Be Possible)	2	6	10	17	18	18	11	7	2	0	0

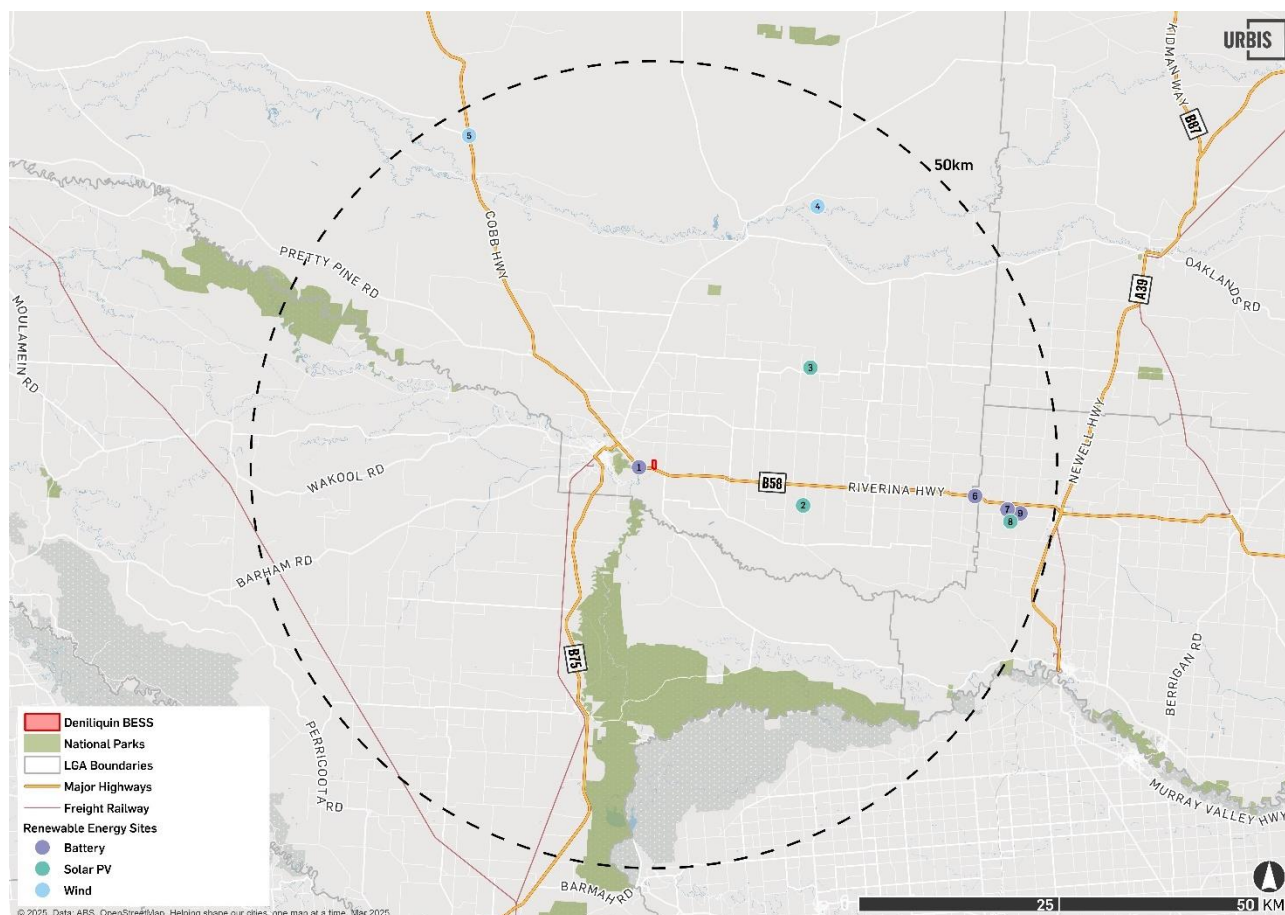
Source: Gransolar (December 2024)

Figure 39 highlights the cumulative worker requirements of the various projects within the Catchment. It ultimately provides the number of outside workers that are likely to enter the Catchment Area for all projects over the construction phase of the Project. The table first calculates the total catchment workforce required by the Deniliquin East BESS and other competing projects. These were summed together to get the Total Catchment workforce requirement. At the peak, there is a requirement for 162 workers in May 2026.

The split between the non-local and local workers was calculated using the likely portion of workers, which will be Mechanical/Civil compared to Specialist workers using the proportions applied to the subject site in Table 33.

Upon the commencement of the Deniliquin East BESS project in January 2026, approximately 82 workers are anticipated to be required from beyond the catchment. This is expected to increase to the 137 staff required by July 2026 as construction in the Catchment peaks. The number of workers needed from beyond the catchment is anticipated to decrease as the project progresses towards completion and additional workers are no longer required.

Figure 39 Catchment map



Source: Urbis (March 2025)

Short-term Workforce Accommodation

An assessment of short-term accommodation facilities within the Catchment reveals a total supply of 345 rooms. These facilities are distributed across several locations, including:

- Deniliquin, which is situated five to 12.5km from the Site, equivalent to less than a 10-minute drive
- Mathoura, located 42km away with a 31-minute drive time
- Finley, 50km away, requiring a 34-minute drive.

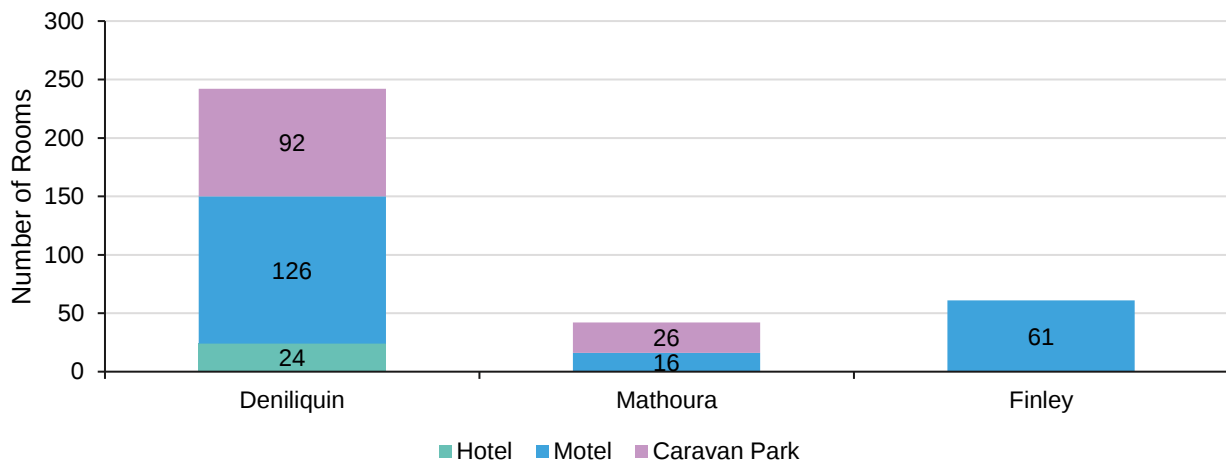
Figure 40 provides a detailed breakdown of short-term accommodation supply by suburb within the Catchment, highlighting the distribution of available rooms across these areas.

Discussions with accommodation providers indicate long-term contractual arrangements exist between companies requiring temporary accommodation for workers surrounding Deniliquin. While most operators are open to accommodating short-term construction workers, they will hold a proportion of their stock to make it available for tourist visitors.

Due to the timing and number of temporary workers, it is likely there will be a requirement for accommodation slightly further away from the subject site in the town of Moama, which is approximately 45-55-minute drive from the subject site.

Throughout the 11-month construction period of the Deniliquin East BESS, there will be a maximum availability of around 69 beds across Deniliquin and the surrounding towns within the Catchment. This represents 20% of the total short-term accommodation room supply (assuming one person per room).

Figure 40 Catchment area short-term accommodation

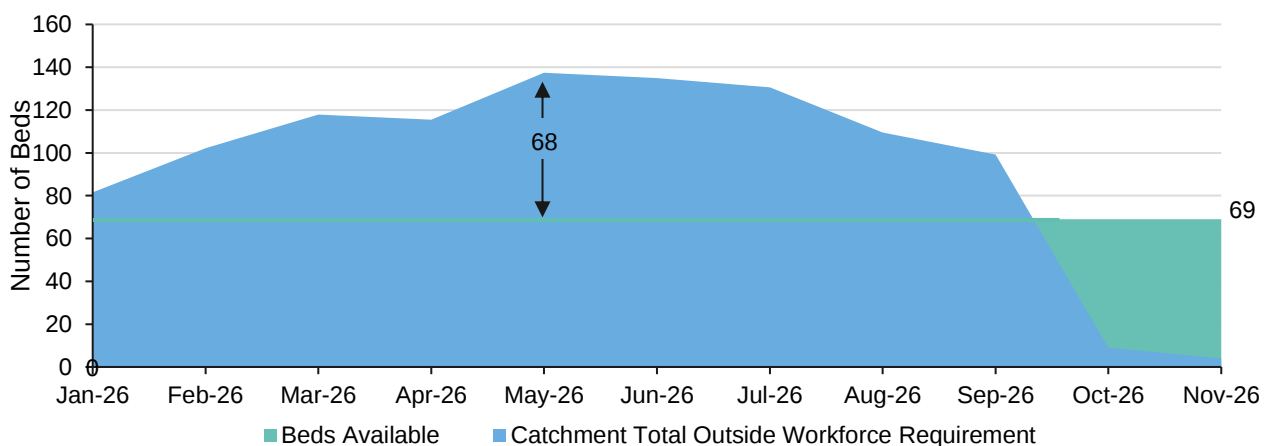


Source: External Operators; Urbis (December 2024)

Workforce accommodation gap solutions

Figure 41 illustrates the 20% of available workforce accommodation, shown in green, within the Catchment Area compared to the expected non-local workers who will require accommodation, shown in blue. The Catchment is anticipated to have insufficient workforce accommodation to meet all the workforce demand from January 2026 to September 2026, based on taking 20% of short-term accommodation within the Catchment. At the peak, 137 workers are required from beyond the Catchment in May 2026; the Catchment is, therefore, forecast to have an undersupply of around 68 beds during the peak month of construction activity.

