



NORTH HARBOUR
CLEAN ENERGY

TEMORA BATTERY ENERGY STORAGE SYSTEM



SCOPING REPORT

NOVEMBER 2024

PREPARED FOR
**NORTH HARBOUR CLEAN
ENERGY PTY LTD**



umwelt
Environmental & Social
Consultants



SCOPING REPORT

Temora Battery Energy Storage System

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
North Harbour Clean Energy Pty Ltd

Project Director: Nathan Baker
Project Manager: Caitlin Adcock
Report No. 24266/R01
Date: November 2024



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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Caitlin Adcock	11 November 2024	Nathan Baker	11 November 2024

Executive Summary

North Harbour Clean Energy Pty Ltd (NHCE) propose to develop the 'Temora Battery Energy Storage System' (BESS) (the Project) in Temora, New South Wales (NSW). The BESS component will be developed on Lot 2, DP 609354 (the Project Area) with potential grid connection electrical infrastructure traversing Lot 1, DP609354, adjacent to the existing Essential Energy Temora 132/66 kilovolt (kV) Zone Substation.

The proposed Project has a capacity of up to 50 megawatts (MW) / 200 megawatt-hours (MWh), with an Estimated Development Cost (EDC) of \$100 million.

The Project will increase the energy storage capacity within the National Energy Market (NEM), allowing for the provision of reliable and affordable energy to NSW and supporting the transition from coal-fired power generation to renewable energy sources. The Project will involve the construction, operation and decommissioning of the BESS, including any necessary ancillary infrastructure.

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

This Scoping Report has been prepared by Umwelt (Australia) Pty Ltd on behalf of NHCE to support a request for NSW Planning Secretary's Environmental Assessment Requirements (SEARs) that would inform the future preparation of an Environmental Impact Statement (EIS) for the Project.

The Project may also impact Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Australian Government, 1999). Further ecological assessment is required to determine the precise extent of impact, however, should it be required, an EPBC Act Referral will be submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW). If the Project is considered a 'Controlled Action' by Cth DCCEEW, it will require assessment through the NSW and Commonwealth Bilateral Agreement.

Key Issues and Opportunities

An analysis of the environmental constraints and opportunities has highlighted the following key issues:

- **Biodiversity:** potential loss or modification of terrestrial biodiversity due to vegetation clearing, with potential impacts on threatened species and ecological communities in the Project Area.

Because the highest biodiversity values are generally situated near the perimeter of the BESS lot boundary, there is opportunity to avoid these biodiversity values via careful consideration of Project layout and design.

- **Amenity:** potential noise and visual impacts on proximal neighbours.

There is one host landholder associated with the Project who has a commercial agreement with NHCE for the development of the Project on their lands. The host landholder does not reside on site but has an existing farm structure inside the Project Area (near the southern extents of the BESS lot boundary) that is to be removed as part of the development. There are nine proximal neighbours within 1 km of the Project Area but situated at varying distances of between 55 m and 655 m of the Project Boundary. Currently there are no associated landholders or dwellings, such that all landholdings / residences discussed in this Scoping Report are classified as non-associated landholders and dwellings.

- **Access:** potential disruption to traffic and surrounding industries due to heavy vehicle delivery for Project materials, and accelerated degradation of roads.
- **Hazards and Risk:** potential increased impact of bushfire, dangerous goods, hazardous and offensive development, waste, and other issues.
- **Heritage (Aboriginal and Historical):** potential impacts to unknown Aboriginal and/or historic heritage objects or heritage values within or near the Project Area.
- **Social:** potential impacts on social amenity due to land use change and pressure on local facilities and services, alongside economic benefits associated with local employment and training for staff.
- **Economic:** potential financial benefits to the State and local community, as well as direct and indirect benefits to local services through the construction phase.
- **Land:** potential for temporary soil erosion associated with land clearing during construction and runoff from the BESS during operation, as well as potential impacts on agricultural land use.
- **Water:** potential changes to surface water flow due to the Project.
- **Air:** potential increase in particulate matter from construction operations and potential increase in atmospheric emissions from the construction phase of the Project.
- **Waste:** Potential increase in landfill due to construction activities, as well as decommissioning of BESS components at their end of life.
- **Cumulative Impacts:** potential cumulative impacts of currently planned, proposed, and constructed projects in the vicinity of the Project Area, in relation to traffic and transport, visual amenity, social amenity, land use conflict, and economic considerations.

Stakeholder Engagement

As part of the Social Impact Scoping Report (SISR) for the Project, and broader NHCE engagement planning, a Community and Stakeholder Engagement Plan has been developed and implemented. It has enabled to occur with key stakeholders during the Scoping Phase, that would then continue into the EIS phase. The consultation undertaken to date is outlined in **Section 5.0** of this Scoping Report. The SISR (including the CSEP) is provided in **Appendix B**. The results of community and stakeholder consultation and engagement activities to date generally indicate support for the Project but has identified several issues that will be investigated through the EIS.

Assessment Approach

The proposed approach to the assessment of key issues, and other matters requiring careful consideration in the EIS, is outlined in **Section 6.1.1** to **Section 6.1.12** of this Scoping Report. The Project layout and design will be subject to further analysis and refinement as part of the EIS process, informed by engineering design, technical studies, and ongoing community and stakeholder engagement. This Scoping Report has assumed the likely maximum (but indicative) Disturbance Footprint of the Project (i.e., total area of likely disturbance associated with the Project) to take a precautionary approach to identify potential environmental, social, and economic impacts.

On receipt of SEARs, the EIS will accompany a State Significant Development Application (SSDA) for the Project and will include relevant technical studies to confirm the environmental, social and economic impacts of the Project. Additional mitigation and management measures will be developed throughout the EIS process, providing for detailed consideration of avoidance, minimisation and offsetting strategies where necessary to address the key issues outlined in this Scoping Report, and any others identified in the assessment process.

Abbreviations

Abbreviation	Definition
ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
APZ	Asset Protection Zone
ASL	Above sea level
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BCA	Biodiversity Constraints Assessment
BDAR	Biodiversity Development Assessment Report
BESS	Battery energy storage system
BSAL	Biophysical Strategic Agricultural Land
CIA Guidelines	Cumulative Impact Assessment Guidelines
CIV	Capital Investment Value
Commonwealth DCCEEW	Department of Climate Change, Energy, the Environment and Water
Crown Land Act	<i>Crown Land Management Act 2016 NSW</i>
CSEP	Community and Stakeholder Engagement Plan
CSP	Community Strategic Plan
DPHI	NSW Department of Planning, Housing and Infrastructure
DPI	NSW Department of Primary Industry
EDC	Estimated Development Cost
EEAP	NSW Energy Efficiency Action Plan
EIA	Economic Impact Assessment
EIS	Environmental Impact Statement
EMF	Electromagnetic fields
Engagement Guidelines	Undertaking Engagement Guidelines for State Significant Projects
EP&A Act	<i>Environmental Planning and Assessment Act 1979 NSW</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 Commonwealth</i>
FTE	Full time equivalent
GDE	Groundwater dependent ecosystem
GHG	Greenhouse gas
HBT	Hollow bearing trees
IIO	Infrastructure Investment Objectives
IPC	Independent Planning Commission
km	Kilometre
kV	Kilovolt
LEP	Local environmental plan
LGA	Local Government Area
LVIA	Landscape and Visual Impact Assessment

Abbreviation	Definition
MNES	Matter of national environmental significance
MW	Megawatts
MWh	Megawatts per hour
NDC	Nationally Determined Contribution
NEM	National Energy Market
NHCE	North Harbour Clean Energy Pty Ltd
NIS	NSW Network Infrastructure Strategy
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
O&M	Operations and maintenance
OSOM	Oversize overmass
PCT	Plant community type
PHA	Preliminary Hazard Analysis
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021
PMST	EPBC Protected Matters Search Tool
POEO Act	<i>Protection of the Environment Operations Act 1997</i> NSW
RAP	Registered Aboriginal Party
REAP	NSW Renewable Energy Action Plan
REDS	Regional Economic Development Strategy
Resilience and Hazards SEPP	State Environment Planning Policy (Resilience and Hazards) 2021
REZ	Renewable Energy Zone
RMRP	Riverina Murray Regional Plan 2041
RNE	Register of the National Estate
Scoping Report Guidelines	State Significant Development Guidelines – preparing a scoping report
SEAR	Secretary's Environmental Assessment Requirements
SHR	State Heritage Register
SIA	Social impact assessment
SIA Guidelines	Social Impact Assessment Guidelines for State Significant Projects
SSD	State Significant Development
SSI	State significant infrastructure
TEC	Threatened Ecological Community
Temora LEP	Temora Local Environmental Plan 2010
The Roadmap	NSW Electricity Infrastructure Roadmap
The Strategy	NSW Electricity Strategy
Transport and Infrastructure SEPP	NSW State Environmental Planning Policy (Transport and Infrastructure) 2021
TTIA	Traffic and Transport Impact Assessment
WM Act	<i>Water Management Act 2000</i> NSW
WSP	Water Sharing Plan

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1.0 Introduction

1.1 Project Overview

North Harbour Clean Energy Pty Ltd (NHCE) (the Applicant) propose to develop the ‘Temora Battery Energy Storage System’ (BESS) (the Project) in Temora, New South Wales (NSW).

The Project will increase the energy storage capacity within the National Energy Market (NEM), allowing for the provision of reliable and affordable energy to NSW and supporting the transition from coal-fired power generation to renewable energy sources. The Project will involve the construction, operation and decommissioning of the BESS, including any necessary ancillary infrastructure.

The Project is in Temora Shire Council Local Government Area (Temora LGA) (**Figure 1.1**) and the Project Area is situated approximately one kilometre (km) south-east of the township of Temora (**Figure 1.2**).

The BESS component will be developed on Lot 2, DP 609354 with potential grid connection electrical infrastructure traversing Lot 1, DP609354 (collectively the Project Area), adjacent to the existing Essential Energy Temora 132/66 kilovolt (kV) Zone Substation, which the Project will connect to.

The proposed Project has a capacity of up to 50 megawatts (MW) / 200 megawatt-hours (MWh), with an Estimated Development Cost (EDC) of \$100 million.

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

This Scoping Report has been prepared by Umwelt (Australia) Pty Ltd on behalf of NHCE to support a request for NSW Planning Secretary’s Environmental Assessment Requirements (SEARs) that would inform the future preparation of an Environmental Impact Assessment (EIS) for the Project.

The Project may also impact Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Australian Government, 1999). Further ecological assessment is required to determine the precise extent of impact, however, should it be required, a referral will be submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW). If the Project is considered a ‘Controlled Action’ by Cth DCCEEW, it will require assessment through the NSW and Commonwealth Bilateral Agreement.

The detailed design for the Project has not yet been finalised, pending further technical studies and engagement outcomes. As such, reasonable worst-case assumptions have been adopted to prepare this Scoping Report, and it is assumed, at this stage that the indicative Disturbance Footprint (**Figure 1.3**) will encompass the entirety of the Project Area.

1.2 The Applicant

NHCE is an Australian company dedicated to developing, owning and operating a portfolio of energy assets, with a focus on energy storage, coupled with the technology and capability to deliver reliable, on-demand, clean energy.

Table 1.1 Applicant Details

Requirement	Details
Full name/s	North Harbour Clean Energy Pty Limited
Postal address	Suite 16.02, Level 16, 55 Clarence Street, Sydney
Street address (Project Area)	108 Miners Street, Temora NSW 2666
ABN	78 642 465 898
Nominated contact	Casey Joshua

1.3 Project Background

The Project Area has been selected due to its proximity to the Temora Zone Substation that is directly adjacent to the BESS. This enables efficient connection to the grid, whilst minimising the extent of environmental impacts. Other positive characteristics of the Project Area is the relatively cleared nature of the land, road access and permissibility, as well as the ability for a BESS to support and strengthen the local distribution network in this locality.

Because of the large lot size (compared to the desired capacity of the BESS) and existing land uses, the Project Area provides an opportunity to avoid and minimise environmental impacts via careful layout and design considerations. The Project Area was selected as it has largely been cleared, with remnant native vegetation generally being present around the perimeter of the BESS lot boundary (Lot 2, DP609354).

The Applicant will seek to establish the BESS components and associated ancillary infrastructure in locations which avoid environmental constraints such as woody vegetation and potential threatened species habitat. There is opportunity to avoid these biodiversity values, as much as reasonably practicable, and disturbance associated with BESS components of the Project would target cleared areas. Site access and potential grid connection electrical infrastructure will likely traverse areas of biodiversity value; but similarly, there is the opportunity to target existing cleared areas for this purpose, or consider design options e.g. overhead transmission lines, that would minimise disturbance related impacts.

The Applicant is committed to avoiding and minimising impacts to areas where threatened species and their habitat may occur. Areas of avoidance (and other mitigation and management measures) will be further developed as more detailed biodiversity surveys and assessment are completed, and more accurate on-ground data becomes available.

The indicative Disturbance Footprint will be subject to further refinement to minimise impacts as detailed design of the Project is developed. The indicative Disturbance Footprint presented in this Scoping Report is representative of the likely maximum potential impact of the Project. Mitigation and management measures will be further developed as more social and environmental information is received, constraints are identified, and further technical studies are completed. There are no related developments to the Project. There is no development required for the Project which would be subject to a separate assessment, or approval.

FIGURE 1.1
Regional Context



- Legend**
- Project Boundary
 - Local Government Area
 - Road
 - Railway Line
 - River/Stream
 - Electricity Transmission Line



0 5 10

Kilometres
Scale 1:350,000 at A4
GDA2020 MGA Zone 55

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FIGURE 1.2
Project Area

- Legend**
-  Project Boundary
 -  Existing Structure (to be removed)
 -  Road
 -  Railway Line



Metres
Scale 1:2,500 at A4
GDA2020 MGA Zone 55

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FIGURE 1.3
Indicative Development
Footprint

Legend

- ▲ Proposed Site Access
- Proposed On-Site Substation
- Potential Connection
- - - Electricity Transmission Line
- Road
- Railway Line
- ▭ Project Boundary
- ▨ Indicative Disturbance Area
- ▭ Existing Substation Boundary



Metres

Scale 1:2,500 at A4
GDA2020 MGA Zone 55

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1.4 Project Objectives

The Project would provide long-term, strategic benefits to the State of NSW, including:

- Contribute to and support the NEM by providing storage capacity and improving its security, stability, and resilience.
- Assist in facilitating the shift away from coal-fired power generation, by supporting the grid during Australia's transition towards clean and renewable sources of energy.
- Avoid, minimise and mitigate adverse impacts on the environment and community during construction, operations and decommissioning.
- Establish a strong network of positive and long-term relationships within the local community and contribute to its economic and social growth.
- Provide energy storage for sustainable renewable energy to enable continuous and reliable electricity output as part of a rapidly expanding industry in NSW.
- Make efficient use of existing transmission electrical infrastructure i.e. Temora Zone Substation.

1.5 Purpose of this Scoping Report

This Scoping Report aims to provide a description of the Project to consent authorities and agencies, and to identify the key environmental and social matters of relevance to the Project to inform the preparation of the NSW Secretary's Environmental Assessment Requirements (SEARs).

Under the provisions of Clause 4.12(8) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (NSW Government, 1979), an Environmental Impact Statement (EIS) is required (and will be prepared) to accompany the State Significant Development Application (SSDA) for the Project, to be lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI). The SEARs will identify specific assessment considerations relevant to the Project that must be addressed in the EIS.

This Scoping Report has been prepared in accordance with the following guidelines:

- NSW Government – DPHI – State Significant Development Guidelines (SSD Guidelines) (DPHI, 2024).
- SSD Guidelines – preparing a scoping report (Scoping Report Guidelines) (DPE, 2022).
- Social Impact Assessment Guidelines for State Significant Projects (SIA Guidelines) (DPE, 2023).
- Undertaking Engagement Guidelines for State Significant Projects (Engagement Guidelines) (DPHI, 2024).
- Cumulative Impact Assessment Guidelines for State Significant Projects (CIA Guidelines) (DPE, 2022).

As per the Scoping Report Guidelines, a Scoping Summary Table is provided in **Appendix A** of this Scoping Report.

1.6 Structure of this Report

As per the Scoping Report Guidelines (DPE, 2022), this report has the following sections:

- **Section 1.0 – Introduction:** introduces the Project, the Applicant and provides an outline of the structure of the document.
- **Section 2.0 – Strategic Context:** outlines the strategic context for the Project, including the justification for the Project, a summary of the locality in which the Project is undertaken and an overview of the environmental, social, and economic context.
- **Section 3.0 – The Project:** contains a description of the Project, including an overview of alternatives considered and strategies to avoid and minimise environmental impacts.
- **Section 4.0 – Statutory Context:** summarises the relevant State and Commonwealth statutory context applicable to the approval process for the Project.
- **Section 5.0 – Engagement:** describes the stakeholder engagement program for the Project and identifies the environmental, social, and economic matters identified during the scoping phase for further consideration in the EIS.
- **Section 6.0 – Proposed Assessment of Impacts:** contains analysis of the environmental, social, and economic matters relevant to the Project and the assessments proposed to be completed for the EIS.
- **Section 7.0 – Conclusion**
- **Section 8.0 – References**
- **Appendix A – Scoping Summary Table**
- **Appendix B – Social Impact Scoping Summary**
- **Appendix C – Biodiversity Constraints Assessment**
- **Appendix D – AHIMS Search Results**

2.0 Strategic Context

2.1 Project Justification

The Project aligns with the strategic needs of the Commonwealth and NSW Governments. The Project would play a critical role in delivering affordable, reliable energy in NSW by storing surplus energy during times of excess supply and releasing energy during peak demand periods. Furthermore, the Project would contribute capital investment, potentially generate jobs during the construction and operational phases, and provide indirect benefits to local services throughout the life of the Project.

The Project will also enhance grid stability and support the transmission of electricity through the grid as NSW transitions from traditional energy generation to clean energy generators. As such, the Project supports Commonwealth and NSW commitments to increase renewable energy generation and reduced carbon emissions by increasing the resilience of the grid during the transition to renewable energy.

The Project aligns with Commonwealth, State, regional and local policy objectives, as outlined below in **Section 2.1.1**.

2.1.1 Strategic Regional and Local Context

2.1.1.1 Commonwealth policy

The Paris Agreement

Australia is one of the 196 parties signed to the international climate change agreement (i.e. the Paris Agreement). The Paris Agreement aims to:

- Hold the increase in the global average temperature to below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
- Increase the ability (of nations) to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas (GHG) emissions development, in a manner that does not threaten food production.
- Make finance flows consistent with a pathway towards low GHG emissions and climate resilient development.

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

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

Australia signed the Paris Agreement on 22 April 2016. The obligations under the Paris Agreement are driving national GHG policy between 2020 and 2030. Australia's commitment to the Paris Agreement includes reducing GHG emissions by 26% to 28% on 2005 levels by 2030 (DCCEEW, 2024). Australia's Nationally Determined Contribution (NDC) prescribes an unconditional economy-wide target to reduce GHG emissions, and states that future policies will target emissions generated from energy use, industrial processes, agriculture, land-use, land-use change, forestry and waste.

The Project will support the transition to renewable energy by enhancing grid stability as NSW moves from high GHG producing electricity generation to renewable energy. As such, the Project aligns with the policy objectives outlined in the Paris agreement and will support Commonwealth obligations to reduce GHG emissions.

2.1.1.2 NSW Policy

NSW Electricity Infrastructure Roadmap

The NSW Electricity Infrastructure Roadmap (the Roadmap) is a 20-year plan to transform the NSW electricity system into one that is cheap, clean and reliable, laying the foundations for future generations to enjoy more secure, reliable and affordable electricity (NSW Government, 2020). The Roadmap utilises a coordinated framework to modernise the electricity system, underpinned by three key principles:

1. New generation to replace retiring coal-fired power stations.
2. New network infrastructure to deliver energy to consumers.
3. New storage and firming to better respond to electricity needs and improve the reliability of the grid.

The electricity market is moving towards more sources of generation that rely on variable weather conditions. As such, energy generators are increasingly reliant on long duration storage infrastructure to ensure power is readily available. Such energy storage infrastructure, such as batteries, allow renewable energy to be stored and then released when required, assisting in the transition to a more secure and reliable electricity system.

The Project is consistent with the principles of the Roadmap as it involves the development of new storage and firming to better respond to electricity needs and improve the reliability of the grid in NSW.

NSW Electricity Strategy

The NSW Electricity Strategy (the Strategy) was developed by the NSW Government to deliver better outcomes for energy consumers in NSW, and to outline a plan for a reliable, affordable and sustainable electricity future, which supports the growing economy of NSW (DPIE, 2019).

A multi-layered approach was developed to achieve this plan:

- support the electricity market to deliver reliable electricity at the lowest price, while protecting the environment
- set an energy security target to ensure that NSW has sufficient generation capacity to cope with unexpected generator outages during periods of peak demand
- if required, ensure NSW has sufficient powers to deal with an electricity emergency.

The framework set out in the Strategy outlines an integrated approach to all demand and supply options, including action by households and small businesses, demand management and investment in large-scale, affordable and reliable generation. The Strategy also notes that firmed renewables (including batteries) are now the most cost-efficient form of new, reliable energy generation and cost less than the current wholesale electricity price.

The Project is consistent with the objectives of the Strategy as it would help ensure a cheap and reliable electricity supply, assist NSW to meet periods of peak energy demand, and provide network security to unexpected generator outages.

Network Infrastructure Strategy

EnergyCo NSW has prepared the NSW Network Infrastructure Strategy (NIS) (EnergyCo, 2023) as an important new element of NSW's Electricity Infrastructure Roadmap framework. The Network Infrastructure Strategy is a 20-year strategy for the practical coordination of NSW network infrastructure to connect new generation and storage in NSW's five Renewable Energy Zones (REZs).

The NIS is an important new component of the NSW-wide system planning process that in turn sits within the NEM and its processes. Going forward, future editions of the NIS will be prepared every two years to support the Infrastructure Investment Objectives (IIO) Report and to ensure continuous improvement that reflects changes in the market.

The NIS has been developed to fulfill three key objectives:

1. Coordinated NSW-wide electricity infrastructure development.
2. Investor guidance.
3. Meaningful engagement.

The NIS provides a clear vision of renewable energy development options in the wider context of a rapidly changing, and at times uncertain, evolution of generation mix and demand.

While the Project is not located within a proposed REZ, there is an existing connection to the network which will be considered as part of a connection associated with the NIS. Consideration of the NIS will be undertaken during preparation of the EIS, as required.

NSW Climate Change Policy Framework

The NSW Government has developed its NSW Climate Change Policy Framework, which aims to deliver net zero emissions by 2050, and a State that is more resilient and responsive to climate change (OEH, 2016). Under the NSW Climate Change Policy Framework, NSW has committed to both follow the Paris Agreement and to work to complement national action.

The policy framework is being delivered through:

- The Climate Change Fund.
- Developing an economic appraisal methodology to value GHG emissions mitigation.
- Embedding climate change mitigation and adaptation across government operations.

- Building on NSW's expansion of renewable energy.
- Developing action plans and strategies.

In 2013 the NSW Government released the Renewable Energy Action Plan (REAP) (Department of Premier and Cabinet, 2012) and the NSW Energy Efficiency Action Plan (EEAP) (OEH, 2013). The REAP aimed to increase the generation, storage, and use of renewable energy in NSW, at least cost to customers and with maximum benefits to NSW. The three core goals of the REAP were to attract renewable energy investment, build community support for renewable energy and attract and grow expertise in renewable energy. Based on the implementation of the REAP, renewable energy is now well-placed to play a leading role in meeting NSW's energy needs into the future.

The Project is consistent with the overarching aim of the REAP as it is development to make the energy grid more reliable and stable, assisting NSW in the transition to renewable energy.

2.1.1.3 Regional and Local Plans

The Riverina Murray Regional Plan

The Riverina Murray Regional Plan 2041 (RMRP) (DPE, 2023) is a 20-year plan that informs local and strategic planning for the future of the Riverina Murray Region, with a targeted delivery focus on the next five years. The RMRP provides a framework for guiding land uses, development proposals and infrastructure fundings decisions over the next 20 years.

Objective 11 of the RMRP is to 'plan for integrated and resilient utility infrastructure'. The Project supports this objective by ensuring the region will have a reliable power source to accommodate new residential and economic developments with affordable energy.

Objective 13 of the RMRP is to 'support the transition to net zero by 2050'. The Project will support NSW to transition away from fossil fuels and towards renewable energy by enhancing grid stability and the transmission of electricity through the grid.

The Project is consistent with the vision of the RMRP and will assist in securing more reliable and affordable energy for the region. The Project will assist to create a more sustainable energy future through support for the grid during the transition from fossil fuels to renewables.

Temora Community Strategic Plan

The Temora Community Strategic Plan (CSP) (Temora Shire Council, 2022) is a long-term plan for Temora Shire produced by Temora Shire Council in collaboration with the local community. The Temora CSP identifies the priorities and aspirations for the future, including a broad range of issues relevant to the whole community, considering social, environmental, economic and civic leadership issues.

The Temora CSP includes strategic objectives against key themes, with the aim to achieve a desired outcome in line with the overarching vision of the plan. Strategic objective 4.3 is to have '*a community that strives to minimise its environmental impacts*'.

The Project supports the strategic objectives of the Temora CSP as it will assist in minimising environmental impacts by facilitating the transition to renewables by stabilising the grid.

South West Slopes Regional Economic Development Strategy

The South West Slopes Regional Economic Development Strategy (2016-2022) (REDS) (Department of Premier and Cabinet, 2018) sets out the long-term economic vision and strategy for the region's economic development for the five LGAs comprising Bland Shire Council, Cootamundra-Gundagai Regional Council, Hilltops Council, Temora Shire Council and Weddin Shire Council.

One of the key infrastructure priorities in the REDS is energy infrastructure, to 'ensure access to and affordability of energy (renewable and otherwise) for current and future demand'. The Project supports this priority as its function will be to protect the region from energy outages by storing energy during times of supply excess and releasing energy during peak demand. This will improve the reliability of energy within the region, and ensure energy remains stable and affordable while the transition to renewables is undertaken.

Temora Local Environmental Plan (LEP) 2010

The Temora Local Environmental Plan (LEP) 2010 guides the sustainable development of the Temora region while seeking to maintain its strong current country town character. An aim of the plan is to 'encourage non-agricultural enterprises by permitting a wide range of urban land uses consistent with the imperative to support economic growth, employment creation and business opportunities.' The Project supports this aim by generating employment opportunities up to 20 FTE jobs during construction, and 2 FTE jobs during operation.

The Project Area is zoned RU1 Primary Production. The objectives of this zone, as outlined in the Temora LEP, include:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To minimise the degradation of natural scenery and rural landscapes.
- To encourage the conservation and efficient use and of water.
- To protect, enhance and conserve the natural environment, including native vegetation, wetlands and other natural features that provide wildlife habitat, protect flora and fauna, provide scenic amenity and that may prevent or mitigate land degradation.
- To encourage the provision of tourist accommodation in association with agricultural activities.

The Project minimises the fragmentation and alienation of resource lands by utilising a small site. It also supports minimising conflict between land uses by utilising a site that is adjacent to a land parcel zoned SP2 Electrical Infrastructure. While the Project will ultimately change the land use of the Project Area, this location is suitable for the purposes of a BESS, having regard for surrounding available agricultural land.

Temora Shire Development Control Plan 2012

The Temora Shire Development Control Plan (DCP) 2012 is a key document that supports the Temora Local Environmental Plan by providing detailed guidelines and controls for various types of development and land uses within the shire. The Project will comply with any relevant chapters of the DCP.

2.2 Key Features of the Project Location

The Project is located within the Temora Shire Council LGA approximately 2.2 km southeast of the Temora town centre, as shown in **Figure 2.1**. The Project Area is approximately 3.86 ha and is located on undeveloped land that has been historically cleared and used for agricultural purposes.

The Project Area is located close to existing electrical infrastructure, the Temora Zone Substation. Lot 2, DP609354 that forms the BESS component of the Project Area is zoned RU1 Primary Production. Most of the land that surrounds the Project is also zoned RU1 Primary Production, however the land to the north is zoned SP2 Electrical Infrastructure, and to the east is SP1 Intensive Plant Agriculture. This accounts for the Temora substation and GrainCorp sub terminal, respectively (refer to **Figure 2.1**). Potential grid connection electrical infrastructure will traverse Lot 1, DP609354 and be situated on lands zoned as SP2 Electrical Infrastructure.

Additional contextual features of the Project Area and surrounding locality are presented in **Figure 2.1**. Key considerations are described below and further discussed in subsequent sections of this Scoping Report, where necessary:

- **Biodiversity:** the Project Area contains single paddock trees and small open-woodland patches of trees, surrounded by tilled derived grasslands. Two threatened ecological communities (TECs) were identified as potentially occurring in the Project Area. No threatened flora or fauna species has been recorded; however, 12 species have been assessed as having a moderate or high likelihood of occurrence in the Project Area. There were 14 hollow bearing trees (HBTs) identified within the Project Area ranging from <2.5 centimetre (cm) up to 30 cm diameter. The majority of high biodiversity values are situated near the permitter of the BESS lot boundary. Further discussion is included in **Section 6.1.1** of this Scoping Report, with figures illustrating the extent of these biodiversity constraints.
- **Amenity:** there are nine proximal neighbours within 1 km of the Project Area. In particular, the GrainCorp Sub Terminal (including a GrainCorp owned dwelling) is situated directly east of the Project Area, on the opposite side of Old Cootamundra Road. Potential noise and visual amenity-based impacts are discussed in **Section 6.1.2**.

There is one host landholder associated with the Project who has a commercial agreement with NHCE for the development of the Project on their lands. The host landholder does not reside on site but has an existing farm structure inside the Project Area (nears the southern extents of the BESS lot boundary) that is to be removed as part of the development. The nine proximal neighbours noted above are situated at varying distances of between 55 m and 655 m of the Project Boundary. Currently there are no associated landholders or dwellings, such that all landholdings / residences discussed in this Scoping Report are classified as non-associated landholders and dwellings.

- **Traffic and Access:** the eastern boundary of the Project Area is adjacent to Old Cootamundra Road and its associated verges. Access to the Project Area is expected to be facilitated via Miners Street from the east. Miners Street is an unsealed road that connects Old Cootamundra Road, Junee Road and across to Mansfield Road. There may be a requirement to upgrade this access as part of the Project. Where possible, the site access point will seek to utilise existing disturbed areas and avoid key biodiversity constraints. Further discussion around access is provided in **Section 6.1.3**.
- **Hazards:** areas of remnant or plantation vegetation presents a potential bushfire hazard for the broader Project Area. Additionally, the potential introduction of batteries as a component of the BESS presents a hazard to the Project. Accordingly, the EIS will include an assessment of potential hazards associated with the Project. Further discussion around hazards and safety is provided in **Section 6.1.4**.
- **Heritage:** there are no known Aboriginal or historical (non-Aboriginal) heritage features within the Project Area. This is further discussed in **Section 6.1.5**.
- **Community:** the Project is located within the Temora Shire Council LGA, approximately 2.2 km south-east of the main Temora town centre. A discussion of community demographics is included in **Section 5.0** and **Section 6.1.6**.
- **Economic:** the Project is located in the Temora Shire Council LGA which has a population of 6,034 people. The key industries in the area include 'Other Grain Growing', grain-sheep or grain-beef cattle farming, aged care residential services, supermarket and grocery stores, and local government administration. The project will provide direct and indirect benefits which are discussed further in **Section 6.1.7**.
- **Land:** agricultural land uses are prevalent within and surrounding the Project Area. There are no areas of mapped Biophysical Strategic Agricultural Land (BSAL) and there are no current mining and/or exploration licence applications within the Project Area. Further discussion is included in **Section 6.1.8**.
- **Water:** the Project is located in the Lachlan catchment. The Project Area has no natural waterways, is not in a flood planning area and has no mapped terrestrial or aquatic groundwater dependant Ecosystems. The Project Area is subject to the Water Sharing Plan for the Lachlan Regulated River Water Source 2016 and located within the Western Bland Creek Water Source. Further discussions included in **Section 6.1.9**.
- **Air:** potential air quality impacts would be generated from dust and machinery and vehicle emissions construction and decommissioning. With mitigations of standard dust suppression measures the impact will be low. Further discussion is included in **Section 6.1.10**.
- **Waste:** the potential waste impacts associated with construction of the Project will require further assessment and are discussed in **Section 6.1.12**.
- **Cumulative impacts:** there are no relevant Major Projects within 50 km of the Project Area. The cumulative impacts of small-scale development and existing land uses will be considered. Further discussed in **Section 2.3**.

FIGURE 2.1
Project Locality Context



- Legend**
- Project Boundary
 - Road
 - Railway Line
 - River/Stream



0 250 500

Metres

Scale 1:25,000 at A4
GDA2020 MGA Zone 55

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2.3 Cumulative Impact Considerations

An initial assessment was undertaken to determine whether the Project is likely to generate cumulative impacts with currently planned, proposed, and constructed projects in the area. This assessment was completed in line with the CIA Guidelines (DPE, 2022).

Table 2.1 provides an indication of what other projects will be considered in the cumulative impact assessment of the EIS as per the CIA Guidelines.

Table 2.1 Relevant Future Projects for Cumulative Impact Assessment (DPIE 2022)

Currently planned, proposed, and constructed projects: Definitions	Example
Changes to existing projects	- The approval for the project is due to run out and the operations are likely to cease - The Applicant of the project has announced the operation will close. - The intensity of the project's operations may change over time (e.g. the project is currently operating below its approved capacity, the project is currently under construction and will only start operating in two years). - The Applicant has announced it will seek approval for a major expansion of the project.
Approved projects	The project has been approved under the EP&A Act but has not started yet.
Projects under assessment	The application for the project has been exhibited and is currently under assessment.
Related development to the project	Development that is required for the project but will be subject to a separate assessment (e.g. upgrades to ancillary infrastructure, provision of electricity to the project).

Whilst the CIA Guideline generally refers to 'relevant future projects' it is also important, in this case, to acknowledge the GrainCorp Sub Terminal adjacent to the Project, the important role it plays in the regional/locality and the potential for cumulative impacts to occur e.g., during the construction of the Project and peak harvesting periods. Whilst specific details will be identified during the EIS phase, NHCE has already commenced engagement with this valued stakeholder (refer to **Section 5.0**), would continue to do so during the EIS phase, and is committed to minimising disturbance to the GrainCorp existing operations as far as is reasonably practicable.

2.3.1 Proximal SSD Projects

Utilising the NSW Government Major Projects Planning Portal, a search was completed to identify any of the following project types within 50 km of the Project Area:

- Other SSD and State significant infrastructure (SSI) projects.
- Projects that are classified as designated development and require an EIS.

- Projects that require assessment under division 5.1 of the EP&A Act that are likely to significantly affect the environment and require an EIS.
- Projects that have been declared to be controlled actions under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Australian Government, 1999).
- Any major greenfield and urban renewal developments that are scheduled for the area (e.g. new areas zoned for urban development).

These types of projects are generally large in scale and would be of relevance in terms of potentially contributing to or compounding material impacts in the Project Area, and as such would be the types of developments which would be included as relevant future projects for cumulative assessment.

The only SSD within 50 km of the Project Area which has been approved within the last 10 years is the Sebastopol Solar Farm, located approximately 14 km from the Project Area.

Further consideration of cumulative impacts is provided in **Section 6.1.11** of this report.

2.4 Other Agreements

At this stage, the Applicant has not pursued any planning agreements with Temora Shire Council, any agreements with landowners, or any benefit sharing schemes. However, this will be further evaluated following ongoing consultation with relevant stakeholders and the detailed assessment of impacts during the EIS phase.

3.0 The Project

3.1 Project Summary

The Project will comprise the construction, operation and decommissioning of a BESS, supported by ancillary infrastructure. The capacity for the Project is expected to be up to 50 MW / 200 MWh, and an approximate EDC of \$100 million.

The Project aims to provide both storage and firming capacity to the NEM which will enhance grid stability and ensure reliable supply. The design of the BESS will allow for the storage of energy from the NEM during low demand periods, and exportation of energy to the NEM during times of peak demand, helping to balance supply and demand.

The indicative Disturbance Footprint is shown in **Figure 1.3**. The overall Project Area represents an area of approximately 3.86 ha, which includes associated ancillary infrastructure. The Project Area has been selected as it has been historically cleared, minimising the potential for environmental impacts.

The key components of the Project include:

- **Batteries:** containerised Lithium-Ion Batteries.
- **Grid Connection:** the Project is anticipated to connect to the existing Temora Zone Substation, from an onsite substation. An extension of the existing Temora Zone Substation will likely be required, including installation of a new bay and associated electrical equipment. The feeders that will connect the BESS to the new bay at the Temora Zone Substation may be overhead line or underground cable. The grid connection design will be refined during the grid connection process.
- **Minor Upgrades:** to the existing access point, and removal of an on-site existing building structure, including access and egress via Miners Street.
- **Ancillary Infrastructure:** including temporary construction facilities, security fencing, permanent site office / operations and maintenance (O&M) buildings, internal access roads, parking areas, hardstands, and Project signage.
- **Changes to Existing Electrical Infrastructure:** Potential relocation of existing electrical cables in the Project Area.

The BESS layout for the Project will be refined during the EIS.

3.2 Electrical Collector System and On-site Substation

Battery modules and power conversion systems will be containerised, with a collector system aggregating the power to switchgear, which will feed into an on-site substation. The collector system is expected to consist of underground cables.

The on-site substation will house electrical equipment including switchgear and step-up transformers, with feeders connecting to the adjacent existing Temora Zone Substation. These feeders may be overhead line or underground cable, with the design to consider environmental impacts and to be refined during the grid connection process. An extension of the existing Temora Zone Substation will likely be required, including installation of a new bay and associated equipment.

Each BESS container will have a height of approximately 2.8 m and will be installed on concrete foundations. Landscape screening will be considered during the EIS and provided to augment the existing vegetation already present at the BESS lot boundary, where necessary.

Power, earthing, and communications cables would be installed across the indicative Disturbance Footprint between electrical equipment. Cabling may be underground or above ground depending on geotechnical conditions and other site requirements.

3.3 Ancillary Infrastructure

The BESS will require additional areas of disturbance for ancillary infrastructure. This ancillary infrastructure includes but is not limited to:

- temporary construction facilities, including:
 - construction compound(s)
 - site office buildings
 - laydown areas
 - construction materials storage.
- permanent site office and O&M buildings (including amenities, maintenance shed, and equipment storage sheds) with parking areas catering for operations including:
 - minor upgrades to the existing access, including access and egress point on Miners Street
 - hardstands and new internal access tracks
 - Project signage at the main site entrance on Miners Street.

Security fencing will be installed around the perimeter of the site office and O&M buildings, as well as around high voltage electrical equipment including the onsite substation and BESS. Signage will be clearly displayed identifying hazards present within the development corridor. Lighting, security cameras and weather stations will be installed where necessary for safety, maintenance, and security purposes.

As noted above landscaping may also be implemented within the Project Area to reduce the visibility of Project infrastructure, which will be considered further and refined during the later stages of Project development.

3.4 Access

The eastern boundary of the Project Area is adjacent to Old Cootamundra Road and its associated verges. Access to the Project Area by trucks or oversize overmass (OSOM) vehicles is expected to be facilitated via Miners Street from the east. Miners Street is an unsealed road that connects Old Cootamundra Road, Junee Road and across to Mansfield Road. There may be a requirement to upgrade this access as part of the Project. This is further discussed in **Section 6.1.3**. The access point will be gated and secured, and appropriate warning signs erected.

The transport route to the Project Area will be confirmed through the EIS. Subject to detailed design, internal access tracks will also be established, if required. Any internal access tracks will be unsealed but all-weather construction. The internal tracks would serve both as access for servicing and maintaining Project infrastructure as well as emergency access trails and Asset Protection Zones (APZ).

3.5 Construction

Construction of the Project is expected to be completed over approximately 12–18 months.

Temporary infrastructure required during construction will include temporary construction compounds, site offices, concrete batching plants, rock crushing facilities, material storage/stockpile and laydown areas, and internal access tracks.

Earthworks will be required for BESS foundation excavation, hardstand and access track formation and drainage works. Where required, additional or improved drainage channels, sediment control ponds and dust control measures will be implemented. Laydown areas, waste handling, fuel and chemical storage areas will be strategically placed to minimise potential environmental impacts during construction.

3.5.1 Construction Workforce

The Project is expected to generate up to 20 full time equivalent (FTE) employment opportunities during the peak construction period. Councils and local business owners will be consulted throughout the design and assessment of the Project, particularly relating to the management of potential impacts and opportunities for accommodation of the Project's construction workforce.

Potential cumulative impacts on accommodation, infrastructure, and services will be considered in the EIS as part of the social impact assessment.

An onsite Temporary Workforce Accommodation (TWA) facility is unlikely to be a viable option due to the small number of construction jobs and the size of the Project Area, compared to the land area required to develop temporary accommodation with suitable services and facilities. NHCE have been engaging with Temora Shire Council about contributing to the 'Passive Place' initiative instead. This initiative seeks to provide housing for the temporary workforce of various projects in Temora, reducing the impact on the visitor economy and rental market in the region. Post-construction, this initiative will provide legacy infrastructure and accommodation that will be retained and used to address housing based needs in the Temora Shire.

This approach seeks to meet the needs of the Project whilst maintaining a balance of any negative impacts associated with local and regional accommodation availability. This aspect of the Project will require careful consideration during the EIS phase. NHCE will prepare an Accommodation and Employment Strategy (AES) to formally document this process and its outcomes.

3.6 Operations

Key activities during operations will be energy generation and energy storage. The Project would be operational 24 hours a day, seven days a week, with storage and export activities occurring as required. The operational lifespan of the project is expected to be more than 25 years and is anticipated to create 2 FTE employment opportunities.

Operations and maintenance tasks would be undertaken during standard working hours. These tasks would also be supported by contractor roles for vegetation, weed and pest management, cleaning and equipment calibration, access track and internal track maintenance and facility cleaning. However, it should be noted that emergency responses, inspections, and maintenance may need to be conducted outside standard hours.

3.7 Decommissioning/Re-Powering

Once the Project reaches the end of its operational life, a decision would be made to either decommission or re-power the facility, subject to approval requirements.

If the Project is decommissioned, all above ground infrastructure would be removed. Batteries would either be disposed of and recycled at a suitably approved disposal facility, or subject to confirmation, be returned to the original equipment manufacturer for refurbishment and recycling. The Project Area would be rehabilitated to return the site to as close to its pre-development condition as possible

If re-powering is proposed, an appropriate stakeholder consultation process will be undertaken, and all necessary approvals will be sought. If re-powering is required, further development approval would be required and would be assessed separately to the BESS construction and operation phases.

3.8 Project Alternatives

3.8.1 Do Nothing

The 'do nothing' option would not deliver the potential benefits of the Project and would be inconsistent with the objectives outlined in the Roadmap, including:

- supporting investment in new energy infrastructure in regional NSW
- delivering long-term energy storage infrastructure in NSW
- keeping the grid secure and reliable
- allowing opportunities for industry.

3.8.2 Alternative Project Footprints

Desktop assessment of the Project Area has revealed the site does not contain any major environmental constraints that cannot be mitigated via careful design. The Project Area was selected due to:

- its proximity to the Temora Zone Substation that is directly adjacent to the BESS, providing for an efficient connection to the NEM. The Temora Zone Substation is located adjacent to the Project Area, approximately 200 m away. This provides a direct path and short distance for grid connection. This would minimise disruption, construction, social and environmental impacts when compared to a Project Area with a longer distance to the grid connection point.
- The site having already been predominantly cleared due to historical agricultural use, and the opportunity to avoid biodiversity values and minimise environmental impacts via careful layout and design considerations.
- It avoids crossing watercourses (creeks, rivers, etc.). There are no natural waterways that occur within the Project Area.
- The Project Area is not currently utilised for any purpose, beyond small-scale agriculture and sheep agistment.

3.8.3 Alternative Project Concepts

The indicative Disturbance Footprint (refer to **Figure 1.3**) assessed throughout this Scoping Report would be subject to further design development improvements during preparation of the EIS. Design changes may occur to avoid environmental, cultural and social issues identified throughout future assessment of the Project and informed by engagement with the community and stakeholders.

4.0 Statutory Context

4.1 NSW Approval Pathway

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

The Project will require development consent under Part 4 of the EP&A Act. The Capital Investment Value (CIV) of the Project may vary but will be more than \$30 million. As such, the Project is declared to be SSD under the provisions of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) (NSW Government, 2021). The development application will be lodged with DPHI.

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

4.2 Power to Grant Consent

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

In accordance with Section 2.7 of the Planning Systems SEPP, the IPC is the consent authority for those SSD applications:

- That are not supported by the relevant council(s); or
- Where the department has received more than 50 unique public objections; or
- That have been made by a person who has disclosed a reportable political donation in connection with the development application.

If none of the above criteria are triggered, the Minister is the consent authority.

4.3 Permissibility

The Project Area is located on land zoned RU1 – Primary Production within the *Temora Local Environmental Plan 2010* (Temora LEP) (NSW Government, 2010) (see **Figure 4.1**). Development for the purposes of electricity generating works is not explicitly listed as permissible within the RU1 land use table within the Temora LEP; however, the works are considered permissible by means of not being listed as either prohibited or permissible without consent.

