

Prepared for FRV Services Australia

Environmental Impact Statement

Armidale East Battery Energy Storage System

Armidale Regional LGA, Pint Pot, NSW

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We acknowledge the Traditional Owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations peoples of Australia have traditionally managed the resources of this land in a sustainable way, and that they are the original custodians of the Australian environment.

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REAP declaration

This Environmental Impact Statement has been prepared by NGH Pty Ltd for FRV Services Australia Pty Ltd (FRV) with the assistance of a range of specialists.

Declaration of registered environmental assessment practitioner	
Name	Brooke Marshall
Registration number	Certified Environmental Practitioner (CEnvP) General and Impact Assessment Specialist + Registered Environmental Assessment Practitioner (REAP) certification (IA11090 and REAP certification R80042)
Organisation registered with	NGH Pty Ltd
The undersigned declares that this EIS: • Has been prepared in accordance with Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2021</i> • Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates • Does not contain information that is false or misleading • Addresses the Secretary's Environmental Assessment Requirements (SEARs) for the Project • Identifies and addresses the relevant statutory requirements for the Project, including any relevant matters for consideration in environmental planning instruments • Has been prepared having regard to the Department's <i>State Significant Development Guidelines - Preparing an Environmental Impact Statement</i> • Contains a simple and easy to understand summary of the Project as a whole, having regard to the economic, environmental and social impacts of the Project and the principles of ecologically sustainable development • Contains a consolidated description of the Project in a single chapter of the EIS • Contains an accurate summary of the findings of any community engagement • Contains an accurate summary of the detailed technical assessment of the impacts of the Project as a whole.	
Signature:	
Date: 11-09-2026	

Authors Qualifications

Author	Qualification
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Acronyms and Abbreviations

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ARC	Armidale Regional Council
Armidale Regional LEP	<i>Armidale Regional Local Environmental Plan 2012</i>
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BOS	Biodiversity Offset Scheme
Cth	Commonwealth
DECCW	Department of Environment, Climate Change and Water (NSW) now EES
DoEE	Department of the Environment and Energy (Cth)
DPI	Department of Planning and Environment (NSW (formally DPIE))
DPIE	Department of Planning, Industry and Environment (NSW)
EEC	Endangered ecological community – as defined under relevant law applying to the Project
EIS	Environmental impact statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
FTE	Full time equivalent
ha	hectares
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
KFH	Key Fish Habitat
km	kilometres
LEP	Local Environment Plan
m	metres
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>

NSW	New South Wales
OEH	Office of Environment and Heritage (NSW), now EES
PCT	Plant Community Type
PHA	Preliminary Hazards Assessment
REZ	Renewable Energy Zone
SEPP	State Environmental Planning Policy (NSW)
SIA	Social Impact Assessment
TEC	Threatened Ecological Community
TISEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW)

Terms and definitions

The Project	Armida East Battery Energy Storage System
Maximum energy discharge capacity	The rated output active power as defined by 4.3.5 of <i>IEC 62933-1 Ed. 2.0 b:2024, Electrical energy storage (EES) systems—Part 1</i>. The Project's maximum energy discharge capacity is 377MW.
Maximum energy storage capacity	The effective Energy Storage Capacity at the Beginning of Service Life as described by Figure 1 of <i>IEC 62933-1 Ed. 2.0 b:2024, Electrical energy storage (EES) systems—Part 1</i>. The Project's maximum energy storage capacity is 2,310MWh.
The Applicant	FRV Services Australia (FRV)
Project Area	All lots, roads and easements intersected by the Subject Land
Subject Land	The private lot affected by the Project, being Lot 101 DP 1237661 (approximately 244ha).
Development Site	30.7ha of the Subject Land investigated for the proposed BESS site and connection to the overhead transmission line (approx. 14ha), impacted sections of Bayley Park Road and Waterfall Way road corridors (approx. 16.7ha).
Development Footprint	Area within the Development Site, which has been refined for placement of infrastructure (i.e. the area directly impacted by the Project construction and operation). This includes the BESS site and connection to the overhead transmission line (approx. 12ha) and works within Bayley Park Road and Waterfall Way road corridors (5.5ha).
Indicative layout	The current concept design of the Project that is presented in the Project Description (refer to Section 3). This layout is indicative. As final detailed design is undertaken post-approval, this may lead to layout changes.
Associated receivers	Receivers which host infrastructure and with whom negotiated agreements have been reached. They are considered 'Project associated'.
Non-associated receivers	A receiver on privately-owned land in respect of which the owner has not reached an agreement with the applicant in relation to the development. Non-associated receivers are fully assessed for all environmental impacts,

	such as noise, vibration and visual impacts.
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Executive summary

Project

FRV Services Australia (FRV) (the Applicant) is proposing the development of the Armidale East Battery Energy Storage System (BESS) (the Project) at **15 Bayley Park Road, Metz NSW 2350**. The Project would involve the construction, operation, and decommissioning of a BESS with a nominal capacity of up to approximately 377 megawatts (MW_{AC}) with up to 2,310 megawatt hours (MWh) storage. The Project would supply electricity to the national electricity market during peak periods and will have an operational life of up to 40 years.

Construction of the Project would occur over approximately 30 months, limited to Monday to Friday 7am – 6pm, and Saturday 8am – 5pm. The expected operational life of the Project is approximately 40 years. The Project would primarily be operated remotely. Key components of the Projects are summarised in Table 3-1, shown in Figure 3-1 and Figure 3-2, and described in detail within this Environmental Impact Statement (EIS) and supporting specialist studies.

Table ES-1 Main components of the Project

Feature	Description
Locality details and land tenure	
Street address	315 Bayley Park Road, Metz NSW 2350
Subject Land	Lot 101 DP 1237661 (Total area of 244 ha)
Renewable Energy Zone (REZ)	New England REZ
Local Government Area (LGA) and zoning	Armidale Regional RU1 Primary Production
Catchment	Macleay River
Subdivisions and easements	The 244ha Subject Land would be subdivided into three lots with the approximate areas listed below: • Lot A of 233ha comprising of the residual agricultural landholding to remain in the current ownership • Lot B of 8ha comprising the BESS and ancillary infrastructure to be acquired by the Applicant • Lot C of 3ha comprising of internal substation assets required to be transferred to Transgrid ownership upon construction completion. Lot B and C would be accessed via a right of carriageway over Lot A to Bayley Park Road.

Feature	Description
Development Footprint	Approximately 17ha (12ha BESS site and 5ha road access), noting the actual operational footprint would be less than the 12ha BESS site.
Access	Bayley Park Road via Waterfall Way (Grafton Road)
Infrastructure components	
Battery Energy Storage System (BESS)	• LFP storage technology with approximately 328 BESS containers • Approximately 110 medium voltage transformers and 110 PCS units • Approximately 15 auxiliary transformers • Auxiliary and ancillary systems, such as water tanks, generator, security lighting, CCTV and fencing
Maximum energy discharge capacity	377MW maximum discharge capacity 315 MW at point of connection
Maximum energy storage capacity	2,310MWh maximum storage capacity 1,840MWh at the point of connection
Substation and switch yard	• Onsite substation with two step-up power transformers (190/95/95 MVA each) • Harmonic filters (approximately 36MVar) • Switching rooms
Transmission line connections	Direct connection through overhead cabling to existing Transgrid 330kV overhead transmission line that connects to the Armidale substation
Transport route upgrades	• Upgrade to Bayley Park Road • New culverts along Bayley Park Rd • Minor branch trimming along Bayley Park Road • Minor upgrade including clearing and earthworks for Waterfall Way
Temporary works areas	• Construction compound • Construction laydown area • Storage • Bunding

Feature	Description
	• Drainage • Carparking
Permanent ancillary infrastructure	• Security fencing • Water tank • Diesel generators • Pumpable sewage holding tank • Control room, storage and office rooms • Operations and maintenance buildings (O&M) • Reduced onsite car parking • Internal access road and network of tracks • Noise wall (optional)
Water access and usage	• 2-3ML of non-potable water during the construction phase, primarily for dust suppression and filling water tanks • At least 5 x 115kL fire water tank located onsite for emergency use only during construction • 0.5ML of potable water during the construction phase • During operation, water levels will be maintained by tanker water trucks • Potential water access licences have been investigated, and are as follows: - o Peel River WAL – Tamworth – Offer both regulated and un-regulated WALs - o Commissioners Waters WAL – Tilbuster - offers unregulated WALs - o Arrawarra Creek WAL – Coffs Harbour – offers unregulated WALs
Employment	• Up to 150 FTE jobs during construction • Up to 5 FTE jobs during operation
Estimated development cost (EDC)	~\$471 Million
Timing	
Program	The Project construction would commence in 2028 and be constructed in four phases (some can be undertaken simultaneously) over approximately 30 months, with 6-9 months of peak construction: • Site preparation • Construction • Operation

Feature	Description
	Decommissioning.
Construction hours	7am to 6pm Monday to Friday 8am to 5pm Saturday - No work on Sunday or public holidays
Operational life and hours	- Continuous 24 hours a day operation - Up to 40-year Project life with BESS with repowering required at 20 years
Decommissioning and rehabilitation	After the 40-year operation, a review will be undertaken to determine whether to: - Request an extension - Lodge a new DA to upgrade the BESS with a more current technology - Decommission – dismantle Project and repurpose, where possible During decommissioning, all infrastructure would be removed and rehabilitation would commence. The objective is to maximise recycling options and return the disturbed area to a safe, non-polluting and stable state. The broader area would remain suitable for continued agricultural or other land use options.
Site context	
Existing land use	- Grazing - Adjacent land uses include: - Cropping - Grazing - Grazing modified pastures - Environmental forest plantations.
Receivers within 5 km of the Development Site	- One associated receiver (R7 dwelling) - Eight non-associated residential receivers (dwellings)

Strategic context

The Project aligns with the current strategic direction of the Commonwealth, NSW and Local Governments, which supports investment in renewable energy and storage to ensure secure and reliable energy.

Due to the small area of impact proposed, the Project will have minimal impact on existing and adjacent primary production land use. The Project will encourage diversification of land use.

Site values

Environmental Impact Statement

Armidale East Battery Energy Storage System

The Project is located within the Armidale Regional Local Government Area (LGA), approximately 18 kilometres (km) east of the major population centre of Armidale. Other nearby towns include Dumaresq located 29km to the northwest, Invergowrie 31km to the west, Guyra 36km north northwest, and Uralla located 37km southwest.

The areas surrounding the Development Site are predominately agricultural lands used for grazing. The Metz Solar Farm is situated adjacent to the Project. Adjacent land uses include:

- Cropping
- Grazing native pastures
- Grazing modified pastures
- Environmental forest plantations.

The Development Site is mapped as Class 5 in accordance with the Land and Soil Capability Scheme (LSC) Class 5 land has high limitations for high-impact land uses. A Transgrid 330 kilovolt (kV) overhead transmission line runs east-west, immediately adjacent to the proposed Development Site to the north, which feeds into the Armidale substation.

While the Development Site is not mapped as bushfire prone land, areas of the Subject Land and surrounds are mapped as bushfire prone. The Development Site is not identified as flood prone land under the Armidale Regional Local Environmental Plan (LEP) 2012. The Development Site is located at the top of the catchment with no overland flows from external catchments. An active exploration lease is held over the Subject Land.

Project benefits

The Project:

- ✓ Builds on the aims of the New England REZ by being strategically located to maximise the benefits of and smooth the transition to greater renewable energy development
- ✓ Builds on the aims of the NSW Electricity Infrastructure Roadmap to transition away from coal fired energy, towards greater levels of renewable energy
- ✓ Stabilises and secures the supply of electricity for residents, business owners and service providers
- ✓ Assists to drive down the wholesale electricity prices for energy consumers
- ✓ Generates local employment, economic stimulus and other local economic benefits
- ✓ The Applicant has proposed a Community Benefit Fund (CBF) established via a Voluntary Planning Agreement (VPA). The initial terms of the agreement have been drafted, presented and agreed by Armidale Regional Council (ARC)

Statutory context

State Significant Development (SSD)

Section 20 of Schedule 1 of the NSW State Environmental Planning Policy (Planning Systems) 2021 states Development for the purpose of electricity generating works with an estimated development cost of more than \$30 million is classified as State Significant Development (SSD).

Electricity generation works as defined in the Standard Instrument – Principal Local Environmental Plan (2006) includes a building or place used for the purpose of electricity storage.

The Project would have a capital investment cost estimate of more than \$30 million (\$165 million). Therefore, The Project is classified as “SSD” under division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The NSW Minister for Planning is the consent authority for SSD projects and SSD applications are assessed by the Department of Planning, Housing and Infrastructure (DPHI).

Permissibility

The Project Site is located within land zoned (RU1 – Primary Production) under the *Armidale Regional Local Environmental Plan 2012*.

Section 2.36(1)(b) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) states development for the purpose of electricity generating works may be carried out by any person with consent on any land in a non-prescribed residential zone. The land is zoned RU1 and under Section 2.35 of the TISEPP, a non-prescribed residential zone.

Mandatory matters for consideration

Section 4 of this EIS details the relevant mandatory matters for consideration, including:

- *Environmental Planning and Assessment Act 1979*
- *Environmental Planning and Assessment Regulation 2021*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021*
- *State Environmental Planning Policy (Planning Systems) 2021*
- *State Environmental Planning Policy (Resilience and Hazards) 2021*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
 - o Inclusive of Part 3.2 Development control of koala habitats
- *State Environmental Planning Policy (Primary Production and Rural Development) 2021*
- *Armidale Regional Local Environmental Plan 2012*
- *Armidale Development Control Plan*
- *Biodiversity Conservation Act 2016*
- *Biodiversity Conservation Regulation 2017*

Engagement

Community

Community consultation for the EIS phase of the Project commenced in February 2024. The EIS period included a range of engagement activities aimed at expanding awareness of the Project, responding to concerns, working through issues raised by the community and wider stakeholders, and capturing opportunities. The Applicant committed to developing detailed answers in response to local enquiries and created in-depth collateral items to accompany engagement activities.

Key concerns that were expressed by stakeholders were primarily focused on the following topics:

- Concern regarding potential electromagnetic fields
- Concern regarding trade block supply of replacement component parts if sourced overseas
- Concern regarding the cumulative impact of the development on the wider community from location within the REZ
- Concern about waste management (raised by ARC, survey responders and within the SIA)
- Concern about the risks of fire, battery explosions or bushfires
- Concern about strain to workforce due to skills gap
- Concern regarding local housing supply and limited accommodation available

The engagement activities undertaken throughout the EIS phase demonstrated that there is a low to medium concern regarding the Project, which is balanced by a high level of support and encouragement from the wider community.

Aboriginal community

Two avenues for engagement with the local Aboriginal community were adopted:

1. Engagement through the Engagement Action Plan in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Applicant*
2. Formal consultation was undertaken by the Heritage team regarding the potential to impact Aboriginal cultural heritage as part of the Aboriginal Cultural Heritage Assessment (ACHA) process.

Registered Aboriginal Parties who registered an interest in the Project participated in the survey, assessment and development of mitigation strategies related to Aboriginal cultural heritage.

Agency

The following agencies were consulted as part of the EIS process:

- Department of Planning, Housing and Infrastructure (DPHI)
- Fire + Rescue NSW
- NSW Rural Fire Service
- Armidale Regional Council
- Geological Survey of NSW – Mining Exploration and Geoscience
- Heatherington Exploration/Kooky Resources/Thunderbird Resources
- Transport for NSW
- Transgrid
- Conservation Programs, Heritage and Regulation (CPHR) (formally the Biodiversity Conservation Division/ Service)
- Department of Climate Change, Energy, the Environment and Water (Cwth)
- Biodiversity Offset Scheme Help Desk
- NSW Crown Lands

Assessment of key issues

Table ES-2 Key issues investigated as part of this EIS

Environmental impact	Impact and key outcomes
Biodiversity	The Development Footprint for the BESS occurs mostly on grazed agricultural land, with native vegetation present within sections of the BESS site and along the private site access road. Two Plant Community Types (PCTs), one flora species and seven fauna species were identified or assumed present onsite in areas that would be impacted. An offset obligation has been generated for impacts on native vegetation and candidate species either identified or assumed to occur* onsite, in accordance with the Biodiversity Assessment Method: • Plant community type 3352 - Armidale Quartz Stringybark Forest • Plant community type 3359 – New England Hills Stringybark Box Woodland • Narrow-leaved Peppermint (<i>Eucalyptus nicholii</i>)

Environmental impact	Impact and key outcomes
	• Southern Myotis (<i>Myotis macropus</i>) • Eastern Cave Bat (<i>Vespadelus troughtoni</i>) – *No credits generated in accordance with NSW guidelines • Booroolong Frog (<i>Litoria booroolongensis</i>) • Large Bent-winged Bat (<i>Miniopterus orianae oceansis</i>) (Foraging) • Little Bent-winged Bat (<i>Miniopterus australis</i>) (Foraging) • Yellow-bellied Sheath-tailed Bat (<i>Saccolaimus flaviventris</i>) • Greater Broad-nosed Bat (<i>Scoteanax rueppellii</i>) • Scarlet Robin (<i>Petroica boodang</i>). The Project was referred under the EPBC Act and has been determined ‘a controlled action’. Following the referral outcome, an assessment of significance was undertaken for four EPBC listed entities including: • <i>White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland</i> • Narrow-leaved Black Peppermint (<i>Eucalyptus nicholii</i>) • Diamond Firetail (<i>Stagonopleura guttata</i>) • Brown Treecreeper (<i>Climacteris picumnus victoriae</i>). The assessment demonstrates the Project is considered unlikely to lead to a significant impact to the Box Gum Woodland CEEC due to the persistence locally (beyond the Assessment Area) of patches of CEEC, although an adverse impact upon habitat critical to the survival of the ecological community is expected and this may cause a substantial change in its species composition and structure within the Assessment Area. Additional Commonwealth offsets were not considered to be required. The Assessments of Significance concluded that the Project is unlikely to result in a significant impact to any listed threatened species or ecological communities.
Aboriginal heritage	One artefact scatter and three isolated finds were identified within the Development Site. The assessment of harm overall for the Project is assessed as low. Mitigation strategies have been developed in consultation with Registered Aboriginal Parties who registered an interest in the Project.
Access and traffic	Access to the Development Site would be off Bayley Park Road via Waterfall Way. Minor vegetation trimming and verge regarding along Waterfall Way is required to achieve safe sight distance at the intersection. The traffic assessment has determined that a Basic Left Turn (BAL) and a Basic Right Turn (BAR) treatment are required. The intersection is currently provided with a BAL treatment only The Project is expected to generate approximately six high risk over-size over-mass (OSOM) vehicles during construction; a period of approximately 30 months. The minimum clearance for underpasses of 5.5m is provided

Environmental impact	Impact and key outcomes
	along the entire OSOM route. During operation the BESS is expected to generate a negligible amount of additional traffic.
Bushfire	Bush fire risks during construction and decommissioning would be managed through the standard mitigation measures recommended in the EIS. Existing access roads and informal farm roads, as well as proposed Asset Protection Zones, and BESS internal service roads would provide RFS and emergency service access throughout the Development Site.
Preliminary Hazards Analysis	Preliminary risk screening found that the Project is not considered as 'potentially hazardous industry'. Systematic identification of possible hazards, both on-site and off-site identified 13 medium-risk and four low risk events. Most are related to fire incidents resulting from various causes, such as the release of flammable materials, battery thermal runaway, transformer fire, and bushfires. Considering the identified controls, the highest likelihood for these events was rated as very unlikely, and the risk assessment concluded that there is negligible potential for offsite fatality or injury. Specific design requirements and safety studies now form part of the Project to address the risks identified. Electric and Magnetic Fields created from the Project will not exceed the International Commission on non-Ionizing Radiation Protection (ICNIRP) Guidelines reference level.
Bushfire	Bush fire risks during construction and decommissioning would be managed through the standard mitigation measures recommended in the EIS. Existing access roads and informal farm roads, as well as proposed Asset Protection Zones, and BESS internal service roads would provide RFS and emergency service access throughout the Project Site.
Visual amenity	No notable visual impacts would occur. Field work has confirmed that the theoretical (modelled) visibility of the infrastructure would be screened by existing vegetation screening and topography. Nearby residential receivers and public viewpoints result in nil or very low visual impacts. No mitigation is considered warranted for this level of impact.
Noise and vibration	No noise exceedances (including sleep disturbance criteria) are relevant to construction or operation for non-associated receivers. No vibration or traffic noise exceedances would occur.