Figure 41 Workers from outside the catchment to short-term accommodation gap



Source: Cordell Connect Construction Database; New South Wales Government; Victorian Government; REMPLAN; Alt Energy; External Operators; ABS; Urbis (December 2024)

Accommodating the remaining workforce

The SEIA concludes that from January 2026 to September 2026, workforce accommodation is expected to be undersupplied within the 45-minute drive time Catchment of the subject site. This section explores securing accommodation in the next closest town along the highway, in the suburb of Moama, approximately 45-50 minutes from the subject site. There are approximately 454 short-term accommodation rooms in the suburb of Moama. As many Short-term Accommodation operators hold a proportion of their stock to make it available for tourist visitors, we have only assumed a 20% proportion of this stock as being available. This equates to 91 rooms available for workforce accommodation. At the peak of worker requirements, there would be a requirement of 68 workers outside the 45-minute Catchment. Assuming both Tarleigh Park Solar Farm and Deniliquin East BESS accommodated their remaining workforce at Moama, the two projects would only take 15% of the existing short-term accommodation at the peak of the shortfall, which is well below the 20% slated as tolerable to maintain a healthy tourism market.

The timing of other projects around the Moama area were checked to see if their timing was during the critical months for the subject site of January 2026 to November 2026 and no projects were found to be aligned with this timing.

Adding Moama will provide sufficient accommodation for the non-local workforce to be fully accommodated from January 2026 to September 2026, with October and November 2026 already covered within the Catchment. The Proponent intends to run a shuttle bus services between the town of Moama to the subject site to transfer their workers safely every day to work. Based on the portion of non-local workers at the subject site compared to total non-local worker requirements in the Catchment, the Applicant would need to take between 4% and 32% of the demanded accommodation space at Moama. The increasing portion is due to Tarleigh Park Solar Farm ramping down its construction worker demand prior to Deniliquin East BESS as it is expected to commence five months prior.

In summary, additional workforce accommodation beyond 20% of the short-term accommodation likely to be available within a 50-minute drive time of the subject site is unlikely to be required for all the projects in the Catchment over the expected construction period of the Deniliquin East BESS between January 2026 and November 2026. A shuttle bus can be used from Moama to Deniliquin to safely take any workers who locate in this town to the worksite. This maximum number of workers this is likely to involve is 20 workers at the peak for 1 month.

6.1.11.4. Potential Cumulative Social Impacts

The following table summarises the assessed potential impacts from the Project and mitigation measures (Table 34).

Table 34 Summary of proposed mitigation, enhancement and management strategies of social impacts

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
Way of life	Social cohesion and short-term accommodation availability during construction	Low negative to negligible during construction for residents and workers in the immediate social locality	Low negative to negligible during construction for residents and workers in the immediate social locality	- Ensure the construction workforce does not occupy more than 20% of available short-term accommodation in the local area. - Prior to selecting a construction partner, prepare a Workforce Accommodation Plan or Strategy that assess the potential cumulative impacts on local short term accommodation availability if additional competing renewable energy projects emerge with similar construction timeframes to the proposal. - Consult with local short term accommodation providers to align peak construction periods outside of months when they experience peak occupancy rates, such as when major events occur (e.g. Deni Ute Festival). - Provide guidance for the workforce on expected behaviours through a Code of Conduct. Inform the community about measures in place to support harmonious dynamics between workforce and local community. - Continue to consult with the Edward River Council regarding the pipeline of proposed renewable energy projects in the local area. This will enable the Proponent to adequately consider cumulative	The Proponent Construction partner	Edward River Council Local short-term accommodation providers Local employment and training organisations Social Planning consultants Engagement consultant

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
				construction impacts as part of their Workforce Accommodation Plan and/or stage their construction activities to minimise overlapping construction periods with competing renewable energy projects. Engage with local employment and training organisations to ensure that potential local employees are communicated with opportunities associated with the proposal through various channels.		
	Temporary increase in demand for social infrastructure and services	Low negative for residents, workers and future construction workers in the immediate social locality during construction	Low negative to negligible for residents, workers and future construction workers in the immediate social locality during construction	- Ensure service providers and venues are well informed of the incoming workforce to plan for it. - Continue to consult with the Council to confirm the potential community benefits to be considered for the Community Benefit Sharing Scheme/VPA. - Prepare a Letter of Intent, a non-legally binding document outlining the community benefits or financial contributions a Proponent intends to provide through a VPA. This allows for flexibility, given that community and Council priorities can change between lodgement and approval and allows the Council to coordinate community benefits associated with other renewable energy projects. - Prepare the final VPA, ensuring it is informed by Council consultation.	The Proponent Construction partner	Edward River Council Local service providers Social Planning consultants

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
Community	Contributions to the renewable energy sector	High positive for residents in the immediate and surrounding social locality during operation	High positive for residents in the immediate and surrounding social locality during operation	Continue educating the local community about the role, function, and benefits of BESS projects. This could be included in future project newsletters and on the project website.	The Proponent	Edward River Council Local stakeholders Construction partner
	Increased opportunities for social value creation	Medium positive for existing residents, businesses and workers in the immediate social locality during operation	High positive for existing residents, businesses and workers in the immediate social locality during operation	- Develop and implement a stakeholder engagement and communication strategy so that residents can provide feedback throughout the construction period. - Continue engagement with the Council and key stakeholders on the proposal's design, construction activities, benefit-sharing initiatives, and further opportunities to deliver local benefits to the local community and maintain a social licence to operate. - Consider engaging communities in the definition of the community benefit fund to ensure the proposal identifies meaningful opportunities to deliver local benefits, as this is critical for establishing and maintaining a social license. - Continue presence and consultation in the community during planning stages to increase the perception of influence.	The Proponent	Edward River Council Social Planning and Engagement consultant
Accessibility	Potential access impacts	Medium negative for the	Low negative to negligible for	Before construction commences, ensure all recommendations outlined in the TIA	The Proponent	Edward River Council

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
	from increased construction traffic	immediate and surrounding social locality during construction	the immediate and surrounding social locality during construction	are implemented. Implement traffic mitigation measures as specified in the TIA. - Utilising a shuttle bus service and enforcing carpooling policies among the workforce to get to and from the subject site may reduce daily project-related traffic volume. This may, in turn, mitigate public safety concerns arising from the additional temporary traffic, as the overall number of individual cars on the road would be reduced. - Provide open and ongoing communication channels to inform the surrounding community of any changes in traffic conditions during construction. - Undertake engagement with emergency services to gather their feedback on the proposal and promptly identify potential concerns regarding access.	Construction partner	Local emergency services Social Planning and Engagement consultant
Culture	Potential impact on Aboriginal objects and places	Low negative to negligible for Aboriginal and Torres Strait Islander peoples who currently live within the surrounding social locality or have a	Low negative to negligible for Aboriginal and Torres Strait Islander peoples who currently live within the surrounding social locality	Continue engagement with RAPs throughout project delivery.	The Proponent Construction partner	Local Aboriginal and Torres Strait Islander stakeholders Local RAPs Edward River Council Engagement consultant

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
		connection to the land during construction and operation	or have a connection to the land during construction and operation			
Health and wellbeing	Potential amenity and health and wellbeing impacts during construction	Low negative for landowners and residents in the immediate social locality including along Aratula North Road, Aratula South Road Riverina Highway and Hogans Lane during construction	Negligible for landowners and residents in the immediate social locality including along Aratula North Road, Aratula South Road Riverina Highway and Hogans Lane during construction	- Consider preparing a Construction Noise and Vibration Management Plan to assess any potential cumulative impacts of surrounding developments. - Prepare a project specific Construction Environmental Management Plan to minimise potential noise, dust and construction traffic impacts. This includes implementation of all reasonable and feasible recommendations provided within the Construction Environmental Management Plan. - Provide a community liaison officer to liaise with the local community during construction. This will ensure that the local community is aware of the proposal updates and provide a point of contact for them should stakeholder complaints about increased noise or dust arise.	The Proponent Construction partner	Local service providers Community liaison officer Engagement consultant
	Amenity impacts related to operational noise	Low negative for landowners and residents in the immediate social locality including along Aratula	Low negative to negligible for landowners and residents in the immediate	- Implement all recommendations and mitigation measures provided in the Noise and Vibration Impact Assessment prepared by WSP (2025). - Coordinate operational activities and mitigation measures across adjoining	The Proponent Construction partner	Local stakeholders Community liaison officer Engagement consultant

