



Deepwater Hybrid Solar Farm

Scoping Report

ib vogt Development Australia Pty Limited

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Abbreviations

Abbreviation	Description
AC	Alternating Current
ACHA	Aboriginal Cultural Heritage Assessment
ACMA	Australian Communication and Media Authority
AEMO	Australian Energy Market Operator
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
APZ	Asset Protection Zone
ASC	Australian Soil Classification
ASS	Acid Sulfate Soil
AV	Articulated Vehicles
BAL/BAR	Basic Left/Right Turn
BAM	Biodiversity Assessment Methodology
BAM-C	Biodiversity Assessment Methodology Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCS	Biodiversity Conservation Science Group
BDAR	Biodiversity Development Assessment Report
Benefit Sharing Guideline	<i>Draft Benefit Sharing Guideline – Guidance for State Significant Renewable Energy Development (DPE, 2023e)</i>
BESS	Battery Energy Storage System
Biodiversity and Conservation SEPP	<i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i>
Biosecurity Act	<i>Biosecurity Act 2015</i>
BOS	Biodiversity Offset Scheme
BSAL	Biophysical Strategic Agricultural Land
BVT	Biometric Vegetation Types
CEEC	Critically Endangered Ecological Community
CEMP	Construction environmental Management Plan
CHR	Channelised Right Turn
Commonwealth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DC	Direct Current
DCP	Development Control Plan
DEM	Digital Elevation Model
DNG	Derived Native Grassland

Abbreviation	Description
DPE	Department of Planning and Environment (now Department of Planning, Housing, and Infrastructure)
DPHI	Department of Planning, Housing, and Infrastructure (formerly DPE)
DPIE	Department of Planning, Industry and Environment (now Department of Planning, Housing, and Infrastructure)
EII Act	<i>Electricity Infrastructure Investment Act 2020</i>
EIS	Environmental Impact Statement
ELA	Eco Logical Australia
EMF	Electric and Magnetic Fields
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EPI	Environmental Planning Instrument
EPL	Environmental Protection Licence
FM Act	<i>Fisheries Management Act 1994</i>
GDE	Groundwater Dependent Ecosystems
GHG	Greenhouse Gas
GIS	Geographic Information System
GW	Gigawatts
GWh	Gigawatt hours
Heritage Act	<i>Heritage Act 1977</i>
HHA	Historic Heritage Assessment
HIPAP	Hazardous Industry Planning Advisory Paper
IBRA	Interim Biogeographic Regionalisation for Australia
ICNIRP	International Commission on Non-ionizing Radiation Protection
IPC	Independent Planning Commission
ISP	Integrated System Plan
LALC	Local Aboriginal Land Council
LCVIA	Landscape Character and Visual Impact Assessment
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
LSC	Land and Soil Capability
LSPS	Local Strategic Planning Statement
LVIA	Landscape and Visual Impact Assessment
MEG	Mining, Exploration and Geoscience

Abbreviation	Description
Mining Act	<i>Mining Act 1992</i>
MNES	Matters of National Environmental Significance
MRV/HRV	Medium and Heavy Rigid Trucks
MW	Megawatts
NEM	National Electricity Market
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water (formerly DPE)
NVIA	Noise and Vibration Impact Assessment
NVR	Native Vegetation Regulatory
O&M	Operation & Management
OEMP	Operational Environment Management Plan
OHL	Overhead Line
OSOM	Over Size Over Mass
PCT	Plant Community Types
PHA	Preliminary Hazard Assessment
PEA	Preliminary Environmental Assessment
PLVIA	Preliminary Landscape and Visual Impact Assessment
PNVIA	Preliminary Noise and Vibration Impact Assessment
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems) 2021</i>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Private Agreement Guideline	<i>Draft Private Agreement Guideline - Guidance for State Significant Renewable Energy Development (DPE, 2023f)</i>
Project	Deepwater Solar Farm
PSIA	Preliminary Social Impact Assessment
PV Array	Photo-Voltaic Array
RAP	Registered Aboriginal Parties
RE Act	<i>Renewable Energy Act 2000</i>
RET	Renewable Energy Target
REZ	Renewable Energy Zones
RF Act	<i>Rural Fires Act 1997</i>
RFS	NSW Rural Fire Service
Roads Act	<i>Roads Act 1993</i>
SAIL	Serious and Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy

Abbreviation	Description
SHR	State Heritage Register
SIA	Social Impact Assessment
SIA Guideline	Social Impact Assessment Guideline (DPE, 2023g)
SISD	Safe Intersection Sight Distance
SSD	State Significant Development
TEC	Threatened Ecological Community
TfNSW	Transport for NSW
The Applicant	Ib Vogt Development Australia
Transport and Infrastructure SEPP	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
VIS	Vegetation Information System
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
WM Act	<i>Water Management Act 2000</i>
ZVI	Zone of Theoretical Visual Influence

1. Introduction

1.1. Overview

Ib vogt Development Australia Pty Limited ('the Applicant') proposes to construct and operate the Deepwater Hybrid Solar Farm ('the Project'), which consists of a solar Photovoltaic (PV) development with a capacity of up to 120 MW, and a 120 MW 4-hour Battery Energy Storage System (BESS). The Project Site is located approximately 4 km north of the town of Deepwater, 38 km south of Tenterfield and 44 km north of Glen Innes on the Northern Tablelands, New South Wales (NSW) (Figure 1-1).

This Scoping Report has been prepared by Eco Logical Australia Pty Ltd (ELA) on behalf of the Applicant and in accordance with the *State Significant Development Guidelines – Preparing a Scoping Report* (Appendix A) (DPIE 2022). The purpose of this Scoping Report is to request and inform the content of the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of the EIS for the Project.

1.2. Project Objectives

The Project will form part of the delivery of cheaper, more reliable, and cleaner electricity and assist both the NSW Government's legislated commitment to reduce emissions by 50% on 2005 levels by 2030 as well as the Commonwealth Government's legislated commitment to reducing emissions 43% by 2030. The Project is also in line with the Energy Security Target established by the NSW Electricity Strategy (2019) and enacted in the *Electricity Infrastructure Investment Act 2020* (EII Act). The Project will assist in delivering network benefits and renewable energy services to the New England Renewable Energy Zone (REZ), with an expected network capacity of 8 gigawatts (GW). The REZ, along with four others throughout NSW aim to create targeted areas of combined renewable energy generators and prioritised by the NSW Electricity Infrastructure Roadmap. With some of the best natural energy resources in the country, and existing proximity to energy infrastructure and future developments, the New England region is well positioned to facilitate solar farm developments.

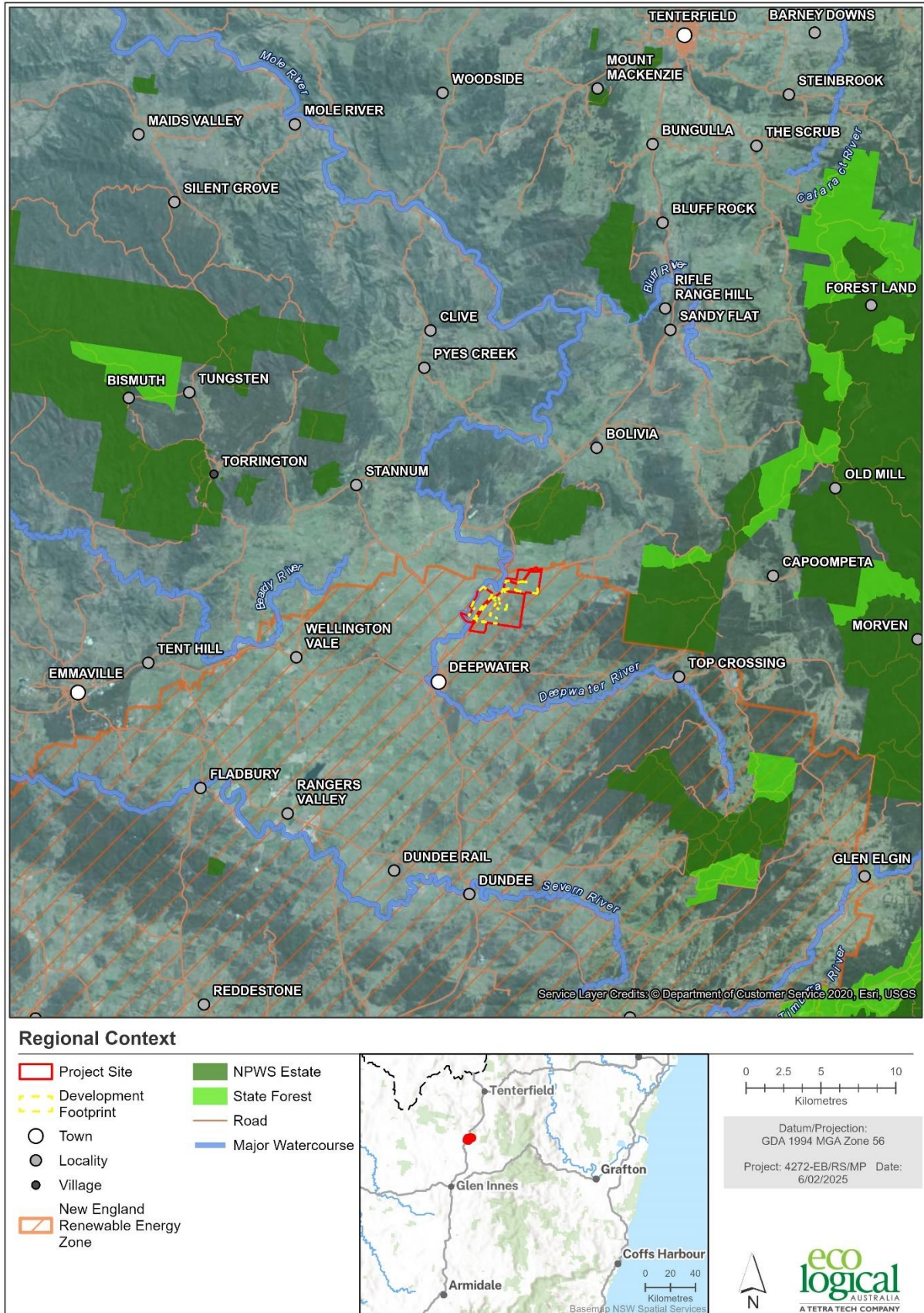


Figure 1-1: Project Regional Context

1.3. Project Background

The Project Site has maintained the same ownership for over 100 years. The Project would occupy rural land currently used for stock grazing, including cattle and sheep operations. A preliminary Project layout is provided in Figure 1-2 which accounts for the known flooding and biodiversity constraints within the Project Site at this stage. However, this will be further refined in response to identified environmental constraints and ongoing stakeholder consultation.

1.4. Project Description Summary

A description of the key Project features and Project Site details is provided in Table 1-1, further details on the Project description are provided in Section 3.

Table 1-1 Project description summary

Feature	Description
Project Site Area	~1,086 ha
Project Development Footprint	~316 ha
Site Address	5080 New England Highway, Deepwater NSW 2371
Local Government Area (LGA)	Tenterfield LGA and Glen Innes Serven LGA
Nearest township	Deepwater, 4km S
Solar Generating Capacity	120 MW
Solar PV array	240,000 PV modules with a single axis tracker system
BESS Capacity	120 MW / 480 MWh, 4-hour system
Connection Point	On-site connection into existing 132kV OHL
Ancillary Infrastructure	Site access, internal access roads, utilities and communications infrastructure, substation, operation and maintenance (O&M compounds), hardstands, transformers and inverters and fencing
Temporary Facilities	Site construction compound, construction power supply, laydown and stockpile area, rock crushing facilities and concrete batch plants (if required) and temporary roads.
Site Access Points	Three (3) site access points will be required from the New England Highway to the Project Site (Figure 1-2). The north east site access point from New England Highway onto Rockdale Road is existing and will be upgraded to allow access for Over Size Over Mass Vehicles. The two (2) southern access points proposed are new and would require construction to provide access to the east and west areas of the Project Site.

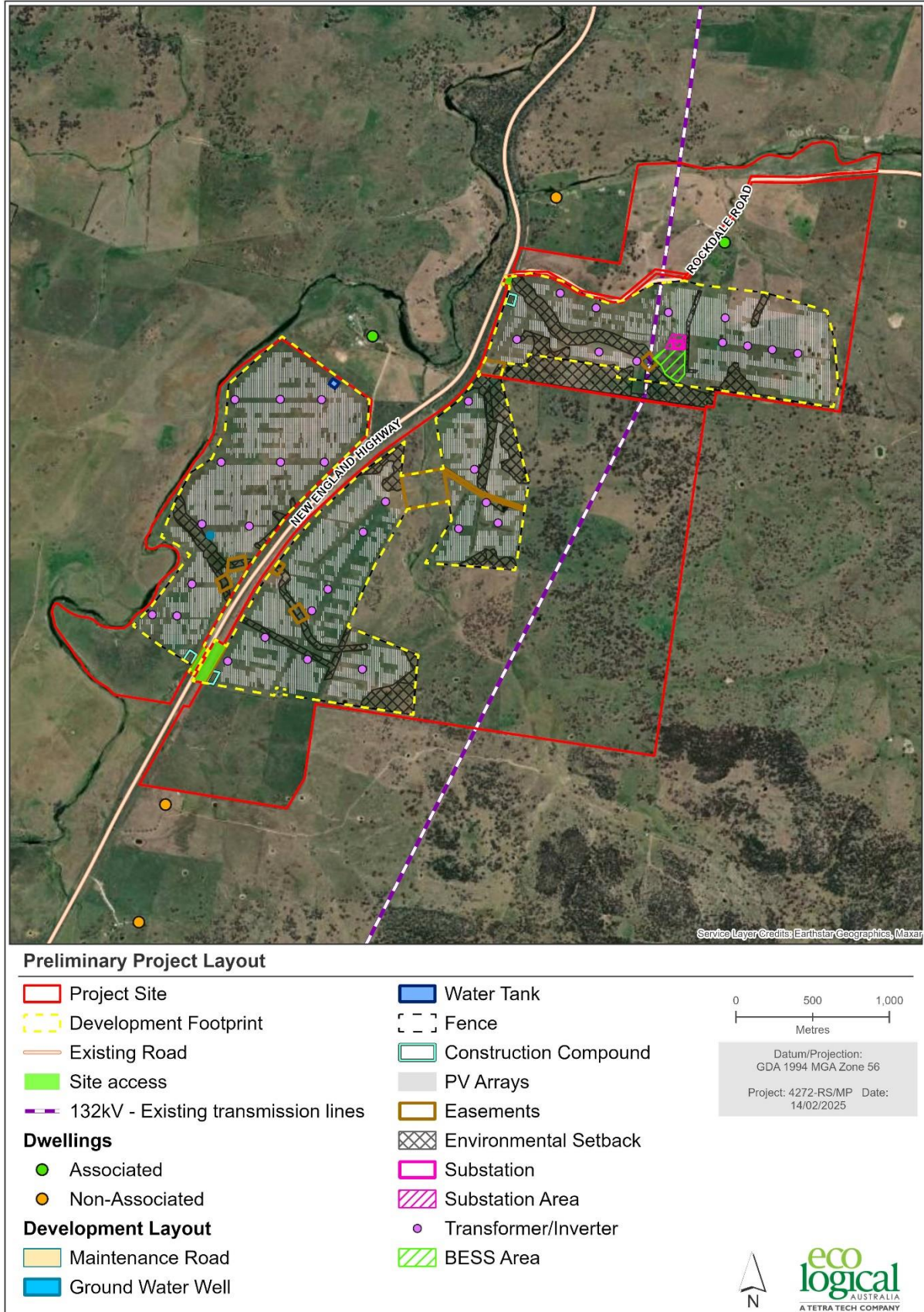


Figure 1-2: Preliminary Project Layout

1.5. The Applicant

The Applicant for the Project is Ib Vogt Development Australia, a subsidiary of ib Vogt GmbH. Table 1-2: The Applicant details provides the Applicant details. Ib vogt GmbH was founded in 2002 and has established itself as one of the top 10 solar farm developers globally with projects in 34 countries across Europe, North America, Asia Pacific and Africa. Ib vogt has been developing projects in Australia since 2016 and has identified and progressed to the advanced stages of development over 450 MWp of Solar PV projects throughout NSW and VIC.

Table 1-2: The Applicant details

Document	Details
Applicant Name	Ib vogt Development Australia Pty Ltd
Postal Address	c/- Moore Australia (WA) Pty Ltd Level 15, 2 The Esplanade Perth, WA, 6000
ABN	68 532 456 050
Project Contact	Terry Daly
Report Author	Emma Bathgate Eco Logical Australia Pty Ltd Senior Environmental Consultant BSc – Environmental Management; MSc – Sustainability and Environmental Studies

1.6. Document Purpose

This Scoping Report has been prepared by ELA to support an application to the Secretary of Department of Planning, Housing, and Infrastructure (DPHI) for SEARs to guide the preparation of the EIS for the Project under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Scoping Report has been prepared in accordance with the *State Significant Development Guidelines – Preparing a Scoping Report* (DPIE 2022), *State Significant Development Guidelines* (DPHI 2024a), *Undertaking Engagement Guidelines for State Significant Projects* (DPHI 2024b) and the *Social Impact Assessment Guideline for State Significant Projects* (DPIE 2023). Table 1-3 indicates where each requirement is addressed. Further, the newly published reference has also been made to the NSW Energy Policy Framework (DPE, 2024a) which comprises:

- *Benefit Sharing Guideline* (DPHI, 2024)
- *Private Agreement Guideline* (DPHI, 2024).

Table 1-3: Summary of Guideline requirements

Item	Section
State Significant Development Guidelines – Preparing a Scoping Report (DPIE 2022)	
Describe the Project in simple terms	Section 3
Include an analysis of feasible alternatives considered having regard to the objectives of the development, and identify the alternatives that will be investigated further in the EIS	Section 3.2.3
Give an early indication of community views on the Project and identify what engagement will be carried out during the preparation of the EIS	Section 5
Identify the key matters requiring further assessment in the EIS and the proposed approach to assessing each of these matters having regard to any relevant Government legislation, plans, policies, or guidelines.	Section 6
Undertaking Engagement Guidelines for State Significant Projects (DPHI 2024b)	
The Applicant must:	Section 5
<ul style="list-style-type: none"> • Identify an early engagement that has been carried out that is relevant to the Project (i.e., engagement undertaken as part of a prior planning process). • Identify the key stakeholders for further engagement (i.e., individuals, special interest groups, councils, and government agencies with an interest in or likely to be affected by the Project). • Plan how they intend to engage with the community, council, and government agencies, so that the engagement is proportionate to the scale and nature of the Project and the likely level of community interest in the Project. • The community can: <ul style="list-style-type: none"> – Take up any early engagement opportunities to understand the Project. – Provide feedback to the Applicant about aspects of the Project which they support, do not support, or wish to be adjusted. – Provide clear reasons for any concerns to enable the Applicant to consider possible alternative approaches to address the issues. – Alert the Applicant to any matters they feel have not been considered. 	
Social Impact Assessment Guidelines for State Significant Projects (DPIE 2023)	
Gain an initial understanding of the Project's social locality.	Section 6.2.10
Gain an initial understanding of the characteristics of the communities within the Project's social locality.	Section 6.2.10
Conduct an initial evaluation of the likely social impacts for different groups in the social locality and the level to which these impacts need to be assessed.	Section 6.2.10
Consider potential refinements or approaches in response to likely social impacts.	Section 6.2.10.3
Consider the remainder of the SIA tasks, including engagement.	Section 6.2.10

1.7. Terminology Used

This Scoping Report uses the following terminology:

- **The Project:** This is in reference to the proposed development, including the proposed PV Arrays and all associated ancillary infrastructure, as described in Section 3.
- **The Project Site:** The broader area of land that is being assessed for the siting of the Project and follows the relevant property boundaries.

- **Development Footprint (indicative):** This includes the full area which would be directly impacted by the Project during construction, operation and decommissioning. The boundary is indicative at this stage and will be determined following completion of all surveys and consultation.
- **Easements:** This includes where the Applicant has an agreement and rights to use the land for a specific purpose i.e. access.
- **Site Access:** The Project Site access will be from the New England Highway. From initial assessment two (2) new access points will require construction to the south, providing access to the east and west areas of the Project Site. The New England Highway onto Rockdale Road access will require upgrading. No formal consultation with TfNSW has been undertaken to date and their agreement will be sought prior to submission of the EIS.
 - To note, Tenterfield Council has acknowledged the requirement for this road widening and the potential requirement to utilise the council controlled road reserve for this purpose.
- **Environmental Setbacks:** This includes areas that have been avoided by the main Project infrastructure to minimise environmental impacts such as creeks and forestry areas, but access roads may cross some areas.
- **Associated Landholder:** A landholder that is involved in the Project
- **Non-associated Landholder:** A landholder that is not involved in the Project.

2. Strategic Context

2.1. Project Site Selection

The Applicant has integrated social, environmental, and economic considerations in developing the Project with the principles of Ecologically Sustainable Development (ESD). This approach minimises the potential impacts while maintaining or enhancing positive outcomes for the wider community. The following considerations were considered during the site selection and Project design:

- **Solar Resource:** To confirm the viability of a solar project, the Applicant undertook a preliminary topography analysis to determine the suitability of the terrain for construction of a solar farm. The analysis examined the solar irradiance reaching proposed PV modules as physical obstructions such as hills and ridges as well as tree cover and other objects can block the irradiance during some periods of the day, limiting the generating capacity
- **Environmental Impacts:** The properties selected for involvement in the Project are generally used for agricultural purposes. The proposed Project Site is characterised largely by open grassland with some scattered trees, watercourses and rocky areas. The preliminary Project layout has been designed to maintain vegetation and paddock trees, minimising environmental impacts
- **Access to Local Electricity Network:** The Project will connect directly into the 132kV transmission line that traverses the Project Site. This point of connection negates the need to construct a new transmission line corridor
- **Local Communities:** The low population density of the surrounding area will assist in reducing any residual noise or visual impacts from the Project
- **Site Access:** There is access to the Project Site directly off New England Highway as well as sealed minor roads reducing the requirement for construction of new roads
- **Proximity to Resources:** During the construction phase it will be necessary to source water and materials for the construction of roads and PV module pilings. In the local area there are several active quarries and water sources that will be able to accommodate the requirements for construction of a project of this size
- **Economic Impact:** The local population centres of Deepwater, Glen Innes and Tenterfield are well established to cater for an increase in workforce having prior experience servicing agricultural and energy industries.

2.2. Strategic Need for the Project

The Project would generate electricity from renewable energy sources contributing to NSW and National targets. Additionally, the inclusion of the BESS as part of the Project design helps to increase the flexibility and resilience within the national electricity network as it transitions from non-renewable energy generation decreases and renewable energy generation increases. The Project has the potential to generate approximately 322 Gigawatt hours (GWh) per annum which is the equivalent to 60,000 NSW households.

Table 2-1: provides a summary of the relevant national, state, regional and local planning policy context to the Project.

Table 2-1: Project Alignment with Strategic Plans and Policies

Strategy, Plan or Policy	Description	Project Relevance
National Policy Context		
2015 Paris Agreement	The Agreement sets out a global framework to address climate change and limit global warming to well below 2°C, and ideally 1.5°C compared to pre-industrial levels. The Australian Government ratified the Agreement in November 2016.	To achieve the reduction in the Greenhouse Gas (GHG) emissions resulting in global warming, the development of renewable energy projects is critical. The Project will contribute to meeting Australia's GHG emission reduction targets.
Renewable Energy Act 2000 (RE Act)	The RE Act encourages investment in large-scale renewable power by incentivising renewable energy through a Renewable Energy Certificate Market.	The Project will contribute to both the increasing local and global need for such renewable projects, as well as aid in mitigating the issues of global warming and climate change.
National Electricity Market (NEM)	The NEM connects transmission grid infrastructure cross-state and responsible for the wholesale of electricity within Australia.	As the fleet of aging coal powered generators exit the NEM, there is requirement for new energy solutions to supply the energy market. Dispatchable generation like BESS supplied with low cost solar will be required to efficiently generate and deploy energy within the NEM and provide system strength. With a generation capacity of 120 MW, the Project is well positioned to contribute to this need through its connection to the NEM.
Climate Change Act 2022	The Act sets out Australia's GHG emissions reduction targets, provide annual climate change statements, confer advisory functions on the Climate Change Authority, and other related purposes.	The Project would contribute to the reduction of emissions generated in Australia required in this legislation by contributing zero emission electricity into the grid.
Australian Energy Market Operator (AEMO) Integrated System Plan (ISP) 2024	The AEMO ISP 2024 provides a 'roadmap for the energy transition' in Australia. The key objective is to support the complex and rapid transition of Australis energy network towards net zero emissions, develop low-cost, firming renewable energy and develop upgraded transmission infrastructure to provide consumers in the NEM with secure, clean, affordable and reliable power.	The Project would contribute to addressing the objectives of supplying firming, reliable renewable energy to consumers within the NEM.
State Policy Context		
Climate Change (Net Zero Future) Act 2023	This Act legislates the NSW targets to reduce GHG emissions target by 50% by 2030, 70% by 2035 and achieve net zero by 2050.	The Project would generate electricity from renewable sources reducing GHG emissions when compared with fossil fuels.
The Net Zero Plan	The Net Zero plan is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade.	The project aligns with the Net Zero Plan through the generation of electricity through renewable energy.

Strategy, Plan or Policy	Description	Project Relevance
NSW Electricity Strategy	The Strategy is the NSW Government’s plan for a reliable, affordable, and sustainable electricity future that supports a growing economy.	The Project would positively contribute to the sale of reliable, affordable, and sustainable energy.
NSW Electricity Infrastructure Roadmap (2020)	The NSW Roadmap plans on capitalising on that opportunity by ‘transforming the electricity system into one that is cheap, clean and reliable’ (DoE 2020). The implementation of the NSW Roadmap sets the foundation for considerable investment and job creation in NSW while also addressing electricity affordability.	The Project aligns with the Electricity Infrastructure Roadmap through the generation of low cost, clean and reliable electricity.
Regional Context		
New England North West Regional Plan 2041	<p>The regional plan is a 20-year vision for the future seeking to develop healthy and thriving communities, supported by a vibrant and dynamic economy that builds on the region’s strengths.</p> <p>The Plan recognises the requirement to adapt to climate change, reducing carbon emissions under Objective 8 and lead renewable energy technology and investment under Objective 9.</p>	<p>The Project aligns with Objectives 8 and 9, positively supporting the reduction of carbon emissions and increase electricity generation from renewable energy sources.</p> <p>The Project is situated within the New England REZ which will support the economic development for the region as well as contribute the goal of 8GW of new transmission capacity. The Project will also reduce the reliance on fossil fuels.</p>
Local Context		
Glen Innes Severn LEP 2012	The Glen Innes Severn LEP aims to manage the land use and development within the area and to facilitate growth and development.	The Project is situated on land use zone RU1 which does not prohibit the development for electricity generation works. The Project would positively contribute to growth and development in the area.
Glen Innes Severn Local Strategic Planning Statement 2020	<p>The Glen Innes Severn Local Strategic Planning Statement (LSPS) seeks to provide a 20-year land use vision for the Local Government Area (LGA). The LSPS acknowledges renewable energy as an advantage to the local economy.</p> <p>Planning Priority 10 is to promote and support renewable energy production opportunities.</p>	The Project would positively contribute to job opportunities and support diversified economic development.
Tenterfield LEP 2013	The Tenterfield LEP aims to provide for infrastructure and environmental protection	The Project is situated on land use zone RU1 which does not prohibit the development for electricity generation works.
Tenterfield Local Strategic Planning Statement 2020	<p>The Tenterfield LSPS outlines the long-term land use strategy for the LGA and how development will be managed in the future.</p> <p>Planning Priority 8 – resilience to climate change recognises the need for renewable energy infrastructure whilst protecting the natural environment.</p>	The Project Site has been identified through a site selection process which has considered environment impacts and access to essential infrastructure, outlined in Section 2.1.