Environmental impact	Impact and key outcomes
	No noise exceedances during the construction would occur for any non-associated receivers.
Hydrology and flooding	Water use during construction would be minimal and largely used for dust suppression on unsealed roads and for the construction of new roads. The construction phase has low potential to impact water quality and quantity. Use of groundwater would not be extracted during the life of the Project nor likely impacted throughout the life of the Project. Results of the 1% AEP design conditions shows that flood depths outside of the Development Site are unaffected by the Project. The only increases in concentration of flood depths would be in areas of higher roughness i.e. at the substation and within the BESS. Flood depths within the Development Site would generally remain below 50mm as per the existing conditions, with AEMI Hazard Category remaining at H1 - no restrictions. evacuation of the site in a flood event. Hydraulic modelling of the 1% AEP event for the critical storm duration affecting the Limerick Creek crossing (i.e. a 90 -minute storm event) indicates that flood hazard across the access road reaches H2 approximately 1 hour and 40 minutes after the onset of rainfall, rendering the crossing impassable. Under this scenario, the road remains impassable for approximately two hours, after which the flood hazard reduces to a H1 category. It is therefore recommended that a Flood Emergency Response Plan be adopted for the site, in order to manage safe evacuation of personnel if they are located on site at the time of a significant event.
Land use compatibility	The Development Site is currently utilised for agricultural purposes, predominantly grazing. The relatively small operational BESS footprint would be sterilised from ongoing agricultural use but the surrounding land would benefit from improved site access and can continue to be farmed. One current exploration licences is present over the Subject Land. Land use conflict risk assessments have been used to develop mitigation strategies to address risks to adjacent agricultural, residential, utility, mining and environmental land.
Geology and soils	Potential impacts that may arise as a result of construction and decommissioning can be minimised by carrying out the activities in accordance with the provisions of the <i>Managing Urban Stormwater: Soils and Construction "Blue book"</i>. The results of the contamination desktop assessment indicate that the potential for contamination to occur with the Development Site is low. The low risk of contamination does not warrant further assessment. As such, this risk of impacts to potential contaminated soil during the construction

Environmental impact	Impact and key outcomes
	phase of the Project are anticipated to be negligible.
Non-Aboriginal heritage	The Development Site is not listed on any heritage register at a State or Local level and no items or structures of historical significance were encountered during the site visit or identified as likely to occur during the desktop assessment.
Social and economic	The social impact assessment has concluded that the perceived community division, procedural unfairness, and loss of rural identity that the community have identified may outweigh potential economic or infrastructure benefits at a local level, unless the project delivers tangible, equitable outcomes and adopts engagement practices that build trust and demonstrate genuine inclusion in decision-making. A series of strong recommendations regarding continued engagement, accommodation and employment and training from the assessment have been included as project commitments and aim to maximise the project benefits for the local community. Several options were examined to strengthen local employment outcomes and build workforce capability in the region. Drawing primarily on a non-local workforce could allow the Project to access experienced workers quickly; however, it would contribute little toward addressing local skill shortages, labour demand or creating longer-term opportunities. The accommodation inventory indicates tight rental vacancy conditions in the Project catchment, limiting the suitability of private rental housing and commercial short-term accommodation for the construction workforce. Options to accommodate construction workers are available in the form of underutilised and vacant student accommodation suitable for the temporary construction workforce and available long-term rental properties for the operational workforce
Resource use and waste generation	The impact from waste generation during construction on regional waste facilities has identified several recycling and reuse measures. It is critical that all waste stream end locations are identified prior to construction, and any limitations managed through a waste management plan. With the implementation of detailed plan, the impact is assessed to be minor. Any spent batteries during operation would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of LFP batteries. Batteries would be handled, stored, and transported according to manufacturer's guidelines and the ADG Code.
Air quality	The construction phase is expected to be up to 30 months in duration. The air quality impacts from construction works on the Development Site, are considered to be negligible due the proposed smaller footprint, minor

Environmental impact	Impact and key outcomes
	earthworks activities and the distance from receivers. Potential air quality impacts are likely to occur along Bayley Park Road due to parts being unsealed and are used by motorists. However, the potential impacts are considered manageable with the implementation of mitigation measures.
Cumulative impacts	Several positive strategic cumulative impacts have been identified for the Project, including alignment with federal, state and local regional renewable energy and storage policies and land use plans. While most adverse cumulative impacts are best mitigated on a project-by-project basis, traffic and social impacts may be more significant and are more uncertain. They are also an area of particular interest to the local council and community. While the chance of overlap with other large projects cannot be known with certainty at this time, the period of overlap of peak construction traffic is not considered significant in terms of the ability of the local road network to handle this overlap. Cumulative traffic impacts will require more accurate data, closer to construction with regard to managing overlapping constructing schedules. Key negative cumulative impacts identified include potential impacts to property values, increased pressure on housing and accommodation, and consultation fatigue.

Justification

The project as presented in this EIS meets all relevant planning provisions and guidelines. On balance, the Project is considered appropriate to both:

- Assisting Australia's energy transition from fossil fuels to renewable energy.
- Contribute to achieving net-zero emissions by 2050 by providing storage and discharge of renewable energy during time of high generation/low demand, and high demand/low generation.
- Provide system strength services to the transmission (and distribution) networks in the area, therefore, providing security of supply and safeguarding the energy network.
- Increased economic activity locally and more broadly through grid investment and influx of construction project and personnel spending in the local community during the construction period.
- Delivering direct employment and labour opportunities during construction, operation, decommissioning and rehabilitation from a variety of skill sets.

The Project is considered justifiable and approvable.

Where to from here?

During the public exhibition of this EIS, the local community, local council and government agencies are invited to make informed submissions in relation to the Project. The consent authority will consider formal submissions made during the exhibition period, if relevant to the Project. The Applicant's response to all matters raised in submissions will also be exhibited as DPHI commence preparation of their own assessment of the Project's impacts and its merits and make a recommendation regarding its ability to be approved.

Furthermore, the local community is encouraged to take the opportunity to make a submission directly to the DPHI and to participate in the future engagement activities planned prior to the Project's determination.

1. Introduction

1.1. Project outline

FRV Services Australia (FRV) (the Applicant) is proposing the development of the Armidale East Battery Energy Storage System (BESS) (the Project), approximately 18 kilometres (km) west of Armidale (see Figure 1-1) in New South Wales (NSW).

The Project would involve the construction, operation and decommissioning of a BESS and associated infrastructure, including:

- A BESS with a nominal capacity of up to 377 megawatts (MW_{AC}) with up to 2,310 megawatt hours (MWh) (8-hour storage)
- All associated ancillary infrastructure required for the operation of the BESS, including electrical, communications and control equipment
- Grid connection infrastructure to connect the Project into the existing Transgrid's 330 kilovolt (kV) transmission line immediately north to the site
- Construction of a main access road and internal access tracks within the site
- Upgrades to sections along Bayley Park Road to accommodate construction traffic, including widening works, some existing culvert upgrades and minor tree trimming/lopping of overhanging branches
- Minor road works on Waterfall Way/Bayley Park Road intersection to ensure safe vehicle access to the site
- All relevant temporary construction infrastructure (e.g. laydown areas, temporary facilities, etc.).

The Project would supply electricity to the national electricity market during peak periods and will have an operational life of up to 40 years.

The Project was initially presented in the Scoping Report as a 500MW/1,000MWh BESS. However, following further technical assessments, commercial analysis and consideration of network and energy system requirements, the design has been refined to up to 377MW/2,310MWh. See Section 2.4 below for further details.

The Project is considered State Significant Development (SSD) under Section 2.6 (b) and Schedule 1(20) of the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and so requires assessment in accordance with Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project is not designated development, as it is classified as SSD, which is excluded under Section 4.10 of the EP&A Act.

Further, the Project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and will be assessed under the bilateral agreement between the NSW and Commonwealth Governments, or an accredited assessment process.

1.2. Project objectives

The Project would support grid stability, reliability and efficiency, important to the integration of greater renewable energy sources. It aims to minimise potential environmental impacts, through its design, construction, operation and decommissioning phases. As dictated by market demands and grid needs, the Project would:

- Facilitate energy shifting or level out the imbalances between supply and demand, especially during peak demand periods.

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Armidale East Battery Energy Storage System

- Provide fast-response grid services, such as frequency control, system strength and voltage support, and improved power quality.
- Provide stored electricity, to supply the Australian grid closer to main consumption areas.
- Better integrate the contribution of renewables, supporting the transition to a lower-emissions electricity system consistent with NSW and national energy policies.
- Reduce energy wastage (curtailment) and improve the efficiency of the electricity system.

In doing so, the Project will also provide economic activity and employment opportunities through new industries to Armidale and broader region.

These objectives are part of the broader effort to modernise and decarbonise the energy grid and improve its resilience to changing energy demands and challenges, making large-scale BESS an essential component of a sustainable and reliable energy system.

Energy storage technologies can unlock electricity generation growth in areas experiencing network constraints. They will also support on-demand energy needs as the network transitions to include more renewable sources of energy.

The development of energy storage facilities projects aligns with both Federal and NSW commitments to (NSW Government, 2024) such as the NSW Government Renewable Energy Planning Framework through:

“The expansion of storage capacity throughout the state, facilitating the integration of renewable energy sources by balancing supply and demand effectively and enhancing the stability and resilience of the electricity grid using storage technologies...”

As well these broader benefits, to ensure the Project is appropriate to its context, the development aims to address the following key issues:

- Assisting Australia's energy transition from fossil fuels to renewable energy. Contribute to achieving net-zero emissions by 2050.
- Provide system strength services to the transmission (and distribution) networks in the area; therefore, providing security of supply and safeguard the energy network.
- Increased economic activity locally and more broadly through grid investment.
- Delivering direct employment and labour opportunities.

The Project would provide benefits to the local community through the provision of direct and indirect employment opportunities and community benefits sharing. This aspect has been informed by local investigations and consultation with Armidale Regional Council (ARC), affected stakeholders and the broader community.

The Project's site selection minimises potential environmental impacts. It is close to the required electrical infrastructure for connection to the grid. It can largely avoid heritage, noise, hydrology and visual impacts while other factors such as traffic, biodiversity and hazards are considered manageable with the application of mitigation measures.

The Project aims to establish social licence by selecting an appropriate site and developing the Project to be responsive to community feedback; this is evident by the community engagement to date. The community sentiment to date has been positive, with local residences and neighbours being supportive of more renewables and the Project in general. Refer to Section 5 for details on community engagement to date and future activities which are proposed.

1.3. Applicant details

The Project applicant is FRV Services Australia (FRV) (see Table 1-1). FRV is one of the world's leading renewable energy solution companies. With over 15 years' experience in the industry, FRV has over 50

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renewable energy plants across four continents producing over 5 gigawatts (GW) of energy. FRV possesses financial strength and stability for future international expansion opportunities, diversification, innovation, and investment within the renewable energy markets.

FRV is an Independent Power Producer (IPP), fully owning its assets from development to construction and through to operation for the entirety of their lifetime. This ensures FRV is committed to achieving positive long-term outcomes from their projects and being responsible members of the communities in which they operate.

Within Australia, FRV is primarily focused on renewable development projects along the east coast, with ten operational projects (solar and BESS plants), two under construction and more than five in development across Queensland (QLD), NSW and Victoria (VIC). FRV's vision is to become one of the world's preferred green utility and green energy platforms, working toward building a more sustainable future through renewable energy solutions. With an approach focused on innovation, stability, transparency, and sustainability, FRV aims to lead the way to a green energy world. They aim to improve the lives of people, and bring new opportunities through access to clean, green, efficient and cost-competitive energy.

Table 1-1 Applicant details

The Applicant	FRV Services Australia (FRV)
Legal Entity	Armidale East BESS Asset Trust
Main office address	Suite 1001, 1 York St. Sydney NSW 2000
ABN	151 469 662

1.4. Site overview

1.4.1. The locality

The Project would be located at **315 Bayley Park Road, Metz NSW 2350**, within the Armidale Regional Government Area (LGA). The closest major population centre to the Project is Armidale, approximately 18km east. Other nearby towns include Dumaresq located 29km to the northwest, Invergowrie 31km to the west, Guyra 36km north northwest, and Uralla located 37km southwest (refer to Figure 1-1).

Works for the BESS associated ancillary infrastructure and its operation will be located within approximately 12ha of the Development Site (Lot 101 DP1237661), with an additional approximate 5ha of clearing required for site access and road upgrades.

The Development Site itself has been selected primarily due to its location immediately adjacent to nearby powerlines and proximity to an area already developed for renewable energy projects (Metz Solar Farm). Additionally, the Development Site is remote from incidental viewing from public viewpoints and to minimise noise receivers.

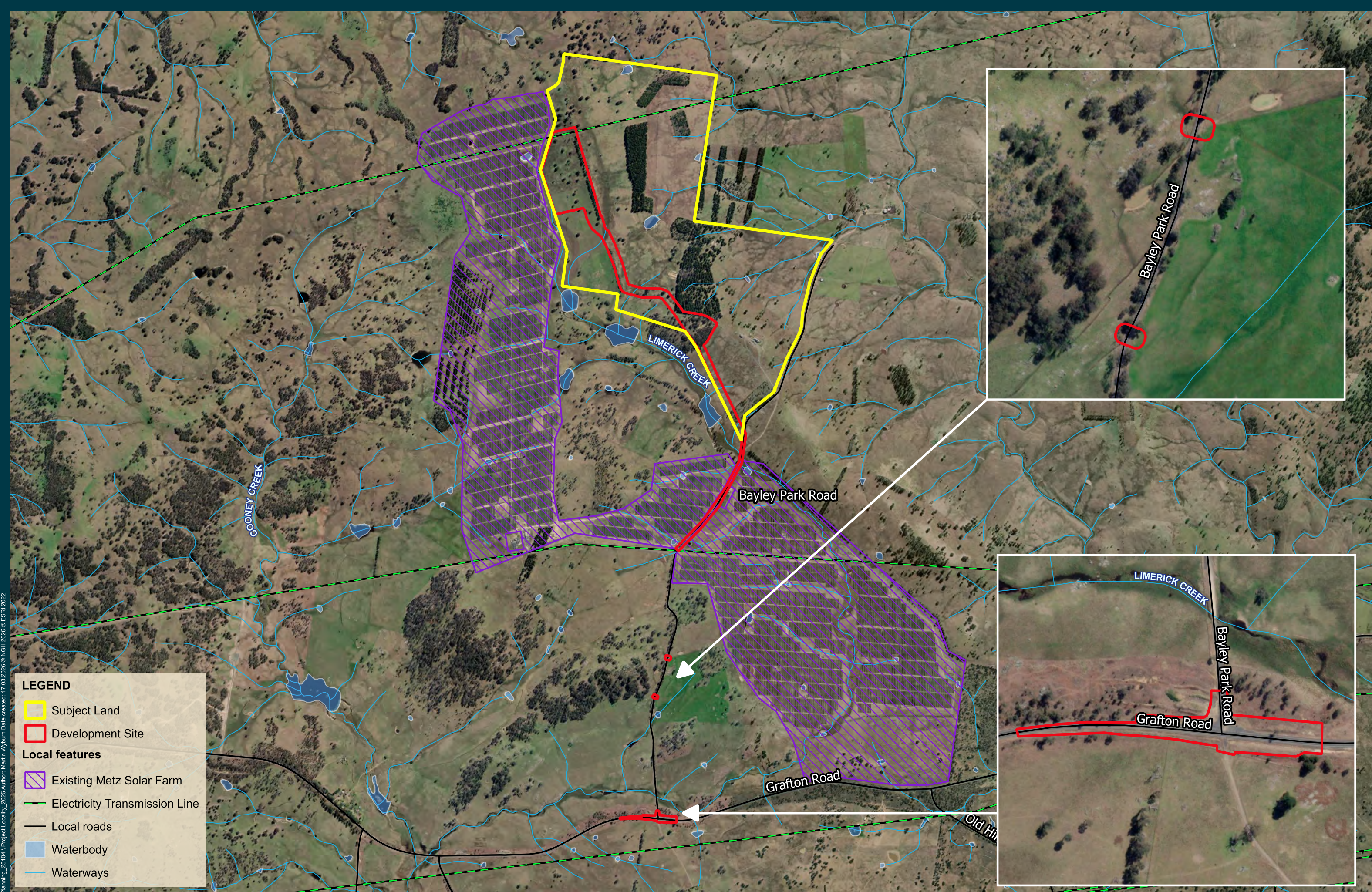
Access to the Development Site would be via Waterfall Way (named Grafton Road in public mapping), turning into Bayley Park Road. The intersection of Waterfall Way and Bayley Park Road was partially upgraded previously to facilitate the construction of the Metz Solar Farm.

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A Transgrid 330kV overhead transmission line runs east-west, immediately adjacent to the proposed Development Site to the north, which feeds into the Armidale substation. It is proposed to connect the Project directly into the overhead transmission line via overhead cabling.

Ref: 230216_Armidale_BEES_Planning_251041 | Project Locality_2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2022



Datum: GDA94 / MGA zone 56

NGH
A FYFE Company



0 0.75 1.5 km

Armidale East BESS

Figure 1-1 Locality

1.4.2. Subject Land and tenure

The BESS and access road will be located within Lot 101 DP1237661. As describe above, additional clearing and road widening will be required for sections of Bayley Park Road and Waterfall Way. Minor clearing and regrading works will also be required within the Waterfall Way Road reserve to meet safe intersection site distances. Note all road works are expected to be within the respectively owned and managed road reserve.

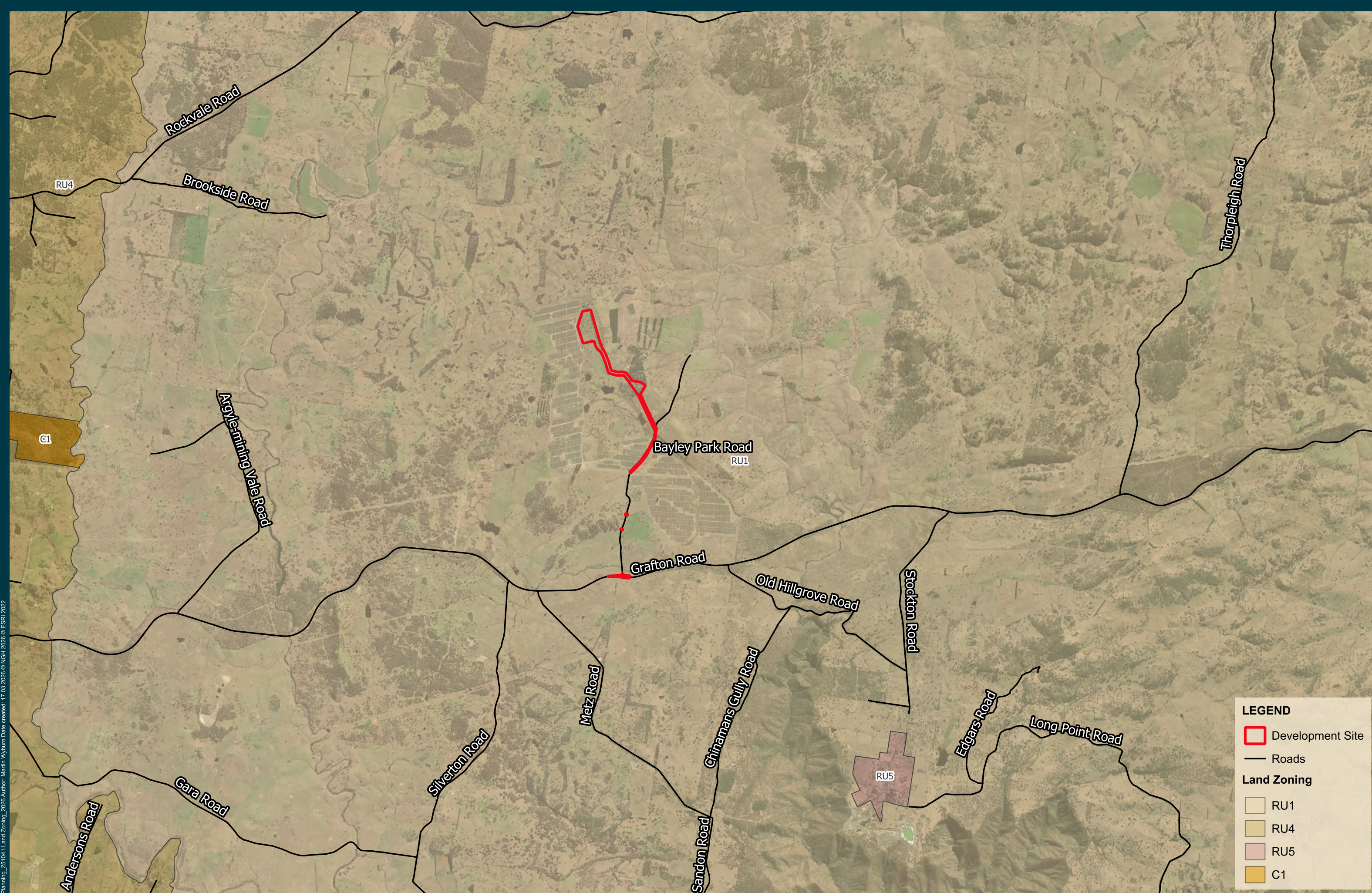
The Subject Land is freehold, owned by the associated landholder. The Development Site itself has been largely cleared of vegetation and is currently used for grazing.

The Development Site is zoned Primary Production (RU1) under the *Armidale Regional Local Environmental Plan 2012* (Armidale Regional LEP) (refer Figure 1-2).

Due to the small area of impact proposed, the Project will have minimal impact on adjacent areas of primary production and minimise fragmentation of resource lands. The Project will encourage diversification of appropriate land use and is highly compatible with the adjacent energy generation and transmission infrastructure, including the Metz Solar Farm and adjacent 330kV transmission line.

Table 1-2 Lots and easements intersected by the Project

Ownership	Zone	Proposed usage for the Project	Lot/DP	Development Footprint (ha)
Freehold – associated receiver	RU1	Siting of the BESS, onsite substation, O&M Buildings, grid connection	100//1237661	~11.95
Armidale Regional Council		Road upgrades	Bayley Park Road	~5.35
Freehold – associated receiver			Internal access	
Transport for NSW		Minor earth works	Waterfall Way	~0.10
TOTAL				17.40



Ref: 230216_Armidale_BEES_Planning_251041_Land_Zoning_2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2022

Datum: GDA94 / MGA zone 56



1.5. Project background

1.5.1. Project history

Site selection for the Project was initially driven by a combination of:

- Proximity to the Armidale-Coffs Harbour 330kV transmission line – the BESS substation will be developed immediately south of the transmission line thereby minimising the distance to connect and allowing for the co-location of energy infrastructure.
- Compatibility with existing land uses and land use zoning – the Project is compatible with surrounding land uses, including the Metz Solar Farm.
- Proximity to major transport links – the proposed access road allows for heavy vehicle access via Bayley Park Road and Waterfall Way.
- Distance from sensitive locations and receivers to avoid significant impacts.

The selected Development Site was then subject to preliminary impact assessments, including a biodiversity technical report, preliminary social impact assessment, and community and stakeholder engagement events. These helped shape a Project responsive to its site context. The Project was referred to the Commonwealth DCCEE and determined a controlled action under the EPBC Act in March 2025.