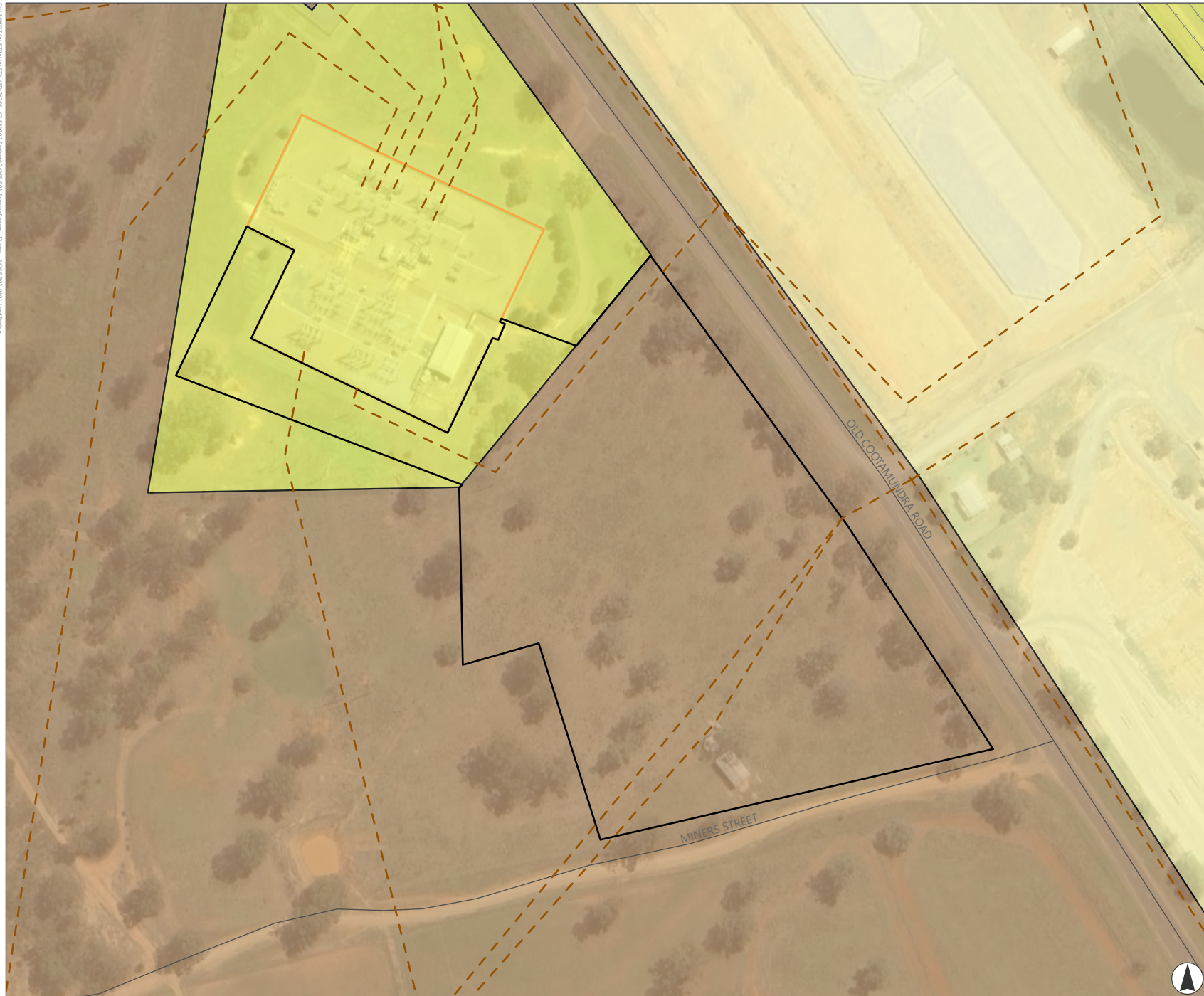
The Project is defined as ‘electricity generating works’ under Section 2.35 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP) (NSW Government, 2021) as it is electricity storage. Section 1.36 of the Transport and Infrastructure SEPP states that development for the purpose of energy generating works may be carried out by any person with consent on any land in a prescribed non-residential zone.

Section 2.7 of the Transport and Infrastructure SEPP states that if there is an inconsistency between the Transport and Infrastructure SEPP and any other environmental planning instrument, the Transport and Infrastructure SEPP prevails.

Given that the Project is located on land zones RU1 – Primary Production, which is non-residential, the Project is permissible under the Transport and Infrastructure SEPP, which prevails over any other environmental planning instruments in the case of inconsistency.

The Project grid connection electrical infrastructure will traverse onto land zoned SP2 – Infrastructure, which is to provide for infrastructure and related uses. Development permitted with consent includes the ‘purpose shown on the Land Zone Map including any development that is ordinarily incidental or ancillary to development for that purpose’. The Land Zone Map indicates this parcel of land is SP2 - Electrical Infrastructure.

FIGURE 4.1
Land Zoning



Legend

- Project Boundary
- Existing Substation Boundary
- Electricity Transmission Line
- Road
- Railway Line

Land Zoning

- RU1 - Primary Production
- SP1 - Special Activities
- SP2 - Infrastructure



0 25 50

Metres

Scale 1:2,500 at A4
GDA2020 MGA Zone 55

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4.4 Relevant Commonwealth and State Legislation

4.4.1 NSW Approvals

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

Table 4.1 Other necessary approvals for the Project

Statutory Reference	Approval Needed
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	The POEO Act regulates pollution to the environment and requires licences for environment protection including waste, air, water and noise pollution control. Section 48 requires an Environment Protection Licence (EPL) for Schedule 1 activities. Schedule 1 Clause 17 General electricity works requires an EPL where the activity generates more than 30 MW of electrical power. The Project would store electrical power, not generate electrical power. Therefore, an EPL is not required.
<i>Roads Act 1993</i>	A consent is required under section 138 to work on or above a road or to connect a road to a classified road. Consents under section 138 will be required for proposed road works.
<i>Biodiversity Conservation Act 2016 (BC Act)</i>	Under the BC Act, biodiversity assessment in accordance with the NSW Biodiversity Assessment Method (BAM) is required for any SSD project. The Project (as SSD) triggers the requirement to prepare a Biodiversity Development Assessment Report (BDAR) in accordance with the BAM. The EIS will include a BDAR.
<i>Water Management Act 2000 (WM Act)</i>	Any water extractions from water sources (i.e. surface and groundwater) regulated by a Water Sharing Plan (WSP) required for construction or operational purposes will require licensing under the WM Act. The potential water requirements during construction and operation will be assessed as part of the Water and Soil Impact Assessment prepared as part of the EIS. Any necessary licences would be obtained for the Project.
<i>Crown Land Management Act 2016 (Crown Land Act)</i>	The Crown Land Act provides for the administration and management of Crown Land in NSW. Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved, or otherwise dealt with unless authorised by the Crown Land Act. There are some areas of Crown Land adjacent to the Project Area. Should any works have potential to directly or indirectly impact these areas, further consideration, consultation and possible approval may be required.

4.4.2 Commonwealth Approvals

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act provides a framework for protection of the Australian environment, including its biodiversity and its natural and culturally significant places.

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

- world heritage properties
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- migratory species protected under international agreements
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)
- a water resource, in relation to coal seam gas development and large coal mining development.

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

There is potential for the Project to impact on listed threatened species and ecological communities, migratory species, and endangered and critically endangered fauna species under the BC Act and EPBC Act, respectively. However, further assessment is required and would be undertaken during the EIS to confirm whether the level of impact meets the requisite thresholds (see **Section 6.1.1**).

The Project may impact MNES under the EPBC Act. Further ecological assessment is required to determine the precise extent of impact, however, should it be required, an EPBC Act Referral will be submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW). If the Project is considered a 'Controlled Action' by Cth DCCEEW, it will require assessment through the NSW and Commonwealth Bilateral Agreement.

Heavy Vehicle National Law

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

4.5 Statutory Requirements Summary

The below table provides a summary of the statutory requirements for the Project.

Table 4.2 Statutory Requirements for the Project

Matter	Detail	Comment
Power to grant consent	The legal pathway under which consent is to be sought, why the pathway applies, and who the consent authority is likely to be.	As outlined in Section 4.2 , the Project requires approval under Part 4 of the EP&A Act being SSD. The consent authority will be the IPC or the Minister based on the number and type of any objections to the Project, or any political donations made by the Applicant or related entities.
Permissibility	The relevant provisions affecting the permissibility of the Project, including any land use zones. Any provisions or actions being taken that would allow the Project to be considered on its merits, where the Project would otherwise be partly or wholly prohibited.	As outlined in Section 4.3 , the Project Area is zoned RU1 Primary Production and SP2 Electrical Infrastructure within the Temora LEP. Electricity generating works are permitted within the RU1 zoning under the Temora LEP by virtue of it not being listed as prohibited. Clause 2.36(1)(b) of the Transport and Infrastructure SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial, or special use zone. Development permitted with consent for zoning SP2 includes the 'the purpose shown on the Land Zone Map including any development that is ordinarily incidental or ancillary to development for that purpose'. The Land Zone Map indicates the Temora substation is zoned SP2 - Electrical Infrastructure. Under Clause 2.7(1) of the Transport and Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other environmental planning instrument, including LEPs. Therefore, the Project is permissible with development consent.
Other approvals	Other approvals that are required to carry out the project and why they are required.	Section 4.4.1 provides a list of other NSW approvals required or that may be required for the Project. Section 4.4.2 discusses potential Commonwealth approvals that may be required for the Project.
Pre-conditions to exercising the power to grant consent	Pre-conditions to exercising the power to grant consent for the project that may be relevant to setting the SEARs. Includes mandatory conditions that must be satisfied before the consent authority may grant consent.	An EIS will be prepared in accordance with relevant legislative requirements and guidelines. No pre-conditions to exercising the power to grant consent for the Project are currently envisaged.
Mandatory matters for consideration	Identify matters that the consent authority is required to consider in deciding whether to grant consent to any development application for the project that may be relevant to setting the SEARs.	As outlined in Section 4.1 , Section 4.15 of the EP&A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, and statutory regulations. The assessment of SSD must also consider the likely impacts of the development, suitability of the Project Area, any submissions received and the public interest. All relevant matters will be addressed in the EIS based on the outcomes of environmental assessments to be undertaken (refer to Section 6.0).

5.0 Stakeholder Engagement

The Applicant recognises the importance of respectful, inclusive and meaningful engagement in the development of all projects. Effective engagement is a key component of the SSD assessment process, in line with the *Undertaking Engagement Guidelines for State Significant Projects* (DPHI, 2024).

To support this, Umwelt (on behalf of the Applicant) has prepared a Community and Stakeholder Engagement Plan (CSEP) for the Project to outline the objectives and approach to community engagement throughout the life of the Project, from development through construction and operation. This CSEP is provided as Appendix B to the Social Impact Scoping Report (SISR) that is provided in Support of this Scoping Report in **Appendix B**.

The following section provides a summary of the CSEP, the public and agency consultation undertaken to date and key issues raised, and the outcomes of specific consultation undertaken with proximal neighbours.

5.1 Stakeholder Engagement Carried Out

Engagement commenced in 2024 and has been undertaken by staff from NHCE and Umwelt. Staff have engaged in a range of activities, including key stakeholder interviews with the Temora Shire Council and proximal landholders, establishing a website to introduce the Project and NHCE, and provided the first of two information sheets to proximal landholders. Engagement is to be concentrated within the Temora LGA, which falls within the Project's social locality.

The social locality includes:

- proximal residents which consist of three houses on Old Cootamundra Road, Temora Golf Club, a dwelling associated with the GrainCorp sub-terminal and five properties on Moroneys Lane and Ashelford Street
- transport routes including freight train line with crossing points at Cootamundra Road and Junee Road
- proximal industry such as the adjacent GrainCorp subterminal and the Essential Energy substation.

The aim of engagement has been to build and maintain genuine, trusting relationships with the local community. The overall approach to consultation has been, and will continue to be, flexible, inclusive, open and responsive.

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

- proactively inform Project design and development
- identify perceived issues/impacts to be addressed in the assessment process
- establish stakeholder relationships with surrounding proximal landholders and key stakeholders for the Project.

The engagement undertaken as part of the Scoping Phase is outlined in **Table 5.1**.

Table 5.1 Community Engagement during Scoping Phase

Mechanism	Target Stakeholder Group	Objectives	Timing
Key stakeholder interviews	- Local government - Proximal landholders - Local Aboriginal Land Council - Key community groups - Environmental groups - Chamber of commerce / RDA.	Gather information and understand any concerns relating to social impacts from local community stakeholders. Discussion of potential enhancement and mitigation measures to address Project impacts. Understanding the needs and desires of stakeholders.	Temora Shire Council round 1 – W/C 20 May Proximal residents – W/C 1 July Temora Shire Council round 2 – 2 September Other stakeholders: 2–3 September 2024 W/C 9 September
Telephone interviews	- Community groups - Proximal resident (golf club) - LALC - Environmental groups - TBEG.	Reach out to stakeholders not contacted during in-person visits to establish contact and build relationships. Receive feedback and input on preliminary project scoping.	W/C 2 September W/C 9 September
Website	Broader community.	Introduce the project and NHCE. Provide contact details and link to community survey. Advertise community information/drop-in session.	Live Mid-July
Community survey	- Broader community - Proximal landholders.	Provide the opportunity for community members to provide feedback regarding the Project. Understanding the Project acceptance and social impacts. Identify project refinements and preliminary enhancement and mitigation measures.	Survey drafted W/C 1 August Upload to SurveyMonkey and published on NHCE website W/C 19 August Wider advertisement / distribution 19 September Further distribution via Temora Shire Council channels W/C 14 October

Mechanism	Target Stakeholder Group	Objectives	Timing
Information Sheet #1 – introduction	Proximal landholders	Provide an introduction to the proposed Project including site location, timeline, desired outcomes, and contact details to keep community members and groups well informed. Introduce NHCE. Provide an overview of the assessment process and how the community can get involved.	Designed W/C 27 May Distributed W/C 1 July
Information Sheet #2	Proximal residents	Provide an introduction to the proposed Project including site location, timeline, desired outcomes, and contact details to keep community members and groups well informed. Introduce NHCE. Provide an overview of the assessment process and how the community can get involved.	Designed W/C 27 May Distributed W/C 1 July
Newspaper advertisement	• Broader community • Community groups.	Provide an introduction to the proposed Project including site location, timeline, desired outcomes, and contact details to keep community members and groups well informed. Introduce NHCE. Provide an overview of the assessment process and how the community can get involved. Link to website and community survey.	Reviewed W/C 19 August Designed W/C 26 August Distributed W/C 16 September

5.2 Community Views

Initial views from meetings with proximal landholders, results of surveys and engagement with Temora Shire Council has shown a medium level of interest in the social locality. An overview of preliminary social impacts identified during research and consultation activities is provided in **Table 5.2** and are organised by the Project phase in which the impact may occur.

Table 5.2 Impact Summary

Phase	Social impact category	Predicted social impacts
Assessment phase	Decision-making systems	Lack of trust in Project assessment process and ability to inform Project development
Construction phase	Accessibility	Delay in travel times for road users associated with construction vehicle traffic
	Accessibility	Increased demand for health services due to construction workforce influx
	Accessibility	Increased demand for short-term accommodation due to construction workforce influx
	Livelihoods	Local employment opportunities
	Livelihoods	Economic boost to local business due to presence of construction workforce
	Surroundings	Reduced road safety due to increased construction vehicle activity
Construction and operational phases	Culture	Potential damage to Aboriginal cultural heritage and values
	Surroundings	Visual amenity changes impacting the rural landscape
	Surroundings	Decreased social amenity as a result of noise
	Surroundings	Potential damage to environmental values of importance to the community
	Community	Change to sense of place due to changed land use and continued industrialisation of the landscape
	Livelihoods Way of life	Decrease in nearby property values due to changed land use and continued industrialisation of the landscape
	Livelihoods	Training and education opportunities to upskill local residents and maximise employment opportunities
Operational phase	Surroundings	Public safety risk associated with potential battery fire
	Accessibility Livelihoods	Access to reliable, low-cost renewable energy
	Decision-making systems	Distributional inequity of Project benefits
	Decision-making systems	Increased intergenerational equity associated with reduced reliance on fossil fuel
Decommissioning phase	Surroundings	Future environmental impacts resulting from decommissioning and waste generated from the Project

5.3 Community and Stakeholder Engagement to be Carried Out

The CSEP identified stakeholders with an interest in the Project, and those that may be directly or indirectly affected by it, including consideration of any potentially vulnerable or marginalised groups. Ongoing engagement is to be concentrated within the Temora LGA, which falls within the Project's social locality.

Stakeholders to be engaged for the social impact assessment (SIA) as part of the EIS are presented in **Table 5.3**.

Table 5.3 Stakeholders to be Engaged

Stakeholder Group	Stakeholder
Local government	Temora Shire Council
Proximal landholders	GrainCorp Sub Terminal Residence on site of GrainCorp Sub Terminal 4646 Old Cootamundra Road, Temora 71 Miners Street, Temora 94 Moroney's Lane, Temora 4629 Old Cootamundra Road, Temora 4595 Old Cootamundra Road, Temora 19 Websters Lane, Temora 35 Miners Street, Temora
Aboriginal groups	Wiradjuri people Young Local Aboriginal Land Council (LALC) Willo's Wiradjuri Keeping Place
Community, environmental and special interest groups	Lions Club Temora Rotary Club of Temora Temora Volunteer Rescue Squad Temora Youth Council Temora Arts Council Temora Rural Museum Temora Landcare and Sustainable Network Temora Community Centre Temora Golf Club Temora Buses Riverina Sustainable Food Alliance Bidgee Mid Landcare Network The Temora Independent Bundawarrah Centre
Industry groups	Temora Business Enterprise Group (TBEG) RDA Riverina
Broader community	Residents of the town of Temora Proximal landholders (in addition to those listed above): 4609, 4627, 4799 Old Cootamundra Road, Temora 19, 37, 71, 108 Miners St - Properties at corner of Moroneys Lane and Ashelford St.

The CSEP identifies the stakeholder engagement approach and objectives for the Project and the surrounding communities, and aims to:

- identify effective methods to inform the community of Project information and updates, which foster trust and build positive long-term relationships with community stakeholders
- ensure delivery of an honest, innovative, flexible and transparent community engagement process
- identify ways to facilitate engagement and collaborate with relevant community organisations, including for input into the social and environmental assessment of the Project and ongoing project design and planning including the development of community benefit sharing programs
- ensure the broader community and stakeholders are kept informed about benefits, potential impacts, and activities of the Project
- identify effective avenues for community members to communicate any concerns and provide valuable feedback with Project personnel
- ensure means of community involvement are known and distributed consistently
- ensure the commitments made to the community during the Project development stage are being met.

6.0 Proposed Assessment of Impacts

A preliminary assessment of potential environmental impacts has been completed through a preliminary site visit, initial noise logging, and desktop assessment to identify matters requiring further assessment in the EIS and the level of assessment required.

The following were considered to determine the level of assessment for each matter:

- the scale and nature of the likely impacts of the project and the sensitivity of the receiving environment
- whether the project is likely to generate cumulative impacts with other relevant future projects in the area
- the ability to avoid, minimise and/or offset the impacts of the project.

Matters to be considered have been categorised in accordance with the Scoping Report Guidelines (DPE, 2022) and have been organised as follows:

- Matters requiring further assessment in the EIS (**Section 6.1**).
- Matters requiring no further assessment in the EIS (**Section 6.2**).
- A scoping summary table is included in **Appendix A**.

For matters which require further assessment in the EIS, **Table 6.1** identifies whether a detailed or standard assessment is required (as defined by Appendix D of the SSD Scoping Report Guidelines).

Table 6.1 Level of Assessment to be Undertaken in the EIS

Level of Assessment	Assessment Matter
Detailed	Biodiversity – Terrestrial Flora and Fauna
Detailed	Amenity – Noise and Vibration
Detailed	Amenity – Visual
Detailed	Access – Traffic and Access to Property
Standard	Hazards and Risks – Biosecurity
Standard	Hazard and Risks – Bushfire
Standard	Hazard and Risks – Electromagnetic Fields
Detailed	Hazards and risks – Dangerous goods
Detailed	Heritage – Aboriginal
Standard	Heritage – Historic
Detailed	Social – Community
Standard	Economics
Standard	Land and soil
Standard	Water – Hydrology
Standard	Air – Particulate matter
Standard	Cumulative impacts
Standard	Waste

6.1 Matters Requiring Further Assessment in the EIS

The environmental, social, and economic matters discussed in this section have been identified as key issues requiring further assessment as part of the EIS to fully understand the potential impacts and identify project-specific mitigation measures and/or alternatives.

6.1.1 Biodiversity – Terrestrial Flora and Fauna

A preliminary Biodiversity Constraints Assessment (BCA) has been prepared based on a review of existing information and a biodiversity field survey. The preliminary BCA is included in **Appendix C** and summarised below.

6.1.1.1 Existing Terrestrial Flora and Fauna Environment

Important Habitat Mapping

Important habitat maps identify areas that are considered essential to support critical life stages of the species, for example breeding areas or locations important for foraging or over-wintering for migratory species. The Project Area is not within an area of important habitat mapping.

Vegetation Communities

The baseline desktop vegetation mapping (NSW State Vegetation Type Map (SVTM) – C2.0M2.0) (December 2023) suggested one plant community type (PCT) to occur within the Project Area, being PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western slopes and Riverina Bioregions.

Subsequently, a field survey was undertaken on 23-24 May 2024, which found that the vegetation present at the Project Area was inconsistent with PCT 76 based on its description on the BioNet Vegetation Classification system.

The treed vegetation at the Project Area supported a canopy co-dominated by white box (*Eucalyptus albens*) and inland grey box (*Eucalyptus microcarpa*). PCT 76, however, does not identify white box as a characteristic species.

Small-leaf bluebush (*Maeriana microphylla*), wingless fissureweed (*Maireana enchylaenoides*), fuzzweed (*Vittadinia cuneata*), and red grass (*Bothriochloa macra*) were present in the Project Area. These species are not present in the PCT 76 under the BioNet Vegetation Classification. Winter Apple (*Eremophila debilis*) was also present as part of the vegetation, though it occurred adjacent to the Project Area. This species is also not part of PCT 76.

Based on the vegetation recorded and assessed during the biodiversity field survey, and the relevant BioNet Vegetation Classification, PCT 267 White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion was identified within the Project Area.

The Project Area contains single paddock trees and small open-woodland patches of trees, surrounded by tilled derived grasslands. A patch of open-woodland occurs along the eastern boundary of the Project Area, extending into the adjacent roadside corridor.

Threatened Ecological Communities

After the biodiversity field survey, PCT 267 is associated with two (2) Threatened Ecological Communities (TEC), which were determined as having a moderate or higher likelihood of occurrence within the Project Area:

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions - Critically Endangered Ecological Community under the BC Act.
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland - Critically Endangered Ecological Community under the EPBC Act.

The tilling in the Project Area prevented the ability to determine the vegetation identification and condition of this area. The vegetation may have supported derived native grasslands prior to the tilling activity occurring. It should be noted that it is also distinctly possible that the disturbed vegetation was already highly degraded from being exposed to a long history of agricultural activities and therefore may have been non-native vegetation. As such the estimated preliminary area for each TEC is based on a precautionary approach which assumes the entire Project Area is a TEC under the BC Act. As such, it is estimated that there is 3.6 ha of BC Act listed TEC, and 0.9 ha of EPBC Act listed TEC (**Figure 6.1**).

Threatened Flora

The desktop review of the EPBC Protected Matters Search Tool (PMST), NSW BioNet Wildlife, and Atlas of Living Australia identified nine flora species which may occur in the Project Area. A likelihood of occurrence assessment was undertaken as part of the preliminary BCA and did not identify any threatened flora species with a moderate to high likelihood to occur within the Project Area.

No threatened flora species were recorded during the biodiversity field survey.

Threatened Fauna

The Project Area contains some habitat for threatened fauna communities. This includes 14 HBTs ranging from <2.5 cm up to 30 cm diameter, fallen timber, and scattered rocks. No threatened fauna species were identified during the biodiversity field survey.

6.1.1.2 Potential Terrestrial Flora and Fauna Impacts

The Project may result in the removal of native vegetation, including TECs listed under both the BC Act and EPBC Act. Vegetation removal that may be required for the proposed works would likely contribute to further fragmentation of native vegetation communities within the locality.

Removal of grassland habitat may impact suitable habitat for threatened entities with a moderate or high likelihood to occur within the Project Area.

Hollow-bearing trees provide habitat for threatened species such as the superb parrot (*Polytelis swainsonii*) and squirrel glider (*Petaurus norfolcensis*) which may occur within the Project Area. As such, the Project has the potential to remove hollow-bearing trees suitable for these threatened species.

Additionally, the Project could result in indirect impacts including inadvertent disturbance to adjacent native vegetation and threatened species habitat during construction and operational phases of the Project.

The priority weed African boxthorn (*Lycium ferocissimum*) occurs in parts of the Project Area. Continued weed invasion and encroachment could have potentially severe consequences for the habitat of flora and fauna occurring in the area.

Increased vehicle movement during construction may increase risk of vehicle strike on species living on, in or feeding from the ground such as superb parrot, pink-tailed worm-lizard (*Aprasia parapulchella*) should they be identified as present in the Project Area.

The vegetation in the tilled areas was not able to be identified or assessed for condition and there is a possibility that it could have supported derived native grasslands or non-native vegetation. The precautionary approach was applied, and this area has been assumed as a TEC. Given the precautionary approach taken with respect to determining TEC, and the presence of cleared land within the Project Area, the highest biodiversity values are generally situated near the perimeter of the BESS lot boundary. There is opportunity to avoid these biodiversity values via careful consideration of Project layout and design.

6.1.1.3 Further Assessment of Terrestrial Flora and Fauna Impacts

Further refinement of vegetation mapping will be required, particularly within the areas of tilled land, and would be undertaken in conjunction with detailed floristic integrity assessment to be completed in accordance with the BAM. This survey would be undertaken once the vegetation within the areas of tilling has had adequate time to recover.

Additionally, targeted surveys for threatened species will be undertaken if all suitable habitat for threatened species is not able to be adequately avoided during Project design.

The Biodiversity Offsets Scheme is triggered for an SSD, and a Biodiversity Development Assessment Report (BDAR) would be prepared in accordance with the BAM as outlined above. The BDAR will document the existing environment, including native vegetation extent and condition, the results of targeted threatened species survey, impacts on native plant community types and species credit species, and determine the biodiversity offset requirements.

Ecological constraints will be incorporated into detailed design as information from the biodiversity surveys becomes available. Preliminary ecological constraints, including the distribution of areas potentially conforming to Commonwealth and NSW listed threatened ecological communities, and areas of 'important habitat' for threatened species as defined in the BAM, have been used to inform early development of the proposed layout (**Figure 6.2**).

FIGURE 6.1

Plant Community Type and TEC

Legend

-  Project Boundary
-  EPBC Act TEC
-  BC Act TEC
-  PCT 267
-  Existing Structure (to be removed)



0 25 50

Metres

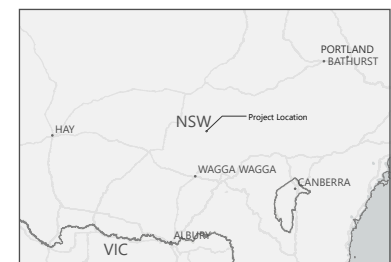
Scale 1:1,750 at A4
GDA2020 MGA Zone 55

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FIGURE 6.2
Biodiversity Assessment Constraints

- Legend**
- Project Boundary
 - Proposed Components**
 - Indicative Disturbance Area
 - Proposed On-Site Substation
 - Proposed Site Access
 - Potential Connection
 - Hollow Bearing Trees
 - Ecology Constraints Mapping**
 - High
 - Moderate
 - Low-Moderate
 - Low
 - Existing Substation Boundary
 - Electricity Transmission Line



0 25 50

Metres

Scale 1:1,750 at A4
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6.1.2 Amenity

6.1.2.1 Noise and Vibration

Existing Noise and Vibration Environment

The Project Area is located within a rural environment, and despite existing electrical infrastructure and seasonal industrial activity at the GrainCorp Sub Terminal, the area is typically characterised by low background noise levels. During the Scoping phase, noise logging occurred at three locations at and near the Project Area, as per *Noise Policy for Industry* (EPA, 2017) requirements, to verify this statement and determined that existing background noise levels were typically below 35 dBA for the daytime, and below 30 dBA during the evening and nighttime.

Except for the Temora Zone Substation and the GrainCorp Sub Terminal, land surrounding the Project Area has predominantly been subject to agricultural land uses (including sheep and cattle grazing) associated with rural residential living.

Several residential receivers are distributed throughout the surrounding area (i.e. sensitive receivers) with no other sensitive land uses (such as schools or places of worship) within or surrounding the Project Area.

There is one host landholder associated with the Project who has a commercial agreement with NHCE for the development of the Project on their lands. The host landholder does not reside on site but has an existing farm structure inside the Project Area (near the southern extents of the BESS lot boundary) that is likely to be removed as part of the development.

The sensitive receivers in the area surrounding the Project are illustrated on **Figure 6.3** and detailed in **Table 6.2**. Currently there are no associated landholders or dwellings, such that all landholdings / residences (sensitive receivers) discussed below are classified as non-associated landholders and dwellings. In addition, any structure within 1 km of the Project Area has been identified and would be investigated further during the EIS to confirm its status a dwelling, or other structure that does not require assessment e.g., shed.

Table 6.2 Sensitive Receivers

Noise Catchment Area (NCA)	Representative Receiver ID	Receiver Type	Receiver details	Approximate distance from Project Area (m)
NCA 1	R1	Residential	4646 Old Cootamundra Road, Temora	55
NCA 2	R2	Residential	4629 Old Cootamundra Road, Temora	310
NCA 2	R3	Residential	4597 Old Cootamundra Road, Temora	336
NCA 2	R4	Residential	4595 Old Cootamundra Road, Temora	381
NCA 3	R5	Residential	71 Miners Street, Temora	249
NCA 3	R6	Residential	94 Moroney's Lane, Temora	439
NCA 3	R7	Residential	19 Websters Lane, Temora	383
NCA 3	R8	Residential	35 Miners Street, Temora	566
NCA 3	R9	Residential	86 Golf Club Road, Temora	655

The closest non-associated dwelling (sensitive receiver) is R1, which is located approximately 55 m east of the Project Area within the GrainCorp Sub Terminal property boundary. It is understood that despite the surrounding agricultural distribution land use, this dwelling is currently used for accommodation under leasing arrangements with an active GrainCorp tenant, accordingly it is considered a sensitive receiver that requires further assessment during the EIS.

Potential Noise and Vibration Impacts

The Project is likely to generate noise and vibration impacts for proximate potential receivers. Noise and vibration impacts could be disruptive to potential receivers within proximity to the Project Area. Conceptual BESS layout designs would prioritise locating ancillary infrastructure away from potential receivers wherever feasible.

Further Assessment of Noise and Vibration Impacts

The potential noise and vibration impact of the construction and operation of the Project on nearby sensitive receivers would be further considered as part of a detailed Noise and Vibration Impact Assessment (NVIA), prepared to support the EIS for the Project. The NVIA will be prepared in accordance with the *Noise Policy for Industry* (EPA, 2017), the *Interim Construction Noise Guideline* (DECC, 2009), the *NSW Road Noise Policy* (DECCW, 2011) and *Assessment Vibration: A Technical Guideline* (DEC, 2006). The NVIA will:

- Establish the relevant level of background noise.
- Provide predictive noise modelling of the Project's construction and operational activities.
- Assess the road traffic noise during construction and operational activities.
- Assess any vibration impacts at sensitive receivers.
- Identify any reasonable and feasible mitigation and management measure.
- Reasonable and feasible mitigation and management measures for noise will be considered as part of the NVIA process and may include:
 - Application of noise control mitigation to proposed noise generating infrastructure (e.g. batteries, inverters, transformers etc) to reduce noise levels to compliant values at the closest and/or potentially most affected sensitive receivers e.g., R1 to R3.
 - Fixed construction noise sources such as concrete batching plant, generators and compressors being located at the maximum practicable distance to the nearest non-associated dwellings, where practicable.
 - Investigate alternative construction processes where feasible and reasonable to reduce noise.
 - Implement a Construction Environmental Management Plan (CEMP), including regular updates to the local community.
 - Entering into negotiated agreements with impacted landholders, as required.

Specific community engagement regarding noise impacts will be carried out during the preparation of the EIS.

FIGURE 6.3
Sensitive Noise Receivers



- Legend**
- Project Boundary
 - Proposed Components**
 - Indicative Disturbance Area
 - Proposed On-Site Substation
 - ▲ Proposed Site Access
 - Potential Connection
 - Receivers
 - Existing Substation Boundary
 - Road
 - Railway Line



0 50 100
Metres
Scale 1:7,500 at A4
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6.1.2.2 Visual

The Project is situated in relatively flat terrain. The surrounding land parcels typically include modified land that support agricultural activities such as grazing over modified and native pastures. Nearby development includes the existing GrainCorp sub terminal.

Potential impacts to surrounding sensitive receptors may include changes to existing views.

Temora Shire Council has also identified a desire for NHCE to consider potential landscaping options. Accordingly, during the EIS phase landscape screening will be considered and provided for in future designs to augment the existing vegetation already present at the BESS lot boundary, where necessary.

A detailed Visual Impact Assessment (VIA) will be prepared as part of the EIS process. The VIA will include the following components of work:

- Identify the visual catchment of the Project and visually sensitive receivers with consideration for all influencing factors, such as topography, relative distance, perspective, orientation and existing vegetation that may obscure views of the Project.
- Determining the sensitivity of existing viewpoints.
- Assessing the Project's visual impacts, based on the magnitude of impact upon the sensitive viewpoints.
- Assessing the Projects' impact on landscape character, based on the sensitivity of the existing landscape character and extent of change likely to be caused by the Project.
- Ground-truthing, photography and photomontages of the Project.
- Description of proposed mitigation measures to reduce visual impacts.

The assessment will also consider the cumulative visual impact of the proposed BESS with the surrounding developments (if applicable).

Specific consultation with nearby landholders will be undertaken to further understand potential impacts of the Project on the visual amenity of the landscape.

6.1.3 Access – Traffic and Access to Property

6.1.3.1 Access to Property

Access to the Project Area is proposed via Miners Street, from either Moroneys Lane or Old Cootamundra Road, and the local Area Road network. Access to the Project Area is via local roads, some of which are unsealed.

The precise route of access to the Project Area will be subject to construction scheduling, noting that the Applicant does not intend to have any impact on GrainCorp Sub Terminal access or operations on Old Cootamundra Road, particularly during the harvest period.

NHCE acknowledges the GrainCorp Sub Terminal adjacent to the Project, the important role it plays in the regional/locality and the potential for cumulative impacts to occur with respect to traffic and access e.g., during the construction of the Project and peak harvesting periods. Whilst specific details will be identified during the EIS phase, NHCE has already commenced engagement with this valued stakeholder (refer to **Section 5.0**), would continue to do so during the EIS phase, and is committed to minimising disturbance to the GrainCorp existing operations as far as is reasonably practicable.

Existing traffic in proximity to the Project Area is currently minimal, and primarily consists of local traffic.

A Traffic and Transport Impact Assessment (TTIA) will be undertaken as part of the EIS to assess the potential transport routes required for the construction of the Project and any potential impact to the road network. The assessments will be undertaken following relevant NSW Government guidelines and assessment standards, including the *Guide to Traffic Generating Developments* (RTA, 2002), *Road Design Guide* (RTA, 2003) and relevant Austroads standards and *Austroads Guide to Traffic Management guidelines* (Austroads, 2020).

The preferred transport route for BESS components and other Project-related materials would be confirmed via a transport route assessment, which will be prepared as part of the EIS.

6.1.3.2 Traffic and Parking

The construction phase of the Project will result in increased traffic movements by both light vehicles transporting construction personnel and minor light construction materials, and heavy vehicle movements transporting the heavy-duty equipment required for construction purposes.

Traffic increases associated with the operational phase of the Project will be minimal and will generally only involve the movement of light vehicles transporting operational staff around the site intermittently.

It is expected that upgrades to local roads (secondary access routes) may be required to allow access for OSOM vehicles (where considered suitable) prior to any deliveries occurring as part of the construction phase of the Project.

All construction vehicle parking would be accommodated within the Project Area.

An onsite TWA facility is being investigated by NHCE but is unlikely to be a viable option due to the small size of the Project Area, compared to the land area required to develop temporary accommodation with suitable services and facilities. At this stage NHCE is considering offsite TWA options that may become available via local service providers, which would be paired with potential shuttle bus services to the Project and combined with local rental or Airbnb accommodation. This option would assist to reduce light vehicle flows to the Project Area (as shuttle buses would be used to transport multiple staff at one time) and will be considered further in the EIS phase. Other options to reduce light vehicle flows and reduce onsite Parking requirements will be considered during the EIS phase.

6.1.4 Hazards and Risks

6.1.4.1 Biosecurity

A search of the Department of Primary Industry (DPI) Priority Weeds in the Riverina region was conducted. One priority weed of the Riverina occurred in the Project Area, African boxthorn.

The Project could potentially result in the spread of weeds from plant, vehicle and equipment. It is considered likely that this would be effectively managed through standard cleaning protocols, such as washdown and stockpiling.

As biosecurity risks from the Project would be managed through standard plant, equipment, and vehicle cleaning protocols, a standard assessment of biosecurity will be undertaken for the EIS.

6.1.4.2 Bushfire

Existing Bushfire Conditions

Project Area is not within bushfire prone land. Noting the extent of native vegetation within the Project Area, a potential need for Asset Protection Zones (APZs) is present which could have implications regarding additional biodiversity impacts and offset requirements.

Potential Bushfire Risks

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

Bushfire Further Assessment

A Bushfire Threat Assessment will be undertaken to support the EIS in accordance with the requirements of Planning for Bushfire Protection 2019 (NSW Rural Fire Service, 2019), which will include provision of adequate asset protection zones on the site layout to minimise the risk of fire through spatial separation of vegetation and battery infrastructure.

6.1.4.3 Electromagnetic Fields

Electromagnetic fields (EMF) are present where electric current flows, including overhead and underground transmission lines, substations and electrical appliances.

The Project would likely produce EMF when operational. Once the BESS has been commissioned, on-site personnel would be exposed to EMF radiation, though unlikely at levels that pose a hazard to human health.

Further assessment will be undertaken for the EIS which will consider the potential health issues and risks associated with EMF produced by the BESS and associated electrical infrastructure within the Project Area. The assessment will be undertaken in accordance with the International Commission on Non-Ionizing Radiation Protection *Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields* (ICNIRP, 1998). Given that the EMF radiation is unlikely to be at levels which pose a hazard to human health, a standard assessment will be undertaken rather than a detailed one.

6.1.4.4 Hazardous and Offensive Development

The design and siting of the BESS infrastructure will be subject to further assessment, including a Preliminary Hazard Analysis (PHA) in accordance with the Resilience and Hazards SEPP. It is expected that a PHA incorporating a Level 1 Qualitative Risk Analysis and Level 2 Semi-quantitative Risk Analysis will be needed to satisfy DPHI requirements.

The PHA will involve the following components of work:

- Screening of preliminary risks for all hazardous materials and dangerous goods to be stored and transported to/from the Project.
- Classifying and prioritising risks, and estimating societal risk, in accordance with the *NSW Multi-level Risk Assessment Guideline* (DPI, 2011).
- Analysing consequence and frequency for hazard scenarios identified as requiring further assessment in the qualitative risk assessment, undertaken in accordance with the *NSW Risk Criteria for Land Use Safety Planning* (Department of Planning, 2011).

6.1.4.5 Dangerous Goods

The Project may result in the introduction of a number of hazardous materials that present potential risks to the environment and public safety. Hazardous materials that may be transported to the Project Area, stored, and used within the Project Area and transported from the Project Area are presented in **Table 6.3**, with reference to the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2018).

Table 6.3 Project Hazardous Materials

Material	Dangerous Goods Class/ Division and (Packing Group)	Phase(s) of Project
Unleaded Petrol	3 (II)	Operations
Diesel Fuel	C1	Construction, Operations and Decommissioning
Herbicides	9 (II)	Operations
Transformer Oil	-	Construction, Operations and Decommissioning
Aerosols	Class 2.1	Construction, Operations and Decommissioning
Solvents	3 (II)	Construction, Operations and Decommissioning
Lithium	9 (II & III)	Construction, Operations and Decommissioning

Any dangerous goods related to the Project will be assessed through the PHA as described above in **Section 6.1.4.4** above.

6.1.5 Heritage

Information from publicly available sources, relating to the Aboriginal and Historical (non-Aboriginal) heritage matters discussed below, are shown below in **Figure 6.4** of this Scoping Report.

6.1.5.1 Aboriginal Heritage

Existing Heritage Values

The Project Area falls on the land of the Wiradjuri people.

A search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 31 October 2024 to identify known Aboriginal sites and/or places within the Project Area and surrounds. The assessment identified three Aboriginal sites within the broader landscape, with the nearest site approximately 1.6 km to the southeast. No currently registered AHIMS sites would be impacted by the Project.

The AHIMS search results are provided in **Appendix D** of this Scoping Report.

Potential Impacts to Aboriginal Heritage

Although no Aboriginal sites are currently mapped within the Project Area, this could be attributed to a lack of prior assessments undertaken within the area and is not conclusive of an absence of Aboriginal heritage.

As such, the Project could potentially disturb or damage previously unidentified Aboriginal items/sites during construction. As outlined below, further detailed assessment will be undertaken to better understand the potential impacts which the Project may have on Aboriginal heritage.

Further Assessment Needed for Aboriginal Heritage

It is proposed that a detailed Aboriginal Cultural Heritage Assessment (ACHA) be undertaken to assess potential for impacts to Aboriginal sites in consultation with the Registered Aboriginal Parties (RAP) for the Project.

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

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

The ACHA will include the assessment of all aspects of the Project including any associated infrastructure and road works and include consultation with the RAPs for the Project in determining and assessing impacts, developing and selecting options and mitigation measures, having regard to the NSW Government *Aboriginal Cultural Heritage Consultation Requirements for Proponents guideline* (DECCW, 2010).

6.1.5.2 Historical Heritage

Existing Heritage Values

A review of the Register of the National Estate (RNE) and the State Heritage Register (SHR) was conducted in August 2024 which did not identify any State listed heritage items, or items listed on the RNE, within the Project Area.

A review of the relevant Heritage maps contained in the Temora LEP 2010 showed two (2) local heritage sites within the vicinity of the Project Area (**Figure 6.4**).

Table 6.4 outlines the details of these two (2) sites.

Table 6.4 Local Heritage Items

Item number	Item name	Address	Property description	Significance	Location to Project Area
I51	Mother Shipton Mine Site	Moroneys Lane	Lot 7003, DP 94439; Part Lots 268 and 1182, DP 750587	Local	West of the Project Area
I151	Temora Bulk Wheat Terminal	4646 Old Cootamundra Road	Lot 10, DP 819658	Local	East of the Project Area

Potential Impact to Historical Heritage

There are no Commonwealth of State listed heritage items located within the Project Area or surrounding locality. While there may be unidentified historical (non-Aboriginal) heritage items within the Project Area, any potential impact previously unidentified historic heritage is likely to be well understood, and capable of being mitigated to comply with relevant standards or performance measures. As such, it is not considered likely that the project would result in significant impacts to historic heritage.