2.3. Project Location Context

The Project Site is situated within the New England region of NSW which supports a highly productive agricultural region that also supports a range of diverse industries, including mining, horticulture, timber production and tourism. The region provides a range of natural landscapes including volcanic rainforest table lands and cliffs to highly productive floodplains, producing roughly a fifth of NSW’s agricultural produce. The nearest large regional centre to the Project Site is Tenterfield 38 km north and Glen Innes, approximately 44 km south. As of June 2021, the population of Tenterfield is 6,810 and Glen Innes is 8,931 (ABS, 2021).

The Project Site is located 4 km north of the small town of Deepwater and 1 km south of Boliva Hill Nature Reserve. In 2021, the town of Deepwater had a population of 456 people (ABS, 2021). The Deepwater community is dominated by rural residences and structures associated with agricultural land uses, with several historic buildings including Deepwater Railway Station and St John’s Anglican Church.

Table 2-2: Local context of the Project

Project	Details
Size	Project Site: 1,086 ha Development Footprint: 316 ha
Local Government Area	Glen Innes Severn Council and Tenterfield Council
Land Zoning	RU1 – Primary Production under the Glen Innes Severn LEP and Tenterfield LEP (Figure 2-1)
Land Tenure	Freehold
Land Use	The following land uses are present within the Project Site, as shown in Figure 2-2: <ul style="list-style-type: none"> • Grazing native vegetation • Grazing modified pastures • Cropping as feedstock • River
Water Catchment	Border Rivers catchments
Local Land Services Region	Northern Tablelands

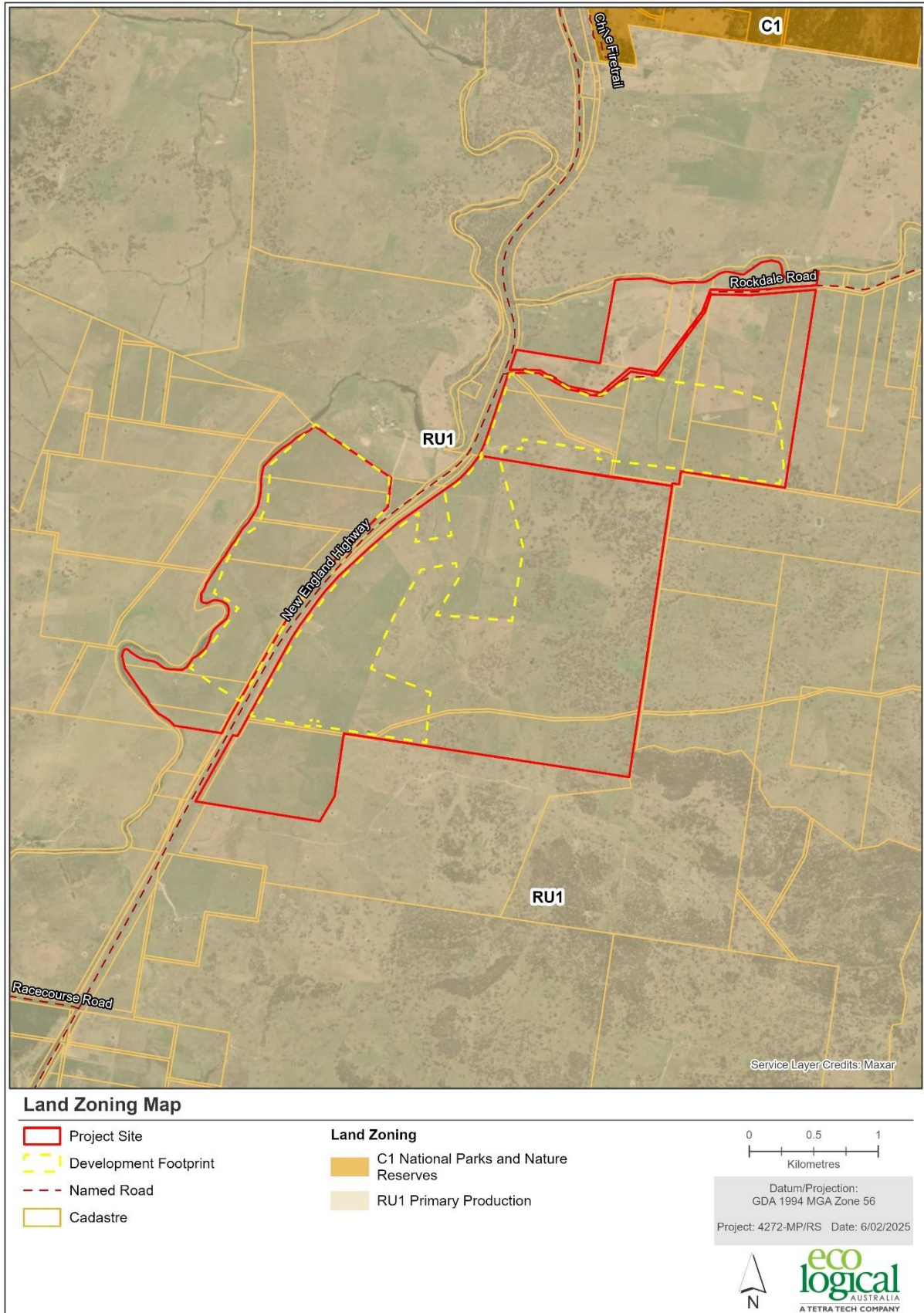


Figure 2-1: Land Zoning within the Project Site

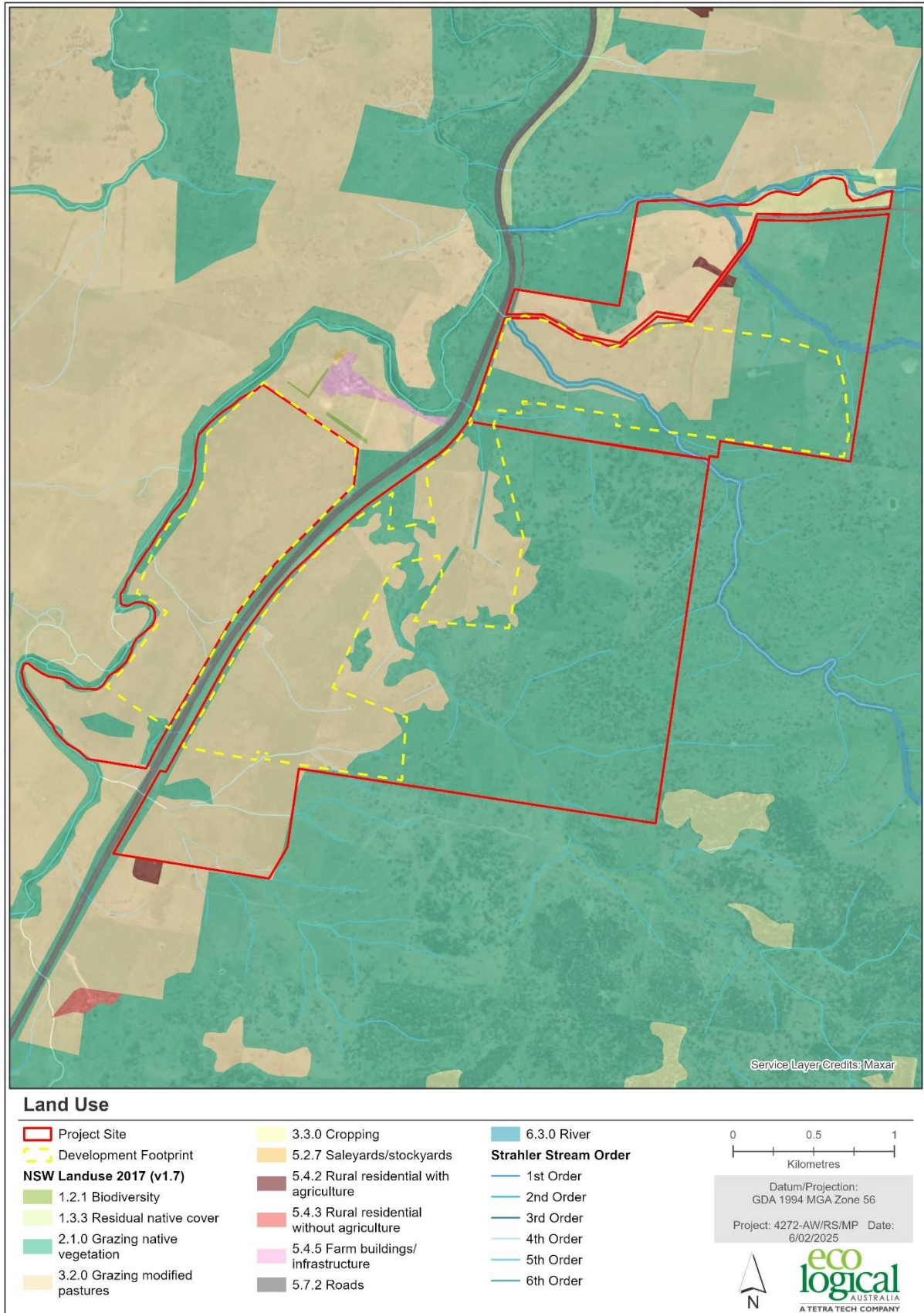


Figure 2-2: Land Use within and Surrounding the Project Site (NSW Land use 2017 v1.7)

2.3.1. Key Landscape Features

In addition to the agricultural land uses, the region is characterised by scenic landscapes, natural environments, and productive forests, including the following protected areas surrounding the Project Site:

- Bolivia Hill Nature Reserve
- Capoompeta National Park
- Torrington State Conservation Area
- Butterleaf National Park and Conservation Area.

The Project Site is within the Borders River catchment which includes the towns of Deepwater, Tenterfield and Glen Innes. The Deepwater River borders the Project Site to the west, with several smaller tributaries running through the Project Site comprising of 1st and 2nd order watercourses in accordance with the Strahler system. Four Mile Creek also borders the Project Site to the north.

2.3.1.1. Topography and Solar Resources

The Project Site is characterised by open grasslands, with some scattered trees, watercourses and rocky areas. There is little shading within the Project Site from nearby hills and slopes, providing better exposure to solar irradiance for PV modules. The landscape of the Project Site is within the New England Tablelands, with the site located at an elevation around 950 m to 990 m above sea level (Figure 2-3).

2.3.2. Key Transport and Infrastructure

The Project Site benefits from major road networks nearby with the New England Highway dividing the Project Site. The region is also serviced by regional airports including Moree Regional Airport and Tamworth Regional Airport, both located within 200 km to the Project Site. The solar array equipment may be supplied through domestic manufacturing or imported and arrive at port. The closest port of entry to the Project Site is the Port of Newcastle, located approximately 536 km by road. Construction materials and infrastructure will be transported to the array areas via road, likely the New England Highway and will include heavy vehicles up to 25 m in length.

2.3.3. Other Major Renewables Energy Projects in the Locality

The Project Site is in proximity to the following major renewable energy projects as shown **Error! Reference source not found.**

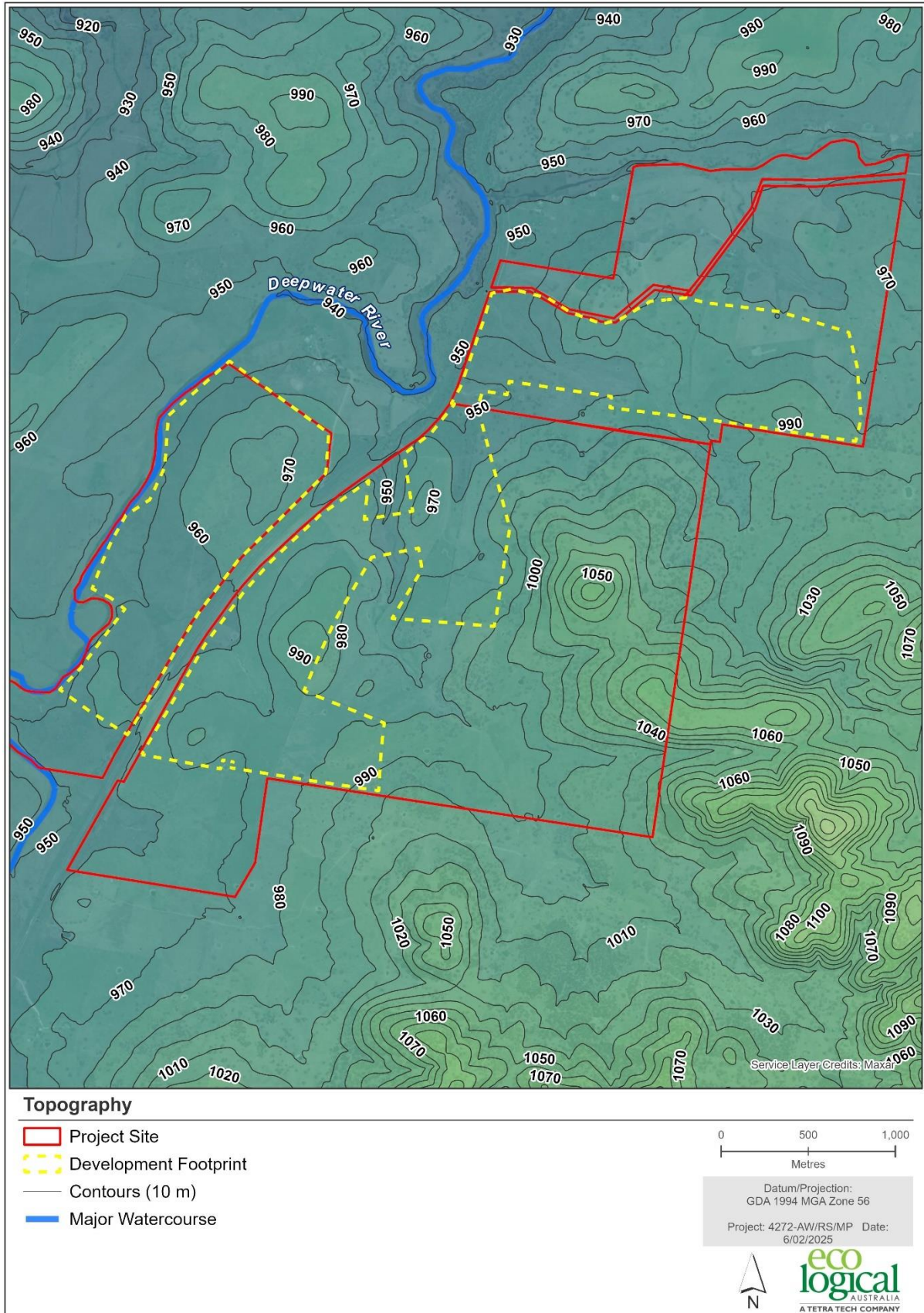


Figure 2-3: Topography across the Project Site

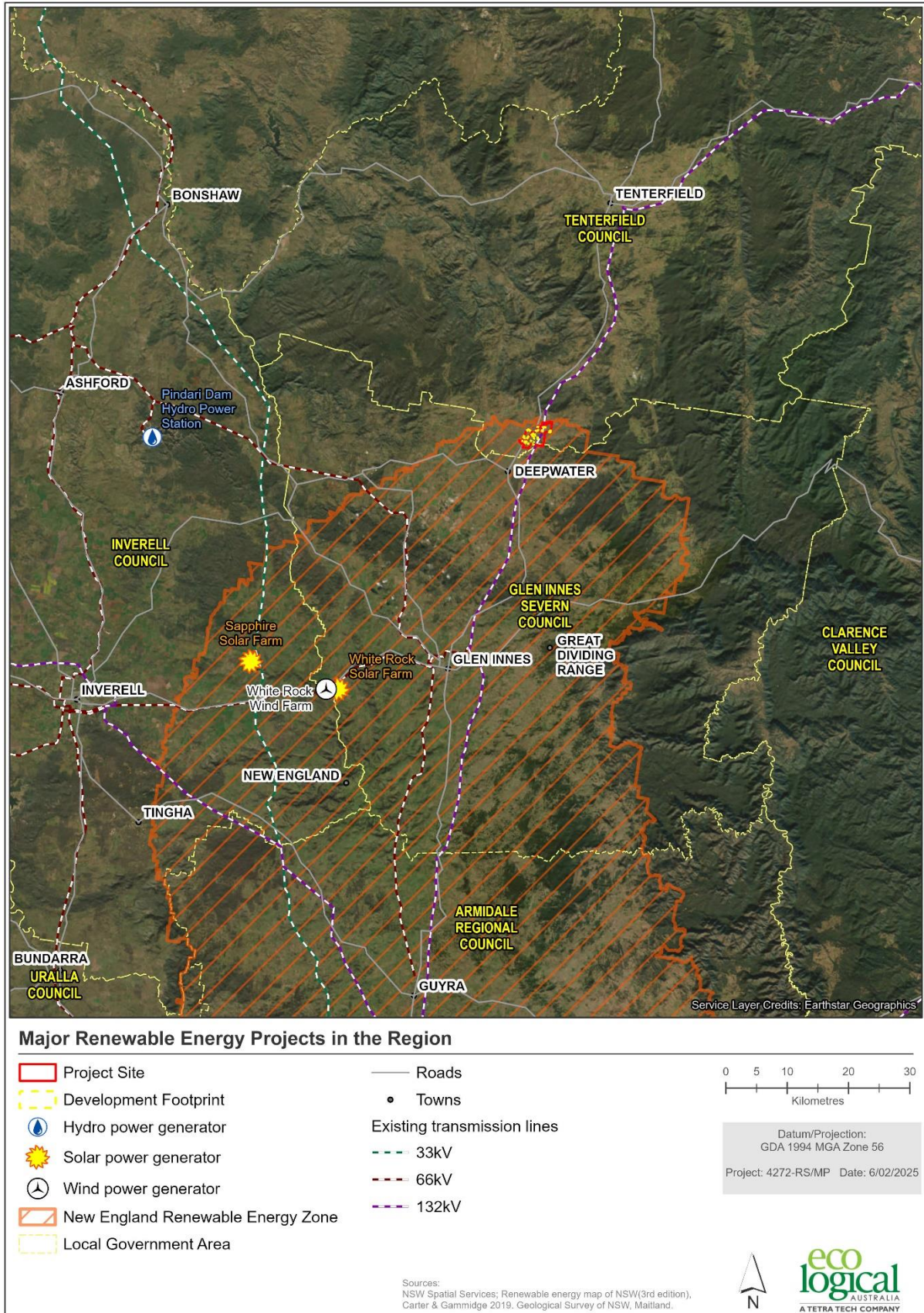


Figure 2-4: Major Renewable Energy Projects in the Region

2.4. Project Justification

The Project would positively contribute to the supply of stable and reliable energy as NSW transitions from coal-fired power stations to renewable energy. The Project would assist with the transition to renewable energy and reduce GHG emissions, combating climate change. Additionally, the Project is situated within the New England REZ which supports:

- Reliable electricity sources
- Affordability of electricity
- Reduction of GHG emissions
- Supporting local businesses and community members.

The Project will also create jobs in the region particularly during the construction phase of the Project.

2.5. Project Agreements

There are three (3) landowners associated with the Project across 18 lots. The land titles associated with the Project Site include:

- 202// DP1303513
- 203//DP1303513
- 204//DP1303513
- 205//DP1303513
- 206//DP1303513
- 207//DP1303513
- 143//DP751487
- 1//DP1219586
- 5//776697
- 1//DP1123707
- 141//DP751487
- 8//DP128013
- 2//DP751487
- 5//DP773320
- 145//DP751487
- 16//DP773320
- 4//DP773320
- 15//DP773320.

All three landowners have signed a lease and option agreement with the Applicant. The Applicant has commenced engagement with the non-associated landowners which potentially may be impacted by the Project.

The Applicant has engaged with Glen Innes Severn Council and Tenterfield Council to discuss a Planning Agreement in accordance with Division 7.1 of Part 7 of the EP&A Act. The Applicant aims to continue these discussions throughout the process and during the preparation of the EIS.

3. Project Description

3.1. Project Overview

3.1.1. Key Project Elements

The Project will have a capacity up to 120 MW with a 120 MW/480 MWh BESS. The key Project elements for the construction, operation and decommissioning are summarised in Table 3-1.

Table 3-1 Key Project Elements

Project Element	Details
Solar PV modules	240,000 ground mounted single axis tracker system
BESS	Up to 120 MW/480 MWh to storage energy generated from Solar PV array
Invertors	Convert the Direct Current (DC) electricity generated by the solar PV array into Alternating Current (AC)
Transformers	Steps up the voltage of the electricity to match the existing network
Substation	132kV substation required to collect electrical reticulation for the solar PV array and BESS and to physically connect to the grid (switching station).
Connection Point	On-site connection into existing 132kV transmission line
Main Site Access points	Three site access points from New England Highway will be required to access all areas of the Project Site. The north east site access from New England Highway onto Rockdale Road is existing and will be upgraded to provided access for OSOM vehicles. The two (2) southern access points proposed are new and would require construction to provide access to the Project Site east and west areas.
Internal access tracks	To provide access to infrastructure within the Project Site
Underground cables	To connect the solar PV array to substation and transmits electricity
Operations and Maintenance Compound	for the day-to-day operation of the Project. Each O&M compound may include lay down areas, site operations facilities and services buildings, workshop, storage, parking, and other facilities for operations staff.
Other associated infrastructure	Telecommunications facilities and Utility services
Temporary Facilities	Site offices and compounds, amenities, rock crushing facilities, concrete or asphalt batching plant, stockpiles and materials storage compound, minor work for construction access roads

3.1.1.1. Photo-Voltaic Array (PV Array)

An estimated 240,000 PV modules are proposed, though the final module numbers and power output for the Project Site is dependent on the final Development Footprint as well as outcomes of the various engineering and environmental studies and is subject to change. The solar PV modules will have an estimated height of 3.3 m and a clearance height of 0.5 m.

3.1.1.2. Battery Storage

The Project proposes to construct a BESS to form part of the Solar Farm, designed to store and dispatch energy. The total rated power for the BESS is 120 MW and has an energy capacity of 480 MWh, resulting in a storage capacity of approximately 4 hours of discharge power. However, the final size and type of

BESS to be used in the Project will be subject to the detailed design process given the consistent evolution in battery storage technology.

3.1.1.3. Electrical Connections

The electricity generated by the Project will be exported to the grid via the existing transmission line that traverses the Project Site (Figure 1-2). The connection point is within the Project Site and will directly connect into the existing transmission line. No new transmission infrastructure is required to be constructed for this Project.

3.1.1.4. Ancillary Infrastructure

Ancillary infrastructure refers to all permanent solar farm infrastructure (PV arrays and BESS) and includes substations, operations, and maintenance compounds (including offices and car park), underground and overhead electricity transmission lines, equipment storage facilities, concrete batching plant facilities, temporary and permanent laydown pads, construction compounds and access tracks.

3.1.1.5. Minor Road Upgrades

Traffic associated with the construction phase of the Project will consist of both light vehicles for transporting workers and heavy and over-sized, over mass (OSOM) vehicles for delivery of plant and Project infrastructure. There will be three access points from the New England Highway which will be upgraded and/or constructed to allow safe access to the Project Site (Figure 1-2).

The current site access to the north east from the New England Highway onto Rockdale Road will require upgrading to widen the road to allow access for OSOM vehicles. The two southern access points are new access points and require construction from the New England Highway into the Project Site. The construction and upgrade works required will be discussed in consultation with Transport for NSW (TfNSW) and Tenterfield Council. More details will be provided during the EIS phase.

Upgrades to the existing road network will be required where necessary to facilitate the construction, ongoing maintenance and decommissioning of the Project.

3.1.1.6. Ancillary Activities

Materials will need to be sourced for the construction, ongoing maintenance and decommissioning of the Project (including but not limited to): road and construction materials, water, and concrete.

Geotechnical assessments will be required to inform detailed engineering design in relation to the positioning of Project infrastructure. Boundary adjustments and subdivision may also be required to assist in detailed design for infrastructure.

3.1.1.7. Construction Infrastructure

Construction infrastructure may include laydown areas adjacent to PV array locations, site compounds and internal roads for the storage and assembly of PV array components and equipment, including batching plants. Construction roads associated with providing temporary access to some parts of the Project, including the erection of transmission lines, work front construction and maintaining environmental management measures will be developed during the construction phase and be removed and rehabilitated once no longer required for the operation of the Project. It is proposed that the Project will operate for a period of approximately 30 years.

3.1.1.8. Rehabilitation and Decommissioning

At the end of the operational life of the Project, all above ground infrastructure will be dismantled and removed from the Project Site in accordance with a Decommissioning Plan that will be prepared if the Project is approved. This may not include the connection infrastructure which may be essential to be retained. PV array piles would be cut back to below ploughing level or topsoil built over the piling foundations to achieve a similar result. The land will be returned to near prior condition and use. A compressor and rock crusher may be needed to carry out the cutting work.

Internal roads, if not required for ongoing farming purposes or fire access, would be removed and the Project Site reinstated as close as possible to its original condition and use. Individual landowners will be involved in any discussion regarding the removal or hand-over of infrastructure on their property

3.1.2. Project Phases

It is anticipated that works will commence within five (5) years of Development Consent being granted. The timing of construction will principally be driven by additional permits and authorisations, post-Development Consent tender, contractor selection, obtaining a connection agreement from AEMO, optimisation, detailed design and procurement processes and a final investment decision. An indicative Project timeline is outlined below and in Figure 3-1:

- Submission of EIS: Approximately Q2 2025
- Approval of Project: Approximately Q4 2025
- Pre-Construction Preparation: Approximately Q1 2026
- Commencement of Construction: Approximately Q2 2026
- Operational phase: Approximately Q2 2026 for 30 years
- Decommissioning or Repowering: Approximately Q2 2056.

Additionally, it is worth noting the Project would be operational over an initial term for approximately 30 years. Further, it is anticipated that the Project could extend for a further term should market and commercial circumstances dictate. It is expected that upgrading or repowering of the PV modules and ancillary equipment may be required throughout or to extend the operational life of the Proposed Development. This will be a commercial decision at the time based on the relative economics of solar PV generation compared to alternatives and would be subject to a separate Development Application. Decommissioning and restoration would occur at the end of the operational life of the Proposed Development. As such, planning consent for the Proposed Development is sought for 30 years to cover one full term of operation and associated construction, upgrading and decommissioning periods.