1.5.2. Key strategies to avoid, minimise or offset potential impacts

Key actions that have been taken in the Project planning stages in response to environmental constraints, to ensure any potential impacts were avoided, minimised or offset include:

- Early consultation:
 - o On-site with the former Biodiversity Conservation Science (BCS) Group (now Conservation Programs, Heritage and Regulation (CPHR Group)) to discuss the implication of clearing, due to the presence of a Threatened Ecological Community (TEC) and a Serious and Irreversible Impacts (SAIL) species
 - o With ARC in relation to works on Bayley Park Road, to minimise clearing of native vegetation and threatened species
 - o With Transport for New South Wales (TfNSW) to discuss site access, sight distance and overall road safety
 - o With the Rural Fire Service (RFS) and Fire Rescue NSW (FRNSW) to discuss safe egress from the site in the event of an emergency
- Appropriate consideration of access routes, selecting the most feasible and safest option.
- Consideration of overland flow and potential flooding hazards, and consultation with relevant emergency services for site evacuation
- Siting of Project infrastructure to:
 - o Use previously disturbed land – as much as possible the Project has been proposed on previously cultivated, cropped, or grazed land which has been previously subject to development or edge impacts
 - o Minimise vegetation clearing – the Project has avoided the need for significant vegetation clearing where possible
 - o Minimise land disturbance – the Development Footprint is limited to the minimum area required
 - o Protect riparian zones – riparian zones and associated watercourses have been avoided as much as possible.

- o Protect known cultural heritage values – through the identification and evaluation of cultural heritage assets at the site.
- o Minimise direct and indirect impacts – as much as possible; Project infrastructure has been located away from nearby residences and adjoining properties to limit the potential for adverse noise, dust, and visual impacts
- Adopted a flexible approach to design – the current Project design has responded to identified environmental impacts and constraints.

Further detailed design will be undertaken, pending Project approval, within the parameters set out in this EIS.

1.6. Related developments

There are no existing or approved developments that will be incorporated into the Project or operated in conjunction with the Project.

All works associated with construction and operation of the Project, including connection works, are assessed under this Development Application (DA).

1.7. Restrictions applicable to the site

There is only one restriction listed for the Subject Land; an easement for the existing Transmission Line. The Transgrid 330kV overhead transmission line runs north on a 60m wide easement, and feeds into the existing Armidale substation. It is immediately adjacent to the northern side of the Project substation and contributed to the positioning of the BESS as it is proposed to connect the Project directly into the overhead transmission line via overhead cabling.

The location of overland flow paths have also been plotted to restrict the physical location of the BESS to the Development Site. Refer to Section 6.8 for more information on the hydrology and flooding of the area.

1.8. Format of this Environmental Impact Statement (EIS)

The purpose of this Environmental Impact Statement (EIS) is to assess the economic, environmental and social impacts of the Armidale East BESS Project.

This EIS has been prepared in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) to support a State Significant Development (SSD) development application to be lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI). The objective of this EIS is to fulfil the requirements of Part 8 Division 5 of the Environmental Planning and Assessment Regulation 2021 (NSW) (EP&A Regulation) and Section 4.15 of the EP&A Act.

The structure and content of the EIS address the Secretary's Environmental Assessment Requirements (SEARs), provided by DPHI on 22 December 2023.

An extension to the SEARs was requested and subsequently approved in November 2025. DPHI approved a 6-month extension of the SEARs, as the original SEARs were set to expire in December 2025. No change in the SEARs or consultation requirements were part of the updated SEARs.

An additional SEARs extension was requested and subsequently approved in June 2026. DPHI approved an extension until September 2026, with no change in SEARs or consultation requirements.

Environmental Impact Statement

Armidale East Battery Energy Storage System

This EIS is structured to help the local community, local council, government agencies and the consent authority understand the Project and its impacts so they can make an informed submissions or decisions based on the merits of the Project.

The EIS has been prepared in line with the following guidance documentation:

- State Significant Development Guidelines (DPHI, 2026)
- State Significant Development Guidelines Appendix B – Preparing and environmental impact statement (DPHI, 2026a)
- Undertaking Engagement Guidelines for State Significant Projects (DPHI, 2026b)
- Cumulative Impact Assessment Guidelines for State Significant Projects (DPHI, 2026c)
- Social Impact Assessment Guidelines for State Significant Projects (DPHI, 2026d)
- Benefit-Sharing Guideline – Guidance for large-scale renewable energy projects (DPHI, 2024).

It has been prepared in two parts:

1. The main report describes the Project, summarises the findings on consultation activities and the detailed environmental assessment of impacts. It includes all mitigation measures proposed to manage the potential impacts as a result of the Project on the local community and the environment.
2. The supporting appendices include more detail in relation to:
 - a) The Project specific Secretary's Environmental Assessment Requirements (SEARs) which prescribe the structure and content of the EIS, including a cross reference to where each requirement has been addressed in the EIS
 - b) Statutory compliance of the Project
 - c) Engagement activities and outcomes, with the community and agencies
 - d) A consolidated table of all proposed mitigation measures to manage the potential impacts as a result of the Project on the community and the environment
 - e) Detailed specialist reports (each provided in full).

The supporting appendices include:

- Appendix A - Project SEARs
- Appendix B - Statutory context table
- Appendix C Community evidence
- Appendix D Consolidated mitigation measures
- Appendix E Specialist reports
 - o E.1 Biodiversity Development Assessment Report
 - o E.2 Aboriginal Cultural Heritage Assessment
 - o E.3 Traffic Impact Assessment
 - o E.4 Bushfire Impact Assessment
 - o E.5 Preliminary Hazards Assessment
 - o E.6 Landscape and Visual Impact Assessment
 - o E.7 Noise and Vibration Impact Assessment
 - o E.8 Detailed Water Assessment
 - o E.9 Soil Impact Assessment and Technical Report
 - o E.10 Social Impact Assessment
 - o E.11 Accommodation and Employment Strategy

2. Strategic context

The strategic context of this Project is set out below. It is an important background to the Project as it demonstrates how well the Armidale East BESS:

1. Aligns with federal and state regional renewable energy policies
2. Aligns with regional and local land use plans
3. Responds to the site's unique environmental and social context.

In consideration of these matters, alternatives to the Project are examined and the Project benefits are set out at the end of this section.

2.1. Regional context

The Project is located within the Armidale Regional Local Government Area (LGA). The LGA sits in the eastern portion of the New England North-West region, covering an area of 8,621km² (refer to Figure 2-1). The area encompasses significant natural assets, including a World Heritage-listed rainforest within the Oxley Wild Rivers and New England national parks, scenic waterfalls and gorges and rich pastoral lands. The ARC was established through amalgamation of the Armidale Dumaresq and Guyra Shire councils in 2016 and now encompasses the key towns and localities of Armidale, Metz, Hillgrove, Guyra, Tingha, Ben Lomond, Ebor, and Wollomombi.

The Armidale region is a key service and agricultural hub for the broader New England area. This is evident from its workforce structure, with the most significant industries of employment being education and training, agriculture, forestry, and fishing, and healthcare and social assistance.

The areas surrounding the Project are predominately agricultural lands used for grazing. The Metz Solar Farm is situated adjacent to the Project, on land that is owned by close familial relatives of the associated landholder for this Project. Adjacent land uses include:

- Cropping
- Grazing native pastures
- Grazing modified pastures
- Environmental forest plantations.

The Development Site is mapped as Class 5 in accordance with the Land and Soil Capability Scheme (LSC) (NSW OEH, 2012). This category is described as moderate to low capability land: Land has high limitations for high-impact land uses. No Critical Industry Clusters (CIC), Biophysical Strategic Agricultural Land (BSAL) or State Significant Agricultural Land (SSAL) have been identified to occur within the Development Site.

The Project BESS infrastructure is shielded from all non-associated receivers and motorists due to topography and existing structures. The associated landholder and two non-associated rental residences (rented from the associated receiver) are located within 4km of the Project BESS infrastructure (refer to Figure 2-2).

The existing creek crossing for the proposed road upgrade on Bayley Park Road is mapped as Key Fish Habitat (KFH) within Limerick Creek. No other waterways or dams would be impacted by the Project.

There is contention regarding the traditional ownership of the lands of the Armidale Regional LGA. Despite this, it is acknowledged that the Anaiwan, Gumbaynggirr, Dunghutti, and Gomeroi (Kamilaroi) peoples have all cared for various parts of the lands within the LGA for generations.

Environmental Impact Statement

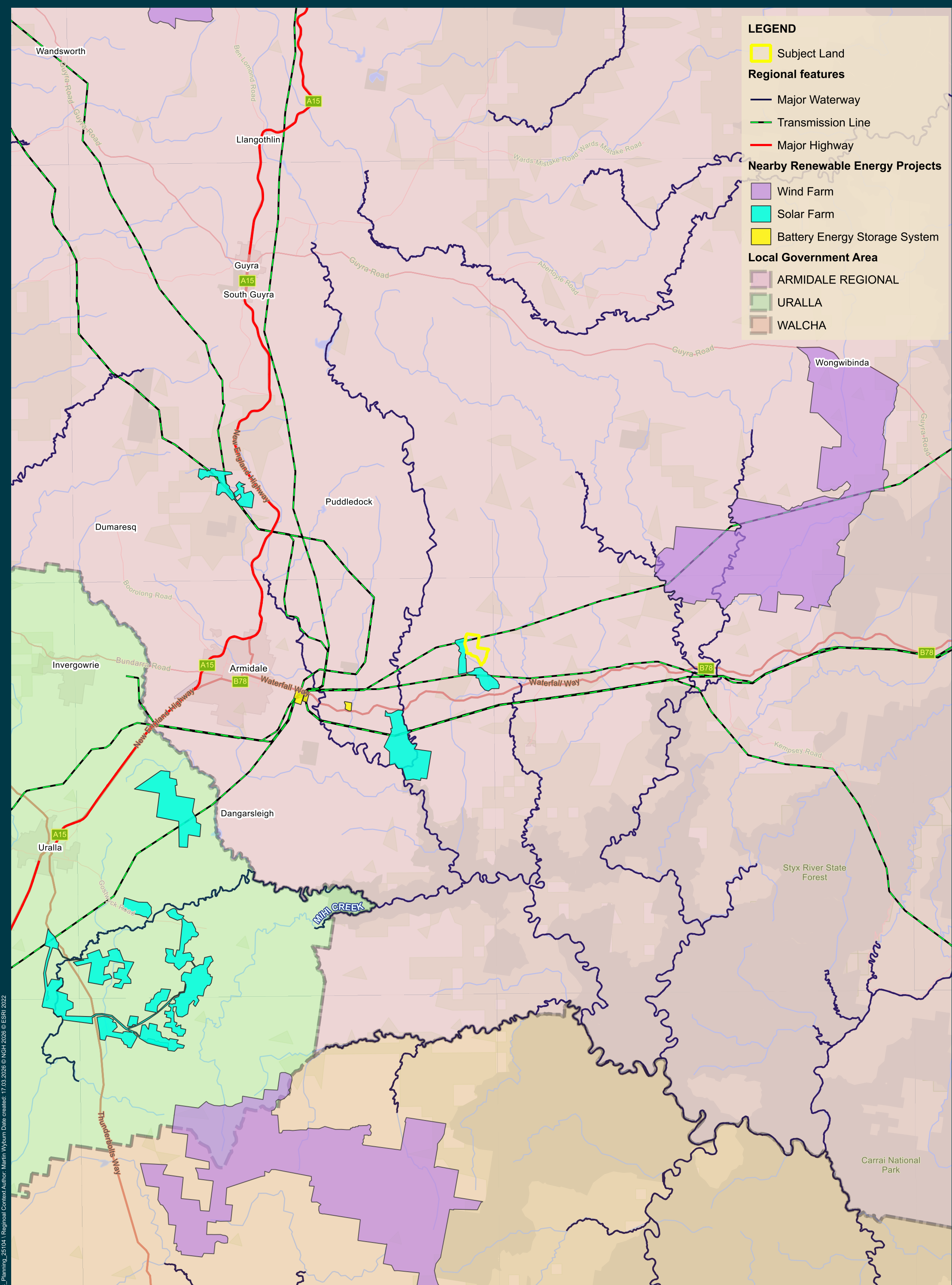
Armidale East Battery Energy Storage System

The Project is located within the New England Renewable Energy Zone (New England REZ). This area has been identified as having significant national and state-wide potential to produce renewable energy. Renewable Energy Zones (REZs) will group new wind and solar power generation into locations where it can be efficiently stored and transmitted across NSW. New network infrastructure will be built in the REZ to enable new generation and storage projects to connect and transport their energy to consumers, both in and outside the REZ.

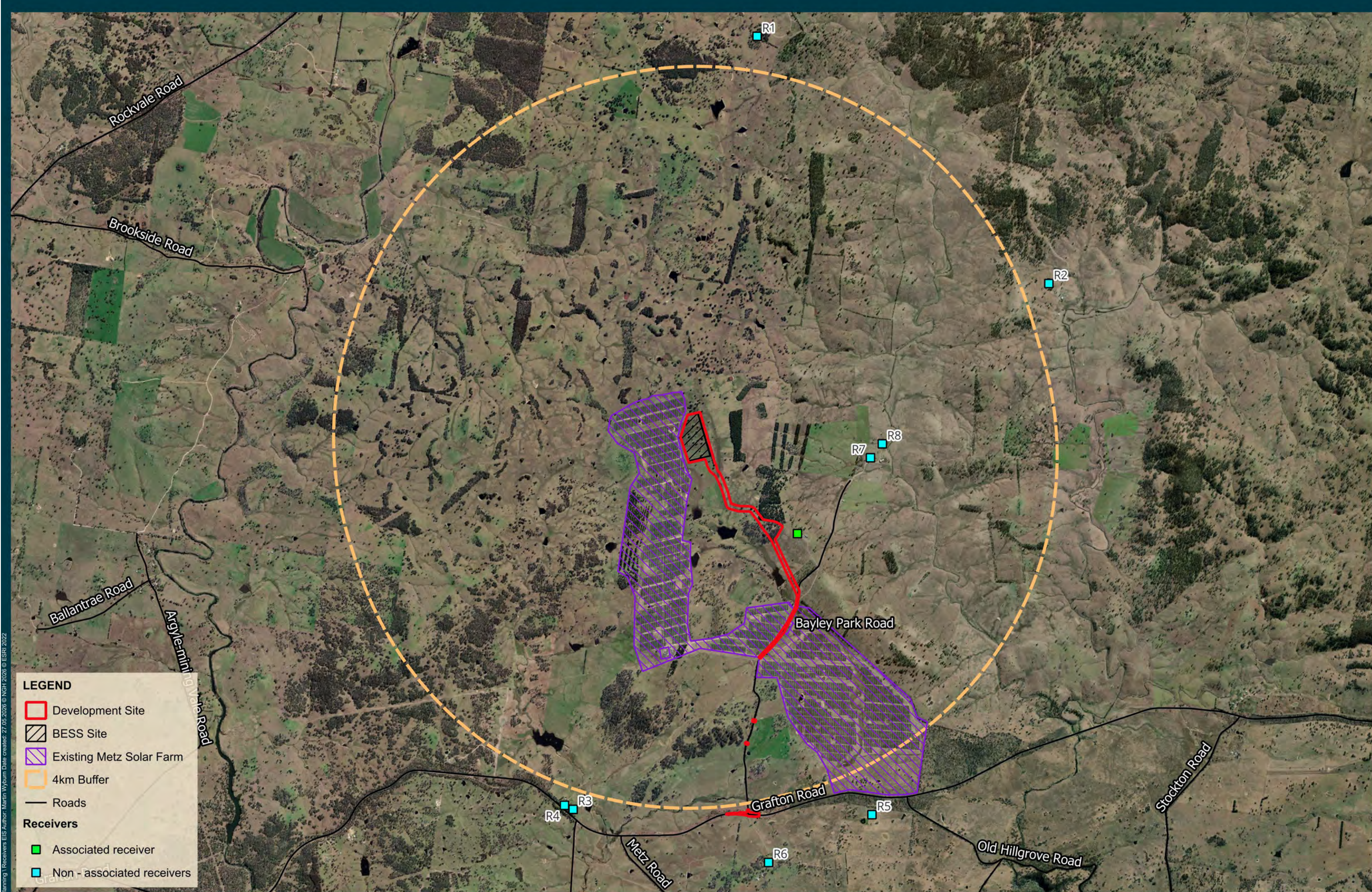
A battery facility within the REZ is by virtue of its location, well placed to support renewable energy projects and the transition away from fossil fuel generated electricity. Being located within the REZ will take advantage of strategic infrastructure planning. In this case, it will avoid the need for third-party easements and long transmission lines and will take advantage of the recently upgraded local road network.

Renewable projects within the New England REZ and their current stage of development include:

- Scoping stage / pre-SEARs:
 - o Yarrowyck Wind Farm
- Prepare EIS:
 - o Glen Innes BESS
 - o Deeargee Solar Farm
 - o Hillview Solar Farm
 - o Hillview Wind Farm
 - o Eastern Hub Firming Battery
 - o Deepwater Solar Farm
 - o Bendemeer Wind Farm
 - o Wongalea BESS
 - o Kooyong BESS
 - o Boorolong Wind Farm
 - o Northern Tablelands Wind Farm
 - o Holloway BESS
 - o Ebor BESS
- Assessment
 - o Gara BESS
 - o Tilbuster 2 Solar Farm
 - o Oven Mountain Pumped Hydro Energy Storage
 - o Winterbourne Wind Farm
 - o Bendemeer Solar Farm
 - o Sundown Solar Farm
- Determined:
 - o Tilbuster Solar Farm
 - o Sapphire Solar Farm
 - o Sapphire Wind Farm
 - o Glen Innes Wind Farm
 - o Oxley Solar Farm
 - o Thunderbolt Wind Farm
 - o Armidale BESS
- Withdrawn
 - o Thunderbolt Solar Farm and BESS
 - o Sailsbury Solar Farm
 - o Doughboy Wind Farm
 - o Uralla Solar Farm
 - o Eathorpe BESS
 - o Woolbrook Wind Farm
- Operational
 - o Whiterock Wind Farm
 - o Whiterock Solar Farm
 - o Woolbrook Wind Farm
 - o Metz Solar Farm
 - o New England Solar Farm



Datum: GDA94 / MGA zone 56



LEGEND

- Development Site
- BESS Site
- Existing Metz Solar Farm
- 4km Buffer
- Roads

Receivers

- Associated receiver
- Non - associated receivers

Datum: GDA94 / MGA zone 56

NGH
A FYFE Company

0 1 2 km

2.2. Alignment with federal, state and regional

2.2.1. Federal Government

Reduction plan 2021 and Nationally Determined Contribution (2022)

Australia's long term emissions reduction plan and the Nationally determined contribution to the United Nations via the Paris Agreement (developed during United Nations Framework Convention on Climate Change (COP21) sets the nations goals towards zero emissions by 2050 and 43% below 2005 levels by 2030 (Department of Industry, Science, Energy and Resources, 2021). This was set to achieve the goal of avoiding a 1.5°C rise (from pre-industrial levels) in temperature by the end of the 21st century. The Project assists in this reduction through the storage and distribution of electricity which should be primarily sourced from renewables, not fossil under the forecasted energy transition.

There have been seven COP's since COP21. The latest outcomes from COP28 highlighted the need to triple global renewable energy capacity globally to meet the goals of the Paris agreement.

The Commonwealth *Climate Change Act 2022* enshrines into law an emissions reduction target of 43 percent from 2005 levels by 2030, and net zero emissions by 2050. In addition, the Act ensure a whole-of-government approach to drive towards the target. The government has formally lodged this target as an enhanced Nationally Determined Contribution under the Paris Agreement. The Act backs onto the Government's Powering Australia plan, which is focused on creating jobs, cutting power bills and reducing emissions by boosting renewable energy.

The Project would form part of the Australian effort to help meet the above targets. The development of utility battery storage is an important contribution to:

- Providing for further reductions in Green House Gas (GHG) emission intensity for generation in the National Energy Market (NEM), by supporting renewable energy projects.
- Supporting the Government's Renewable Target (RET) of 20% renewable energy by 2020. While the Large-scale RET target was met in 2019/20, the scheme will continue to require high-energy users to meet their obligations under the policy until 2030.

2024 Integrated Systems Plan

Published every two years, the Integrated Systems Plan (ISP) details what, when, where, and how much electricity transmission, generation and storage is required in the NEM. This assists governments and industry to plan and invest to meet people's current and future energy needs.

The 2024 ISP confirms that urgent investment is needed in new renewable energy generation, transmission, storage and flexible gas generation to continue to deliver secure, reliable and affordable energy, and reach the renewable electricity generation targets of NEM jurisdictions.

The key messages from the ISP include:

- Household and business electricity consumption from the grid is forecast to nearly double by 2050.
- With coal expected to retire faster than currently announced, the NEM is forecast to need a seven-fold increase in large-scale wind and solar generation by 2050. The 2024 ISP predicts a 90% (or 21-gigawatt (GW) closure of all coal plants by 2030, a significant increase from the forecast two-thirds of coal plants (or 14GW) from the 2022 ISP.
- It also requires building close to 10,000km of new transmission lines and upgrades to existing networks by 2050 to connect new generation across the power grid.

- Delivering the transmission projects identified in this plan is expected to avoid \$17 billion in additional costs to consumers if those projects were not delivered.

The 2024 ISP sets out how the Australian Energy Market Operator (AEMO) has identified the optimal development path for the NEM and is a roadmap through the energy transition. The 2024 ISP shifts from the 2022 ISP, the adjustment being in response to economic, physical and policy environmental changes. The AEMO states that “there will be a demand for 82GW of utility-scale wind and solar in the NEM by 2034-35, and 126GW by 2049-50. 34GW of this energy would need to come from NSW”.

In response to an accelerated timeline for the closure of coal fired energy plants, the optimal development path is Step Change. Step Change is predicted to be the lowest cost, resilient and pragmatic path to the NEM’s energy future rather than Progressive Change which reflects slower economic growth and energy investment or Green Energy exports which is focused on strong industrial decarbonisation and low emission energy exports. Under forecasts for the Step Change scenario (AEMO, 2023), the optimal development path requires investment that would:

- Triple grid scale variable renewable energy by 2030 and increase it seven-fold by 2050.
- Focus grid scale generation in REZs.
- Almost quadruple the firming capacity using utility scale batteries, hydro and gas-powered generation
- Support a fourfold increase in rooftop solar capacity.
- Leverage system security services and operational approaches.