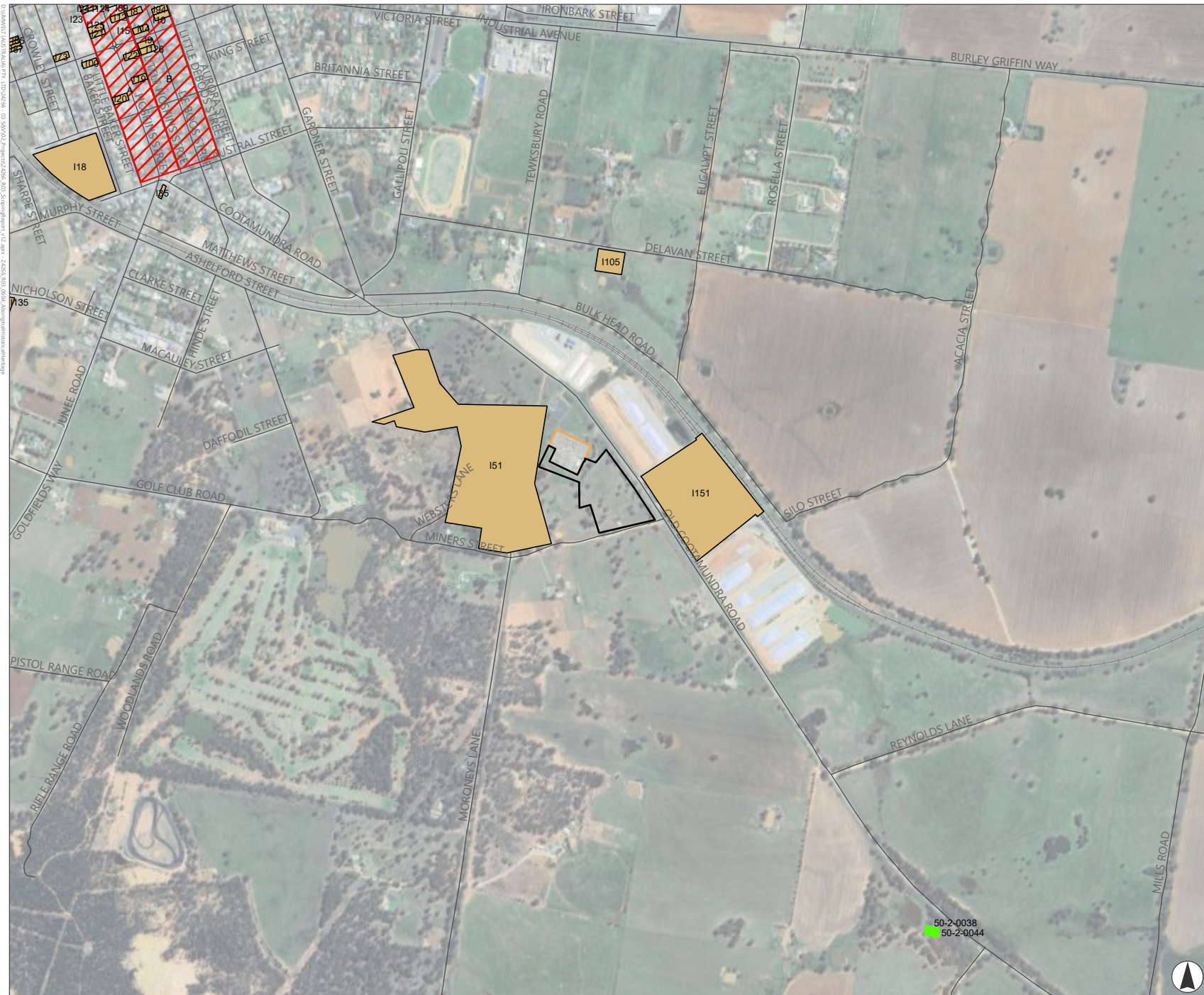
Further Assessment for Historic Heritage

The Project Area does not contain any known historical heritage items. Two local heritage items are situated adjacent to the Project Area. No construction or operation activities are anticipated to impact the heritage significance of these two items.

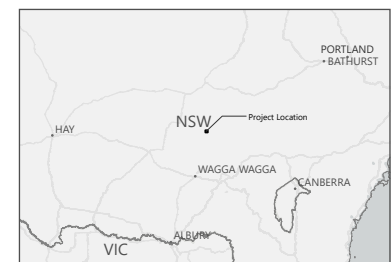
It is considered that the potential risk of the Project impacting unknown historic heritage items is well understood and can be mitigated using standard mitigation and management measures to comply with relevant standards and performance measures.

As such, a standard assessment will be undertaken to assess the potential risk of impacts to historic heritage, and standard mitigation measures will be developed as part of the EIS.

FIGURE 6.4
Aboriginal Heritage and
Historical (non-Aboriginal)
Search Results



- Legend**
- Project Boundary
 - Existing Substation Boundary
 - Road
 - Railway Line
- EPI Heritage**
- Conservation Area - General
 - Item - General
- AHIMS Extensive Search Results**
- Modified Tree



0 250 500
Metres

Scale 1:17,500 at A4
GDA2020 MGA Zone 55

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6.1.6 Social – Community

6.1.6.1 Existing Community

The Temora Shire LGA is situated in the Riverina region of NSW and covers an area of approximately 2,800 km². The LGA has a population of approximately 6034 and is largely characterised by its regional character.

6.1.6.2 Potential and Perceived Community Impacts

Initial feedback from the community and other stakeholders' engagement activities outlined in **Section 5.2**.

The Project may impact on the community through temporary impacts during construction like increased traffic, changes to access, noise and an increase in construction workforce. The project may also impact the community once constructed with the perceived decrease in land value, changes to the visual landscape, social amenity due to noise and change in land use.

The Project is expected to provide benefits to the community through local employment opportunities, economic boost to local businesses during, and more broadly increased intergenerational equity through the reduced reliance on fossil fuels.

6.1.6.3 Further Assessment of Community Impacts

A detailed assessment will be undertaken to further understand the potential social impacts of the Project and included in the EIS. This will encompass a SIA will be prepared in line with relevant DPHI guidance, including:

- *Social Impact Assessment Guideline* (DPE, 2023).
- Undertaking Engagement Guidelines for State Significant Projects (DPHI, 2024).
- State Significant Development guidelines – preparing an environmental impact statement (DPE, 2022).

6.1.7 Economic

6.1.7.1 Livelihoods

People's capacity to sustain themselves through employment or business is captured collectively under the impact category of livelihoods. The Project Area is located within the Temora Shire LGA and is in proximity to the township of Temora. Based on a preliminary review of key community and demographic information, Temora is characterised as follows:

- Key industries of employment including 'Other Grain Growing', grain-sheep or grain-beef cattle farming, aged care residential services, supermarket and grocery stores, and local government administration.
- Age distribution is varied, but substantially older than the NSW median age.
- Lower than NSW median housing costs.

These key community and demographic factors are summarised in **Table 6.5** below.

Table 6.5 Selected Demographics of Temora, NSW (ABS, 2021)

Indicator	Temora	NSW
Population	6,034	8,072,163
Median age	47	39
Occupied private dwellings	2,393	2,900,468
Top industry of employment	Other Grain Growing	Hospitals (except Psychiatric Hospitals)
Top occupation	Managers	Professionals
Median weekly rent	\$230	\$420
Median monthly mortgage repayments	\$1,100	\$2,167

6.1.7.2 Opportunity Cost

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

- An EDC of \$100 million.
- Employment generating up to around 20 FTE jobs during construction, and 2 FTE jobs during operation.
- Economic stimulus by contributing to the local economy through accommodation, supermarkets, local services etc.
- Stable and reliable electricity, with the potential to improve electricity affordability.
- Indirect benefits to local land services through the construction and operational phase.

An Economic Impact Assessment (EIA) will be undertaken as part of the EIS process to determine the likely local and regional economic benefits arising from the Project and identify potential economic impacts associated with the Project, including investment, employment, business participation, local wage stimulus, impact on accommodation, impact on agricultural activities, cumulative impacts, local economy stimulus, financial returns to Temora Shire Council, environmental benefits and cost of living impacts.

6.1.8 Land

6.1.8.1 Land Soil Capability

The Project Area is categorised as Class 3 under the Land and Soil Capability Assessment Scheme (OEH, 2012), as is the majority of the surrounding area. Under this class the land can be subject to sheet, rill and gully erosion, wind erosion and soil structure decline. Class 3 land does however have the capability to support a wide range of land uses and land management actions. This land capability is often associated with fertile soils and short gradual slopes. This is consistent with the Project Area, which has been used for agriculture, including grazing.

The Project Area is not considered to be Biophysical Strategic Agricultural Land (BSAL).

Soils within the Project Area are classified as chromosols under the Australian Soil Classification Soil Type map of NSW, with kurosols occurring in surrounding areas.

While it is appreciated that the Project Area is considered to have a high to moderate level of Land Soil Capability, the Project Area is best suited for the proposed BESS for the following reasons:

- The Project Area covers a relatively small area (3.86 ha), affecting two (2) lots within the broader agricultural landscape.
- The potential grid connection electrical infrastructure portion of the Project Area is situated within a lot that holds an existing Temora Zone Substation. Having direct connection to an existing substation minimises the need for transmission infrastructure through any surrounding properties. This ensures that existing surrounding land uses are not impacted by the Project.
- The Project Area is situated 2.2 km away from the Temora town centre, thereby reducing any potential risks to residential and commercial properties.
- The Project will also contribute to the economy of the Riverina region, through the provision of jobs during construction and operation. Local resources and businesses would be prioritised wherever possible.

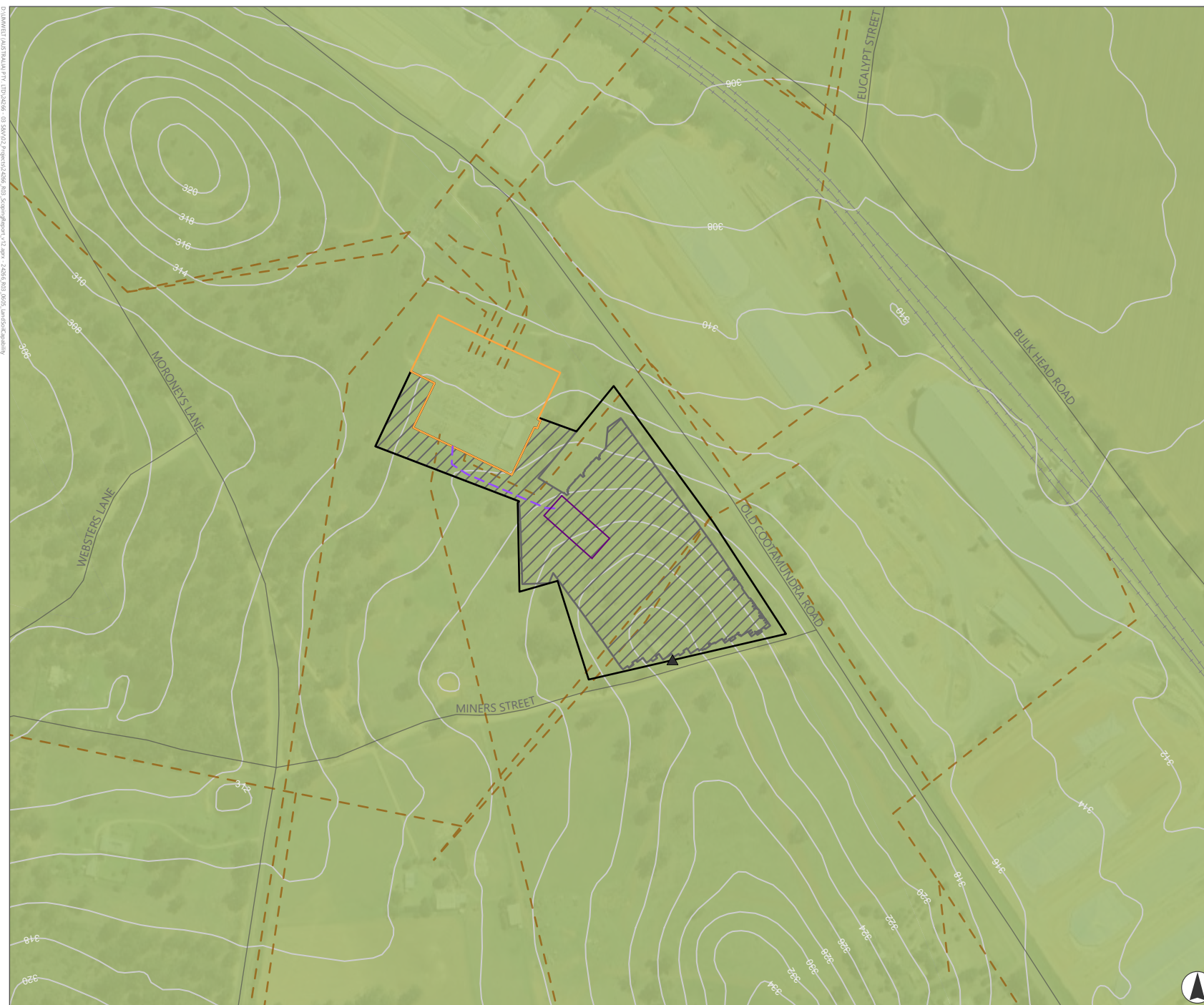
While it is acknowledged that the Project would result in the loss of Class 3 land, as aforementioned, the Project Area is not considered to be BSAL (refer to **Figure 6.5** below). Further, its proximity to an existing substation will remove the need for extensive transmission lines, and thereby avoid impacts to surrounding agricultural land. The Project would also result in broader benefits for the community and natural environment, in comparison to sole agricultural land use. On balance, the proposed BESS is considered a suitable land use for the Project Area.

The EIS will include a standard Soil, Land and Agricultural Assessment (SLAA) which will consider the potential impacts associated with transitioning the Project Area from predominantly agricultural land use to energy storage. The assessment will also propose mitigation and management strategies to minimise the effects of erosion and soil structure decline.

6.1.8.2 Topography

The Project Area ranges in elevation from approximately 316 m to 327 m. The Project Area is generally flat in terrain, with a gradual slope down to its north and north-eastern boundaries. The surrounding landscape is very flat and largely cleared for agricultural purposes. Elevations of the Project Area and surrounding land uses is also shown on **Figure 6.5** below.

FIGURE 6.5
Land and Soil Capability



Legend

- Project Boundary
- Proposed Components**
- Indicative Disturbance Area
- Proposed On-Site Substation
- ▲ Proposed Site Access
- Potential Connection

Land and Soil Capability

- 3 - Moderate limitations

- Existing Substation Boundary
- Electricity Transmission Line
- Road
- +— Railway Line
- Contours



0 50 100

Metres

Scale 1:5,000 at A4
GDA2020 MGA Zone 55

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6.1.9 Water – Hydrology

6.1.9.1 Existing Hydrological Features

Surface Water

There are no natural waterways that occur within the Project Area. A small farm dam exists on the south-western boundary of the property, on Miners Street. Farm dams are scattered throughout the local surrounding area.

The Project Area is located within the Lachlan catchment. The Project Area consists of an undulating to relatively flat topography, with an elevation of 316 m to 327 m.

Flooding

The Project Area is not situated within Temora Shire Council's preliminary Flood Planning Areas.

Groundwater

Groundwater dependent ecosystems (GDEs) rely on the presence of groundwater to function and sustain the resident assemblage of species, populations, and ecological communities. A search of the GDE Atlas (BoM, 2024) found no terrestrial or aquatic GDEs mapped within the Project Area.

Water Storage and Usage

Water Sharing Plans (WSPs) have been developed under the *Water Management Act 2000* (NSW Government, 2000) to protect the environmental health of water sources, whilst securing sustainable access to water for all users. WSPs specify maximum water extractions and allocations and provide licenced and unlicensed water users with a clear picture of when and how water would be available for extraction.

The Project Area is subject to the *Water Sharing Plan for the Lachlan Regulated River Water Source 2016* (DPI, 2016). The Project is located within the Western Bland Creek Water Source.

The EIS will include consideration of water use during construction and operation of the Project, including identifying available water sources.

6.1.9.2 Potential Hydrological Impacts

The Project does not contain any natural waterways, having a small farm dam situated to the west of the Project Area's southern boundary. The only waterways nearby appear to be ephemeral drainage lines to the south which act as tributaries to Narraburra Creek, being approximately 5 km to the east of the Project Area.

The Project will result in increased hardstand area, which may result in changes to surface water flow. This in turn has the potential to result in erosion and sedimentation. However, noting the absence of any natural waterways within the Project Area and the relatively flat terrain, it is considered unlikely that significant impacts to hydrology would result from the Project.

Further Assessment of Hydrology

A standard review of water users, project water use, and supply will be required. An assessment will be undertaken as part of the EIS and is expected to consider further details available on the construction methodology and locations of infrastructure. The hydrological assessment will include:

- Review of the Project Area catchments, topography, and drainage.
- Identify potentially impacted catchments and associated water sharing plans (surface water and groundwater).
- Review of watercourse mapping and riparian corridor requirements.
- Identify sensitive areas including wetlands, riparian areas, areas of groundwater vulnerability and groundwater dependent ecosystems that could be impacted by the Project.

6.1.10 Air – Atmospheric Emissions and Particulate Matter

The primary sources of air pollutants and emissions surrounding the Project Area would be from the GrainCorp operations, particularly during the harvest periods, and agricultural activities and emissions from vehicles and farm plant.

BESS construction and decommissioning activities, such as ground disturbance and vehicle movements, can generate dust and emissions that may impact local air quality. However, these impacts are likely to be localised to the site and immediate surroundings.

During BESS operations, air quality impacts are minimal since BESS facilities do not produce air pollution. During decommissioning, the site would be restored to pre-construction conditions, minimising further dust generation.

Overall, potential air quality impacts from the Project are low and would be mitigated by standard dust suppression measures. A standard assessment of air quality impacts will be provided in the EIS.

6.1.11 Cumulative Impacts

Cumulative impacts are the combined potential effects of different projects and interaction with other projects in the local area. Impacts can occur with projects that occur concurrently and / or sequentially.

As discussed in **Section 3.5** and **Section 3.6**, construction of the Project is expected to take 12 to 18 months and operate for more than 25 years. Different stages of the project have different potential levels of impact, cumulative impact and duration which have been detailed in **Table 6.6**.

Table 6.6 Potential Cumulative Impact Associated with Different Phases of the Project

Stage	Level of impact	Duration	Potential cumulative impact
Assessment	Minor	Temporary	Social, economic
Construction	Moderate to major	Temporary	Social, economic, noise, vibration, traffic, access, visual, air quality
Operation	Minor	Operation	Social, economic, noise, vibration, visual
Decommissioning	Moderate	Temporary	Social, economic, noise, vibration, traffic, access, air quality

Major Projects undergoing assessment or determined are listed on the Major Projects website within the Temora LGA are shown in **Table 6.7**. For completeness, the GrainCorp Sub Terminal is also shown in this table but was approved via other means i.e., not listed on the Major Projects website.

Table 6.7 Nearby Major Projects

Project	Stage	Status	Distance from the Project	Timeframe	Cumulative impacts to consider	Project overlap
Sebastopol Solar Farm (SSD-9098)	Approved	Operational	14 km	Construction commenced 2021	Social, economic	Operation overlap
Temora to Cowal Transmission Line (DA25-02-1999)	Approved	Operational	0 km	Construction commenced 2000	Social, economic, visual	Operation overlap
GrainCorp Sub Terminal	Approved	Operational	0 km	Unknown	Social, economic, visual	Operation overlap

The Sebastopol Solar Farm, Temora to Cowal Transmission Line and GrainCorp Sub Terminal projects have the potential to have cumulative impacts in relation to social, economic, and visual factors. As per the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW, 2022) the level of assessment required is outlined in **Table 6.8**, with **Table 6.10** providing a summary of the cumulative impacts to be assessed.

Table 6.8 Level of Assessment Required

Level of assessment	Detail
Detailed Assessment	The project may result in significant impacts on the matter, including cumulative impacts. Detailed assessment is characterised by: • Potential overlap in impacts between a future project and the proposed project. • Potential for significant cumulative impacts as a result of the overlap, requiring detailed technical studies to assess the impacts. • Sufficient data is available on the future project to allow a detailed assessment of cumulative impacts with the proposed project for the relevant matter. • Uncertainties exist with respect to data, mitigation, assessment methods and criteria.
Standard Assessment	The project is unlikely to result in significant impacts on the matter, including cumulative impacts. Standard assessments are characterised by: • Impacts are well understood. • Impacts are relatively easy to predict using standard methods. • Impacts are capable of being mitigated to comply with relevant standards or performance measures. • The assessment is unlikely to involve any significant uncertainties or require any detailed cumulative impact assessment.
Not Applicable	No potential overlap in impacts between a future project and the proposed project that would warrant any consideration in the cumulative impact assessment.

Table 6.9 Cumulative Impact Assessment Scoping Summary

Project	Social	Economic	Visual
Sebastopol Solar Farm			
Temora to Cowal Transmission Line			
GrainCorp Sub Terminal			

Potential cumulative impacts would be assessed in the EIS in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW, 2022).

Given that there are no relevant future Major Projects within 50 km of the Project Area, a detailed cumulative impact assessment is not considered necessary for the Project. A standard cumulative impact assessment will be undertaken for the EIS. Cumulative impacts will still be considered in the EIS with regard to additional developments identified at the time and any small-scale development, and existing land uses. In doing this specific consideration will be given to the GrainCorp Sub Terminal adjacent to the Project.

6.1.12 Other Issues

The EIS will also address other potential impacts relating to the following matters:

- Waste – the EIS will assess potential waste impacts associated with construction of the Project. A standard qualitative assessment would be undertaken, including an overview of key waste impacts and requisite management measures. This assessment would also provide an overview of key considerations for any future decommissioning of the BESS.
- The Project Area is located within a rural setting and has been subject to extensive clearing associated with previous and current agricultural land uses. Grazing and cropping (pasture) are currently the main land use in the Project Area. The Project Area is zone RU1 Primary Production and the Temora LEP. The Project will result in a change in land use from agriculture to electricity generation. The EIS will include a Land Use Conflict Risk Assessment of the impact of the Project on existing land use including on agricultural production.

6.2 Matters requiring no further assessment in the EIS

Table 6.10 outlines the matters that are considered to not require further assessment in the EIS based on the scoping phase assessment, along with a comment justifying why no further assessment is required.

Table 6.10 Matters Requiring no Further Assessment in the EIS

Matter	Issue	Comment
Access	Port and airport facilities	The Project would not propose to utilise any port or airport facilities.
Access	Rail facilities	The Project would not propose to utilise any rail facilities.
Amenity	Odour	The Project is not anticipated to cause any odour.
Biodiversity	Aquatic flora and fauna	The Project Area does not contain any waterways, and there has not been any aquatic flora or fauna recorded within the Project Area.

Matter	Issue	Comment
Hazards and risks	Coastal hazards	The Project would not be located within a coastal zone and will not result in any impacts to coastal zones.
Hazards and risks	Dam safety	The Project would not require the construction or maintenance of a dam.
Hazards and risks	Land movement	The Project is not anticipated to result in any land movement. The Project would result in relatively minor excavation works only.
Hazards and risks	Land contamination	A search of the NSW EPA Contaminated Land Record on 5 August 2024 identified one contaminated site within the suburb of Temora, being a former Woolworths Caltex located at 98-100 Hoskins Street, Temora, located approximately 2.8 km from the Project Area. No record of notice or list of notified sites were identified within the Project Area. As such the Project will not be impacted by contaminated land and it is considered that the matter requires no further assessment in the EIS.

7.0 Conclusion

NHCE (the Applicant) propose to develop the ‘Temora Battery Energy Storage System’ (BESS) (the Project) in Temora, NSW.

The Project will increase the energy storage capacity within the NEM, allowing for the provision of reliable and affordable energy to NSW and supporting the transition from coal-fired power generation to renewable energy sources. The Project will involve the construction, operation and decommissioning of the BESS, including any necessary ancillary infrastructure.

The proposed Project has a capacity of up to 50 megawatts (MW) / 200 megawatt-hours (MWh), with an Estimated Development Cost (EDC) of \$100 million. The Project is considered SSD under the Planning Systems SEPP and will require development consent under Part 4 of the EP&A Act. The detailed design and specific technology for the Project has not yet been selected. As such, reasonable worst-case assumptions have been adopted to prepare this Scoping Report, and it is assumed, at this stage that the indicative Disturbance Footprint will encompass the majority of the Project Area.

The Project may also impact MNES under the EPBC Act. Further ecological assessment is required to determine the precise extent of impact, however, should it be required, a referral will be submitted to Cth DCCEE. If the Project is considered a ‘Controlled Action’ by Cth DCCEE, it will require assessment through the NSW and Commonwealth Bilateral Agreement.

The strategic location of the Project Area, adjacent to the Temora Zone Substation, minimises potential environmental and social impacts, by limiting the need for extensive transmission infrastructure. In summary the key benefits of the Project include:

- Contributing to and supporting the NEM by providing storage capacity and improving its security, stability, and resilience.
- Assisting in facilitating the shift away from coal-fired power generation, by supporting the grid during Australia’s transition towards clean and renewable sources of energy.
- Avoiding, minimising and mitigating adverse impacts on the environment and community during construction, operations and decommissioning.
- Establishing a strong network of positive and long-term relationships within the local community and contribute to its economic and social growth.
- Provide energy storage for sustainable renewable energy to enable continuous and reliable electricity output as part of a rapidly expanding industry in NSW.
- Make efficient use of existing transmission electrical infrastructure i.e. Temora Zone Substation

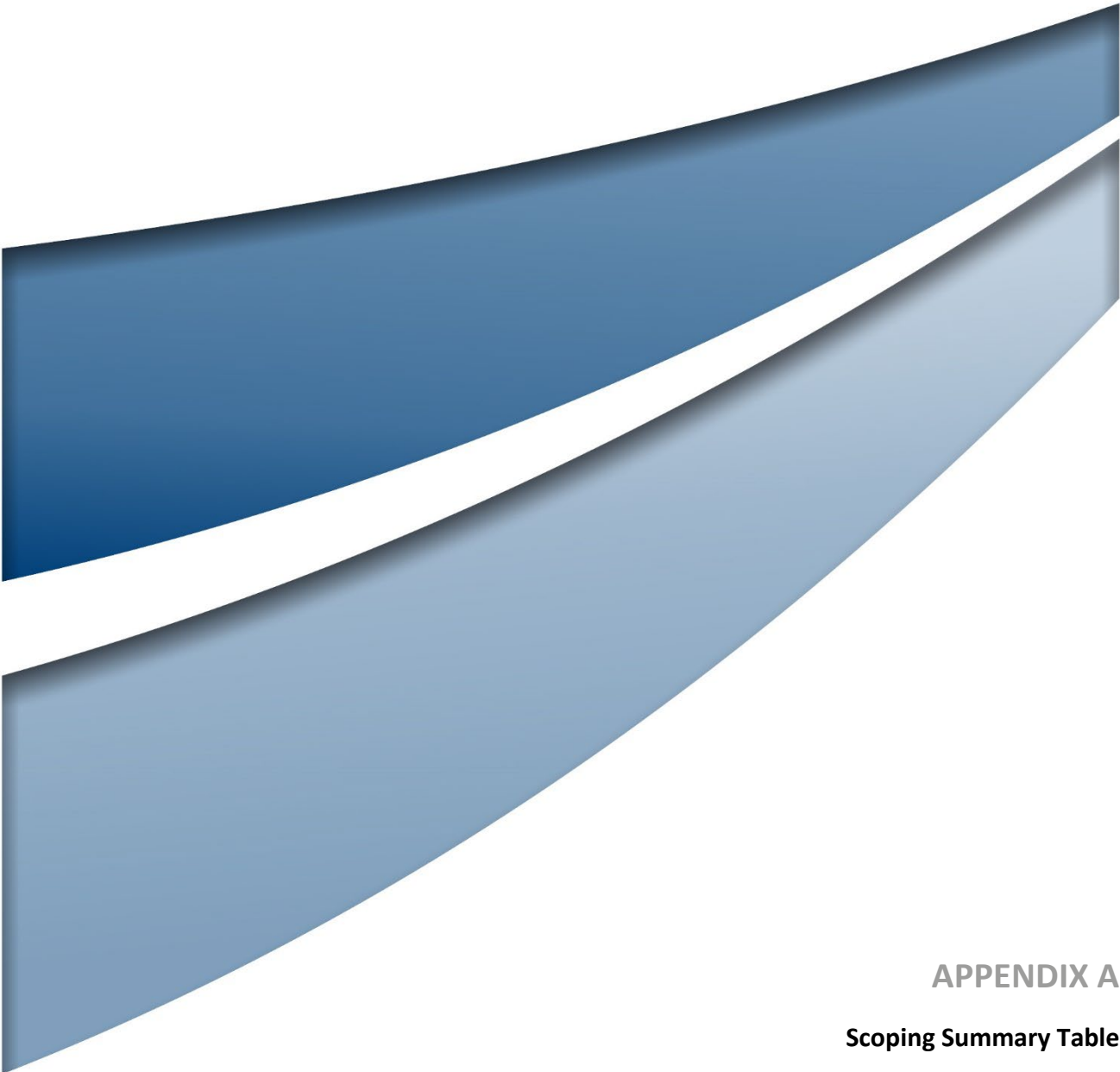
A robust stakeholder engagement process has been developed, involving consultation with local government, proximal landholders and community groups to ensure that the Project addresses community concerns and incorporates feedback into Project design. This engagement will continue throughout the project’s lifecycle to maintain transparency.

The development of the Temora BESS is a forward-thinking initiative that supports NSW's strategic objectives for a sustainable and reliable energy future. By leveraging existing infrastructure and minimising environmental impacts, the Project will contribute to the State's electrical infrastructure and renewable energy goals and provide significant economic and social benefits to the local community. The comprehensive assessments and stakeholder engagement proposed to support the EIS will ensure that the Project is well-positioned to meet regulatory requirements and community expectations.

8.0 References

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APPENDIX A

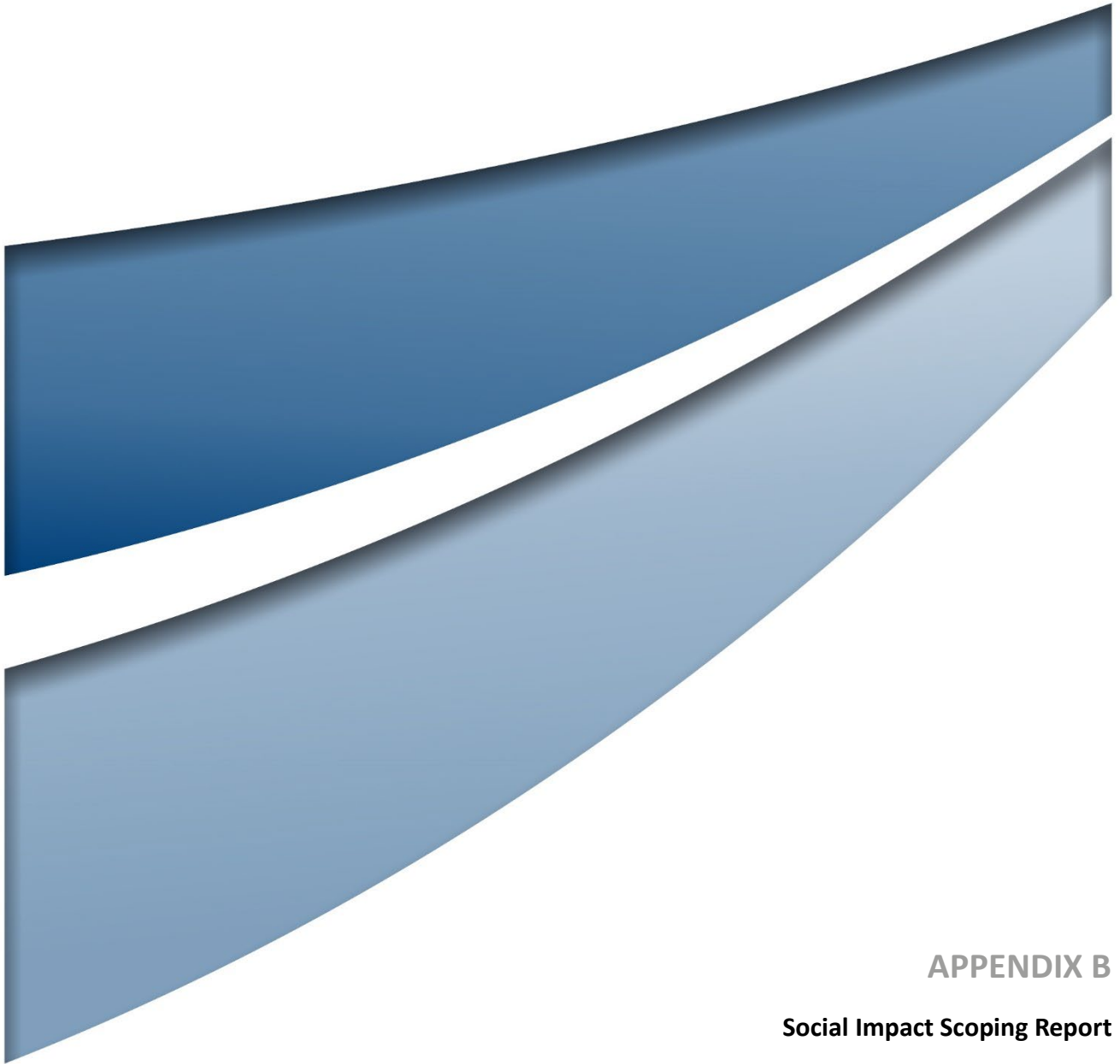
Scoping Summary Table

Table A.1 Scoping Summary Table

Level of assessment	Matter	CIA	Engagement	Relevant Government Plans Policies and Guidelines	Scoping Report Reference
Detailed	Biodiversity – Terrestrial Flora and Fauna	N	Specific	- DPI NSW Biosecurity and Food Safety Strategy 2022–2030. - DPIE Biodiversity Assessment Method, dated 2020.	Section 6.1.4.1 Section 6.1.1
Detailed	Amenity - Noise and Vibration	N	Specific	- EPA Noise Policy for Industry, dated 2017. - DECC Interim Construction Noise Guidelines, dated 2009. - DECCW Road Noise Policy, dated 2011. - DEC Assessing Vibration: A Technical Guideline, dated 2006.	Section 6.1.2
Detailed	Access – Traffic and Access to Property	N	Specific	- Austroads Guide to Road Design – Part 1 to 7, dated 2021. - Austroads Guidelines for Traffic Management, dated 2020. - Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis, dated 2017. - Austroads Guide to Traffic Management – Part 12: Integrated Transport Assessments for Developments, dated 2020.	Section 6.1.3
Detailed	Amenity – Visual	N	Specific	Institute of Environmental Management and Assessment Guidelines for Landscape and Visual Impact Assessment – 3rd Edition, dated 2013.	Section 6.1.2.2
Detailed	Social – Community	N	Specific	- DPHI Social Impact Assessment Guideline for State Significant Projects, dated 2023. - DPHI Undertaking Engagement Guideline Guidelines for State Significant Projects, dated 2024.	Section 6.1.6
Detailed	Heritage – Aboriginal	N	Specific	- The Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW, 2011. - The Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW, dated 2010. - NSW Government Aboriginal Cultural Heritage Consultation Requirements for Proponents guideline, dated 2010.	Section 6.1.5.1
Standard	Heritage – Historic	N	General	- Local and State heritage registers. - DPIE Assessing Heritage Significance, dated 2022.	Section 6.1.5.2

Level of assessment	Matter	CIA	Engagement	Relevant Government Plans Policies and Guidelines	Scoping Report Reference
Detailed	Hazards and risks – Dangerous goods	N	Specific	- State Environment Planning Policy (Resilience and Hazards), dated 2021. - Department of Planning Hazardous and Offensive Development Application Guidelines: Applying SEPP 33, dated 2011. - DPI Assessment Guideline: Multi-level Risk Assessment, dated 2011. - DOP Hazardous Industry Planning and advisory Paper No 4 Risk Criteria for Land Use Planning, dated 2011. - DOP Hazardous Industry Planning Advisory Paper No 6: Hazard Analysis, dated 2011.	Section 6.1.4.5
Standard	Water – Hydrology	N	General	- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, dated 2018. - NSW Government NSW Water and River Flow Objectives, dated 2006. - DECC Floodplain Risk Management Guidelines, dated 2016. - NSW Government Flood risk management manual: The policy and manual for the management of flood liable land, dated 2023. - Landcom Managing Urban Stormwater: Soils and Construction Volume 1, dated 2004. - DECC Managing Urban Stormwater: Soils and Construction Volume 2, dated 2008. - Department of Land, Water and Climate NSW State Groundwater Dependent Ecosystem Policy, dated 2002.	Section 6.1.9.1
Standard	Air – Particulate matter	N	General	- OEHS NSW Climate Change Policy Framework, dated 2016. - Australian Government National Greenhouse Accounts Factors, dated 2021.	Section 6.1.10
Standard	Hazards and Risks - Biosecurity	N	General	NSW Biosecurity Strategy 2013-2021 – NSW Department of Primary Industries, dated 2013 as amended 2021.	Section 6.1.4.1
Standard	Hazard and Risks - Bushfire	N	General	NSW RFS Planning for Bushfire Protection, dated 2019.	Section 6.1.4.2
Standard	Hazard and Risks - Electromagnetic Fields	N	General	- National Health and Medical Research Council advice, as updated from time to time. - ICNIRP Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields, dated 1998.	Section 6.1.4.3

Level of assessment	Matter	CIA	Engagement	Relevant Government Plans Policies and Guidelines	Scoping Report Reference
Standard	Economics	N	General	- Australian Bureau of Statistics (ABS) data. - Relevant regional economic and investment attraction strategies. - DPHI Social Impact Assessment Guideline for State Significant Projects, dated 2023. - DPHI Undertaking Engagement Guideline Guidelines for State Significant Projects, dated 2024.	Section 6.1.7
Standard	Land and soil	N	General	- Agricultural Land Use Mapping Resources in NSW, dated 2017. - The Land Soil Capability Assessment Scheme, dated 2012. - LEP Land Zoning.	Section 6.1.8
Standard	Waste	N	General	Waste Classification Guidelines – Part 1 Classifying Waste, dated 2014.	Section 6.1.12
Standard	Cumulative impacts	N	General	Cumulative Impact Assessment Guidelines for State Significant Projects, dated 2022.	Section 6.1.11



APPENDIX B

Social Impact Scoping Report

SOCIAL IMPACT SCOPING REPORT

Temora Battery Energy Storage System

FINAL

November 2024



SOCIAL IMPACT SCOPING REPORT

Temora Battery Energy Storage System

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
North Harbour Clean Energy Pty

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Report No. 24266/R02
Date: November 2024



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

Acknowledgement of Country

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

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	R Jaeger-Michael	11 November 2024	Sheridan Coakes	11 November 2024

Abbreviations

Abbreviation	Description
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMO	Australian Energy Market Operator
BESS	Battery Energy Storage System
CSEP	Community Stakeholder Engagement Plan
CSU	Charles Sturt University
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, Environment and Water
CTMP	Construction Traffic Management Plan
DFID	Department for International Development
DIDO	Drive-in, drive-out
DPE	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment
EDC	Estimated Development Cost
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act
EPBC Act	Environment Protection and Biodiversity Conservation Act
FIFO	Fly-in, fly-out
FTE	Full Time Equivalent
GP	General Practitioner
IAIA	International Association for Impact Assessment
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
km	Kilometre
Kv	Kilovolt
LALC	Local Aboriginal Land Council
LGA	Local Government Area
MNES	Matters of National Environmental Significance
MW	Megawatt
MWh	Megawatt Hour(s)
NEM	National Energy Market
NHCE	North Harbour Clean Energy
NSW	New South Wales
NSWALC	New South Wales Aboriginal Land Council
RDA	Regional Development Australia
REZ	Renewable Energy Zone
RSFA	Riverina Sustainable Food Alliance
SAL	Suburb and Locality
SA3	Statistical Area 3

Abbreviation	Description
SCA	State Conservation Area
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-economic Indexes for Areas
SIA	Social Impact Assessment
SISR	Social Impact Scoping Report
sq km	Square Kilometre(s)
SSD	State Significant Development
SSDA	State Significant Development Application
SUA	Significant Urban Area
SW REZ	Southwest Renewable Energy Zone
TBEG	Temora Business Enterprise Group
TWA	Temporary Workforce Accommodation
UCL	Urban Centres and Localities

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1.0 Introduction

This Social Impact Scoping Report (hereafter referred to as the SISR) documents the process and outcomes of the scoping phase of the Social Impact Assessment (SIA) undertaken by Umwelt for the Temora Battery Energy Storage System Project (hereafter referred to as the Project).

The SISR forms part of the Project's application for the Secretary's Environmental Assessment Requirements (SEARs) to be lodged with the NSW Department of Planning and Environment (DPE) by North Harbour Clean Energy (NHCE). The Project is considered a State Significant Development (SSD) requiring approval under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and has been prepared in accordance with the scoping phase requirements of the NSW SIA Guideline for State Significant Projects (DPE, 2023) or 'the SIA Guideline'.

Following provision of SEARs, an Environmental Impact Statement (EIS) will be prepared for the Project and will include a more detailed SIA, of which this report will form a foundation.

1.1 Project Overview

North Harbour Clean Energy Pty Ltd (the Applicant) propose to develop the 'Temora Battery Energy Storage System' (BESS) Project close to Temora, in New South Wales (NSW). The Project is located in the Temora Shire Council Local Government Area (Temora LGA), approximately one kilometre (km) south-east of the township of Temora.

NHCE is an Australian company dedicated to developing, owning and operating a portfolio of energy assets, with a focus on energy storage, coupled with the technology and capability to deliver reliable, on-demand, clean energy.

The Project will increase the energy storage capacity within the National Energy Market (NEM), allowing for the provision of reliable and affordable energy to NSW and supporting the transition from coal-fired power generation to renewable energy sources. The Project will involve the construction, operation and decommissioning of the BESS, including any necessary ancillary infrastructure.

The BESS component will be developed on Lot 2, DP 609354 with potential grid connection electrical infrastructure traversing Lot 1, DP609354 (collectively the Project Area), adjacent to the existing Essential Energy Temora 132/66 kilovolt (kV) Zone Substation, which the Project will connect.

The proposed Project has a capacity of up to 50 megawatts (MW) / 200 megawatt-hours (MWh), with an Estimated Development Cost (EDC) of \$100 million. The Project is expected to generate up to 20 full time equivalent (FTE) employment opportunities during the peak construction period.

As previously noted, the Project is considered SSD under the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) (NSW Government, 2021) and will require development consent under Part 4 of the EP&A Act (NSW Government, 1979).

This SISR (and broader Scoping Report) has been prepared by Umwelt (Australia) Pty Ltd on behalf of NHCE to support a request for SEARs that would inform the future preparation of an EIS for the Project.

The Project may also impact Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Australian Government, 1999). Further ecological assessment is required to determine the precise extent of impact, however, should it be required, a referral will be submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (Cth DCCEEW). If the Project is considered a 'Controlled Action' by Cth DCCEEW, it will require assessment through the NSW and Commonwealth Bilateral Agreement.

The detailed design and specific technology for the Project has not yet been selected. As such, reasonable worst-case assumptions have been adopted to prepare this Report, and it is assumed, at this stage that the indicative Disturbance Footprint will encompass the entirety of the Project Area.

1.2 Project Background

The Project Area has been selected due to its proximity to the Temora Zone Substation that is directly adjacent to the BESS. This enables efficient connection to the grid, whilst minimising the extent of social and environmental impacts. Other positive characteristics of the Project Area is the relatively cleared nature of the land, road access and permissibility, as well as the ability for a BESS to support and strengthen the local distribution network in this locality.

Because of the large lot size (compared to the desired capacity of the BESS) and existing land uses, the Project Area provides an opportunity to avoid and minimise environmental impacts via careful layout and design considerations. The Project Area was selected as it has largely been cleared, with remnant native vegetation generally being present around the perimeter of the BESS lot boundary (Lot 2, DP609354).

The Applicant will seek to establish the BESS components and associated ancillary infrastructure in locations which avoid environmental constraints such as woody vegetation and potential threatened species habitat. There is opportunity to avoid these biodiversity values, as much as reasonably practicable, and disturbance associated with BESS components of the Project would target cleared areas. Site access and potential grid connection electrical infrastructure will likely traverse areas of biodiversity value; but similarly, there is the opportunity to target existing cleared areas for this purpose, or consider design options e.g. overhead transmission lines, that would minimise disturbance related impacts.

The Applicant is committed to avoiding and minimising impacts to areas where threatened species and their habitat may occur. Areas of avoidance (and other mitigation and management measures) will be further developed as more detailed biodiversity surveys and assessment are completed, and more accurate on-ground data becomes available.

The indicative Disturbance Footprint will be subject to further refinement to minimise impacts as detailed design of the Project is developed. The indicative Disturbance Footprint presented in this SISR is representative of the likely maximum potential impact of the Project. Mitigation and management measures will be further developed as more social and environmental information is received, constraints are identified, and further technical studies are completed.

There are no related developments to the Project, which would be subject to a separate assessment, or approval.

1.3 Report Purpose

Pursuant to the objectives of the SIA Guideline, the purpose of the SISR is to:

- obtain an understanding of the Project's social locality, including socio-economic and demographic characteristics
- identify stakeholder groups that may have an interest in, or be affected by, the Project
- document outcomes from community consultation undertaken during the scoping phase
- identify issues or opportunities that the Project presents within the social locality
- provide an initial evaluation of social impacts that may be associated with the Project
- consider potential Project refinements in response to identified social impacts
- describe the approach for undertaking the remaining phases of the SIA and the level of assessment required for different social impact matters.

2.0 Methodology

2.1 Social Impact Assessment Requirements

The SISR has been prepared in accordance with the SIA Guideline (DPE, 2023) and the requirements of the scoping phase, as illustrated in **Figure 2.1**.