Figure 3-1: Indicative Project Phases

3.2. Project Design Development and Alternatives

The Project is still in the early stages of design, with the development of the preliminary Project layout still underway to consider:

- Results from the preliminary assessments undertaken to date
- Feedback from associated and neighbouring landowners.

3.2.1. Design Principles

The Project Site was selected due to its suitability for a solar farm and proximity to transmission infrastructure. The design of the Project has been developed with the landowners to ensure the coexistence of the solar farm operations with the continued sheep grazing and in response to environmental constraints identified in preliminary assessments. In designing the preliminary layout and assessing the potential impacts of the Project, the design hierarchy outlined in Figure 3-2 was adopted.

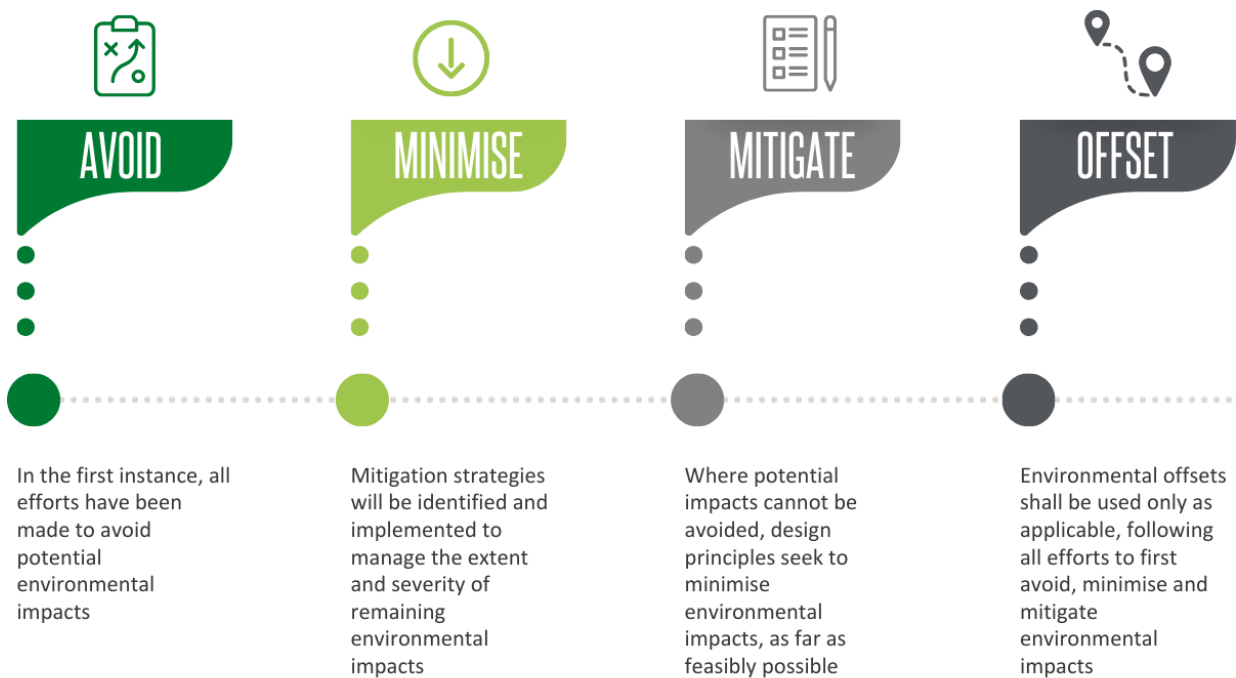


Figure 3-2: Adopted Design Hierarchy for the Project

In addition, the following specific design principles have been adopted:

- **Minimise Vegetation Clearing:** Areas of high conservation value and/or native vegetation have been strategically avoided
- **Use Previously Disturbed Land:** The Project has been located on previously cultivated and modified pastures
- **Protect Cultural Heritage Values:** The Project has been designed to minimise impacts to sensitive landforms which have the potential to have cultural value

- **Protect Agricultural Values:** Existing agricultural values shall be preserved, and diversification of income for the duration of the Project life
- **Minimise Direct and Indirect Impacts:** As far as possible, infrastructure has been located away from sensitive receivers
- **Adopt a Flexible Approach to Design:** The Preliminary layout responds to identified environmental impacts and constraints.

3.2.2. Site Selection and Design Development

In 2022, the Applicant commenced engagement in the Deepwater and Tenterfield area. Since this time, the Applicant has continued to engage with landholders in this area while continuing to refine the design of the Project.

The early feedback received during this process was used to identify key locations for consideration. In parallel, preliminary environmental studies were conducted in the area. Findings from those early assessments have identified environmentally sensitive areas which have influence the Project design.

3.2.3. Alternatives Considered

The Project is still in its early stages of design, with the development of the preliminary Project layout considering (Figure 1-2):

- Results from the preliminary assessments undertaken to date
- Feedback from associated and neighbouring landowners
- Solar irradiance data
- Additional desktop assessments
- The principles outlined in the *Large-Scale Solar Energy Guideline* (DPHI 2022).

The development of a solar project layout is by nature an iterative process, with opportunity for refinement and revision as more information is obtained from environmental and cultural heritage studies, ongoing feedback from consultation and updated monitoring. The evolution of the Project design will be focused around three core principles:

- Minimising and/or avoiding negative environmental and community impacts
- Maximising positive impacts (including design that best accommodates colocation with sheep grazing)
- Incorporating practical and economic limitations in relation to the construction and operation of the site.

4. Statutory Context

The relevant statutory requirements for the Project are summarised in Table 4-1.

Table 4-1: Statutory context of the Project

Matter	Relevance to the Project
Power to Grant Approval	<p>In accordance with Part 2, Clause 6 of the <i>State Environmental Planning Policy (Planning Systems) 2021</i> (Planning Systems SEPP), development is declared to be a State Significant Development (SSD) for the purposes of the EP&A Act if:</p> <ul style="list-style-type: none"> c. <i>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</i> d. <i>the development is specified in Schedule 1 or 2.</i> <p>Clause 20 of Schedule 1 of the Planning Systems SEPP states that “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 have a capital investment value of more than \$30 million” shall be classified as SSD under Division 4.7 of the EP&A Act.</p> <p>The Project has a capital investment value estimated to be significantly greater than \$30 million, and therefore is deemed SSD.</p> <p>The Minister for Planning and Public Spaces is the consent authority for SSD applications. SSD applications are assessed by DPHI, and in some cases the Minister may delegate decision making to Department staff. However, the Independent Planning Commission (IPC) is the consent authority for SSD applications where specific conditions occur.</p>
Permissibility	<p>The Project Site is located within Glen Innes Severn and Tenterfield LGAs and is therefore subject to the Glen Innes Severn Local Environmental Plan (LEP) and Tenterfield LEP.</p> <p>The Project Site is situated on land zoned as RU1 (Primary Production). Within this zone, electricity generation is not permitted. However, pursuant to Clause 36(1b) of the <i>State Environmental Planning Policy (Transport & Infrastructure) 2021</i> (Transport and Infrastructure SEPP), 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, which in this case is the RU1 (Primary Production zone). Given that the Project is located on prescribed rural land (RU1), and the proposed activity is to generate electricity using solar energy, the Project is permissible with consent under clause 36(1b) of the Transport and Infrastructure SEPP.</p>
Landowner Approval	<p>In line with the NSW EP&A Regulation, an application for landowner consent for all lots within the Project Site will be prepared as part of the EIS.</p>
Other Approvals	<p>Consistent Approvals</p> <p>In accordance with Section 4.42 of the EP&A Act, an authorisation of the following relevant approvals cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent under this Division and is to be substantially consistent with the consent:</p> <ul style="list-style-type: none"> • An Environmental Protection Licence (EPL) under Chapter 3 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) (for any of the purposes referred to in Section 43 of the Act) • A consent under Section 138 of the <i>Roads Act 1993</i> (Roads Act). <p>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) Approval</p> <p>The Project may have the potential to have a significant impact upon Commonwealth listed threatened species and ecological communities and a Referral to the Commonwealth</p>

Matter	Relevance to the Project
	<p>DCCEEW may be required. If the Commonwealth determine that the Project is likely to have a significant impact upon MNES, the Project will become a 'Controlled Action' and assessed under the NSW Bilateral Agreement with the Commonwealth. A referral will be made to the Commonwealth for either a 'Non-controlled' or 'Controlled Action' once impacts upon MNES from the Project have been determined.</p> <p>Other Approvals</p> <p>A summary of approvals and licences that may be required for the Project prior to construction include:</p> <ul style="list-style-type: none"> • Approval under Section 138 of the Roads Act to undertake upgrade works in, on or over a public road to allow for the transportation of infrastructure • A Licence in accordance with Part 5, Division 5.6 of the <i>Crown Land Management Act 2016</i> • An EPL under Section 48 of the POEO Act for the regulation of noise pollution during both the construction and operational phases of the Project. It is noted that an EPL may also be required during the construction phase for crushing, grinding, or separating if the activity has the capacity to process more than 150 tonnes of materials per day or 30,000 tonnes of materials per year. <p>Approvals Required if this was not an SSD Project</p> <p>Although all relevant environmental impacts will be assessed in the EIS for the Project, due to the Project's nature and being SSD, there are several approvals and licences, as listed in Section 4.41 of the EP&A Act, that are not required. These include:</p> <ul style="list-style-type: none"> • Applications for separate permits under Sections 201, 205 or 219 of the <i>Fisheries Management Act 1994</i> (FM Act) however, the offset policy still applies • Applications for separate approvals under Sections 89, 90 and 91 (other than an aquifer interference policy) of the <i>Water Management Act 2000</i> (WM Act) • An Excavation Permit under Section 139 of the <i>Heritage Act 1977</i> (Heritage Act) • An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the <i>National Parks and Wildlife Act 1974</i> (NPW Act).
<p>Pre-Condition to Exercising the Power to Grant Approval</p>	<p>Under Section 23(1) of the EP&A Regulation landowner consent is required. The Applicant will ensure written consent of the owner of the land is provided at the time of submission of the Development Application.</p> <p>Under Section 28 (2) of the EP&A Regulation, applications that require a Biodiversity Development Assessment Report (BDAR) under the <i>Biodiversity Conservation Act 2016</i> (BC Act) must contain the biodiversity credit information.</p>
<p>Mandatory Matters for Consideration</p>	<p>The following Acts, Regulations and Environmental Planning Instruments (EPIs) are applicable to the Project:</p> <p>Commonwealth Legislation</p> <ul style="list-style-type: none"> • EPBC Act • <i>Native Title Act 1993</i> • RE Act • <i>Crowns Land Management Act 2016</i>. <p>State Legislation</p> <ul style="list-style-type: none"> • BC Act • <i>Biosecurity Act 2015</i> (Biosecurity Act) • EP&A Act • FM Act • Heritage Act • <i>Mining Act 1992</i> (Mining Act) • NPW Act

Matter	Relevance to the Project
	<ul style="list-style-type: none"> ● POEO Act ● Roads Act ● <i>Rural Fires Act 1997</i> (RF Act) ● <i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act) ● WM Act. <p>State Environmental Planning Policies:</p> <ul style="list-style-type: none"> ● <i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i> (Biodiversity and Conservation SEPP) ● <i>State Environmental Planning Policy (Primary Production) 2021</i> (Primary Production SEPP) ● <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> (Resilience and Hazards SEPP) ● Transport and Infrastructure SEPP ● Planning Systems SEPP. <p>Planning Instruments:</p> <ul style="list-style-type: none"> ● Tenterfield LEP 2013 ● Glen Innes Severn LEP 2012 ● Tenterfield Development Control Plan (DCP) 2014 ● Glen Innes Severn DCP 2014.

5. Engagement

The following section describes the community and stakeholder consultation and engagement undertaken for this Project to date and the ongoing approach to engaging with stakeholders. This approach has considered the following:

- State Significant Development Guidelines (DPHI 2024a)
- Large-Scale Solar Energy Guidelines (DPHI 2022)
- Social Impact Assessment Guideline for State Significant Projects (DPIE 2023)
- Undertaking Engagement Guidelines for State Significance Projects (DPHI 2024b).

The above guidelines outline expectations for early and meaningful consultation with the local community and other stakeholders to enable feedback that can be incorporated into the design of the Project. Further to these guidelines, the Applicant is also a signatory to the Clean Energy Council's Community Engagement Best Practice Charter for Renewable Energy Developments. This involves a voluntary set of commitments that the Applicant will uphold when developing and operating clean energy projects to engage respectfully with the communities in which they plan and operate projects, to be sensitive to environmental and cultural values and to make a positive contribution to the regions in which they operate.

5.1. Engagement Approach

Community awareness and input are fundamental to responsible and sustainable development. The Applicant understands the importance of effective and broad community consultation and is committed to genuine and meaningful engagement with the community and all stakeholders interested or impacted by the Project, developing long-term relationships, and maintaining open lines of communication. Specific objectives of the Applicant are to:

- Establish a strong network of positive, long-term relationships within the community
- Stay attuned and respond to community needs wherever possible
- Contribute to community growth – creating value and opportunity
- Demonstrate an ongoing commitment across the life of the asset.

Community engagement is predominantly undertaken by the Applicants Project team, who spend time in the Project area regularly engaging with the local community to build and maintain genuine, trusting relationships with stakeholders. The overall approach to consultation with local community is to be flexible, inclusive, open, and responsive.

The Applicant has prepared and implemented a Community Engagement Plan in line with the requirements of both the *Social Impact Assessment Guideline for State Significant Projects* (DPIE 2023) and *Undertaking Engagement Guidelines for State Significant Projects* (DPHI 2024b). The Community Engagement Plan outlines how the Applicant will engage with the community to identify and assess related social impacts. The Community Engagement Plan is a live document and will be updated through the Project lifecycle, from scoping phase through to post approvals and operations.

5.1.1. Communication and Engagement Objectives

The objectives of the Community Engagement Strategy are to:

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

Due to the general requirements of solar farms, such as good exposure to sunlight, open land, and the need to be in proximity to transmission lines, they are generally situated within rural areas close to rural dwellings and regional communities. This is known to cause conflict with local communities, who may feel they are impacted by the development, however, do not directly benefit.

Accordingly, the Community Engagement Plan for the Project is focused on mitigating direct impacts of the Project, while at the same time creating benefits for the local community. In particular, the consultation has the following objectives:

- Facilitate meaningful information exchange and involvement of stakeholders in the preliminary design and assessment process
- Collaborate with the community, to ensure local advice and insights are effectively integrated in the Project planning and design
- Maintain and enhance existing relationships between the Applicant and stakeholders
- Engage with a diversity of people, including vulnerable and marginalised groups
- Use appropriate and specific levels and techniques of engagement based on analysis of the community and how the community is best engaged.

5.1.2. Key Stakeholders

Engagement, transparency and benefit-sharing with the local community and stakeholders is critical to the success of any renewable energy project. Without the social licence to operate within the region, there can be no project. The actions undertaken to engage stakeholders and the community have been designed to enable community members to be a part of the project planning and development process and to provide them with the opportunity to engage in a meaningful way.

When developing an approach to engagement, it is important to characterise the types of stakeholders involved to ensure that the appropriate consultation can be provided. A stakeholder analysis has been undertaken by AAP Consulting (2024) to identify communities and stakeholders who have an interest in the Project, as part of the Preliminary Social Impact Assessment process. Table 5-1 categorises stakeholders including any group or individual that might have an interest and/or be impacted by the Project construction, operations, or decommissioning. This includes people and groups:

- That are impacted by possible construction, maintenance, or operational activities
- With an interest in policy or operational decisions

- With an interest in major Project development proposals.

Table 5-1: Identified stakeholders

Stakeholder Groups	Stakeholder
Involved Landholders	Landowners that will host infrastructure related to the Project
Neighbours	Landowners and residents residing adjacent to the Project Site
Government-elected representatives	<ul style="list-style-type: none"> • NSW Premier • NSW Minister for Planning and Public Spaces • NSW Minister for Energy and Environment • Federal Member for the New England • State Member for Lismore • Mayor and Councillors
Government – State	<ul style="list-style-type: none"> • NSW Department of Climate Change, Energy, the Environment and Water • NSW DPHI, including: <ul style="list-style-type: none"> ○ Biodiversity, Conservation and Science Directorate ○ Water Group • WaterNSW • Heritage NSW • Department of Primary Industries • NSW Environment Protection Authority • Transport for NSW • Crown Lands • Regional NSW – Mining, Exploration and Geoscience (MEG) • Local Lands Services – New England Region • Department of Finance, Services, and Innovation – Telco Authority • Fire and Rescue NSW • Commonwealth Department of Defence
Local Council	<ul style="list-style-type: none"> • Glen Innes Severn Council and Tenterfield Council
Aboriginal community	<ul style="list-style-type: none"> • Local Aboriginal people and community • Moonbahlene Local Aboriginal Land Council
Projects / Industry	<ul style="list-style-type: none"> • NSW Farmers Association • State Forest • NSW National Parks & Wildlife Service • NSW Forestry Corporation
Emergency Services	<ul style="list-style-type: none"> • NSW Police, Gough and Simpson Streets, Deepwater • NSW Police, 94 Molesworth Street, Tenterfield • NSW Fire Service, 202 Bourke Street, Glen Innes • NSW Fire Service 125 Logan Street, Tenterfield • NSW Ambulance, 99 Taylor Street, Glen Innes • NSW Ambulance, 144 -146 Manners Street, Tenterfield • NSW Rural Fire Service Units at 29 Young Street, Deepwater • State Emergency Services – 25 Bourke Street, Deepwater
Utilities and Service providers	<ul style="list-style-type: none"> • TransGrid • Telstra • Optus

Stakeholder Groups	Stakeholder
Local Community	<ul style="list-style-type: none"> ● Property owners, tenants, and real estates in the suburbs of: <ul style="list-style-type: none"> ○ Deepwater ● Tenterfield and Glen Innes
Local business and industry	<ul style="list-style-type: none"> ● Local businesses including: <ul style="list-style-type: none"> ○ Accommodation, retail, food and beverage and entertainment providers; medical services, fuel/vehicle maintenance services; as well as a range of business geared to servicing large civil construction Projects. ○ Deepwater Progress Association
Deepwater Solar	<ul style="list-style-type: none"> ● Direct Employees ● Consultants engaged by Deepwater Solar to conduct work
Community interest groups and community services	<ul style="list-style-type: none"> ● Glen Innes Natural Resources Advisory Committee
Road Users	<ul style="list-style-type: none"> ● Road users using the existing local roads ● Local taxi, bus, tour, and transport operators
Regional Community	<ul style="list-style-type: none"> ● Larger regional centres close to the Project, including Glen Innes Tenterfield

5.2. Engagement Undertaken

The Applicant has been in discussions with the landowner since 2022 to agree the land for development of the Project. Following, initial biodiversity surveys and flooding assessments have been completed in 2023 and 2024 which influenced the Project design.

In October 2024, meetings were held with Tenterfield and Glen Innes Severn Council to introduce the Project and timings.

Community consultation events were held in Glen Innes and Tenterfield LGAs on 30 & 31 January 2025 which allowed the local community and aboriginal representatives to drop-in to find out more information about the Project.

5.3. Future Engagement

Following the submission of the Scoping the Applicant is committed to undertaking effective engagement via several methods. This ensures that the engagement strategy will have the potential to have the greatest impact on providing meaningful feedback, with the following methods proposed:

- Letters and newsletters
- Media Releases (TBA)
- Emails
- Community information phone line
- Fact sheets
- Website: deepwatersolarfarm.com.au
- Feedback Surveys
- Public display of key planning documents
- Community information booths.

Additionally, the Applicant will continue to engage and consult with all identified stakeholders throughout the EIS phase and in line with the Undertaking Engagement Guidelines for State Significant Projects (DPHI 2024). All methods of engagement will regularly be updated as the Project evolves allowing all stakeholders to remain informed.

5.4. Monitoring and Evaluation

All stakeholder engagement feedback will continue to be collected and recorded in systematic manner throughout the Project lifecycle. The Applicant will give due consideration to the feedback received to resolve issues, and concerns where possible. The engagement methods will also be evaluated to ensure they are adequate and maximise participation opportunities.

6. Proposed Assessment of Impacts

6.1. Preliminary Environmental Risk Assessment

A preliminary environmental risk assessment has been undertaken for all potential environmental impacts that may need to be considered within the EIS for the Project. The preliminary risk rating is the risk rating prior to detailed assessment, or any mitigation being applied and is therefore precautionary and worst-case for the purposes of this Scoping Report. The preliminary environmental risk assessment has been based upon experience with other solar farm approvals, together with a preliminary assessment of the Project Site, to identify the key issues to be assessed in relation to the Project. The preliminary environmental risk assessment also included a review of the SEARs for other solar farm projects.

Table 6-1 summarises the results of the preliminary environmental risk assessment, and outlines the potential impacts and risks, as well as all assessments (including specialist assessments) that will be completed to assess and minimise environmental risk during the completion of the EIS. Furthermore, Section 6 provides further details with respect to the environmental and social matters and associated receptors that could be potentially impacted by the Project, as well as providing a preliminary assessment of the scale of impacts, nature of impacts and sensitivity of the receiving environment. The cumulative impacts of the Project will also be considered for each specialist assessment listed below in line with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE 2022).

Table 6-1: Preliminary risk assessment summary

Environmental Factor	Phase (Construction / Operation)	Likelihood ¹	Consequence ²	Risk ³	Potential Impact	Further Studies Required/Potential Avoidance and/or Mitigation Measures
Visual Amenity	Construction and Operation	Almost Certain	Minor	Minor	Reduction in visual amenity from visible PV modules	Further studies required: <ul style="list-style-type: none"> Undertake Landscape and Visual Impact Assessment as part of the EIS in accordance with the Technical Supplement for Landscape and Visual Impact Assessment (DPHI 2022). Potential avoidance and mitigation measures: <ul style="list-style-type: none"> Concept design to minimise visual impacts. Establish vegetation planning to provide visual screening.
		Likely	Minor	Moderate	Impact on scenic/landscape character	
Noise and Vibration	Construction and Operation	Likely	Negligible	Minor	Noise impacts during the construction and operational phase.	Further studies required: <ul style="list-style-type: none"> Undertake a Noise and Vibration Impact Assessment as part of the EIS in accordance with the Large-Scale Solar Energy Guidelines (DPHI, 2022). Potential mitigation measures: <ul style="list-style-type: none"> Concept design to minimise noise and vibration impacts. The construction work hours will be in accordance with the <i>Interim Construction Noise Guideline</i> (DECC 2009).
		Likely	Minor	Minor	Increased traffic noise are a result of the construction and operation phases	
Biodiversity	Construction and Operation	Almost certain	Moderate	Moderate	Disturbance of terrestrial and aquatic vegetation	Further studies required: <ul style="list-style-type: none"> Undertake Biodiversity Development Assessment Report (BDAR) as part of the EIS in accordance with the <i>Biodiversity Assessment Methodology</i> (BAM 2020). Potential mitigation measures: <ul style="list-style-type: none"> Concept design to adhere to avoid, minimise, mitigate, and offset principles. Where impacts to biodiversity cannot be avoided, mitigate through the preparation of a Biodiversity Management Plan, including measures to undertake prior to construction such as pre-clearance surveys. Where impacts cannot be mitigated, prepare an Offset Strategy to retire biodiversity credit obligations.
		Almost certain	Moderate	Moderate	Disturbance/loss of habitat	
		Almost certain	Moderate	Moderate	Indirect impact of the Project e.g., light, noise, spread of weeds/pests	
Traffic and Transport	Construction	Almost certain	Moderate	Moderate	Additional vehicles on local roads	Further studies required: <ul style="list-style-type: none"> Undertake a Traffic and Transport Impact Assessment as part of the EIS. Undertake an External Route Study as part of the EIS. Potential mitigation measures: <ul style="list-style-type: none"> Prepare a Traffic Management Plan.
Bushfire	Construction and Operation	Possible	High	Moderate	Potential for bushfire starting from construction activities or potential for construction to be affected by an external bushfire. Potential for bushfire starting within the Site due to vegetation or electrical malfunction or to be affected by an external bushfire	Further studies required: <ul style="list-style-type: none"> Undertake a Bushfire Risk Assessment as part of the EIS in accordance with <i>Planning for Bush Fire Protection (PBP), A Guide for Councils, Planners, Fire Authorities and Developers 2019</i> (NSW RFS 2019). Potential mitigation measures: <ul style="list-style-type: none"> Development of a Bushfire Management Plan and/or Emergency Response Plan. Incorporate appropriate emergency vehicle access into the Project design. Incorporate infrastructure setbacks from the Project Site boundary that will form Asset Protection Zones.
Aboriginal Heritage	Construction	Possible	Moderate	Moderate	Potential to impact on previously unrecorded Aboriginal objects, sites, or culturally modified trees	Further studies required: <ul style="list-style-type: none"> Undertake an ACHA as part of the EIS in accordance with the <i>Guide to investigating, assessing, and reporting on Aboriginal cultural heritage in NSW</i> (OEH 2011), the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW 2010a), and the <i>Aboriginal cultural heritage consultation requirements for Applicants</i> (DECCW 2010b). The ACHA will be conducted by a qualified archaeologist. Potential avoidance and mitigation measures: <ul style="list-style-type: none"> Design a Cultural Heritage Management Plan and outline how ground disturbance will be undertaken to minimise impact to heritage items if identified within the Project Site Develop an unexpected finds protocol for Aboriginal artefacts to be incorporated into the Construction Environmental Management Plan (CEMP) for the Project