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
		North Road, Aratula South Road Riverina Highway and Hogans Lane during operation	social locality including along Aratula North Road, Aratula South Road Riverina Highway and Hogans Lane during operation	developments to help minimise impacts on surrounding residents.		
	Human safety risks	Low negative for existing and future residents, businesses, workers and visitors in the immediate and surrounding social locality during operation	Low negative to negligible for existing and future residents, businesses, workers and visitors in the immediate and surrounding social locality during operation	- Ensure consistent consultation with local Rural Fire Service (RFS). This collaboration will ensure ongoing compliance with bushfire safety measures, facilitate regular updates on fire risk management, and provide the community with confidence in the project's commitment to safety and environmental stewardship. - At the pre-construction stage, implement all reasonable and feasible mitigation measures recommended in the Bushfire Assessment Report and the Preliminary Hazard Analysis.	The Proponent Construction consultant	Emergency service providers
Surroundings	Perceived loss of productive agricultural lands	Low negative for existing residents in the immediate and surrounding	Low negative for existing residents in the immediate and surrounding social locality	- At the pre-construction stage, implement all reasonable and feasible mitigation measures recommended in the AIA (Creating Greater, 2024). - Consider developing a land management plan to facilitate land and agricultural	The Proponent Construction partner	Edward River Council Local stakeholders

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
		social locality during operation	during operation	benefits during operation through post-decommissioning. - Develop land management plans with landowners and local agricultural producers to investigate and implement sustainable land practices. - Develop educational materials accessible to the local community to inform them about the function and role of BESS. - Highlight the proposal's limited loss of agricultural land and include information for the community about the decommissioning process.		
	Changed sense of place related to changes to visual landscape	Low negative for residents, businesses, workers and visitors in the immediate social locality during operation	Negligible for residents, businesses, workers and visitors in the immediate social locality during operation	Continue stakeholder engagement to identify the risk of perceived visual impacts or if stakeholder concerns around visual impacts arise.	The Proponent Construction partner	Design consultants Local stakeholders
Livelihood	Contribution to the local economy through increased employment opportunities and spending at	Medium positive for people employed in the construction and building maintenance industries in the immediate and	High positive for people employed in the construction and building maintenance industries in	- Wherever possible and practical, engage with local business services to identify and maximise local procurement benefits derived from the proposal. - Encourage local employment during construction and operation by actively advertising available jobs in various communication means used by the local	The Proponent	Local business services Engagement consultant Local employment and training organisations

Theme	Matter	Unmitigated /Unenhanced	Mitigated /Enhanced	Proposed mitigation, enhancement and management	Responsibility	Potential partners
	local businesses	surrounding social locality during construction and operation	the immediate and surrounding social locality during construction and operation	community, including community boards, local newspapers, and online community groups. - Engage with local employment and training organisations to ensure that potential local employees are communicated with opportunities associated with the proposal through various channels. - Wherever possible and practical, prioritise sourcing materials and services from local businesses to stimulate the local economy.		
Decision making systems	Opportunities for the local community to get involved in the decision-making process	Low positive for existing residents, businesses and services in the immediate and surrounding social locality during construction and operation	High positive for existing residents, businesses and services in the immediate and surrounding social locality during construction and operation	- Utilise communication channels that are relevant and accessible to the local communities. Ensure updates and opportunities for involvement are communicated efficiently and not redundantly to avoid consultation fatigue. - Establish a dedicated community liaison officer before construction to act as a consistent point of contact for residents, address concerns, and provide timely information.	The Proponent Construction partner	Engagement consultant

Theme	Matter		Potential partners
Cumulative impacts	5. Contribution to the renewable energy transition	As per the Australian Energy Infrastructure Commissioner, coordinate communication with other developers working on nearby projects to ensure that clear, coherent information is provided to the local community during construction and operation. This will also ensure that information and consultation are not duplicated to avoid consultation fatigue.	The Proponent Construction consultant Social Planning and Engagement consultant
	6. Contribution to community benefits sharing initiatives		
	7. Demand for local housing and accommodation	Assess the housing and accommodation environment, identify potential accommodation and rental market pressures in the local and regional area, and detail plans to accommodate the proposed construction workforce effectively and develop and implement a workforce accommodation strategy before construction.	
	8. Potential for consultation fatigue	- Consider developing a workforce strategy for construction and operation, including measures to prioritise local employment, establish ongoing partnerships with local training and education institutions to connect local apprentices, trainees and workers with placement during construction and operation, and upskilling pathways for employees. - Consider liaising with other significant concurrent projects in the area to understand their peak workforce requirements and consider programming construction works for the proposal to align with reductions in workforce requirements for concurrent projects. - Develop a Construction Management Plan or Plan of Management that considers concurrent renewable and significant projects, particularly concerning cumulative traffic impacts, and aligning any workforce accommodation plans or employment strategies. - Continue implementing a stakeholder consultation program and foster opportunities for the local community to have a say on the proposal design and delivery.	

6.2. STANDARD ASSESSMENT IMPACTS

6.2.1. Non-Aboriginal Cultural Heritage

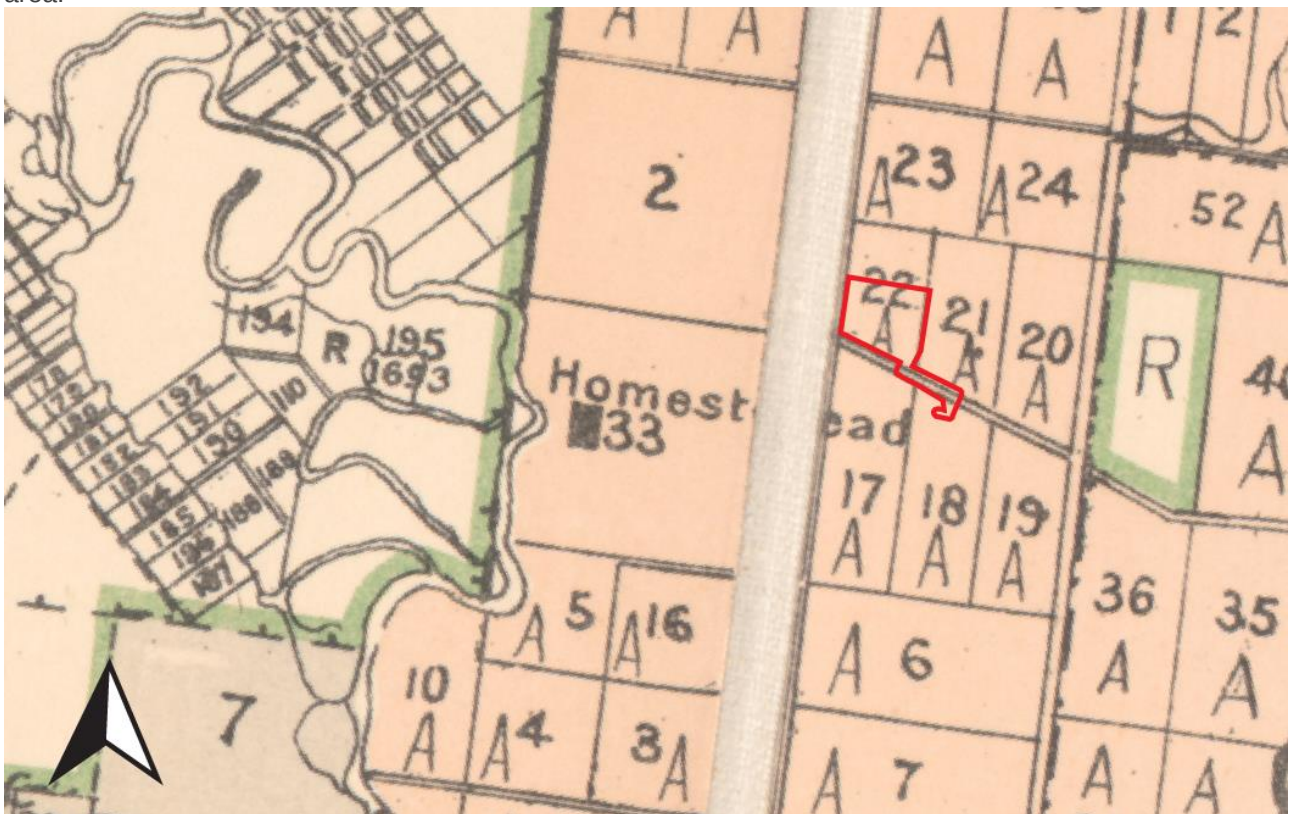
A Heritage Impact Statement (HIS) has been prepared by Urbis and is enclosed as Appendix H.