There is an earlier need for renewable energy with a need for 6GW of new renewable energy per year compared to 4GW in the 2022 ISP to replace the coal generation capacity that is exiting faster and to meet the higher demand forecast compared to the 2022 ISP.

The Project would benefit the network by shifting electricity storage closer to local consumption, thereby contributing to regional grid capacity enhancement.

2026 Integrated Systems Plan

The 2026 ISP provides a two-year update from AEMO on the optimal development path. The 2026 ISP continues to acknowledge that Australia’s traditional energy supply system has been based on large-scale power stations with large-scale transmission systems and centralised asset hubs.

The key differences between the 2026 ISP and the 2024 ISP reflect coal closure slowdown, with nearly 40% of the coal power stations now retired, the increased role of grid scale storage, and cost increases and delays in transmission delivery. It also noted that consumers are taking more control over growing electricity needs, through rooftop solar and household batteries.

The 2024 ISP set out how the Australian Energy Market Operator (AEMO) identified the current Optimal Development Path (ODP) for the NEM and is a roadmap through the energy transition. AEMO predicted that there will be a demand for 55GW of utility-scale wind and solar in the NEM by 2030, and 127GW by 2050. Storage demand was predicted to be 22GW by 2030 and 49GW by 2050. These targets have now been adjusted to 61GW of utility-scale wind and solar in the NEM by 2030, and 120GW by 2050.

The 2026 ISP indicates an expanded role in the shorter term (2030s) for grid-scale BESS in the NEM reflecting delays in major transmission projects. The need for grid scale storage has been revised to 36GW by 2035 and 50GW by 2050, whilst the need for renewable energy in 2050 has been revised to 120GW of new wind and solar energy.

A further 17GW of flexible gas-powered generation is projected to back up renewables, which would progressively replace the current gas infrastructure.

The Project will contribute to meeting the increased demand for grid scale storage.

Australia's Net Zero Plan 2025

Australia is experiencing the profound and accelerating impacts of climate change. Australia's average land temperature has increased by approximately 1.5°C since 1910. Australians are already living with the increasing impacts from climate change and are witnessing more frequent and severe events, such as droughts, floods, bushfires and heatwaves (DCCEEW, 2025).

Australia's National Climate Risk Assessment (NCRA) provides the first comprehensive government-led assessment of the risks Australia faces as a result of climate change. It presents a future of climate-fuelled extreme weather events, that increases pressure on our natural ecosystems and the livelihoods and communities that rely on them (DCCEEW, 2025).

On 18 September 2025, the Labor Government announced Australia's latest 2035 emissions target, as well as the Net Zero Plan along with a series of supporting documents, which outline how the targets will be achieved (DCCEEW, 2025).

...The government has set a new national target to reduce emissions by 62–70% below 2005 levels by 2035. The new target is a significant step up from the 2030 target and provides a strong investment signal...

So far, the actions taken by government, businesses and households reduced Australia's emissions in 2024 by 27% on 2005 levels. The most recent data for 2025 indicates emissions are now down 29%.

The Labour Government has adopted the Climate Change Authority's recommendation (Climate Change Authority, 2025) and set Australia's 2035 target.

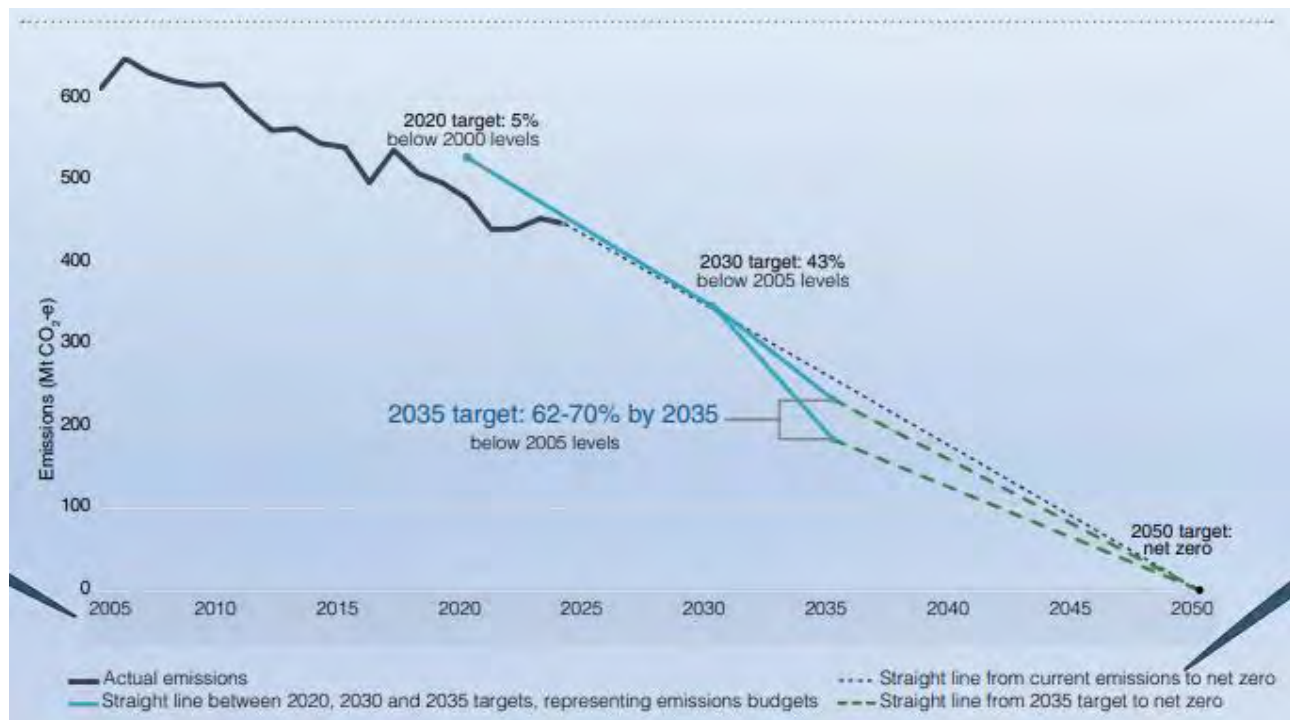


Figure 2-3 Australia's emission reduction targets

To reach the 2035 target and net zero by 2050, there will be a focus effort on five CLEAN decarbonisation priorities:

- **Clean electricity across the economy**
- **Lowering emissions by electrification and efficiency**
- **Expanding clean fuel use**

- Accelerating new technologies
- Net carbon removals scaled up.

As detailed above, the Project would form part of the Australian effort to help meet this target.

2.2.2. New South Wales State Government

NSW Climate Change (NET Zero Future) Act 2023

The NSW Climate Change (Net Zero Future) Act 2023 was assented on 11 December 2023. It aims to set objectives for New South Wales to be more resilient to a changing climate; and to establish the Net Zero Commission to monitor, review and report on progress towards the 2030 and 2050 targets with the objective to exercise other related functions.

The Act commits the NSW government to effective action on climate change to ensure a sustainable and fair future for the people, economy and environment of NSW. It legislates:

- Guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW
- Emission reduction targets for NSW:
 - o 50% reduction of 2005 levels by 2030
 - o 70% reduction on 2005 levels by 2035
 - o Net zero by 2050
- An object for NSW to be more resilient to a changing climate.
- Establishing an independent, expert Net Zero Commission to monitor, review, report on and advise on progress towards these targets (NSW Government, 2023).

This Act supports the Commonwealth governments' *Climate Change Act 2022*.

NSW Net Zero Plan

In March 2020, the NSW Government released the NSW Net Zero Plan. This plan sets out how the NSW Government will deliver on these objectives over the next decade. The Net Zero Priorities include to:

- Drive uptake of proven emissions reduction technologies that grow the economy, create new jobs or reduce the cost of living.
- Empower consumers and businesses to make sustainable choices.
- Invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030.
- Ensure the NSW Government leads by example.

The Net Zero Plan Stage 1:2020-2030 is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. The proposed Project aligns with this goal.

Renewable Energy Zones (REZs)

As detailed by EnergyCo (EnergyCo, 2024), Renewable Energy Zones (REZs) are the equivalent of modern-day power stations. They combine:

- New renewable energy infrastructure, including generators (such as solar and wind farms)
- Storage (such as batteries and pumped hydro)
- High-voltage transmission infrastructure.

By connecting multiple renewable energy projects and electricity storage, these REZs capitalise on economies of scale to deliver cheap, reliable, and clean electricity for homes and businesses in NSW.

The NSW Government expects REZs will deliver multiple benefits to NSW, including:

- Energy bill savings from reduced wholesale electricity costs
- Emissions reduction from a cleaner energy sector
- Reliable energy from significant amounts of new energy supply
- Host community benefits through strategic planning and best practice engagement and formalised benefit sharing arrangements.

The REZs will have the effect of grouping new wind and solar power generation into locations where it can be efficiently transmitted across NSW. Five zones have so far been identified (Figure 2-4) and will keep NSW electricity reliable as coal-fired power stations are retired, delivering large amounts of new energy to power our regions and cities.

In addition to providing reliable clean energy for NSW consumers, the REZs will help service the growing energy needs of emerging green manufacturing, energy intensive agriculture and export market opportunities. This makes REZs the ideal place to both generate and use renewable energy (including storage, such as the Armidale East BESS) and affords the regional communities hosting these zones with substantial opportunities to capitalise on and share in the benefits of the energy transformation.

The New England REZ, in which the Project is located:

- has an intended network capacity of 8GW
- is expected to deliver up to \$10.7 billion in private sector investment
- is expected to support around 830 operational jobs and 1,250 construction jobs.

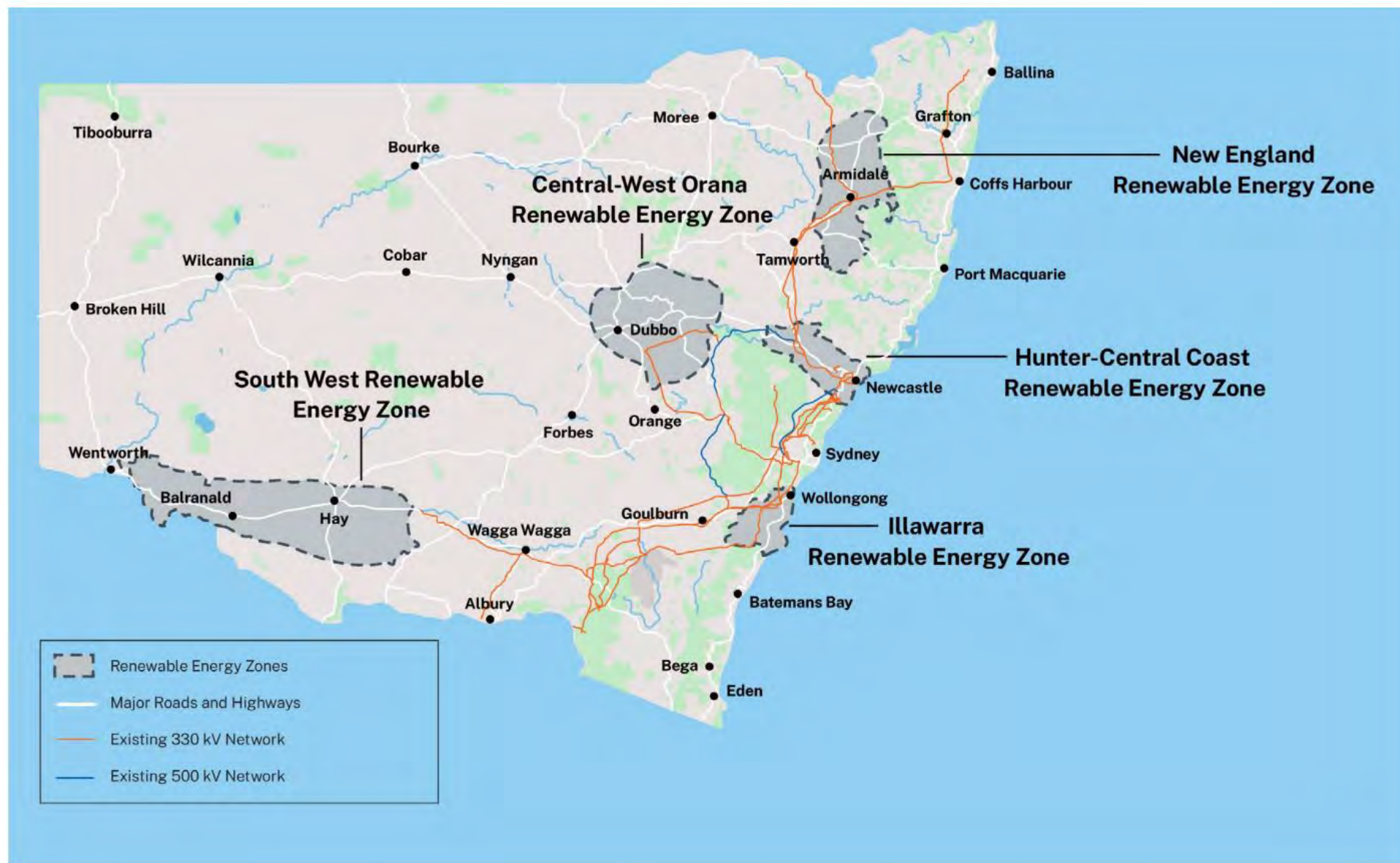


Figure 2-4 Identified REZs (EnergyCo, 2024)

NSW Electricity infrastructure roadmap

The NSW Electricity Infrastructure Roadmap ('The Roadmap') aims to redefine NSW as a modern, global energy superpower by delivering the electricity infrastructure needed to support a modern prosperous economy (NSW DPIE, 2020). The roadmap sets out a plan to transition the electricity sector from the existing power sources that are coming to the end of their lives, to cleaner, cheaper and more reliable energy sources including wind, solar, batteries and pumped hydro.

The electricity sector in NSW would be underpinned by five foundational pillars outlined in The Roadmap:

1. Driving investment in regional NSW: supporting our regions as the State's economic and energy powerhouse.
2. Delivering energy storage infrastructure: supporting stable, long-term energy storage in NSW.
3. Delivering Renewable Energy Zones (REZs): coordinating regional transmission and renewable generation in the right places for local communities.
4. Keeping the grid secure and reliable: backing the system with gas, batteries or other reliable sources as needed.
5. Harnessing opportunities for industry: empowering new and revitalised industries with cheap, reliable and low emissions electricity.

The Roadmap reiterates the need to act now given four of the five coal fired power stations in NSW are anticipated to close within 15 years, starting with the Liddell power station that closed in 2023. The Eraring Power Station is forecasted to close in April 2029 (originally planned for August 2027). These power stations provide around three quarters of NSW's electricity supply and two thirds of the firm capacity needed during summer heat waves. As the power stations age, they tend to fail more frequently resulting in electricity reliability problems. The infrastructure needed to replace coal fired power stations has long lead times, further justifying the need for action to coordinate and unlock investment before they close.

The Project is strongly justified due to its potential to contribute to pillars 1, 2 and 4 of the Roadmap, by providing reliable energy storage to the NEM.

NSW Transmission Infrastructure Strategy 2018

The NSW Transmission Infrastructure Strategy is the NSW Government's plan to unlock private sector investment in priority energy infrastructure projects, which can deliver least-cost energy to customers to 2040 and beyond (NSW Department of Planning and Environment, 2018). The NSW Government has approved numerous renewable energy projects across NSW involving billions of dollars of potential investment. However, the strategy states that for every 20 projects looking to connect to the grid, only one currently can. The NSW Transmission Infrastructure Strategy sets a plan to facilitate private sector investment in energy projects throughout the state. The Strategy sets out the following guiding principles:

- Supporting projects that may contribute to lowering energy bills
- Taking a technology neutral approach to energy generation projects
- Private sector led investment
- Regional economic growth and increased job opportunities
- Ongoing secure and reliable energy to power the NSW economy.

The strategy also outlines the aim to boost NSW connectivity through large-scale transmission connections with surrounding states and regional areas. This would be primarily spearheaded by upgrades and infrastructure in defined energy zones.

NSW Electricity Strategy

The three objectives of the NSW Government for the state's electricity system, as stated in the NSW Electricity Strategy (NSW DPIE, 2019) are; reliability, affordability and sustainability.

The NSW Government's Electricity Strategy would:

- Improve the efficiency and competitiveness of the NSW electricity market by reducing risk, cost, Government caused delays and by encouraging investment in new price-reducing generation and energy saving technology.
- Prompt Government to act if there is a forecast breach of the Energy Security Target which private sector projects are unlikely to address. This should be done in a way that minimises costs to consumers and taxpayers and does not give rise to moral hazard risk.
- Ensure that there are appropriate powers available for Government to analyse and respond to electricity supply emergencies if they arise.

Renewables are now the most economic form of new generation and battery storage is a critical part of this transition.

2.2.3. Regional and local policy

The Project's regional and local setting as well as the strategic need for the Project are set out below.

New England North West Regional Plan 2041

The New England North West Regional Plan 2041 (DPE, 2022) sets a 20-year vision to boost economic and community growth in the New England North West and to provide an overarching land use strategy, to guide the planning of the region.

Five Parts and 12 Local Government Narratives are identified in the Regional Plan which set directions for the region and nominate priorities for each Council LGA. Armidale and Tamworth are nominated as Regional Cities with five Strategic Centres (Moree, Narrabri, Gunnedah, Inverell, and Glen Innes) and several Centres nominated in the Regional Plan. Table 2-1 outlines the following Parts, and subsequent objectives and actions that are relevant to the Project:

Table 2-1 Parts, Objectives and actions from the New England North West Regional Plan

Part	Objective	Strategy	Application
Part 2: Productive and innovative	Objective 2: Protect the viability and integrity of rural land	Protect established agriculture clusters and identify expansion opportunities in local plans, avoiding land use conflicts, particularly with residential and rural residential land uses.	The Project will be built next to existing solar infrastructure, reducing fragmentation and conflict with agricultural lands. The required subdivision will not create an additional dwelling entitlement. The associated landholders current farming practices will not be impacted by the Project.
Part 3: Sustainable and	Objective 8: Adapt to climate change and natural hazards	Work with councils to continue to provide guidance and tools for councils to use for evidence-based	Incorporated local strategic planning and local plans to adapt to climate change and reduce exposure to

Part	Objective	Strategy	Application
resilient	and increase climate resilience.	risk-management approaches to build resilience to shocks and stresses, plan for natural hazard and transition to net zero emissions.	natural hazards for the Project.
	Objective 9: Lead renewable energy technology and investment.	Support the development of renewable energy storage options and distributed energy systems located close to their point of use within the New England REZ.	The Project is located the REZ, within an existing infrastructure corridor with access to the electricity network.

The Local Government Narrative for the Armidale Regional LGA noted the REZ will unlock a significant pipeline of large-scale renewable energy and storage projects, and new local opportunities. Council's priorities for the LGA applicable to the Project are to leverage the REZ and to identify and promote wind, solar and other renewable energy production opportunities.

Armidale Regional Local Strategic Planning Statement 2024

The Armidale Regional Local Strategic Planning Statement (LSPS) affirms the target ARC set in January 2022, to grow jobs in the region by 4,000 and increase the regional population by 10,000 by 2024. ARC have identified the potential for growth as a result of the New England REZ, where an estimated 44 direct and indirect jobs per GW capacity are predicted for the operational years of renewable energy projects. With a proposed 8GW capacity, this would translate into about 350 jobs (ARC, 2024).

The Project is well placed to assist the Armidale region in meeting this target, expected to create up to 150 jobs during construction, and up to 5 operational jobs. In addition, it is expected a number of indirect jobs will be created due to the influx of workers.

ARC have made a commitment to support an increase in renewable and clean energy to improve the state energy mix, in particular where it provides a direct community dividend.

The Applicant is in consultation with council and community members to establish the most appropriate framework and structure for a community benefit-sharing scheme.

Armidale Regional Council Renewable Energy Action Plan

The Armidale Regional Renewable Energy Action Plan (ARC, 2022) reflects Council's desire to engage with renewable energy and identify options for projects that benefit Council and the Armidale community. Specifically, ARC seeks to source 100% renewable energy from suppliers.

Armidale Regional Local Environmental Plan 2012

'Electricity generating works' as defined by the Standard Instrument - Principal Local Environment Plan (2006) includes electricity storage.

The Development Site is zoned Primary Production (RU1) under the Armidale Regional LEP (Figure 1-2). Electricity generating works are prohibited under this zone within the LEP.

The objectives of the zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To allow for non-agricultural land uses that will not restrict the use of other land in the locality for agricultural purposes.

It is the intent for the duration of the Project; the Armidale East BESS would store and distribute a predominantly renewable natural resource (i.e. renewable energy). While the activity would have minor impacts on land available for grazing, the land would meet the second and third objectives as identified above; it would allow for diversity in land use appropriate to the area and it would not fragment resource lands.

With the Project infrastructure being largely reversible, it would not remove the potential to use the land for primary production at the end of the life of the Project.

In addition, siting of the Project will minimise conflict with the adjacent Metz Solar Farm and is well situated to avoid any impacts to significant scenic landscapes as it is not incongruous.

As detailed above, the selection of the site to develop an energy storage facility supports the RU1 objectives. The development of a prescribed non-residential zone within this zone is permissible with consent under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

2.3. Development Site selection and access alignment

Throughout the entire project development process, an iterative approach has been maintained to ensure that environmental impacts have been consistently avoided or reduced as identified, to the greatest extent possible, in relation to both the BESS area and alignment of the access road. Consideration of impacts such as visual amenity, operational noise, flooding risk, safety and biodiversity have all played an important role in the Development Site selection process, and refinement of the Project layout.