Environmental Factor	Phase (Construction / Operation)	Likelihood ¹	Consequence ²	Risk ³	Potential Impact	Further Studies Required/Potential Avoidance and/or Mitigation Measures
Historic Heritage	Construction	Unlikely	Minor	Minor	Potential to impact on previously unknown historical archaeological relics	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a Historic Heritage Assessment as part of the EIS to establish the potential impacts and likelihood of previously unidentified historical archaeological relics being present within the Project Site. This should include a review of historic aerial images, parish maps, and relevant reports of the area. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> In the first instance impacts to identified Aboriginal items and objects will be avoided where possible. Develop an unexpected finds protocol for historical heritage items that were not identified during the Historic Heritage Assessment to be incorporated into the CEMP for the Project.
Soils and Land Use	Construction and Operation	Possible	Minor	Minor	<p>Soil erosion of the Project Site because of exposure of soils during the construction phase.</p> <p>Soil erosion of the Project Site as a result of exposure of soils due to poor vegetation management during the operational phase.</p>	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake an Agriculture Impact assessment / Soil Assessment which includes land use conflicts in accordance with <i>the Land Use Conflict Risk Assessment Guide</i> (DPI 2011), as part of the EIS <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment because of the construction works, including soil erosion and compaction. As part of the CEMP, prepare a Sediment and Erosion Control Plan Prepare an Operational Environmental Management Plan (OEMP) prior to operations to be adopted to minimise impacts on the environment as a result the Project's operational activities including soil erosion and compaction.
	Construction	Unlikely	Minor	Minor	Incidental discovery of soil contamination	<ul style="list-style-type: none"> If potential contamination is discovered stop work and inform the project manager Any soils identified during construction work that are discoloured or odorous, including asbestos or other anthropogenic materials should be segregated for further assessment and characterisation by an appropriately experienced environmental consultant
	Construction and Operation	Possible	Minor	Minor	Accidental contamination of soil because of a chemical spill	<ul style="list-style-type: none"> Keep a functioning 'spill-kit' on site at all times for clean-up of accidental spills. Include a spill response process within the CEMP and OEMP. If storage of chemicals and fuels are required, these should be stored within designated bunded areas, identified with appropriate signage. Record all stored chemicals on a register with their MSDS's. Ensure all tools and machinery are in good working order and without fuel, oil, or hydraulic leaks. Repair or remove equipment immediately.
	Construction and Operation	Almost certain	Minor	Minor	Land use capability – loss of productive soils during construction and use of and removal of rural land for the Project	Develop a Decommissioning Management Plan that will have an objective of returning the land capability to its pre-existing agricultural capacity
Surface Water, Groundwater, and Aquatic Ecology	Construction and Operation	Almost certain	Minor	Minor	Reduction in water quantity, flooding, and disturbance to waterways including impacts to aquatic biodiversity.	<p>Further studies required:</p> <ul style="list-style-type: none"> Undertake a Surface Water, Groundwater, and Flooding Impact Assessment as part of the EIS. Undertake an Aquatic Habitat and Riparian Land Impact Assessment as part of the EIS. <p>Potential mitigation measures:</p> <ul style="list-style-type: none"> In the first instance, major watercourses will be avoided except where crossings are required for access roads and transmission lines. If watercourses within the Project Site require crossing for infrastructure, Project design will consider the <i>Controlled Activities – Guidelines for Riparian Corridors on Waterfront Land</i> (DPE 2022) and <i>Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (DPI 2013). Prepare a CEMP prior to any construction works to address measures to be adopted to minimise impacts on the environment because of the construction works, including the protection of water resources. Acquire water access licence if necessary.
Social	Construction	Possible	Minor	Minor	Localised impacts on physical and mental health from air pollution, water pollution and noise during construction	Further studies required:

Environmental Factor	Phase (Construction / Operation)	Likelihood ¹	Consequence ²	Risk ³	Potential Impact	Further Studies Required/Potential Avoidance and/or Mitigation Measures
	Construction and Operation	Almost certain	Moderate	Moderate	Safety impacts through increased traffic on local roads during construction, and potential for bushfire during construction and operation	<ul style="list-style-type: none"> Undertake a Social Impact Assessment in accordance with the <i>Social Impact Assessment Guideline</i> (DPIE, 2023f) as part of the EIS. Potential mitigation measures: <ul style="list-style-type: none"> Ongoing community consultation throughout the preparation of the EIS, construction, and operation. Continuous updating of the Community Engagement Strategy. Prepare an Accommodation and Employment Strategy.
Economic	Construction	Unlikely	Minor	Minor	Use of local natural resources during construction	Further studies required: <ul style="list-style-type: none"> Undertake an Economic Impact Assessment as part of the EIS.
	Construction and operation	Possible	Minor	Minor	Decreased land value because of the Project	Potential mitigation measures: <ul style="list-style-type: none"> Implement a 'buy local' practice where goods and services can be purchased from local businesses. Advertise construction jobs locally.
Air Quality	Construction	Almost certain	Minor	Minor	Dust and exhaust emissions during the construction phase	Potential mitigation measures: <ul style="list-style-type: none"> Prepare a CEMP prior to any construction works to establish measures to be adopted to minimise impacts on the environment because of the construction works, including dust and exhaust emissions. Monitor work areas for dust generation and spray water to suppress dust if required. Minimise use of machinery for required activity only. Ensure all plant and equipment used for the Project are maintained regularly and operated in a proper and efficient manner

¹Likelihood – unlikely, possible, likely, almost certain; ²Consequence – negligible, minor, moderate, high, extreme; ³Risk – negligible, minor, moderate, extreme

6.2. Preliminary Environmental Assessment

A preliminary environmental assessment has been carried out in conjunction with the preliminary environmental risk assessment (Section 6.1) to identify the environmental and social matters that will require further assessment during the EIS. The level of assessment that will be carried out for each environmental and social matter as part of the EIS has also been identified. In accordance with the *State Significant Development Guidelines – Preparing a Scoping Report* (DPIE 2021), the following factors have been considered in the identification of environmental and social matters needing further assessment for the Project:

- The scale and nature of the likely impact of the Project and the sensitivity of the receiving environment (including the likely receptors to be potentially impacted)
- Whether the Project is likely to generate cumulative impacts with other relevant future Projects in the locality
- The ability to avoid, minimise, mitigate, and/or offset the impacts of the Project, to the extent currently investigated through the preliminary assessment.

This section presents the identified environmental and social matters requiring further assessment and the proposed approach for further assessment within the EIS. The environmental and social matters have been categorised as per the categories identified in the *State Significant Development Guidelines – Preparing a Scoping Report* (DPIE 2021). A scoping summary table has been included in Appendix A, which summarises the need for cumulative impact assessment, the level of consultation required, and relevant government plans, policies and guidelines that will be considered during the EIS for each environmental and social matter.

The level of assessment required for each environmental and social matter, as per Appendix D of the *State Significant Development Guidelines – Preparing a Scoping Report* (DPIE 2021) is outlined in Table 6-2.

Table 6-2: Level of assessment required for each environmental and/or social matter assessed

Level of Assessment	Definition	Environmental / Social Matter
Detailed	The Project may result in significant impacts on the matter identified, including cumulative impacts. The assessment of the impacts of the Project on the matter will require detailed studies and investigations to be carried out by technical specialists.	<ul style="list-style-type: none"> • Biodiversity (Native Vegetation, Fauna, and Aquatic Ecology) • Heritage (Aboriginal and Historic) • Water (Hydrological Flows, Surface and Groundwater Quality and Water Availability) • Amenity (Landscape and Visual and Noise and Vibration) • Traffic and Transport (Property Access and Road Network) • Hazards (Bushfire and Battery Storage) • Social (Health, Safety, Housing Availability and Community Benefits) • Economic (Natural Resource Use, Livelihood, Opportunity Cost and Economic Benefits)
Standard	The Project is unlikely to result in significant impacts on the matter, including	<ul style="list-style-type: none"> • Air (Particulate Matter, Gases and Atmospheric Emissions)

Level of Assessment	Definition	Environmental / Social Matter
	cumulative impacts. While the assessment of the impacts of the Project on the matter will involve technical specialists, these impacts are likely to be well understood, relatively easy to predict using standard methods and are capable of being mitigated to comply with relevant standards or performance measures.	<ul style="list-style-type: none"> Land (Stability, Topography, Geology and Land Capability) Hazards (Climate Change and Public Health) Waste (Resource Use and Waste Management)

6.2.1. Landscape and Visual Amenity

In accordance with the *Large-Scale Solar Energy Guidelines* (DPHI 2022a) and the *Technical Supplement – for Landscape Character and Visual Impact Assessment (LCVIA), Large-Scale Solar Energy Guidelines (Technical Supplement)* (DPHI 2022b). Moir Studio, undertook a Preliminary Landscape and Visual Impact Assessment (PLVIA) (Appendix B) to detail:

- The Study Area
- Viewshed Mapping
- Identification of potential affected viewpoints and receivers.

6.2.1.1. Existing Environment

Study Area

The Study Area for the LCVIA incorporates public roads within 2.5 km of the Development Footprint, and private receivers and public viewpoints within 4 km from the Development Footprint.

There are three (3) public roads within 2.5km of the Development Footprint, along these three (3) roads, five (5) viewpoint locations have been identified which represent the worst-case scenario views (Table 6-3) of the Project Site.

Table 6-3: Viewpoints Identified within 2.5km of the Development Footprint

Public Viewpoint identified within 2.5 km of the Development Footprint		
Viewpoint ID:	Location	Distance to Project
VP01	Torrington Road	2,115 m
VP02	Torrington Road	2,247 m
VP03	New England Highway	973 m
VP04	New England Highway	869 m
VP05	Rockdale Road	2,076 m

There are nine (9) non-associated dwellings within 4 km of the Project Site with potential to view the Project (Table 6-4).

Table 6-4: Non-Associated Dwellings identified within 4 km of the Development Footprint

Non-Associated Dwellings identified within 4 km of the Development Footprint		
Dwelling ID	Address	Distance to Project
3	9 Rockdale Road, Deepwater	569 m
6	391 Rockdale Road, Deepwater	1,373 m
7	391 Rockdale Road, Deepwater	1,776 m
9	4404 New England Highway, Deepwater	873 m
10	4370 New England Highway, Deepwater	1,652 m
13	489 Torrington Road, Deepwater	2,828 m
14	119 Ten Mile Road, Deepwater	2,699 m
15	119 Ten Mile Road, Deepwater	3,043 m
16	101 Castlerag Road, Deepwater	3,251 m

6.2.1.2. Potential Impacts

Viewshed mapping has been undertaken as part of the preliminary assessment which has established that of the nine (9) non-associated dwellings identified within 4 km of the Development Footprint, three (3) have no visibility of the Project due to the intervening vegetation. The topography helps to reduce the visibility of the Project on the surrounding area. To the north at Bolivia Hill Nature Reserve, land is more elevated resulting in higher theoretical visibility of the Project. However, there is limited public access to this area. This is also the case for the elevated land situated to the west of the Project.

6.2.1.3. EIS Assessment Approach

A LCVIA will be prepared in accordance with the Guideline and the Technical Supplement. During the preparation of the LCVIA, detailed site investigations will be undertaken from areas identified in the preliminary assessment as having potential visibility towards the Project.

Specialised modelling tools and visualisations (including photomontages) will be developed to illustrate potential views of the Project from key public and private viewpoints identified through this report. In addition, site inspections will be undertaken from key public viewpoints identified as requiring further assessment.

The LCVIA will include an assessment of the landscape and visual impact resulting from all associated infrastructure and ancillary structures, and consideration of cumulative impacts of nearby infrastructure. Further assessment will be undertaken to assess potential impacts of glint and glare using industry standard methodology.

The cumulative impacts of surrounding renewable energy projects will be assessed as part of the Landscape Visual Impact Assessment (LVIA) to evaluate potential effects on the broader regional landscape character.

On-site and off-site visual landscape mitigation strategies will be developed in response to the assessment and community consultation. The purpose of the mitigation strategies will be to ensure the Project is integrated into the existing landscape and to mitigate identified visual impacts to an acceptable level.

6.2.2. Noise and Vibration

A Preliminary Noise Impact Assessment (PNIA) (Appendix C) has been prepared by Marshall Day Acoustics (MDA) to provide preliminary insights into the likely noise impacts relating to the Project.

6.2.2.1. Existing Environment

The existing noise environment considers the background noise levels at the nearest dwellings situated within and surrounding the Project Site. At this stage, no background noise monitoring measurements have not been conducted and therefore, the Noise Policy for Industry (NPfi) and Interim Construction Noise Guidelines (ICNG) have been adopted (Table 6-5).

Table 6-5 Minimum assumed RBLs for NPfi and ICNG, dB L_{A90}

Time of Day	Minimum assumed RBL
Day	35
Evening	30
Night	30

There are sixteen (16) dwellings within a 4 km proximity of the Project have been considered as part of the PNIA as shown in the table below (Table 6-6).

Table 6-6 Dwelling within 4 km of the Project for PNIA

Receiver ID	Easting, m	Northing, m	Approximate distance to PV equipment, km	Approximate distance to BESS equipment, km
1*	391,667	6,748,823	0.3	1.8
2*	388,718	6,746,119	1.6	5.4
3	392,864	6,749,728	0.5	1.2
4*	393,542	6,751,265	2.1	2.5
5*	393,962	6,749,435	0.3	0.7
6	395,761	6,749,801	1.4	2.3
7	395,880	6,750,219	1.8	2.6
8*	397,479	6,750,393	3.2	4.1
9	390,316	6,745,768	0.8	4.3
10	390,142	6,745,001	1.6	5.0
11*	388,863	6,745,585	1.8	5.6
12*	389,233	6,745,737	1.5	5.2
13	387,517	6,747,636	2.7	6.1
14	390,388	6,743,884	2.7	5.7
15	390,022	6,743,596	3.0	6.1
16	391,091	6,752,025	3.2	4.1

* Associated Landowners

6.2.2.2. Potential Impacts

Based on the results of the assessment, there is a moderate risk of noise impacts at Dwellings one (1), three (3) and five (5) from the operation of the BESS. This is based on the predicted noise levels being above the Project noise trigger level. It should be noted that dwellings 1 and 5 are identified as Project host landholders and may be subject to private noise agreements as the Project progresses.

The risk of noise impact from operation of the BESS at other receivers is expected to be low, based on predicted noise levels below the project noise trigger level.

Similarly, the risk of noise impact from operation of PV infrastructure at all receivers, including dwellings 1, 3 and 5, is expected to be low, based on predicted noise levels below the project noise trigger level.

OPERATIONAL NOISE

The detailed operational noise assessment would be conducted in accordance with the NPfl (refer to Section 3.1). It is expected that this will include:

- Project-specific equipment selections and corresponding sound power level data/specifications.
- Operational conditions specific to each assessment period.
- A detailed Project design including discrete positions for all noise generating infrastructure.
- 3-dimensional noise modelling, including the effect of topography on predicted noise levels at receivers.
- An assessment of tonality, with reference to specific equipment selections made by the Applicant
- Noise mitigation measures – if required – such as manufacturer noise attenuation kits or noise barriers.

CONSTRUCTION NOISE

The construction noise assessment would be conducted in accordance with the ICNG. Predicted noise levels would be calculated in general accordance with the method detailed in *Australian Standard 2436:2010 Guide to noise and vibration control on construction, demolition and maintenance sites (AS 2436)*.

To predict noise levels at the nearby receivers, construction noise modelling would refer to project-specific work areas, plant items, and construction phasing. These items would need to be determined by the Applicant in advance, such that a representative assessment can be conducted.

Where construction noise levels are predicted to be above the ICNG noise management levels, the Project may require the adoption of reasonable and feasible general management measures and considerate working practices to achieve compliance. These measures are normally documented and agreed upon in a construction noise and vibration management plan (CNVMP) for inclusion in a broader environmental management plan (EMP), however, a high-level summary of these items would be included within the EIS if required. It is typical for the construction noise assessment at EIS stage to be conceptual in nature, based on expected equipment and work methods. A detailed assessment and associated noise management plan would typically be conducted post EIS once a construction contractor is appointed.

TRAFFIC NOISE

The traffic noise assessment would be conducted in accordance with the RNP (refer to Section 3.4).

The likelihood of traffic noise impacts associated with the operation of the Project is expected to be low, with construction stage traffic likely to comprise the majority of traffic movements associated with the Project. On this basis, operational traffic on public roads is not likely to require detailed consideration as part of the EIS assessment.

Additional consideration would also be given to the likelihood of sleep disturbance impacts associated with out of hours oversize/over mass (OSOM) deliveries during the construction of the Project.

6.2.2.3. EIS Assessment Approach

A Noise and Vibration Impact Assessment (NVIA) will be completed to support the EIS in accordance with best practice guidelines. This is expected to include an assessment of other noise considerations including background noise levels (if monitoring is required), special noise characteristics, construction, and ancillary infrastructure as well as a review of cumulative noise considerations if required.

The NVIA will be prepared in accordance with all relevant guidelines and policies, including:

- NSW Interim Construction Noise Guideline (DECC 2009)
- Draft Construction Noise Guideline (EPA 2020)
- NSW Noise Policy for Industry (EPA 2017)
- NSW Road Noise Policy (DECCW 2011)
- Assessing Vibration: A Technical Guideline (DECC 2006).

6.2.3. Biodiversity

Preliminary and detailed biodiversity assessments have been undertaken for the Project by Biosis Pty Ltd (Biosis), which has considered the biodiversity values both within the Project Site. A summary of the main findings can be found below. The methodology undertaken for the assessment included the following:

- Preliminary field survey and constraints and opportunities assessment to identify the likely biodiversity values within the Project Site
- Detailed field investigations conducted across the Project Site, including:
 - Collection of BAM plots
 - Targeted flora surveys for candidate flora species
 - Targeted fauna surveys for candidate fauna species
 - Scattered paddock tree mapping and habitat tree mapping
- Land category assessment
- Likelihood assessment for all threatened species, populations or ecological communities identified.

6.2.3.1. Existing Environment

The Project Site is located with the New England Tablelands Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion and the Deepwater Downs subregion. The vast majority of the Project Site consists of cleared and modified grasslands that are largely dominated by exotic species. However, some areas of the Project Site (slight inclines and slopes) contain fringing remnant woodland and Derived Native Grassland (DNG), which contain a higher abundance of native vegetation cover and are considered to be moderate to high condition. Additionally, a large a number of scattered paddock trees occur throughout the Project Site.

PLANT COMMUNITY TYPES AND THREATENED ECOLOGICAL COMMUNITIES

The Development Footprint is predominately comprised of cleared land used for improved pasture, cropping and livestock grazing, with areas of higher biodiversity values prioritised for avoidance. The contemporary landscape consists of a mixture of tracts of native vegetation, scattered paddock trees, cleared paddocks dominated by *Eragrostis curvula* (African Lovegrass), *Setaria* spp, *Trifolium* spp, *Lolium perenne* (Rye Grass) and *Festuca pratensis* (Meadow Fescue), as well as physical structures associated with livestock grazing such as rural dwellings, troughs, roads, fences, and other farm infrastructure.

Desktop mapping including a review of the Sharing and Enabling Environmental Data (SEED) NSW State Vegetation Type Mapping (SVTM) to identify the potential Plant Community Types (PCTs) was undertaken as shown in Figure 6-1. These PCTs were validated through preliminary on-site investigations which identified three (3) Plant Community Types (PCT) ranging from low to high condition, and in woodland and DNG states (Figure 6-2. These PCTs, including those that represent EPBC Act or BC Act listed TECs, are summarised below in Table 6-7. PCTs include:

- PCT 3358 – New England Fuzzy Box Grassy Forest
- PCT 3359 – New England Hill Stringybark-Box Woodland
- PCT 3363 – Western New England Blakely's Red Gum-Box Grassy Forest.

Where native vegetation occurs, a range of condition states were observed, however the majority are considered to be in low ecological condition due to the historic land management practices such as grazing and improved pasture, which have caused degradation to the native vegetation throughout the Project Site.

A review of land categorisation under the *Local Land Services Act Amendment Act 2016* (LLS Act) to clarify the native vegetation management regime was undertaken. Where applicable to do so (land applicable to the LLS Act), the potential for land to be mapped as Category 1 exempt land was evaluated, as land mapped or determined as Category 1 land can be excluded from the BAM and is not required to be assessed, with exception to prescribed impacts. This was then compared to, and reconciled with, the Native Vegetation Regulatory (NVR) mapping provided by NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) for the Project Site. Following completion of all required surveys and further consultation with Biodiversity Conservation Science (BCS) group, this will be reviewed in more detail through comprehensive assessment and design revision where appropriate, particularly around Critically Endangered Ecological Communities (CEEC) and habitats, as well as Serious

The following threatened ecological community (TEC) is known to occur within the Project Site:

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland TEC (BC Act and EPBC Act listed) -CEEC.

Table 6-7: PCTs mapped within the Study Area

Broad vegetation classification	PCTs	Vegetation condition zones	BC Act	EPBC Act	SAIL	PCT Area within preliminary Development Footprint (Ha)	PCT Area within Project Site (Ha)
Grassy Woodlands	PCT 3358 <i>New England Fuzzy Box Grassy Forest</i>	DNG_Low	-	-	-	10.07	15.99
		WD_Low	-	-	-	1.26	18.48
Grassy Woodlands	PCT 3359 – <i>New England Hills Stringybark-Box Woodland</i>	WD_Mod	CEEC - 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 - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Yes	1.06	28.92
Grassy Woodlands	PCT 3363 – <i>Western New England Blakely's Red Gum- Box grassy Forest</i>	WD_High	CEEC - 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 - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Yes	-	5.88
		WD_Mod	-	-	-	0.66	50.62
		WD_Low	-	-	-	28.15	83.94
		Riparian	-	-	-	7.58	60.31
		DNG_Mod	CEEC - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	-	-	0.96	6.11
		DNG Low	-	-	-	16.59	159.14
Planted	-	-	-	-	-	4.36	15.39
Non- Native vegetation	-	-	-	-	-	345.54	557.13
Total						416.27	1,002.19

THREATENED FLORA AND FAUNA

Background searches identified 12 threatened flora and 27 threatened fauna species as being recorded (NSW DCCEEW 2024) or predicted to occur (Commonwealth of Australia 2019) within the locality (Figure 6-3). Furthermore, based on the PCTs confirmed present within the Project Site, a total of 17 candidate species and 22 predicted ecosystem credit species have been generated as potentially occurring.

Those that are known or predicted to occur with a medium or greater likelihood of occurrence include but are not limited to:

- *Artamus cyanopterus cyanopterus* (Dusky Woodswallow) – vulnerable under BC Act
- *Calyptorhynchus lathami* (Glossy Black Cockatoo) – vulnerable under BC Act
- *Circus assimilis* (Spotted Harrier) – vulnerable under BC Act
- *Climacteris picumnus victoriae* (Brown Treecreeper) – vulnerable under BC Act
- *Daphoenositta chrysoptera* (Varied Sitella) – vulnerable under BC Act
- *Glossopsitta pusilla* (Little Lorikeet) – vulnerable under BC Act
- *Hieraetus morphnoides* (Little Eagle) – vulnerable under BC Act
- *Lophoictinia isura* (Square-tailed Kite) – vulnerable under BC Act
- *Melanodryas cucullata cucullate* (Hooded Robin) – vulnerable under BC Act
- *Neophema pulchella* (Turquoise Parrot) – vulnerable under BC Act
- *Ninox connivens* (Barking Owl) – vulnerable under BC Act
- *Petroica phoenicea* (Flame Robin) – vulnerable under BC Act
- *Pomatostomus temporalis temporalis* (Grey-crowned Babbler (eastern subspecies)) – vulnerable under BC Act
- *Stagonopleura guttata* (Diamond Firetail) – vulnerable under BC Act
- *Tyto novaehollandiae* (Masked Owl) – vulnerable under BC Act; recorded present
- *Dasyurus maculatus* (Spotted-tailed Quoll) – vulnerable under BC Act; endangered EPBC Act
- *Petaurus norfolcensis* (Squirrel Glider) – vulnerable under BC Act
- *Phascolarctos cinereus* (Koala) – vulnerable under BC Act and EPBC Act
- *Myuchelys bellii* (Bells Turtle) – endangered under BC Act; vulnerable under EPBC Act; recorded present
- *Chalinolobus dwyeri* (Large-eared Pied Bat) – vulnerable under BC Act and EPBC Act
- *Miniopterus orianae oceanensis* (Large-bent-winged Bat) – vulnerable under BC Act
- *Myotis Macropus* (Southern Myotis) – vulnerable under BC Act
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail-bat) – vulnerable under BC Act
- *Vespadelus trougtoni* (Eastern Cave Bat) – vulnerable under BC Act
- *Acacia macnuttiana* (MacNutt's Wattle) – vulnerable under BC Act and EPBC Act
- *A. pycnostachya* (Bolivia Wattle) – vulnerable under BC Act and EPBC Act
- *Dichanthium setosum* (Blue Grass) – vulnerable under BC Act and EPBC Act
- *Eucalyptus boliviana* (Bolivia Stringybark) – vulnerable under BC Act
- *Swainsona sericea* (Silky Swainson-Pea) – vulnerable under BC Act; recorded present
- *Thesium australe* (Austral Toadflax) – vulnerable under BC Act and EPBC Act; recorded present.

Numerous habitats feature for threatened flora and fauna occur within the Project Site including grassy woodlands, perennial (Deepwater River) and ephemeral waterways, hollow-bearing trees and fallen logs.

The presence of forests and woodlands, especially along or adjacent to ephemeral drainage lines, have the potential to provide habitat for threatened flora, as well as threatened woodland birds, microbats, and terrestrial and arboreal mammals. Open areas of DNG, exotic grassland and scattered trees are likely to support the foraging and potential nesting behaviours of raptor species. Native vegetation containing stands of hollow-bearing trees are known to support hollow-dependant birds and mammals.

Targeted surveys have been undertaken in accordance with the Biodiversity Assessment Method (2020). Two threatened flora species have been identified within the Project Site during the field investigation, these were *Swainsona sericea* and *Thesium australe*. One threatened fauna species, the Masked Owl, was also recorded within the Project Site. It is also known that the Deepwater River to the west of the Project Site contains a known population of Bells Turtle and is subject to a Local Land Services co-ordinated project with support from the Saving our Species program.