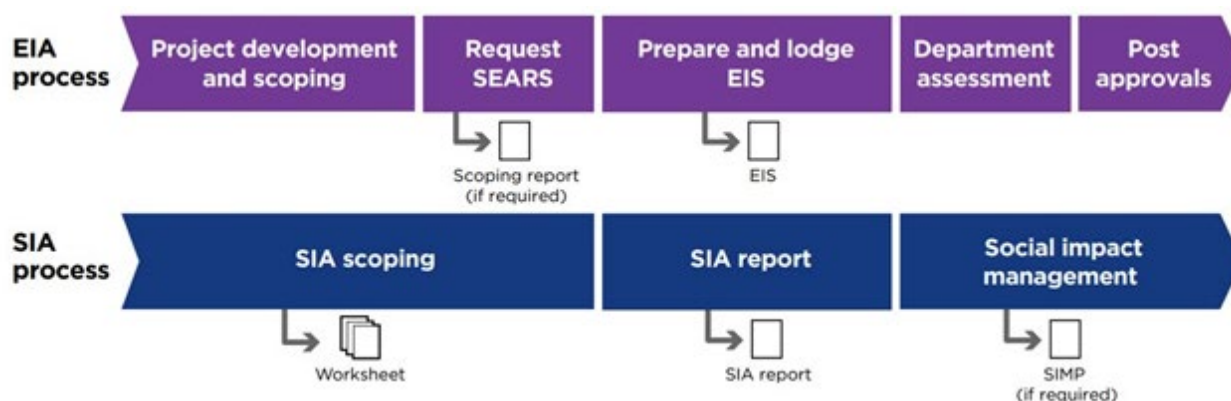


Figure 2.1 NSW SIA Requirements

Source: DPIE (2021).

According to the SIA Guideline, and as outlined in **Figure 2.2**, social impacts can be grouped into several categories and may involve changes to people's way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.



Figure 2.2 Social Impact Categories

Source: DPIE (2023).

While some social impacts may directly occur because of the Project, others may be indirectly caused by changes in the biophysical environment and biophysical impacts, as outlined in **Figure 2.3**. Consequently, both direct and indirect social impacts are equally valid and should be considered.

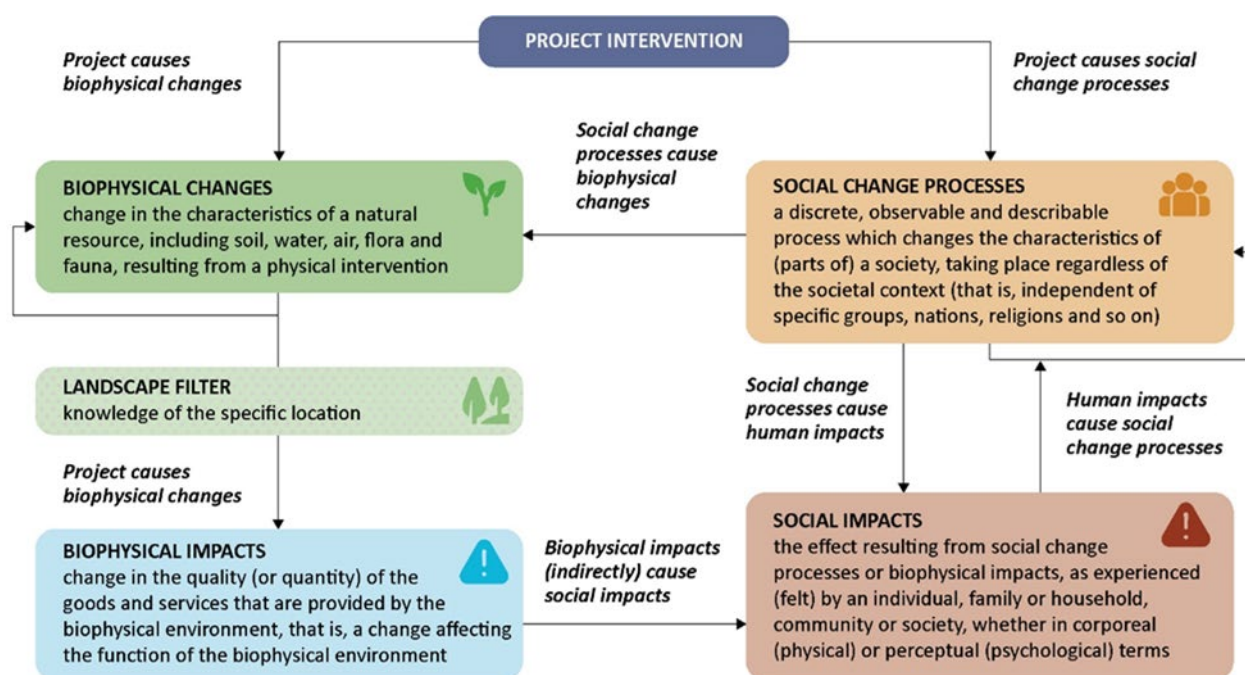


Figure 2.3 Direct and Indirect Social Impacts

Source: Umwelt, 2023, Adapted from Slootweg et al, 2013 (p.28).

As is the case with any type of change, some individuals or groups within the community may be positively impacted because of the Project, while others may experience negative impacts. Social impacts may also manifest as *tangible* impacts, these being impacts that may have a material outcome on the lives of individuals and communities, and/or more *intangible* impacts, such as justified fears or aspirations associated with a project:

‘Social impacts may be physically observable or may manifest as rational or justified fears or aspirations; may be experienced positively and negatively by different stakeholders; and may be tangible or more tangible’ (DPE, 2023).

2.2 Defining the Social Locality

The terms ‘social locality’ and ‘area of social influence’ are commonly used in SIA practice. There is no fixed meaning or predefined geographic boundary to a social locality (e.g., the local suburb, or ‘within 500 m’). Instead, the scale of the social locality should be established on a case-by-case basis, having regard to the nature of the project and its social impacts (DPE, 2023). For further direction, the SIA Guideline states that the social locality should be defined by:

- the scale and nature of the project
- who may be affected by the project, including consideration of any vulnerable or marginalised groups
- built or natural features on or near the Project Area that could be affected, and which may hold specific value to the community (both tangible and intangible)
- relevant social, cultural, demographic trends or social change processes, and

- the history of development in the locality, including how people have reacted to such change.

The social locality for the Project has been defined at both a localised and regional scale, given the likely positive and negative social impacts that may be experienced. At a regional scale, Temora is shown in the context of similar towns, Cootamundra and Junee, for data comparison, as well as the potential community service centre of Wagga Wagga. This demonstrates the geographical setting of the social locality in relevance to transport routes and service hubs.

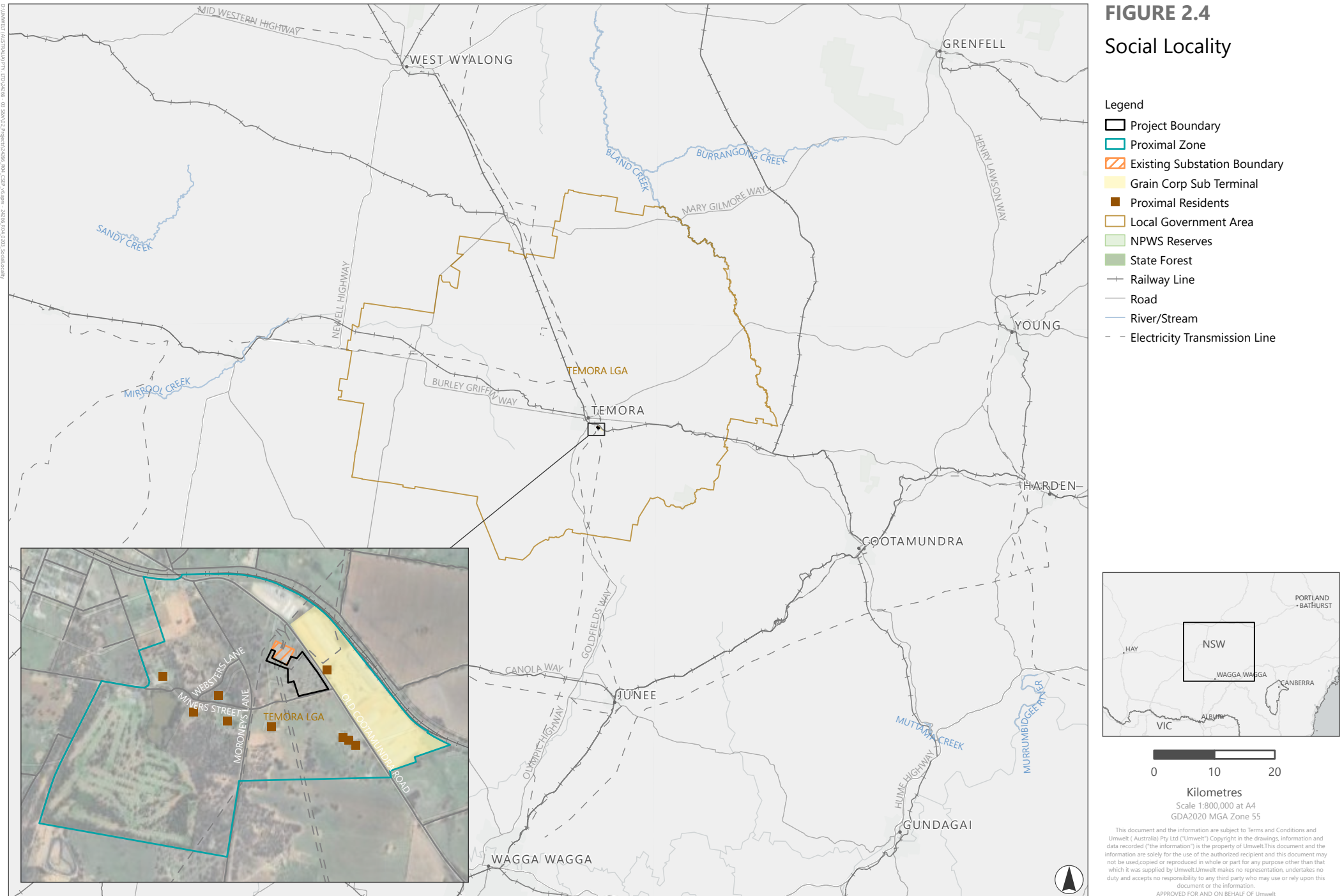
The more proximal social locality, also illustrated in **Figure 2.3**, was defined from reviewing secondary data, observations obtained during site visits and community engagement. **Table 2.1** further defines and justifies how the social locality has been determined.

Table 2.1 Social Locality Inclusions and Justifications

Aspect	Data Boundary	Locality	Reason for Inclusion
Social Locality			
Proximal residents	Refer to Figure 2.4 .	Residents shown in Figure 2.4 .	• There are three houses located to the south of the Project Area on Old Cootamundra Rd followed by a natural boundary. • Though separated from the Project Area by a low-grade dirt road, the Temora Golf Club is also located to the west of the Project site. • There is a residential dwelling on the GrainCorp sub-terminal site that is privately rented. • Northwest of the Project Area are five properties on Moroneys Lane and Ashelford Street, these are included for their proximity as well as their location on the potential transport route to and from the Project Area.
Transport routes	N/A	Freight line	The freight train line creates a barrier to the north and northeast with crossing points at Cootamundra Road and Junee Road. The transport route to the Project Area will be confirmed through the EIS.
Proximal industry	N/A	Essential Energy substation GrainCorp sub terminal	The Substation and GrainCorp sub-terminal (two industrial land uses) are located immediately to the north and east of the Project Area respectively. The substation is of particular importance due to it being the method of connecting the BESS to the wider grid. The GrainCorp sub terminal is also a physical barrier as it sits on the train line with no public thoroughfare. There is also a residential dwelling on the site that is currently rented out privately as noted above.

Aspect	Data Boundary	Locality	Reason for Inclusion
Regional Context			
Broader community	Urban Centres and Localities (UCL) of Temora	Residents located in town of Temora.	The UCL-level ABS boundary was used due to its capturing of data relating to the Temora township when compared to the SAL boundary, which incorporates a broader, more rural area. Temora, being a small town of 4000 people, is a strongly interconnected community. The Project Area is located within a couple of kilometres of the town centre. As a result, engagement is proposed to be undertaken with the whole township and not just the proximal social locality.
Natural Features	NA	Ingalba Nature Reserve Pucawan Nature Reserve Big Bush Nature Reserve Combaning State Conservation Area	The Nature reserves and SCA noted are key natural features and areas in the region that are likely to be valued by residents in the social locality and those that visit the area. The Nature Reserves are former logging sites and state forests which are now being conserved for environment protection and recreation purposes.
Host LGA	LGA	Temora Shire	The Project is located within the Temora LGA. Residents within the LGA are mostly likely to experience positive and negative impacts of the Project, with the Project also drawing on local services and infrastructure within the township where possible.
Proximal towns	UCL	Cootamundra UCL and Junee UCL	The towns of Cootamundra and Junee are proximal to Temora LGA, both approximately 50 km away. These localities are included for data comparison. It is also suggested the Project may draw on these towns for employees, suppliers and services given the proximity to the Project and dispersed nature of population centres in the Riverina.
Key service centre	Significant Urban Areas (SUA)	Wagga Wagga	The Regional City of Wagga Wagga, located about 80 km south of Temora, has been included as it is a key service centre for the broader region, providing access to health services, housing and accommodation.
Wider region	Statistical Area level 3 (SA3)	Wagga Wagga	This region encompasses both Wagga Wagga and Temora, allowing for wider scope of data interrogation. Comparisons between the smaller town of Temora and the larger regional centre of Wagga Wagga, as well as the wider SA3 region helps to show trends and patterns in migration, education and employment.
Proximal projects with the capacity to result in cumulative impacts	NA	NA	NA as discussed in Section 3.2.2 .

FIGURE 2.4
Social Locality



2.3 Social Baseline Methodology

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

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

Data to inform the baseline has been gathered and summarised from publicly available secondary datasets, including but not limited to:

- Australian Census (2021) and ABS Community Time Series Profiles.
- Social Health Atlases of Australia (PHIDU, 2021).
- AirDNA short-term accommodation datasets (Airbnb, Homeaway).
- Essential Energy network map (2024).
- National Rail Freight Data Hub (NFDH, 2023).
- NSW Parks and Wildlife Service maps.
- Local media, and local, regional, and State government plans and strategies relevant to the social locality.
- Engagement with key stakeholders.

Statistical and comparative analysis utilising ABS data has been undertaken at the LGA and state level to better capture key trends and themes relevant to the Project. LGA level data is also used to inform regional characteristics and trends relevant to the Project, including regional strategic planning priorities and directives.

The data sources used and key indicators of interest, including a brief explanation of their relevance to the Project is outlined in **Table 2.2** An overview of the data collected for the social locality can be found in **Appendix A**.

Table 2.2 Social Baseline Profile Indicators and Data Sources

Category	Indicator	Source
Political capital		
Political representation	Elected representatives on local, state and federal levels	Temora Shire Council (2024) Parliament of NSW (2024) Parliament of Australia (2024)
Political climate	Recent and historical political affiliations	ABC Federal Election 2022 Guides (2022) Australian Electoral Commission (2019)
Support for renewable energy initiatives	Predominant political ties Community priorities and concerns	EnergyCo REZ maps (n.d.) Local newspaper articles (2022) Council strategic plans (2022)

Category	Indicator	Source
Human capital Workforce skills and capabilities Education and health Vulnerable/at risk groups	Population Median age Indigenous population and population trends Median Indigenous age Educational attainment Health	ABS Census data and community time series profiles (TSPs) (2021) Public Health Information Development Unit (PHIDU) Social Health Atlases (Torrens) NSW Transport Interactive Crash Statistics (2024)
Cultural capital First Nations heritage European heritage Cultural and linguistic diversity	First Nations history Traditions and customs Native title claims Aboriginal heritage sites Aboriginal organisations and corporations European heritage sites Country of birth Language used at home	ABS Census data and community time series profiles (TSPs) (2021) Australian Institute for Aboriginal and Torres Strait Islander Affairs (AIATSIS) (2016) NSW Aboriginal Land Council (NSWALC) (2024) Young Local Aboriginal Land Council (LALC) (n.d.) NSW Heritage Register (2015) Native Title Tribunal (1999)
Social capital Family Community networks Governance Sense of community History	Volunteerism Housing mobility Household structure Sense of place SEIFA score	ABS Census data and community time series profiles (TSPs) (2021) Umwelt and NHCE site visits and community engagement (2024) Interviews with Temora Shire Council (2024) Visit Temora (n.d.)
Economic capital Economic resources Key industry sections and occupations Income and wealth of individuals, households and communities	Median income Median rent and mortgage Rental and mortgage stress Industries of employment Economic diversity	ABS Census data and community time series profiles (TSPs) (2021) RDA Riverina (2024) Journal articles on economic diversity
Natural capital Natural resources Ecosystems Bushland and land use Environmental values Natural beauty	Land use National Parks and State Conservation Areas Resource deposits and extraction activities Climate Values	BOM, CSIRO and Farmlink (2019) NSW Planning Portal Spatial Viewer (2020) Umwelt / NHCE engagement and site visits (2024) NSW National Parks and Wildlife Service (2024) Visit Temora (n.d.)
Physical capital Built infrastructure Accessibility and availability of key community services Information services Vehicle use Housing and accommodation	Service hubs Road networks Rail networks Car dependency Accommodation and housing provision Motor vehicle accidents	ABS Census data and community time series profiles (TSPs) (2021) NSW Health (n.d.). Council resources (2022) Real estate aggregators (Domain, 2024; Realestate.com.au, 2024) Google Maps (2024) Short-term stay aggregators (Airbnb, 2024; AirDNA, 2024)

Source: Umwelt, 2024.

2.4 Stakeholder Identification and Engagement

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

- live, work, or recreate near the Project
- have an interest in the proposed action or change
- use or value a resource associated with the Project
- are directly affected by the Project.

Stakeholders for the Project were identified in the early stage of planning and included the identification of any potentially vulnerable or marginalised groups.

Key stakeholder groups that have been identified to be engaged during the scoping phase are outlined in **Figure 2.5**. Outcomes of engagement with stakeholders that have participated in the scoping phase are incorporated in **Section 4.0**.

Subsequent phases of the SIA will seek broader involvement across the stakeholder groupings identified and will include consultation with community groups, service providers and Temora residents more broadly.



Figure 2.5 Key Stakeholder Groups

Source: Umwelt, 2024.

NHCE and Umwelt have undertaken early engagement activities with stakeholder groups identified in **Section 2.3** to introduce the company and the project, establish relationships and provide opportunity for involvement, collaboration and input. This early engagement has assisted in identifying and understanding preliminary stakeholder views and perceived benefits and impacts which can be further addressed in the subsequent assessment phase.

Table 2.3 details the engagement mechanisms utilised to build relationships and obtain input from the stakeholders consulted. The Community and Stakeholder Engagement Plan (CSEP) (refer to **Appendix B**) outlines the engagement approach and strategy used to inform engagement activities.

Table 2.3 Summary of Community and Stakeholder Engagement Undertaken in the Project's Scoping Phase

Mechanism	Stakeholder	Engagement Objective	Description	First round of consultation
Key stakeholder interviews	Local government Young LALC Key community and environmental groups Chamber of commerce / RDA	Involve	Introductions to the Project, semi-structured interview discussions to listen to individual concerns, interests, and issues to gather preliminary feedback on the Project, including preliminary identification of impacts, understanding of information needs and future engagement preferences.	Interviews conducted with Temora Shire Council by NHCE in initial and follow-up round (May 2024, September 2024). Interviews with community groups and proximal businesses conducted by phone / MS Teams (September 2024).
Door knock campaign	Proximal residents	Involve	Introductions to the Project, semi-structured interview discussions to listen to individual concerns, interests, and issues to gather preliminary feedback on the Project, including preliminary identification of impacts, understanding of information needs and future engagement preferences.	Proximal residents doorknocked in Umwelt/NHCE engagement trip (July 2024).
Online Community survey	Proximal residents Broader community Key community and environmental groups	Consult	Online community survey to obtain input and feedback on the project, including preliminary identification of impacts, understanding of information needs and future engagement preferences.	Published online September 2024. QR code to the survey distributed via Temora Shire Council and local community groups, local newspaper advertisement, website and information sheet distribution to proximal residents. Further distribution via Temora Shire Council newsletter post-scoping phase.
Community information sheet #1	Proximal residents	Inform	Introduction to NHCE and the Project, overview of assessment process and invitation for further contact with NHCE and Umwelt and link to online survey.	Distributed July 2024.
Community information sheet #2	Proximal residents	Inform	Updated project details, plus a QR code/hyperlink to community survey, in addition to the above.	Distributed September 2024.
Website	Broader community	Inform Consult	NHCE Project website with information and link to community survey and project team contact details.	Live mid-July.

Mechanism	Stakeholder	Engagement Objective	Description	First round of consultation
Newspaper advertisement	Broader community Key community and environmental groups	Inform	Half page advertisement published in the local newspaper, the Temora Independent, to provide an introduction to NHCE and the Project, invitation to contact Project team, and a link to the online community survey.	Published 19 September 2024.

Table 2.4 identifies the stakeholders that have been engaged during the scoping phase of the Project, and the extent of engagement.

Table 2.4 Stakeholders consulted during Scoping Phase

Stakeholder Group	Information Provision and Engagement Mechanisms	Number Contacted	Number Engaged
Proximal residents	Initial door knock Community Information Sheet #1 Community Information Sheet #2 Key stakeholder interviews Online survey	7 in initial round 31 in second round	5 in initial round Information sheet mailout to 31 households
Broader community	Newspaper advertisement Online survey	Newspaper distribution to 4000 households in Temora, online distribution, up to 4000 households	0 surveys completed as of October 2024* 0 contacts via information sheet
Local government	Interviews	1	1
Traditional Owners	Telephone interview Online survey	1	0^
Industry groups	Telephone interview	2	2
Key community and environmental groups	Telephone interviews Community Information Sheet #2 Newspaper advertisement Online survey	6	3

*Survey to be left open following newspaper article post-scoping phase. Survey outcomes gathered for EIS phase.

^Young LALC, the Land Council responsible for Temora, were contacted several times but were unavailable for engagement.

Source: Umwelt, 2024).

Qualitative and quantitative information collected through engagement activities has been analysed to inform assessment of the expected preliminary social impacts associated with the Project, as described in **Section 4.1**. Additional supplementary research was conducted using secondary data to contribute to an overall understanding of potential social impacts.

2.5 Preliminary Impact Evaluation

As noted above, a preliminary evaluation of the issues and impacts identified during the scoping phase (outlined in **Section 4.0**) has been undertaken to understand the level of assessment required for each impact in the EIS/SIA-preparation phase, and to inform Project refinements, design, and planning.

The social significance assessment has been undertaken using the risk matrix provided in the NSW DPE SIA Guideline (2023) which considers social impact likelihood and magnitude through the assessment of key characteristics of impact (extent, duration, intensity, sensitivity or importance and level of concern or interest).

A significance rating has also been assigned from the perspective of the affected stakeholder group, based on consultation to date, as well as a social impact significance rating derived from the risk matrix in the SIA Guideline. Social impacts to be further investigated and validated as part of the EIS are also noted.

2.6 Assumption and Limitations

The following bullet points outline assumptions of importance in the development of the SISR, and any limitations in approach at this stage of the Project. It is intended that these will be addressed in the subsequent phases of the SIA.

- Whilst efforts to engage with proximal residents was made through a door knocking campaign in the first round of consultation, not all proximal residents within the proximal neighbour catchment (**Figure 2.4**) were able to be contacted. As noted in **Section 2.5**, seven proximal residents (those closest to the Project) were contacted, of which conversations were held with five. Following this initial round of consultation, the social locality was expanded to include 31 residences and further consultation with these stakeholders will be undertaken in the SIA assessment phase.
- Engagement has also been undertaken by NHCE in the scoping phase with representatives of Temora Shire Council, proximal industry and proximal residents to the Project Area. Outcomes of this engagement have been provided to Umwelt for review and analysis to inform the preliminary assessment of social impacts relating to the Project.
- Efforts were made to consult the broader community through distribution of a newspaper advertisement in the local Temora Independent. This advertisement introduced the Project and invited community residents to complete an online community survey. The advertisement and launch of the online community survey was however delayed as a result of input from key stakeholders during consultation regarding the capacity of the community to be involved in Project consultation due to council elections and other consultation programs. As a result, no community members responded to the online survey before the finalisation of the SISR. This community survey will stay live throughout the EIS and SIA phase to collect ongoing feedback on the Project.
- Efforts were made to consult Aboriginal stakeholder groups via the Young LALC, however contact was unable to be established following multiple rounds of email and telephone outreach. This is recognised as a significant limitation. Although desktop research indicates no known Aboriginal heritage or artefacts on the Project site, firsthand input from Traditional Owners is necessary and will be prioritised in the SIA/EIS phase.
- Further efforts will be made in the assessment phase of the SIA to provide the broader community, service providers and Indigenous stakeholders with the opportunity to engage with the Project.
- To provide a preliminary assessment of social impacts relating to the Project, engagement data has also been considered in light of other available secondary data relating to development in the locality, as well as other research relating to renewable energy project development more broadly.

3.0 Social Baseline Profile

This section describes the social baseline profile of the communities defined within the Project's social locality. It provides initial analysis of the defining characteristics of the communities, considering a range of demographic, social and economic indicators as outlined in **Section 3.3** and in **Appendix A**. Further, it considers the natural and physical attributes of the social locality and an understanding of how people currently live, work and recreate in the area, and how they value the area in which they reside.



Figure 3.1 Components of a Social Baseline

Source: Umwelt, 2024.

As illustrated in **Figure 3.1**, the following components have been considered in the development of the social baseline:

- **Local and regional setting** – Brief history and geography of the social locality in relation to the Project.
- **Development context** – A review of recent development history in the local community, including the presence of other renewable energy developments in the region. This is important because significant concurrent development in the locality can result in communities experiencing cumulative social impacts.
- **Community values, challenges and opportunities** – The values which make the locality unique, and any issues/challenges currently being experienced in the locality. This may also include consideration of community needs and aspirations.
- **Community capitals** – consideration of the social, human, physical, economic and natural capital assets of the area to determine community resilience and adaptive capacity to change.

3.1 Local and Regional Setting

The Project is proposed on Wiradjuri Country southeast of the town of Temora, located near the centre of the Riverina agricultural region of NSW. Temora LGA is home to approximately 6000 people, 4000 of whom live in the town of Temora itself. Temora has a long history, from Wiradjuri ownership to colonial settlement beginning in 1847 with primarily pastoral and gold mining activities (Visit Temora, n.d.).

The Riverina region is home to around 173 000 people in total and is bordered on the east by the Snowy Mountains (near Canberra) and the towns of Hay and Carrathool in the west (RDA Riverina, 2024). The population of the Riverina is highly dispersed due to the agricultural nature of the region.

The Riverina region is extensively irrigated via the Murrumbidgee and Murray-Darling River systems which are diverted throughout much of the Riverina to feed and enhance the region's fertile soils, facilitating intensive agriculture. As a result, the Riverina is known as the 'food bowl' of NSW. Collectively, the area produces a quarter of NSW's fruit and vegetables and is part of the largest wine-producing area in NSW (Wine-Searcher, 2023; RDA Riverina, 2024).

The urban centre of Wagga Wagga, approximately 80 km north of the Project, is the main regional city with a population of 57,000 (ABS, 2021), with residents of Temora relying on this centre for services and infrastructure not readily available locally. Wagga Wagga hosts many major services for the Riverina such as tertiary education, transport, military facilities and a hospital/health precinct (Google, 2024; NSW Government, 2023). The surrounding area is characterised by other small townships which are relatively spread out and smaller in population size.

3.2 Development Context

This section provides an overview of policies, trends and strategies relevant to the social locality and region to understand community and economic priorities, and how these may influence or be affected by the Project.

3.2.1 Renewable Energy Development

Australia is one of the 196 parties signed to the international climate change agreement (i.e. the Paris Agreement). The Paris Agreement aims to:

- Hold the increase in the global average temperature to below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
- Increase the ability (of nations) to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas (GHG) emissions development, in a manner that does not threaten food production.
- Make finance flows consistent with a pathway towards low GHG emissions and climate resilient development.

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

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

Australia signed the Paris Agreement on 22 April 2016. The obligation under the Paris Agreement is driving national GHG policy between 2020 and 2030. Australia's commitment to the Paris Agreement includes reducing GHG emissions by 26% to 28% on 2005 levels by 2030 (DCCEEW, 2024). Australia's National Determined Contribution (NDC) prescribes an unconditional economy-wide target to reduce GHG emissions, and states that future policies will target emissions generated from energy use, industrial processes, agriculture, land use, land use change, forestry and waste.

The Project will support the transition to renewable energy by enhancing grid stability as NSW moves from high GHG producing electricity generation to renewable energy. As such, the Project aligns with the policy objectives outlined in the Paris Agreement and will support Commonwealth obligations to reduce GHG emissions.

At a state level, the NSW Government's *Electricity Strategy* (2019) and *Electrical Infrastructure Roadmap* (2020) provide the basis for the creation of the state's first five Renewable Energy Zones (REZ). These REZs have been identified as Illawarra, Hunter-Central Coast, Central-West Orana, New England, and South West. The Project Area is proximal to, but not located within the South West REZ, however aligns with the strategic objectives of the NSW *Electricity Strategy* and *Electrical Infrastructure Roadmap* (as outlined in **Table 3.1**).

The REZ planning framework builds on the *NSW Transmission Infrastructure Strategy* (2018) and supports the Australian Energy Market Operator's (AEMO) *Integrated System Plan* (2024). REZs aim to co-locate renewable energy generation, storage and transmission to provide affordable, reliable and low-emissions electricity to the grid. The investment strategy is primarily driven by private investment and facilitated by government prerogatives.

Table 3.1 Project Alignment with NSW Strategic Objectives

NSW Electricity Strategy (2019) Objectives	Alignment with Project Objectives
support the electricity market to deliver reliable electricity at the lowest price, while protecting the environment	The Project will help to stabilise electricity cost to consumers from renewable sources by matching supply to demand. It will make renewable energy more viable and cost effective.
set an energy security target to ensure that NSW has sufficient generation capacity to cope with unexpected generator outages during periods of peak demand	The Project is part of a broader move towards grid-firming capabilities. That is, with renewable energy sources such as wind and solar often dependent on favourable weather conditions, grid-firming technology assists in maintaining energy security.
if required, ensure NSW has sufficient powers to deal with an electricity emergency.	
NSW Electrical Infrastructure Roadmap (2020) principles	
1. New generation to replace retiring coal-fired power stations.	The Project is located in proximity to the South West REZ, a region of significant clean energy production containing dozens of upcoming projects in development. More BESS arrays will help to make new renewable generation more viable.
2. New network infrastructure to deliver energy to consumers.	Situating the Project adjacent to the Essential Energy Temora Zone Substation maximises the reach of the Project's benefits whilst minimising the cost of transmission infrastructure. The Project itself is a valuable investment for the NEM with the aim of delivering energy to consumers.
3. New storage and firming to better respond to electricity needs and improve the reliability of the grid.	See <i>NSW Electricity Strategy</i> objective 1.

Source: NSW Government, 2019; NSW Government, 2020.

The *Riverina Murray Regional Plan 2041* also emphasises the importance of renewable energy in the region, specifically noting the significant opportunity that the South West REZ provides (NSW Government, 2023). The South West REZ is located in the Riverina, encompassing the towns of Buronga, Balranald and Hay (EnergyCo, n.d.). Temora, and the Project Area, are located approximately 200 kilometres east of the REZ.

The 2041 plan identifies some Riverina-specific challenges associated with the development of the REZ, such as a shortage of housing and accommodation for temporary construction workforces (pp. 37-38) as well as the requirement for significant investment in waste management infrastructure for associated renewable projects (p. 60). This is in part due to the REZ allocation resulting in a number of renewable energy projects, primarily solar and wind generation and storage being developed across southwest NSW (NSW Government, n.d.).

One of the challenges frequently identified in the transition to a renewable energy-based electricity grid is the intermittency of most forms of renewable energy generation. That is; wind and solar, the two most prominent forms of renewable energy in Australia, are strong when weather and climatic conditions are suitable, but during off-peak conditions they are less able to consistently meet demand. As such, a need has been identified for energy storage systems (Suberu, Mustafa, & Bashir, 2014). Hence, the Project, as well as other BESS projects, are foreseen to play an important role in the transition to renewable energy.

A number of BESS projects exist around NSW and on a wider scale as part of a global shift towards renewable energy. In NSW, there are at least 30 BESSs currently in the planning stage according to the NSW Government's SSDA register, of which 14 are standalone BESS' that are not attached to a generation site (NSW Government, n.d.).

The Riverina and Darlington Point Energy Storage Systems, operational since 2023, comprise the largest battery in NSW with a capacity of 150 MW/300 MWh and are located next to the Darlington Solar Farm, both operated by Edify Energy (Williamson, 2023). The largest operational BESS in Australia is Neoen's Big Battery in Victoria, at 300 MW/450 MWh, followed by AGL's Torrens Island Battery in South Australia, at 250 MW/250 MWh.

Temora, in comparison, has a small geographical footprint with a significantly lower electricity capacity and thus reduced social and environmental impacts. A BESS project with a similar footprint can be seen in the Beresfield BESS, developed by Firm Power. This BESS, also an SSD, occupies a 4.3-hectare site, and is expected to provide 170 MW/340 MWh output (NSW Government, 2023).

There are other examples of similar-sized batteries across Australia either currently operating or in the planning phase. **Figure 3.2**, shows typical BESS arrays, though it is important to note that these images are provided for background context only and are not related to the Project.



Figure 3.2 Typical BESS Array. Left to right: Tamworth BESS, NSW; Concept image provided by GE Renewable Energy.

Source: Tamworth BESS, n.d.; PV Magazine, 2019.

3.2.2 Cumulative Impact Considerations

There is one operating renewable energy development in the Temora LGA, the Sebastopol Solar Farm, as well as a significant transmission line in operation (Temora to Cowral) (NSW Government, n.d.). The smaller Temora 1C (Moroneys Lane) Solar Farm (ITP Renewables) has been approved by the Southern Regional Planning Panel and was scheduled for construction in 2023.

In addition to the Riverina and Darlington Point Energy Storage Systems noted above, located approximately 190 km west of Temora (Williamson, 2023), there are a number of other renewable energy developments, operating, approved or proposed, in the Riverina. However, given the distance of these developments to the Project and currently proposed development stages, it is unlikely that any significant cumulative impacts would result. Should the Moroneys Lane solar farm proceed, there may be some consultation overlap, but at this stage construction time frames are not expected to overlap.

Although extensive community consultation is necessary to ensure best practice, care should be taken to avoid cumulative consultation fatigue. Engagement with RDA Riverina yielded that there is a sense of frustration in some communities from needing to be involved with, and have a detailed understanding of multiple nearby projects. This is especially the case with projects in very early stages which may or may not ultimately come to fruition. Although the Project is not expected to overlap significantly with other major projects in the area, consultation fatigue is important to consider when engaging with community.

3.3 Social Baseline Summary

A summary of the key characteristics of the community, organised by each of the community capitals, as outlined in **Section 2.3**, is provided in **Table 3.2**, with further detail located in **Appendix A**.

Table 3.2 Social Baseline Characteristics by Community Capital

Community Capital Indicators			
Political Capital			
 The political climate of Temora and the Riverina is strongly conservative, considered a 'safe seat' for the Nationals Party.	 Temora is represented on all three levels of government (local, state and federal) by the Nationals. Renewable energy projects in the region are supported by the Federal MP, Michael McCormack, but opposed by the party leader, David Littleproud. Therefore, political support for renewables in Temora is mixed.	 Local and state government supports renewable energy initiatives, with development of the SW REZ facilitating employment opportunities in the wider region.	 Temora is represented by the Young Local Aboriginal Land Council, based in Young, about 70 km east of Temora. There is support for renewable energy developments at the NSW level (NSWALC, 2023), but it is noted that some LALCs are currently under-resourced and require capacity-building to effectively participate in the energy transition (Norman & Briggs, 2022).
Human Capital			
 Temora LGA is currently experiencing a slight decline in population, with the 2021 Census showing a 1.2% decrease since 2016. However, population growth of around 0.46% per annum is projected to 2041. This is well below the state average of 0.95% but represents a total LGA population growth from 6290 to 6891 by 2041.	 The Wagga Wagga SA2 region is growing significantly, with a 6.2% population increase recorded between 2016 and 2021.	 Temora has a large proportion of residents aged 60-74, as well as a smaller but still relatively large cohort aged 5-19 years.	 Temora has a high median age of 48, compared to 39 in NSW, reflecting an ageing population. The Shire's Community Strategic Plan assumes a continued trend in population ageing with an increasing median age. Community priorities are therefore shifting to cater for this older population cohort.

Community Capital Indicators			
 Temora has an Indigenous population comparable to the state average (~3.4%) but much lower than the surrounding areas of Junee, Cootamundra and Wagga Wagga. The LGA recorded a 46% increase in recorded Indigenous population between 2016 and 2021. Temora, with its reputation as 'the friendly shire', runs multiple initiatives focused on encouraging and embracing diversity in the community and bringing in people from larger cities including Embrace Temora and Country Change (Temora Shire Council, n.d.)	 The median Indigenous age in Temora is 22, a reduction of 2 years from 2016 (24 years).	 The highest level of educational attainment in Temora was Year 10.	 A lower proportion of Temora residents have completed a Bachelor's degree or higher education level than the state average (11.5% vs 27.8%), with the same true for Diploma and Certificate IV qualifications. However, Temora has a higher proportion of Certificate III level attainment than the state (17.8% vs 11.7%). This suggests opportunities exist for further up-skilling of the labour force.
 The most common occupation in Temora LGA was Manager (20.5%), followed by Professional (14.7%), Technician / Trade Worker (13.4%) and Labourer (12.9%). This reflects a skill set of relevance to the renewable energy industry where Production Managers, Construction Managers, Electricians and Metal Fitters are often highly sought.	 Temora, on average, has higher rates of self-reported long-term health conditions than both NSW and Australia.		

Community Capital Indicators			
Cultural Capital			
 Temora has been home to the Wiradjuri people, whose lands encompass a vast area between the Blue Mountains, Hay, Nyngan and Albury. They have been living on Country for tens of thousands of years.	 Temora falls under the jurisdiction of the Young LALC.	 There are currently no native title claims operating within the Temora LGA. The closest native title claim geographically is the Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan People native title grant near Lake Cargelligo, 200 km northwest of Temora.	 According to the NSW Heritage Register, there are no designated Aboriginal Places in Temora LGA. There are many in and around Wagga Wagga and the town of The Rock, as well as throughout the Riverina. This is not reflective of intangible heritage, which cannot be quantified.
 There are over 150 European heritage-listed buildings in Temora LGA, including one item of State Significance (Temora Railway Station group)	 Temora has a low level of cultural and linguistic diversity; 89% of residents were born in Australia and 92% of households use only English at home.	 Temora has a strong sense of place stemming from its agricultural history as well as elements of built heritage, aviation history and present-day tourism and commerce.	 Temora is home to Willo's Wiradjuri Keeping Place within the Bundawarrah Centre, which stores a number of Wiradjuri artefacts and local knowledge (Visit Temora, n.d.).
 The town of Temora was founded by European settlers in the mid 19th century, starting as a pastoral station in 1847. It grew significantly during the late 19th century gold rush experiencing a decline post the gold rush boom. The town still retains much of its early European architecture, including Edwardian, Federation and Art Deco styles.	 The totem of the Wiradjuri nation is the <i>gugaa</i> (goanna). The importance of this animal is paramount to Wiradjuri people, and is symbolised in a council-commissioned artwork by Stewart James welcoming people to the Shire of Temora.		

Community Capital Indicators			
Social Capital			
 Temora has a high proportion of residents over 15 years who volunteer (23%); with this figure declining.	 Temora has a low mobility, that is, most people live at the same address that they did five years ago (68%).	 There is a higher proportion of single-person households than the state average in Temora (34% versus 25%).	 The largest proportion of family households in Temora consist of couples without children.
 Temora has a strong sense of place built on its gold mining, aviation and agricultural heritage; today it has a tight-knit community and rural feel.	 Some community opposition to renewable energy in the broader Riverina e.g., Riverina Sustainable Food Alliance (RFSA).	 The Temora community holds a number of events for locals and tourists, such as farmers markets, the Temora Show, art exhibitions, the Embrace youth festival at the historic station, a golfing open and Aria Park fair among others. The council is very active in promoting community events.	 Temora is in the 3rd decile for SEIFA IRSAD index, indicating a lower level of advantage and higher levels of disadvantage compared to the state.
Economic Capital			
 The median income in Temora is \$1615 p.w., below the state average of \$1829, but above towns such as Junee and Cootamundra. The median income in Temora has increased rapidly since 2016.	 Temora had a low median rent compared to the state average in 2021 (\$240 compared to \$420) but has increased since 2016 (\$183).	 Temora has a very low median monthly mortgage repayment compared to NSW (\$1183 compared to \$2167) which has decreased slightly since 2016.	 Temora has experienced a spike in rental stress, with the proportion of households spending more than 30% of their income on rent jumping from 7.5% in 2016 to 29.5% in 2021 but still below the state average of 35.5%. This statistic indicates a significant issue with rental affordability and accessibility.

Community Capital Indicators			
 Mortgage stress levels are fairly low in Temora compared to the state (9.0% vs 17.3%) but have increased slightly since 2016.	 The largest industry of employment in the Temora LGA is grain-sheep or grain-cattle farming. Within the town itself the largest industry of employment is supermarket and grocery stores.	 There is a high degree of economic diversity within the township of Temora, but low economic diversity within the broader LGA (with a strong agricultural reliance).	 The unemployment rate in Temora LGA is 2.9%, below the state average of 4.9%. However, there is a higher proportion of part-time workers (33.4% vs 29.7%), indicating increased underemployment.
 RDA Riverina has programs jointly developed with CSU to promote careers in areas, such as hospitality, medicine, engineering and IT.	 In 2016, Temora SAL's median household income was \$1615 per week, which was below the NSW median of \$1829 but higher than neighbouring Cootamundra (\$1037) and Junee (\$1354). Since then, incomes have risen across all areas. Temora saw a notable 64.5% increase while the broader Temora LGA grew by only 16.5%, indicating that income growth has been focused in the township.		
Natural Capital			
 The Riverina has a temperate to semi-arid climate and fertile soils due to extensive irrigation. Climate change is leading to hotter, drier summers, which poses challenges for liveability and agriculture.	 Outside of the township, the primary land use of the LGA is agricultural, largely cropping or grazing (79%).	 A council-conducted community survey notes important environmental values in Temora to include: • street trees • open spaces, • a tidy streetscape • parks.	 There are some nature reserves and pockets of woodland located in the LGA, most notably the Combaning State Conservation Area in the southeast corner of the LGA and the Ingalba Nature Reserve west of the town.

Community Capital Indicators			
 There are no national parks in the LGA; the nearest is Jindalee National Park, 57 km east.	 There are no current resource extraction activities currently occurring in Temora LGA, however there are two gold mines operating in West Wyalong. The area has a history of gold mining.	 Temora has a status as a local tourist destination due to its proximity to the Canola Trail, the local creative scene, the aviation museum, rural museum and numerous local businesses and cafes.	
Physical Capital			
 The major centre for service provision near Temora is Wagga Wagga, 85 km south / 1 hour drive.	 Temora is well-connected by road, being at the intersection of two major highways and two arterial roads which connect the Riverina to Sydney, Canberra and the Victorian border.	 Temora does not have a currently operating train station, the nearest being Junee, which is connected to Canberra, Melbourne and Sydney. However, the town hosts a significant freight rail route due to the region's agricultural production. Temora is connected primarily to Griffith, West Wyalong and Cootamundra (and on to the eastern seaboard) by freight rail.	 Temora is serviced by a bus route which connects it to Wagga Wagga. There is also a (mostly recreational) airfield.

Community Capital Indicators			
 The Temora SAL has 1.8 motor vehicles per dwelling on average, with a high concentration of households with 3 or more vehicles. Almost three quarters of Temora's residents travel to work by car, significantly above the state average of 47%.	 There are a considerable number of short-term accommodation options in the town, including hotels, motels, B&Bs and Inns. As of December 2023, Airbnb's and HomeAway stays had an 85% occupancy rate (AirDNA, 2024), in line with statistics in major cities. Temora Shire Council indicated a total of 252 short-term stay beds available in Temora, suggesting some capacity to house a construction workforce if acceptable to accommodation providers.	 The town of Temora has a high number of houses for sale but a very low rate of rental vacancy/availability (44 vs 9 respectively, as of August 2024). The current rental vacancy rate is 0.44%.	 Temora LGA has several primary schools and one high school, but no higher education institutions. The nearest tertiary education facilities can be found in Cootamundra (TAFE) or Wagga Wagga (Charles Sturt University).
 Temora has a hospital with 24-hr emergency and 28 total beds, but the LGA is underserved by GPs – there are only 6 GPs in the LGA, with a provision rate of 100.1, compared to the state rate of 122.6. Alack of allied health services is also noted in the Temora Shire Council's Community Strategic Plan.	 Temora has an active 18-hole golf club in close proximity to the Project Area.	 There is only one town in Temora LGA, being Temora, and two villages/localities – Ariaiah Park and Springdale with populations of 439 and 126 respectively.	 From 2018 to 2023, there have not been any motor vehicle related accidents on Old Cootamundra Road within Temora LGA. However, within the wider LGA across the same time period there have been six deaths and 80 injuries relating to vehicle accidents.
 The land adjacent to the Project Area to the north contains an electrical substation owned by Essential Energy, enabling direct connection to the grid.	 The GrainCorp Sub Terminal, located adjacent to the Project Area, is an industrially zoned area with heavy industry and machinery operating at all hours of the day. There is also a house on the site that is currently rented.		