6.2.1.1. Existing Environment

The Site is not identified as a heritage item, nor is it located within a heritage conservation area (HCA). The closest heritage item is located approximately 5km to the north-west of the subject site, being the *Water Tower, pumping station and chimney stack* at Memorial Drive (item 33) listed on the Deniliquin Local Environmental Plan 2013. There are no heritage items located in the immediate vicinity of the subject site, or within a distance that could be considered to be within the same context as the subject site (in terms of potential for heritage impacts).

Until the present day, the subject area has been continually used as agricultural land. This is indicated by historical aerial images of the site from the late-20th and early 21st centuries below. In 1883, it was also subject to the construction of a road which was realigned and resurfaced in 1940. The subject area was also impacted by the construction of the Mulwala Canal in 1935.

Figure 42 Subdivision plan of the Town of Deniliquin and its surrounds, showing the location of the subject area.



Source: NLA, 1883. Obj. No. 231690019.

Figure 43 Berriquin Irrigation District, showing the route of the Mulawa Canal through the subject area.



Source: Dept. of Lands, Sydney NSW, 1948. No. 48-733.

6.2.1.2. Potential Impacts

Archaeological research potential of a site is the extent to which further study of relics likely to be found is expected to contribute to improved knowledge about NSW history which is not demonstrated by other sites, archaeological resources or available historical evidence. The potential for archaeological relics to survive in a particular place is significantly affected by later activities that may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there. The archaeological potential of the subject site is assessed and graded as per:

- **Nil Potential:** the land use history demonstrates that high levels of ground disturbance have occurred that would have completely destroyed any archaeological remains. Alternatively, archaeological excavation has already occurred, and removed any potential resource.
- **Low Potential:** the land use history suggests limited development or use, or there is likely to be quite high impacts in these areas, however deeper sub-surface features such as wells, cesspits and their artefact bearing deposits may survive.
- **Moderate Potential:** the land use history suggests limited phases of low to moderate development intensity, or that there are impacts in the area. A variety of archaeological remains is likely to survive, including building footings and shallower remains, as well as deeper sub-surface features.
- **High Potential:** substantially intact archaeological deposits could survive in these areas.

The potential for archaeological remains or 'relics' to survive in a particular place is significantly affected by land use activities that may have caused ground disturbance. These processes include the physical development of the site (for example, phases of building construction) and the activities that occurred there. The following definitions are used to consider the levels of disturbance:

- **Low Disturbance:** the area or feature has been subject to activities that may have had a minor effect on the integrity and survival of archaeological remains.
- **Moderate Disturbance:** the area or feature has been subject to activities that may have affected the integrity and survival of archaeological remains. Archaeological evidence may be present, however it may be disturbed.
- **High Disturbance:** the area or feature has been subject to activities that would have had a major effect on the integrity and survival of archaeological remains. Archaeological evidence may be greatly disturbed or destroyed.

Table 35 provides a preliminary assessment of potential archaeological relics retained at the subject site, as well as their likelihood to occur at the subject site.

Table 35 Historical archaeological potential of the subject site

Potential Resource	Assessment	Archaeological Potential
Artefacts	The entire subject area has been impacted by recurrent ground disturbing works including agriculture, the construction of roads and irrigation channels. Therefore, it is very unlikely for in situ deposits of artefacts to occur anywhere within the site. The subject site has been continually occupied as agricultural and grazing land since the mid-19th Century. Deposits of agricultural and animal agistment tools, as well as general discard items could occur throughout the northern section of the site. However, given the extent of subsequent ground disturbances, these deposits are likely to have been removed. If retained, these deposits would retain little-no spatial or physical integrity.	Low

Potential Resource	Assessment	Archaeological Potential
Deep Features	There is no documentary evidence which suggests the former presence of deep features within the subject site – such as, wells or cesspits. Although undocumented deep features may occur in unmapped locations, these deposits would be truncated and highly disturbed.	Nil-Low
Structural Remains	Except for its clearance, there is no historical evidence for the subject site's development since it was settled in the 19th Century. Undocumented cursory structures – such as, small sheds or structures for animal containment – may have formerly been present within the site. However, associated deposits would have been substantially disturbed or entirely removed by subsequent ground disturbing works.	Nil-Low
Ephemeral Evidence	The subject site has been continually occupied as agricultural and grazing land since the mid-19th Century. Ephemeral evidence of agriculture – such as, hoe marks or post holes – would have been entirely removed by subsequent ground disturbances.	Nil

6.2.1.3. Mitigation Measures

A heritage impact statement has been prepared to assist the consent authority in their determination and to assess the potential heritage impacts of the proposed works. The HIS concluded that:

- The subject site is not a listed heritage item and is not in a conservation area. There are no items within the site which are identified to be of any heritage significance.
- There are no heritage items located in the immediate vicinity of the subject site, or within a distance that could be considered to be within the same context as the subject site (in terms of potential for heritage impacts).
- The change in the landscape character would be minor and likely imperceptible in views from the heritage item.

As such, the HIS states that there is no potential for the proposed works to have any heritage impacts, thus no mitigation measures are deemed required.

6.2.2. Waste

Premise was engaged to prepare a Waste Management Plan (**WMP**). The purpose of the WMP is to encourage the efficient use of resources and maximise the diversion of waste from landfill, and thus increasing the recycling rate. With reference to the *NSW Waste Avoidance and Resource Recovery Act 2011 (WARR Act)* and in accordance with the *Environment Protection Agency Waste Classification Guidelines 2014*, the WMP will help manage the waste likely to be generated on-site and follow the hierarchy:

- Reduce waste production.
- Recover resources (including reuse, reprocessing, recycling and energy recovery).
- Appropriate disposal of waste.

6.2.2.1. Existing Environment

The *NSW Waste and Sustainable Materials Strategy 2041 (WSMS)* (Stage 1, 2021-2027) published in 2021 sets out targets and actions consistent with the National Waste Policy. The WSMS aims to support investment in waste infrastructure, encourage innovation, improve recycling behaviour, promote the development of new markets for recycled materials and reduce litter and illegal dumping.

Key actions include:

- Reduce total waste generated by 10% per person by 2030.
- Have an 80% average recovery rate from all waste streams by 2030.
- Significantly increase the use of recycled content by governments and industry.
- Phase out problematic and unnecessary plastics by 2025.
- Halve the amount of organic waste sent to landfill by 2030.

The Project will be established in line with the above targets, taking into consideration sustainable methods of waste management and resource recovery at each applicable stage of the Project. Targets relating to overall recycling rates and specifically, construction and demolition waste apply to the Project.

The Waste Classification Guidelines (NSW EPA) gives an outline of requirements for licensing under the *POEO Act 1997* and provides measures for managing and disposal of different waste streams. No waste produced by the Project will be generated in quantities that require licencing under the POEO Act.

Section 3 of the Guidelines classifies waste into types of liquid and non-liquid waste. Solid waste that is classified as “inert” in the Guidelines includes building and construction waste, which is the primary type of waste generated by the Project. Other solid waste includes biosolids, such as nightsoil as collected by portable toilets or food.

Landfilling of waste is also discussed in the Guideline. All licensed landfill facilities exist in one of the five classes or subclasses as follows:

- Inert: Class 1 or Class 2.
- Solid: Class 1 or Class 2.
- Industrial.

6.2.2.2. Potential Impacts

During the development phases of the Project, a range of waste will be generated from construction operations. This will include materials associated with packaging such as cardboard, as well as excavated material, excess building materials, general waste and other non-putrescible waste that will result from general site operation.

The key contribution of waste to be considered in the WMP are the quantities of waste generated from the major components during the installation process including:

- Surplus spoil from the earthworks.
- Corrugated cardboard and honey comb paper.
- Plastics.

The Site does not require the demolition of any buildings or structures, therefore the only waste in consideration is in relation to the construction of the BESS compound during the construction phase. An indicative compositional breakdown of predicted waste streams and quantities is detailed in Table 36.

Table 36 Indicative Waste Quantities

Phase	Waste Type	Indicative Quantity
Construction	General Waste (non-recyclable materials)	Two to three skip bins to accommodate the construction period equivalent to approximately 4m ³ to 6 m ³ which are emptied weekly. 36.87 tonnes during the construction period based on an allowance of 2.95 tonnes/person/year.
	Recyclable material (cardboard, timber pallets, cable rolls)	Two (2) skip bins to accommodate the construction period equivalent to approximately 4 m ³ to 6 m ³ which are emptied weekly. Limited packaging waste is required as battery components would be delivered pre-assembled.
	Clearing and Grubbing (Cleared Vegetation and Excavated Material)	14,145 m ² (BESS Area) 2,064 m ² . (HV Component)
	Excavation and Fill Material (Excavated Material)	619 m ² . (HV Component) Note: soil excavated for the HV Component will be reutilised for filling compaction and embankments. (i.e., balanced by fill of 619 m ²) 84.025 m ² (Civil Works for Culvert)
	Wastewater	720,000 litres during the peak construction period based on an allowance of 200 L/person/day. ²
Operation	General Waste (non-recyclable materials)	Maximum of one skip bin per fortnight equivalent to approximately 2m ³ or 5.9 tonnes annually.
	Wastewater	146,000 litres per year of operation based on an allowance of 200 L/person/day.
Decommissioning	Electrical Waste (defective or end-of-life inverters, transformers and BESS)	100 MW battery and associated infrastructure, subject to detailed decommissioning plan.
	Recyclable material (concrete, metal)	Subject to detailed decommissioning plan.