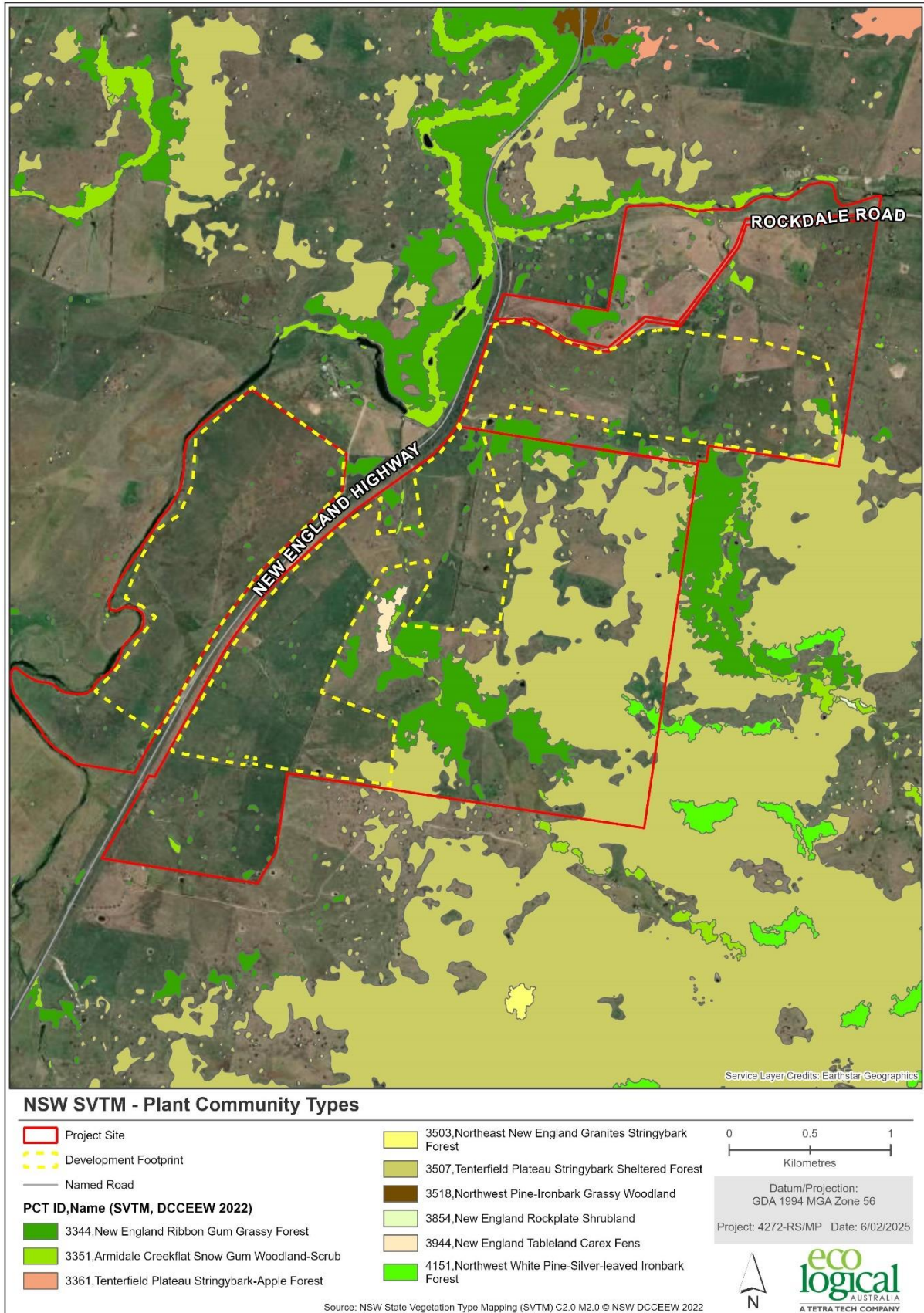


Figure 6-1 NSW SVTM - PCTs

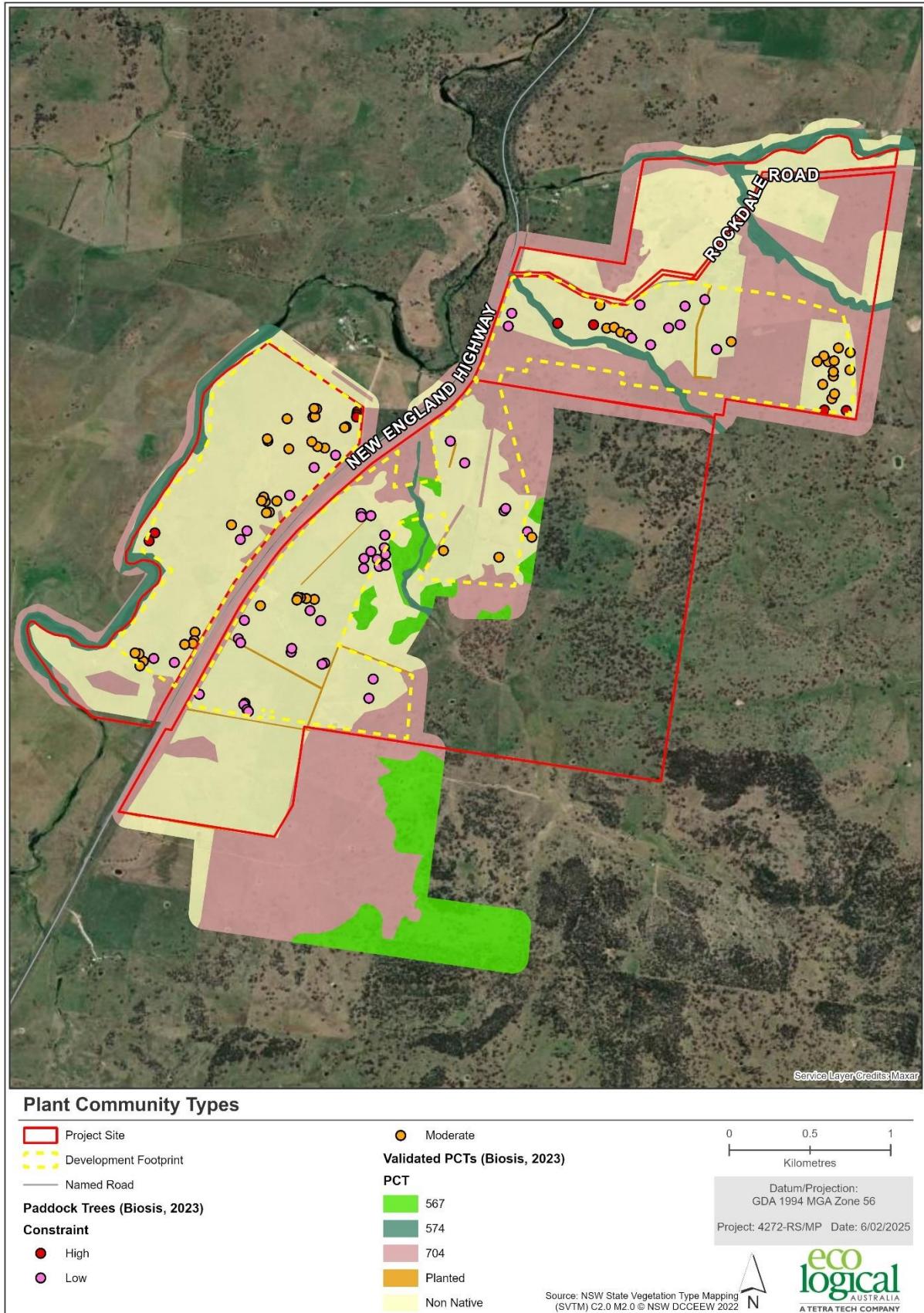
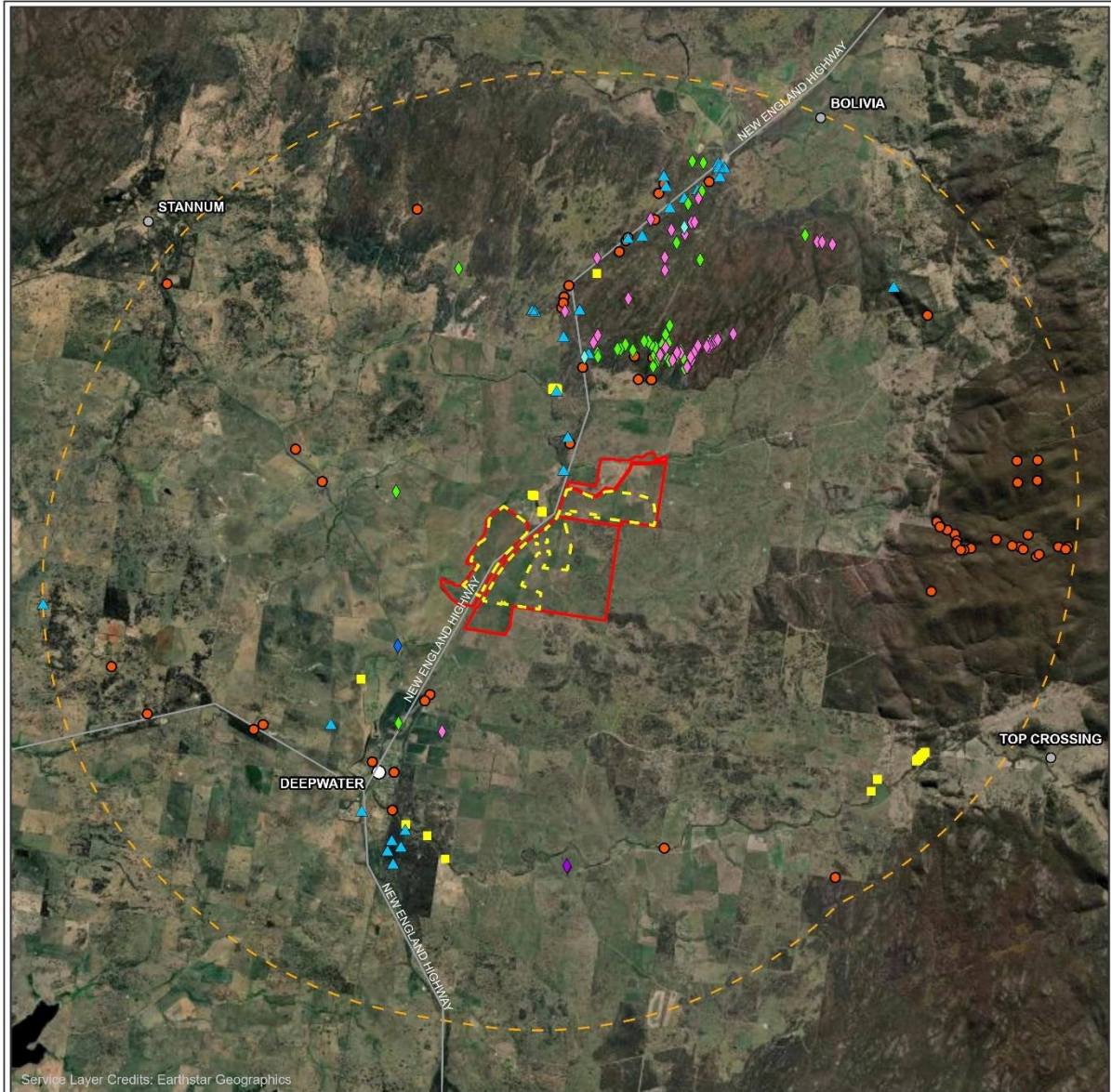


Figure 6-2: Validated PCTs within the Development Footprint



Service Layer Credits: Earthstar Geographics

Threatened Species - BioNet Atlas Records

- Project Site
- Development Footprint
- 10 km buffer of Project Site
- Roads
- Locality**
- Town
- Locality

Threatened Flora Records (BioNet, 4/11/2024)

- ◆ Fabaceae (Mimosoideae)
- ◆ Myrtaceae
- ◆ Orobanchaceae
- ◆ Poaceae
- ◆ Rutaceae

Threatened Fauna Records (BioNet, 4/11/2024)

- ▲ Aves
- Mammalia
- Reptilia



Data Source:
 NSW Office of Environment and Heritage's BioNet Atlas of NSW Wildlife, which holds data from a number of custodians. Data obtained 4/11/2024.
 Limitations:
 Only non-quarantined records are included. Please note that BioNet sensitive species have not been displayed due to the sensitive species data policy. Species not shown on map: South-eastern Glossy Black-Cockatoo, Turquoise Parrot, Barking Owl, Masked Owl, Small Snake Orchid, Bolivia Hill Boronia, Bolivia Hill Rice-flower.

Datum/Projection:
 GDA 1994 MGA Zone 56
 Project: 4272-RS Date: 6/02/2025



Figure 6-3 Threatened Species within 10 km of the Project Site

6.2.3.2. Potential Impacts

AVOIDANCE AND MINIMISATION OF BIODIVERSITY IMPACTS

The development and operation of the solar farm creates the potential to negatively impact threatened species and TECs listed under the BC Act and EPBC Act through direct and indirect impacts on habitat. The main potential impacts regarding the construction and operation of the Project that require assessment include:

- Clearing of TECs and the associated impacts to native species, in particular threatened and migratory species
- Increased habitat fragmentation
- Injury and mortality to fauna from vegetation clearing and vehicle strikes
- Changes to riparian hydrology and function.

High level constraints have been identified to minimise potential impacts and allow for avoidance of remnant vegetation, TECs and threatened species habitat as much as possible. Locating solar infrastructure within areas of low constraint and Category 1 exempt land will result in fewer impacts to biodiversity. The avoidance and minimisation of impacts to biodiversity values is a requirement under both state and Commonwealth legislation and will be implemented throughout the Project. Locating solar infrastructure within areas of low constraint is considered most suitable and has been prioritised during designs to date. This includes avoiding and minimising impacts to areas of highest biodiversity value such as high condition TECs, known and recorded threatened species, avoiding direct impact and managing setbacks from Deepwater River, habitat trees containing large hollows, retaining connectivity throughout the landscape and minimising direct impacts to ephemeral riparian areas as far as practicable.

CONSTRUCTION

As previously mentioned, biodiversity values have been investigated early in the development process and have been considered within the current Development Footprint. Biodiversity values will be a key constraint considered throughout further design development to avoid and minimise impacts as far as practical.

However, impacts on native vegetation, native fauna and terrestrial ecosystems are likely to occur as a result of the Project. The construction of solar infrastructure, access roads and associated facilities for the operation of the Project will require clearing of vegetation. These activities may result in a direct and long-term impact on the occurrence, extent and coverage of native vegetation, including threatened species and ecological communities. Indirect impacts including the loss of feeding, refuge and breeding habitat for native fauna, particularly threatened fauna, may also occur, including habitat fragmentation and the loss of habitat connectivity.

Direct and indirect impacts during construction may include clearing, sedimentation, dust deposition, erosion, weed introduction and/or spread, vehicle/machinery strike, light and noise pollution, shading and vibration from the movement of equipment and vehicles. Sedentary species, specifically threatened flora, are more likely able to be avoided early in the project design or assessed thoroughly to confirm impacts.

OPERATION

Threatened species may be subject to a higher risk from the operational stage of the Project due to the clearing of suitable habitat, barrier effects and movement corridor impacts. Species with a higher risk of being impacted by solar farms are considered to be those with potential for ongoing population impacts during operation such as:

- Ground dwelling species like reptiles, insects and small mammals due to degradation and alteration of habitat
- Waterbirds may also be impacted through collisions with solar panels due to the reflective nature of the panels being mistaken for water.

Generally, impacts on more sedentary or habitat-dependant species can be mitigated through careful site selection and planning during the design phase of a solar farm. By avoiding critical habitats, such as mature woodlands or important breeding habitat, while ensuring adequate buffers around these areas, the risk of population-level impacts can be reduced.

Migratory and nomadic species, on the other hand, may face a higher risk as solar farms could disrupt their movement corridors or alter the availability of stopover habitat. Ensuring that solar farms are situated in areas that do not interfere with these species' migration routes or critical habitats will help reduce potential impacts.

6.2.3.3. EIS Assessment Approach

Biodiversity is considered a key issue for the SEARs and a detailed biodiversity assessment will be undertaken for the EIS. The Project is SSD, triggering entry into the Biodiversity Offset Scheme (BOS). Field surveys have been undertaken and a BDAR will be required to address the BC Act, including the BAM, and EPBC Act. The BDAR will be prepared in accordance with the BAM detailing the Project and the associated biodiversity values, how the Project has avoided and minimised impacts to biodiversity, and an impact assessment for those residual impacts that could not be avoided. This will include an impact assessment in accordance with the EPBC Act and FM Act).

A constraints and opportunities report, land category assessment, and detailed field assessments have been completed; however, data analysis and reporting as part of the scope of the BDAR and preparation of the EIS will include:

- Further consultation with BCS following scoping report lodgement and development of the BDAR
- Review and update of established BAM Calculator project for the current assessment to accurately determine credits for threatened ecosystems and species
- Further identification of opportunities for impact avoidance, mitigation and offset measures necessary for the Project
- Undertake analysis of field data to determine impacts to threatened species and native vegetation and calculate any offset requirement in accordance with the BAM
- If required, engage species experts, as required, where field surveys could not sufficiently determine the presence/absence of candidate species credit species, due to constraints such as seasonal survey restrictions or requirements for replicate surveys follow weather events etc.

6.2.4. Traffic and Transport

6.2.4.1. Existing Environment

The Project Site incorporates usage of two roads, the New England Highway and Rockdale Road. The New England Highway is a State road under the care and management of Transport for New South Wales (TfNSW). It runs in a northwest-southeast alignment from Newcastle to Muswellbrook, before running in a general northern alignment to its termination at the Queensland Border. It has a speed limit of 100km/hr within the vicinity of the site, and a carriageway width of approximately 10m accommodating one lane of traffic in each direction and sealed shoulders on both sides of the road.

Rockdale Road is a municipal local road which extends east from New England Highway for approximately 11km to its termination. It has an unsealed carriageway width of approximately 3m and accommodates two-way vehicle movement.

The intersection of New England Highway and Rockdale Road is priority controlled with vehicles exiting Rockdale Road required to give way. It is noted that no turn facilities are provided, and a guardrail is present on the northeastern corner of the intersection. In addition, Rockdale Road has a floodway located approximately 15m east of the intersection.

6.2.4.2. Traffic Volumes

Traffic volume data for New England Highway was obtained from the TfNSW traffic volume viewer. The most recent data is for a record station located at the Severn River bridge which is located near Dundee approximately 18 km south of the Project Site. It is considered that the survey location provides a suitable high-level estimate of the traffic volumes on New England Highway adjacent to the site given the area between the survey and the site is predominantly agricultural.

Survey data is provided for each year from 2015 to 2021. However, due to the travel changes generated by the COVID-19 pandemic, the traffic data for 2019 has been utilised for the purposes of this assessment. A summary of the results is provided in Table 6-8.

Table 6-8: Denman Road Traffic Survey

Road	Survey Location	Survey Year	Recorded Volume	Peak Hour	Growth Factor	Estimated Traffic Volume	Current
New England Highway	280m north of Severn River Road, Dundee, 2370	2019	2,101 vpd 74% Light 28% Heavy	11:00am - 181 vph 12:00pm - 178 vph	1.50%	2,297 vpd 198 vph (AM) 195 vph (PM)	

The traffic volume data suggests that New England Highway currently carries a low to moderate level of traffic in line with its function and classification as a State road.

Rockdale Road is expected to currently carry a very low level of traffic given it only services a small number of dwellings and the associated agricultural land.

Overall, the traffic volumes are well within the operating capacity of the road which can accommodate an increase in traffic. Further assessment of the traffic impacts of the Project will be undertaken as part of the future Traffic Impact Assessment. Given the limited available traffic data in the surrounding area,

it is recommended that a tube count on New England Highway is undertaken adjacent to the site to support the future traffic analysis.

6.2.4.3. Public Transport Service

No public transport services are provided within the vicinity of the Project Site. It is understood that a number of school bus services operate along New England Highway. However, there are no bus stops within the vicinity of the Project Site.

6.2.4.4. Restricted Vehicle Access

The majority of vehicles expected to access the Project Site will be heavy vehicles up to a 26m B-Double. The TfNSW Restricted Vehicle Access Map for the surrounding area is provided within Figure 6-4, with the green lines indicating approved B-Double routes. Figure 6-4 shows that New England Highway is an approved route for 25/26m B-Double vehicles.

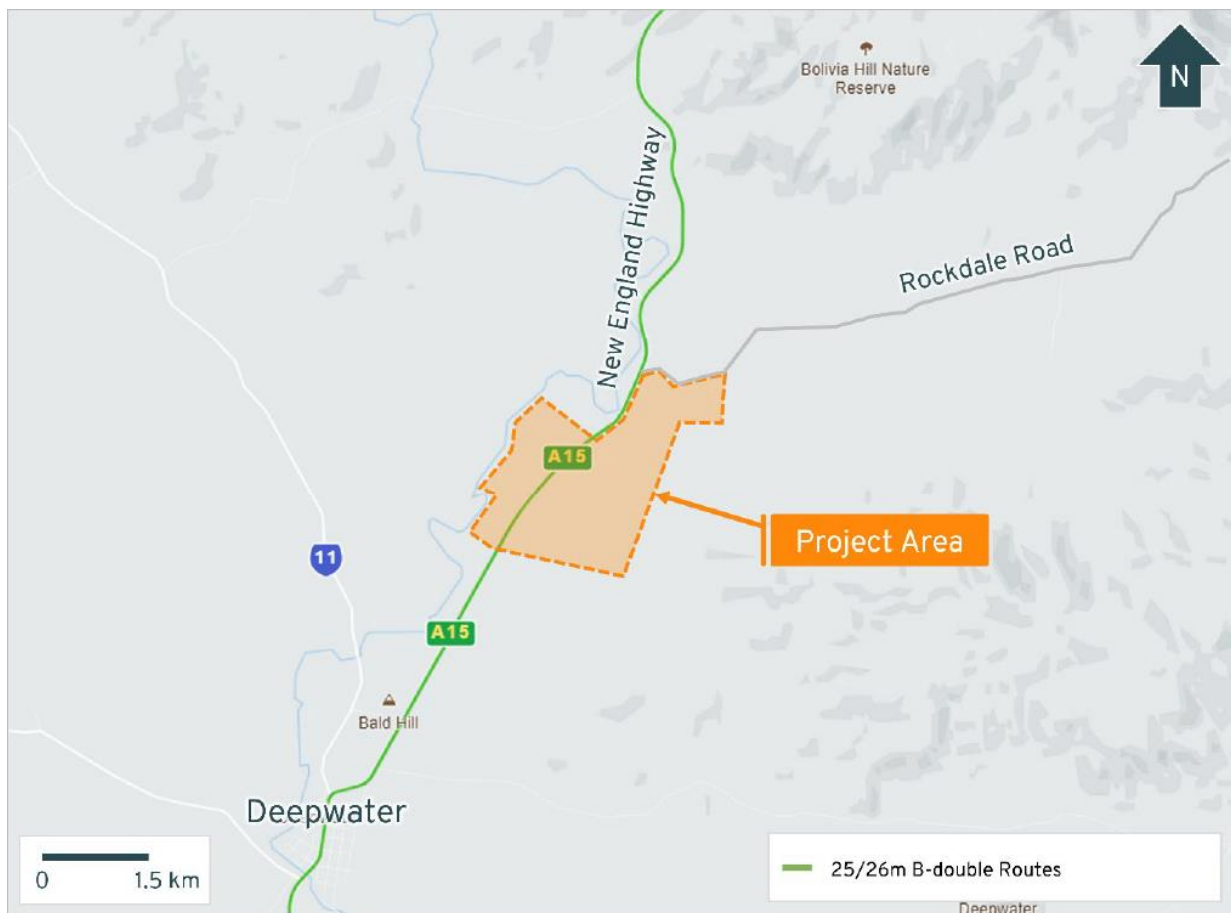


Figure 6-4: TfNSW Restricted Access Vehicle Map - B- Doubles

CLASS 1 OSOM VEHICLES

A review has also been undertaken of the TfNSW OSOM Load Carrying Vehicles Network map which shows approved routes for eligible vehicles operating under the Multi-State Class 1 Load Carrying Vehicles Mass and Mass Exemption Notices. Within NSW, a summary of allowances under each exemption notice are as follows:

- Dimension: up to 5.0m wide, 5.0m high, 30.0m long and 7.5m rear overhang on approved (state owned) routes in NSW
- Mass: up to 115.0 tonnes for rows of 8 tyres low loaders and up to 77.5 tonnes for rows of 4 tyres low loader combinations.

Vehicles operating in the daytime and not exceeding 3.5m wide or 26m long generally do not require a pilot vehicle.

Figure 6-5 shows that New England Highway is an approved route for Class 1 OSOM vehicles. The green lines indicate approved Class 1 OSOM Vehicle routes while the yellow lines represent approved routes with travel conditions. Accordingly, the site has access to the Class 1 OSOM approved road network via New England Highway which has the following travel condition north of Rockdale Road:

The lead pilot vehicle must travel one (1) kilometre in front of the load to avoid any conflicts with other road users on the bridge.

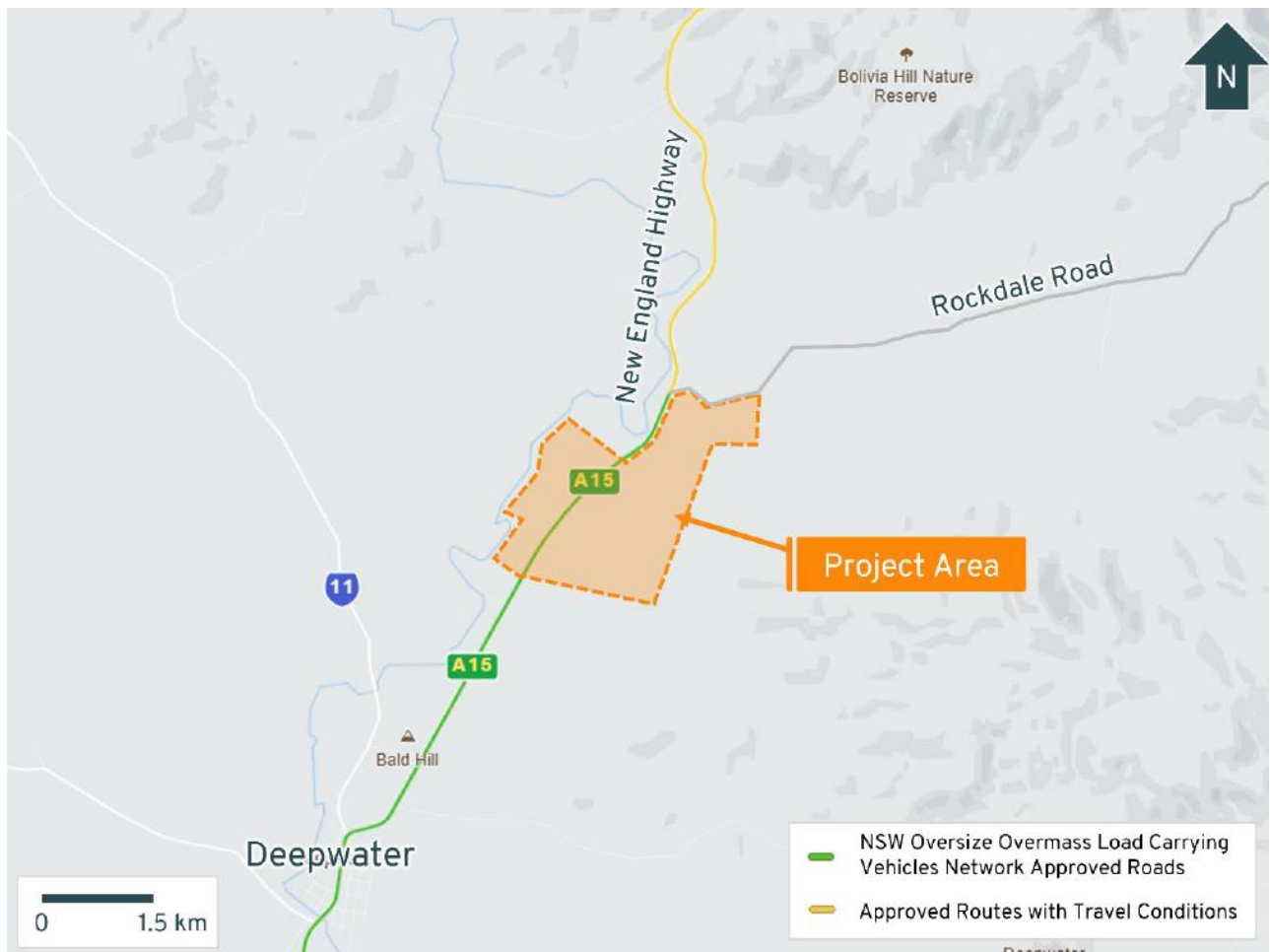


Figure 6-5: TfNSW Class 1 OSOM Load Carrying Vehicles Network Approved Roads

CRASH HISTORY

Amber (2024) has conducted a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all crashes within the following search area:

- New England Highway between Castlerag Road and Ten Mile Road

- Rockdale Road between New England Highway and Dellwood Road
- All respective intersections.

The crash database provides the location and severity of all casualty crashes for the latest available five-year period which is currently between 2019 and 2023. The results of the crash search are summarised in Table 6-9.

Table 6-9: Crash Summary

Road	Location	Severity	Crash Type	Date and Time	Light and Weather Conditions
New England Highway	2km north of Rockdale Road	Serious Injury	Off road to the right on right bend	January 2020 (14:00 - 15:59)	Daylight (Fine)
New England Highway	50 metres north of Rockdale Road	Moderate Injury	Rear end (vehicles in same lane)	March 2021 (10:00 - 11:59)	Daylight (Fine)
New England Highway	150 metres south of Rockdale Road	Non-casualty (towaway)	Off road to the right, hitting object	October 2019 (16:00 - 17:59)	Daylight (Fine)

No fatal crashes were recorded during the five-year search period. Given the large search area, the associated traffic volumes on the roads and the road classifications, it is concluded that the road network is currently operating in a relatively safe manner.