Source: refer to Appendix A.

4.0 Perceived and Likely Social Impacts

This section provides a summary of the analysis of preliminarily scoped social impacts (positive and negative) in relation to the Project. Impacts have been framed in accordance with the social impact categories outlined in the SIA Guideline (DPE, 2023) and used in standard SIA practice.

Both primary community input (outcomes of engagement) and secondary research have been used to inform the impacts listed in this section. Community data was gathered through engagement activities detailed in **Section 2.5** with outcomes integrated in the following sections where relevant.

4.1 Summary of Identified Social Impacts

An overview of preliminary social impacts identified during research and consultation activities is provided in **Table 4.1** and are organised by the Project phase in which the impact may occur.

The following sections provide further explanation of each of the social impacts identified.

Table 4.1 Impact summary

Phase	Social impact category	Predicted social impacts
Assessment phase	<i>Decision-making systems</i>	Lack of trust in Project assessment process and ability to inform Project development
Construction phase	<i>Accessibility</i>	Delay in travel times for road users associated with construction vehicle traffic
	<i>Accessibility</i>	Increased demand for health services due to construction workforce influx
	<i>Accessibility</i>	Increased demand for short-term accommodation due to construction workforce influx
	<i>Livelihoods</i>	Local employment opportunities
	<i>Livelihoods</i>	Economic boost to local business due to presence of construction workforce
	<i>Surroundings</i>	Reduced road safety due to increased construction vehicle activity
Construction and operational phases	<i>Culture</i>	Potential damage to Aboriginal cultural heritage and values
	<i>Surroundings</i>	Visual amenity changes impacting the rural landscape
	<i>Surroundings</i>	Decreased social amenity as a result of noise
	<i>Surroundings</i>	Potential damage to environmental values of importance to the community
	<i>Community</i>	Change to sense of place due to changed land use and continued industrialisation of the landscape
	<i>Livelihoods</i> <i>Way of life</i>	Decrease in nearby property values due to changed land use and continued industrialisation of the landscape
	<i>Livelihoods</i>	Training and education opportunities to upskill local residents and maximise employment opportunities

Phase	Social impact category	Predicted social impacts
Operational phase	<i>Surroundings</i>	Public safety risk associated with potential battery fire
	<i>Accessibility</i> <i>Livelihoods</i>	Access to reliable, low-cost renewable energy
	<i>Decision-making systems</i>	Distributional inequity of Project benefits
	<i>Decision-making systems</i>	Increased intergenerational equity associated with reduced reliance on fossil fuel
Decommissioning phase	<i>Surroundings</i>	Future environmental impacts resulting from decommissioning and waste generated from the Project

Source: Umwelt, 2024.

4.1.1 Accessibility

4.1.1.1 Delay in travel times for road users associated with construction vehicle traffic

A potential impact of the Project is a delay for road users travelling along Old Cootamundra Rd and Miners St during the construction phase, due to the use of these roads to transport Project infrastructure and by construction workers accessing the Project Area.

There are approximately 31 residences located on Old Cootamundra Rd and/or Miners Street whose occupants may experience delays travelling into Temora, and south towards Cootamundra and Wagga Wagga. Furthermore, residents of Temora that travel to Cootamundra or Wagga Wagga via this route, may also experience delays from construction traffic.

Additionally, cars travelling to the GrainCorp sub-terminal adjacent to the Project Area (see **Figure 4.1**), may also be affected. Road access to the freight line and grain processing/storage facility on the GrainCorp site is vital for business operations, and consequently, livelihood/economic impacts may result from any additional travel time and/or road closures.



Figure 4.1 Panorama of GrainCorp Driveway Entry (left) and Project Area (right)

Source: Umwelt, 2024.

Consulted stakeholders, especially Temora Shire Council, specifically raised concerns around accessibility to the GrainCorp sub-terminal during harvest times for crops such as wheat and canola, noting it is common for trucks to queue along Old Cootamundra Road for long periods to access the terminal. Therefore, any extra vehicles utilising the road could exacerbate these issues.

Further assessment of this impact will be undertaken in the SIA, drawing on the outcomes of the Traffic and Transport Impact Assessment to be undertaken as part of the EIS and appropriate engagement with GrainCorp.

4.1.1.2 Increased demand for health services due to construction workforce influx

A rapid increase in temporary workers associated with the Project in the area may present some strain on existing health services. As discussed in **Section 3.3**, health services are underrepresented in the Temora LGA compared to the state and national average. Additionally, Temora has a higher incidence of self-reported health conditions compared to NSW and Australia; in particular rates of arthritis, asthma, cancer, diabetes and heart disease which are pronounced compared to state and national averages. In addition, population statistics indicated that Temora's population is ageing and consequently reliance on such services may be enhanced.

The Project is expected to generate up to 20 FTE employment opportunities during the peak construction period, and as a result it can be assumed that the workforce will add additional demand for health services in the township.

In the next phase of the SIA, consultation will be undertaken with health service providers to better understand existing capacity and demand, and to assess the potential impact that the Project might have on service delivery.

Management of such impacts in other projects has shown that such impacts may be mitigated through effective engagement with service providers, appropriate assessment of demand on service delivery and the provision of tele-health services for construction workforces to reduce demand on local service delivery.

4.1.1.3 Increased demand for short-term accommodation due to construction workforce influx

The Project could also increase demand for short-term accommodation in Temora due to the incoming construction workforce. While with appropriate procurement processes in place, it is anticipated that a proportion of the peak workforce of up to 20 may be able to be sourced locally; it is likely that a proportion of the construction workforce would still need to be accommodated locally.

As discussed in **Section 3.3**, Temora has a status as a local tourist destination due to its proximity to the Canola Trail, the local creative scene, the aviation museum, rural museum, and numerous local businesses and cafes (Visit Temora, n.d.). Consequently, there are numerous short-term accommodation providers (both hotels and motels, and Airbnb's) within the town to accommodate tourists (refer to **Appendix A** for hotel and short-term rental data). Based on engagement with Temora Shire Council, there are approximately 252 short-term stay beds available in Temora. Conversely, as discussed in **Section 3.3**, there is a low rental vacancy rate in Temora, with approximately 1.85% of rentals vacant on a given week.

Given the size of the Project construction workforce, it is anticipated that an influx of workers is unlikely to place strain on short term accommodation but may cause supply issues for rental accommodation due to existing vulnerabilities relating to rental stress in the region. This could result in further affordability and availability issues within the rental market inequitably affecting more marginalised and vulnerable community members due to their economic and social circumstances. Conversely the presence of a construction workforce and a demand for accommodation, may benefit local accommodation providers for the construction period.

An assessment of the capacity of short-term accommodation and demand of the Project will be undertaken in the SIA, and if construction workforces are predicted to exceed accommodation capacity in Temora and the broader region, other options, such as a TWA camp, may be considered. However, it is unlikely to be a viable option due to the small size of the Project Area, compared to the land area required to development temporary accommodation with suitable services and facilities.

At this stage NHCE is considering offsite TWA options that may become available via local service providers, which would be paired with potential shuttle bus services to the Project and combined with local rental or Airbnb accommodation. In consultation with Temora Shire Council, providers such as the social enterprise ‘PassivePlace’ was mentioned as a potential project partner (PassivePlace, 2024). This hybrid approach seeks to meet the needs of the Project whilst maintaining a balance of any negative impacts associated with local and regional accommodation availability.

4.1.1.4 Access to reliable, low-cost renewable energy

One of the key benefits of the Project is the ability to support access to reliable, low-cost renewable energy for customers in the NEM; with one of the main benefits of BESS technology being the ability to reduce electricity costs by balancing supply with demand.

Although renewably generated electricity is generally cheap (and rapidly becoming cheaper) at peak generation times, its availability can be volatile due to the unreliability of generation times (Timilsina, 2021). If not supplemented with existing grid electricity, currently supplied by fossil fuels, this can lead to price spikes during high demand periods (WEF, 2023).

As the cost of battery technology decreases, it becomes a viable way of stabilising the renewable energy grid. In Europe, the application of BESS technology to the electricity market has been shown to be not only viable but profitable, with further reductions in cost facilitating this (Hu, Armada, & Sánchez, 2022). Market viability aside, there are significant benefits to a stabilised renewable grid for consumers. Renewable energy is already cheaper on average than fossil fuel in Australia (DCCEEW, 2022). Increasing accessibility to match supply with demand will stabilise prices and help to make renewables more affordable (Timilsina, 2021).

In addition to this lower cost, sourcing stored energy from renewable generation is associated with a range of social benefits. Some of these include improved health, job creation and diversity, upskilling and local procurement, regional empowerment, and contribution to a more sustainable future (Sheikh, Kocaoglu, & Lutzenhiser, 2016). Not least of all is the intergenerational equity resulting from transitioning away from fossil fuel, explored in the following section.

4.1.2 Surroundings

4.1.2.1 Reduced road safety due to increased construction vehicle activity

Some stakeholders noted that due to Old Cootamundra Road's status as an arterial road linking Temora and Cootamundra, the road has a high-speed limit and is subject to equally fast traffic. Project construction vehicles using Miners Street as an ingress and egress point to connect to Old Cootamundra Road may pose a safety issue if not thoroughly signposted.

4.1.2.2 Public safety risk associated with potential battery fire

A common concern regarding battery projects, specifically lithium-ion batteries, is the potential fire risk posed. These concerns are evident in media coverage of the potential fire hazards associated with BESS technology, and particularly reporting of incidents of fire in a mega battery in Victoria in 2021, as well as a series of other household fires started from lithium ion batteries.

Whilst events like these are unlikely due to controls put in place, events that are catastrophic, or memorable, are more likely to generate and exacerbate community concern (Sandman, 2003). Therefore, despite the technical risk of a fire being unlikely, it will be important for NHCE to communicate the management measures that would be put in place to prevent potential fires, and the company's emergency response procedures, should such an event occur.

It is noted that the final design and technology of the BESS has not been selected and both perceived and technical risk associated with fire is likely to change dependent on the technology chosen. Providing transparent and up-to-date information to proximal residents and the wider Temora community about the fire risk of the chosen battery technology will foster trust and acceptance between NHCE and its stakeholders.

4.1.2.3 Visual amenity changes impacting the rural landscape

Initial engagement with proximal residents indicated that, due to the industrial nature of the existing landscape, impacts to visual amenity were not of high concern. However, the Project Area when considered in isolation (not compared with neighbouring infrastructural land uses) has a high level of visual amenity currently, as depicted in **Figure 4.2** (top left image shows proximal property, all other images are of the Project Area). A Visual Impact Assessment will be undertaken to assess the potential change in vistas from multiple viewpoints because of the Project.

In discussions with NHCE, Temora Shire Council inquired about the possibility of visual screening (natural or artificial) to shield the Project infrastructure. Depending on the outcomes of the Visual Impact Assessment and the final battery design and layout, screening through vegetation or artificial means could be considered for proximal residents most affected by changes to visual amenity.



Figure 4.2 Selection of photos of the Project Area and surroundings, including neighbouring sheep farm and view along Miners Street

Source: Umwelt, 2024.

4.1.2.4 Change in social amenity due to noise

The Project may also result in impacts to the amenity of proximal residents due to a low level of background noise, despite the presence of nearby industrial activity. There are potentially nine residential properties that may be affected by noise emitted by the Project.

Field observations conducted by Umwelt in July 2024 indicate that the Project Area has a very low background audible noise level. Further, the actual GrainCorp terminal is set back significantly from Old Cootamundra Road, leaving ample space between the grain processing activities and proximal residents. This means that outside of harvest times, there is little noise pollution within the Project Area.

It is expected that the operational BESS will emit a low-level hum that is audible within the Project Area and from a close radius; modelling will be undertaken as part of the Noise and Vibration Impact Assessment in the EIS phase to understand the effects on proximal residents.

Noise impacts can have a significant effect on the mental and physical health of nearby residents, workers, site users and passersby on the adjacent roads – especially if this noise is continuous. If the noise emitted by the Project is forecasted as being audible from nearby surrounds, it may be worthwhile considering a screen/bunding to block some of the noise, building on the suggestion by Temora Shire Council in regard to mitigating visual impact (see **Section 4.1.2.3**). Other options may be explored during the SIA phase of the Project once further technical studies have been completed.

4.1.2.5 Potential damage to environmental values of importance to the community

It is evident there is high value placed on the environment and surroundings in Temora by its residents through a high level of resident participation in the popular Landcare and Sustainability Network group (Shire of Temora, n.d.).

As discussed in **Section 3.3**, there are a number of protected reserves near the town that are considered of value, given that land use in the region, is overwhelmingly agricultural. Pockets of undisturbed nature are rare in Temora and the wider Riverina, which contains several threatened plant and animal species (NSW Government, 2023).

At a more local scale, the Project Area currently hosts Western Grey Box tall grassy woodland, as well as some pockets of different grass species. A biodiversity field survey found that the Project Area had already been disturbed, likely due to a history of agricultural activity, but that the Project may result in further clearing of native vegetation. Further field surveys to inform a Biodiversity Development Assessment Report will be undertaken as part of the EIS.

Environmental amenity is not only important from an ecological point of view but is also an essential part of human wellbeing (Capaldi, Passmore, Nisbet, Zelenski, & Dopko, 2015). There is the potential for the Project to impact environmental values through land clearing and other construction activities associated with the establishment of Project infrastructure.

4.1.2.6 Future environmental impacts resulting from decommissioning and waste generated from the Project

A common concern related to renewable energy projects is the waste generated from project infrastructure following the decommissioning of projects and the responsibility of the proponent to manage this waste. The decommissioning of any battery or renewable energy technology can cause social impacts relating not just to environmental waste and pollution, but also governance (whose responsibility is it to rehabilitate the Project Area, or dispose of the parts?), livelihoods (workforce required to recycle components), surroundings (visual amenity, noise, etc.) and intergenerational equity, among others.

Once the Project reaches the end of its operational life, a decision would be made to either decommission or re-power the facility, subject to approval requirements. If re-powering is proposed, an appropriate stakeholder consultation process would need to be undertaken, and all necessary approvals sought.

4.1.3 Livelihoods

4.1.3.1 Local employment opportunities

The potential for the Project to create local employment opportunities is a positive impact that may be experienced within the region. The Project is anticipated to provide up to 20 FTE jobs in the construction phase and minimal ongoing jobs in the operational phase (limited to service and maintenance functions only). Considering the low number of jobs generated by the Project, there is unlikely to be a significant benefit relating to local employment, however, as discussed in **Section 3.3**, the unemployment rate is low in Temora which suggests there is not a large labour pool the Project could draw from. Where possible, NHCE will prioritise local employment opportunities and will work with relevant stakeholders to maximise local procurement where possible.

Whilst the generated jobs are a benefit, this may result in increased competition in the region given the skills shortages related to roles aligned with the Project's needs, as outlined in **Section 3.3**. NHCE will continue to engage with RDA Riverina to support initiatives to address workforce gaps and skills shortages, whilst prioritising local participation in the workforce to create measurable social benefits within the locality.

Engagement with Temora Shire Council also indicated the potential lack of ongoing employment opportunities in the operational phase as a concern, with Temora Shire Council raising questions regarding the long-term benefit of the Project. NHCE will continue consultation with key stakeholders to design the Project to maximise local benefits where possible.

4.1.3.2 Economic boost to local business due to presence of construction workforce

It is established that hosting local construction workforces can create economic flow-on effects for host communities as workers spend money at local businesses, use nearby accommodation providers, and generally create more economic stimulus (Livingston, 2024). This benefit is especially pronounced where Project's limit fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) workforces (Storey, 2018).

NHCE will collaborate with key stakeholders to ensure benefits to local businesses can be strategically maximised. Although the workforce hosted during construction phase is not expected to be exceedingly large, there are still opportunities for local businesses to attract increased patronage during this timeframe. Consistent communication between NHCE and key stakeholders about when construction will take place can help local providers prepare and accommodate for the influx. Strategies that have been implemented in other projects include implementation of ‘buy-local’ strategies and facilitating workforce participation at a local community level.

4.1.3.3 Training and education opportunities to upskill local residents and maximise employment opportunities

With reference to the Riverina Murray Regional Plan 2041 (2023), upskilling local residents is a significant priority for the region. This was also identified by stakeholders in consultation, confirming the importance of the issue.

The area has an issue with a lack of perceived education and training opportunities, leading to a pattern of out-migration of young workers to larger cities such as Sydney, Canberra and Melbourne (NSW Government, 2023). Combined with a perception of rurality as lacking in “advanced” career paths and the already high median age of the region, the availability of skilled workers and young people in the Riverina have become a pressing issue. However, this can also be seen as an opportunity, as the Plan outlines methods of tackling this gap.

The Project could support courses in development at Charles Sturt University in Wagga Wagga which aim to upskill locals to meet demand in renewable energy related fields (Charles Sturt University, 2024).

In general, the presence of the Project as an upcoming renewable energy opportunity ties in well with broader Riverina development strategies. Fostering a close connection with RDA Riverina, local TAFEs and CSU as well as business and industry groups can help to ensure that there are local workers available, and where there are not, there may be opportunities for education and skill-building programs to be put in place.

Additionally, Temora Lions have offered to work with the Applicant and Temora Shire Council with their recycling program, as they have collaborated with other renewable energy developments such as Sebastopol Solar Farm previously. The Lions operate a large-scale cardboard and paper recycling facility and have the capability to recycle a proportion of the waste that could be generated by the BESS installation. The strength of local community groups in filling workforce gaps is exemplified by this collaboration which also further enables Project sustainability. Decrease in nearby property values due to changed land use and continued industrialisation of the landscape

4.1.3.4 Decrease in property values

In relation to property values, there has been an ongoing association between renewable energy projects and a decrease in proximal residential property values, especially for wind farm projects (Dröes & Koster, 2016). Reasons for this span across several social impact categories, and include changes to rural sense of place, visual impact, noise and amenity among others and have been often raised in response to renewable energy projects in other parts of NSW.

However, BESS arrays are typically much lower impact than larger scale renewable energy projects such as wind and solar farms, taking up a much smaller space and creating far less visual, auditory and traffic disturbance.

While the issue of a decline in property value may be of concern to some proximal neighbours, it is unlikely that property values of nearby properties are going to be affected given the siting of the Project and the existing surrounding industrial land uses. However, further engagement and consultation with proximal residents will be undertaken throughout the SIA phase to understand such perceptions further.

4.1.4 Decision-making Systems

4.1.4.1 Lack of trust in Project assessment process and ability to inform Project development

Early engagement with proximal residents identified that, although most were amenable to contact with NHCE and Umwelt, there was some initial reluctance regarding their role in the process. In one case, a proximal resident was not willing to engage at all, voicing concern that they did not believe the assessment process was genuine or important, or that they would be listened to, based on experiences with other developers.

NHCE recognise that effective engagement is important in informing impact assessment processes and have committed to ongoing engagement throughout the Project's planning process to maximise community input to the design and planning process and to develop appropriate mitigation strategies to address any negative impacts as well as enhancements of positive impacts of the Project.

4.1.4.2 Distributional inequity of Project benefits

Some stakeholders questioned the level of local benefit that Temora would receive because of the Project's presence. This was largely due to the battery array being connected to the wider NSW grid, rather than a local Temora-based microgrid, and the lack of jobs during the operational phase. This issue is shared among many renewable energy projects, as benefits tend to accumulate on a state or national level, rather than at a local level where the projects are situated (Devine-Wright & Sherry-Brennan, 2019).

The wider community benefits from being a vital part of the energy transition as Australia moves to net zero carbon emissions by 2050. Consequently, the use of emerging battery technology to 'firm' the renewables grid is a progressive approach which has the potential to be a source of pride for local residents. However, this does not necessarily translate to material or economic benefits at the local level. As one stakeholder pointed out, communities in areas with strong renewable energy investment often see companies' approach, build infrastructure and leave. Sometimes this happens without necessarily leaving a long-term material benefit for the local communities that projects are located in. Thus, the actual benefit to proximal residents and the Temora community that the Project presents should be a topic of further consideration in following phases. It is noted that NHCE are seeking not only to develop this project, but to operate it into the future. Therefore, NHCE are hoping to be a responsible corporate citizen and neighbour within Temora.

Temora Shire Council suggested several options for sharing the Project benefit with local residents. Primarily, if the Project utilises a temporary workers accommodation (TWA) style workers camp for its construction workforce, this camp could be converted into a permanent fixture providing social and affordable homes for residents. NHCE have been engaging with Temora Shire Council about contributing to the 'Passive Place' initiative, which seeks to provide housing for the temporary workforce of various projects in Temora, reducing the impact on the visitor economy and rental market in the region. Post-construction, this initiative will provide legacy infrastructure and accommodation that will be retained and used to address housing based needs in the Temora Shire. This could be achieved through Temora Shire Council or a social enterprise such as Passive Place, as explored in **Section 4.1.1.3**.

Additionally, a Community Benefit Fund may be considered to directly give back to proximal residents or the town of Temora. Programs or organisations that may be considered for funding could include volunteer groups such as Landcare, the Youth Council, Arts Council or Lions Club; funding of educational programs; local road maintenance; support for the Bundawarra Centre including the Rural Museum and/or Temora Aviation Museum, among others. Further exploration of opportunities to share the benefits of the Project more broadly across the Temora community will be explored in the SIA assessment phase.

4.1.4.3 Intergenerational equity associated with reduced reliance on fossil fuels

At a broader societal level, there is significant benefit to the development of renewable energy projects from an intergenerational equity perspective. Wood (1996, p. 295) defines intergenerational equity as encompassing both *“the moral principle that no generation has priority over another and the legal standard that there is equality among generations”*. Therefore, climate change, by threatening the existence of future generations, can be considered a violation of intergenerational equity if it is not acted upon by current generations. A transition away from fossil fuels to renewable energy is seen as one of the most important actions to reduce carbon dioxide emissions, thus slowing climate change (Wood, 1996).

Concerns relating to decommissioning and disposal of renewable energy project infrastructure are also a common concern relating to renewable energy projects and has been documented in broader national surveys and other renewable energy developments within NSW. For instance, a study completed by CSIRO on Australian attitudes towards renewable energy transition noted that infrastructure disposal was frequently raised as a concern. The study noted the need to address end of life solutions to prevent materials ending up in land fill, in turn increasing social acceptance of renewable energy technology (Poruschi, Scovell, McCrea, Walton, & Gardner, 2024).

4.1.5 Culture

4.1.5.1 Potential damage to Aboriginal cultural heritage and values

Potential impacts to tangible and intangible Aboriginal cultural heritage and values could arise from the Project as a result of land clearing and construction works. As noted in **Section 3.3**, there is a long connection to Country by the Wiradjuri people. Country is defined by Indigenous research collective Yandaarra (2022) as *“the lands, waters, and skies of Aboriginal and Torres Strait Islander homelands, and the beings, dreams, and relationships that nourish and co-become there.”* The authors continue; *“If we are to take seriously the knowledge and agency of Country and more-than-human beings, it follows that we must seek their consent, consultation, and sharing, just as we might for human centred research”* (Gumbaynggirr Country, et al., 2022).

A search of the Aboriginal Heritage Information Management System (AHIMS) database was conducted on 5 August 2024 to identify known Aboriginal sites and/or places within an area consisting of the Project Area and a 1 km buffer. The assessment identified no Aboriginal sites within the search area. However, this could be attributed to a lack of prior assessments undertaken within the area and is not conclusive of an absence of Aboriginal heritage. An Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken as part of the EIS to assess the potential for impacts to Aboriginal sites in consultation with the Registered Aboriginal Parties for the Project.

Furthermore, establishing and building ongoing relationships with First Nations peoples is vital. This engagement should be genuine, transparent and contribute to the Project design and planning process. NHCE will continue efforts to engage with relevant First Nations stakeholders in relation to the Project, including local and traditional owner groups that have an interest in country and the Project.

As previously noted, endeavours were made to contact the Young LALC in the scoping phase, however engagement will be further explored in the subsequent phase of the SIA,

4.1.6 Community

4.1.6.1 Change to sense of place due to altered land use and continued industrialisation of the landscape

Despite the significant presence of the GrainCorp sub terminal and Essential Energy substation, the area in proximity to the Project Area maintains a quiet, rural sense of place. Particularly on the western end of the Project Area, the quiet dirt roads and ample tree cover create a tranquil and peaceful environment. Observational site visits conducted by Umwelt in 2024 provided evidence of this rural character and community cohesion. Furthermore, engagement with proximal residents suggested the community are well connected and close knit.

It is possible that the presence of the Project infrastructure and the works associated with the construction phase may disrupt this sense of place. However, it is anticipated that the Project will not create a significant change given the existing industrial land uses around the Project Area, and the undulating, sloping terrain of the Project Area. Additionally, in the operational phase, there is likely to be minimal ongoing work or activity required within the Project Area.

5.0 Preliminary Impact Evaluation

As discussed in the above section, the scoping phase has identified a number of key social impacts of relevance to proximal residents, local community members and other key stakeholders in relation to the Project.

A preliminary evaluation of the likely social impacts associated with the Project has been developed in **Table 5.1** with these to be further assessed and validated during the next phase of the SIA and through other technical studies to be undertaken as part of the EIS.

Additionally, early engagement and experience on other projects, has identified a number of mitigation and management measures to be further explored in the SIA and EIS phase.

Table 5.1 Preliminary Impact Evaluation

Social Impact Category	Potential Social Impact	Nature	Phase / duration	Affected stakeholder group	Preliminary Impact Significance Ranking	Level of assessment
Accessibility	Delay in travel times for road users associated with construction vehicle traffic	Negative	Construction	Road users Proximal residents along Old Cootamundra Rd and Miners St	Medium (Possible, minor)	Standard
Accessibility	Increased demand for health services due to construction workforce influx	Negative	Construction	Residents of Temora	Medium (Possible, minor)	Detailed
Accessibility	Increased demand for short-term accommodation due to construction workforce influx	Negative	Construction	Residents of Temora	Medium (Possible, minor)	Detailed
Accessibility Livelihoods	Access to reliable, low-cost renewable energy	Positive	Operational	Broader community	High (Likely, moderate)	Minor
Surroundings	Reduced road safety due to increased construction vehicle activity	Negative	Construction	Road users Proximal residents	Medium (Possible, moderate)	Standard
Surroundings	Public safety risk associated with potential battery fire	Negative	Operation	Proximal residents Road users	Medium (Unlikely, moderate)	Standard
Surroundings	Visual amenity changes impacting the rural landscape	Negative	Construction Operation	Proximal residents and road users of Old Cootamundra Rd and Miners St	Medium (Likely, minor)	Standard
Surroundings	Change in social amenity as a result of noise	Negative	Operation	Proximal residents	Medium (Possible, minor)	Standard
Surroundings	Impacts to environmental values of importance to the community	Negative	Construction Operation	Environmental and community groups Residents of Temora Proximal residents	Low (Unlikely, minor)	Minor
Surroundings	Future environmental impacts resulting from decommissioning and waste generated from the Project	Negative	Decommissioning	Residents of Temora Local government Broader community	Medium (Possible, moderate)	Standard

Social Impact Category	Potential Social Impact	Nature	Phase / duration	Affected stakeholder group	Preliminary Impact Significance Ranking	Level of assessment
Livelihoods	Local employment opportunities	Positive	Construction	Residents of Temora currently employed in the construction industry	Medium (Likely, minor)	Standard
Livelihoods	Economic boost to local business due to presence of construction workforce	Positive	Construction	Local businesses in Temora	Medium (Possible, minor)	Standard
Livelihoods	Training and education opportunities to upskill local residents and maximise employment opportunities	Positive	Construction Operation	Youth Unemployed Residents of Temora	High (Likely, moderate)	Standard
Livelihoods	Decrease in property values associated with presence of battery	Negative	Construction Operation	Proximal residents	Low (Unlikely, minor)	Minor
Decision-making systems	Potential lack of trust in Project assessment process and ability to inform Project development	Negative	Assessment	Proximal residents Community groups	Medium (Possible, minor)	Standard
Decision-making Systems	Distributional inequity of Project benefits	Negative	Operation	Residents of Temora	Medium (Possible, moderate)	Standard
Decision-making Systems	Intergenerational equity associated with reduced reliance on fossil fuel	Positive	Operation	Broader community	Medium (Possible, moderate)	Minor
Culture	Potential damage to Aboriginal cultural heritage and values	Negative	Construction Operation	RAPs Young LALC	Medium (Unlikely, moderate)	Standard
Community	Change to sense of place due to changed land use and continued industrialisation of the landscape	Negative	Construction Operation	Proximal residents Residents of Temora Road users	Medium (Possible, minor)	Standard

6.0 Conclusion

This SISR has identified and profiled the social locality and has documented preliminary social impacts and opportunities associated with the Project. The SISR forms part of the broader Scoping Report for the Project to inform the issue of SEARs by the NSW DPHI.

The scoping phase of the SIA (Phase 1) has included the definition of a social locality for the Project, compilation of a social baseline profile, a summary of outcomes of early community and stakeholder consultation to inform the scoping of Project-related social impacts and opportunities and has identified preliminary social impact management measures. The preliminary social impact evaluation has been undertaken to inform and support the refinement of Project design and plans to reduce negative project impacts and facilitate the enhancement of positive project benefits.

A detailed assessment of social impacts is required as part of the EIS and should be informed by an ongoing process of community consultation. As part of the EIS, future stages of the SIA for this Project will include a comprehensive prediction and assessment of social impacts and development of relevant strategies to mitigate the negative and enhance the positive impacts associated with the Project. Further SIA and technical environmental impact studies will address perceptions of impacts raised by key stakeholders during this phase.

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

- An update of the baseline social profile so that any further baseline data relevant to the social impacts identified is obtained.
- Further validation of the area of social influence and identification of affected communities and vulnerable groups.
- Provision of feedback to community members and key stakeholders on the outcomes of the issues raised in the scoping phase and communication of the Project's SEARs (once issued), including an outline of the next steps in the assessment process and further opportunities for community input.
- Update of the Project CSEP and further engagement with community members and other key stakeholders on key social impact areas as noted above. This will involve feedback on the outcomes of EIS technical studies and will provide opportunities for input to the development of appropriate management and enhancement measures to address social impacts and residual effects.
- A comprehensive assessment and evaluation of social impacts against existing baseline conditions.

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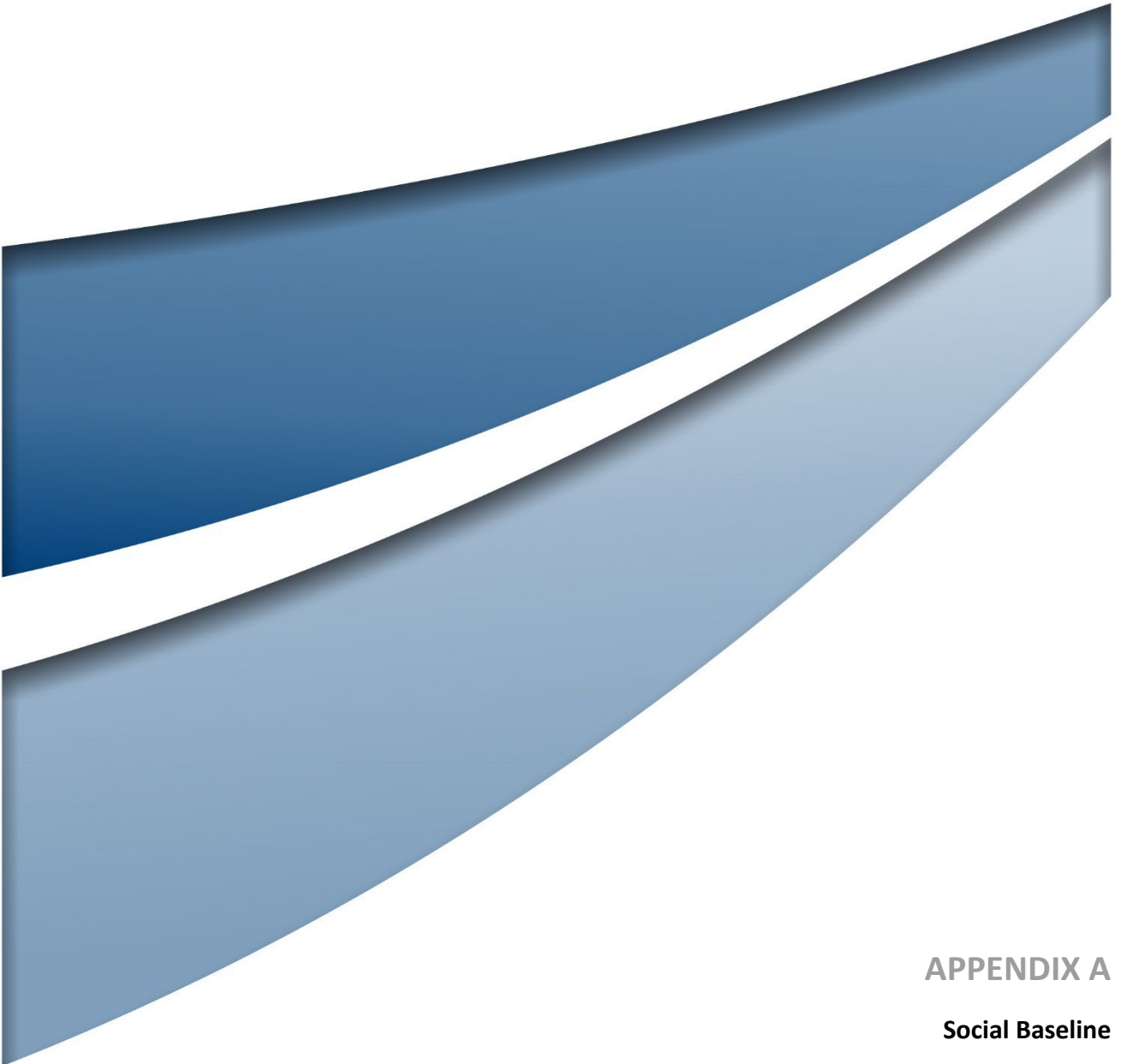
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APPENDIX A

Social Baseline

The following Appendix provides an overview of the social baseline developed for the Project. The baseline includes a review of data grouped by indicators as per the Sustainable Livelihoods approach to social impact assessment (Coakes & Sadler, 2011). Those groupings, referred to as ‘community capital’, comprise the following:

- Political capital
- Human capital
- Cultural capital
- Social capital
- Economic capital
- Natural capital
- Physical capital.

The data used to inform this baseline has been collected from a range of publicly available secondary sources described in **Section 3.3**. Engagement outcomes have also been considered in the baseline development where relevant.

A.1 Political Capital

Political Representation

Table A.1, below, provides an overview of the political structures and elected representatives of Temora at each level of government.

Table A.1 Political Representation for Each Level of Government

	Local	State	Federal
Electorate	Temora	Cootamundra	Riverina
Elected member	Rick Firman OAM	Steph Cooke	Michael McCormack
Party	Nationals	Nationals	Nationals

Source: Temora Shire Council, 2024; Parliament of NSW, 2024; Parliament of Australia, 2024.

Temora is also represented by Young LALC, a member council of the NSW Aboriginal Land Council system. Based in Young, Wiradjuri Country, approximately 70 km east of Temora, the LALC covers a large area.

There is support for renewable energy developments from a NSWALC level (NSWALC, 2023), but it is noted that LALCs are currently under-resourced and require capacity-building to effectively participate in the transition (Norman & Briggs, 2022).

Political Climate

The area has a strong history of conservatism in its voting base, with the seat of Riverina being considered a ‘very safe seat’ for the National Party (Green, 2022). The last non-Nationals MP representing Riverina was former Immigration Minister in the Whitlam cabinet, Al Grassby, in 1974 (Green, 2022). The state electorate of Cootamundra is also a very safe Nationals seat, with MP Steph Cooke holding over 70% of the vote (NSW Electoral Commission, n.d.).

Support for renewable energy initiatives

The Temora region is not located in a Renewable Energy Zone (REZ), but the South West REZ is located about 200 km west of Temora, with the nearest town in the REZ being Hay (EnergyCo, n.d.). The REZ is within the federal electorate of Farrer, which like Riverina, tends conservative, though Farrer is currently represented by the Liberal Party (Australian Electoral Commission, 2019).

As discussed in **Section 3.2.2**, there are a number of renewable energy initiatives taking place in the Riverina, such as Walla Walla solar farm and Yanco Delta wind farm that have met mixed responses from the community. It is also noted that NSW Member for Wagga Wagga Dr Joe McGirr also opposes solar farms on agricultural land (Mason, 2022).

A proposed solar farm (Moroney’s Lane, proprietor ITP Energised Group) in Temora was delayed due to Covid supply issues, but reportedly has Temora Shire Council support and has received positive press (Wilson, 2022). To summarise, there are mixed attitudes in the Riverina about renewable energy from its residents, but there is generally local government support and willingness to cooperate; minority landowner groups tend to be the main opposition, with the addition of an MLC (Wagga Wagga).

Government and industry consultation flagged support for renewable energy in the region as being “probably 60-40”, noting that “the environmental aspect [of renewable energy] is often left out of the equation in the Riverina, it’s more about local effects rather than the bigger picture.” It was also raised that renewable energy in the Riverina has at times been politicised by local groups and on a state/federal politics level, becoming a wedge issue and a political football. Combating politicisation was seen by RDA Riverina as important, doing so by providing good and transparent information about what renewable energy initiatives actually involve for local communities. Considered and neutral discourse which presents renewable energy as a pragmatic, rather than ideological, solution was also seen as a helpful approach.

Temora Council strategic directions

The Shire of Temora Community Strategic Plan (*Temora Tomorrow: Towards 2035*) outlines key challenges and opportunities faced by the community (Shire of Temora, 2022). Some of the challenges identified by community members in the plan include limited service provision (especially after hours), rental housing scarcity, housing affordability, a high GP turnover, lack of activities for young people, an underfunded community centre, and negative experiences around social cohesion and racial discrimination. Opportunities and strengths of the community were also identified, such as a strong presence of local business, good tourism profile and many employment opportunities.

Strategies for community improvement are grouped into four themes, namely:

- **Enhancing quality of life** – catering to ageing population and people with disability, better sport and recreation opportunities, development of the arts and cultural activities, children’s services, inclusivity.
- **Local leadership** – encouraging diverse representation in community leadership, celebration of heritage, volunteer support, state/federal government advocacy, transparent and thorough community information.
- **Strong local economy** – diversity of industry, thriving local businesses, education and employment opportunities, access to affordable housing, strong agriculture industry, leveraging tourism opportunities, improved transport network.
- **Natural environment** – liveable town life, well-designed urban infrastructure, minimal environmental impacts, open spaces, sustainability for the future.

A.2 Human Capital

Population

The ABS Statistical Area 3 (SA3) level region of Wagga Wagga, which covers Temora and several other towns, is growing rapidly with the population increasing by 6.2% from 2016 to 2021 to 99,169 people (ABS, 2021; ABS, 2016). However, this is in part due to the regional city of Wagga Wagga itself drawing population from nearby smaller towns (the city itself has a growth rate of 4.8% since 2016 and accounts for over half the population of the SA3 region).

The Temora LGA is declining gradually in population, losing 1.2% of its population from 2016 to 2021 (current population 6034). Despite this, the town of Temora itself has a stagnant growth rate of 0.3%. This implies that people are moving to the town of Temora from the rest of the LGA, but overall draining to larger regional centres like Wagga Wagga. The nearby towns of Cootamundra and Junee have similar populations (6885 and 5066 respectively), but in contrast to Temora, are growing slightly – especially Junee (ABS, 2021). Temora is expected to reverse its decline and grow slightly to 2050. The below charts indicate the ten-year demographic change from 2011 to 2021 in Temora.

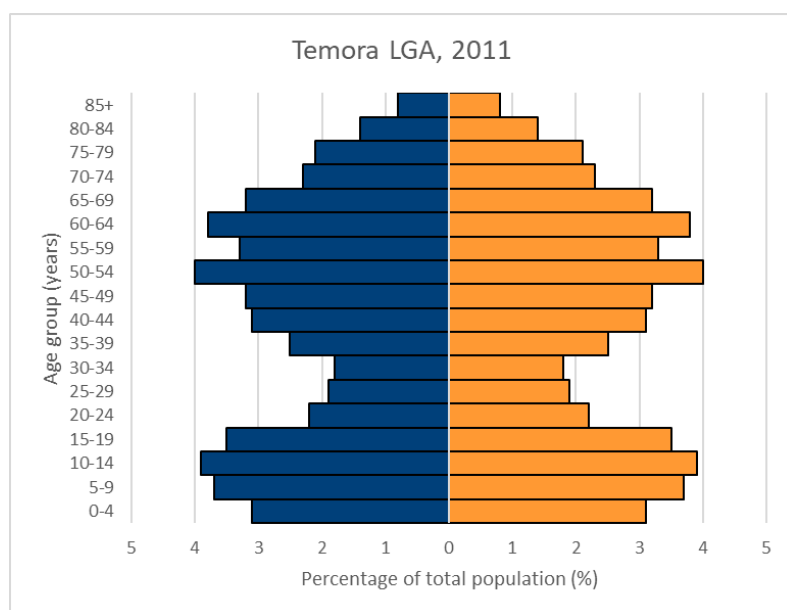


Figure A.1 Population pyramid, Temora LGA, 2011.

Source: ABS, 2011; Umwelt, 2024.

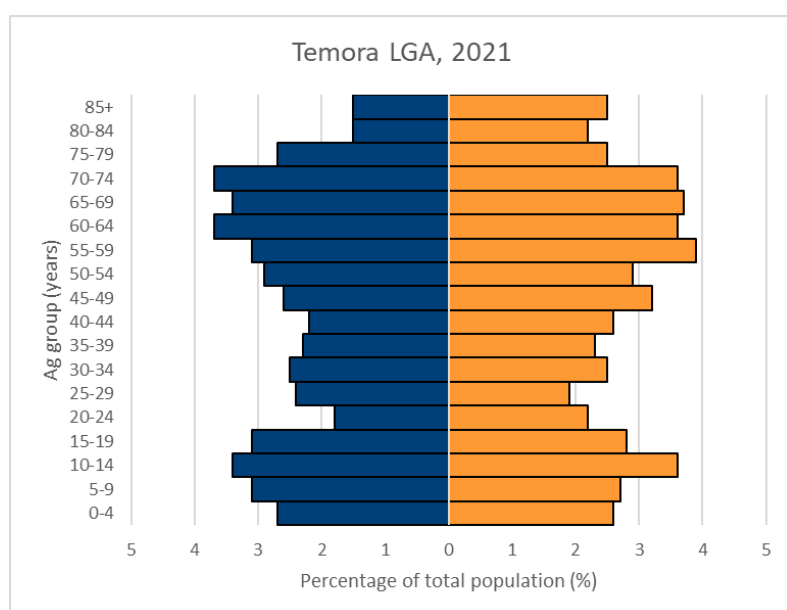


Figure A.2 Population pyramid, Temora LGA, 2021.

Source: ABS, 2021; Umwelt, 2024.

Median Age

Temora has a high median age of 48, increasing from 47 in 2016. This is compared to the NSW median age of 39 (ABS, 2021). Such data indicates an ageing population with a higher concentration of older residents. Nearby Cootamundra has an even higher median age of 51, increasing from 49 in 2016. This trend is reflected across much of rural and interior Australia (Davis & Bartlett, 2008). A rapidly ageing population presents issues for workforce participation, elder care and population growth. Junee has a much younger population than both Temora and Cootamundra, with a median age of 39 (on par with state average).

Wagga Wagga's is even lower, at 36, though this has increased since 2016 (ABS, 2021). **Figure A.1** and **Figure A.2** illustrate the ageing of Temora's population.

Indigenous Population and Population Trends

According to the 2021 Census, Temora LGA is home to 207 Aboriginal and/or Torres Strait Islander people, 182 of which live in the town proper (ABS, 2021). This is on par with the state average of roughly 3.4% of the broader population, but significantly lower than the surrounding areas of Junee, Cootamundra and Wagga Wagga (10.6%, 7.7%, and 7.0% respectively). However, whether or not due to increase in reporting, the reported Indigenous population across the social locality is rapidly increasing, with Temora SAL noting a 46% increase in Indigenous population between the 2016 and 2021 Census (ABS, 2016; ABS, 2021). Over the entire Wagga Wagga SA3 area, a 30.6% increase has been recorded, a figure consistent with Australia as a whole – in part due to gradual destigmatisation of Indigenous self-identification (Kelsey-Sugg, 2022).

Median Indigenous Age

Across NSW and Australia, the median Indigenous age is much lower than the general and non-Indigenous median age (ABS, 2021). Temora is no exception, with a median age for Aboriginal and Torres Strait Islander people of 22 (2021), lowering from 24 in 2016. Cootamundra and Junee have similar ages profiles, with a concentration of young Indigenous people identifying as such in the Census. Wagga Wagga's median Indigenous age is lower, at 21 (ABS, 2021). This is due to a number of factors which cannot be fully explored in this baseline, such as lower life expectancy, higher fertility rate, and recent sociopolitical shifts of more free self-identification of Indigenous status especially among the younger populace (Kelsey-Sugg, 2022).