	General Waste (non-recyclable materials)	Subject to detailed decommissioning plan.
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6.2.2.3. Construction Waste Management Measures

The following waste management procedures are proposed during the construction, operation and decommissioning phases of the Project.

Waste Type	Management Procedures
General Waste	- All site personnel will be advised of the Waste Management Plan during inductions and training. - All site personnel will be encouraged to separate waste streams to maximise recycling and reuse opportunities. - No waste burnt or buried on site. - Combustible fuel loads (if required) (e.g. diesel fuel tanks) will be managed onsite to minimise fire risks ensuring compliance with other procedures provided via other management plans. - Securely covered, clearly labelled segregated waste and recycling bins would be provided at strategic locations adjacent to the site construction site office(s) and amenities area. - Site bins will be routinely inspected to ensure there is capacity to contain waste generate during construction and operation. - Waste and recycling bins will be emptied as required. - Onsite general waste and recycling bins will be appropriately covered minimising the potential for pollution and impacts to surrounding amenity. - Specialist waste bins (e.g. steel, timber) will be emptied as required. - All waste leaving the site (e.g. regulated waste) will be entered into a site waste register to track relevant details of the waste being removed from the site.
Spoil	- Topsoil will be stockpiled and reused on-site for rehabilitation. Excess topsoil generated during the construction activities will be retained for use in rehabilitation. - Any excess subsoil that requires removal from the site will be appropriately disposed of at licenced waste facility.
Liquid Waste	It is anticipated that chemical port-a-loo's will be provided at strategic locations around the site for use by personnel during the construction phase. Where possible these port-a-loo's will be located on a trailer to allow for easy redistribution. Waste from port-a-loo's will be disposed of offsite at a licensed treatment facility.

	Regulated liquid waste, if generated, will be disposed of at an appropriately licenced facility.
Hazardous Waste	- The waste classification guidelines will be continually reviewed to determine whether waste generated during each phase of the project is classed as hazardous. - No hazardous waste is expected to be stored on-site to enable the proposed development. In consideration of potentially hazardous substances the development has the potential to use the following: - Diesel (Class 3). - Petrol (Class 3). - Lithium-ion batteries (Class 9) - Mineral oil Appendix R provides further context on hazardous waste management and considers the potential for other hazardous substances to be used during construction and operation of the proposed project. - Fuel containers will be reused as far as practicable. - Fuel containers will be disposed of in accordance with EPA guidelines for hazardous waste as required. - Dangerous or hazardous materials, if stored onsite, would be stored and handled in accordance with <i>AS1940-2004: The storage and handling of flammable and combustible liquids</i>.

It is proposed that the majority of waste generated by the development will be disposed of at Deniliquin Landfill Depot located at Tip Road, Deniliquin. Where practicable, and in consultation with Edward River Council, the Applicant will use local facilities to minimise transportation and to ensure the regular removal of waste from the site.

The availability of disposal arrangements and the forms of waste accepted by contractors and licenced facilities will be reviewed on a continual basis in consultation with Edward River Council and at each stage of the project, ensuring that facilities are available to accept and appropriately dispose of the types of waste generated. Waste tracking including records of the types of waste generated, quantities and disposal arrangements will be implemented during each stage of the development and inform reviews on the availability of disposal arrangements.

6.2.3. Developer Contributions

The EIS is accompanied by a Public Benefit offer from the Applicant which if accepted by the Council would result in the execution of a Planning Agreement between the Applicant and Council for the payment of annual contributions to a community benefit sharing scheme administered by Council.

The conditions of the proposed Planning Agreement include the exclusion of developer contributions under section 7.11, section 7.12 and section 7.24 of the EP&A Act. The proposed exclusion is considered justified in accordance with the Public Benefit Guidelines under the NSW Energy Framework, and is consistent with Section 7.4 of the EP&A Act, subject to agreement by the consent authority.

Refer to Section 3.2.12 for further information.

6.3. CUMULATIVE IMPACT ASSESSMENT

This section addresses the matters which have the potential to present a cumulative impact when considering the surrounding proposed, under construction, approved and operational SSD projects, as identified in **Section 2.4**. The Project will contribute to the overall development of the SWREZ due to its proximity. However, if the identified mitigation measures are not implemented appropriately, has the potential to increase the environmental and social impacts of projects around the region.

An assessment has been completed in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE, 2022). The assessment has included consideration of:

- **Incremental impacts:** involves adding the impacts of the Project to the baseline condition of each relevant matter. The impacts from existing projects (such as nearby renewable energy and other major developments) have been assumed as part of the baseline conditions evaluated and have been considered against any baseline changes as part of each EIA.
- **Combined incremental impacts:** involves the combined effect of different impacts of the Project. The combined have been considered as part of each technical evaluation (e.g., increase of noise as part of increased traffic levels from the Project, economic effects derived from the loss of agricultural land or impacts on productivity, if any, etc.).
- **Issue-specific cumulative impacts:** involves consideration of the impacts of the Project together with key matters with other relevant future projects. Existing and approved developments within the catchment area (known at the time of EIS finalisation) have been considered within each technical assessment for visual, noise, traffic, social, workforce accommodation plan, biodiversity, waste and agriculture.
- **Combined cumulative impacts:** involves consideration of the total synergised cumulative impacts of the Project with operational, under construction, approved and other relevant projects. Due to the range of uncertainties in the future and the nature of some of these impacts, this level of assessment is qualitative. The range of uncertainties that affect this section includes:
 - The level of detail from future projects, particularly those who have been not approved yet and may modify their footprint, scope and quantities relating to construction and operation.
 - The likelihood that those projects will proceed, due to planning, environmental or financial constraints, which are unknown during the finalisation of this EIS. This includes contingency regarding securing connection rights to the SWREZ; any delays on the EnergyCo's transmission project may impact the delivery of several of these projects.
 - The timing of future projects, not only for approval but for their Final Investment Decisions, construction time, staging and operational life, which could affect the level of overlapping with the Project.
 - The uncertainty regarding environmental and social changes, due to climate changes impacts and/or demographic and built environment changes.

As identified in **Section 2.4**, there are several SSD projects under construction, recently approved, under assessment and proposed in the catchment area, as identified through DPHI's Major Projects Planning Portal. A radius of approximately 50km from the Project has been used to identify current and future projects for known and potential cumulative impacts. Of the SSD projects:

- Three have been approved, of which two are not like to undergo construction and one is operational.
- One has submitted EIS, currently in the Response to Submissions phase at the time of writing this EIS.
- Five are yet to submit their respective EIS but have acquired SEARs.

The potential for cumulative impacts with projects within 50km of the project is provided in Table 37 and Figure 44 below.

- As summarised in Table 37, the potential for cumulative impacts are mainly associated with the construction period of the Project, with minor potential during the operational phase.

- Although the Project will require connection works following construction, these will likely be minor in nature and will not significantly impact the traffic flows on the Riverina Highway after the implementation of adequate management plans.

Table 37 Cumulative Impacts with Projects Identified within 50km of the Project

Key – In accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects 2022*.

Detailed Assessment – The Project may result in significant impacts on the matter, including cumulative impacts.	Standard Assessment – The Project is unlikely to result in significant impacts on the matter, including cumulative impacts.	N/A – No potential overlap in impacts between a future project and the Project that would warrant any consideration in the cumulative impact assessment

Project Name	Approx. Distance to the Project (km)	Status	Potential overlap and cumulative impacts			Cumulative Impact rating
			Access	Amenity	Housing	
Deniliquin Battery Energy Storage System	1.5	Response to Submissions				High
There is potential for cumulative impacts related to construction and operation, particularly in relation to workforce demand and noise impacts. It is likely that there is some overlap during the construction phases of both projects. Technical assessments have included all relevant considerations to the Project and adjacent neighbours and mitigation measures will be implemented in accordance with the findings.			Overlap on The Riverina Highway access during construction and operation	- High visibility overlaps with nearby sensitive viewpoints. - Potential cumulative impacts with noise sources during construction or operation. Noise Impact Assessment has been undertaken to consider this effect.	- High potential for cumulative impact on accommodation. This will be largely mitigated following the workforce strategy implemented in accordance with the SEIA. - Potential overlap with skilled workforce sourcing.	