6.2.4.5. Preliminary Traffic Assessment

Transport impacts resulting from the Project will be largely limited to the construction phase and can broadly be separated into the following categories:

- Light vehicles associated with transporting the workforce to/from the Project Site
- Shuttle buses may be utilised to transport the workforce between the Project Site and nearby towns
- Medium and Heavy Rigid Trucks (MRV/HRV) used to deliver raw materials and smaller plant
- Truck and Dog vehicles used to transport earthwork material to/from the Project Site
- 19 metre long Articulated Vehicles (AV) and 26 metre long B-Doubles used to transport larger plant and equipment.

It is recommended that a mid-block assessment of New England Highway should be undertaken against the requirements set out in the Austroads Guide to Traffic Management to assess the capacity of the road to cater for the additional traffic movements generated during the construction phase. It is also recommended that a traffic modelling exercise is undertaken for the site access locations to confirm the turning movements can be undertaken without impacting vehicle movement on New England Highway and suitable vehicle queuing storage is provided.

The traffic assessment would be undertaken as part of the future Traffic Impact Assessment. Given the low to moderate traffic volumes along New England Highway, it is not anticipated that the increase in traffic generated during construction of the Project would result in any significant adverse impacts to the operation of the road network. Any future assessment would consider the cumulative impact of other nearby major projects.

During operation the Project would be expected to generate a negligible level of traffic on the road network associated with maintenance and operations.

6.2.4.6. Preliminary Route Assessment

TRANSFORMER TRANSPORT VEHICLE (OSOM)

The Port of Newcastle has been identified as the location where the BESS plant will be imported from.

A high-level assessment of the potential transport routes from the Port of Newcastle has been undertaken. The route assessment has focused on the substation transformer transport vehicle which typically represents the worst-case scenario due to the length of the vehicle and the associated load. The chosen route aims to reduce the number of turn manoeuvres at intersections as these may require road upgrades to accommodate the vehicle. It also aims to avoid built-up areas to limit conflicts between the OSOM vehicles and vulnerable road users.

The route from the Port of Newcastle to the Project Site for the transformer transport vehicle is expected to be as follows:

- Vehicles would depart Newcastle utilising Industrial Drive, Pacific Highway, New England Highway, and John Renshaw Drive to access the Hunter Expressway. The route would ensure the towns of Maitland and Rutherford are avoided, and this route is typically adopted for OSOM vehicles departing Newcastle
- Vehicles would then utilise Bell Street and Victoria Street to navigate through Muswellbrook and avoid using the bridge over Muscle Creek, then connect back to New England Highway which would provide access to the Project Site.

The proposed route for the transformer transport vehicle from Port of Newcastle is shown within Figure 6-6. It is noted that vehicles may be able to travel through the township of Muswellbrook, however, from our experience on recent projects the above route has been adopted. It is also noted that EnergyCo are proposing road upgrades in this area to accommodate OSOM vehicles.

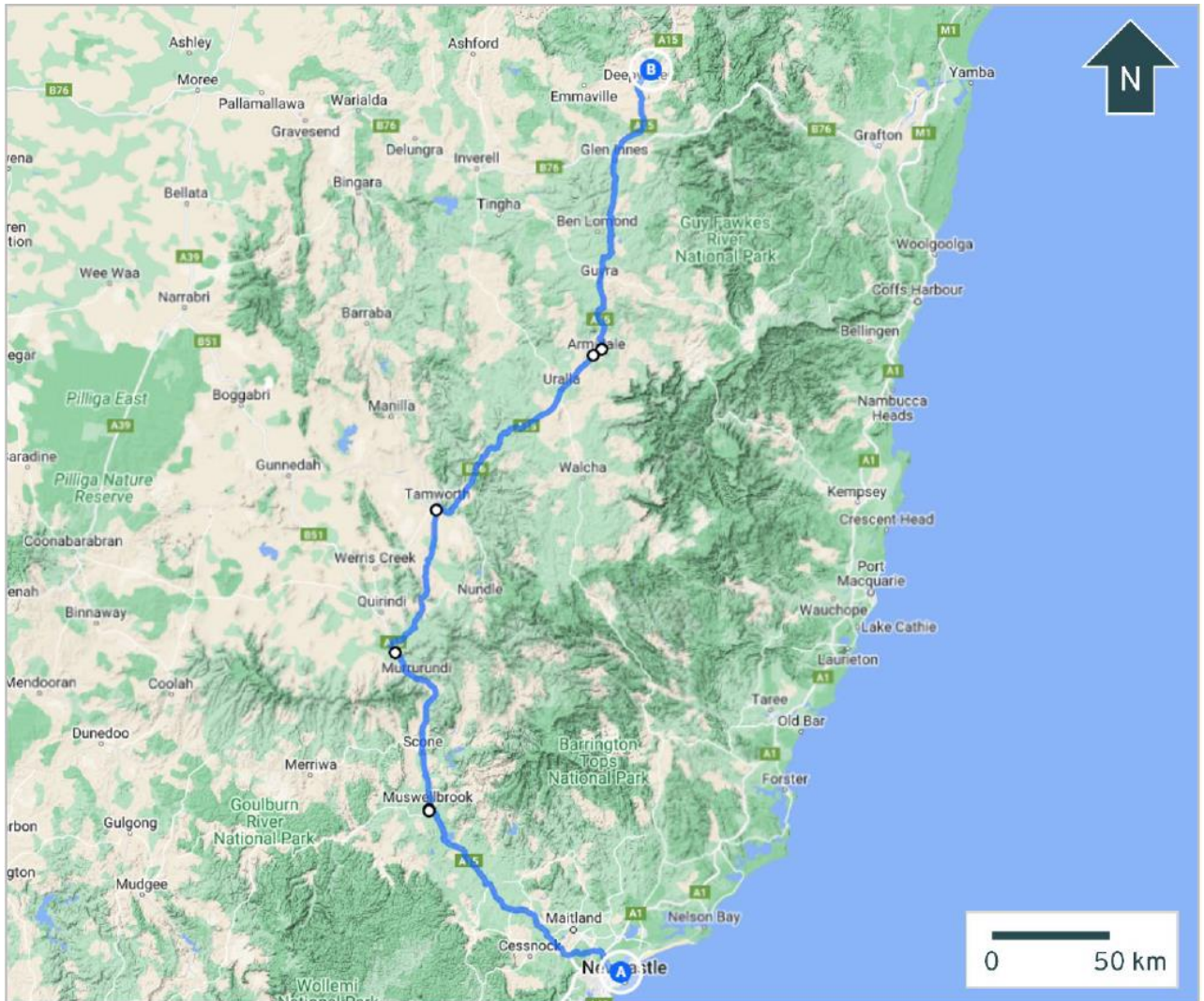


Figure 6-6: Transformer Transport Vehicle - Expected Access Route from Port of Newcastle to Project Site

It is noted that the entire route is currently approved within the NSW Class 1 Oversize Over Mass Load Carrying Vehicles Network Map except for Victoria Street, Bell Street and Rockdale Road which are unrated and would require approval from Tenterfield Shire Council and Muswellbrook Shire Council, respectively. Travel conditions are applicable on sections of New England Highway and Hunter Expressway as follows:

- Pacific Highway
 - Prior to travel on the Pacific Highway at Hexham, the operator must contact the Hexham Straight Widening Project on 1800 515 141 a minimum of five (5) days prior to your proposed commencement date. Failure to provide notice may result in delays to travel
- New England Highway
 - Prior to travel on the Pacific Highway, New England Highway and Pacific Motorway between Tomago, Tarro and Lenaghan, the operator must contact the Black Hill to Tomago Project on 1800 094 895 a minimum of five (5) days prior to your proposed commencement date. Failure to provide notice may result in delays to travel

- Start Point: Weakleys Drive. End Point: Singleton side of the traffic lights at Magpie Street (Bunning's corner) (north of Singleton). Vehicles or combinations exceeding 3.2 metres wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 3:00pm to 6:00pm (except on state-wide public holidays)
- Start Point: Hexham. End Point: Weakleys Drive. Vehicles or combinations exceeding 3.5 metres wide or 25.0 metres long are not permitted to travel between 8:30am and sunset on weekends or a state-wide public holiday
- Hunter Expressway
 - Vehicles or combinations exceeding 3.2 metres wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 4:00pm to 6:00pm (except on state-wide public holidays).

OSOM vehicle movements to and from the site will be required to travel during permitted times only. The vehicles are subject to specific road permits that would be applied for once the dimensions of the load and the specific delivery vehicle are known.

The route for the transformer transport vehicle is recommended to be reviewed as part of a future detailed Route Assessment which would be prepared as part of the Environmental Impact Statement (EIS). The Route Assessment should provide an assessment and commentary on the following matters:

- Confirm the dimensions and loading of the OSOM vehicle
- Contact TfNSW, relevant Council(s), and rail authorities to undertake an assessment of any bridge structures based on the loading of the vehicle
- Provide a review of the height clearances along the access route and confirm the vehicle is able to suitably access the Project Site
- Provide a horizontal alignment review utilising swept paths to confirm if any road upgrades are required at key pinch points and provide concept designs for any road improvements
- Identify suitable pullover bay locations.

Overall, the OSOM vehicles are generally expected to be able to be accommodated within the existing road reserve. It is noted that the route generally makes use of State roads which are typically designed to accommodate the associated loads.

6.2.4.7. General Construction Traffic (up to B-Doubles)

B-Double vehicles travelling from the Port of Newcastle are anticipated to utilise the same route identified above. It is noted that the route (excluding Rockdale Road) is currently approved for 26-metre B-Double vehicles within the NSW Restricted Access Vehicles Network Map and no travel conditions are applicable. Accordingly, the roads along the access route are expected to be able to accommodate the loads and types of vehicle movement to be generated during construction of the Project.

6.2.4.8. Railway Crossings

The access route does not traverse any railway level crossings but would require consultation for any railway overbridges.

6.2.4.9. Access Arrangements

TURN TREATMENTS

The primary traffic impact during construction is generated by staff accessing the site in the morning peak hour and exiting the Project Site in the evening peak hour, and by heavy vehicles accessing the Project Site during the day. Staff are expected to primarily be located within Deepwater, Tenterfield, Glen Innes and other smaller regional centres.

Austrroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings specifies the turning treatments required at intersections (Austrroads, 2020). The minimum treatment is a Basic Left/Right Turn (BAL/BAR) facility which is suitable for relatively low volumes of through and turning traffic.

An assessment of the required turn treatments will be undertaken as part of the future Traffic Impact Assessment. The assessment would be undertaken at the connections with the State road network which includes the northern and southern access locations.

It is noted that connections are proposed on both sides of New England Highway at the southern access location. The access would be provided as a cross-intersection or as a staggered intersection subject to future assessment and approval from TfNSW. The provision of a cross-intersection does not follow the typical turn treatment assessment and instead is required to be provided with Channelised Right Turn (CHR) treatments for vehicles turning from the main road (New England Highway), as outlined within the Extended Design Domain of the *Austrroads Guide*. A staggered intersection would require a turn treatment assessment.

It is recommended that any designs comply with the *Austrroads Guidelines*.

The use of shuttle buses to transport the workforce to and from the Project Site is recommended to minimise the number of turning movements into and out of the Project Site during morning and evening peak periods. This would minimise the required level of turn treatment and associated impacts on the road network.

SIGHT DISTANCE

Austrroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections specifies the Safe Intersection Sight Distance (SISD) as the minimum sight distance which should be provided along the major road at any intersection. Table 3.1 of the guide specifies the SISD required for various design speeds. Given New England Highway has a speed limit of 100km/hr, a design speed of 110km/hr is applicable which requires an SISD of 300 metres based on a reaction time of 2.5 seconds.

Amber staff have previously undertaken an on-site sight distance assessment which confirms that the sight distance at the two access locations complies with the requirements of the *Austrroads Guide*.

6.2.4.10. EIS Assessment Approach

An assessment of the traffic impacts of the project will be undertaken as part of the future Traffic Impact Assessment. Given the low to moderate traffic volumes along New England Highway, it is not anticipated that the increase in traffic generated during construction of the Project would result in any significant adverse impacts to the operation of the road network.

Port of Newcastle is likely to be the preferred delivery port utilised by the Project. The assessment identified a travel route for the transformer transport vehicle (OSOM) and general construction traffic (B-Doubles). The route is expected to be able to accommodate the vehicles with minimal road upgrades required.

An assessment of the required turn treatments at the Project Site accesses will be undertaken as part of the future Traffic Impact Assessment. It is noted that connections are proposed on both sides of New England Highway at the southern access location. The access would be provided as a cross-intersection or as a staggered intersection subject to future assessment and approval from TfNSW.

The use of shuttle buses to transport the workforce to and from the site is recommended to minimise the number of turning movements into and out of the Project Site during morning and evening peak periods. This would minimise the required level of turn treatment and associated impacts on the road network.

The Project Site accesses should be designed to ensure the available sight distance is compliant with the Austroads Guide. It is noted that an on-site inspection undertaken by Amber staff indicates the proposed access locations are provided with suitable sight distance in accordance with the Austroads Guide.

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6.2.5. Hazards and Risks

6.2.5.1. Existing Environment

BUSHFIRE AND ELECTRICAL

The area surrounding the Project Site is modified agricultural land utilised primarily for grazing and is considered an area of low to medium bushfire risk due to the vegetation and agricultural practices in the area. The Project Site itself is proposed in an area largely cleared of any overstorey vegetation, with scattered trees and rows of planted trees. The vegetation hazard in proximity to the proposed infrastructure is predominately modified grassland with scattered trees and woodland. The usage of the area surrounding the Project Site is mostly limited to landowners, who are predominately farmers, and the operator of the Project Site. To the west of the Project Site, there is an increase in density of trees and forestry.

A BESS which can supply more than 30 MW of electrical power is classed as being potentially hazardous under the SEPP (Resilience and Hazard) 2021 and will require a Preliminary Hazard Analysis (PHA) prepared in accordance with the *Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 (Risk for Land Use Safety Planning)* (DoP 2011a), *HIPAP Paper No. 6 'Hazard Analysis'* (DoP 2011b) and *Multi-level Risk Assessment* (DoP 2011c).

GLARE AND GLINT

The Project Site is located in an undulating rural setting characterised by open grasslands. The siting of the Project infrastructure will therefore be exposed within the broader landscape

BUSHFIRE

The Project Site is situated on Bushfire Prone Land. However, the majority of the land is used for grazing and trees and forestry areas limited.

ELECTRIC AND MAGNETIC FIELDS

Electric and Magnetic Fields (EMF) are typically generated from power sources that emit low and extremely low frequencies such as power lines. They are localised around the source of the frequency and therefore have limited impact in broader landscapes, often returning to background levels after 2 m of separation from the source. The Project Site is located in an area with limited electrical infrastructure (i.e. power lines) as well as limited dwellings. Therefore, the existing environment experiences limited EMF for stakeholders to be exposed to.

6.2.5.2. Potential Impacts

BUSHFIRE AND ELECTRICAL

In the event of bushfires occurring in the area, PV arrays and associated infrastructure may be impacted due to the exposed positions within the open grassland area and the fire behaviour of bushfires which, given the right conditions and fuel loads, can quickly spread through open grasslands. The alternative risk of bushfires occurring as a result of the Project would likely be a result of an electrical fire igniting vegetation surrounding a Project infrastructure such as a power station or the BESS and spreading across the landscape. These risks however are mitigated by appropriate management strategies such as Asset Protection Zones (APZ) and the construction of the Project could provide potential benefits to tackling

bushfire occurring close to or within the Project Site by improving access to existing roads, creating fire breaks, and reducing lightning strikes to vegetation.

GLARE AND GLINT

While PV modules are designed to absorb as much sunlight as possible, reducing any light being reflected back out into the environment, some reflection may occur. This can happen in the form of either glare, being the continuous source of excessive brightness relative to ambient lighting, or glint, being a momentary flash of bright light. Given the nature of solar farms generating energy during periods of sunlight, impacts as a result of glare are considered unlikely on a single receiver. The potential for glint to occur as cars travel through the landscape is an issue that will be assessed in the EIS, noting the proximity of the Project to New England Highway. It is noted however that the significance of reflection by PV modules decreases with distance, as the proportion of an observer's field of vision that is impacted by the reflecting area of the module diminishes as the separation distance increase (Pager Power 2018).

ELECTRIC AND MAGNETIC FIELDS

EMFs are commonly understood to exist within two (2) bands, low and high frequencies, of which low to mid frequencies emit a non-ionizing form of radiation which are not harmful to humans. These low to mid-range frequencies include electrical components such as power lines and computers, as well as PV modules and associated solar farm infrastructure. EMF produced by electricity, including from solar farm infrastructure is non-ionizing radiation, meaning the radiation has enough energy to move atoms in a molecule around (heat) but not enough energy to remove electrons from an atom or molecule (ionize) or to damage DNA (Cleveland 2017).

As EMFs are produced in proximity to electrical components such as powerlines and other electrical infrastructure, the development of the Project is expected to produce additional EMFs in the area. This is a result of additional infrastructure such as the inverters, BESS and powerline connections. The EMF levels associated with the Project infrastructure is below the guideline for public exposure and is not anticipated to have any inverse impacts on human health. This is a result of the infrastructure producing low frequency EMFs which are non-harmful to humans, as opposed to high frequencies, or ionizing radiation. Furthermore, the effective distance of EMF is reduced dramatically by distance, and therefore the potential for increased EMF impacts as a result of the Project are considered very low. It has been shown that a distance of just 2 m from an EMF source can reduce the intensity down to near background levels (Knopper et al 2014).

CUMULATIVE IMPACTS

Cumulative impacts are not anticipated to occur given the size and location of the Project; however cumulative impacts will be assessed during the EIS stage.

6.2.5.3. EIS Assessment Approach

BUSHFIRE AND ELECTRICAL

The Project has the potential to be exposed to bushfire risk from grasslands and nearby areas of dense vegetation as well as carrying the risk of a potential fire starting within the Project Site. To ensure there is minimal risk of the Project causing a bushfire and that the Project does not impact on aerial fighting of bushfires, a Bushfire Risk Assessment will be undertaken in accordance with *Planning for Bush Fire Protection* (NSW RFS 2019).

Similarly, a PHA will be undertaken in accordance with the NSW *Hazardous Industry Planning Advisory Paper No 4 'Risk Criteria for Land Use Safety Planning'* (HIPAP 4) and *Hazardous Industry Planning Advisory Paper No 6 'Hazard Analysis'* (HIPAP 6) to determine potential risks of electrical fires and other hazards caused by the operation of the Project, mainly the proposed BESS.

GLARE AND GLINT

The Project has the potential to result in occurrences of glare and glint within the landscape which may impact community members and the public moving through the landscape. In accordance with the *Large Scale Solar Energy Guidelines* (DPE 2022a), a Glare and Glint Assessment will be prepared in the EIS and provide strategies and mitigation measures to avoid or mitigate impacts, including altering tracking patterns.

ELECTRIC AND MAGNETIC FIELDS

There is no evidence that exposure to EMFs generated by powerlines, substations, and other electrical sources can cause adverse health effects (ARPANSA 2018). Generally, distances beyond 50 m from a high voltage powerline are not expected to have higher than typical magnetic fields and for substations or transformers, magnetic field levels at distances of 5–10 m away are no higher than background levels in a typical home and rapidly diminish with distance. EMFs that are anticipated to be generated by the project are not expected to exceed guidelines for public exposure and will not cause adverse impacts for human health. The EMF levels of the project including solar farm, BESS, substation, and grid connection will be assessed as part of the EIS but are not anticipated to increase EMF levels above existing background environmental levels.

6.2.6. Aboriginal Heritage

6.2.6.1. Existing Environment

The Project Site is located within the traditional lands of the Ngarabal language group. Tindale (1974) describes the Ngarabal boundaries as “west of a line from near Tenterfield to Glen Innes; on Beardy River” and that they are “closely related to the Jukambal of which they may be a western series of hordes” (Tindale, 1974, pp. 197).

A search of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken on 29 October 2024. The search covered a 10 km area surrounding the project area to understand the known archaeological resource and provide an understanding of the types of features that might be present in the current landscape.

The extensive search identified a total of 15 Aboriginal sites within the search parameters (Figure 6-7; Table 6-10). The majority of Aboriginal sites within the search parameters are culturally modified trees (40%), followed by artefact scatters or isolated finds (26.6%).

One (1) site, AHIMS ID 12-1-0170 (‘New England Highway Deepwater Scar Tree’), is located less than 5 m from the Project Site boundary (Figure 6-7).

Table 6-10: Frequencies of site types

Site Features	Number of sites	Percentage (%) of sites
Art (Pigment or Engraved); Potential Archaeological Deposit (PAD)	1	6.6
Artefact	3	20
Artefact; Potential Archaeological Deposit (PAD)	1	6.6
Grinding Groove	1	6.6
Modified Tree (Carved or Scarred)	6	40
Potential Archaeological Deposit (PAD)	3	20
Grand Total	15	100.00%

6.2.6.2. Potential Impacts

As there is a previously identified Aboriginal object in close proximity to the Project Site and the presence of sensitive landscape features, there is potential that works associated with the Project may impact on Aboriginal cultural heritage values during the construction and operational phase (Figure 6-7).

Aboriginal objects are protected under the NPW Act regardless of if they are registered on AHIMS or not. It is an offence to disturb or damage these sites without first having obtained an AHIP. Works or activities that could potentially disturb the ground surface include earthworks, access road construction / upgrades, associated building construction, services installation, and repetitive vehicular movement. These works have the potential to disturb surface and *in situ* subsurface Aboriginal sites.

The key receptors for these potential impacts are Aboriginal people and the community. Table 6-11 outlines the potential Aboriginal heritage impacts from the Project.

Table 6-11: Potential Aboriginal heritage impacts as a result of the project

Project Phase	Potential Impact	Receptor(s)	Does the Impact Need Assessment in the EIS?	Consultation Required
Construction	Excavation and access road construction has the potential to impact on known and unknown Aboriginal objects and cultural heritage values.	Aboriginal people and community.	Yes	Aboriginal people, LALCs, RAPs and Heritage NSW
Operation	Permanent change to potentially sacred and cultural landscapes and places for Aboriginal people. The proposed use of the area may impede community access to Aboriginal sites and objects.	Aboriginal people and community.	Yes	Aboriginal people, LALCs, RAPs and Heritage NSW
Cumulative	There is the potential for cumulative impacts to Aboriginal cultural heritage values and degradation of the intactness and significance of known Aboriginal sites and objects.	Aboriginal people and community	Yes	Aboriginal people, LALCs, RAPs and Heritage NSW

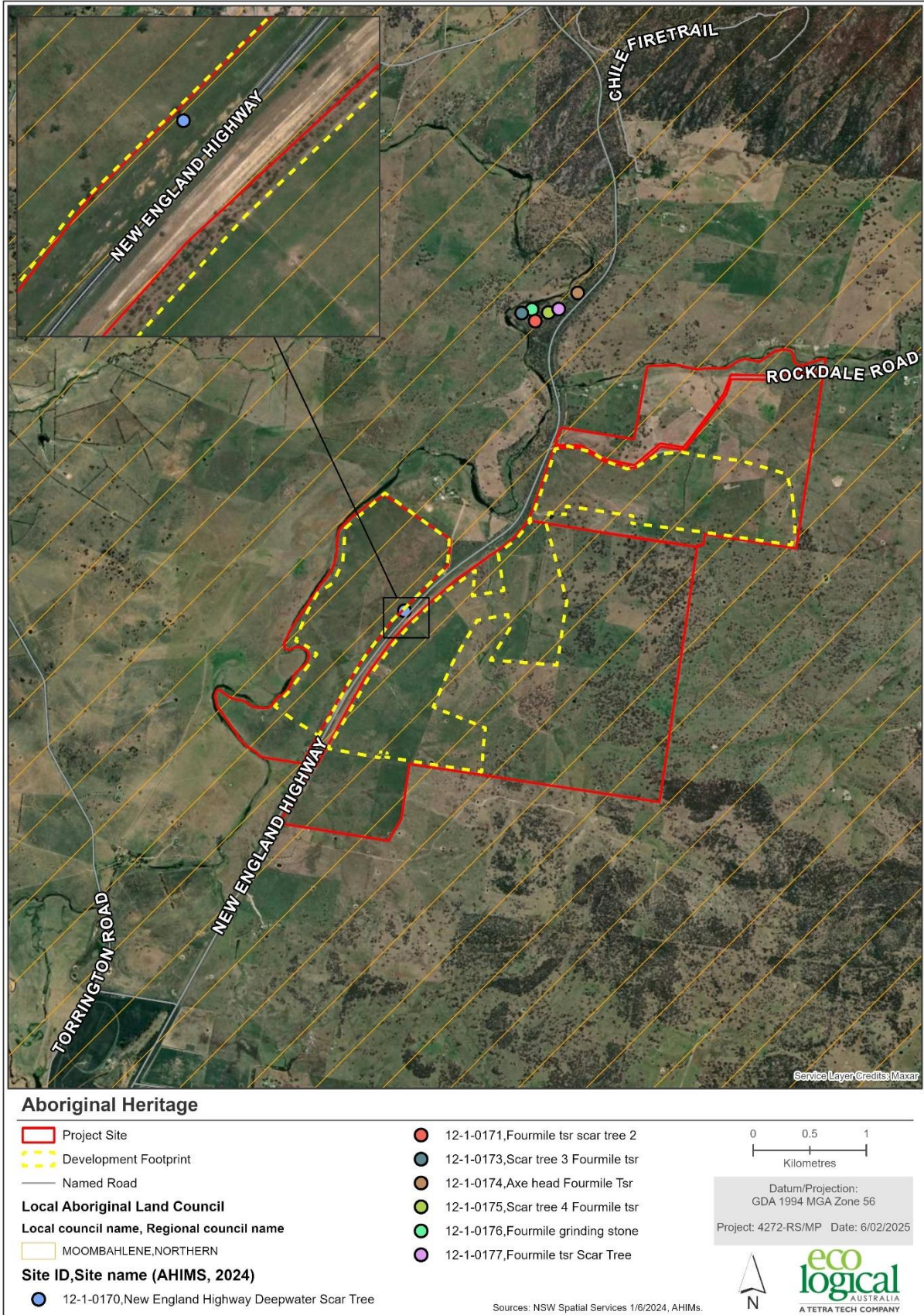


Figure 6-7: AHIMS sites within and surrounding the Project Site

6.2.6.3. EIS Assessment Approach

Based on the size of the Project Site and the presence of archaeologically sensitive landscape features, an ACHA will be required in accordance with the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011) and the requirements of the NPW Act.