Educational Attainment

Compared to the proportion of people who have attained a bachelor's degree or higher in NSW (23%), the proportion in Temora is quite low (9%). This figure is fairly consistent across nearby towns, though higher in Wagga Wagga (19.6%) – likely due to Charles Sturt University's presence in the city (ABS, 2021). In fact, the largest cohort by a significant margin in Temora are those whose highest educational attainment was Year 10 (828 persons), followed by Cert III (686) and Year 9 or below (500). There is a higher proportion of people whose highest level of educational attainment is Certificate III compared to NSW, but a lower proportion of Certificate IV holders. (ABS, 2021). CSU is partnered with RDA Riverina to create courses for skills related to renewable energy projects. Regional students are also benefited by the CSU/RDA schemes (RDA Riverina, 2024).

SEIFA Score

Related to educational attainment, the Socio-Economic Index for Areas (SEIFA) was used to calculate advantage and disadvantage in Temora and surrounds. Specifically, the Index of Relative Structural Advantage and Disadvantage (IRSAD), which considers factors such as household income, employment, and education, was used.

Temora SAL was in the 3rd decile for IRSAD, indicating a low level of advantage and high structural disadvantage. Cootamundra and Junee were even lower, at decile 2 and 1 respectively (ABS, 2021). Conversely, Wagga Wagga was relatively advantaged, in the 7th decile. This geographic divide reflects the concentration of structural advantage in regional cities in contrast to high levels of disadvantage in the surrounding regions. It is worth noting that, while Cootamundra's and Junee's IRSAD decile did not change between 2016 and 2021, Temora improved by one decile.

Health

Temora has a higher incidence of long-term health conditions than the state average, with 46.2% of the population recording one or more long-term health conditions on Census night 2021, compared to 39.0% for NSW (ABS, 2021). Temora has especially high rates of arthritis, asthma, cancer, diabetes and heart disease compared to NSW and Australia.

A.3 Cultural Capital

First Nations Heritage

Temora is located on Wiradjuri Country, the largest Aboriginal nation in NSW and second largest geographically on the continent (AustLit, n.d.). The town and region fall under the jurisdiction of the Young Local Aboriginal Land Council (LALC) and is geographically halfway between the Wagga Wagga and West Wyalong LALCs (NSWALC, n.d.).

Wiradjuri people have a strong and vibrant cultural history which continues today. Pre-colonisation, Wiradjuri carried out large-scale agricultural activity such as yam farming in the fertile alluvial soils of modern-day Bathurst and surrounds (Hambrett, 2018). The spread of pastoralism associated with settler-colonialism and the frontier wars led to vast violence and dispossession of Indigenous lands. Many current roads built by Europeans throughout Wiradjuri land are based on traditional tracks used by Indigenous people. Wiradjuri place names are being slowly restored by Indigenous elders and academics based on oral and written history.

There are currently no granted land claims in Temora LGA, or the other areas studied here, nor are there native title bodies in the region (AIATSIS, 2016). There is a major Indigenous Land Use Agreement (ILUA) located southeast of Temora, which is a separate legal entity from land claims and native title body corporates. The Tumut Brungle Area Agreement covers 8500 sq km including towns of Tumut and Gundagai, has been active since 1999, and relates to mining and exploration tenements (Native Title Tribunal, 1999). The closest native title claim is the Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan People native title grant, covering a significant area just north of Lake Cargelligo, about 200 km northwest of Temora (2.5-hour drive).

According to the Heritage Register, there are no designated Aboriginal Places (as defined by Environment and Heritage NSW) in Temora, Junee, or Cootamundra-Gundagai Regional LGAs (Environment and Heritage NSW). However, there are five designated Aboriginal Places in and around Wagga Wagga, plus one in The Rock, 30 km southwest of Wagga Wagga in Lockhart LGA (ibid.). It is also worth noting that physical heritage registers preference physical artefacts over intangible heritage, the latter of which is an inextricable and important part of Indigenous cultures (Harrison & Rose, 2010). Temora is home to Willo's Wiradjuri Keeping Place within the Bundawarra Centre, which stores a number of Wiradjuri artefacts and local knowledge (Visit Temora, n.d.).

European Heritage

The town of Temora was founded by European settler-colonial pastoralists in the mid-19th century – the origins of the town lie in an old pastoral station dating from 1847 (Visit Temora, n.d.). The second wave of immigration to Temora came with the gold rush of the late 19th century, whereby 20,000 new settlers moved to the town in 1880. After the gold rush waned, many residents left the town, but much of its early European architecture remains. It has many buildings in the Edwardian, Federation and Art Deco architectural styles (Visit Temora, n.d.).

The Temora LGA has over 150 listings on the State Heritage Register for its European colonial history. It also houses one item of State significance (Temora Railway Station group). The township itself holds 92 heritage-listed items. Of particular interest is the Temora Bulk Wheat Terminal, located just over the road from the Project Area.



Figure A.3 Heritage listed buildings in Temora.
Clockwise left to right: 169 Hoskins St; Temora Post Office; former Strand Theatre.

Source: Umwelt, 2024.

Cultural and Linguistic Diversity

Temora LGA has a low level of cultural and linguistic diversity, with 88.8% of its residents being born in Australia, and 92.2% of households using only English at home (ABS, 2021). Top countries of birth other than Australia include England (1.5%), Philippines (0.6%) and India (0.4%). Languages used at home other than English include Tagalog (0.6%), Punjabi (0.2%) and Cantonese (0.2%) (ABS, 2021).

A.4 Social Capital

Volunteerism

Like much of rural Australia, Temora has a high rate of volunteerism (ABS, 2021). However, also following broader rural Australia, this rate is rapidly declining. In 2021, 22.7% of the over-15 population undertook unpaid volunteer work in the past year, compared to 30.9% in 2016. Cootamundra followed a similar trajectory. Junee had a much lower volunteer rate, possibly in part due to its younger population (in line with the state average rate of volunteering, 13%). Volunteering in the community has been shown to increase social cohesion and in turn social capital (Bailey, Savage, & O'Connell, 2003; Abrams, Horsham, & Davies, 2023), so a rapidly falling rate of volunteerism could present issues for communities like Temora.

Housing mobility

Temora has a higher proportion of people who lived at the same address five years ago than the state average (67.6% compared to 61.2% respectively), this is an increase of 3% from 2016's census (ABS, 2021). This indicates a stable and well-established community with low levels of internal migration. Conversely, Wagga Wagga has a lower-than-state-average proportion of people who lived at the same address five years ago.

Household Structure

Temora has a higher proportion of single-person households than both the state average and the Wagga Wagga SA3 (34.3% compared to 25.0% and 28.4% respectively), resulting in a lower proportion of family and group (shared) households (ABS, 2021). This trend is increasing in Temora and may be indicative of its ageing population, considering the median age of Temora SAL is 48. The surrounding towns share similar characteristics to Temora.

The bulk of Temora's family dwellings consisted of couple families without children (47.1%), which is significantly higher than the state average of 37.9% (ABS, 2021). There were also slightly more single-parent families than the state average, though this fluctuated between nearby towns. Wagga Wagga's family structures were more closely aligned with NSW averages.

Sense of Place

The Shire of Temora website describes the community as an "ideal base" within the Riverina region and Wiradjuri Country due to its central location between capital cities and access to places such as Wagga Wagga and Griffith (Visit Temora, n.d.). The website adds that the town has an "active business community [and a] strong retail sector", giving it a lively sense of place for visitors and locals alike. Built on the heritage of the Shire as a hub of mining and then agriculture, the area has a strong rural character. Given canola farming is dominant in the Shire, and the popular tourist 'Canola Trail' linking Coolamon, Junee and Temora, canola plays a significant role in shaping the character of Temora (Canola Trail, n.d.). This is reflected in the dark green and golden colour scheme of the Visit Temora website (Visit Temora, n.d.).

A.5 Economic capital

Median Income

The median household income for Temora SAL in 2016 was \$1615 per week, somewhat under the NSW median of \$1829 but above neighbouring Cootamundra and Junee (\$1037 and \$1354 respectively) (ABS, 2021). Although all SALs were below median income, all three increased significantly since 2016. Temora in particular was pronounced, with its median household income increasing by 64.5%. Interestingly, the median household income for Temora LGA as a whole was much lower, at \$1203, exhibiting only a 16.5% increase. Thus, income growth was concentrated in the township, while the surrounding localities lagged. Wagga Wagga had a lower median household income than Temora, at \$1574 per week and a growth of 18.0% between 2016 and 2021.

Median Rent and Mortgage

All areas studied had median rent prices far below state median, potentially due to the skew of Sydney's extremely high prices (ABS, 2021). Nonetheless, they are increasing across the social locality. Temora's median rental payment in 2021 was \$240, up from \$183 in 2016. The 2021 median rent was \$220 in Cootamundra and \$260 in Junee. Wagga Wagga's median rent was higher, at \$300. **This is reflective of a broader state trend, as the NSW median rental payment has increased from \$380 in 2016 to \$420 in 2021.** Statewide, vacancy rates are low, reflective of the broader 'housing crisis' (Hutchens, 2024) which has complex and varying factors.

Interestingly, the median monthly mortgage repayment for Temora decreased slightly (\$1200 to \$1183), and the other SALs only increased slightly, this may be reflective of the high number of houses on the market that creates less competition. All were significantly below state median (\$2167) and the median in Wagga Wagga (\$1517).

Rental and Mortgage Stress

Across all regions, rental stress (defined as rent payments greater than 30% of household income) increased dramatically. Between 2016 and 2021, the proportion of households experiencing rental stress went from 7.5% to 29.9% (ABS, 2021). Similar ratios were seen in Cootamundra, Junee and Wagga Wagga, including SUA and SA3. This can be backed up by the increasing rent prices and lagging income growth (bar Temora). **This is reflective of a broader state trend, as the proportion of those in rental stress in NSW has increased from 12.9% in 2016 to 35.5% in 2021.**

Compared to rental stress, mortgage stress was much lower in Temora and surrounds (8.8% in Temora SAL). However, mortgage stress more than doubled since 2016, Cootamundra and Wagga Wagga also experienced a similar trend. Junee's mortgage stress also increased, however, at a lower rate. Considering mortgage repayments did not significantly increase from 2016 to 2021, this mortgage stress could be explained by stagnating household wages

Industries of Employment

The largest employer in Temora township was supermarket and grocery stores (**4.3%**), though in the broader LGA the category of grain-sheep or grain-beef cattle farming was higher (**5.1%**). Other major industries of employment in Temora were local government administration (**4%**), and aged care residential services (**4.2%**). In general, Temora LGA's employment trends reflect the region's status as a centre of agriculture. In Junee, the largest industries of employment were meat processing (**7%**), and correctional/detention services (**5.6%**) – due to the proximity of Junee Correctional Centre, and both a sheepyards and abattoir within the LGA. Wagga Wagga had a significant proportion of employment in hospitals (**5.7%**), with **Defence** following (**4.3%**). The third highest industry of employment was **other social assistance services** (**3.4%**).

Economic Diversity

In the township of Temora, the economic diversity is relatively high, with an even split of employment industries between supermarket/grocery stores, aged care, local government administration, and education. However, in the broader LGA, the workforce is fairly dependent on agriculture, with grain farming accounting for 11% of total workers. In Wagga Wagga, the hospital is a major employer, accounting for over 6% the SUA's workforce. Nonetheless, the area otherwise has relatively high economic diversity. This is important, for as a general rule, the more economically diverse a regions' industry, the more resilience that region has to economic shocks or downturns (Siegel, Johnson, & Alwang, 1995)

Support for Renewable Energy

There have been mobilised community responses against the proliferation of renewable energy projects in the Riverina for a number of reasons. One such example is the Riverina Sustainable Food Alliance (RSFA), a community organisation established in reaction against the presence of solar farms around Wagga Wagga such as Spark Renewables' Bomen Solar Farm – citing concerns regarding land devaluation, bushfire risk and loss of productive farmland (Mason, 2022). The RSFA has a list of solar farms they object to, also including the Mates Gully, Maxwell, and North Wagga solar farms (RSFA, n.d.)

A representative from RDA Riverina put the figure of renewables support in the region as '60-40' (for/against). They characterised support for renewables in the Riverina as being dependent on local long term material benefit, reassurance against the loss of farmland and agriculture, and not based on environmental concern.

Programs Targeting Workforce Shortages

RDA Riverina has multiple programs targeting younger workers in the Riverina to provide education, training and jobs. One such program, known as *Grow Our Own*, consists of a partnership between government agencies, businesses and education institutions working to connect prospective students with employment opportunities in high-demand industries (Grow Our Own, n.d.). The partnership provides pathways into TAFE, community college and local universities such as Charles Sturt, especially in fields such as engineering, trades and logistics (Grow Our Own, n.d.). This is especially pertinent considering the skills shortage, which is currently affecting much of regional Australia, the Riverina being no exception.

The 2021 *Riverina Skills Study* identified that of the top five occupations reporting difficulty filling vacancies in the Riverina, two were 'Engineering, ICT and Science Technicians' and 'Design, Engineering, Science and Transport Professionals'. The report notes that 48.26% of all vacancies in the past 12 months (to June 2021) were unable to be filled (Renkin & Bamerry, 2021).

It provides recommendations such as the following:

- **Develop strategies to retain youth in the regions**, such as building stronger social networks, changing narratives with schools and career advisors to emphasise the vibrancy and capacity of regions for career progression, and supporting education providers to develop courses which fill skills shortages.
- **Attract and retain workers** by promoting and celebrating diversity and inclusivity, addressing the image of regional work as low-skilled or itinerant by providing better job security and innovation, and developing place-based programs.
- **Better utilise skilled migration to fill workforce gaps** by encouraging pathways to permanent residency through workplace programs, streamlining visa processing, and building more welcoming communities which value cultural diversity.

A.6 Natural Capital

Land Use

Temora LGA is primarily cultivated agricultural land outside of the town of Temora and the small villages of Ariaiah Park and Springdale (Temora Shire Council, n.d.). Just southeast of the town is the GrainCorp Sub Terminal, an industrially zoned area which also the proposed site of the Project. Nearby there is some sparse woodland in the vicinity of Temora Golf Club. Apart from some nature reserves and pockets of woodland, the LGA is overwhelmingly farmland (Google Maps, 2024). For the Riverina region as a whole, which Temora is centrally located in, 79% of the land is agricultural, and 39% of total land use is for grazing (BOM, CSIRO & FarmLink, 2019).

National Parks and State Conservation Areas

There are no national parks in the LGA, with the nearest being Jindalee National Park 57 km (40 min drive) east, or the Weddin Mountains National Park, 83 km or an hour's drive northeast. However, there is Combaning State Conservation Area (SCA) in the far southeast of the LGA, 27 km from the town of Temora (Google, 2024). Closer, there is the large Ingalba Nature Reserve flanking the west of the township, between Temora and the locality of Pucawan. The north end of Ingalba also sites Big Bush Nature Reserve, to the northeast of Temora township. Aside from a few smaller pockets of nature reserve, such as Boginderra Hills to the northeast and Pucawan to the southwest, there is a distinct lack of bushland due to the extensive land clearing required for agriculture in the region.

Tourism websites and Temora Shire Council surveys have shown Temora's areas of natural beauty to be of high importance to both locals and visitors. An example of the value the community places in its outdoor spaces can be seen in the Canola Trail, a circular route between Temora, Junee and Coolamon which showcases the blossoming canola flowers of late winter (Elder, 2024).

Resource Deposits and Extraction Activities

There are no resource extraction activities currently occurring within Temora LGA, according to NSW Mining (NSW Mining, 2024). However, north of the Shire in neighbouring Bland LGA, there are two gold mines located close to the town of West Wyalong.

The area was historically a hub of gold mining during the late 19th century, with a gold discovery at Temora (pastoral) Station in 1869 in a rock outcrop; alluvial gold was later found in the flats around Temora, Sebastopol and the rest of the East Riverina (McQueen & Ashley, 2023). The Mother Shipton gold nugget, unearthed near Temora, was one of the largest nuggets ever discovered. The gold veins were never depleted, and further exploration was conducted during the gold prospecting revival era of the 1970s, finding significant deposits at Gidingbung Hill, 15 km north of Temora. No further extraction activities have occurred since then (McQueen & Ashley, 2023).

Climate

The Riverina region is known for its agriculture due to relatively fertile soils, predictable and adequate rainfall, and mild temperatures (BOM, CSIRO & FarmLink, 2019). However, due to climate change, the frequency of droughts and dry years has increased significantly since the middle of last century (ibid.). Winter frosts are more common now, and rainfall has decreased in autumn and spring months. Average temperatures have also increased, with the frequency of hot days dramatically increasing since 2004 (ibid.).

Values

The Shire of Temora Community Strategic Plan (*'Temora Tomorrow'*) identifies community-perceived strengths, weaknesses and future goals through a survey. Under the natural environment section, the plan identifies that the Temora community strongly value their parks, tidy streetscape, street trees and pedestrian accessibility.

A.7 Physical Capital

Service Hubs

Temora is located in the rural Riverina region of southern NSW. The nearest major urban centre with significant service provision is Wagga Wagga, which is 85 km south (1 hour drive). Major services provided in Wagga Wagga include sporting facilities, a 325-bed referral hospital, allied health services, a retail / shopping centre, defence force base, Charles Sturt University, and a TAFE as well as smaller tertiary institutions such as a fashion school and training course centre. Other nearby smaller towns include Junee (55 km or 40-minute drive south, Cootamundra (54 km or 40 min drive southeast), Stockinbingal (34 km or 26-minute drive east), Barmedman (36 km or 25 min drive northwest, and Coolamon (60 km or 40 minute drive southwest). All of the above towns are the same size or smaller than Temora (ABS, 2021; Google, 2024). Cootamundra and Junee both also house a TAFE campus.

Road Networks

Temora is well-serviced by road networks, being at the intersection of two major highways and two further arterial roads (B85 north-south, connecting West Wyalong in the north and Wagga Wagga in the south, B94 east-west, connecting Griffith in the west with Yass in the east, Milvale Road northeast to Young, and Old Cootamundra Road southeast to Cootamundra, respectively). By extension, Temora is connected directly to major centres further afield such as Albury-Wodonga and Canberra.

Rail Networks

Temora has a train station located just west of the town centre, however from 1986 has ceased operation, having since been converted to a youth and community centre in 2015 (NSW Heritage, 2015). The entire Lake Cargelligo railway line on which the Temora station lay has been discontinued and is in a state of partial disrepair. The nearest functioning passenger train station is in Junee, which lies on the east-west Southern NSW line. Junee is connected to Canberra, Melbourne and Sydney (via Goulburn) via rail (Google, 2024). For Temora, a bus operates between Temora and Wagga Wagga, travelling the 85 km distance in 1 hour. There is also a regional airport, but it currently serves a recreational aviation purpose with no regularly scheduled passenger flights, instead filling a small business, recreation and tourism role (Temora Shire Council, 2019).

In terms of freight, Temora continues to be well-serviced by rail. A line runs from Temora to the north west, meeting Wyalong and Lake Cargelligo. A more major line runs east-west, connecting from Leeton in the east to Cootamundra and onwards to Goulburn and the metropolitan east coast. The GrainCorp Sub Terminal, located adjacent to the Project Area, is an important hub for both routes. It provides grain storage and processing facilities for exporting the significant crop yield from the Riverina to the rest of NSW (GrainCorp, n.d.; Department of Infrastructure, Transport, Regional Development, Communications and the Arts, 2023).

Car Dependency

According to the 2021 Census, the suburb of Temora has 1.8 motor vehicles per dwelling on average – roughly on par with NSW – but a higher concentration of dwellings with 3 or more vehicles (ABS, 2021). This is potentially reflective of the town's proximity to agricultural activity and its rural location. On Census Day 2021, the percentage of people who travelled to work by car was 73.8%, far above the state average of 47.2%. More people than the state average walked to work, as well as commuting by truck. Very few used public transport, likely due to the lack of infrastructure (ABS, 2021). Therefore, Temora has a high rate of car dependency and relies strongly on its road network. This is important to consider when calculating construction traffic impacts within the Project scoping phase, as neither construction workers nor town residents can easily use alternative travel routes/methods if there is congestion or a blockage on the arterial roads servicing the town.

Motor Vehicle Accidents

Since 2018, there have been no motor vehicle related accidents on Old Cootamundra Road. During the same time frame in the wider LGA of Temora, there were six fatalities and eighty injuries (either minor, moderate or serious).

Accommodation and Housing Provision

Temora has around 18 traditional short-term accommodation providers (including hotels, motels and inns), plus a further five short-term stay options on the website Airbnb (Airbnb, 2024). As of August 2024, the combined vacancy rate for any given night is around 50% (Google, 2024; Booking.com, 2024).

Cross-checking properties for sale (excl. land) between major real estate aggregators Domain and Realestate.com.au provides an average number of 63 houses for sale (in September 2024). Checking between aggregators for rentals shows only 2 properties available for rent in the same week. This was a slight change from the same check conducted in August 2024, in 44 properties were available for sale and nine for rent (Domain, 2024; Realestate.com.au, 2024; Real Estate Investar, 2024). Thus, it can be seen that there is significant real estate availability for sale, but a very low availability of rentals. This corresponds to rates of rental stress and mortgage stress, respectively, as the scarcity of available rentals may be reflected by unaffordable rent price.

According to the ABS (2021), 22.6% of private dwellings were rented, equating to 541 dwellings. The current rental vacancy rate is 0.44%, historically low (Christopher, 2024; Real Estate Investar, 2024).

Tertiary Education

There are several primary schools in Temora and one high school, but no tertiary institutions. The nearest higher education institution is TAFE NSW in Cootamundra. There also TAFE campuses in Young (which also has a rural medicine campus) and Wagga Wagga, which is home to Charles Sturt University, the nearest university campus to Temora. It also houses satellite campuses of Notre Dame University and UNSW (Rural Clinical Campus). CSU Wagga Wagga does not offer renewable energy-related courses, but there is a Bachelor of Agricultural Science, and a Bachelor of Environmental Science and Management (Charles Sturt University, 2024). In Canberra, 207 km (2.5-hour drive) southeast, there is a concentration of tertiary education. In particular, Australian National University offers a Master of Engineering in Renewable Energy, and Master of Engineering in Energy Systems (Australian National University, 2024).

Health services

Temora has a hospital, officially the *Temora Health Service*, which has a 24-hour emergency department and 28 beds (19 acute care and 5 maternity). The hospital caters for surgery, obstetrics, pathology and radiology (NSW Government, n.d.). There is also a medical complex which opened in 2012, providing GP as well as visiting allied health services (Temora Medical Complex, n.d.).

Nonetheless, GPs are underrepresented in the Temora LGA compared to the state and national provision rate (100.1 vs 122.6 and 125.5 respectively). Nurses are adequately represented, with Temora LGA having 1,267.5 nurses per 100,000 people. The state provision rate is 1237.6, nationally 1433.7.

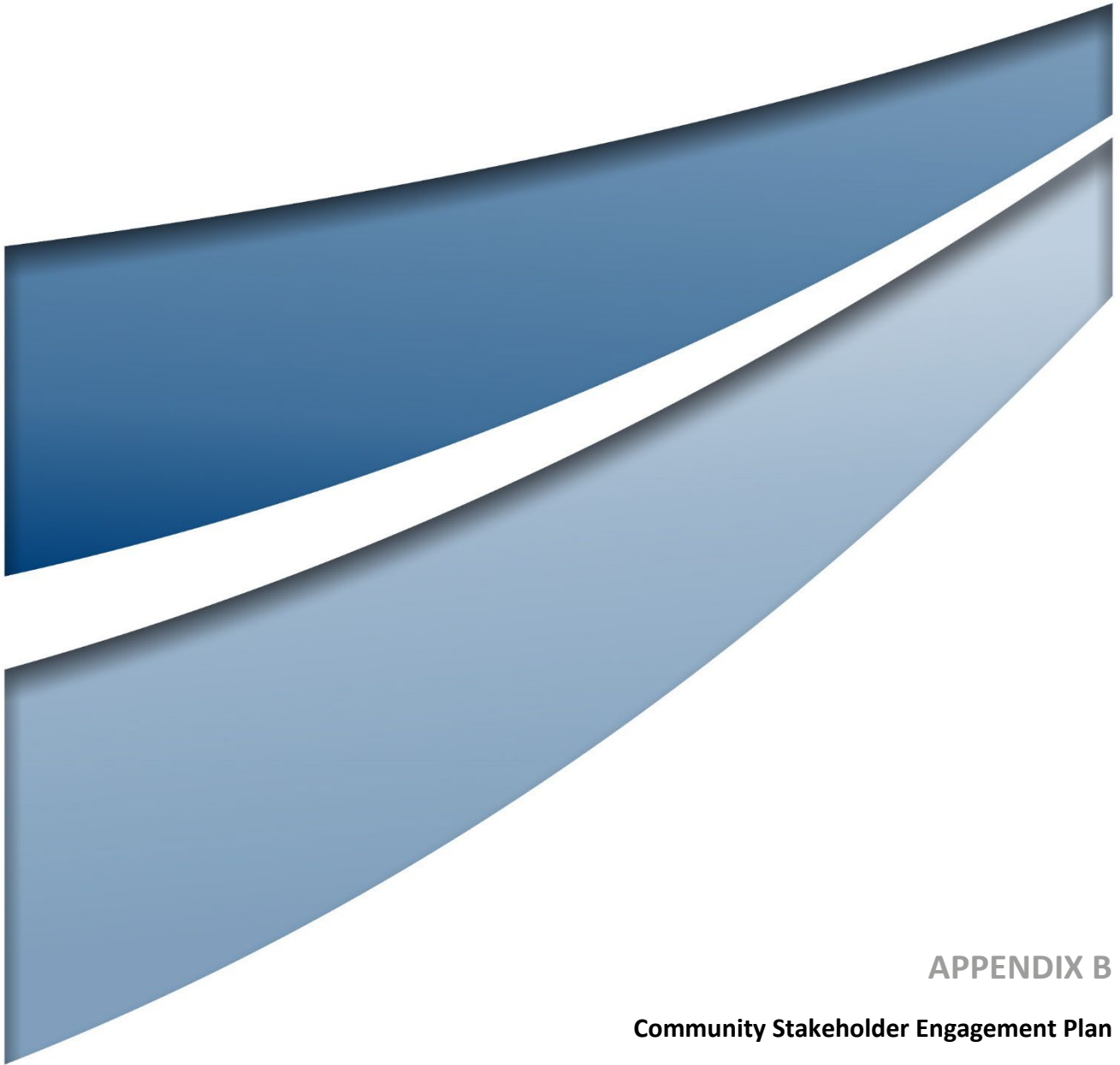
Nearby infrastructure

Directly bordering the Project Area on the north side is an electrical substation owned and managed by Essential Energy (Essential Energy, 2024). The BESS component will be constructed on Lot 2, DP 609354 with grid connection infrastructure traversing Lot 1, DP 609354 (collectively, the Project area), adjacent to the existing 132/66 kV Zone Substation, which the Project will connect to. **Figure A.4** indicates the substation's location in relation the Project Area.



Figure A.4 Location of Electrical Substation in Relation to Project Area

Source: Google, 2024; Umwelt, 2024.



APPENDIX B

Community Stakeholder Engagement Plan

B.1 Stakeholders

Table B.1 Stakeholder List

Stakeholder Group	Stakeholder	Reason for inclusion
Local government	Shire of Temora	Local political representation relevant to the Project. Local knowledge about the area and Project social locality which can inform its development.
Proximal residents	31 properties within social locality map, determined by border with freight train line, Old Cootamundra Road, Miners Street, Moroneys Lane and Ashelford Street. Temora Golf Club Temora Buses	Residents who live or own property in the Project's proximity who may experience impacts (positive or negative) relating to the Project's construction and/or operation. Two businesses operate within the social locality, the Golf Club and a bus charter company. As such they are included as proximal residents.
Aboriginal groups	Young LALC Wiradjuri Nation	The Wiradjuri people have an ongoing relationship with Country on which the Project is proposed to be built on. Young LALC is the governing body responsible for Temora. Traditional Owners have invaluable knowledge and are technical experts in cultural knowledge, as such they can inform the Project's development to ensure culturally valued and significant places and ideas are protected.
Community, environmental and special interest groups	Lions Club Temora Rotary Club of Temora Temora Landcare and Sustainable Network Bidgee Mid Landcare Network Temora Community Centre The Temora Independent Bundawarrah Centre	Local interest groups play a significant role in the social fabric of a place. Consultation with community groups will lead to an informed understanding of key values, needs and aspirations of the community, and how the Project may affect these. It also allows input into the Project design and planning process to minimise negative impacts and enhance opportunities.
Industry groups	Temora Business Enterprise Group (TBEG) RDA Riverina	TEBG is the active chamber of commerce representing local businesses in the town of Temora. Consultation with TBEG will allow for the collection of information about the operation of businesses and industries within the region, and how to maximise Project opportunities and benefits. RDAs (Regional Development Australia committees) are state government agencies responsible for developing community infrastructure and programs in Australia's regions. RDA Riverina is tasked with developing the Riverina and addressing strategic priorities.
Broader community	Residents of the town of Temora	- Consultation with the broader community will lead to an informed understanding of key values, needs and aspirations of the community, and how the Project may affect these. - It also allows input into the Project design and planning process to minimise negative impacts and enhance opportunities.

B.2 Engagement Implementation Plan

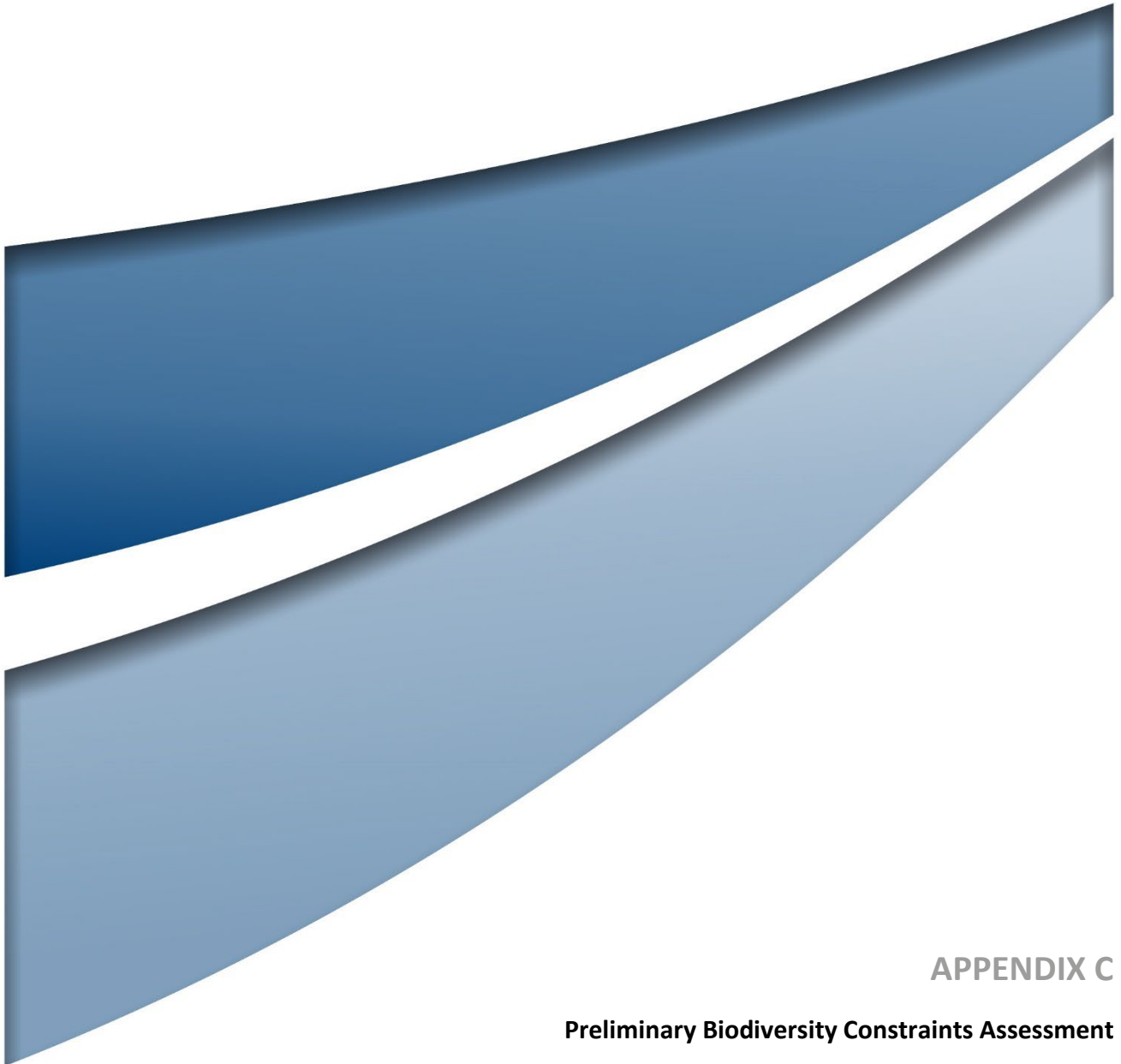
The following **Table B.2** provides an overview of the mechanisms used to engage stakeholders as part of the CSEP and broader SISR process. The CSEP underwent various iterations, so only the final version (reflective of actual engagement activities) is included.

Table B.2 Implementation Plan

Mechanism	Targeted Stakeholder Group	Objectives	Tasks and responsibilities	Timing
Key stakeholder interviews	Local government Proximal residents LALC Key community groups Environmental groups Chamber of commerce / RDA	Gather information and understand any concerns relating to social impacts from local community stakeholders. Discussion of potential enhancement and mitigation measures to address project impacts. Understanding the needs and desires of stakeholders.	Develop interview guides (Umwelt) Review interview guides (NHCE) Set up stakeholder interviews (Umwelt) Conduct interviews (Umwelt with NHCE attendance if desirable) Analyse engagement outcomes (Umwelt)	Temora Shire Council round 1 – W/C 20 May Proximal residents - W/C 1 July Temora Shire Council round 2– 2 September Other stakeholders: 2–3 September 2024 W/C 9 September
Telephone interviews	Community groups Proximal resident (golf club) LALC Environmental groups TBEG	Reach out to stakeholders not contacted during in-person visits to establish contact and build relationships. Receive feedback and input on preliminary project scoping.	Developer interview guides (Umwelt) Review interview guides (NHCE) Conduct interviews (Umwelt) Analyse engagement outcomes (Umwelt)	W/C 2 September W/C 9 September
Website	Broader community	Introduce the project and NHCE. Provide contact details and link to community survey. Advertise community information/drop-in session.	NHCE to develop Umwelt to provide guidance/ input	Live mid-July
Community survey	Broader community Proximal residents	Provide the opportunity for community members to provide feedback regarding the Project. Understanding the Project acceptance and social impacts. Identify project refinements and preliminary enhancement and mitigation measures.	Draft community survey based on reviewed CSEP (Umwelt) Review draft community survey (NHCE) Host survey on SurveyMonkey (Umwelt) Distribute community survey via newsletter and QR code at drop in session	Survey drafted W/C 1 August Upload to SurveyMonkey and published on NHCE website W/C 19 August Wider advertisement / distribution 19 September Further distribution via Temora Shire Council channels W/C 14 October

Mechanism	Targeted Stakeholder Group	Objectives	Tasks and responsibilities	Timing
Information Sheet #1 – introduction	Proximal residents	Provide an introduction to the proposed Project including site location, timeline, desired outcomes, and contact details to keep community members and groups well informed. Introduce NHCE. Provide an overview of the assessment process and how the community can get involved.	Draft text (Umwelt) Review text (NHCE) Design sheet (Umwelt) Organise printing and distribution (Via door knock)	Designed W/C 27 May Distributed W/C 1 July
Information Sheet #2	Proximal residents	Updated Project information mailed out to the entire catchment zone (Figure 2.3) – 31 addresses. Provides link to survey for community feedback, as well as Project team contact details.	Draft text (Umwelt) Review text (NHCE) Design sheet (Umwelt) Mail out to social locality (NHCE)	Designed W/C 19 August Distributed W/C 16 September
Newspaper advertisement	Broader community Community groups	Provide an introduction to the proposed Project including site location, timeline, desired outcomes, and contact details to keep community members and groups well informed. Introduce NHCE. Provide an overview of the assessment process and how the community can get involved. Link to website and community survey.	Draft ad (Umwelt) Review text (NHCE) Design ad (Umwelt) Organise distribution (via Temora Independent)	Reviewed W/C 19 August Designed W/C 26 August Distributed W/C 16 September





APPENDIX C

Preliminary Biodiversity Constraints Assessment

PRELIMINARY BIODIVERSITY CONSTRAINTS ASSESSMENT

Temora Battery Energy Storage System

FINAL

November 2024



PRELIMINARY BIODIVERSITY CONSTRAINTS ASSESSMENT

Temora Battery Energy Storage System

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
North Harbour Clean Energy Pty Ltd

Project Director: Nathan Baker
Project Manager: Caitlin Adcock
Technical Director: Bill Wallach
Technical Manager: Claire Vincent
Report No. 24266/R03
Date: November 2024



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

Acknowledgement of Country

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

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Bill Wallach	11 November 2024	Nathan Baker	11 November 2024

Abbreviations

Abbreviation	Definition
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i> NSW
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BoM	Bureau of Meteorology
BVMTT	Biodiversity Values Map Threshold Tool
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DoEWA	Department of the Environment, Water, Heritage and the Arts
EAH	Environment Agency Head
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i> NSW
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> Cth
FM Act	Fisheries Management Act 1994
GDE	groundwater dependent ecosystem
IBRA	Interim Biogeographic Regionalisation for Australia
LEP	Local Environment Plan
LGA	Local Government Area
LLS Act	<i>Local Land Services Act 2013</i> NSW
LLS Regulation	Local Land Services Regulation 2014
MNES	Matters of National Environmental Significance
MW	Megawatts
NHCE	North Harbour Clean Energy Pty Ltd
NSW	New South Wales
NVR	Native Vegetation Regulatory Mapping
PCT	Plant Community Type
PMST	Protected Matters Search Tool
SAII	Serious And Irreversible Impacts
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development
SVTM	State Vegetation Type Map
TBDC	BioNet Threatened Biodiversity Data Collection
TEC	threatened ecological community
TSC Act	Threatened Species Conservation Act 1995
Umwelt	Umwelt (Australia) Pty Limited

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1.0 Introduction

1.1 Background

North Harbour Clean Energy Pty Ltd (NHCE) (the Applicant) propose to develop the ‘Temora Battery Energy Storage System’ (BESS) (the Project) in Temora, New South Wales (NSW).

The Project will increase the energy storage capacity within the National Energy Market (NEM), allowing for the provision of reliable and affordable energy to NSW and supporting the transition from coal-fired power generation to renewable energy sources. The Project will involve the construction, operation and decommissioning of the BESS, including any necessary ancillary infrastructure.

The Project will comprise the construction, operation and decommissioning of a large-scale BESS located at Lot 2 / DP 609354, with potential grid connection electrical infrastructure traversing Lot 1, DP609354 (collectively the Project Area), in the Temora Shire Council Local Government Area (LGA), approximately 1 kilometre (km) south east of Temora, NSW (**Figure 1.1**).

The capacity for the Project is expected to be up to 50 megawatts (MW) / 200 megawatt hours (MWh), with an Estimated Development Cost (EDC) of \$100 million.

The Project aligns with the strategic needs of the Commonwealth and NSW Governments as it will play a critical role in delivering affordable, reliable energy in NSW by storing surplus energy during times of excess supply and releasing energy during peak demand periods. Furthermore, the Project would contribute capital investment, generate jobs during the construction and operational phases and provide indirect benefits to local services throughout the life of the Project.

Battery systems help maintain reliable and affordable energy supply, especially in times of peak demand and assist in the reduction of the frequency of blackouts and need for load shedding in instances where there is an imbalance. The Project will also provide grid support services, assisting in stabilising the transmission of electricity through the grid as NSW transitions from traditional energy generation to clean energy generators. As such, the Project supports Commonwealth and NSW commitments to increase renewable energy generation and reduced carbon emissions by increasing the resilience of the grid during the transition to renewable energy.

Umwelt has been engaged by NHCE to prepare this Biodiversity Constraints Assessment (BCA) to document the outcomes of desk and field-based investigations conducted for the Project. This document will support the Scoping Report submitted to the NSW Government – Department of Planning, Housing and Infrastructure (DPHI) for the Project’s Request for NSW Planning Secretary’s Environmental Assessment Requirements (SEARs).

1.2 Purpose and Objectives

This BCA provides a summary of the biodiversity constraints identified for the Project, either through a review of existing information (e.g. environmental databases, regional mapping etc.) and biodiversity field survey. This information was sought by NHCE to assist with adequately planning and the design of an indicative layout and associated disturbance footprint of the Project to avoid and minimise impacts to biodiversity. The information documented herein is preliminary only and any guidance is limited to known potential impacts, anticipated biodiversity assessment requirements and compliance obligations. As outlined in this report, further biodiversity survey would be required in subsequent planning pathway phases, with a detailed assessment of potential impacts occurring in support of a subsequent Environmental Impact Statement (EIS).

Note: At the time of the biodiversity field survey the location of the transmission line and substation bay were not available, hence were not surveyed. This BCA refers only to the area surveyed. The maps, however, have been updated with the latest Project Area.

1.2.1 Contributing Authors

The BCA was prepared by the following Umwelt personnel with a description of their role and responsibilities provided In **Table 1.1**.

Table 1.1 Project staff, Roles and Responsibilities

Project Staff (Title)	Roles and Responsibilities
Bill Wallach (Principal Ecologist)	Technical Director, BCA review
Clare Vincent (Senior Ecologist)	Technical Manager, BCA preparation, Biodiversity field survey
Michael Jones (Ecologist)	BCA preparation
Bryce Miller (Ecologist)	Biodiversity field survey
Nathan Baker, Principal Consultant	Project Director, BCA review
Caitlin Adcock, Principal Consultant	Project Manager, BCA review

1.3 Project Overview

The Project will comprise the construction, operation and decommissioning of a large-scale BESS, supported by ancillary infrastructure. As noted above, the capacity for the Project is expected to be up to 50 megawatts (MW) / 200 megawatt hours (MWh).

The key components of the Project include:

- **Batteries:** containerised Lithium-Ion Batteries.
- **Grid Connection:** the Project is anticipated to connect to the existing Temora Zone Substation, from an onsite substation. An extension of the existing Temora Zone Substation will likely be required, including installation of a new bay and associated electrical equipment. The feeders that will connect the BESS to the new bay at the Temora Zone Substation may be overhead line or underground cable. The grid connection design will be refined during the grid connection process.

- **Minor Upgrades:** to the existing access point, and removal of an on-site existing building structure, including access and egress via Miners Street.
- **Ancillary Infrastructure:** including temporary construction facilities, security fencing, permanent site office / operations and maintenance (O&M) buildings, internal access roads, parking areas, hardstands, and Project signage.
- **Changes to Existing Electrical Infrastructure:** Potential relocation of existing electrical cables in the Project Area.

The Project is located within the Temora Shire Council LGA, approximately 1 km south east of the main Temora town centre. The primary address of the Project is 108 Miners Street, Temora NSW 2666. The main BESS components are situated on Lot 2, DP 609354 immediately adjacent the existing Essential Energy Temora 132/66 kV Substation. Potential grid connection electrical infrastructure will traverse Lot 1, DP609354 (collectively, the Project Area). The Project Area is approximately 3.86 ha. The proposed BESS is approximately 3.6 ha and is located on undeveloped land which has been historically cleared, it is situated on agricultural land, presently used for sheep agistment. The proposed transmission line and substation bay is approximately 0.26 ha and is wholly within zone SP2 Infrastructure.

The Project Area consists of an undulating to relatively flat topography, ranging from between 90 and 100 m above sea level (ASL). No waterbodies occur within the Project Area.

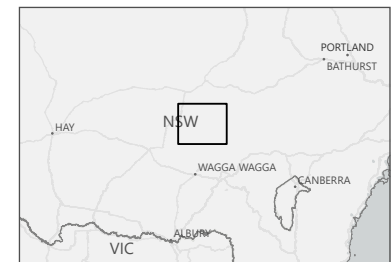
The Project Area is located close to existing electrical infrastructure, the Temora Zone Substation. Lot 2, DP609354 that forms the BESS component of the Project Area is zoned RU1 Primary Production. Most of the land that surrounds the Project is also zoned RU1 Primary Production, however the land to the north is zoned SP2 Electrical Infrastructure, and to the east is SP1 Intensive Plant Agriculture. This accounts for the Temora substation and GrainCorp sub terminal, respectively. Potential grid connection electrical infrastructure would traverse Lot 1, DP609354 and be situated on lands zoned as SP2 Electrical Infrastructure. The eastern boundary of the Project Area is adjacent to Old Cootamundra Road and its associated verges. Access to the Project Area by trucks or overmass vehicles is expected to be facilitated via Miners Street from the east. Miners Street is an unsealed road that connects Old Cootamundra Road, Junee Road and across to Mansfield Road. There may be a requirement to upgrade this access as part of the Project.