Land use compatibility, transport accessibility, zoning compliance, community acceptance, and environmental performance can significantly reduce the land that is suitable to host a project of this nature. Many sites that are close to existing transmission lines or major centres present some degree of restrictions, such as proximity to neighbouring residences, unsuitable topography, native vegetation and flood risks. It's also important to highlight the significance of potential land acquisition and landholder interest, as these factors play a crucial role in making renewable energy projects feasible.

Following detailed and extensive consideration of these constraints, the Development Site is considered appropriately and strategically located for the development of a BESS. The main reasons for this are summarised below.

Proximity to existing overhead transmission line

From a feasibility perspective, the Development Site is desirable as it is located adjacent to Transgrid's 330kV overhead transmission line, which has sufficient capacity to accommodate the energy stored by the Project.

The Project's proximity to the 330kV line avoids the need for extensive new overhead transmission lines and infrastructure, which would have the potential to result in adverse impacts, including visual amenity, biodiversity and heritage.

Minimisation of vegetation clearing required for access

The Applicant explored alternatives to the proposed location of the BESS, including locating the BESS closer to the existing public road network. These alternatives would have required the construction of extensive new transmission lines, as discussed above. Transmission lines generally require an easement, cleared of all vegetation, between 30m and 50m wide, depending on the line voltage (NSW Government, 2024).

Given that the new access road requires an easement only 10-20m wide (depending on the section, single or double lane), locating the BESS in its current location and constructing a longer access road generally results in a lower biodiversity impact.

To further reduce native vegetation clearing, when possible, the proposed access road is strategically aligned with existing fence lines along the cadastral boundary. This design considers the landowner's entitlement under Schedule 5 Part 4 of the Local Land Services Act 2013 (NSW Government, 2013a) to clear vegetation within 6m of these fence lines. Therefore, this alignment inherently minimises the Project's impact on native vegetation.

Proximity to Metz Solar Farm

Locating the BESS adjacent to the existing solar farm enhances compatibility with surrounding land uses and reduces land fragmentation. The Development Site is appropriately zoned and supports both regional and local strategic planning objectives, with the Project being located within the NE REZ.

The Development Site significantly reduces social, amenity, and environmental impacts when compared to a standalone greenfield BESS project. Renewable energy generation is an established and accepted land use in the immediate area, and to most people the BESS will appear to form a contiguous part of the existing Metz Solar Farm,

This co-location also contributes to a more efficient use of existing infrastructure and reduces the risk of curtailment of other renewable projects along the transmission line, ultimately supporting the export of more renewable energy to the grid.

Natural and existing screening

The Development Site takes advantage of existing topography and mature vegetation to provide natural screening of the infrastructure from neighbouring properties and public viewpoints, thereby reducing visual amenity and noise impacts to the local community.

Distance to neighbouring properties

Noise is a common concern of local communities, particularly in a rural environment. The nearest non-associated dwelling is located approximately 1.85km from the Development Site., in order to both avoid and reduce the Project's noise and other amenity impacts during the operational life of the project.

Flooding and safety

The selected BESS location was carefully chosen to minimise flood risk and surface water exposure, maximising infrastructure safety and reducing operational hazards. Further explanation on this point in Section 2.4.1 below.

Protection of riparian zones

Riparian zones and associated watercourses have been avoided as much as possible, such as the existing Limerick Creek, which is mapped as Key Fish Habitat (KFH).

2.4. Project options considered

The Development Site and access road alignment were selected based on their suitability after evaluating potential planning and environmental constraints, with efforts made at first instance to avoid or minimise environmental impacts wherever possible. The sections below outline the actions during site selection to avoid and minimise environmental impacts, as well as other project risks. Section 2.4.4 summarises the various measures the Applicant has implemented during the design phase to reduce and mitigate remaining impacts when possible.

2.4.1. The ‘do nothing’ option

The ‘do nothing’ option represents the status quo situation; avoiding all development impacts but similarly not realising a project’s potential benefits. The direct consequence of not proceeding with the Project would be to forgo any benefits, most importantly, the Project’s contribution to:

- Electricity reliability and security benefits
- Direct or indirect socio-economic benefits, including:
 - o A VPA with Armidale Regional Council, with contributions calculated at an agreed rate of \$150/MWh over the lifetime of the Project, consistent with the NSW Government’s Benefit Sharing Guideline
 - o Investment of ~\$471 million excl GST, as outlined in the EDC Report.
 - o Up to 150 full time equivalent (FTE) jobs during construction, and up to 5 ongoing operational jobs.

The environmental impacts associated with the development and operation of the proposed BESS would be avoided if the ‘do nothing’ option was selected. In this case, key impacts (details in Section 6 and Section 7) relate to:

- Biodiversity
- Traffic
- Social
- Visual and other amenity impacts

Most of these were concluded to not lead into long term negative impacts to the environment and community. Mitigation is included as part of the Project to address residual impacts, where required.

Particularly, the Applicant acknowledges there are biodiversity impacts in relation to the project, but substantive efforts have been demonstrated to avoid and reduce them as much as possible (refer to Section 2.4.4 below). It’s also important to note that whilst the land currently has biodiversity value, it is heavily grazed by livestock, which prevents revegetation of native species from the available seedbank. This grazing pressure significantly reduces the long-term viability of biodiversity values within the Development Footprint, as mature trees die and are not replaced.

In this case, the potential benefits are considered to outweigh the impacts and as such the ‘do nothing’ option is not the preferred option.

2.4.2. Alternative BESS site locations

Alternative site locations have been considered, especially around the current footprint area. After detail assessment, they were not considered appropriate for different reasons, such as proximity to dwellings, unsuitable topography, presence of drainage lines, potential impacts on natural water flows and neighbouring properties, flooding risk, additional difficulty regarding site access, or additional impacts to biodiversity.

In particular, an important and decisive matter was related to the existing hydrology situation on site. Batteries are sensitive to water exposure, which presents a significant safety hazard and operational risk. As

shown in Figure 2-5 below, the current location of the BESS minimises the potential for contact with surface water flows and positions the infrastructure in the most favourable area to reduce flood risk.

Although water velocity on the site is not considered excessive, in extreme flood events it could impact the BESS infrastructure, as flowing water can be erosive to concrete foundations and structures. This differs from the Metz Solar Farm, where solar panels are pile-driven deep into the ground, making water exposure less of a concern.

The chosen topographical location avoids low-lying valley areas, thereby reducing the risk of obstructing natural water flows. This helps prevent unintended impacts on neighbouring properties caused by redirected or concentrated water runoff.

Higher flood risk than the current location could raise significant concerns in terms of insurance coverage and the bankability of the Project. Financial institutions and insurers typically require that key infrastructure such as battery storage systems are in areas with minimal exposure to natural hazards. Additionally, flooding can severely limit site accessibility during emergency events, and the site's conditions make it particularly challenging to establish a viable secondary or emergency access point.

These factors further support the selection of the current site as the most appropriate and resilient option.

Ref: 230216_Armidale_BEES_Planning_251041_Flood_PCT_Mapping_2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2026



LEGEND

- Development Site
- Development Footprint
- Lot Boundary
- Alternative site location

Box Gum Mapping

- Woodland
- Grassland

Flood Mapping

- Existing 1% AEP Depth extent

Datum: GDA94 / MGA zone 56



NGH
A FYFE Company



0 0.5 1 km

Armidale East BESS
Figure 2-5 Alternative BESS location and existing constraints

2.4.3. Alternative site access locations

Four options were considered for the access road into the Development Site (refer to Table 2-2). These options were considered against preliminary geotechnical constraints and topography, site inspection, previous studies conducted for Metz Solar Farm, and in consultation with the associated receiver and NGH ecology staff.

Table 2-2 Development Site access location options

Option #	Discussion
Option 1	Option 1 has the least ground disturbance of all four options, with minimal vegetation/mature tree clearing. It is the shortest route from Grafton Way to the Development Site. This option does not impact on the associated receiver's driveway access, or views from their living room and bedrooms. This is due to a natural barrier in the form of slope and the orientation of their residence/windows. Option 1 is the route preferred by the associated receiver.
Option 2	Option 2 has the least vegetation/mature tree clearing but has the largest ground disturbance of all four options. It is the third longest route from Grafton Way to the Development Site. This option will impact views from the associated receiver's home and was opposed by the landowner.
Option 3	Option 3 has the most vegetation/mature tree clearing and has one of the largest ground disturbances of all four options. It is the second longest route from Grafton Way to the Development Site. This option will impact views from the associated receiver's home and is not the preferred option in terms of biodiversity.
Option 4	Like Option 3, Option 4 has the most vegetation/mature tree clearing and has one of the largest ground disturbances of all four options. It is the longest route from Grafton Way to the Development Site. This option requires construction traffic to pass under the existing 330kV transmission line and past the project's proposed substation. As the project's substation will be one of the first components to be constructed, manoeuvring heavy vehicles to the BESS area becomes extremely challenging. There would be limited space for trucks to enter and no space for a truck turning circle for the vehicles to get out the site. This option poses the most risk to the project.

An alternative option (Option 5) was considered for the road alignment, involving access to the Development Site via the existing Metz Solar Farm (see Figure 2-6). This option would offer several benefits to the project, including further avoidance and minimisation of impacts on biodiversity, as it would be utilising the existing formed tracks along the perimeter of the solar farm to reach the BESS location.

However, this option was ruled out as an alternative for several reasons. The most important is that constructing a road between Metz and the current BESS Development Site would require two additional land agreements, as there are two independent lots separating the parcels. These are shown in Figure 2-6:

1. **Council-owned paper road (highlighted in orange in Figure 2-6):** This is a public road currently unused and owned by Armidale Regional Council. A meeting was held with Council to explore this option, and no objections were raised. This option would require an additional Section 138 Application for construction within a Council road reserve.
2. **Privately owned land (highlighted in blue in Figure 2-6):** This parcel is privately owned by a third party not involved in the Project. Whilst multiple attempts were made to secure access rights across this land, it was not possible to make an agreement with the landowner.

Even if access had been secured, this alternative would have introduced additional project risks and complications requiring further assessment. Whilst the Applicant owns and operates the Metz Solar Farm, the solar farm is its own entity which is subject to its own specific requirements from insurers and project financiers. For this reason, it is necessary for both projects to maintain separate and independent access arrangements.

Chosen option:

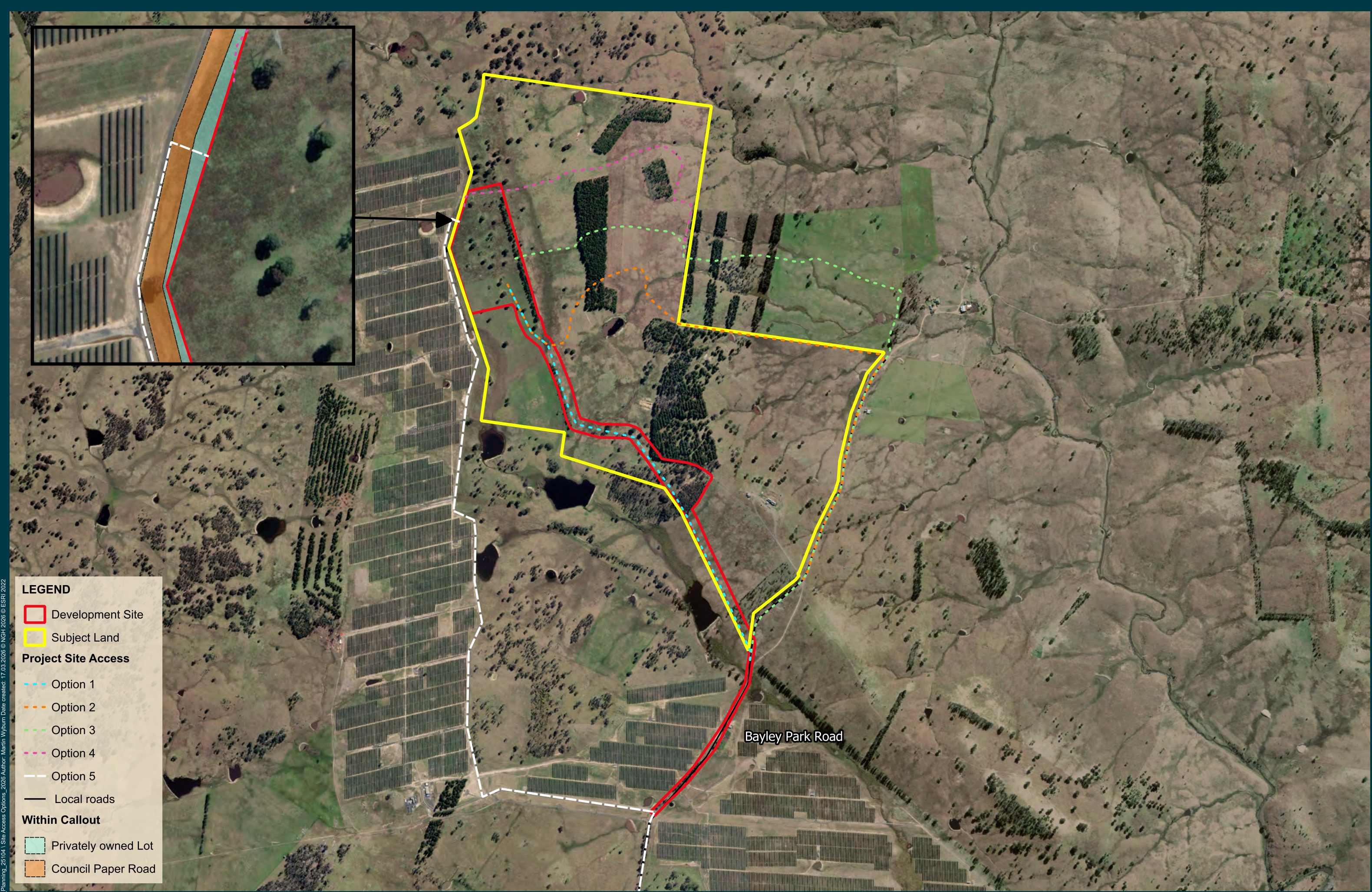
Option 1 was identified as the preferred option which, on balance, presents the lowest social, financial, and environmental risks to the Project. When balancing constraints, such as visual impacts, biodiversity, traffic and noise, options 2, 3, and 4 were considered to result in a higher level of overall impact. Furthermore, these options were not supported by the landowner due to specific concerns regarding visual and noise impacts during both construction and the long-term operation of the Project.

The final proposed route for the access road was driven by a combination of:

- Landowner consent
- A desire to ensure that the access road was the shortest possible length, to reduce ground disturbance, environmental impact and cost-effectiveness
- Sufficiently distant from dwellings
- Following the natural contours and elevation of the land
- Avoidance of riparian vegetation within Limerick Creek, south of the access road – the vegetation within the creek and inundation zone has been potentially flagged as an Endangered Ecological Community (EEC) under the *Biodiversity Conservation Act 2016* (BC Act): *Carex Sedgeland* of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions
- Potential flooding risk from Limerick Creek.

As detailed above, the Development Site has been modelled as a worst-case scenario allowing for uncertainty in design and will be reduced following detailed design. As far as practicable, the Project will seek to avoid impacts to EEC through design, both for the physical BESS and proposed road upgrades. While vegetation clearing will be required, the final design will avoid as much mature standing vegetation as possible.

Ref: 230216_Armidale_BEES_Planning_25041_Site Access Options_2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2022



Datum: GDA94 / MGA zone 56



LEGEND

- Development Site
- Subject Land
- Photo Points
- Electricity Transmission Line
- Waterbody
- Waterways
- Local roads

Datum: GDA94 / MGA zone 56

NGH
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0 0.5 1 km

Armidale East BESS
Figure 2-7 Access Road Photo Points



Figure 2-8 Photo point 1



Figure 2-9 Photo Point 2



Figure 2-10 Photo Point 3



Figure 2-11 Photo Point 4

2.4.4. Capacity considerations

The Scoping report (published on the Major Project Portal in November 2023) initially reported a storage capacity of 500MW/1,000MWh. However, during preparation of the EIS, the configuration was refined to up to 377MW/2,310MWh following further design optimisation and consideration of network integration, market conditions and system performance.

The revised design increases the storage duration while reducing export capacity, allowing the battery to store energy for longer periods and discharge it when most needed by the grid. The Project has also been awarded a Long-Term Energy Service Agreement under the NSW Electricity Infrastructure Roadmap, recognising its role in delivering long-duration storage in the New England Renewable Energy Zone.

2.4.5. Design considerations

The Applicant has prioritised the avoidance and minimisation of environmental impacts through project design. While complete avoidance of impacts to native vegetation has not been possible, any unavoidable impacts would be mitigated and offset in accordance with relevant environmental regulations. Key constraints identified as part of the environmental assessments are illustrated in Figure 2-12.

Several factors influenced design considerations for the Project, including the relatively flat topography and proximity to existing infrastructure, which are also key considerations for BESS developments. In addition, the following specific principles were adopted:

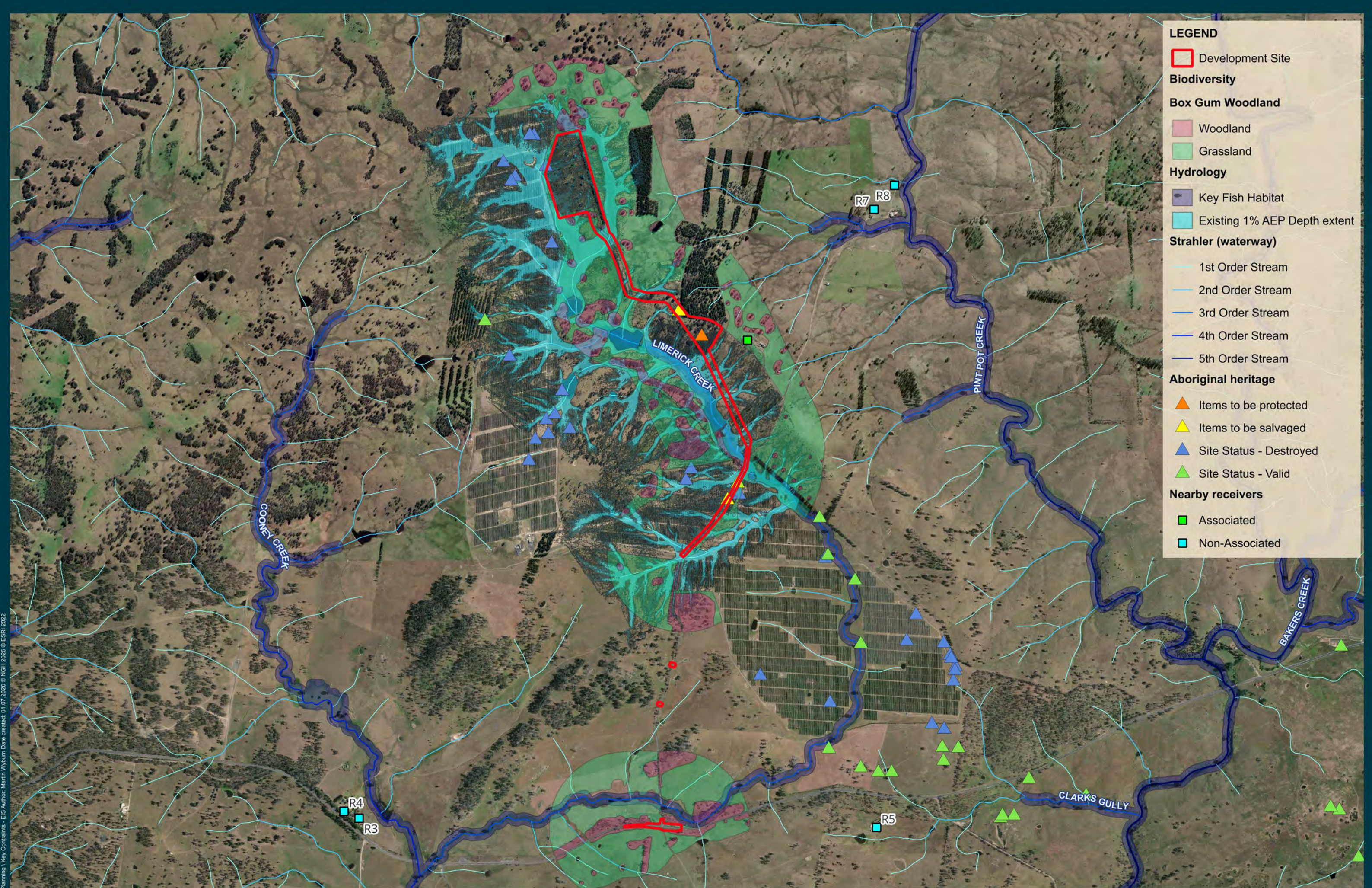
- Use previously disturbed land – as much as possible to be developed on previously cultivated, cropped, or grazed land which has been previously subject to development or edge impacts.
- Minimise vegetation clearing – avoid significant vegetation clearing where possible.
- Minimise land disturbance – design footprints have been limited to the minimum area required.
- Protection of riparian zones – riparian zones and associated watercourses have been avoided as much as possible.
- Protect cultural heritage values – through the identification and evaluation of cultural heritage assets within the Subject Land.
- Minimise direct and indirect impacts – as much as possible, project infrastructure has been located away from nearby residences and adjoining properties to limit the potential for adverse noise, dust, and visual impacts; and
- Adopt a flexible approach to design – the Project design process followed responds to identified environmental impacts and constraints, avoiding them when possible. Where such constraints cannot be avoided, the Applicant works to mitigate potential impacts of the Project.

Table 2-3 provides a summary of the outcome of avoidance to key biodiversity values due to project redesign.