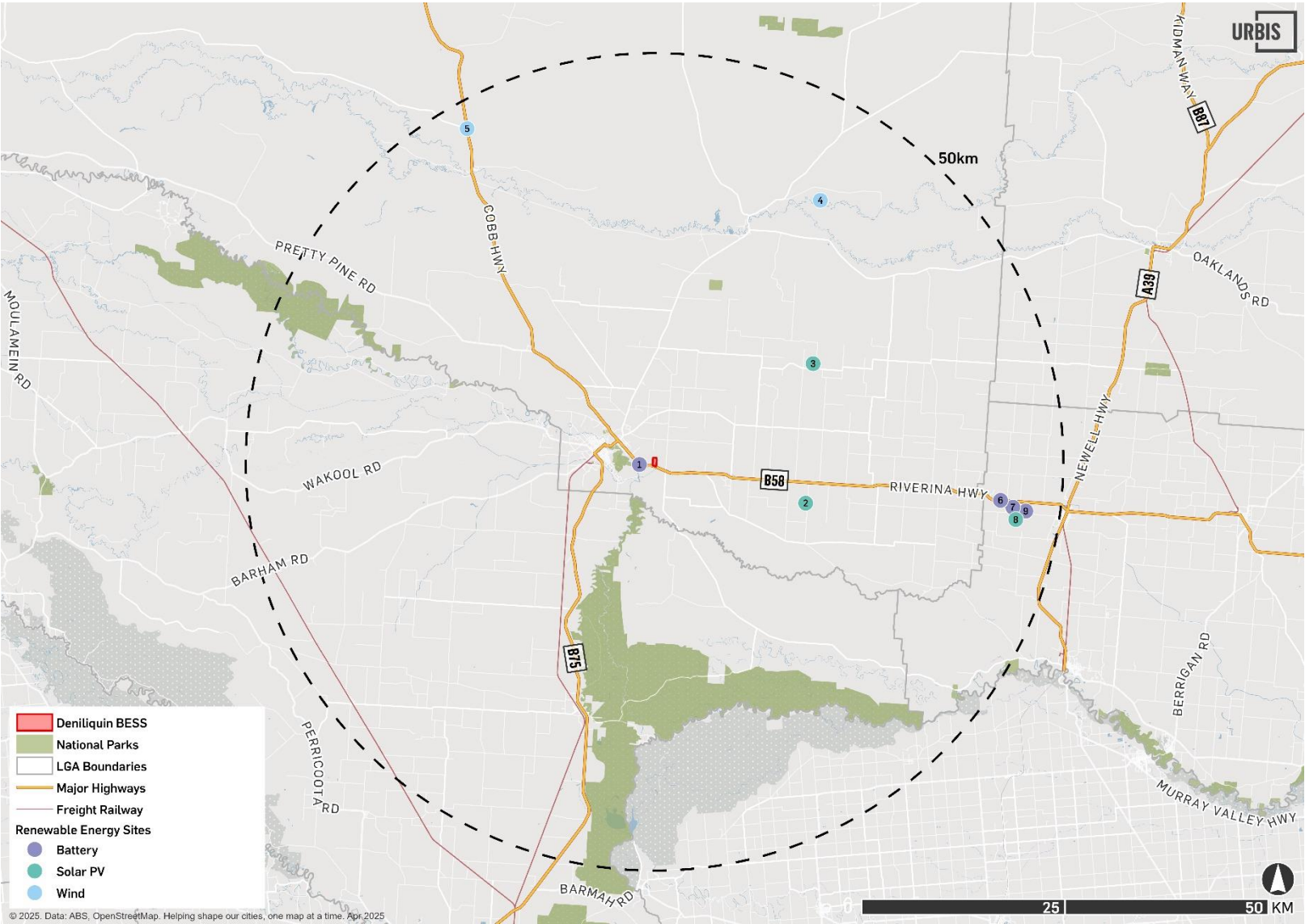
Project Name	Approx. Distance to the Project (km)	Status	Potential overlap and cumulative impacts			Cumulative Impact rating
			Access	Amenity	Housing	
Tarleigh Solar Farm	20	Approved				Negligible
Tarleigh Solar Farm was approved in May 2018. In accordance with Section 4.53 of the EP&A Act, a development consent typically lapses 5 years after the grant of consent. An additional 2 years is granted for projects that were granted consent before a 'prescribed period', being the 25 March 2020 to 25 March 2022. Thus, the consent granted would benefit from this 2-year extension to May 2025. Notwithstanding the above, no post-approval documentation has been presented at the time of writing this EIS. As such, it is extremely unlikely that the project will meet the statutory timeframes and will be able to achieve 'physical commencement'. Therefore, it is anticipated that the consent will lapse this year with no cumulative impact to the Project.			▪ N/A	▪ N/A	▪ N/A	
Currawarra Solar Farm	24	Approved				Negligible
Currawarra Solar Farm was approved in May 2018. In accordance with Section 4.53 of the EP&A Act, a development consent typically lapses 5 years after the grant of consent. An additional 2 years is granted for projects that were granted consent before a 'prescribed period', being the 25 March 2020 to 25 March 2022. Thus, the consent granted would benefit from this 2-year extension to May 2025. Notwithstanding the above, no post-approval documentation has been presented at the time of writing this EIS. As such, it is extremely unlikely that the project will meet the statutory timeframes and will be able to achieve 'physical commencement'. Therefore, it is anticipated			▪ N/A	▪ N/A	▪ N/A	

Project Name	Approx. Distance to the Project (km)	Status	Potential overlap and cumulative impacts			Cumulative Impact rating
			Access	Amenity	Housing	
that the consent will lapse this year with no cumulative impact to the Project.						
Conargo Wind Farm	37	Approved				Low
The proposed Conargo Wind Farm by Squadron Energy is envisioned to consist of approximately 53 wind turbines and have an expected capacity of 300MW. It is not known what the construction timeline will be for this project. It is considered likely that the final construction stages of the Project could overlap with the early stages of the Conargo Wind Farm. However, it is considered unlikely that the bulk of the traffic impacts, particularly around OSOM vehicles, will have an overlap with the Project.			Minor overlap on the Riverina Highway and local roads east of Deniliquin. There might be a potential overlap with the OSOM vehicle route. However, the Project OSOM vehicle movements are likely to be scheduled on separate timeframes.	Outside the visual catchment area of the Project.	Low potential for cumulative impact on workforce demand.	
Wanganella Wind Farm	43	EIS Phase				Low
The proposed Wanganella Wind Farm by Squadron Energy is envisioned to consist of approximately 105 wind turbines and have an expected capacity of 600MW.			Negligible overlap on the Riverina Highway. There	Outside the visual catchment	Low potential for cumulative impact	

Project Name	Approx. Distance to the Project (km)	Status	Potential overlap and cumulative impacts			Cumulative Impact rating
			Access	Amenity	Housing	
It is not known what the construction timeline will be for this project. It is considered likely that the final construction stages of the Project could overlap with the early stages of the Wanganella Wind Farm. However, given that the project will likely utilise the Cobb Highway during construction and operation, it is considered unlikely that the Project will have an important overlap with the Project.			might be a potential overlap with the OSOM vehicle route. However, the Project OSOM vehicle movements are likely to be scheduled on separate timeframes.	area of the Project.	on workforce demand.	
Finley BESS	44	EIS Phase				Low
The Finley BESS will be constructed and operated by the same proponent, GDA. It is expected that, while some overlap in construction timelines may occur, the proponent will be able to leverage resources between both projects in concurrence, thus significantly lowering their cumulative impacts.			Low impacts onto the traffic network during construction and operation. Both projects will have different access routes.	Outside the visual catchment area of the Project.	Leveraged low impacts on employment sourcing.	
Berrigan BESS	48	EIS Phase				Low
With the SEARs acquired in December 2024, it is expected that the project proposed by Syncline will prepare the relevant assessments throughout 2025 and 2026. It is therefore reasonable to expect that			Low potential for cumulative impacts on the	No potential for cumulative impacts	No potential for cumulative impacts	

Project Name	Approx. Distance to the Project (km)	Status	Potential overlap and cumulative impacts			Cumulative Impact rating
			Access	Amenity	Housing	
no overlap during the construction phases between the Project and the Berrigan BESS will occur.			Riverina Highway. Both projects will differ significantly in their access routes.			
Finley Solar Farm	49	Operational				Negligible
The Finley Solar Farm is currently operational and its access routes differ significantly, with only some minor overlaps on the Riverina Highway. It is expected that both projects will have little to no cumulative impacts.			Negligible impact on the Riverina Highway.	Outside the visual catchment area of the Project.	No potential for cumulative impacts	
South Coree BESS	49	EIS Phase				Low
With the SEARs acquired in late November 2024, it is expected that the project proposed by Samsung will prepare the relevant assessments throughout 2025 and 2026. It is therefore reasonable to expect that no overlap during the construction phases between the Project and the South Coree BESS will occur.			Low potential for cumulative impacts on the Riverina Highway. Both projects will differ significantly in their access routes.	Outside the visual catchment area of the Project.	No potential for cumulative impacts.	

Figure 44 Nearby SSD Projects



6.3.1. Assessment of Cumulative Impacts

6.3.1.1. Employment and Workforce

The employment demands from the Project and the surrounding SSD projects identified could potentially impact the availability of skilled workforce and labourers in the regional catchment area, in a worst-case scenario where construction periods would overlap substantially. Technical assessments have extensively considered this potential impact, and a workforce strategy has been devised to consider a wider catchment area and available employment sources and transport.

Nevertheless, this, in turn, has the potential to increase the pressure on local services and existing accommodation, as well as traffic. However, potential cumulative benefits may also materialise in the region, in the form of increased employment opportunities and economic throughput for local businesses and suppliers. There is also potential for the cumulative number of SSDs to drive industry growth in the local areas and the region, which would align with the Future Made in Australia strategy from the federal government.