The regional context, indicative Project layout and land use zoning are presented in **Figure 1.1** to **Figure 1.4** below.

FIGURE 1.1
Regional Context



- Legend
- Project Boundary
 - Local Government Area
 - Road
 - Railway Line
 - River/Stream
 - Electricity Transmission Line



0 5 10

Kilometres
Scale 1:350,000 at A4
GDA2020 MGA Zone 55

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FIGURE 1.2
Project Area

Legend

-  Project Boundary
-  Existing Structure (to be removed)
-  Road
-  Railway Line



Metres

Scale 1:2,500 at A4
GDA2020 MGA Zone 55

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FIGURE 1.3
Indicative Development
Footprint

Legend

-  Project Boundary
-  Indicative Disturbance Area
-  Proposed On-Site Substation
-  Proposed Site Access
-  Potential Connection
-  Existing Substation Boundary
-  Electricity Transmission Line
-  Road
-  Railway Line



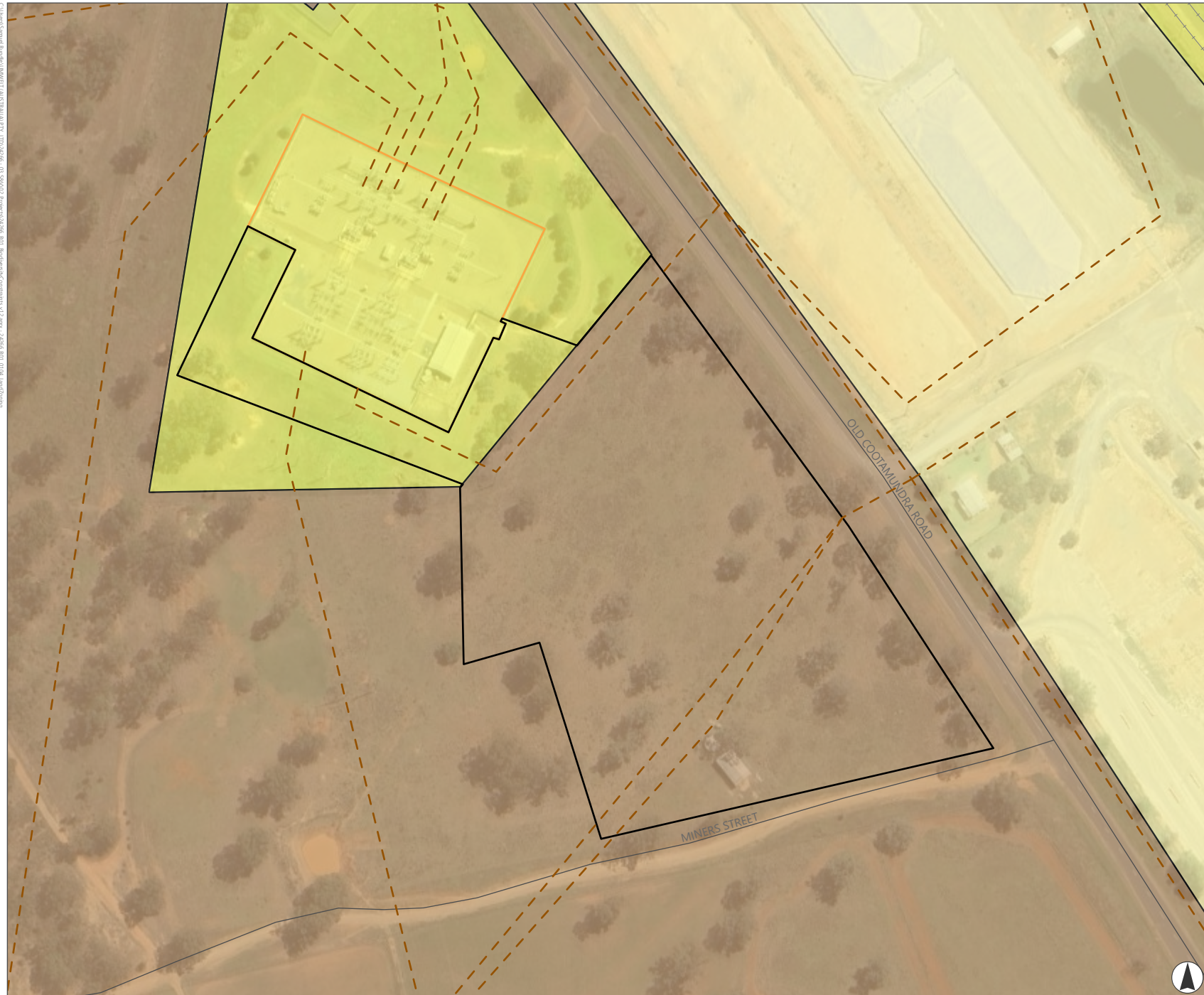
Metres

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Figure 1.4
Land Zoning



Legend

- Project Boundary
- Existing Substation Boundary
- Electricity Transmission Line
- Road
- Railway Line

Land Zoning

- RU1 - Primary Production
- SP1 - Special Activities
- SP2 - Infrastructure



0 25 50

Metres

Scale 1:2,500 at A4
GDA2020 MGA Zone 55

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1.4 Statutory Considerations

1.4.1 Permissibility

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) are the primary legislation that regulate land use planning and development assessment in NSW. This legislation is supported by a range of environmental planning instruments, including State Environmental Planning Policies (SEPP) and Local Environmental Plans (LEP).

Division 4 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) applies to development for the purposes of electricity generating works or solar energy systems. Electricity generating works are defined in Clause 2.35 as:

- *‘a building or place used for the following purposes, but does not include a solar energy system –*
 - *(a) making or generating electricity,*
 - *(b) electricity storage’.*

Development permitted with consent is defined in Clause 2.36(1) as:

- *‘Development for the purpose of electricity generating works may be carried out by any person with consent on the following land –*
 - *(a) 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*
 - *(b) in any other case—any land in a prescribed rural, industrial or special use zone.’*

The Project Area is located within the Temora Shire Council LGA on land zoned as RU1 Primary Production and SP2 Infrastructure. In accordance with Clause 2.36(1)(b), the Project is therefore permissible with development consent under the provisions of the Transport and Infrastructure SEPP.

1.4.2 State Significant Development

Section 4.36 of the EP&A Act provides for the declaration of a project as SSD. The declaration of a project as SSD under Section 4.36 of the EP&A Act can be by meeting the requirements of a SEPP or by the Minister for Planning.

Clause 2.6 of the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) states that:

- *‘Development is declared to be State significant development for the purposes of the EP&A Act if:*
 - *(a) The development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
 - *(b) The development is specified in Schedule 1 or 2’.*

As noted above the Project is not permissible without development consent. Schedule 1, Clause 20 of the Planning Systems SEPP declares development for the purpose of electricity generating works and heat or co-generation, it says:

- *‘Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that—*
 - *(a) has 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 of State significance’.*

The Project is considered to meet the definition of SSD under Clause 2.6 of the Planning Systems SEPP, as the Project would be for electricity generating works on land that is permitted with development consent under Clause 2.36(1)(b) of the Transport and Infrastructure SEPP and has an EDC greater than \$30 million. Development consent for the Project is therefore being sought in accordance with Part 4, Division 4.7 of the EP&A Act.

Commonwealth and State Legislation relevant to this biodiversity constraints assessment report is described in **Table 1.2**.

Table 1.2 Legislation Relevant to the Project

Relevant Legislation	Governing Agency	Summary
Commonwealth Legislation		
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	Commonwealth Department of Climate Change, Energy, the Environment and Water (Commonwealth DCCEEW)	The EPBC Act is the Commonwealth Government's primary piece of environmental legislation and is administered by the Commonwealth DCCEEW. It is designed to protect national environmental assets, known as Matters of National Environmental Significance (MNES), which include threatened species of flora and fauna, endangered ecological communities, and migratory species, as well as other protected matters. It defines the categories of threat for threatened flora and fauna, identifies key threatening processes and provides for the preparation of recovery plans for threatened flora, fauna, and communities. Actions that may adversely affect MNES may be deemed to be a controlled action under the EPBC Act. The significance of the proposed action on MNES can be determined through self-assessment using Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (Department of the Environment, Water, Heritage and the Arts, 2013). A referral is required for proposed actions that may affect nationally listed threatened species, threatened ecological communities, and migratory species. It is considered likely that the Project would require a referral under the EPBC Act as part of the environmental approvals process. The Biodiversity Assessment Method (BAM) has been endorsed as the assessment method for MNES under a Bilateral Agreement made under the EPBC Act. The Australian Government is the decision-maker for whether the Project will be approved under the EPBC Act.
State Legislation		
<i>Environmental Planning and Assessment Act 1979 (EP&A Act)</i>	DPHI	The EP&A Act is the overarching planning legislation in NSW that provides for the creation of planning instruments that guide land use, refer information above relating to permissibility and SSD designation. The EP&A Act also provides for the protection of the environment, including the protection and conservation of native animals and plants. This includes threatened species, populations and ecological communities, and their habitats of biodiversity values as listed in the BC Act and NSW <i>Fisheries Management Act 1994</i> (FM Act). The EIS anticipated to be prepared for the Project would need to meet the necessary environmental assessment requirements under the relevant provisions of the EP&A Act.

Relevant Legislation	Governing Agency	Summary
<i>Biodiversity Conservation Act 2016 (BC Act)</i>	NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW)	The BC Act and its supporting regulations commenced on 25 August 2017. The BC Act repealed the <i>Threatened Species Conservation Act 1995</i> (TSC Act) along with other natural resource management legislation, while retaining the TSC Act species list. The BC Act sets out the environmental impact assessment framework for threatened species, threatened ecological communities and Areas of Outstanding Biodiversity Value (formerly critical habitat) for Major Projects, Part 5 activities, and local development. Sections 7.9 of the BC Act requires that an application of development under Part 4 of the EP&A Act for State Significant Development (SSD) must be accompanied by a Biodiversity Development Assessment Report (BDAR) prepared by an accredited assessor in accordance with the BAM (DPIE, 2020), unless Planning Agency Head (PAH) and the Environment Agency Head (EAH) determine that the proposed development is not likely to have any significant impact on biodiversity values. The potential impacts associated with the Project are such that the PAH and EAH will likely consider them significant, and a BDAR be required.
<i>Local Land Services Act 2013 (LLS Act)</i>	Local Land Services (LLS)	The LLS Act, supported by the Local Land Services Regulation 2014 (LLS Regulation), established 11 regional LLS organisations to provide biosecurity, natural resources management and agricultural advisory services. Under Part 5A of the LLS Act and the supporting regulation, and Native Vegetation Regulatory Mapping (NVR Map) showing the extent of categorised land in NSW is to be published by the EAH. The NVR Map underpins the legislative framework for native vegetation clearing in rural areas by categorising land in NSW. However, the map applies only to the following zones (if they are not in an excluded LGA): Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU5 Primary Production Small Lots and Zone RU6 Transition. Currently, various map categories have been released under staged transitional arrangements. The online transitional NVR Map viewer currently displays a) Excluded Land, b) Category 2 – vulnerable regulated land and c) Category 2 – sensitive regulated land. Category 1 – exempt land and Category 2 – regulated land maps have not yet been publicly released. A draft NVR Map was initially published for 11 LGAs in October 2022. The second stage of the draft NVR Map release has now been published to cover all areas in the Riverina and Murray LLS regions. Unlike the transitional NVR Map, the draft NVR Map view displays all land categorised defined under the LLS Act. The draft map does not have legal effect - that is, it does not impose any new legal obligations and is not binding. Proponents that obtain the draft NVR Map layer may either adopt the mapping or undertake surveys to determine their own mapping. The unpublished draft NVR Map layer has been used to inform land categorisation mapping for this project.

Relevant Legislation	Governing Agency	Summary
<i>Biosecurity Act 2015</i>	Department of Primary Industries and Regional Development	The <i>Biosecurity Act 2015</i> replaced the <i>Noxious Weeds Act 1993</i> on 1 July 2017. The Biosecurity Act is a wide-ranging legislation that outlines the requirements of government, councils, private landholders, and public authorities in the management of biosecurity matters. Priority weeds are regulated under the Biosecurity Act with a general biosecurity duty to prevent, eliminate or minimize any biosecurity risk they may pose. Some priority weeds have additional management obligations which may apply generally, or under specific circumstances. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised as is reasonably practicable.

2.0 Methodology

This BCA is based on the outcomes of various methods relating to biodiversity constraints for the Project. These methods are described in the sections below.

2.1 Desktop Assessment

A review of relevant public databases and literature was undertaken to identify threatened and migratory species, endangered populations, threatened ecological communities (TECs) and their habitats that have previously been recorded within the locality (a 10 km radius around the Project Area).

Threatened species, migratory species, endangered populations and TECs (listed under BC Act and EPBC Act) that have the potential to occur within the locality were also considered based on the type of habitat present and the NSW bioregions within which the Project Area occurs.

The database searches conducted are listed in **Table 2.1** below.

Table 2.1 Desktop Searches

Desktop Search
Interim Biographic Regionalisation of Australia (IBRA) version 7
Mitchell Landscapes
Biodiversity Values Map Threshold Tool (BVMTT)
Important Habitat Mapping
NSW Sharing and Enabling Environmental Data (SEED) mapping
Bureau of Meteorology (BoM) Groundwater Dependent Ecosystems Atlas
Priority Weeds as listed under the NSW Biosecurity Act 2015 within the Local Land Service area, and Weeds of National Significance (WoNS)
BioNet Atlas (10 km buffer)
Atlas of Living Australia
A search of the National Flying-fox monitoring viewer accessed by the DCCEEW Interactive Flying-fox Web Viewer.
Draft Native Vegetation Regulatory Mapping (NVR)
BioNet Vegetation Classification
Protected Matters Search (PMST) Matters of National Environment Significance (MNES) (10 km buffer)
BioNet Threatened Biodiversity Data Collection (TBDC).

2.2 Vegetation Mapping

Regional mapping, specifically NSW State Vegetation Type Map (SVTM) – Riverina C2.0M2.0 (DPE 2019), was considered to inform the assessment of the vegetation communities present within the Project Area. Vegetation mapping was prepared in a Geographic Information System (GIS) and packaged for use in the field on a mobile device. The SVTM provided a means of identifying areas most likely to have TEC. The mapping also assisted in identifying general patterns of vegetation occurrence, that result from land clearing, land management, rainfall gradients and soils.

For the purposes of this report, the SVTM was adopted as the baseline mapping for the Project.

2.3 Biodiversity Field Survey

A biodiversity field survey was undertaken by two Umwelt ecologists on 23 and 24 May 2024.

The objective of the biodiversity field survey was to validate the accuracy of the desktop assessment, with a primary focus on PCTs, TECs and suitable or potential habitat for threatened species of flora and fauna. The biodiversity field survey included the following:

- Walking meandering transects.
- Rapid vegetation assessments.
- Fauna habitat assessments (marking any fallen timber, hollow bearing trees, nests, rocks, mistletoe if present).
- Three (3) BAM vegetation integrity plots.

The biodiversity field survey was undertaken within the Project Area and the adjacent roadsides, along Miners Road and Old Cootamundra Road (refer to **Figure 2.1** below summarising the survey effort undertaken).

During the biodiversity field survey, presence of habitat sufficient to support any BC Act and/or EPBC Act listed threatened and/or migratory species was recorded. Examples of such habitat features included hollow bearing trees (HBTs), nests, rocks and fallen timber. An incidental fauna list was also created (**Appendix C**).

FIGURE 2.1
Survey Effort



Legend

- Project Boundary
- Area Surveyed
- Fallen Timber
- Hollow Bearing Trees
- Rapid Vegetation Assessments
- BAM Plots



0 25 50

Metres

Scale 1:1,750 at A4
GDA2020 MGA Zone 55

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2.3.1 Limitations of the Biodiversity Field Survey

Prior to Umwelt completing the biodiversity field survey, the full extent of the Project Area that did not support trees (i.e. grasslands) had been recently tilled (refer to **Figure 3.2**). Tillage is the agricultural preparation of soil by mechanical agitation, such as digging, stirring, and overturning. Essentially, the soil surface layer is overturned and, in the process, any present vegetation (exotic or native) is significantly disturbed. After tillage, the soil was seeded with clover (*Trifolium* spp.) which is an exotic species often used as a pasture grass in agriculture.

During the biodiversity field survey, photos were taken of the tilled land and notes were taken to document any disturbed vegetation that was still present and readily identifiable.

This tilling activity is a limitation to the assessment of biodiversity constraints for the Project Area as the identification and condition assessment of vegetation present in the disturbed areas was not possible. Accordingly, Umwelt has applied a precautionary approach for the assessment of biodiversity constraints in the disturbed areas, concluding that the vegetation may have supported derived native grasslands prior to the tilling activity occurring. It should be noted that it is also distinctly possible that the disturbed vegetation was already highly degraded from being exposed to a long history of similar land use activities and therefore may have been non-native vegetation.

A subsequent biodiversity field survey is required to accurately survey and assess the condition of the derived grasslands, which would need to occur after the soil had reasonable time to settle and the vegetation had adequate time to recover from the disturbance. This additional biodiversity survey would occur during the EIS.

2.4 Likelihood of Occurrence Assessment

A likelihood of occurrence assessment was carried out for all the threatened species, populations and TECs considered as part of the desktop assessment as potentially occurring in the Project Area. The likelihood of occurrence assessment was used to refine the results of the desktop assessment. The likelihood of occurrence assessment was revisited after the field surveys were carried out once the habitat values in the Project Area were better understood.

The likelihood of threatened species, populations, TECs and migratory species occurring within the Project Area was assessed against the criteria outlined in **Table 2.2** below.

Table 2.2 Likelihood of Occurrence Assessment Criteria

Likelihood	Criteria
Recorded	The species was observed in the study area during the current survey.
High	It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (i.e., for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10 km) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration.

Likelihood	Criteria
Moderate	Potential habitat is present in the Project Area. Species unlikely to maintain sedentary populations, however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitat within the Project Area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded.
Low	It is unlikely that the species inhabits the Project Area and has not been recorded recently in the locality (10 km). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the Project Area, or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded.
None	Suitable habitat is absent from the Project Area.

2.5 Constraints Mapping

The BESS section of the Project Area was delineated into biodiversity constraint categories of low, moderate, low-moderate, and high as defined in **Table 2.3**.

Table 2.3 Biodiversity Constraint Categories

Biodiversity Constraint Category	Details	Mapping Colour
Low biodiversity constraints	Negligible likelihood of biodiversity constraints and therefore any Project impacts proposed in this category is unlikely to impact on biodiversity. This biodiversity constraint category includes: - No areas of native vegetation, and/or - No areas of environmental constraint such as riparian areas, and/or - No areas of suitable habitat for threatened species such as but not limited to roosting, nesting, refuge habitat, and/or - No areas of known, incidentally recorded or likely listed threatened or migratory species, threatened populations, threatened ecological communities, or their habitats.	Green
Low – moderate biodiversity constraint	‘Potential likelihood of biodiversity constraints and therefore any Project impacts proposed in this category has the potential to impact on low – moderate constrained biodiversity values. Further survey required after regrowth of tilled area.	Yellow
Moderate biodiversity constraints	‘Orange’ areas are equivalent to some likelihood of biodiversity constraints requiring further consideration or assessment of potential impacts, these areas include: - Areas of native vegetation, and/or - Areas of environmental constraint such as riparian areas, and/or - Some likelihood of areas of potential listed threatened or migratory species, threatened populations, threatened ecological communities; or their habitats.	Orange

Biodiversity Constraint Category	Details	Mapping Colour
	Some likelihood of potential habitat for protected or threatened or migratory species, threatened populations or threatened ecological communities; or their habitats, and/or	
High biodiversity constraints	'Red' areas equivalent to some likelihood of biodiversity constraints requiring further consideration or assessment of potential impacts (may include some criteria listed in 'Orange' above): - Areas considered suitable habitat for threatened species, and/or - Areas of known, incidentally recorded or highly likely listed threatened or migratory species, threatened populations, threatened ecological communities, or their habitats. It is considered likely that most areas of high biodiversity constraints are considered an area of potential 'environmental significance'.	Red

3.0 Existing Environment

3.1 Landscape Context

The Project Area occurs within the BioNet NSW Landscape Frampton Hills and within the NSW South Western Slopes IBRA Bioregion - Lower Slopes IBRA Sub-region. The NSW South Western Slopes IBRA Bioregion is an extensive area of foothills and isolated ranges comprising the lower inland slopes of the Great Dividing Range extending from north of Cowra through southern NSW into western Victoria (NSW National Parks and Wildlife Service, 2003). The bioregion extends from Albury in the south to Dunedoo in the northeast. This bioregion is dominated by sub-humid climate characterised by hot summers and no dry season.

The biodiversity field survey confirmed an undulating landscape with red loamy soil, with single paddock trees and small patches of trees.

3.2 Biodiversity Values Map

The Biodiversity Values (BV) map identifies land with high biodiversity value that is especially sensitive to impacts from development and clearing. Land types included on the BV include:

- coastal wetlands and littoral rainforest mapped under the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP)
- core koala habitat identified in a plan of management under State Environmental Planning Policy No 44 – Koala Habitat Protection (SEPP 44)
- declared Ramsar wetlands defined by the EPBC Act
- land containing threatened species or threatened ecological communities identified as potential serious and irreversible impacts (SAII) under section 6.5 of the BC Act
- biodiverse riparian land
- high conservation value grasslands or groundcover
- old growth forest identified in mapping developed under the National Forests Policy Statement but excluding areas not meeting the criteria published jointly by the Minister of the Environment and the Minister for Primary Industries
- rainforest identified in mapping developed under the National Forests Policy Statement but excluding areas not meeting the criteria published jointly by the Minister for Energy and Environment and the Minister for Primary Industries
- declared areas of outstanding biodiversity value
- council nominated areas with connectivity or threatened species habitat that the Minister for Energy and Environment considers will conserve biodiversity at bioregional or state scale
- any other land that in the opinion of the Environment Agency Head is of sufficient biodiversity value to be included.

The Project Area does not contain any items mapped under the BV mapping.

3.3 Important Habitat Mapping

For a small number of threatened species as detailed within the TBDC, Section 5.1.3 of the Biodiversity Assessment Method (BAM) allows for important habitat maps. Important habitat maps identify areas that are considered essential to support critical life stages of the species, for example breeding areas or locations important for foraging or over-wintering for migratory species. Currently, important habitat maps are provided for the following species:

- Swift Parrot (*Lathamus discolor*)
- Plains-wanderer (*Pedionomus torquatus*)
- Regent Honeyeater (*Anthochaera phrygia*)
- Migratory Shorebirds.

The Project Area is not within an area of important habitat mapping.

3.4 Land Categorisation

Umwelt completed a desktop analysis to inform land categorisation of the Project Area. This process was also supported by the biodiversity field survey to assess the validity of desktop findings and ground-truth the vegetation present in the Project Area.

Results of the land categorisation assessment concluded the Project Area (aside from the existing structure situated in the south) is Category 2 Land.

3.5 Priority Weeds

A search of the Department of Primary Industry (DPI) Priority Weeds in the Riverina region was conducted. One priority weed of the Riverina occurred in the Project Area, African boxthorn (*Lycium ferocissimum*).

3.6 Potential Vegetation Communities

3.6.1 Plant community Types

The baseline vegetation mapping (NSW State Vegetation Type Map (SVTM) – C2.0M2.0) (December 2023) suggested one PCT to occur within the Project Area, being PCT 76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western slopes and Riverina Bioregions.

The biodiversity field survey suggested the vegetation present at the Project Area was inconsistent with PCT 76 based on its description on the BioNet Vegetation Classification system.

The treed vegetation at the Project Area supported a canopy co-dominated by white box (*Eucalyptus albens*) and inland grey box (*Eucalyptus microcarpa*). PCT 76 however does not identify white box as a characteristic species.

Small-leaf bluebush (*Maeriana microphylla*), wingless fissureweed (*Maireana enchylaenoides*), fuzzweed (*Vittadinia cuneata*), and red grass (*Bothriochloa macra*) were present in the Project Area. These species are present in the BioNet Vegetation Classification system for PCT 267 but are not present in the PCT 76. Winter Apple (*Eremophila debilis*) was also present as part of the vegetation, though it occurred adjacent to the Project Area, this species is part of PCT 267 but not part of PCT 76.

Based on the vegetation recorded and assessed during the biodiversity field survey, PCT 267 White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion was identified within the Project Area.

The Project Area contained single paddock trees and small open-woodland patches of trees, surrounded by the tilled derived grasslands (**Figure 3.1**). A patch of open-woodland occurs along the eastern boundary of the Project Area, extending into the adjacent roadside corridor. A flora species list is provided in **Appendix A**.

The derived grasslands beyond the extent of the tree canopies (paddock trees and open-woodland patches) are where the tillage activity occurred. The tilled area contained a cover of native and exotic tussock grass, exotic forbs and bare ground with rooted and uprooted vegetation (**Figure 3.2**).

The PCT and TEC is mapped in **Figure 3.3**. It should be noted that this mapping is preliminary and would require further surveys once there has been a suitable time since tilling occurrence to allow for vegetation recovery.



Figure 3.1 Representative PCT 267 woodland patch with rocks obvious in foreground due to tillage



Figure 3.2 Four photos representing tilled and non-tilled areas

FIGURE 3.3

Plant Community Type and TEC

Legend

-  Project Boundary
-  Area Surveyed
-  EPBC Act TEC
-  BC Act TEC
-  PCT 267
-  Existing Structure (to be removed)



0 25 50

Metres

Scale 1:1,750 at A4
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3.6.2 Threatened Ecological Communities

After the biodiversity field survey, two TECs were determined as having a moderate or higher likelihood of occurrence within the Project Area (**Table 3.1**). The information considered for this determination includes the following:

- Location -NSW South Western Slopes IBRA Bioregion, Lower Slopes IBRA Sub-region Lower Slopes.
- Tree species presence - remnant white box (*Eucalyptus albens*) and grey box (*Eucalyptus macrocarpa*).
- Understorey species presence – high cover of native tussock grass such as Spear grass (*Austrostipa* spp.), small-flowered wallaby grass (*Rytidosperma* spp.), red grass (*Bothriochloa macra*). Presence of windmill grass (*Chloris truncata*), climbing saltbush (*Einadia nutans*), Berry Saltbush (*Einadia hastata*), fuzz weed (*Vittadinia cuneata*), corrugated sida (*Sida corrugata*) and wattle mat-rush (*Lomandra filiformis*).

Note, the tilled areas prevented the ability to determine the vegetation condition of this area. Further survey is needed. As such, a precautionary approach has been taken for this report, assuming the entire Project Area is BC Act TEC.

Table 3.1 TEC's Potentially Occurring in the Project Area

PCT	BC Act/EPBC Act	Estimated Preliminary Area (ha)
267 White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	BC Act - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Critically Endangered Ecological Community [CEEC]).	3.6 ha
	EPBC Act - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (CEEC).	0.9 ha

3.6.3 Bureau of Meteorology (BoM) Groundwater Dependent Ecosystems Atlas

Groundwater dependent ecosystems (GDEs) rely on the presence of groundwater to function and sustain the resident assemblage of species, populations, and ecological communities.

A search of the Groundwater Dependent Ecosystem (GDE) Atlas GDE Atlas (BoM 2024) found no Terrestrial or Aquatic GDEs mapped within the Project Area.

3.7 Threatened Flora

The desktop review of the Commonwealth PMST (**Appendix B**), NSW BioNet Wildlife (**Appendix D**), ALA (**Appendix E**) identified nine flora species to be considered for their likelihood of occurrence in the Project Area. No threatened flora species were recorded during the biodiversity field survey.

Table 3.2 Likelihood of Occurrence – Threatened Flora

Common Name (Scientific Name)	Source	EPBC Act	BC Act	Entity with Potential for SAIL	Likelihood to Occur within the Project
A Spear Grass <i>Austrostipa metatoris</i>	PMST	V	V	N	Low – Project Area not in Murray Valley. No records.
A Spear Grass <i>Austrostipa wakoolica</i>	PMST	E	E	N	Low – Project Area does not contain required habitat. No records.
Sand-hill Spider-orchid <i>Caladenia arenaria</i>	PMST	E	E	Y	Low – Soil on site not sandy. No records.
Pine Donkey Orchid <i>Diuris tricolor</i>	BAM	-	V	N	Low – No records.
Spiny Peppercress <i>Lepidium aschersonii</i>	PMST, ALA, BioNet	V	V	N	Low – No habitat for this species is present within the Project Area. Historical records.
Winged Peppercress <i>Lepidium monoplacoides</i>	PMST	E	E	N	Low – No habitat for this species is present within the Project Area.
Small Purple-pea <i>Swainsona recta</i>	BAM	E	E	N	Low – Marginal habitat. No records.
Silky Swainson-pea <i>Swainsona sericea</i>	BAM	-	V	N	Low – Marginal habitat. No records.
Slender Darling-pea <i>Swainsona murrayana</i>	PMST	V	V	N	Low – No records.

Vulnerable (V), Endangered (E).

3.8 Threatened Fauna

There were 14 hollow bearing trees (HBTs) identified within the Project Area ranging from <2.5 cm up to 30 cm diameter. Fallen timber was present though scarce. Scattered rocks were present throughout the Project Area, obvious in tilled areas (**Figure 3.4**). An incidental fauna list was created (**Appendix C**). No threatened fauna species were identified during the biodiversity field survey.



Figure 3.4 **Hollow bearing tree, fallen timber and rocks**

The desktop review of the NSW BioNet Wildlife (**Appendix D** and **Figure 3.5**), ALA (**Appendix E**) and Commonwealth PMST (**Appendix A**) identified 39 fauna species to be considered for their likelihood of occurrence on the Project Area (**Table 3.3**). Following careful consideration, five threatened fauna species are assessed as having a moderate or higher likelihood of occurrence in the Project Area.

Table 3.3 Likelihood of Occurrence – Threatened Fauna

Common Name (Scientific Name)	Source	EPBC Act	BC Act	BC Act Entity with Potential for SAI	Likelihood to Occur within the Project
Mammals					
Corben's Long-eared Bat <i>Nyctophilus corbeni</i>	PMST, ALA	V	V	N	Low – Recorded species sightings (ALA) outside 10 km. Species prefers large stands of suitable vegetation.
Squirrel Glider <i>Petaurus norfolcensis</i>	BioNet, BAM	-	V	N	Moderate – suitable habitat with HBT within and adjacent to Project Area, but absence of midstorey foraging habitat. One BioNet record within 4 km in 2023.
Koala <i>Phascolarctos cinereus</i>	PMST, BAM	E	E	N	Low – No records within 10 km. Closest record 30 km away.
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	PMST, BAM, ALA	V	V	N	Low – in-land habitat requires nearby river systems for roost locations. Closest breeding camp approximately 70 km away. Closest large population recorded occurs in Wagga Wagga. No records.
Birds					
Magpie Goose <i>Anseranas semipalmata</i>	BioNet	-	V	N	Low – No suitable habitat within Proposal Area (no waterbodies). One record.
Regent Honey-eater <i>Anthochaera phrygia</i>	PMST, BAM	CE	E	Y	Low - No BioNet records within 10 km.
Southern Whiteface <i>Aphelocephala leucopsis</i>	PMST, ALA	V	V	N	Low – May be an occasional visitor to Project Area. No confirmed recent records within 10 km.
Dusky Woodswallow <i>Artamus cyanopterus cyanopterus</i>	BioNet	-	V	N	Moderate – Appropriate woodland vegetation is present within the Project Area for this species. 3 BioNet species, the latest in 2008 approximately 6.5 km.
Australasian Bittern <i>Botaurus poiciloptilus</i>	PMST	E	E	N	Low – no habitat for this species occurs within the Project Area. No records.
Bushstone Curlew <i>Burhinus grallarius</i>	BAM		E	N	Low – Associated with PCT 267. No records.
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	PMST	V	~	N	Low – no habitat for this species occurs within the Project Area. No records.
Curlew Sandpiper	PMST	CE	E	Y	Low – no habitat for this species occurs within the Project Area. No records.

Common Name (Scientific Name)	Source	EPBC Act	BC Act	BC Act Entity with Potential for SAI	Likelihood to Occur within the Project
<i>Calidris ferruginea</i>					
Gang-gang Cockatoo <i>Callocephalum fimbriatum</i>	BAM	E	E	N	Low – Project Area is at the far western edge of its range. No records.
South- eastern Glossy Black-Cockatoo <i>Calyptorhynchus lathami lathami</i>	PMST	V	~	N	Low – No recent records of this species occur within close proximity to the Project Area. No foraging habitat is within the Project Area.
Spotted Harrier <i>Circus assimilis</i>	ALA, BioNet	-	V	N	Moderate – suitable habitat. Recent ALA records within 10 km. Historic BioNet record within 10 km.
Brown Treecreeper <i>Climacteris picumnus victoriae</i>	PMST, BioNet, ALA	V	V	N	High – This species readily utilises the vegetation type within the Project Area. This species has been recorded extensively within close proximity (3.3 km) including in 2023 in adjacent woodland (ALA), and within 5.9 km in BioNet.
White-fronted Chat <i>Epthianura albifrons</i>	ALA, BioNet	-	V	N	Low – no habitat for this species occurs within the Project Area. Historic record.
Grey Falcon <i>Falco hypoleucos</i>	PMST, ALA	V	V	N	Low – While it may transit through the landscape, this species is unlikely to utilise the Project Area due to the recorded vegetation type, proximity to urban centre, and small area of the Project Area. ALA record within 10 km (undated and location protected - generalised to 10 km).
Black Falcon <i>Falco subniger</i>	ALA,		V	N	Moderate – 5 recent ALA records within 10 km.
Latham's Snipe <i>Gallinago hardwickii</i>	PMST, ALA	V	-	N	Low – Recent record within 10 km, however, no habitat for this species is contained within the Project Area.
Painted Honeyeater <i>Grantiella picta</i>	PMST, ALA	V	V	N	Low – no mistletoe was recorded within the Project Area which this species requires. Historical records.
Little Lorikeet <i>Glossopsitta pusilla</i>	ALA	-	V	N	Low – no recent records.
Little Eagle <i>Hieraaetus morphnoides</i>	BioNet, ALA	-	V	N	Moderate - Suitable habitat. Historic BioNet record 2.1 km away. BioNet record from 2019 within 4 km.

Common Name (Scientific Name)	Source	EPBC Act	BC Act	BC Act Entity with Potential for SAI	Likelihood to Occur within the Project
White-throated Needle-tail <i>Hirundapus caudacutus</i>	PMST, ALA	V	V	N	Low – This species may occasionally transit through or over the Project Area but it is unlikely to utilise it frequently. Records of this species (ALA) within the local landscape (outside 10 km) indicate it frequents nearby reserves.
Swift Parrot <i>Lathamus discolor</i>	PMST, BAM, ALA	CE	E	Y	Moderate – Not mapped within important habitat map. The Project Area contains the appropriate foraging vegetation for this species. Three ALA records within 10 km (one historic, two with no date).
Mallee Fowl <i>Leipoa ocellata</i>	PMST, ALA	V	E	N	Low – The Project Area is on the edge of this species' habit range, and the low shrub coverage of the Project Area is not favoured by this species. All dated records (ALA) are over 50 years old.
Pink Cockatoo <i>Lophochroa leadbeateri leadbeateri</i>	PMST, BioNet, ALA	E	~	N	Low - on the far eastern edge of this species' range. This species may occasionally transit through or over the Project Area but it is unlikely to utilise it frequently. Two recent records (ALA) have been recorded within 10 km however the records are generalised to 10 km. BioNet record from 2022 8.3 km away.
Square-tailed Kite <i>Lophoictinia isura</i>	BAM	-	V	N	Low – preferred habitat not present. No records.
South-eastern Hooded Robin <i>Melanodryas cucullata cucullata</i>	PMST, ALA, BioNet	E	~	N	Low– suitable vegetation is present within the Project Area however the records within 10 km are historical. for this species. Historic BioNet record (1997) approximately 2.1 km, and ALA record 1971 within 10 km.
Black-chinned Honeyeater <i>Melithreptis gularis</i>	ALA	V	~	N	Low – marginal habitat (Project Area is scattered paddock trees not a woodland). There are 3 ALA records within 10 km (2 with no date and one 1977 historic record).
Blue-winged Parrot <i>Neophema chrysostoma</i>	PMST	V	~	N	Low- This species may occasionally transit through or over the Project Area but it is unlikely to utilise it frequently. No records.
Barking Owl <i>Ninox connivens</i>	BioNet	-	V	N	Moderate - suitable habitat. HBTs in Project Area. Two BioNet records, one historic, one from 2022 approximately 4 km away.
Plains Wanderer <i>Pedionomus torquatus</i>	PMST	CE	E	Y	Low – no habitat for this species is present within the Project Area. No records.
Superb Parrot <i>Polytelis swainsonii</i>	PMST, BioNet, ALA, BAM	V	V	N	High – The Project Area contains appropriate vegetation for this species (white box) and is within the core range of this species. Several BioNet records, the closest non rehabilitation record was from 2023 approximately 2.5 km away.

Common Name (Scientific Name)	Source	EPBC Act	BC Act	BC Act Entity with Potential for SAI	Likelihood to Occur within the Project
Grey crowned Babbler <i>Pomatostomus temporalis temporalis</i>	BioNet	-	V	N	Moderate - suitable habitat. BioNet records historical, the most recent 2003 8.7 km.
Australian Painted Snipe <i>Rostratula australis</i>	PMST	E	E	N	Low – no habitat for this species is present within the Project Area.
Diamond Firetail <i>Stagonopleura guttata</i>	PMST, ALA	V	V	N	Moderate - The Project Area contains appropriate vegetation for this species and is within the core range of this species. Records (ALA) within 10 km are historical, 3 records have no dates.
Eastern grass Owl <i>Tyto longimembris</i>	BioNet	-	V	N	Low – Outside of range. One BioNet record from 2023 approx. 4 km away.
Masked Owl <i>Tyto novaehollandiae</i>	BAM	-	V	N	Low – HBTs present. No records.
Amphibians					
Sloane's Froglet <i>Crinia sloanei</i>	PMST	E	E	N	Low – outside species range. No water bodies within or near project area.
Growling Grass Frog <i>Litoria raniformis</i>	PMST	V	E	N	Low - no water bodies within or near project area.
Reptiles					
Pink-tailed Worm Lizard <i>Aprasia parapulchella</i>	PMST, BAM	V	V	N	Moderate – no known records within close proximity to Project Area. Suitable habitat present, within known distribution.
Fish					
Trout Cod <i>Maccullochella macquariensis</i>	PMST	E	-	-	Low – no habitat for this species.
Macquarie Perch <i>Macquaria australasica</i>	PMST	E	~	-	Low – no habitat for this species.

Vulnerable (V), Endangered (E), Critically Endangered (CE).

3.9 Migratory Species

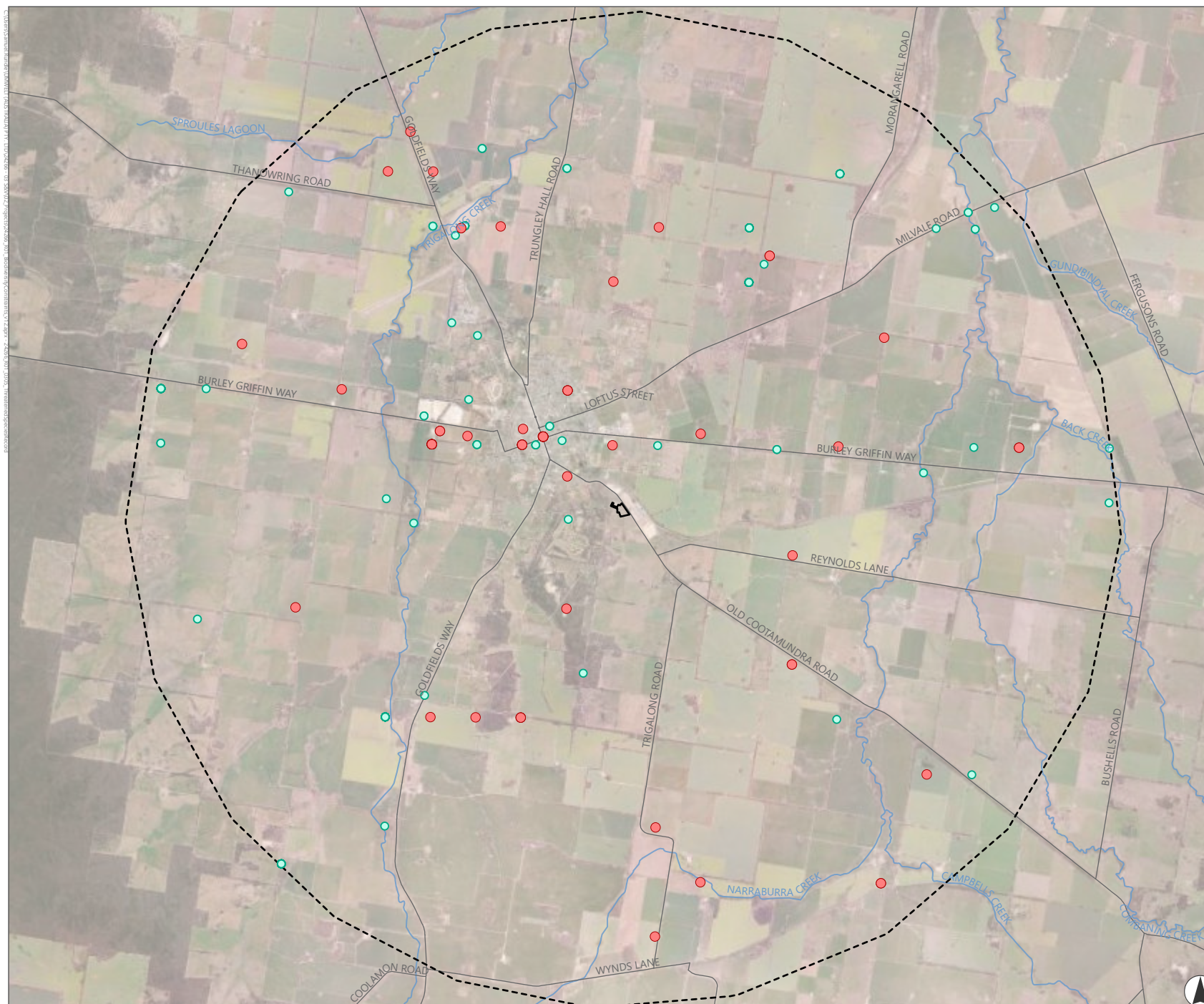
The desktop review of the PMST, BioNet and ALA searches identified nine migratory species to be considered for their likelihood of occurrence on the Project Area (**Table 3.4**). Following careful consideration, none are assessed as having a moderate or high likelihood of occurrence in the Project Area.

Table 3.4 Migratory Potentially Occurring in the Project Area

Species Name	Source	EPBC Act	BC Act	BC Act Entity with Potential for SAIL	Likelihood to Occur within Project Area
Fork-tailed Swift <i>Apus pacificus</i>	PMST	M	-	-	Low – This species is unlikely to be found within the Project Area. No records within 10 km.
White-throated Needle-tail <i>Hirundapus caudacutus</i>	PMST	M	V	Y	Low – This species may occasionally transit through or over the Project Area but it is unlikely to utilise it frequently. No records within 10 km. Records of this species (ALA) within the local landscape (outside of 10 km) indicate it frequents nearby reserves.
Yellow Wagtail <i>Motacilla flava</i>	PMST	M	-	-	Low - No records of this species within 10 km of the Project Area.
Satin flycatcher <i>Myiagra cyanoleuca</i>	PMST	M	-	-	Low – No records within 10 km. No habitat for this species occurs within the Project Area.
Common Sandpiper <i>Actitis hypoleucos</i>	PMST	M	-	-	Low – No records within 10 km. No habitat for this species occurs within the Project Area.
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	PMST	M	-	-	Low – No records within 10 km. No habitat for this species occurs within the Project Area.
Curlew Sandpiper <i>Calidris ferruginea</i>	PMST	M	E	Y	Low – No records within 10 km. No habitat for this species occurs within the Project Area.
Sharp-tailed Sandpiper <i>Calidris melanotos</i>	PMST	M	-	-	Low – No records within 10 km. No habitat for this species occurs within the Project Area.
Latham's Snipe <i>Gallinago hardwickii</i>	PMST	M	-	-	Low – No habitat for this species is contained within the Project Area.

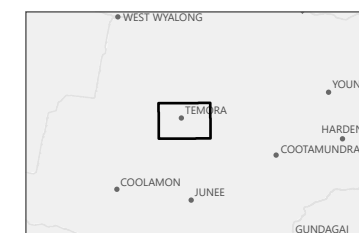
Migratory (M).