As a component of the ACHA process, consultation with the Aboriginal community will be undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Applicants 2010* (DECCW 2010a). Archaeological test excavations may also be required in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW* (DECCW 2010b). The scope of the ACHA will include:

- Desktop review, including an extensive search of the AHIMS database, Native Title Search, and a review of previous archaeological investigations undertaken in the area to assist in the development of a predictive model
- Aboriginal stakeholder consultation in line with the '*Aboriginal Cultural Heritage Consultation Requirements for Applicants 2010*' (DECCW 2010a)
- An archaeological survey with Registered Aboriginal Parties (RAPs) to identify and record any sites of Aboriginal cultural heritage (social, historical, scientific, and aesthetic values) within the Project Site, specifically within areas within the proposed Development Footprint, as well as re-identifying existing sites registered on the AHIMS database within the Project Site
- Preparation of an archaeological assessment and methodology for provision to RAPs, including a test excavation methodology (if required)
- Archaeological test excavation of areas of archaeological potential identified during desktop and field assessment (if required), undertaken with members of the local Aboriginal community
- An assessment of any additional Aboriginal cultural heritage issues or places identified during the field work
- Development of appropriate management and mitigation strategies for any Aboriginal sites or areas identified as culturally significant by the located Aboriginal community that are identified to be directly or indirectly impacted by the proposed Project.

6.2.7. Historic Heritage

European occupation of the New England Tablelands region began in the 1830s as settlers began seeking land suitable for grazing. Interactions between the Aboriginal people and settlers in the New England district was often times violent, amounting in the settler-led Bluff Rock Massacre of 10 Aboriginal people and the police-led Deepwater Massacre of 16 Aboriginal people (L. Ryan et al., 2017-2024).

6.2.7.1. Existing Environment

Searches of the Commonwealth Heritage List, NSW State Heritage Register (SHR), Australian Heritage Database, National Heritage List and the Tenterfield LEP 2013 were undertaken on 14 November 2024 to determine if there were any places of historic significance are located within or in proximity to the Project Site (Figure 6-8).

No historic heritage items were recorded on these databases as being within the Project Site.

Two (2) heritage items are located within 2 km of the Project Site boundary:

- Deepwater Station Homestead and Outbuildings (Tenterfield LEP 2013, Item #I004)
- Deepwater Station Shearing Shed (Tenterfield LEP 2013, Item #I129).

6.2.7.2. Potential Impacts

The *Heritage Act 1977* (NSW) provides protection of the environmental heritage of the State which includes places, buildings, works, relics, movable objects or precincts that are of State or local heritage significance. Under Section 140 of the Heritage Act, a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a ‘relic’ being discovered, exposed, moved, damage or destroyed unless the disturbance or excavation is carried out in accordance with a Section 140 permit.

Section 4(1) of the Heritage Act (as amended 2009) defines a ‘relic’ as “any deposit, artefact, object or material that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or Local heritage significance”. The Heritage Council must be notified on the discovery of a relic under Section 146 of the Heritage Act.

The key receptor for these potential impacts is the community. Table 6-12 outlines the potential historic heritage impacts from the Project.

Table 6-12: Potential impacts to Historic heritage items

Project Phase	Potential Impact	Receptor(s)	Does the Impact Need Assessment in the EIS?	Consultation Required?
Construction	Excavation and access road construction has the potential to impact on unknown historic relics/artefacts. This could include impacts to build structures, archaeological sites or artefacts/relics.	Local community	Yes	Yes Local community and Heritage NSW
Operation	Potential impact to unknown historic heritage.	Local community	Yes	Yes Local community and Heritage NSW

Project Phase	Potential Impact	Receptor(s)	Does the Impact Need Assessment in the EIS?	Consultation Required?
Cumulative	Potential for cumulative impacts to historic heritage	Local community	Yes	Yes Local community and Heritage NSW

6.2.7.3. EIS Assessment Approach

If required, a Historic Heritage Assessment (HHA) will be completed for the Project in accordance with the NSW Heritage Manual *Statements of Heritage Impact Guidelines 2023*. The scope of the HHA will include:

- A search of all relevant statutory heritage registers
- A review of any relevant historical records, previous assessments, background, maps, plans and aerials and other sources of information regarding heritage items in the region
- A field survey of the Project site in conjunction with the Aboriginal heritage survey, with an emphasis on sites identified during preliminary research and areas with archaeological potential and the recording of any historic sites/relics identified
- Preparation of an HHA which considers the potential for impacts on any significant adjacent heritage items
- Identification of any necessary impact mitigation and management measures.

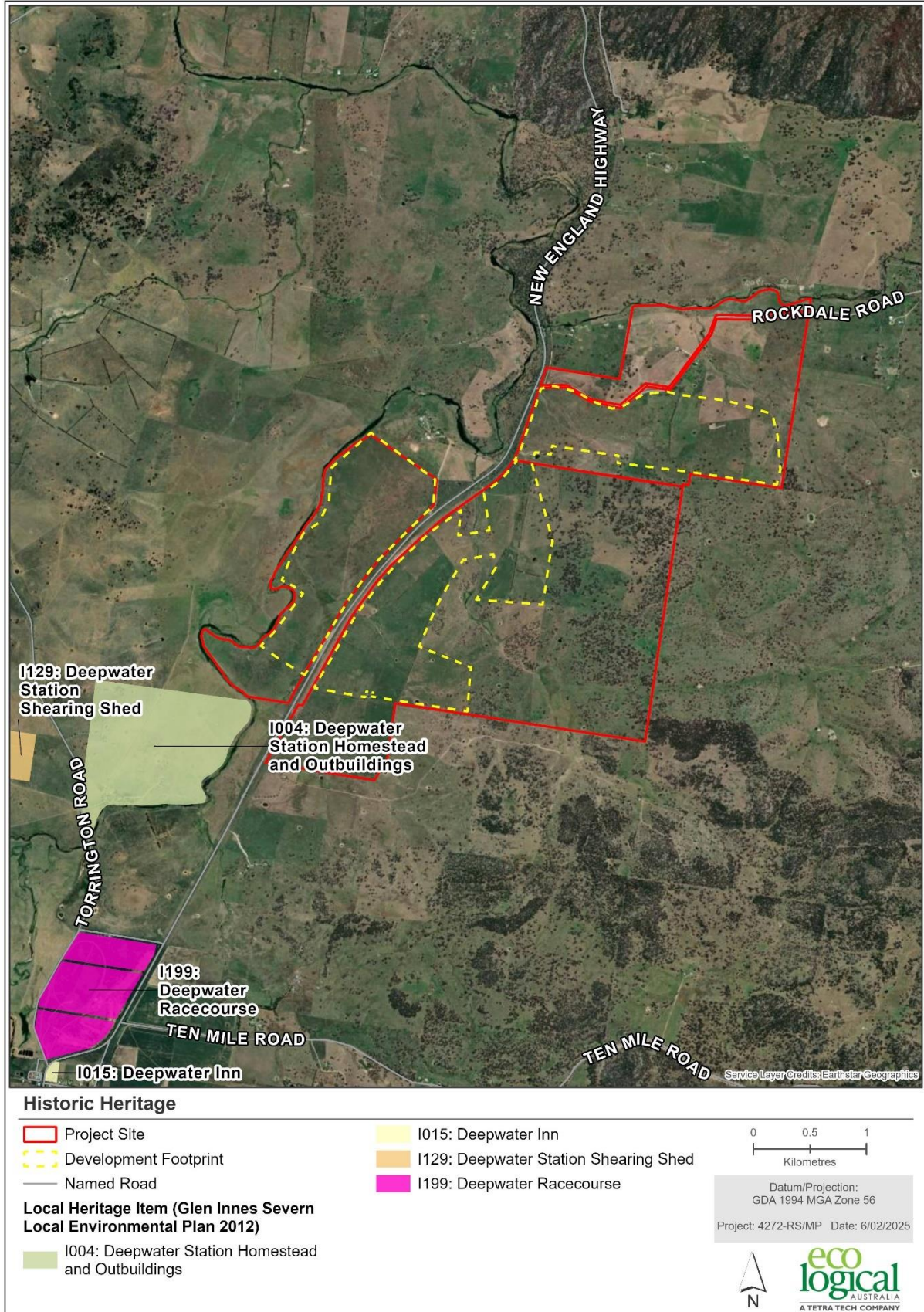


Figure 6-8: Heritage items in proximity to the Project Site

6.2.8. Soils and Land Use

6.2.8.1. Existing Environment

LAND USE

The topography within the Project Site varies between 950m ASL and 990m ASL (Figure 2-3). The east of the Project Site generally has much steeper terrain.

The main land use within the Project Site is grazing with small areas of forestry. The land zoning across the majority of the Project Site is RU – 1 Primary Production Land (Figure 2-1).

The Development Footprint is situated within New England Tablelands Bioregion, within the sub-bioregion of Deepwater Downs. The sub-bioregion for the Project Site includes Northeast Forest Lands to the east.

The Australian Soil Classification (ASC) has been reviewed for the Project Site and is summarised in Table 6-13. Kurosols – natric are the predominant ASC with Soloths the Great Soil Group (GSG) within the Development Footprint with three other ASC and GSGs covering the wider Project Site (Table 6-13; Figure 6-9).

A review of regional land and soil mapping data identified four (4) soil classes within the Project Site (Table 6-13; Figure 6-10). There are no areas identified as Class 1 – 5 of the Land and Soil Capability (LSC) within the Development Footprint. The Development Footprint is Class 6 which has very severe limitations.

Table 6-13: Land and Soil Classification

GSG	ASC	LSC Class
Soloths	Kurosols (natric)	6
Lithosols	Rudosols	6
Yellow Podzolic Soils – less fertile	Kurosols	4
Alluvial Soils – light sandy textured	Rudosols (Alluvial)	4

There are no records of Biophysical Strategic Agricultural Land (BSAL), or Acid Sulfate Soils (ASS) mapped within the Project Site.

A search of the NSW Environment Protection Agency (EPA) contaminated land record of notices was conducted which identified (2) two sites:

- Former Arsenic Poison Factory, Tenterfield LGA, this site is situated approximately 50km north of the Project Site
- Former coal gasification, Glen Innes Severn LGA, this site is sited approximately 36km south of the Project Site.

6.2.8.2. Potential Impacts

The construction phase at the Project Site will result in soil disturbance particularly during the construction phase. Soil disturbance may be caused by but not limited to:

- Topsoil and subsoil impacts such as the degradation or loss of topsoil or soil compaction through vehicle movements
- Erosion and sedimentation
- Dust generation.

6.2.8.3. EIS Assessment Approach

Appendix A of the *Large-Scale Solar Energy Guidelines* (DPHI 2022a) outlines whether or not an Agricultural Impact Assessment is required and the level of assessment that should be undertaken.

As the Project Site is situated on land zoned as RU1, no BSAL is mapped but LSC Class 4 is present within the Project Site boundary and only LSC Class 6 within the Development Footprint is present, at least a Level 1 Assessment will be undertaken for the Project. The Level 1 Assessment outline the presence of LSC, potential impacts and mitigation measures to reduce the impacts on the land within the Project Site and neighbouring land.

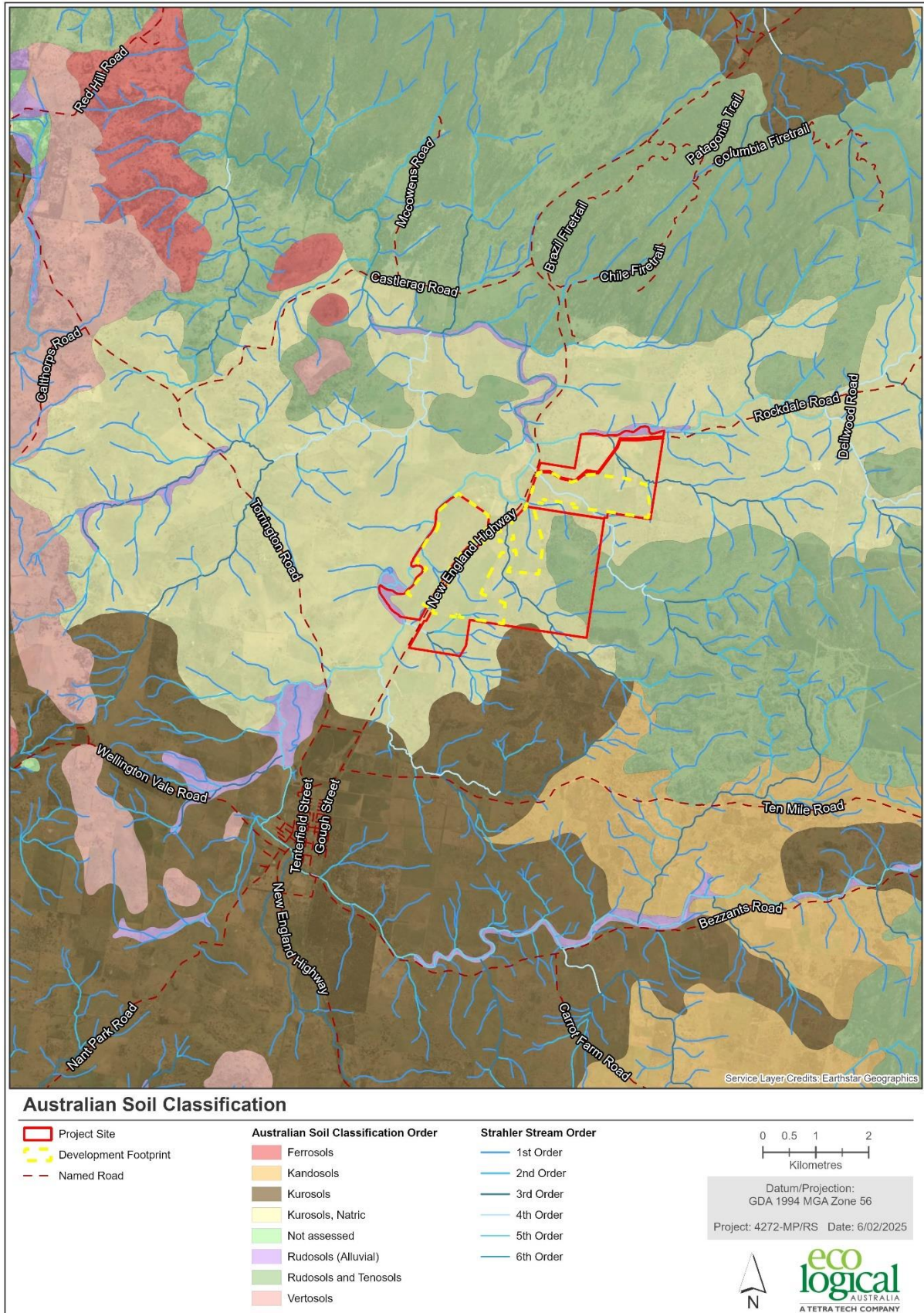


Figure 6-9 Australian Soil Classification within the Project Site

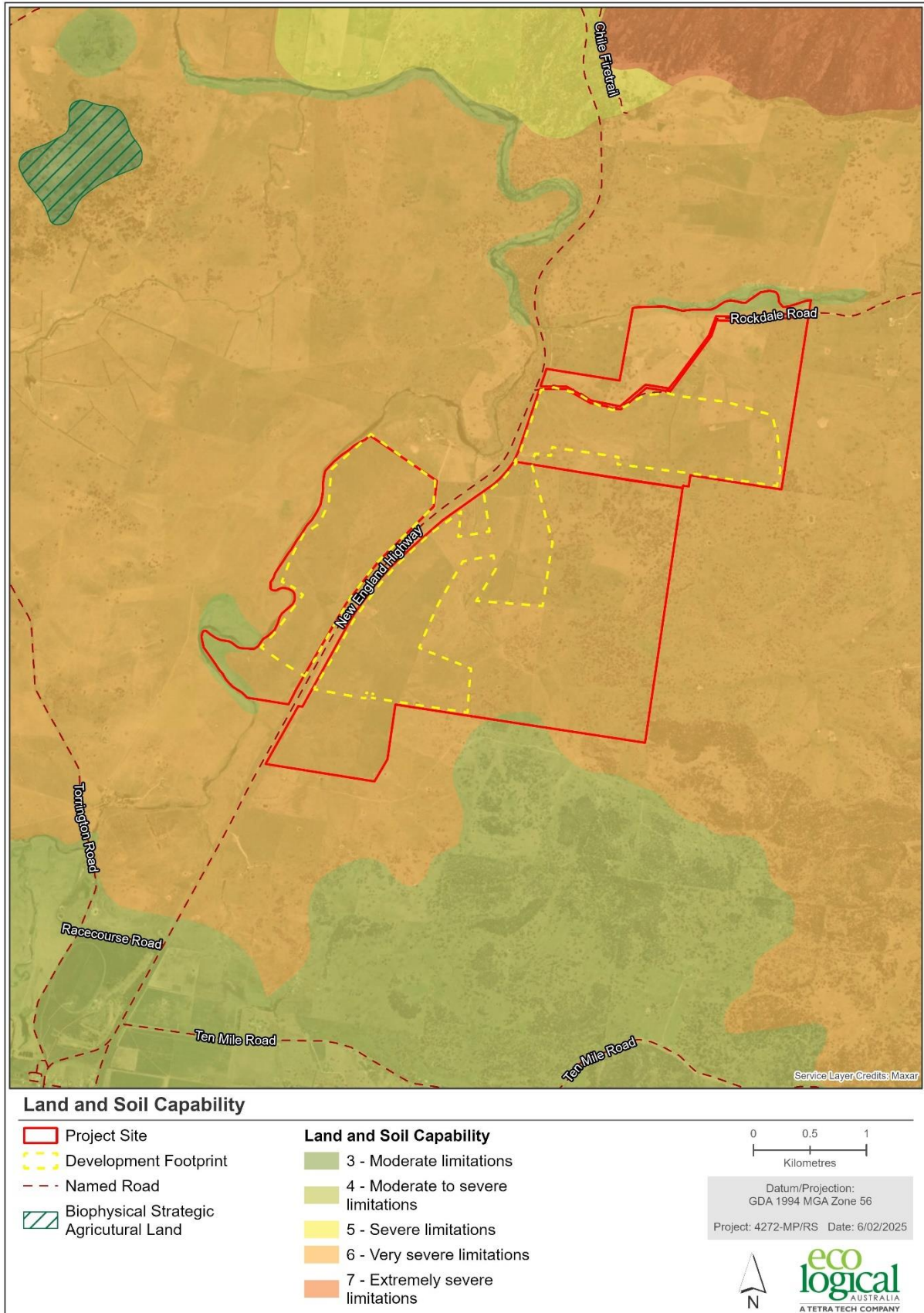


Figure 6-10 Land and Soil Capability within the Project Site

6.2.9. Surface Water, Groundwater, and Aquatic Habitat

6.2.9.1. Existing Environment

The Project Site lies within the Deepwater River and Tributaries Trading Zone of the Mole River Management Zone 1 of the Mole River Water Source, which is legislated under the Water Sharing Plan for the NSW *Border Rivers Unregulated River Water Sources 2024*.

Deepwater River is one of the headwater catchments of the Mole River which flows north and north-west to the Dumaresq River which traces the border with Queensland. Deepwater River is a fifth order river and forms the western edge of the Project Site, with numerous short tributaries (<1km) rising from the high ground to the east flowing west and north to Deepwater River, which becomes a sixth order stream (under the Strahler system) as it veers north-west from the Project Site (Figure 6-11).

Steep ground in the western areas of the Project Site restricts flooding opportunities, which only occur infrequently towards the west approaching the New England Highway, which can act as a temporary barrier to flow towards Deepwater River. There are a few small dams within the Project Site mainly used to water stock and surface water use is restricted to the thin alluvial deposits along creek lines.

Groundwater within the Project Site is part of the New England Fold Belt Murray-Darling Basin Groundwater Source. One (1) registered bore is located 500 m south of the Project Site boundary near Deepwater in locally deeper surficial sediments and is used for stock and domestic purposes. Three (3) bores occur within 5km of the Project Site (including one (1) site in Deepwater with three (3) spear-point monitoring bores). Groundwater yields within the Project Site are considered to provide poor yields from the fractured igneous rocks.

Deepwater River is listed as supporting aquatic (Type 2) Groundwater Dependent Ecosystems (GDE) (Figure 6-12). That is, the river receives baseflow from groundwater for at least part of the year. No aquatic GDEs are indicated within the Development Footprint on the BoM GDE Atlas.

Much of the Project Site is classed as Potential Terrestrial (Type 3) GDE (Figure 6-12), though this is likely due to the presence of open eucalypt forests (and indicator phreatophytes) on the slopes as there is inadequate information to determine the likelihood of shallow groundwaters, with depth to groundwater only recorded for the shallow alluvial aquifers, not the fractured rock aquifers underlying the Project Site.

6.2.9.2. Potential Impacts

Potential impacts for surface and groundwaters will only occur during the construction phase of the development. The development of infrastructure to support construction activities and subsequent maintenance networks will be required to cross numerous creeks and potentially impact stream form and function, and potentially disrupt supply to ecosystems and farm dams.

It is unlikely, however, that there will be significant impacts to groundwater, though potential for significant local impacts to creeks will need to be managed. Once construction is complete, potential impacts at creek crossings will need to be mitigated through suitable design.

6.2.9.3. EIS Assessment Approach

A flood impact assessment, particularly for the western portion of the Project Site, will be required to determine critical flow conditions for any proposed roads, tracks and building sites. A Water

Management Plan will be required, including a construction water balance model to ensure sufficient water is available for Project Site activities and a Stormwater Management Plan developed to ensure no downstream impacts occur. Both Plans will be integrated within the Aquatic Ecology Assessment and Guidelines for Controlled Activities on waterfront land—Riparian corridors (DPE 2022) and the Classification of waterways for fish passage and crossing type (Fairfull 2013).

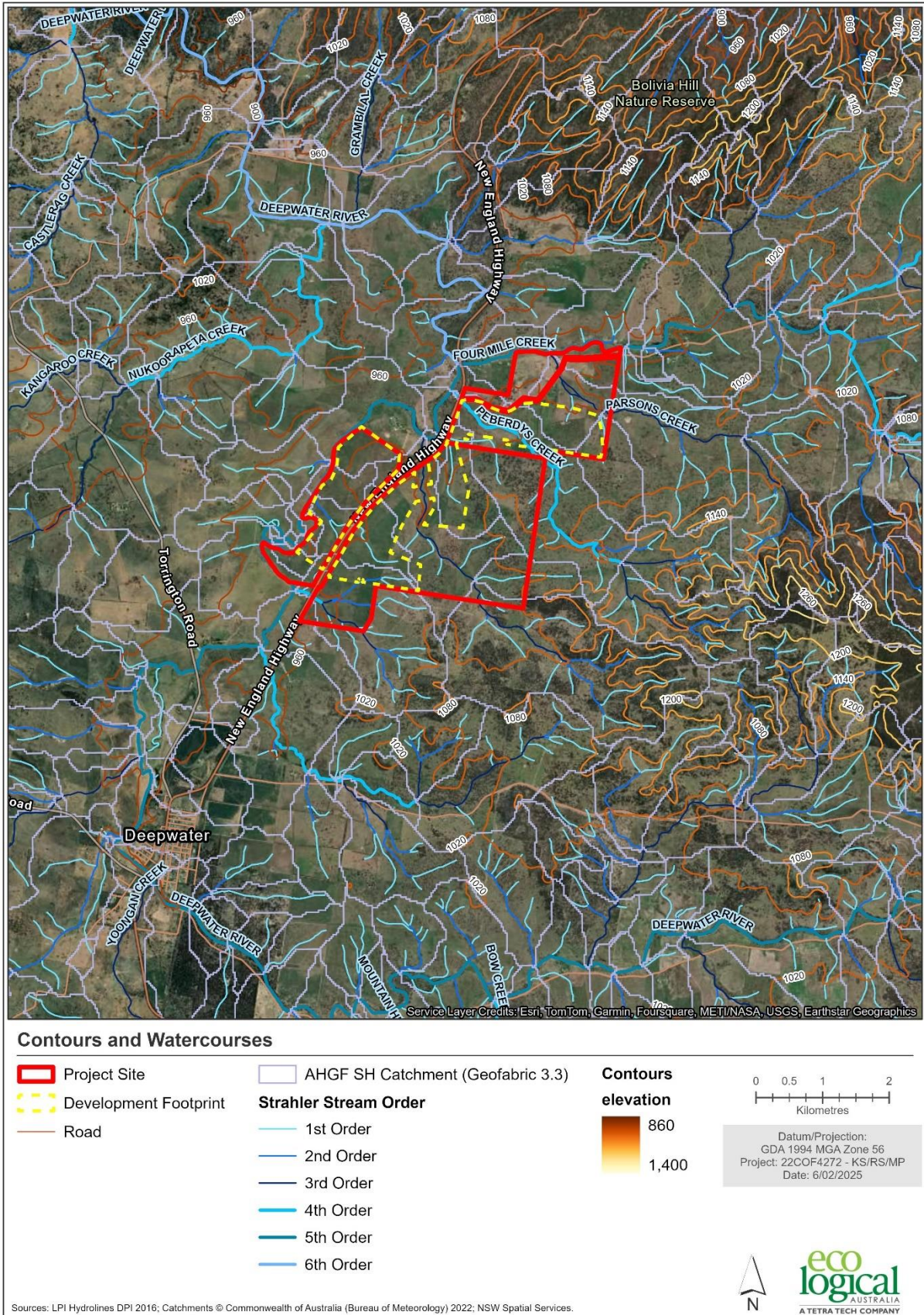


Figure 6-11: Contours and Watercourses within the Project Site

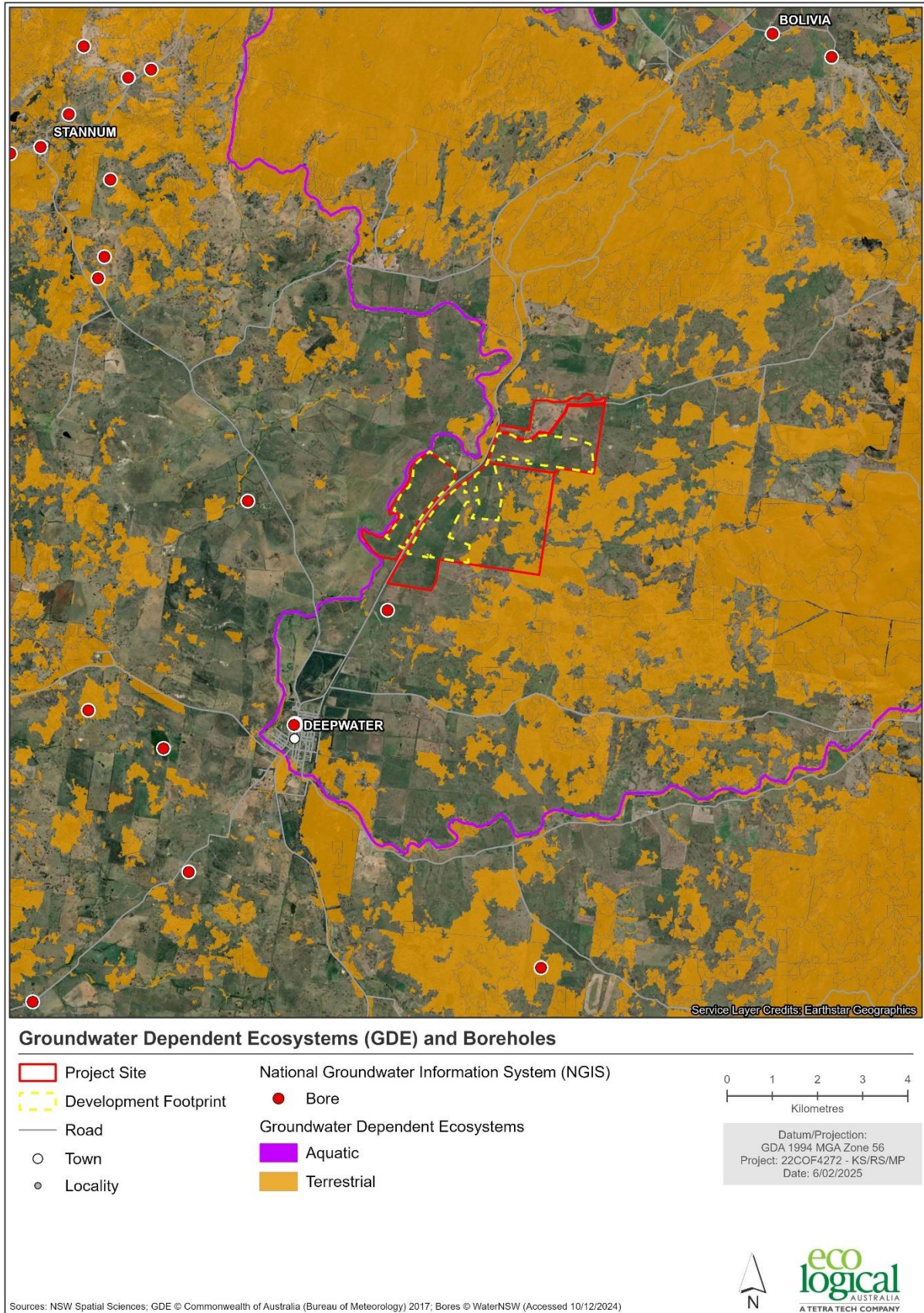


Figure 6-12 GDE and Bore Holes within and surrounding the Project Site

6.2.10. Social and Economic Factors

A Preliminary Social Impact Assessment (PSIA) (Appendix D) has been prepared by AAP Consulting to provide preliminary insights into the likely social impacts relating to the Project. The process undertaken to scope the impacts considered the DPHI Social Impact Assessment (SIA) Guideline (DPHI 2023) and Social Impact Scoping Tool and demonstrates an understanding of:

- the Project's social locality
- high-level characteristics of the communities within the social locality (social baseline)
- potential or likely social impacts for different groups in the social locality and the level to which these impacts need to be addressed
- any Project refinements or approaches to date in response to likely social impacts.