Table 2-3 Comparison of initial proposed biodiversity impacts to final proposed impacts

Entity	Initial impact	Final impact	Avoidance
Box-Gum Woodland – NSW	~15 ha	14.33 ha	0.67 ha
Box-Gum Woodland – Cwth	4.5 ha	4.39 ha	0.11 ha
<i>E. nicholii</i>	15 individuals	3 individuals	12 individuals

Table 2-4 below outlines the most important avoidance measures that were applied during the design phase, most of them related to biodiversity impacts:



LEGEND

Development Site

Biodiversity

Box Gum Woodland

Woodland

Grassland

Hydrology

Key Fish Habitat

Existing 1% AEP Depth extent

Strahler (waterway)

1st Order Stream

2nd Order Stream

3rd Order Stream

4th Order Stream

5th Order Stream

Aboriginal heritage

Items to be protected

Items to be salvaged

Site Status - Destroyed

Site Status - Valid

Nearby receivers

Associated

Non-Associated

Datum: GDA94 / MGA zone 56

Environmental Impact Statement

Armidale East Battery Energy Storage System

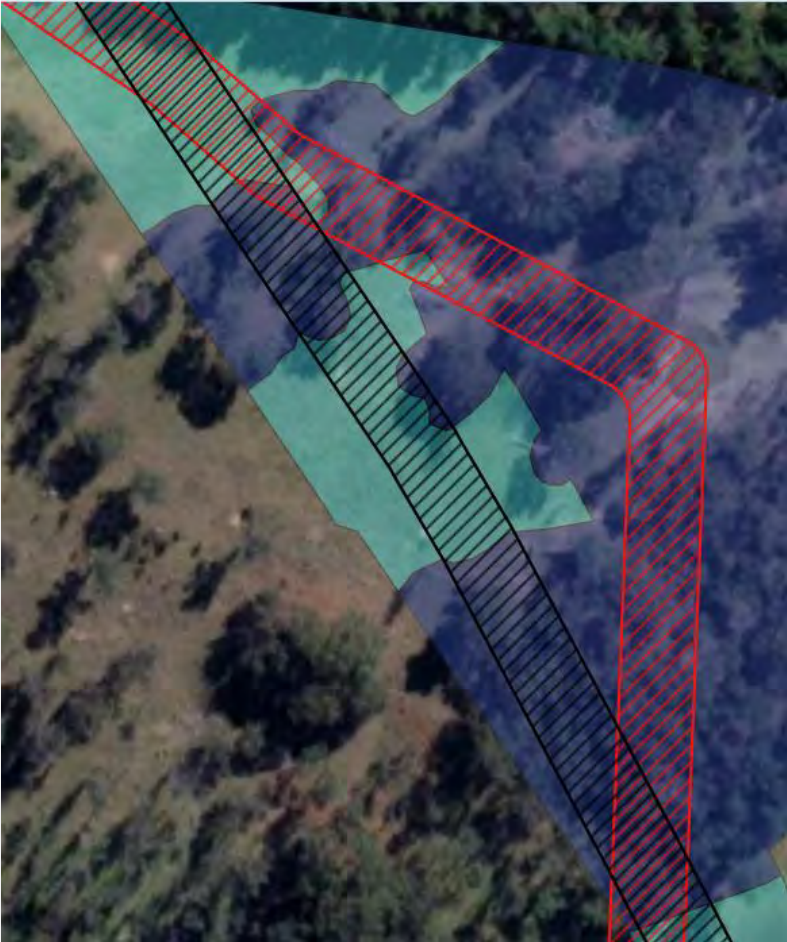


Table 2-4 Avoidance measures undertaken during design phase

	Action	Outcome	Design
1	Single lane road with waiting bays will reduce <i>Eucalyptus Nicholii</i> and Box Gum Woodland impacts	Reduces impacts on Larrow leaved Peppermint (<i>Eucalyptus Nicholii</i>) by decreasing the number of affected trees from 15 to 3, preserving individual trees, including two hollow bearing trees and other key species within the critically endangered Box Gum Woodland. While the initial objective was to avoid all individuals, three could not be avoided, even when considering single-lane options with traffic control. This is due to pinch points where the cadastral road boundary is not wide enough to allow OSOM vehicles to pass. In these locations, the southeastern edge of the road was selected for widening, as significantly more <i>E. nicholii</i> individuals occur on the northwestern side. The road will remain single lane with traffic control in these pinch point areas to minimise additional impacts. Refer to Section 7.1.3 of the BDAR (Appendix E.1).	

	Action	Outcome	Design
2	Traffic management during construction	Single lanes and waiting bays avoids road widening and additional vegetation clearing (see black polygon).	

	Action	Outcome	Design
3	Redesigned access track to avoid scattered trees	Avoids old trees that form part of the Box-Gum Woodland CEEC (red polygon shows original alignment, black polygon shows redesign).	

	Action	Outcome	Design
4	Alignment of part of the access road to the property boundary	Allows vegetation impact minimisation as these areas have existing clearing entitlements under the Rural Boundary Clearing Code. The road access hasn't been fully aligned with the property boundary to avoid riparian vegetation within Limerick Creek, south of the access road as well as potential additional flooding risk from Limerick Creek. (red polygon shows original alignment, black polygon shows redesign). The proposed access road is strategically aligned with existing fence lines along the cadastral boundary (approximately 700m of the access road). This design considers the landowner's entitlement under Schedule 5 Part 4 of the <i>Local Land Services Act 2013</i> (NSW Government, 2013a) to clear vegetation within 6m of these fence lines. Therefore, this alignment inherently minimises the Project's impact on native vegetation	

An extensive and iterative process for revision of the layout has been followed by the Applicant. Design Review has adopted an adaptive approach as development progressed, and new constraints were identified. More specifically, FRV engineers reviewed several layout options to reasonably, and when practical, to reduce impacts on native vegetation on the current BESS site location, however this has not been possible due to:

- The amount of space required for project infrastructure
- The requirements for an Asset Protection Zone (APZ) surrounding the Project and setbacks from native vegetation to avoid bushfire risk.
- Other previously discussed constraints, such as drainage lines, flood risk, safety and amenity impacts.

2.4.6. Alternative technologies

Lithium-ion (Li-ion) BESS technology is not the only viable BESS technology; however, it is an established, safe and reliable technology in the market and can be developed to comply with a range of Australian and international standards. There are different types of Li-ion battery chemistry technologies available, and hazards associated with each type are similar as they are all based on the same general technology. It is important to note that utility-scale BESS poses significantly lower safety risks when compared to household Li-ion batteries and devices, with the Project's proposed temperature control, voltage control, monitoring systems and fire management systems considered industry best practice.

Lithium iron phosphate (LFP) BESS is the type of Li-ion technology preferred for this project, as it can be safely located in a rural environment with a relatively small footprint, which is appropriate to the Development Site's constraints. While other battery technology exists, LFP battery technology was selected as the preferred option based on the following criteria:

- Minimal risk of thermal runaway
- Safety, fire management and containment
- Ability to support the network to increase renewable energy penetration
- Ability to provide energy during periods of peak demands
- Minimal environmental impact
- Safety and ease of integration
- Demonstration and maturity of technology
- Value for money.

Whilst LFP battery technology is the preferred technology at this stage, advancements in energy storage technology are advancing at a rapid pace. Should the Applicant decide on a battery technology other than LFP or Li-ion, they would first consult with the DPHI and follow the appropriate planning pathways.

2.4.7. Grid connection

The Project will connect directly to the grid via a grid-forming arrangement.

Grid-forming batteries can create and regulate grid voltage and frequency independently, while grid-following batteries synchronize with the existing grid, relying on it for stability. This allows them to operate independently of the grid. This capability makes them ideal for providing backup power during outages or in remote areas without grid access. Grid-forming systems proactively control the energy flow, ensuring stability and reliability even in the absence of a stable grid. They can manage large disruptions and restore power quickly after an outage.

As more renewable energy sources like solar and wind are integrated into the grid, grid-forming systems play a vital role in maintaining grid stability. They can quickly respond to fluctuations in power supply, making them essential for a future powered by renewables.

2.4.8. Scale of the Project

The scale of the Project has been determined after considering the following factors:

- A desire to provide more secure energy for times of need and supporting Commonwealth and State levels of effort to mitigate the effects of climate change
- A need to ensure that the Project is commercially viable
- The capacity of the electricity grid to absorb the energy generated by the Project
- The opinions expressed by landowners and the local community
- The constraints identified during the preparation of this EIS

The ability to connect the BESS directly to the overhead 330kV transmission line brings significant benefits, providing grid reliability and resilience to the network, with the BESS able to store surplus renewable energy generation and deliver it at times of low supply. Proximity of the BESS to the lines reduces environmental impacts associated with overhead transmission lines, and allows for cost-effective construction, when compared to potential site options further from a connection point.

2.5. Project benefit

In consideration of the alternatives examined above, the Project:

- ✓ Builds on the aims of the New England REZ by being strategically located to maximise the benefits of and smooth the transition to greater renewable energy development
- ✓ Builds on the aims of the NSW Electricity Infrastructure Roadmap to transition away from coal fired energy, towards greater levels of renewable energy
- ✓ Stabilises and secures the supply of electricity for residents, business owners and service providers
- ✓ Assists to drive down the wholesale electricity prices for energy consumers
- ✓ Generates local employment, economic stimulus and other local economic benefits.

The Project has been developed iteratively, with a specialist energy development and environmental assessment team. It reflects the opportunities identified early in the Project's planning phase to maximise the environmental sustainability of the Project. The Project assessed in this EIS is also one that responds appropriately to the Development Site's context and community values.

2.5.1. The Project

The Project is strategically located within the New England (NE) REZ. Renewable Energy Zones are designed by the NSW Government to coordinate the development of large-scale renewable energy generation, storage and transmission infrastructure in areas with strong renewable resources and suitable network capacity. The NE REZ has an intended network capacity of 8GW, is expected to deliver up to \$24 billion in private sector investment and expected to support around 2,000 operational jobs and 6,000 construction jobs (EnergyCo, 2024).

Battery energy storage infrastructure located within the REZ can play an important role in supporting this transition by providing flexible storage capacity to complement variable renewable energy generation such as solar and wind.

2.5.2. Suitable technology to complement the cleaner energy transition

Utility battery storage is recognised by NSW Government policies (NSW Electricity Infrastructure Roadmap and Renewable Energy Zones) as an important part of NSW's transition away from coal fired energy, towards renewable energy.

They have a proven ability to complement and support the network and to allow storage of renewable energy during periods of abundant generation/low energy demand and then for export into the grid during periods of

high demand. Figure 2-12 provides a representation of this process where the morning and evening peak demand periods can be filled by energy storage system exports such as the Armidale East BESS.

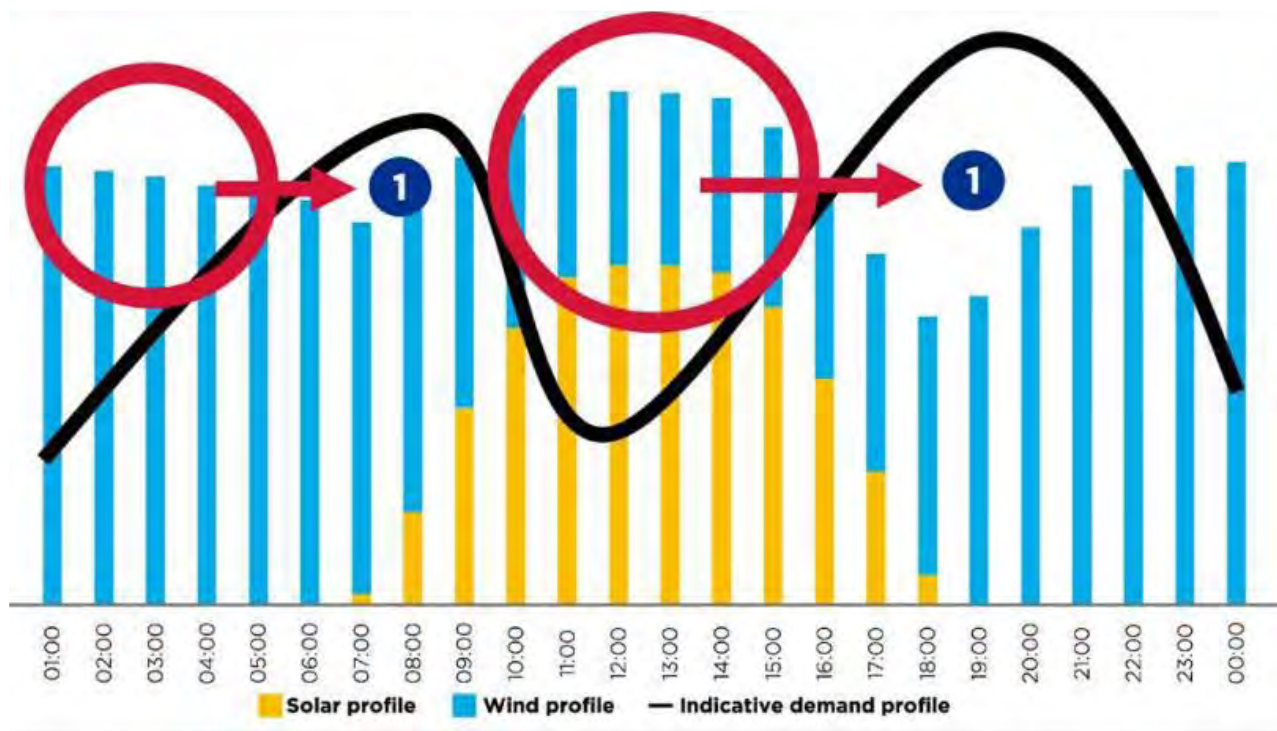


Figure 2-13 Hypothetical energy firming (DPIE, 2020)

In June 2025, the AEMO released their 2025 Electricity Statement of Opportunities (AEMO, 2025). The report indicated that following the closure of more coal-fired generation, additional dispatchable capacity will be required to maintain reliability in the NEM and avoid forecast energy shortfalls. Utility-scale battery storage projects such as the Armidale East BESS Project can play an important role in addressing this need by providing dispatchable capacity capable of responding rapidly to changes in electricity supply and demand.

While there is substantial continued interest in battery storage to help maintain reliable supply, AEMO notes that investment in storage alone will not be sufficient to meet future system needs. Opportunities exist to maintain both reliability and system strength cost effectively through the energy transition by investing in technologies such as grid-forming batteries.

The Statement reports that if planned big battery storage projects are built and connected on time, then the reliability standards will likely not be breached in NSW with the closure of the Eraring Plant in three years' time (now 2029).

2.5.3. Electricity reliability and security benefits

While most of Australia's electricity is currently provided by coal-fired power stations, as many as three-quarters of these plants are operating beyond their original design life (Department of Industry and Science, 2015). The reduction in energy supply from coal-fired power stations requires the development of reliable and sustainable energy supply.

Electricity consumption in Australia is exceptionally high, resulting in costly electricity bills and frequent disruptions to electricity supply during peak times. The renewable energy sector has responded to this high demand and to the need for viable alternative options for electricity generation contributing to 39.4% of Australia's overall electricity in 2023, a 9.7% increase from 2022 (Clean Energy Council, 2025). Large scale storage has seen a large increase in 2023 for new financial commitments, with total investment in large-scale

storage standing at \$4.9 billion by the end of 2023. The combined capacity of these storage projects totalled 2,949MW/9,905MWh in 2023.

The 2024 Integrated System Plan stated that both residential and commercial batteries are becoming more numerous, with a forecasted growth in capacity from today's 1GW to an estimated 7GW in 2029-30, then 34GW in 2049-50 (AEMO, 2024). Grid scale batteries such as BESS¹, as well as pumped hydro and other hydro, gas-powered generation will aid in almost quadrupling the firming capacity for the NEM. This includes 49GW/646 gigawatt hours (GWh) of dispatchable storage, as well as 15GW of flexible gas. By 2030 NSW is aiming to have approximately 2GW/16GWh of dispatchable storage (AEMO, 2024).

The Project would benefit the electricity grid by reducing energy curtailment and balancing the network through the addition of energy storage. This stored energy would be utilised during periods of low renewable output into the energy grid. This is especially important during the states transition from centralised to decentralised power generation as coal fired plants are decommissioned. Greater utilisation of large-scale battery storage in conjunction with other dispatchable¹ energy resources may decrease peak wholesale prices. This is due to the ability of battery storage to buffer the energy market during tightened supply times when demand is high (Rangarajan, Foley, & Truck, 2023). The Project would also be capable of responding rapidly to changes in network conditions, supporting frequency control, voltage regulation and other system support services.

In 2020, almost 2GW of renewable energy made up of 32 projects were constructed and began generating electricity (Clean Energy Council, 2025). The equivalent number of households powered annually through all renewable energy generation sources totals 13,689,560 households. Projects such as the Armidale East BESS would be important to maintain the functioning of the NSW energy system for the state's residents, business owners and service providers.

2.5.4. Drive down electricity prices

Throughout the years, consumers have seen an increase to electricity prices, due to a multitude of factors. However, more recently, according to the Australian Competition and Consumer Commission, in 2024, Australia's residential electricity prices experienced a notable decrease, with calculated annual prices falling by an average of 4% across regions including New South Wales, Victoria, South Australia, and South East Queensland. Victoria saw the most significant reduction, with prices decreasing by 7.5% (Clean Energy Council, 2025). BESS storage plays a vital role in the renewables roll-out to inject cheaper electricity sources into the NEM.

Variable renewable energy generation such as solar energy which is growing in the Armidale region operates with no ongoing fuel costs after construction and can, with the right policy framework and technological development to manage variability, be used to reduce overall wholesale prices of electricity (Finkel, Moses, Munro, Effeney, & O'Kane, 2017). Several studies on the impacts of increased large-scale renewable energy generation under the Renewable Energy Target (RET) have indicated that this is likely to put downward pressure on electricity prices (Australia Institute, 2015). To the extent that competition amongst retailers is limited, and to the extent that the RET creates greater contestability through the creation of economically sustainable new entrant retailers, there would be further downward pressure on the retail margins (Sinclair Knight Merz, 2013).

2.5.5. Employment and local economic benefits

Under the 2204 ISP Step Change Scenario, Australia needs to grow its clean energy workforce from 21,500 workers to approximately 59,300 by 2023—primarily driven by upgrades to the electricity grid and battery

¹ Energy resources that can be accessed when needed. Definition is similar to firm generation used in the NSW Electricity strategy.

storage systems, and to reach national renewable energy targets (Clean Energy Council, 2025). This growth is expected to account for one-third of all job creation in Australia by 2030, with a high demand for skilled workers, especially electricians. The sector also emphasises inclusive workforce development, promoting training and education for women, First Nations peoples, and migrants.

Job creation within the renewable energy sector is expected to represent one third of all job growth in Australia by 2030 (Clean Energy Council, 2025). With this, it is noted that there is a high demand for skilled workers, particularly electricians to fulfill the projected jobs required by 2030. The report also highlights the importance of diversification and inclusive pathways within the workforce, with more training and education for women, First Nations peoples and workers born overseas.

The Armidale East BESS project would contribute significantly to local employment, particularly during its 30-month construction phase, generating up to 150 full-time equivalent (FTE) jobs and up to 5 FTE operational roles. The influx of workers is expected to stimulate the local economy through increased demand for accommodation, food, fuel, and trade services. Local supply chains—including vehicle servicing, catering, cleaning, and equipment suppliers—would also benefit.

ARC prioritises employment and economic development, as outlined in the Armidale Plan 2040. It supports mechanisms like Voluntary Planning Agreements (VPAs) and Community Benefits Schemes (CBSs) to ensure long-term community gains from renewable energy projects. ARC and industry stakeholders also advocate for educational partnerships with institutions such as the University of New England (UNE) and TAFE to build local capacity. However, the region faces challenges, including a shortage of accommodation for agricultural and construction workers, which must be addressed to fully realise these benefits.

The Project VPA is discussed in Section 2.6 below.

2.6. Project agreements

The Project has an agreement with the associated landholder, which includes the subdivision and purchase of the area required for the BESS and an ongoing access agreement.

In addition, a subdivision will be required to separate assets to be owned by the Applicant and Transgrid (refer to Section 3.6).

No 'negotiated agreements' have been entered into to manage impacts on any near neighbours.

ARC have welcomed investment within the LGA. The Applicant has proposed a Community Benefit Fund (CBF) established via a Voluntary Planning Agreement (VPA). The initial terms of the agreement have been drafted, presented and agreed by ARC.

The proposed contribution is in line with the maximum rate outlined in the *Benefit Sharing Guideline* – Guidance for large-scale renewable energy projects (DPHI, 2024). Section 5.3 of this report details discussions regarding VPA in more depth.

Furthermore, the Project was awarded a long duration storage Long-Term Energy Service Agreement (LTESA) under Round 6 of the NSW Electricity Infrastructure Roadmap in February 2026. An LTESA is a NSW Government mechanism that provides revenue certainty for battery and other renewable energy projects, helping them obtain finance and proceed to construction. The LTESA would help provide improved energy reliability and security, while providing benefits the local community and surrounding region. The LTESA benefits are detailed further in Section 6.12.

2.7. Cumulative impact consideration

Cumulative impacts associated with the Project have been given consideration in Section 7.3 of this report and assessed in alignment with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2022b). Cumulative impacts can be split into two broad groupings as below:

Strategic-level Cumulative Impact Assessment (CIA) - important beneficial cumulative impacts

Strategic-level CIA supports planning and development decisions at regional and local level, with consideration often combined with project-level CIA. Mitigation measures and safeguards implemented at the strategic-level can often affect the project-level CIA and vice versa. As such, mitigation measures implemented at a strategic level can be weighted of a higher importance than project-level CIA. Important beneficial cumulative impacts of the Project include:

- Alignment with federal and state regional renewable energy policies
- Alignment with regional and local land use plans
- Responds to the Development Site's unique environmental and social context.
- Reduction of energy costs.

Project-level CIA – risks of exacerbating adverse impacts

The Project-level CIA approach involves considering the impacts of the project together with the impacts of other relevant future projects on specific issues (key matters) within an identified area. Consideration of the specific impacts of the Project on the existing condition of the environment surrounding the Development Site have been assessed with other relevant future project (see Section 7.3)

At this stage, local cumulative impacts identified as a result of the Project overall relate to:

- Traffic
- Biodiversity
- Noise impacts
- Potential future housing and infrastructure development
- Pressure on local facilities, goods and services in surrounding towns and cities such as Armidale

As above, the majority of the local cumulative impacts are related to construction, and therefore temporary in nature.