FIGURE 3.5
Threatened Species Record



Legend

-  Project Boundary
-  ALA Results
-  Bionet Results
-  10km buffer
-  River/Stream
-  Road



Scale 1:110,000 at A4
GDA2020 MGA Zone 55

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4.0 Threatened Species Survey Requirements

All BAM assessments require extensive field surveys, including the collection of floristic data, vegetation mapping and targeted seasonal species-credit species surveys. Seasonal requirements for threatened species surveys can be variable and up to a year is usually required to cover all predicted species-credit species survey periods. The exact survey requirements are driven by specific species and extent of habitat. The Biodiversity Assessment Method Calculator (BAMC), BioNet Atlas records, and PMST was used to derive a list of candidate species that would likely require survey and assessment in accordance with the BAM. These species and their associated suitable survey season(s) are detailed in **Table 4.1** and **Table 4.2**.

Table 4.1 Flora Species-credit Species Survey Requirements

Common Name (Scientific Name)	BC Act	EPBC Act	Habitat Constraints	Geographic Limitations	Entity with the potential for SAII	Search	Survey Period											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pine Donkey Orchid <i>Diuris tricolor</i>	V		-	-	N	BAM												
Small Purple--pea <i>Swainsona recta</i>	E	E	-	-	N	BAM												
Silky Swainson-pea <i>Swainsona sericea</i>	V		-	-	N	BAM												

Table 4.2 Fauna Species-credit Species Survey Requirements

Common Name (Scientific Name)	BC Act	EPBC Act	Habitat Constraints	Geographic Limitations	Entity with the potential for SAI	Search	Survey Period											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Squirrel glider <i>Petaurus norfolcensis</i>	V		-	-	N	BAM												
Koala <i>Phascolarctos cinereus</i>	E	E	Presence of koala use trees - refer to Survey Comments field in TBDC	-	N	BAM												
Bushstone Curlew <i>Burhinus grallarius</i>	E		Fallen/standing dead timber including logs	-	N	BAM												

Common Name (Scientific Name)	BC Act	EPBC Act	Habitat Constraints	Geographic Limitations	Entity with the potential for SAI	Search	Survey Period											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gang-gang cockatoo <i>Callocephalon fimbriatum</i> (breeding)	V	E	Hollow bearing trees Eucalypt tree species with hollows at least 3 m above the ground and with hollow diameter of 7 cm or larger.	-	N	BAM												
Little Eagle <i>Hieraetus morphnoides</i> (breeding)	V	-	Nest trees – live (35 occasionally dead) large old trees within vegetation.	-	N	BAM, BioNet												
Square-tailed Kite <i>Lophoictinia isura</i> (breeding)	V	-	Nest trees	-	N	BAM												
Barking Owl <i>Ninox connivens</i>	V	-	a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground	-	N	BAM												
Superb Parrot <i>Polytelis swainsonii</i> (breeding)	V	V	Living and dead E. blakelyi, E. melliodora, E. albens, E. camaldulensis, E. microcarpa, E. polyanthemos, E. mannifera, E. intertexta, E. bridgesiana	-	N	BAM												

Common Name (Scientific Name)	BC Act	EPBC Act	Habitat Constraints	Geographic Limitations	Entity with the potential for SAI	Search	Survey Period											
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Masked Owl <i>Tyto novaehollandiae</i>	V	-	a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground	-	N	BAM												
Pink-tailed Worm-lizard <i>Aprasia parapulchella</i>	V	V	Rocky areas. Or withing 50 m	-	N	BAM, PMST												

5.0 Biodiversity Constraints Mapping

The desktop assessment and biodiversity field survey were used to assign the biodiversity constraint mapping categories within the Project Area. This assessment considers the Project Area to support the following extent of constraint categories (**Table 5.1**).

Table 5.1 Biodiversity Constraints

Biodiversity Constraints	Area (ha)
High	
EPBC Act - White Box-Yellow Box-ha (Blakely's Red Gum Grassy Woodland and Derived Native Grassland (CEEC),	0.86 ha (24% of BESS section of the Project Area)
BC Act - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (CEEC).	0.86 ha (24% of BESS section of the Project Area)
Moderate – Potential BC Act TEC, potential habitat for threatened species	
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions CEEC.	0.05 ha (1% of the BESS section of the Project Area)
Low- moderate – Potential BC Act TEC, potential habitat for threatened species. (This is based on the precautionary approach given the tillage limitation)	
Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions CEEC.	2.69 ha (74% of BESS section of the Project Area)
Low - No areas of known, incidentally recorded or likely listed threatened or migratory species, threatened populations, TECs, or their habitats	
Infrastructure (Shed and tank).	0.04 ha (1% of BESS section of the Project Area)

FIGURE 5.1
Biodiversity Assessment
Constraints

Legend

-  Project Boundary
-  Area Surveyed
-  Hollow Bearing Trees
-  Road

Ecology Constraints Mapping

-  High
-  Moderate
-  Low-Moderate
-  Low



0 25 50

Metres

Scale 1:1,750 at A4
GDA2020 MGA Zone 55

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6.0 Potential Impacts

The BAM requires the assessment of discrete types of impacts on biodiversity values resulting from proposed development during both construction and operational phases. The types of impacts requiring assessment are as follows:

- **Direct impacts:** impacts on biodiversity values and threatened species habitat that relate to clearing native vegetation and impacts on biodiversity values prescribed by the BC Regulation.
- **Indirect impacts:** impacts that occur when the proposal affects native vegetation and threatened species habitat beyond the development footprint or within retained areas (e.g. transporting weeds or pathogens, dumping rubbish).
- **Prescribed impacts:** means the prescribed impacts identified in clause 6.1 of the BC Regulation. Prescribed impacts can be direct or indirect impacts.
- **Serious and irreversible impacts (SAIL):** impacts likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct in accordance with the principles set out in clause 6.7(2) of the BC Regulation.

Based on the findings of the BCA, the potential impacts to biodiversity from the Project are detailed in **Table 6.1** below.

Table 6.1 Potential Impacts Associated with the Project

Impact Type	Potential Impact	Details
Direct impact	Removal of native vegetation	• The Project may result in the removal of native vegetation, including TEC listed under both the BC Act and EPBC Act. Vegetation removal that may be required for the proposed works would likely contribute to further fragmentation of native vegetation communities within the locality. • Removal of grassland habitat may impact suitable habitat for threatened entities with a moderate or high likelihood to occur within the Project Area. • Hollow-bearing trees provide habitat for threatened species such as the superb parrot (<i>Polytelis swainsonii</i>) and squirrel glider (<i>Petaurus norfolcensis</i>) which may occur within the Project Area. As such, the Project has the potential to remove hollow-bearing trees suitable for these threatened species.
	Removal of threatened species and their habitat	
Indirect impact	Inadvertent impacts on adjacent habitat or vegetation	• Inadvertent disturbance to native vegetation and threatened species habitat may occur during construction and operational phases of the Project. • The priority weeds African boxthorn (<i>Lycium ferrocissimum</i>) occurs in parts of the Project Area. Continued weed invasion and encroachment could have potentially severe consequences for the habitat of flora and fauna occurring in the area. • Potential sediment, nutrient and pollutant run-off into adjacent vegetation and fauna habitat.
	Reduced viability of adjacent habitat due to edge effects	
	Reduced viability of adjacent habitat due to noise, dust, or light spill	

Impact Type	Potential Impact	Details
	Transport of weeds and pathogens from the site to adjacent vegetation	Noise and vibration disturbances to fauna.
Prescribed impacts	Impacts from vehicle strike	Increased vehicle movement during construction may increase risk of vehicle strike on species living on, in or feeding from the ground such as superb parrot (<i>Polytelis swainsonii</i>), pink-tailed worm-lizard (<i>Aprasia parapulchella</i>) should they be identified as present in the Project Area.
Serious and Irreversible Impacts (SAIL)	As per examples listed above	The CEEC identified in the Project Area is a potential SAIL entity. An SAIL assessment would need to be completed and sent to the decision maker to determine if the Project is considered to cause a SAIL.

6.1 Avoid, Minimise, Offset

The Project will be assessed using the NSW BAM which requires the application of an avoid, minimise and offset hierarchy.

Consequently, the BAM requires proponents to demonstrate how impacts on biodiversity have been avoided and minimised through project development and design, including during the process of selecting project location. All projects must demonstrate that reasonable steps to avoid and minimise impacts to biodiversity values have been carried out as part of project development. Impacts must be avoided and minimised before offsets are proposed to compensate for any residual impacts. Justifications for residual impacts must be provided within the BDAR.

The following sections summarises the Project strategy to avoid and minimise impacts on biodiversity and then offset the residual impacts.

Table 6.2 details an avoid-minimise hierarchy to assist with avoiding and minimising impacts during the design phases of the Project. The hierarchy ranks biodiversity values recorded during the desktop assessment in order of priority for avoidance and minimisation during the early stage of project development. As the project progresses, the ranking of different biodiversity values for avoidance and minimisation may need to be reviewed and revised based on new information, such as data from on-ground biodiversity surveys.

Table 6.2 Avoid-Minimise Hierarchy

Avoid-Minimise Hierarchy (from highest to lowest priority)	Comment
Threatened Ecological Communities (Woody vegetation)	Where feasible impacts to TECs comprising of woody vegetation should be avoided or minimised. Larger patches of TEC with woody vegetation should be prioritised over scattered trees. NHCE will seek to relocate BESS components and associated ancillary infrastructure to avoid woody vegetation clearing and impacts to habitat.

Avoid-Minimise Hierarchy (from highest to lowest priority)	Comment
Threatened species and their habitat	Where feasible, impacts to areas where threatened species and their habitat may occur should be avoided and/or minimised. This includes rocky areas (found in areas of moderate and high biodiversity), HBTs, fallen timber. The feasibility of avoiding/minimising impacts may be species dependant. It should be noted that the importance of avoiding impacts to threatened species and their habitat will become more important once detailed biodiversity surveys for the project commence, and more accurate on-ground data is available.
Threatened Ecological Communities (Grassy vegetation)	Where feasible impacts to TECs comprising of grassy vegetation should be avoided or minimised. It should be noted the final vegetation survey will determine the final boundary of the EPBC and BC Act TECs.

6.2 Impact Mitigation and Minimisation Measures

A range of mitigation measures are proposed to reduce any potential impacts on MNES. Furthermore, a Biodiversity Management Plan (BMP) would be investigated and be developed for the Project in accordance with the relevant NSW legislation and/or policies. It is expected that the BMP will detail the following:

- a pre-clearing procedure to be implemented to minimise the potential for impacts on native fauna species (focusing on threatened species, hollow-dependent and other microhabitat-dependent fauna) as a result of the clearing of hollow-bearing trees
- staged progressive clearance limits clearly demarcated to prevent unnecessary disturbance
- salvage of resources and habitat features (e.g. seed collection, topsoil, timber and native mulch) and translocation to a re-establishment site
- placement of habitat features (e.g. hollow logs, tree hollows, fallen timber and rocks/boulders) for quarry rehabilitation
- weed management
- traffic control measures
- pathogen management
- pest animal control
- fencing and access control
- bushfire management
- erosion and sedimentation control

- providing appropriate environmental management measures as part of the operations to minimise the potential for indirect impacts including:
 - water management systems that seek to minimise the potential for damage to flora and fauna and their habitats from erosion, sedimentation and unnatural flooding events
 - noise control systems to minimise noise impacts
 - dust control measures to minimise dust impacts
 - lighting controls to minimise night time light impacts, and
 - employee education and training.

6.3 Biodiversity Offset Strategy

A comprehensive biodiversity offset strategy will be developed for the Project in accordance with relevant NSW (and Commonwealth) legislation and/or policies, currently being assessed under the BAM in accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act). Accordingly, the offset strategy for the Project will be developed in consultation with DPHI.

The NSW (and Commonwealth) governments agree that endorsement of the NSW BOS to avoid, minimise and offset biodiversity impacts on both NSW and Commonwealth listed entities provides for the best biodiversity and streamlining outcomes. The Commonwealth government supports the use of the BAM as the underpinning methodology for calculating biodiversity credit requirements.

7.0 Recommendations

This BCA has been prepared to identify the biodiversity constraints within the Project Area that NHCE are proposing to develop a BESS. The BCA has been developed based on a detailed review of environmental databases, regional vegetation mapping of the Project Area and a biodiversity field survey. This BCA is intended to support the Scoping Report and design phase of the Project.

Two (2) TECs were identified as potentially occurring within the Project Area, being:

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions CEEC (BC Act) at **3.6 ha** (99% of the Bess section of the Project Area).
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC (EPBC Act) at **0.86 ha** (24% of the Bess section of the Project Area).

It is noted however that the extent of TEC mapping within the Project Area is based on the application of a precautionary approach due to the tillage activity that had occurred prior to the biodiversity field survey ultimately preventing a conclusive assessment from occurring in those disturbed areas.

No threatened flora or fauna species were recorded on the Project Area during the biodiversity field survey. However, the following 12 species have been assessed as having a moderate or high likelihood of occurrence in the Project Area following consideration of the desktop assessment and biodiversity field survey:

- Diamond firetail (*Stagonopleura guttata*)
- Grey-crowned babbler (*Pomatostomus temporalis temporalis*)
- Barking owl (*Ninox connivens*)
- Swift parrot (*Lathamus discolor*)
- Little eagle (*Hieraaetus morphnoides*)
- Black falcon (*Falco subniger*)
- Spotted harrier (*Circus assimilis*)
- Dusky woodswallow (*Artamus cyanopterus cyanopterus*)
- Superb parrot (*Polytelis swainsonii*)
- Brown treecreeper (*Climacteris picumnus victoriae*)
- Squirrel glider (*Petaurus norfolcensis*)
- Pink-tailed worm lizard (*Aprasia parapulchella*).

There is no mapped important habitat for any BC Act or EPBC Act listed entities within the Project Area.

Umwelt recommends the following to assist with the Project development process:

- Developing a project design that actively avoids areas of the Project Area assigned High and Medium biodiversity constraint.
- Undertake an additional biodiversity field survey once the vegetation within the tilled land has had adequate time to recover.
- Complete targeted surveys for threatened species in suitable habitat that was not possible to avoid in the design.

It is noted that these additional investigations will be required, in accordance with the BAM, in order to inform any EIS as part of an SSD application.

8.0 References

Bureau of Meteorology (BOM), (2024), Groundwater Dependent Ecosystems Atlas, Commonwealth of Australia, Canberra. <<http://www.bom.gov.au/water/groundwater/gde/map.shtml>>.

Department of Planning and Environment (DPE) (2023). NSW State Vegetation Type Map (SVTM) – C2.0M2.0

Department of Planning, Industry, and the Environment (DPIE) (2024) BioNet Vegetation Classification.

Department of Planning, Industry, and the Environment (DPIE) (2020) Biodiversity Assessment Method. Department of Planning, Industry, and the Environment, Sydney.

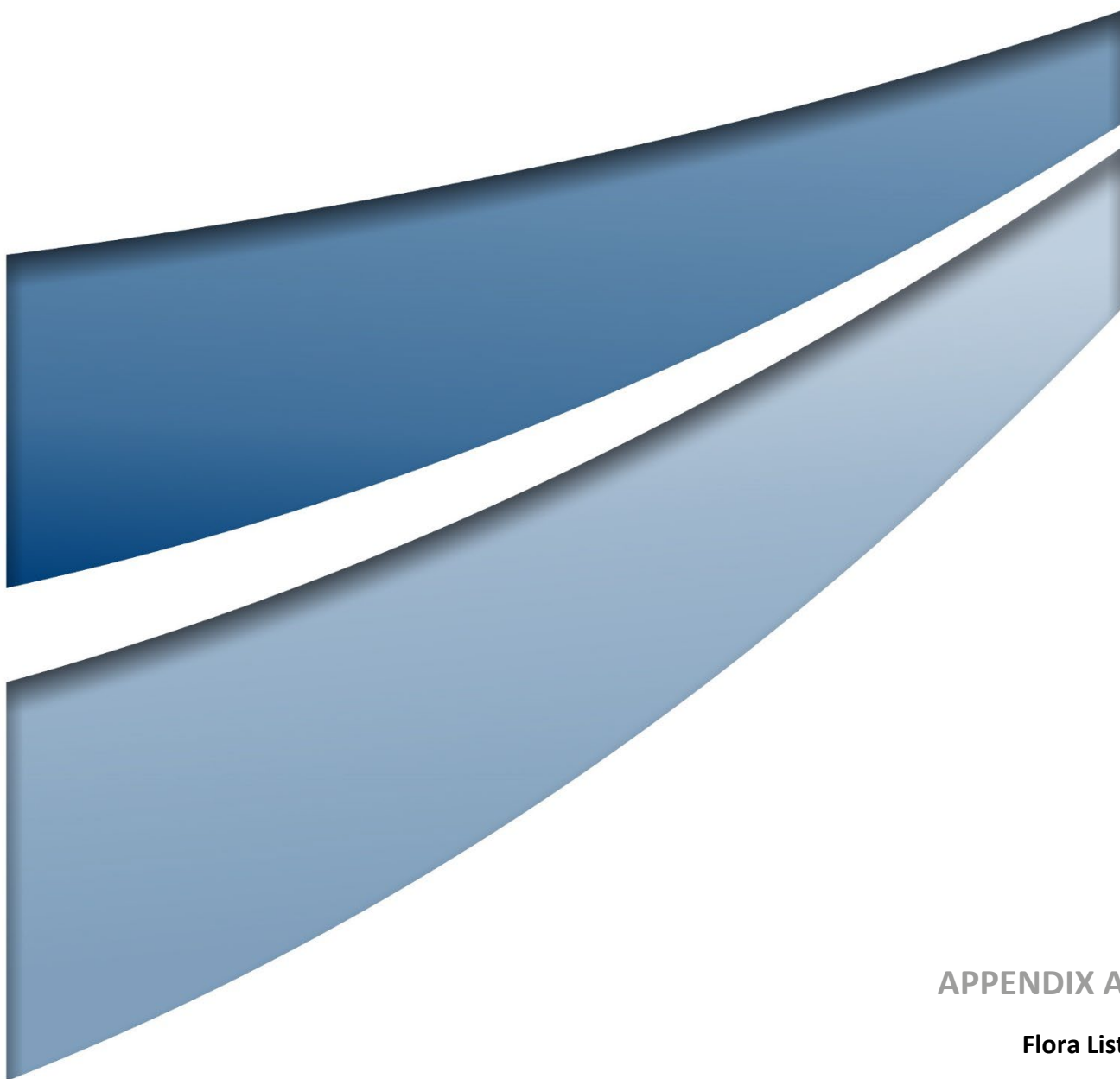
Department of the Climate change Energy and the Environment (DCCEE) (2023) Approved Conservation Advice for the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland National Recovery Plan.

Department of the Climate change Energy and the Environment (DCCEE) (2012) Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia – profile.

Department of Planning, Industry, and the Environment (DPIE) (2020) Biodiversity Assessment Method. Department of Planning, Industry, and the Environment, Sydney.

NSW National Parks and Wildlife Service (2003). The Bioregions of New South Wales.

Serov, P., Kuginis, L. and Williams, J.P., (2012) Risk assessment guidelines for groundwater dependent ecosystems. NSW Department of Primary Industries, Office of Water, Sydney.



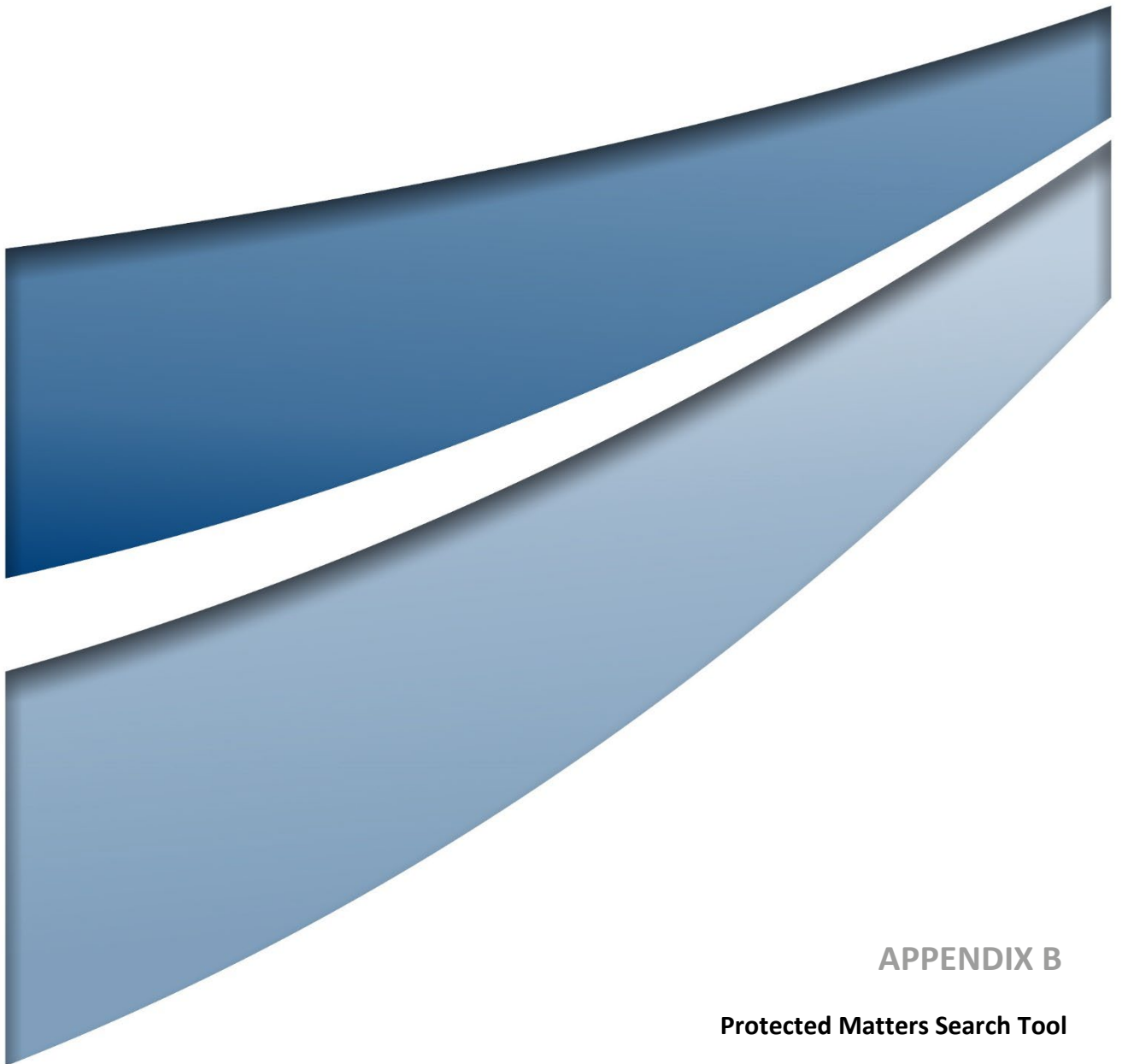
APPENDIX A

Flora List

Table A.1 Flora List

Common Name	Scientific Name	Native (N), Exotic (X)
Trees		
White box	<i>Eucalyptus albens</i>	N
Western Grey Box	<i>Eucalyptus microcarpa</i>	N
Shrubs		
Wingless Fissure-weed	<i>Maireana enchylaenoides</i>	N
Small-leaf Bluebush	<i>Maireana microphylla</i>	N
Black Rolypoly	<i>Sclerolaena muricata</i>	N
African Boxthorn	<i>Lycium ferocissimum</i>	X
Winter Apple	<i>Eremophila debilis</i>	
Groundcover		
Creeping Saltbush	<i>Atriplex semibaccata</i>	N
Spear Grass	<i>Austrostipa bigeniculata</i>	N
Red Grass	<i>Bothriochloa macra</i>	N
Enneapogon nigricans	<i>Enneapogon nigricans</i>	N
Curly Windmill Grass	<i>Enteropogon ramosus</i>	N
Lovegrass	<i>Eragrostis spp.</i>	N
Smallflower Wallaby Grass	<i>Rytidosperma setaceum</i>	N
Yadbila Grass	<i>Panicum queenslandicum</i>	N
Knobbybutt Grass	<i>Paspalidium constrictum</i>	N
Caustic Weed	<i>Chamaesyce drummondii</i>	N
Goosefoot	<i>Chenopodium spp.</i>	N
Windmill Grass	<i>Chloris truncata</i>	N
Common Couch	<i>Cynodon dactylon</i>	N
Carex inversa	<i>Carex inversa</i>	N
Wattle Mat-rush	<i>Lomandra filiformis</i>	N
Small Crumbweed	<i>Dysphania pumilio</i>	N
Berry Saltbush	<i>Einadia hastata</i>	N
Climbing Saltbush	<i>Einadia nutans</i>	N
Oxalis perennans	<i>Oxalis perennans</i>	N
Tarvine	<i>Boerhavia spp.</i>	N
Salsola	<i>Salsola australis</i>	N
Sida corrugata	<i>Sida corrugata</i>	N
High Sida	<i>Sida trichopoda</i>	N
Fuzzweed	<i>Vittadinia cuneata</i>	N
Dock	<i>Rumex brownii</i>	N
Curled Dock	<i>Rumex crispus</i>	X
Sowthistle	<i>Sonchus spp.</i>	X
Onion Grass	<i>Romulea rosea</i>	X
Vervain	<i>Salvia verbenaca</i>	X

Common Name	Scientific Name	Native (N), Exotic (X)
White Horehound	<i>Marrubium vulgare</i>	X
Capeweed	<i>Arctotheca calendula</i>	X
Thistle	<i>Carduus spp.</i>	X
Patterson's Curse	<i>Echium plantagineum</i>	X
Prickly Lettuce	<i>Lactuca serriola</i>	X
Peppergrass	<i>Lepidium africanum</i>	X
Cirsium vulgare	<i>Cirsium vulgare</i>	X
Fleabane	<i>Conyza spp.</i>	X



APPENDIX B

Protected Matters Search Tool



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 21-May-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	34
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	1
Listed Marine Species:	16
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	600 - 700km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	400 - 500km upstream from Ramsar site	In feature area
Riverland	500 - 600km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	700 - 800km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat known to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
Litoria raniformis Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
PLANT			
Austrostipa metatoris [66704]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Austrostipa wakoolica [66623]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia arenaria Sand-hill Spider-orchid [9275]	Endangered	Species or species habitat may occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium monoplacoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [15040]	NSW	In buffer area only

Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [15042]	NSW	In buffer area only

Commonwealth Land - Australian Telecommunications Commission [15041]

NSW

In buffer area only

Commonwealth Heritage Places

[[Resource Information](#)]

Name	State	Status	Buffer Status
Historic			
Temora Post Office	NSW	Listed place	In buffer area only

Listed Marine Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
The Cowal Gold Project	2001/421	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

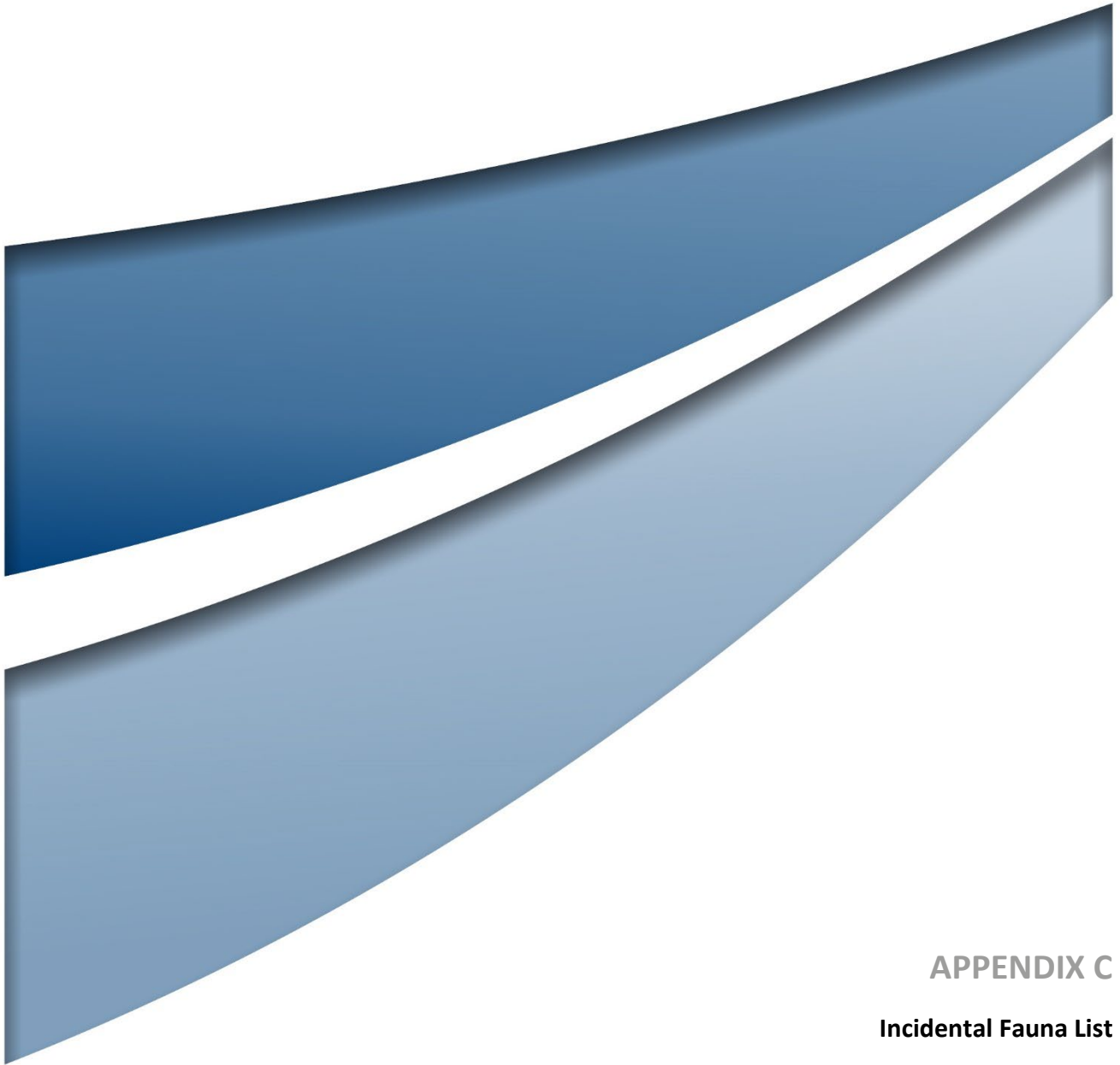
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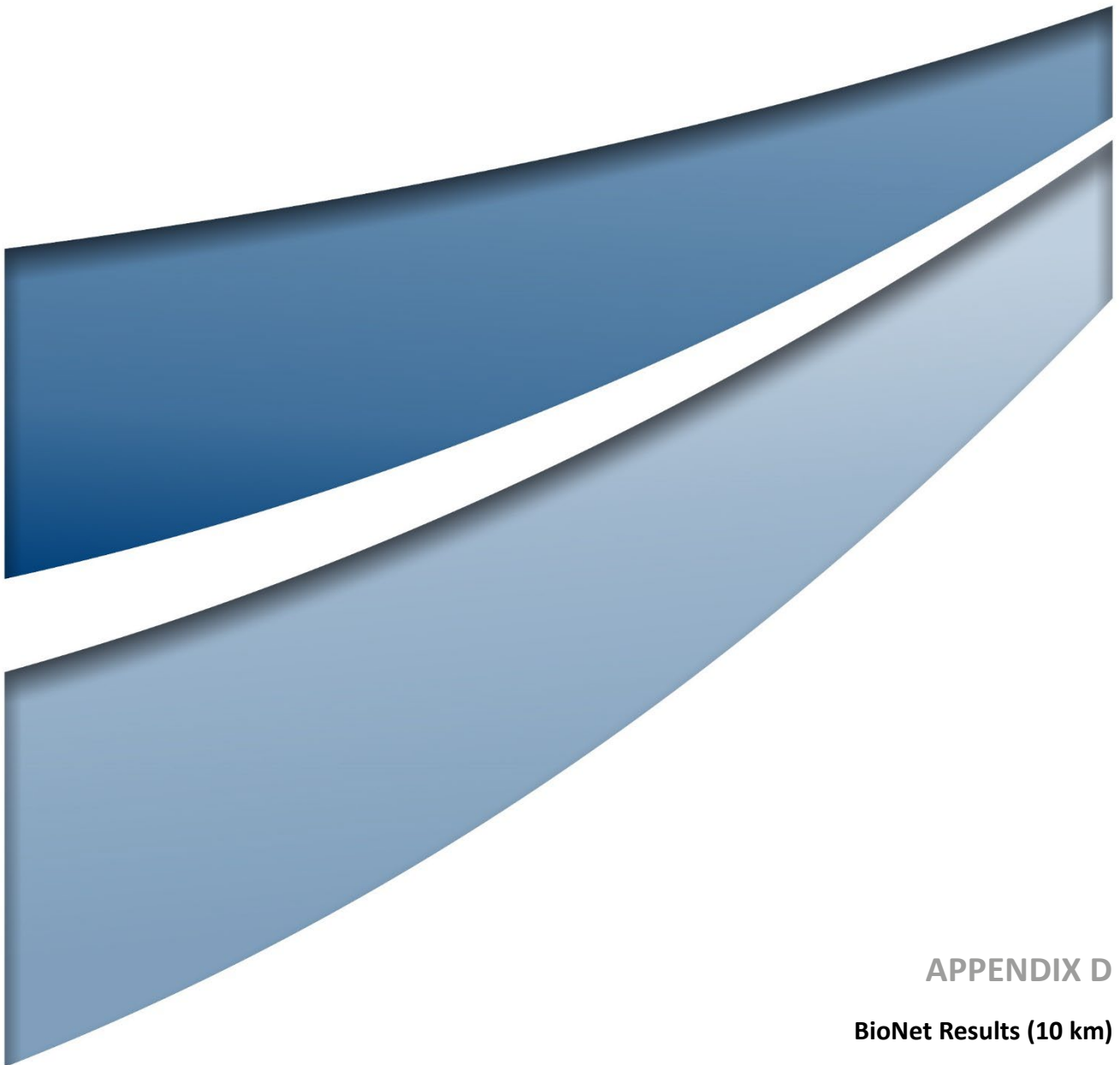


APPENDIX C

Incidental Fauna List

Table C.1 Incidental Fauna List

Common Name	Scientific Name
Blue-faced honeyeater	<i>Entomyzon cyanotis</i>
Pied butcherbird	<i>Cracticus nigrogularis</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Magpie-lark	<i>Grallina cyanoleuca</i>
Australian Raven	<i>Corvus coronoides</i>
Noisy Miner	<i>Manorina melanocephala</i>
White-plumed honeyeater	<i>Ptilotula penicillata</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Welcome swallow	<i>Hirundo neoxena</i>
Superb Fairy-wren	<i>Malurus cyaneus</i>
Red-rumped parrot	<i>Psephotus haematonotus</i>

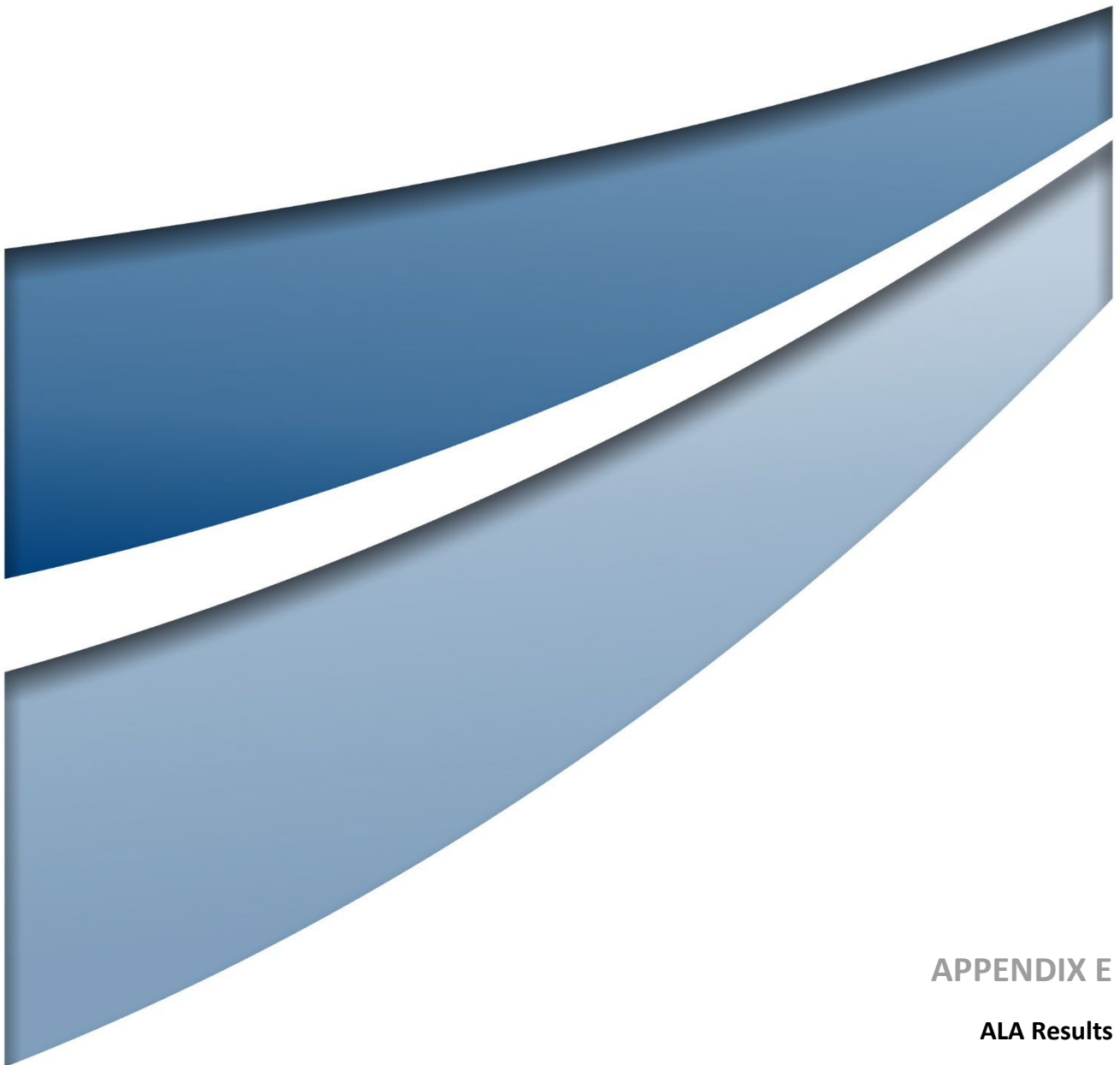


APPENDIX D

BioNet Results (10 km)

Table D.1 BioNet Results (10 km)

Common Name	Scientific Name
Magpie Goose	<i>Anseranas semipalmata</i>
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>
Spotted Harrier	<i>Circus assimilis</i>
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>
White-fronted Chat	<i>Epthianura albifrons</i>
Little Eagle	<i>Hieraaetus morphnoides</i>
Spiny Peppercreess	<i>Lepidium aschersonii</i>
Pink Cockatoo	<i>Lophochroa leadbeateri</i>
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>
Barking Owl	<i>Ninox connivens</i>
Squirrel Glider	<i>Petaurus norfolcensis</i>
Superb Parrot	<i>Polytelis swainsonii</i>
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>
Eastern Grass Owl	<i>Tyto longimembris</i>



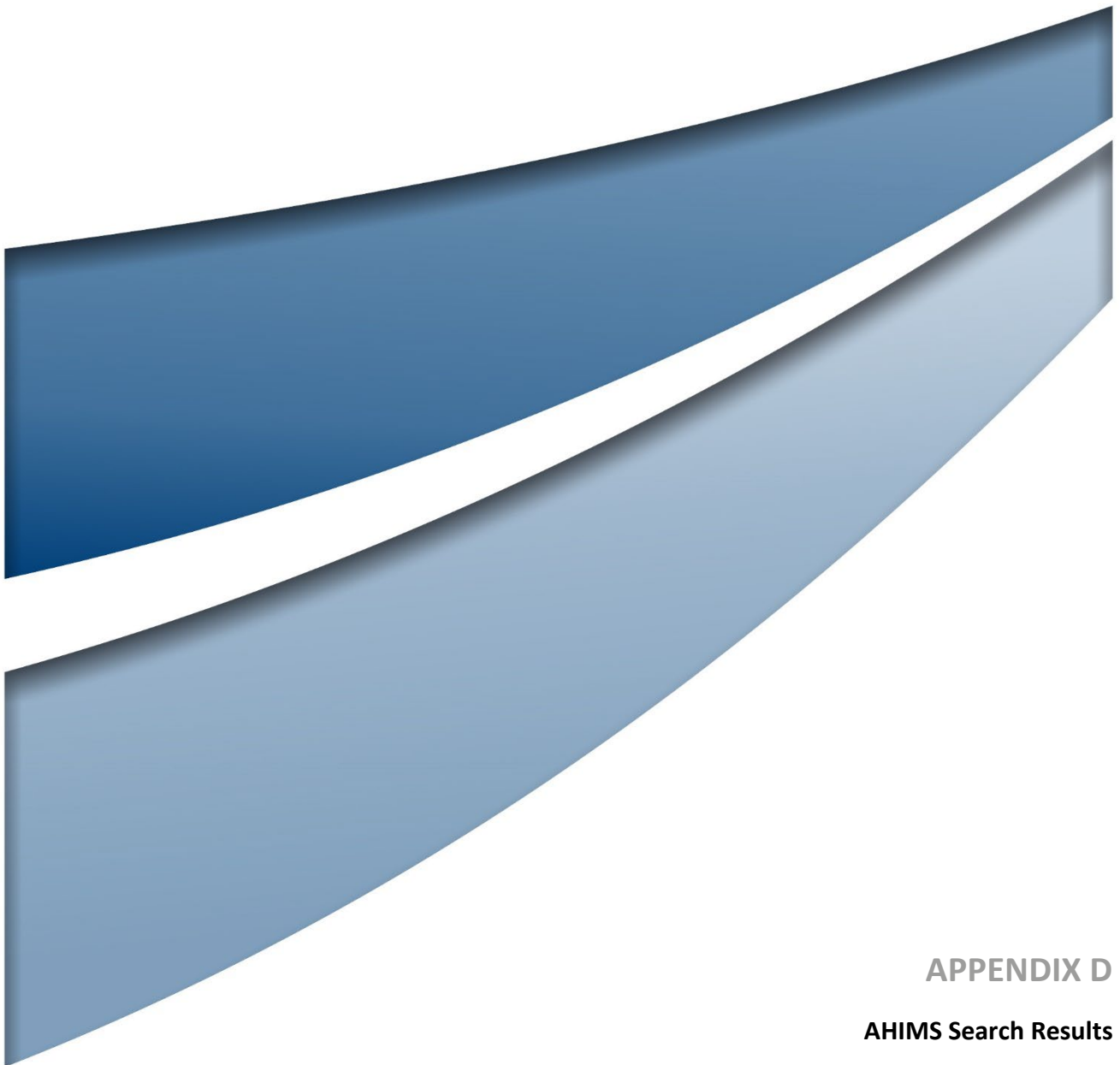
APPENDIX E

ALA Results

Table E.1 ALA Results

Common Name	Scientific Name
Magpie goose	<i>Anseranas semipalmata</i>
Southern Whiteface	<i>Aphelocephala leucopsis</i>
Dusky Woodswallow	<i>Artamus cyanopterus</i>
Brown Treecreeper	<i>Climacteris picumnus victoriae</i>
White fronted Chat	<i>Epthianura albifrons</i>
Grey Falcon	<i>Falco hypoleucos</i>
Clack Falcon	<i>Falco subniger</i>
Latham's Snipe	<i>Gallinago hardwickii</i>
Painted Honeyeater	<i>Grantiella picta</i>
Little Eagle	<i>Hieraaetus morphnoides</i>
Swift Parrot	<i>Lathamus discolor</i>
Malleefowl	<i>Leipoa ocellata</i>
Spiny Peppercreess	<i>Lepidium aschersonii</i>
Pink cockatoo	<i>Lophochroa leadbeateri</i>
Square-tailed Kite	<i>Lophoictinia isura</i>
South-eastern Hooded Robin	<i>Melanodryas cucullata cucullata</i>
Black-chinned Honeyeater	<i>Melithreptus gularis</i>
Turquoise Parrot	<i>Neophema pulchella</i>
Barking Owl	<i>Ninox connivens</i>
Little Lorikeet	<i>Parvipsitta pusilla</i>
Superb Parrot	<i>Polytelis swainsonii</i>
Grey-crowned Babbler	<i>Pomatostomus temporalis</i>
Diamond Firetail	<i>Stagonopleura guttata</i>





APPENDIX D
AHIMS Search Results



AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Temora BESS 1km

Client Service ID : 945401

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
50-2-0038	Trigalong TSR canoe 2	GDA	55	551762	6185061	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Colin Luck							
50-2-0044	Bagdah TSR	GDA	55	551780	6185055	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Colin Luck							
50-2-0067	Temora IF 1	GDA	55	548425	6187218	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Matthew Barber,NGH Heritage - Fyshwick							

** Site Status

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 31/10/2024 for Alexander Garrett for the following area at Lat, Long From : -34.4822, 147.5237 - Lat, Long To : -34.4468, 147.5855. Number of Aboriginal sites and Aboriginal objects found is 3

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