6.3.1.2. Population change and accommodation

The construction phase of the Project will generate approximately 52 new jobs at peak construction, with approximately 90% of the workforce expected to be sourced from outside the regional area. Urbis estimates a potential cumulative workforce demand within the 50km catchment of 162 people at its peak from outside the catchment area. It is also noted that some construction periods will not overlap or have the same intensity. Therefore, the assumed number of workers is presented as a conservative estimate.

If all the projects identified by Urbis were to overlap construction periods identically, it would lead to an increased demand for the short-term accommodation offer of the Edward River LGA, which may not be compatible with a healthy tourism industry.

Due to the increase in temporary population and the potential for cumulative impacts as observed by Council, a solution was found in surrounding regional towns and estimated that Moama would have sufficient capacity to accommodate the workforce for the Project.

Notwithstanding, commitments to local hiring, provision of training and other opportunities for local workers will remain, to preserve the potential for cumulative benefits of the Project to the regional area.

Further discussion on the construction workforce accommodation strategy and mitigation measures are highlighted in Appendix Q.

6.3.1.3. Amenity – Visual

Potential cumulative visual impacts could arise from the nearby Deniliquin BESS. However, given the sensitivity, visual absorption and visual compatibility of the local area, it is considered highly unlikely that the cumulative effect of both projects will result in a significant impact following amelioration.

No other projects are in the visual catchment, thus will not have a cumulative effect with the Project.

6.3.1.4. Amenity – Noise

Cumulative impacts regarding noise have been considered for the nearby Deniliquin BESS. It has been concluded that the predicted operational noise contribution does not exceed the Project Noise Trigger Levels, thus the cumulative impact is unlikely to exceed the enmity noise level at any receiver.

Given separation distances between the two sites and nearby vibration-sensitive receivers, cumulative ground vibration impacts are considered very low risk and have not been predicted.

No schedule for construction has been made available, and as such a quantitative assessment of construction noise and vibration cannot be made at this stage. If construction schedules for the two projects overlap they will need to be closely managed and performative management measures will be implemented as part of the CEMP to ensure no additional impacts result in adjacent sensitive receivers.

6.3.1.5. Traffic

Surrounding developments within a 50-kilometre radius are likely to generate cumulative traffic impacts with the Deniliquin BESS Project. The Deniliquin BESS, Tarleigh Park Solar Farm, and Currawarra Solar Farm are considered the most likely to overlap with the construction of the Project and contribute to the cumulative traffic counts. The cumulative assessment incorporates developments that are likely to utilise the proposed access and haulage routes in the surrounding road context and have overlapping construction traffic.

According to the TIA in Appendix M, the cumulative impacts of these projects combined would translate into a potential increase of approximately 22.8% of traffic volumes on the Riverina Highway during the AM peak period. It is important to note that these figures are deemed highly conservative, as this increase will only occur during a complete overlap of their construction periods, which is considered an unlikely scenario.

Notwithstanding, even considering this increase in traffic flows, the Riverina Highway will maintain a Level of Service A, defined as free flow conditions where drivers are unaffected by the presence of others in the traffic stream, thus considered acceptable traffic volumes under the Austroads Guide to Traffic Management. The intersections of Cobb Highway / Albert Street / Finley Road / Davidson Street and Finley Road / Wanderer Street will also continue to operate at Level of Service A, indicating minimal impact on the surrounding road network.

The TIA also includes potential mitigation measures for traffic management and road safety. These measures include the preparation of a comprehensive Traffic Management Plan, a dilapidation survey of nearby roads, and the management of construction vehicle movements to minimise disruptions. Additionally, a basic left turn treatment with a full deceleration lane is proposed to support safe access for heavy vehicles at the site entrance on the Riverina Highway.

In conclusion, the cumulative traffic impact of the Deniliquin BESS project is anticipated to be minimal, with the surrounding road network capable of accommodating the additional traffic. The proposed mitigation measures will ensure safe and efficient traffic management throughout the construction and decommissioning phases. This assessment underscores the project's commitment to maintaining a stable and functional transport environment in the Deniliquin area.

6.3.1.6. Services

Local population growth, permanent or temporary, associated with the combined proposed SSD projects can increase the need for enhanced local social and health services and their funding. There could be a probability of increased use in case of emergencies or a need for extra supply.

A potential cumulative benefit of the combined number of projects would be the combined community contributions (from benefit-sharing agreements or other contribution schemes), which will provide needed funding to enhance service offerings and infrastructure across the region.

The waste will be managed by a commercial agreement between a contractor(s) appointed by the Applicant for the construction of the Project and a suitable and approved waste management contractor to handle the transport of all the generated waste that cannot be re-used on-site. It is expected that the Deniliquin Depot may be able to absorb the majority of the waste stream. Notwithstanding, in consultation with Edward River Council, alternative facilities will be explored if the impacts on local waste management services are expected to be unacceptable.

There is no potential for cumulative impacts on town water supply. The Project will likely source its potable water supply via road water trucks and utilise the existing Water Access Licence to extract water from the irrigation channels during construction; less than 1.5ML will be used during the construction phase.

There are also limited law enforcement services available throughout the Edward River LGA. Anti-social behaviour by non-local project workers could cause social cohesion issues and contention between locals and renewable energy projects. With the possibility of multiple SSD and SSI projects occurring concurrently or overlapping in the general area, proponents will need to consider and implement measures to ensure their workers behave appropriately within and outside of the Site. As a mitigation measure, GDA has prepared a Workers' Code of Conduct to which all workers will need to adhere.

7. JUSTIFICATION OF THE PROJECT

This section of the report provides a comprehensive evaluation of the project having regard to its economic, environmental and social impacts, including the principles of ecologically sustainable development.

It assesses the potential benefits and impacts of the Project, considering the interaction between the findings in the detailed assessments and the compliance of the Project within the relevant controls and policies.

7.1. PROJECT DESIGN

The Project has been designed to:

- Provide the most efficient use of available land.
- Minimise the footprint of physical disturbance (such as native vegetation clearance or soil and water disturbance).
- Minimise impacts on sensitive landforms and the local environment through the provision of high-quality management measures and processes.
- Minimise the likelihood of pollution to the soil and water environment through adoption of industry-standard controls.
- Minimise any risks from the nature of the Project and conflict with surrounding land uses.
- Minimise any impacts on agricultural resources by carefully adopting construction measures to provide a net positive outcome for the region.
- Minimise any impacts onto the local road network and infrastructure through the establishment of safe sight distances and a deceleration lane in consultation with TFNSW.

7.2. STRATEGIC CONTEXT

The Project supports the delivery of sustainable battery storage to benefit the local and regional communities in respect to reliable and cost-effective power. The Project assists in delivering the objectives outlined in the NSW Electricity Strategy and Climate Change Act. Additionally, the Project is consistent with the NSW Electricity Infrastructure Roadmap.

Renewable energy is one of the fundamental pillars in achieving the transition from fossil fuels, establishing energy independence and security and achieving Net Zero. Given the number and scale of the proposed renewable energy projects within the nearby SWREZ, the Project will offer additional firming capacity and energy security to the region. This is line with the international and national need for achieving a decarbonised economy and the Paris Agreement and signatory targets as a key step in mitigating the impacts of climate change.

Regionally, the Project aligns with both the Riverina Murray Regional Plan 2041 (**RMRP**), the Edward River LSPS 2020 and the Edward River Growth Strategy 2050 regarding environmental protection and economic goals, particularly towards Objective 11 and 13 of the RMRP 2041. This objective aims to support the State's transition to its Net Zero 2050 objective. The South-West region is one of the Renewable Energy Zones across NSW and is expected to attract \$2.8 billion in investment by 2030.

The Project is located near the SWREZ on a site with accessible road access, which helps connecting the Site to both the Melbourne and Geelong Ports and allows for easy access during the construction. Additionally, the close location to the Deniliquin Substation precludes the need to construct significant additional components and capitalise on existing infrastructure to firm renewable energy capacity as early as possible.

7.3. STATUTORY CONTEXT

The relevant State and local environmental planning instruments are listed in Section 4. The assessment concludes that the Project complies with the relevant provisions within the relevant instruments as summarised below:

- The Project has been assessed and designed with respect to the relevant objects of the EP&A Act as defined in Section 1.3 the Act and addressed in Table 38.

- This EIS has been prepared in accordance with the SEARs as required by Schedule 2 of the EP&A Regulations.
- Consideration is given to the relevant matters for consideration as required under the BC Act and the SSD is supported by a BDAR accordingly.
- This SSDA pathway has been undertaken in accordance with the Planning Systems SEPP as the Project is classified as SSD.
- The Project complies with all of the relevant provisions under the Deniliquin LEP 2013.
- The Project been assessed in accordance with the R&H SEPP and it complies with the relevant clauses.
- The Project generally accords with the relevant provisions of the Deniliquin DCP 2016 as outlined in **Appendix C**.