6.2.10.1. Existing Environment

PRELIMINARY SOCIAL LOCALITY

The approach used to identify the preliminary social locality considered who is most likely to experience direct and indirect impacts because of the Project and where those groups of people are located. The social locality will be further refined and updated according to Project changes and further investigation of impacts during the assessment phase.

The social locality of a project is defined based on the project's nature and impact, without fixed geographic boundaries. It considers the characteristics of affected communities and how they perceive or experience impacts.

- **Host landowners:** Landowners hosting solar panels and infrastructure, receiving lease payments. They are most likely to experience direct construction and operational impacts. There are three host landowners (one family) covering several properties. The same family has owned the proposed site for over 100 years and is predominantly used for sheep grazing. Property ownership will not change, and the property owners will receive annual rental payments for the solar farm's operation
- **Neighbouring landholders:** Residents close to the project who experience construction and operational impacts but do not host infrastructure. There are 16 households within 4 km distance from the Project Site of which 4 households are considered associated with the Project.
- **Region:** Broader community impacts, such as those from haulage routes or visual effects, extending to areas like Tenterfield and Glen Innes Severn LGAs. The area of influence may expand during project planning to include locations for workforce sourcing and material supply. The influence also extends beyond the LGA for power usage from the solar farms.

SOCIAL BASELINE

The description of the existing environment provides a summary of the social locality, including a high-level overview of regional demographic characteristics, socio-economic backgrounds, land use, key industries, and social infrastructure and an overview of directly impacted state suburbs and localities.

Deepwater and Bolivia have economic and demographic characteristics similar to their LGAs but differ from the Rest of NSW averages. These areas show lower labour force participation, higher unemployment, and unique occupational structures focused on agriculture and tourism.

Both areas have an ageing population, with Deepwater having a significant number of residents aged 65-79 and more couple families without children compared to NSW averages. Health indicators are generally good, though arthritis rates are higher, likely due to an older population.

Agricultural occupations are common, particularly in beef cattle farming. Income levels are lower than state averages, reflecting the rural nature of the areas. Bolivia has slightly higher incomes than Deepwater.

Housing in Deepwater is affordable, while Bolivia has higher mortgage repayments comparable to the NSW median. Median rent is low, indicating a stable rental market, but there are very few vacancies in these areas.

LOCAL GOVERNMENT AREA AND SURROUNDS

Regional planning policies and strategies were reviewed to contextualise the Project. Outcomes of community engagement completed by ib vogt Development Australia relating to the Project, as well as a review of various comparative studies of nearby projects, have also informed this context.

A review of local and regional community plans was conducted to align the Project with community values and strategic planning policies.

- **New England North-West Regional Plan 2041:** This plan outlines a 20-year vision focusing on development, innovation, economic growth, and environmental protection across 12 LGAs. It emphasises renewable energy, sustainable agriculture, and aims to achieve net zero emissions by 2050. Glen Innes and southern Tenterfield are highlighted as key areas for renewable energy zones
- **Glen Innes Severn Council Community Strategic Plan 2022-2032:** This 10-year plan addresses challenges like an ageing population, environmental changes, and the need for job creation and industry diversification. Key community concerns include public housing, renewable energy, and health and education. The plan aims to diversify the economy and prioritize renewable energy resources
- **Tenterfield Community Strategic Plan 2032:** This plan focuses on improving infrastructure, economic development, healthcare, and youth facilities. It aims to diversify employment opportunities and promote sustainable infrastructure and services.

These plans collectively emphasize renewable energy, economic diversification, and sustainable development to meet community needs and strategic goals.

6.2.10.2. Potential Impacts

The scoping of likely social impacts for the proposed facility follows the SIA Guideline, focusing on the social impact categories (Way of Life, Community, Accessibility, Culture, Health and Wellbeing, Surroundings, Livelihoods, and Decision-making Systems). The scoped likely social impacts are presented in Table 6-15.

A preliminary social risk significance assessment was conducted to determine the overall significance of potential social impacts without mitigation. This assessment considered:

- The likely affected population, separately for each project component

- Timing of potential social impacts
- Potential impact characteristics (extent, duration, scale, sensitivity)
- Significance level of impacts (likelihood and magnitude).

Tables used to evaluate the likelihood and magnitude of both positive and negative impacts before and after mitigation were adapted from the SIA Guideline (Table 6-14). This integrated approach helps develop appropriate assessment and mitigation strategies, addressing both technically managed impacts and those perceived as high risk or concerning by stakeholders. Managing these perceived concerns is crucial to prevent elevated community concerns, complaints, and grievances.

Table 6-14 NSW SIA Guideline Social Impact Significance Matrix (DPHI 2023)

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

Table 6-15: Scoped Social Impacts

ID	Impact to people	Social impact categories	Timing ¹	Significance type	Stakeholder group	Social impact ranking (without mitigation ²)			Potential vulnerabilities or opportunities	Level of assessment in SIA
						Lik	Mag	Sig		
S01	Changes to the visual landscape and how people experience their rural surroundings, something people value.	Surroundings, Way of life	O	Negative	Neighbouring landholders	C	2	Medium	Vulnerability: Aging populations and those living in an area for a long period of time may be more affected by visual changes as they impact their familiar environment and sense of rural identity.	Standard, requiring targeted consultation and research.
S02	Increased dust and noise due to construction activity, causing a decline in social amenity, health or way of life for host landholders and nearby neighbours.	Health and wellbeing	C	Negative	Host and neighbouring landholders	C	2	Medium	Vulnerability: Older residents and those with chronic health conditions may be more susceptible to increased noise and dust during construction.	Standard, requiring targeted engagement with those directly impacted.
S03	Economic uplift and employment opportunities, due to job creation during construction and opportunities for local service providers and community.	Livelihoods	C	Positive	Surrounding communities, industry and local business First Nation people and groups	B	2	Medium	Opportunity: Leverage economic development potential to create jobs and training programs, addressing skills gaps for residents. Develop culturally sensitive programs to enhance Indigenous engagement and create pathways for economic participation. Vulnerability: Limited employment sustainability after construction due to limited ongoing jobs for maintenance	Standard, requiring targeted engagement with those directly impacted.

¹ O = Operations; C = Construction.

² Lik = Likelihood (A: Almost Certain, B: Likely, C: Possible, D: Unlikely, E: Very Unlikely); Mag = Magnitude (1: Minimal, 2: Minor, 3: Moderate, 4: Major, 5: Transformational); Sig = Significance rating (L: Low, M: Medium, H: High, VH: Very High).

ID	Impact to people	Social impact categories	Timing ¹	Significance type	Stakeholder group	Social impact ranking (without mitigation ²)			Potential vulnerabilities or opportunities	Level of assessment in SIA
						Lik	Mag	Sig		
										and operation. Resource strain from local businesses during construction.
S04	Distributive equity of economic benefits between the region and nearby neighbours.	Community	C/O	Negative	Host and neighbouring landholders surrounding community, Local Councils	C	3	Medium	Vulnerability: Concerns about inequitable distribution of benefits may lead to community dissatisfaction, especially among lower-income households.	Standard, requiring targeted consultation and secondary data analysis.
S05	Funding support may enhance community projects, fostering pride and engagement across the LGAs.	Community	C/O	Positive	Community interest and service groups, surrounding communities	C	3	Medium	Opportunity: High rates of volunteering can be harnessed to support community initiatives, promoting social cohesion and engagement among vulnerable groups.	Standard, requiring targeted consultation and secondary data analysis.
S06	Fear of community division due to the planning for and operation of renewable energy and desire for alternative energy sources, leading to decreased social interactions and weakening of community bonds.	Community, Decision-making systems	C/O	Negative	Host and neighbouring landholders	B	3	High	Vulnerability: Individuals reliant on close-knit community support may experience increased stress and social isolation due to differing opinions on energy sources.	Detailed, requiring targeted consultation and secondary data analysis.
S07	Disconnection from cultural heritage due to changes to land use potentially impacting the identity	Culture	C	Negative	First Nation and groups	C	3	Medium	Vulnerability: Changes to land use may threaten the cultural practices and identity of First Nations communities,	Standard, requiring targeted consultation

ID	Impact to people	Social impact categories	Timing ¹	Significance type	Stakeholder group	Social impact ranking (without mitigation ²)			Potential vulnerabilities or opportunities	Level of assessment in SIA
						Lik	Mag	Sig		
	and the erosion of cultural practices.								requiring targeted support and engagement.	and secondary data analysis.
S08	Changes to how people access roads and other services due to increased vehicle movements during construction and traffic management.	Accessibility	C	Negative	Host and neighbouring landholders, emergency services.	c	3	Medium	Vulnerability: Increased traffic may pose challenges for older residents or those with disabilities who rely on safe access to services.	Standard, requiring targeted consultation and secondary data analysis.
S09	Perceived environmental risks from improper waste disposal, including damaged panels, end-of-life components, and potential contamination of soil and water.	Surroundings, Health and wellbeing	C and O	Negative	surrounding communities, Local councils	C	3	Medium	Vulnerability: Limited waste management infrastructure, economic constraints, and the health sensitivities of an older population could exacerbate the risks of contamination, particularly for those reliant on local natural resources for their livelihoods. Opportunity: Strong community cohesion and environmental stewardship present opportunities for collaborative waste management solutions and enhanced local infrastructure, benefiting both the solar farm project and the broader community.	Standard, requiring targeted consultation and secondary data analysis.
S10	Changes to land use impacting agricultural resources and production.	Livelihoods	C/O	Negative	Industry, surrounding	C	2	Medium	Vulnerability: The potential impact on agricultural resources could threaten local livelihoods, particularly for	Standard, requiring targeted

ID	Impact to people	Social impact categories	Timing ¹	Significance type	Stakeholder group	Social impact ranking (without mitigation ²)			Potential vulnerabilities or opportunities	Level of assessment in SIA
						Lik	Mag	Sig		
					communities, Local councils				farmers and those dependent on agricultural production.	consultation and secondary data analysis.
S11	Perceived health risks to the community, due to the presence of solar farm infrastructure.	Health and wellbeing	O	Negative	Host and neighbouring landholders, emergency services.	C	2	Medium	<p>Vulnerability: The older population and existence of pre-existing medical conditions or reduced mobility, could, limit their ability to respond quickly to potential issues.</p> <p>Opportunity: The project to serve as an educational platform for the community, raising awareness about renewable energy, sustainability, and new career opportunities in the green economy.</p>	Standard, requiring targeted consultation and secondary data analysis.
Cumulative Impacts										
S12	The construction of multiple large projects over the same timeframe, creating a cumulative shortage of both short and long term accommodation, due to the Presence of the construction workforce.	Accessibility, Way of life	C	Negative	Local businesses, Local Councils, surrounding communities	B	4	High	<p>Vulnerability: Limited affordable housing options may exacerbate housing stability issues for lower-income households, leading to increased demand for local resources.</p>	Detailed, requiring targeted consultation and secondary data analysis.
S13	Increased construction vehicle movements from multiple large projects over the same time frame or consecutive timeframes,	Accessibility	C	Negative	Surrounding communities	C	3	Medium	<p>Vulnerability: The existing population may experience increased traffic congestion and disruptions to daily travel, leading to longer commute</p>	Standard, requiring targeted consultation

ID	Impact to people	Social impact categories	Timing ¹	Significance type	Stakeholder group	Social impact ranking (without mitigation ²)			Potential vulnerabilities or opportunities	Level of assessment in SIA
						Lik	Mag	Sig		
	producing cumulative traffic delays and changes to the way people move in and around the localities.								times and reduced access to essential services due to cumulative traffic delays from multiple large construction projects.	and secondary data analysis.
S14	The temporary influx of construction workers may strain social infrastructure and services, increasing demand for healthcare services, GPs, emergency services, and recreational facilities, potentially exacerbating existing service constraints.	Accessibility	C	Negative	Surrounding communities	C	3	Medium	<p>Vulnerabilities: Further reduced access to already limited healthcare, emergency services, and recreational facilities due to the increased demand created by the temporary influx of construction workers, exacerbating existing service constraints.</p> <p>Opportunities: Potential for the project to contribute to enhanced facilities and expanded service capacity.</p>	Standard, requiring targeted consultation and secondary data analysis.

6.2.10.3. EIS Assessment Approach

The scoping phase identified several likely social impacts requiring 'standard' or 'detailed' assessment. Technical specialists will conduct detailed studies on aspects like water, biodiversity, noise, and traffic. The SIA consultant will collaborate with these specialists to determine indirect impacts.

RESEARCH METHODS

The SIA will use various research methods to gather qualitative and quantitative data, to help refine the understanding of social impacts and develop appropriate mitigation measures:

- **Interviews and Surveys:** Guided by Bradshaw and Stratford's (2005) work on qualitative research design, focusing on purposive sampling to analyse meanings rather than representativeness
- **Exploratory Research:** Used to understand the extent of phenomena, generate initial ideas, and test feasibility. This includes comparative analysis of similar operations and qualitative media analysis
- **Desktop Analysis:** Integrates technical assessments into the SIA, focusing on social impacts like aesthetics, amenity, and cumulative impacts, primarily through desk-based studies.

PARTICIPATORY ENGAGEMENT TECHNIQUES

A respectful, inclusive, and meaningful engagement approach will be used to inform the SIA, building on previous engagement efforts. This approach will be integrated into the broader EIS program to enhance efficiency and reduce consultation fatigue (refer to Appendix D of this Scoping Report).

- **Semi-structured interviews:** Led by the SIA consultant, these will gather information and insights from stakeholders near the project area, including nearby neighbours, First Nations groups, community interest groups, local businesses, and councils. The flexible interview format allows for in-depth discussions
- **Drop-in days and contact points (phone, email):** These will help the wider community understand the SIA process, identify affected and interested parties, and provide a forum for discussing social impacts. These will be led by ELA and ib vogt Development Australia
- **Fact sheets/newsletters:** These will share project information and ways for the wider community to get involved, ensuring transparency and ongoing communication. These will also be led by ELA and ib vogt Development Australia.

This participatory approach aims to ensure comprehensive community involvement and address social impacts effectively.

The EIS phase will focus on:

- **Community:** Addressing potential social division over renewable energy through dialogue and community initiatives
- **Way of Life:** Assessing changes to the visual landscape, noise, and dust impacts, especially for vulnerable groups like the elderly
- **Health and Wellbeing:** Identifying health risks from increased dust and noise, with targeted consultations to develop mitigation strategies

- **Livelihoods:** Examining economic benefits and employment opportunities, ensuring equitable access and support for local businesses
- **Cultural Heritage:** Considering the impact on First Nations communities, with culturally sensitive consultations to promote Indigenous economic participation
- **Accessibility:** Assessing impacts on local infrastructure and road access, particularly for vulnerable residents
- **Surroundings:** Evaluating environmental impacts on local ecosystems and agricultural resources, focusing on communities reliant on natural resources.

The SIA will update the social baseline, validate the social influence area, and integrate community feedback through consultations to develop strategies that mitigate negative impacts and enhance positive outcomes.

6.2.11. Other Issues

6.2.11.1. Waste

The development of the Project will involve the use of resources in order to construct a working solar farm. Where possible, the Applicant will locally source materials and workers to contribute to the local economy and provide business opportunities to various resource providers in the area. The development of the Project will also involve the generation of waste in a number of forms throughout the construction phase. The operational phase is expected to involve little waste generation, mainly from the limited number of onsite personnel. The waste generated will require disposal at designated waste management facilities and may increase put additional pressure on these facilities to dispose of waste.

A Waste Management Plan will be prepared to identify, quantify and classify the waste generated during the construction and operation in accordance with the *Waste Classification Guidelines* (NSW EPA 2014). The Waste Management Plan will also outline ways to reuse, reduce and recycle waste will be outlined within the EIS.

6.2.11.2. Air Quality

During the construction phase, potential impacts to local air quality include dust generation from excavation, earthworks and vehicle movements. Impacts to air quality during operations would be limited to potential minor dust creation (i.e. light vehicles traversing the Project Site). The Project is not anticipated to generate significant air quality impacts during the operation phase. A CEMP will be developed to address any air quality impacts and provide mitigation measures during the construction, operation and decommissioning phases. The implementation of these mitigation measures will ensure that the Proposal will not generate significant air quality impacts during construction, operation or decommissioning.

6.2.12. Cumulative Impact Assessment

A cumulative impact assessment will be completed as part of the EIS considering the Project and other operational, approved, or proposed renewable energy developments within the New England REZ. The Cumulative Impact Assessment as part of the EIS will follow the *Cumulative Impact Assessment for State Significant Projects* (DPIE 2022).

As per Figure 2-4, the nearest renewable energy developments to the Project are presented in Table 6-16.

Table 6-16 Renewable Energy Developments for consideration within Cumulative Assessment

Development Name	Development Status	Proximity to Project Site	Inclusion in Cumulative Assessment
Tuttles Lane Wind Farm	Approved	41km SW	-
Glen Innes Wind Farm	Approved	44km SW	-
White Rock Solar Farm	Operational	50km SW	✓
White Rock Wind Farm	Operational	51km SW	✓
Sapphire Solar Farm	Pre-construction	54km SW	✓
Sapphire Wind Farm	Operational	55km SW	✓

Cumulative impacts may arise during the construction and operational phase and consideration will be given to, but not limited to the following assessment matters:

- Amenity – Landscape and Visual & Noise
- Biodiversity
- Traffic and Transport
- Aboriginal and Historic Heritage
- Soils and Hydrology
- Social and Economic

Whilst Tuttles Lane Wind Farm and Glen Innes Wind Farm have been approved there has been no updates on the planning portal since 2021/2020 and construction has not commenced. Therefore, these developments will not be included in the cumulative assessment.

All other renewable energy developments within the New England REZ are situated beyond 60km from the Project Site and are unlikely to result in cumulative impacts and therefore have been excluded from assessment.

7. Conclusion

This Scoping Report has outlined the proposed Deepwater Solar Farm and established the planning context of the Project, which is currently in the early planning stage. The purpose of this Scoping Report is to request and inform the content of the SEARs for the Project. The SEARs will specify the requirements of the EIS which will be prepared to accompany the application of the Project and will address the management of key issues and other issues identified in the assessment process.

The scope of the Project includes the construction, operation, decommissioning and rehabilitation of the Project Site, including the construction and operation of key Project elements as outlined in Section 3. The operation of the Project will involve the generation of electricity utilising the abundant solar resources of the New England region and has the potential to provide numerous benefits, including:

- Providing sustainable, renewable energy that directly contributes to the reduction of greenhouse gas emissions and mitigating the impacts of climate change
- Aiding in assisting both the State and Federal Government achieve renewable energy targets.
- Providing additional generation capacity to the grid to assist in meeting future load demands as coal powered generators retire
- Providing local and regional economic and social benefits through investment opportunities, direct and indirect full-time employment in construction and operation jobs and the creation of community enhancement funds
- Providing ongoing economic stimulus through payments to associated landholders, including providing 'drought proof' income through times of environmental hardships.

The Project has been declared SSD in accordance with the provisions of both the Planning Systems SEPP 2021 and the EP&A Act.

Regarding the provisions of the EPBC Act, while preliminary biodiversity surveys have been carried out, additional detailed surveys are required to determine potential impacts on MNES. The Project may have the potential to have a significant impact upon Commonwealth listed threatened species and ecological communities and a Referral to the Commonwealth DCCEEW may be required. If the Commonwealth determine that the Project is likely to have a significant impact upon MNES, the Project will become a 'Controlled Action' and assessed under the NSW Bilateral Agreement with the Commonwealth. A referral will be made to the Commonwealth for either a 'Non-controlled' or 'Controlled Action' once impacts upon MNES from the Project have been determined.

The preparation of the EIS will address the requirements of all State and Commonwealth agencies. The EIS will be supported by comprehensive technical reports by suitable technical experts as appendices to the main report.

8. References

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Appendix A Scoping Summary Table

Level of Assessment ¹	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Detailed	Landscape Visual and	Yes	DPHI	<ul style="list-style-type: none"> Visual Bulletin (DPE, 2016b) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) Dark Sky Planning Guidelines (DPE, 2016) Guidelines for Landscape and Visual Impact Assessment (GLVIA) Third Edition (2013) 	Section 6.2.1
Detailed	Noise and Vibration	Yes	DPHI, EPA	<ul style="list-style-type: none"> Noise Bulletin (DPE, 2016c) Construction Noise and Vibration Strategy (TfNSW, 2019) Draft Construction Noise Guideline (Environment Protection Authority, 2020) Noise Policy for Industry (NPfl) (EPA, 2017) NSW Industrial Noise Policy (Environment Protection Authority, 2000) NSW Road Noise Policy (Environment Protection Authority, 2011) Assessing Vibration: A Technical Guideline (DECC, 2006) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.2
Detailed	Biodiversity	Yes	DPHI, NSW DCCEEW and Commonwealth DCCEEW	<ul style="list-style-type: none"> Biodiversity Assessment Method (DPE, 2022) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.3
Detailed	Traffic Transport and	Yes	TfNSW and Councils	<ul style="list-style-type: none"> Guide to Traffic Generating Developments (RTA, 2022) Austrroads Guide to Traffic Management (Austrroads, n.d.) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.4

Level of Assessment ¹	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Standard	Bushfire	Yes	RFS and Fire and Rescue	<ul style="list-style-type: none"> Planning for Bushfire Protection Guidelines (NSW RFS, 2019) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.5
Standard	Public Health	Yes	DPHI	<ul style="list-style-type: none"> International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.5
Detailed	Battery Storage	Yes	DPHI	<ul style="list-style-type: none"> Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis' and Multi-level Risk Assessment (DoP, 2011). Hazardous Industry Advisory Paper No. 4, 'Risk 6 Criteria for Land Use Safety Planning (DoP, 2011) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.5
Detailed	Aboriginal Heritage	Yes	LALCs, RAPs and Heritage NSW	<ul style="list-style-type: none"> Aboriginal Cultural Heritage Consultation Requirements for Applicants 2010 (DECCW, 2010a) Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW, 2010b) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.6
Standard	Historic Heritage	Yes	Heritage NSW	<ul style="list-style-type: none"> Statements of Heritage Impact Guidelines (DPE, 2022) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.7
Standard	Land Use and Soils	Yes	MEG and DPI – Agriculture	<ul style="list-style-type: none"> Land Use Conflict Risk Assessment Guide (DPI, 2011) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.8

Level of Assessment ¹	Matter	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
Standard	Surface Water and Groundwater	Yes	NSW DCCEEW and WaterNSW	<ul style="list-style-type: none"> NSW aquifer interference policy (DPI 2012) - Water Best practice erosion and sediment control (BPESC) books 1-6 (IECA, 2008) Controlled Activities – guidelines for Riparian Corridors on Waterfront Land (DPE, 2022) Floodplain Development Manual (DIPNR, 2005) Liquid Chemical Storage, Handling and Spill Management: Part B Review of Best Practice Regulation (DEC 2005) Storing and handling liquids - environmental Protection: Participant's Manual (DEC 2007) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.9
Standard	Aquatic Habitat and Riparian Land	Yes	NSW DCCEEW and DPI – Fisheries	<ul style="list-style-type: none"> Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Dept. of Planning and Industry, 2003) Policy & Guidelines for Fish Habitat Conservation and Management (Dept. of Planning and Industry, 2013) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.9
Standard	Resource and Waste	Yes	DPHI and EPA	<ul style="list-style-type: none"> Waste Classification Guidelines Part 1 Classifying Waste (DECCW, 2009) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.11
Detailed	Social	Yes	DPHI and Councils	<ul style="list-style-type: none"> Social Impact Assessment Guideline (DPIE, 2021) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.10
Detailed	Economic	Yes	DPHI and Councils	<ul style="list-style-type: none"> Social Impact Assessment Guideline (DPIE, 2021) Cumulative Impact Assessment Guidelines for State Significant Projects (DPE, 2021) 	Section 6.2.10

Level of Assessment¹:

Level of Matter Assessment ¹	Cumulative Impact Assessment	Engagement	Relevant Government Plans, Policies and Guidelines	Scoping Report Reference
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Detailed Assessment: The Project may result in significant impacts on the matter, including cumulative impacts requiring detailed studies and investigations carried out by technical specialists.

Standard Assessment: The Project is unlikely to result in significant impacts on the matter, including cumulative impacts.

No Further Assessment: The Project will have no impact on the matter, or the impacts of the Project on the matter will be so small that they are not worth considering.

Appendix B Preliminary Landscape Character and Visual Impact Assessment (Moir, 2025a)

Appendix C Preliminary Noise Impact Assessment (MDA, 2024)

Appendix D Preliminary Social Impact Assessment (AAP Consulting, 2024)