This report details how the Project aligns with strategic planning goals as outlined in this chapter without generating substantive negative cumulative impacts. All Project-level CIA factors have been assessed in Section 5 and Section 7.3 with a targeted discussion and assessment of cumulative impacts covered in Section 7.3.

3. Project description

3.1. Project overview

The Project would involve the construction, operation, and decommissioning of a BESS with a nominal capacity of up to approximately 377MW_{AC} with up to 2,310MWh storage. The Project would supply electricity to the national electricity market during peak periods and will have an operational life of up to 40 years.

Table 3-1 provides an overview of the Project including the Development Site details and context, key components and the Project timing. The indicative Development Site layout of all infrastructure features is presented in Figure 3-1.

Note that the current indicative layout provided has been developed based on the most recent information and requirements provided by suppliers. As technology continues to evolve rapidly, project considerations may change, and the layout may undergo further iterations before the final design is confirmed. This will also be clearer as the Project progresses in other approvals (such as grid connection process) and once a specific technology provider is selected during the detailed design phase.

Table 3-1 Summary of key features of the Armidale East BESS

Feature	Description
Locality details and land tenure	
Street address	315 Bayley Park Road, Metz NSW 2350
Subject Land	Lot 101 DP 1237661 (Total area of 244 ha)
Renewable Energy Zone (REZ)	New England REZ
Local Government Area (LGA) and zoning	Armidale Regional RU1 Primary Production
Catchment	Macleay River
Subdivisions and easements	The 244ha Subject Land would be subdivided into three lots with the approximate areas listed below: - Lot A of 233ha comprising of the residual agricultural landholding to remain in the current ownership - Lot B of 8ha comprising the BESS and ancillary infrastructure to be acquired by the Applicant - Lot C of 3ha comprising of internal substation assets required to be transferred to Transgrid ownership upon construction completion. Lot B and C would be accessed via a right of carriageway over Lot A to Bayley Park Road.

Feature	Description
Development Footprint	Approximately 17ha (12ha BESS site and 5ha road access)
Access	Bayley Park Road via Waterfall Way (Grafton Road)
Infrastructure components	
Battery Energy Storage System (BESS)	• LFP storage technology with approximately 328 BESS containers • Approximately 110 medium voltage transformers and 110 PCS units • Approximately 15 auxiliary transformers • Auxiliary and ancillary systems, such as water tanks, generator, security lighting, CCTV and fencing
Maximum energy discharge capacity	377MW maximum discharge capacity 315 MW at point of connection
Maximum energy storage capacity	2,310MWh maximum storage capacity 1,840MWh at the point of connection
Substation and switch yard	• Onsite substation with two step-up power transformers (190/95/95MVA) • Harmonic filters (approximately 36MVA) • Switching rooms
Transmission line connections	Direct connection through overhead cabling to existing Transgrid 330kV overhead transmission line that connects to the Armidale substation
Transport route upgrades	• Upgrade to Bayley Park Road • New culverts along Bayley Park Rd • Minor branch trimming along Bayley Park Road • Minor upgrade including clearing and earthworks for Waterfall Way
Temporary works areas	• Construction compound • Construction laydown area • Storage • Bunding • Drainage • Carparking
Permanent ancillary	• Security fencing

Feature	Description
infrastructure	• Water tank • Diesel generators • Pumpable sewage holding tank • Control room, storage and office rooms • Operations and maintenance buildings (O&M) • Reduced onsite car parking • Internal access road and network of tracks • Noise wall (optional)
Water access and usage	• 2-3ML of non-potable water during the construction phase, primarily for dust suppression and filling water tanks • At least 5 x 115kL fire water tank located onsite for emergency use only during construction • 0.5ML of potable water during the construction phase • During operation, water levels will be maintained by tanker water trucks • Potential water access licences have been investigated, and are as follows: - o Peel River WAL – Tamworth – Offer both regulated and un-regulated WALs - o Commissioners Waters WAL – Tilbuster - offers unregulated WALs - o Arrawarra Creek WAL – Coffs Harbour – offers unregulated WALs
Employment	• Up to 150 FTE jobs during construction • Up to 5 FTE jobs during operation
Estimated development cost (EDC)	\$471,150,000 excl GST
Timing	
Program	The Project construction would commence in 2028 and be constructed in four phases (some can be undertaken simultaneously) over approximately 30 months, with 6-9 months of peak construction: • Site preparation • Construction • Operation • Decommissioning.
Construction hours	• 7am to 6pm Monday to Friday • 8am to 5pm Saturday • No work on Sunday or public holidays

Feature	Description
Operational life and hours	- Continuous 24 hours a day operation - Up to 40-year Project life with BESS with repowering required at 20 years
Decommissioning and rehabilitation	After the 40-year operation, a review will be undertaken to determine whether to: - Request an extension - Lodge a new DA to upgrade the BESS with a more current technology - Decommission – dismantle Project and repurpose, where possible During decommissioning, all infrastructure would be removed and rehabilitation would commence. The objective is to maximise recycling options and return the disturbed area to a safe, non-polluting and stable state. The broader area would remain suitable for continued agricultural or other land use options.
Site context	
Existing land use	- Grazing - Adjacent land uses include: - Cropping - Grazing - Grazing modified pastures - Environmental forest plantations.
Receivers within 5km of the Development Site	- One associated receiver (R7 dwelling) - Eight non-associated residential receivers (dwellings)

LEGEND

- Development Site
- Development Footprint
- Roads
- 132kV Electricity Transmission Line

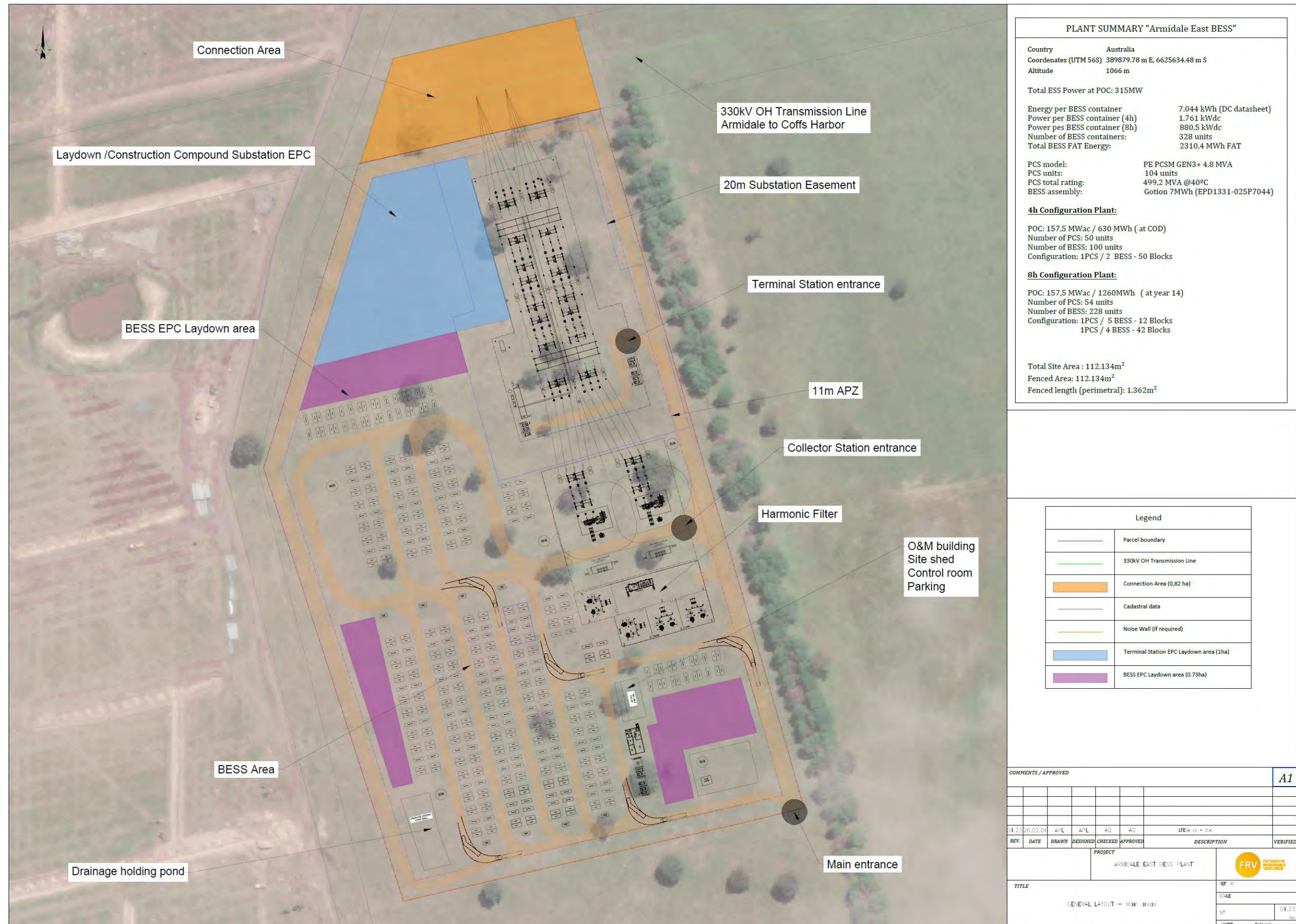
Indicative Infrastructure Layout

- BESS
- BESS EPC Laydown Area
- Connection Area
- Harmonic Filter
- Laydown/Construction Compound Substation EPC
- O&M and Parking
- Internal Access Road
- Substation
- Drainage Holding Pond
- Water Tank
- Access Track
- Roadside
- Culvert #1
- Culvert #2



Datum: GDA94 / MGA zone 56

Ref: 230216_Armidale_BEES_Planning_251041 Indicative Infrastructure Layout_2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2022



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3.2. Physical layout and design

An indicative Infrastructure Layout is provided in Figure 3-2. It would be subject to commercial tendering and procurement processes and would ensure the Project is optimised in terms of yield and efficiency, within the parameters of the approval. Submission of the final detailed design to DPHI *prior to construction* is a standard feature of approved SSD consent conditions. This provides the final check that the detailed design is consistent with the EIS's assumptions.

As the final specifications and location of infrastructure are subject to change during detailed design, where required in this section, upper limit quantities and power level estimates are provided below to ensure the assessment and any subsequent approval maintains the flexibility required in the detailed design stage, post approval.

Similarly, while an indicative Infrastructure Layout is provided to give a clearer understanding of what would be constructed, the delineation of a broader development footprint at this stage provides the assessment and approval some resilience to minor layout changes in the final design. Together this 'upper limit' or 'worst case' approach ensures that all impacts of construction, as well as operation and decommissioning are captured in the environmental assessment section of this EIS and that any recommendations and mitigation strategies would be appropriate to the final detailed design.

This approach is intended to over-estimate impacts and over-scope mitigation strategies and is therefore considered conservative. With this conservative consented Development Footprint, the entire Development Footprint could be utilised. This allows flexibility in design for infrastructure, and to keep construction costs/methods and timing low. This approach helps the Project to include important details from affected-stakeholder input to form its environmental plans and final design. These commitments would help guide strategies to reduce the required Development Footprint with the final detailed design.

This approach is consistent with the State significant development guidelines – preparing an environmental impact statement (DPIE December 2021) which state:

... with some large, complex projects this flexibility is often essential as it is difficult, if not impossible, to deal with all aspects of the design of these projects at the EIS stage.

The key features of the Project are summarised in Section 3.1 and detailed below.

3.2.1. BESS compound

The BESS compound would house the batteries, transformers, harmonic filters and power conversion systems. It will have a minimum APZ of 11m that will be maintained to the standard of an inner protection area for the life of the Project. The final APZ dimensions may only be determined at the detailed design phase in consultation with the NSW RFS and are to be incorporated into the Bushfire Emergency Management and Operations Plan.

Table 3-2 below shows indicative numbers of equipment and infrastructure considered for the assessment of the Project:

Table 3-2 Equipment quantities

Equipment	Approximate number
BESS container (6.25 MWh)	328

Equipment	Approximate number
PCS units (4.8 MVA)	110
MV transformer (4.8 MVA)	110
Power transformer (190 MVA each)	2
Harmonic filter (50MVAR approximately)	1
Auxiliary transformers	15
Switchgear/Harmonic filter buildings	3

Batteries

A Battery Energy Storage System (BESS) container is comprised of several integrated components. At its core are battery modules, which house numerous individual cells arranged to achieve the specified voltage and capacity. These modules are assembled into racks, supported by a battery management system (BMS) that monitors cell health, temperature, and performance to ensure safe, efficient operation.

Surrounding these are essential auxiliary systems such as power conversion systems (discussed below), which manage the flow of energy between the batteries and the grid; thermal management systems, which maintain optimal battery temperature through cooling or heating; and protection and control equipment, including fire suppression and isolation switches. Together, these components form a cohesive system capable of stabilising the grid, supporting renewable energy integration, and providing reliable backup power.

A fire detection and suppression system would be implemented within each battery unit, which may comprise of aerosol fire extinguishing systems, or dry pipe systems, or other mechanical systems. There would be spare cooling units in storage on site for replacement, and in the event of failure of one of the units, the system would be able to maintain safe operating temperatures. If all cooling units fail, the auto shutdown of the batteries would prevent overheating. The fire suppression system within the BESS will be compliant with the specific regulation, such as UL9540a.

The battery units may be either containerised and internally accessed, or modular and externally accessed. The selected battery would have undergone the required hazard assessment to ensure the product meets Australian Standards and legislated safety requirements.

An example of a battery container is shown in Figure 3-3 below.

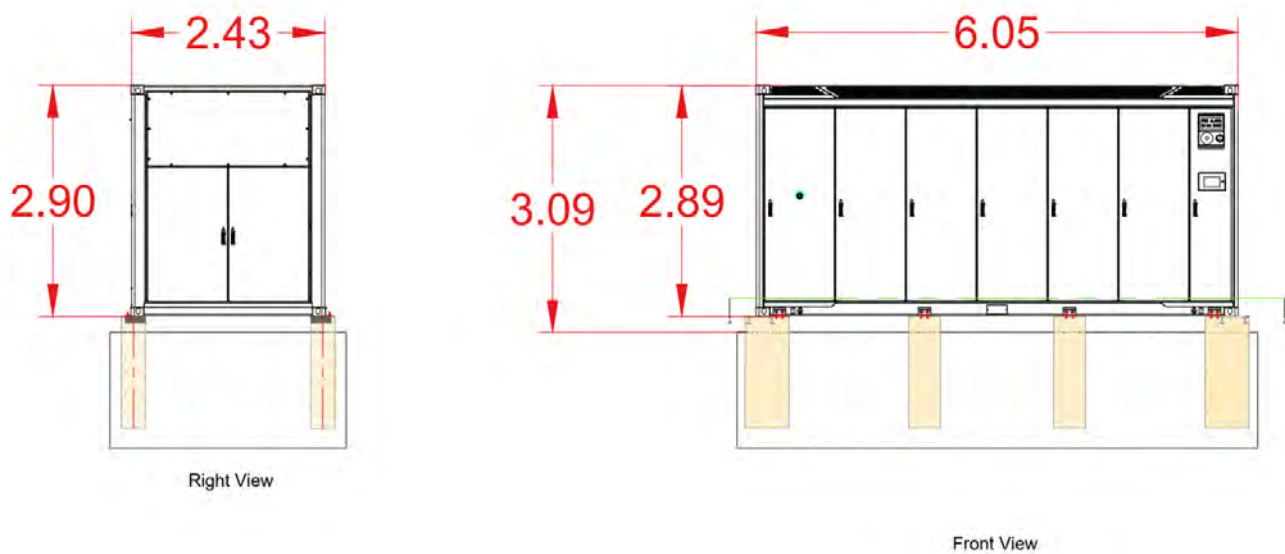


Figure 3-3 Typical BESS and dimensions

Power Conversion Systems (PCSs)

PCS units are bi-directional inverters that convert DC electricity from the batteries back and forth to the AC electricity used by the grid. Up to 110 PCS would be required, with different possibilities of BESS coupling configurations. Each PCS would be approximately 2.9m high and would be mounted on a 20-foot container skid (refer to Figure 3-4).

The PCS units rate is still to be defined, but most likely will be 4.8MVA. The associated transformers step up the voltage up to a medium voltage level of 33kV.

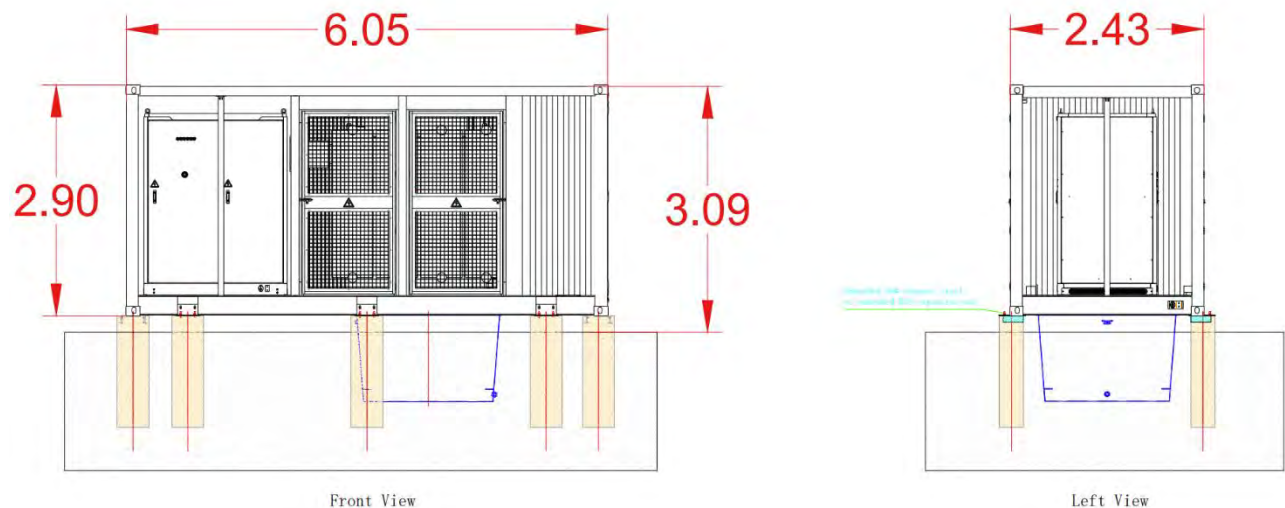


Figure 3-4 Typical PCS and dimensions

The power output will be converted from direct current (DC) to alternating current (AC) by Power Conversion Systems (PCSs) and then connected to the medium voltage (MV) utility through an MV transformer:

The PCS units will have similar dimensions to those of the battery containers. There are multiple configuration options for arranging the BESS containers and PCSs, either in a symmetric or an asymmetric way, such as 1:1, 1:2, 1:3, 2:5, or 2:3, which will be determined during the detailed design phase. Please,

note inverter configuration may vary the number of PCS units required. If this is the case, updates in the design will be assessed to comply with the EIS recommendations and approvals.

MV Transformer

The MV transformer could potentially be integrated within a 20-foot skid alongside the PCS. Typically, there would be one transformer per PCS. Other configurations, such as two transformers per PCS, are also possible and will be explored during the design phase.

3.2.2. Transmission lines and connections

A Transgrid 330kV overhead transmission line runs east-west, immediately adjacent to the Development Site, which feeds into the Armidale substation. It is proposed to connect the Project directly into the overhead transmission line via overhead cabling.

3.2.3. Substation and switchyard

The Project substation will be comprised of a high voltage switchyard, two large transformers, 33kV switch room, auxiliary services equipment, and any required power quality components (e.g. harmonic filters, capacitors, etc). Figure 3-5 is an indicative layout of the proposed substation.

The Project substation would be built on a specialized hardstand area called a bench; surrounded by security fencing as required by the relevant electrical safety regulations. One or more large transformers would be installed in large concrete bunds. These bunds are designed to retain the contents of the transformer and cooling system (insulating oil) in the event of failure. An oil water separator is likely to be installed in the bund as an environmental protection measure and would be subject to regular inspection and maintenance.

It can be considered that approximately 15 1.25MVA auxiliary substation transformers will be required. The number will ultimately depend on the final rating (1MVA or 1.25MVA).

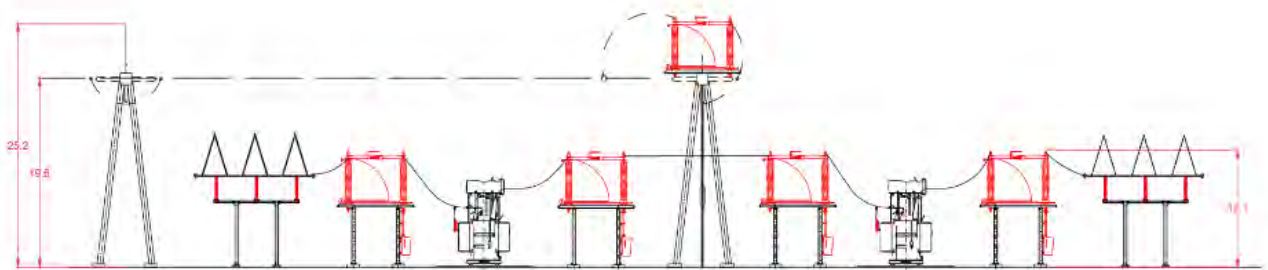


Figure 3-5 Indicative substation layout

3.2.4. Harmonic filter

Harmonic filters mitigate harmonic distortions (unwanted frequencies generated by non-linear loads) in the electrical power system. Harmonic filters will be installed to the west of the Project substation to improve power quality and reduce electricity loss.

3.2.5. Noise wall (optional)

Subject to the associated landowner's preference and agreement, a noise wall on the southern and part of the eastern sides of the BESS may be installed to minimise noise emissions to the associated landholder (refer confidential consultation notes).