Table 38 Project Consistency

Object	Consistency with the Project
<i>To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources</i>	Resources within the Project area include both the land that is being used for agricultural production and land with biodiversity, hydrology and Aboriginal Cultural Heritage values. This constitutes the <i>natural resources</i> that must be properly managed, developed or conserved. The Project has avoided as much as possible the biodiversity values of the land and has a limited footprint on the present native vegetation. The development footprint can be returned to its original agricultural land use at the completion of the Project's operation. Measures to avoid and minimise will be implemented during the construction and operational phases to ensure the appropriate management and conservation of natural resources. The residual biodiversity values impacted by the Project will be offset through ecosystem credits.
<i>To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment</i>	The EIS describes the economic, environmental and social context of the Project as well as its potential impacts, which would allow informed consideration of these aspects in determining the application. The Project will contribute to the sustainable and continued production of net-zero and clean energy storage.
<i>To promote the orderly and economic use and development of land</i>	The orderly and economic use of the land can be best achieved by development that is permissible by the relevant environmental planning instruments in accordance with prevailing controls.

Object	Consistency with the Project
	The Project is permissible with consent under the T&I SEPP and consistent with statutory and strategic planning controls. As detailed in Section 6, the Project will be result in a positive economic benefit, with appropriate mitigation and management measures to reduce adverse environmental and social impacts.
<i>To promote the delivery and maintenance of affordable housing</i>	The Project will not impact significantly onto the housing stock of the region, assisting with its continued affordability.
<i>To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats</i>	Measures to avoid and minimise impacts to native vegetation and threatened species' habitat have been considered during the design phase, resulting in significant avoidance of the existing biodiversity values. All unavoidable impacts will be offset in accordance with NSW Government Policy.
<i>To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)</i>	Avoidance of Aboriginal Cultural Heritage has been a key aspect of the Project refinement and design. All of the sensitive areas will be avoided. No unavoidable impacts are foreseen as a result of the Project.
<i>To promote good design and amenity of the built environment</i>	The Project will incorporate measures to avoid and minimise potential visual and noise impacts on sensitive receivers, residential or otherwise. These impacts and proposed measures have been fully addressed in Section 6 of the EIS.
<i>To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants</i>	Over the operational life of the Project, all infrastructure will be maintained or upgraded for a safe and effective operation. All construction associated with the Project will be compliant with the Building Code of Australia and other statutory requirements.
<i>To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State</i>	A wide range of government agencies, federal, State and local have been consulted throughout the Scoping and EIS phase. Their feedback has been incorporated where feasible during the design and planning phases. As such, it is considered that all levels of government have been provided with sufficient

Object	Consistency with the Project
	opportunities to share the responsibility for the environmental planning of the Project.
<i>To provide increased opportunity for community participation in environmental planning and assessment</i>	There have been an extensive range of community consultation activities and resources to provide the community with the information about the Project and seek feedback. The EIS provides further information about the Project, potential impacts and mitigation measures. The EIS will go through an Exhibition period once accepted during which the community will be able to place formal submissions about the Project.

7.4. COMMUNITY VIEWS

Community views have expressed both negative and positive aspects of the Project. Consultation has reflected some concerns from the community relating to some environmental and social impacts and the Project has included consideration of these views where possible.

Some of the responses to the Project were:

- The inclusion of a visual buffer for adjoining neighbours to mitigate possible visual impacts.
- The inclusion of acoustic mitigation measures to eliminate any residual noise impacts.
- The proposed public benefit offer to Edward River Council to contribute annually to a community benefit fund administered by Council.

7.5. LIKELY IMPACTS OF THE PROPOSAL

The Project has been assessed considering the potential environmental, economic and social impacts as outlined below:

- **Natural Environment:** the Project addresses the principles of ecologically sustainable development (ESD) in accordance with Clause 193 of the EPA Regulations 2021 and as outlined below:
 - Precautionary principle: the precautionary principle relates to uncertainty around potential environmental impacts and where a threat of serious or irreversible environmental damage exists, lack of scientific certainty should not be a reason for preventing measures to prevent environmental degradation. The Project has evaluated measures to avoid environmental impacts where possible and mitigate them if unavoidable; a comprehensive assessment of all the risk-weighted consequences has been undertaken for each environmental impact for all feasible options.
 - Intergenerational equity: the needs of future generations are considered in decision making and that environmental values are maintained or improved for the benefit of future generations. The Project will ensure intergenerational equity is maintained across society by providing a sustainable source of energy that helps decarbonise and mitigate the future impacts of climate change.
 - Conservation of biological diversity and ecological integrity: the Project has been designed to avoid the most important on-site natural values where possible and mitigate and minimise other impacts where unavoidable. Avoidance of impacts includes retaining valuable areas of high biodiversity for conservation, as well as construction measures to ensure no residual impacts are produced on retained native vegetation, such as tree protection zones and protective fencing.
 - Improved valuation, pricing and incentive mechanisms: the holistic consideration of environmental resources that may be affected because of the Project have been considered, including environmental and agricultural. It has been concluded that neither the ecological services of the region nor the agricultural value of the land will be significantly or permanently affected by the

Project. It is considered that the economic prospects from the Project will result in a net positive outcome for the region.

- **Social:** The Project considers the potential social impacts of the Project as outlined in Section 6.1.11. It is considered that all feasible options have been included as part of the Project design, such as workforce accommodation and services, to avoid any stress on local resources and the cumulative impacts with other projects onto the socio-economic fabric of the region as much as possible.
- **Economic:** The Project considered the potential economic impacts of the Project as outlined in Section 6.1.11.2. It is considered that the Project will result in a net positive economic outcome for the region, including the generation of employment for the community during construction and operation. Other land uses, such as surrounding agricultural activities, will not be impacted by the Project.

The potential impacts can be mitigated, minimised or managed through the measures discussed in detail within **Section 6** and as summarised in **Appendix C** to this EIS.

7.6. SUITABILITY OF THE SITE

The Site is considered highly suitable for the Project for the following reasons:

- It is permissible under the T&I SEPP.
- It fully complies with all the Statutory Requirements.
- It is considered that it can be developed without significantly impacting surrounding land uses and the environment.
- It has limited environmental values, most of which have been avoided.
- The presence of the existing nearby Deniliquin Substation will allow the Project to capitalise on existing electrical infrastructure and deliver sustainable energy as soon as possible.
- Where impacts were not possibly avoided, the physical nature of the Site has allowed for the inclusion of mitigation measures.

The following environmental impacts have been considered during the design phase of the Project, which has resulted into its current form:

- The Project will have no impact on biodiversity values on-site, such as native vegetation.
- The provision of stormwater retention works to avoid and minimise any potential impacts from the Project onto the surface water quantity. Other mitigation measures, such as self-bunded containers, will be implemented to avoid impacts onto the water quality of the area. A Soil and Water Management Plan will be prepared prior to the construction of the Project with measures to monitor and mitigate any further residual impacts.
- Landscaping buffers and screening are proposed to ameliorate the visual impact of the Project on the public domain.
- The selection of noise-efficient components has been included during the acoustic assessment. This process validated the avoidance of residual acoustic impacts in accordance with the *Noise Policy for Industry 2017 guidelines*.
- Construction of a bridge and deceleration lane onto the Riverina Highway and an appropriate internal road system have been provided to accommodate vehicle movements during construction.
- Employment and funding will be provided to the wider community, which will affect positively the regional economy.
- The Site is appropriate and compatible with certain surrounding agricultural practices during operation. The Site will also be able to be remediated properly after decommissioning, re-instating its inherent agricultural value to the region.
- Consideration has been given to the limitations of the regional waste management systems. A certified waste management contractor will be engaged prior to the construction of the Project, which will assist with the transport of waste streams generated that cannot be re-used on-site.

7.7. PUBLIC INTEREST

The Project is considered in the public interest for the following reasons:

- The Project is consistent with the relevant Commonwealth's Renewable Energy Target, NSW's *Climate Change Act*, NSW's *Climate Change Policy Framework* and *Net Zero Plan Stage 1: 2020-2030*.
- The Project is consistent with the relevant planning controls, including the EP&A Act and relevant EPIs.
- The Project will contribute 100MW of reliable, firming energy to the National Electricity Market, in the form of a 100MW/200MWh BESS. This will help achieve the Integrated System Plan 2024 long-term objectives.
- The Project is in close proximity to the SWREZ, declared by the Minister for Energy in 2022 under section 24(1) of the *Electricity Infrastructure Investment Act 2020*. Although outside of its boundaries, the Project will assist the objectives of the REZ, helping unlock additional reliable capacity in NSW.
- The Site is appropriate, with available connection to the existing electricity network and accessible transport routes.
- The Project will provide flow-on benefits to the local community, including 50 construction jobs at its peak, up to two operational jobs, and contributions to the Edward River Council as stipulated in the Planning Agreement to improve local services and infrastructure.
- There will be broader benefits to the State and Commonwealth, with the injection of \$100 million in capital into the NSW economy.
- No significant environmental, social and economic impacts will result from the Project. Residual impacts can be minimised, mitigated and/or offset where necessary.

Having considered all relevant matters, it is concluded that the Project is appropriate for the Site and approval is recommended, subject to appropriate conditions of consent.

DISCLAIMER

This report is dated 15 May 2025 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Ltd (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Gransolar Group (**Instructing Party**) for the purpose of Environmental Impact Statement (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

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