The height and design specification of the noise wall may be up to 4m in height, and will depend on final detailed design and elevations, confirmation of battery specifications and landowner preferences in accordance with landowner agreement. It will take into consideration flooding and overland flow through design mitigation such as flap panels to allow water flow. Assessment assumptions include this where appropriate to considering worst case impacts on non-associated receivers regarding visual.

3.2.6. Access road and tracks

The Development Site would be accessed via a new access road, from the existing formed Bayley Park Road.

The Project would construct an all-weather gravel primary access road with a minimum width of 6.5m (with a combination of single and double lane sections) off Bayley Park Road as shown in Figure 3-1. This access would travel north within the Subject Land to the proposed BESS location. It would provide access for all vehicles to and from the Development Site.

A small network of internal tracks would be included from the Development Site entrance and within the BESS Facility to the perimeter fence line of the BESS. These tracks would be approximately 5m in width and composed of gravel or other suitable all-weather substrate.

Parts of the proposed access track would have stock fences, in consultation with the associated landholder.

3.2.7. Permanent ancillary infrastructure

Operations and maintenance building

The O&M building is proposed in the southern section of the Project near the site entrance and would adjoin with a parking area. The building would house the service team providing them with office facilities and amenities. These include parking areas (for site team, contractors, and visitors), stores warehouse, and workshop building/shed, waste skips, and trailer parking area.

The O&M facility would require power and water supply as well as communications. There would likely be one primary O&M facility, where the site service team would be based during the operational life of the Project. Water tanks would store some rainfall captured from the facility roofs for non-potable use. Potable water would be delivered to site. Amenities on site would need to be managed through an on-site sewerage system (e.g. septic, composting or other appropriate system). The system would be designed by an appropriate service provider and installed in accordance with local requirements. Electricity on site would be supplied from the local electricity network (Transgrid).

Security measures

Fencing

The Project substation area would be enclosed by a security fence in accordance with applicable Australian Standards. This is expected to be a steel security fence approximately 3m high chain link fence topped with three rows of barbed wire.

CCTV

The CCTV cameras would be mounted on up to 4.5m poles complete with sensors or infrared security lighting, which would be installed at the access road/gate, the control room and transformer/switchyard. A security company would be contracted for monitoring outside of business hours.

Lighting

There would be no permanent night lighting within the BESS area. Lighting would be included in each inverter for night-time maintenance or emergency purposes only. Motion sensor or infrared security lighting would be installed at sensitive boundary locations and around the substation, battery storage facility, O&M facilities, and office areas.

All external operational lighting would be designed to reduce disturbance to neighbouring properties, as such it would be low intensity lighting (except where required for safety or emergency purposes) and would not shine above the horizontal. The external operational lighting would be used only when there are staff on site, as part of night works (where required), site security or during emergency situations including through remote operation to allow improved camera visibility.

External lighting would be installed to comply with relevant standards.

Operational auxiliary generator

A small diesel generator may be retained onsite during operation as auxiliary backup infrastructure for emergency and maintenance purposes. The generator would be empty and not operate under normal conditions. It would only be used intermittently during outages, testing or maintenance activities.

3.3. Road upgrades

Waterfall Way

As part of the current proposal, additional works are required within the Waterfall Way road reserve to accommodate project traffic and maintain safe operation of the intersection. These works include minor road works and modifications to ensure that safe intersection sight distances are achieved and that heavy vehicle movements arriving from the east can safely turn into Bayley Park Road.

In addition, to accommodate left and right-turn movements associated with the Project, further upgrades to the intersection in the form of a basic left turn (BAL) and basic right turn (BAR) is required.

Bayley Park Road

From the entrance to the Metz Solar Farm to the proposed BESS site, additional road upgrades are required by the Project within the Bayley Park Road road reserve (refer to Figure 1-1).

Upgrades to Bayley Park Road would involve a carriageway width ranging between approximately 9.0m to 6.5m along with dedicated waiting bays for heavy vehicles. The sections that are reduced to 6.5m are to preserve trees and vegetation in the nearby area. Traffic control measures will be utilised to manage heavy vehicle movements and control access as part of a future Traffic Management Plan (TMP).

In addition, works are proposed at existing culvert locations to upgrade or clear blocked drainage structures, improving drainage performance and maintaining road functionality. These would be given further consideration in the detailed design to improve accessibility along Bayley Park Road.

A Preliminary Technical Design Report prepared by J.C Engineers confirms the road alignment is feasible in terms of constructability within the Development Footprint. It also includes comments for further and future design considerations.

Minor tree trimming and lopping of overhanging branches on sections of Bayley Park Road will also be required, as these currently pose a safety risk to existing and future motorists. In addition to safety, trimming will improve passage of larger trucks and vehicles.

The minor nature of these works would not meet the criteria for native vegetation clearing under the *Local Land Services Amendment Act 2016*. Lopping overhanging vegetation to maintain safety on a public road does fall into an allowable activity under the *Roads Act 1993*.

3.4. Temporary facilities

Temporary facilities would be entirely located within the Development Footprint during the construction phase only and would include:

- Site office and amenities
- Tool and material storage shed
- Construction parking
- Component laydown areas
- Truck parking and unloading areas.

The construction laydown areas are expected to occupy approximately 1.5ha in total. These areas would involve earthworks to level and stabilise through batters before converted to a hardstand. This space is required to accommodate the needs of two separate EPC contractors working simultaneously on site: one for the BESS installation and another for the Project substation construction. Both contractors will require dedicated space for the storage of equipment, cable drums, and other auxiliary components. The laydown areas will be located within the Development Footprint and managed to ensure coordinated use and access during construction.

The staff amenities would be designed to cater for the peak number of construction staff expected to be onsite and would include:

- Sanitary modules with water flush systems connected to holding tanks. The tanks would be fitted with high level alarms, and they would be pumped out regularly
- Water tanks
- Changing rooms
- Lunch rooms
- Administrative offices
- Covered walkways
- Emergency muster point
- Generator – if required
- Electrical, data and water reticulation.

3.5. Project timing

The Project would be implemented in four phases, as described below:

1. Site preparation
2. Construction
3. Operation
4. Decommissioning.

The construction period would last for approximately 30 months in total, with 6 to 9 months of peak construction.

The timeline represented below in Table 3-3 is indicative only and is dependent on approval processes and availability of materials and labour.

Table 3-3 Indicative timeline

Phase	Approx Commencement	Duration
Approvals		
Connection Approval	Q3 2026	NA
Project Approval	Q4 2026	NA
Site preparation		
Site Establishment	Q2 2028	1 month
Construction		
Access Road Construction	Q2 2028	4 months
Delivery and Construction	Q3 2028	14 months
Commissioning and Testing	Q4 2029	8 months
Operation		
Commence Commercial Operation	Q2 2030	40 years
Decommissioning		
Decommissioning	TBC	TBC

3.5.1. Site preparation (including subdivision)

The Project may include physical works ahead of the main construction phase including construction of the main new site access road, public road works, intersection upgrade, BESS site internal road network, installation of fencing, artefact salvage if required, geotechnical drilling and/or surveying and preparation of construction compounds and site facilities.

Where permitted by the approval, certain early works may proceed concurrently subject to any required management plans and relevant secondary approvals.

Site access construction

The Project will require safe site access, from Bayley Park Road to the BESS site. Construction of required site access includes:

- New private all-weather gravel primary access road, from the end of Bayley Park Road to the BESS site

- Upgrade of approximately 1km of Bayley Park Road from the Metz Solar Farm access to the proposed Project access
- Some culvert upgrades along Bayley Park Road
- Minor tree trimming along sections of the Bayley Park Road for unsafe and low overhanging branches.

These initial works are proposed to be carried out first to enable safe and practical access to the site.

Intersection upgrade

As detailed above in Section 3.3, further upgrades to the intersection in the form of a basic left turn (BAL) and basic right turn (BAR) is required. In addition, minor works within the Waterfall Way road reserve are required to meet safe intersection site distances.

3.5.2. Construction

During the Project construction phase, work would be undertaken during the following hours:

- 7am to 6pm Monday to Friday
- 8am to 5pm Saturday
- No work on Sunday or public holidays

The Applicant is seeking approval to extend construction hours on Saturdays from 1pm to 5pm for the Armidale East BESS Project. The Project involves a relatively short but intensive construction program, including earthworks, construction of a new access road, delivery and installation of battery units, substation works and grid connection infrastructure.

Extending Saturday construction hours will provide benefits including:

- Flexibility to manage weather related interruptions and other unforeseen delays
- Improve construction efficiency maintaining continuity of works once personnel and equipment are mobilised
- Support timely delivery of critical works, especially regarding pre-construction access road works required for safe heavy vehicle and third-party access (such as Transgrid to start works on the grid connection infrastructure)
- Assist in managing workforce rosters and supporting improved fatigue management outcomes
- Reduce costs of construction.

Note the extension would only increase the duration of already assessed activities, not introduce new or different construction works. The Noise and Vibration Impact Assessment (NVIA) predicts compliance for all non-involved receivers, even under the stricter noise criterion applicable outside standard construction hours. The proposed extended hours have also been assessed in the Traffic Impact Assessment (TIA), which concluded that the extension would not result in additional traffic impacts or issues.

The extension of construction hours has been discussed with both Council and the associated landholder, who have both agreed to the extension (refer confidential consultation notes).

Certain light construction and assembly activities would be completed outside of approved project construction hours, subject to these activities having no amenity impacts on surrounding residences. Example activities include cable termination, system assembly and testing, script testing (on computer), Supervisory Control and Data Acquisition (SCADA) testing. The performance of the BESS would be monitored through this SCADA system that would report to staff both on and offsite. The system would be capable of notifying staff of system issues and failures.

Any construction outside of these standard construction hours, if considered likely to be audible, would be minimised and would only be undertaken with prior approval from relevant authorities.

The construction period would last for approximately 30 months in total, with 6 to 9 months of peak construction.

BESS Construction

Following site preparation and site access construction, the construction of the BESS would include but not be limited to, the following activities

- Cut and fill to level areas and establish desired design levels
- Structural works including concrete pads, strip footings or piers to support battery enclosures, PCS and transformer structures
- Construction of the switch room and transformer foundations including delivery and installation of transformers, outdoor switchgear, and other ancillary infrastructure
- Delivery, installation and electrical fit-out of battery enclosures, PCS and transformers, including cable laying and trench backfilling to connect the BESS compounds to the switch room and transformer from the chosen port (see Section 6.3)
- Interconnection of battery enclosures to the PCS and to the electrical room
- Installation of tower structures including foundation piles
- Installation of 132kV overhead cabling from the transformer to the substation
- Installation of security fencing
- Installation of new interconnecting switchyard
- Cut in of the existing 132kV overhead line and looping in looping out through the new switchyard.

Resource requirements

Earthworks

Earthworks would also include grading and compacting to form a suitable substrate for the installation of the BESS. The earthworks and excavations associated with the access tracks, buildings, cabling trenches and preparation of laydowns areas, would require impact or removal of vegetation cover and soil disturbance in some areas.

Due to the length of the access track, considerable cut and fill would be required. Accurate topographic and cadastre surveys would be undertaken as detailed design commences to provide accurate cut and fill quantities.

The installation of security fencing would have a small discrete footprint and is unlikely to result in substantial soil disturbance.

Ground cover would be maintained where possible during the pre-construction and construction stages of the Project and would be rehabilitated upon decommissioning.

Construction materials

The main construction materials would include:

- Gravel
- Fencing materials
- Cables, conduits, junction boxes
- Batteries
- Timbers and fixtures for building fit-out
- Steel framing and Colourbond sheeting for permanent buildings
- Inverters, transformers, containerised battery units.

Water requirements

Non-potable water requirements are anticipated to total approximately 2-3ML for the construction phase, primarily for dust suppression and filling water tanks.

575kL of fire water would also be stored onsite in tanks, which would be filled from the above sources and retained for emergency use only during construction. During operations, water levels will be maintained by tanker water trucks.

Potable water requirements are anticipated to be approximately 0.5ML during the construction phase.

Water would ultimately be sourced by the Engineering, Procurement and Construction (EPC) contractor, however local contractors and water delivery suppliers have been contacted and have confirmed they can supply the water quantities required (refer to confidential consultation notes provided to DPHI).

Ongoing consultation with ARC has highlighted the limited water resource availability within the LGA, with ARC's preference to investigate water further afield and outside the Armidale LGA. The following water resources with active Water Access Licences (WAL) are being investigated:

- Peel River WAL – Tamworth – Offer both regulated and un-regulated WALs
- Commissioners Waters WAL – Tilbuster - offers unregulated WALs
- Arrawarra Creek WAL – Coffs Harbour – offers unregulated WALs

Alternatively, water may be sourced from suppliers located in surrounding LGAs or larger regional centres such as Tamworth or Newcastle, subject to availability, supply capacity and haulage distances.

The final water source would be determined by the EPC Contractor during detailed design, based on availability at that time and pending Project approval (refer to Section 6.8.3).

Labour, machinery and equipment

It is anticipated that up to 150 construction staff comprising of supervisors, tradesmen and labourers would be engaged to complete the work during the peak construction phase. Every effort would be made to hire staff locally. Staff would be accommodated in Armidale or nearby surrounding areas.

Plant to be used during construction would include:

- Crane
- Drum roller
- Padfoot roller
- Wheeled loader
- Dump truck
- 30t excavator
- Grader
- Chain trencher
- Water truck
- Telehandler
- Forklift
- Generator.

Construction phase generator

Temporary diesel generators may be used during the construction phase to supply power to site offices, amenities, and other temporary construction facilities prior to the availability of permanent electrical infrastructure. It is anticipated that a hybrid system may be implemented, combining diesel generation with battery storage and solar where feasible. Indicatively, only one diesel generator with a capacity of approximately 125 kVA may be required. The generator would operate during daytime hours only, and the equipment would be located within or adjacent to the site office area. Temporary generation arrangements

will remain in place for the duration of construction and commissioning, as no temporary grid power is proposed. A permanent power supply will be established once commissioning is complete.

Haulage and vehicle movements

The main haulage route for the Project is expected to be Port of Newcastle (excluding high-risk over-sized over-mass [OSOM] vehicles), but Brisbane Port has also been assessed as an option as detailed in Section 6.3 and the Traffic Impact Assessment (Appendix E.3). The access route generally utilises roads that are designed for B-Double vehicles.

Vehicle movements are most relevant to the construction period, as during the operational period traffic numbers would be significantly reduced to the site operations and service team and associated subcontractors on a periodic basis. During construction, vehicles would range from light cars to heavy vehicles and OSOM vehicles. An assessment of vehicle movements is included in Section 6.3 and Appendix E.3. Table 3-4 provides a high-level breakdown of main vehicle movements during the construction period.

Table 3-4 Vehicle movements during construction

Vehicle type		Average construction periods		Peak construction period	
		Daily (vpd)	Peak hour (vph)	Daily (vpd)	Peak hour (vph)
Light Vehicle	Car/4WD	20	10	40	20
	Shuttle Bus	8	2	28	7
	Subtotal	28	12	68	27
Heavy Vehicles	Rigid vehicles	10	1	40	3
	Truck and dog	10	2	120	12
	Semitrailer	4	2	12	2
	B-Double	4	1	12	1
	Non-High Risk OSOM	2	1	2	1
	HV subtotal	30	7	186	19
Total		58	19	254	46

3.5.3. Operation

A total of up to 5 equivalent full-time staff would be employed onsite when the BESS is operational, but the BESS would primarily be operated remotely. Associated work would be undertaken during the standard working hours of:

- 7am to 6pm Monday to Friday
- 8am to 1pm Saturday.

Work would only be undertaken outside of these hours in an emergency and would be kept to a minimum.

The BESS would be in operation continuously. The energy storage system could be activated at any time. The BESS would operate automatically but there would be provision to both locally and remotely monitor the performance of the equipment and to activate the energy storage system.

The operational Project life could be up to 40 years. BESS cells refurbishment would be required at 20 years.

Activities

Activities undertaken during operation would include, but not limited to:

- Infrastructure maintenance
- Monitoring the performance of the BESS
- Inspection of the installation
- Routine preventative maintenance
- Emergency repair response (24 hours)
- Site security response (24 hours)
- Vegetation management within the Development Footprint in accordance with the fire management and biodiversity management plans.

Water requirements

Operational water requirements would be minimal. It is expected that about 0.5-1 ML of non-potable water would be required during operation. For fire protection purposes, four water tanks on the east next to the access road, and one tank opposite to the west have been included in the design. This would be finalised through consultation with fire and emergency service authorities. If additional water is required water would be obtained commercially.

Traffic movements

The travel demand during the operation phase of the Project is anticipated to be significantly less than the construction phase. Operational traffic is thought to be negligible with a maximum of 20 vehicle trips per day. However, everyday traffic will be zero given the remote operation of the BESS.

It is anticipated that the staff would drive light vehicles to the site each working day.

Lighting and CCTV

Under normal circumstances, there would be no lighting located on site.

External lighting would be provided around the buildings and in the high voltage switchyard, but they would only be used on the rare occasions that staff are working on the site after the standard working hours.

There may be some security lighting at critical locations around the perimeter of the site, but these would only be activated when the automatic security system senses an unauthorised site entry. Task lighting would be provided at the PCS's.

CCTV security cameras would be located at the entrance gate and around the switchyard and battery storage, and O&M facilities and office areas.

3.5.4. Decommissioning and rehabilitation

At the end of the operational lifespan of the Project, either a request for an extension of the current DA can be submitted or a new DA lodged with a more current technology.

If the site is not repowered at the end of its useful life, then it would be decommissioned. The decommissioning phase would involve removal of all above ground infrastructure (including concrete slabs, footings and internal access tracks) and below ground infrastructure where possible and return of the site to a safe, stable and non-polluting state.

Batteries can be refurbished (overseas by the manufacturer) or recycled domestically for reprocessing, depending on the available options at the time. The shipping containers, cabling, transformers and switch

gear are largely able to be reused or recycled. Some integrated plastic components may degrade over time to the point where they are not suitable for reuse, but these elements are minor. Gasses from the air conditioning and fire suppression systems can be captured and reused. For more information, refer to Section 7.1.

The objective of decommissioning is to maximise recycling options and return the disturbed area to a safe, non-polluting and stable state. The broader area would remain suitable for continued agricultural or other land use options.

3.6. Proposed subdivision and land acquisition

Subdivision of the land is required for the Project (refer to Figure 3-6). The proposed configuration would be as follows, including estimated areas to be subdivided:

- Lot A of 233ha comprising of the residual agricultural landholding to remain in the current ownership. It would remain larger than the prescribed minimum lot size.
- Lot B of 8.5ha comprising the BESS and ancillary infrastructure to be acquired by the Applicant
- Lot C of 3.5ha comprising of internal substation assets required to be transferred to Transgrid ownership.

The Project would involve subdivision to create three lots in total. The primary lot would be retained for agricultural enterprise, as it is currently used and would remain larger than the minimum lot size applicable to the land. The two other lots smaller than the minimum lot size have been carefully sited to minimise the fragmentation and alienation of resource lands, consistent with the zone and minimum lot size clause objectives. The land where the proposed BESS is to be sited has been continuously refined in response to thorough investigations and ultimately, is considered to pose the least concern to ongoing agricultural activities and minimisation of fragmentation and land use conflict. It would be co-located with the existing Metz Solar Farm and the existing transmission easement running generally east west through the area. Lot B and C would be accessed via a right of carriageway over Lot A to Bayley Park Road.

The Project would involve the temporary loss of about 12ha relating to the proposed BESS and internal substation assets required to be transferred to Transgrid and about 5ha relating to the access road of agricultural land for the life of the BESS (up to 40 years). The land proposed to be subdivided is mapped as Class 5 moderate-low capability land. Overall, this is considered a generally minor loss and would not adversely affect the achievement of the zone objectives. The Project involves only a small area and would not significantly reduce the availability of land for primary production in the region.

Whilst the proposed subdivision would cause fragmentation, it would not give rise to any additional rural dwellings. The BESS would be decommissioned in future and the land returned to agricultural activity. It is considered the impacts of subdivision would be minor and temporary.

As broadly discussed above, the Project will be generally compatible with the aims of the LEP. The Project would contribute to the achievement of the RU1 zone and minimum lot size clause objectives. As electricity generating works are a permitted land use, the Project will meet the objective to encourage diversity and to allow for non-agricultural land uses that will not restrict the use of other land in the locality for agricultural purposes. The Project will provide employment opportunities and support development that has regard to the economic and social needs of the community and the principles of ecologically sustainable development.

The Land Use Conflict Risk Assessment (LUCRA) in Section 6.9 identified potential conflicts within the RU1 zone including temporary loss of agricultural land, potential for surface water contamination and biosecurity concerns. These issues are well understood, and management strategies have been developed to mitigate and minimise these issues. The Development Site is also well separated from other zones and the risk of conflict with land uses in other zones is considered minimal.

3.7. Estimated development cost

The Estimated Development Cost (EDC) of the Project is approximately \$471 million. An EDC report has been provided with the EIS which includes the cost of all mitigation measures required to manage the Project's impacts.

Ref: 230216_Armidale_BEES_Planning_251041 Subdivision Author: Martin Wyburn Date created: 17.03.2026 © ESRI 2022



LEGEND

 Lot A - 233ha - residual agricultural landholding to remain in the current ownership

 Lot B - 8.5ha - BESS and ancillary infrastructure to be acquired by the Applicant

 Lot C - 3.5ha - internal substation assets required to be transferred to Transgrid ownership

Datum: GDA94 / MGA zone 56



0

0.5

1 km

A FYFE Company

Armidale East BESS

Figure 3-7 Proposed subdivision

4. Statutory context

4.1. Power to grant approval

Development consent for the Project is sought under section 4.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Pursuant to section 4.36 of the Act, a State environmental planning policy may declare any development to be State significant development. The NSW State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) Section 20 of Schedule 1 states that the following is considered a State Significant Development (SSD):

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

- (a) has an estimated development cost of more than \$30 million, or*
- (b) has estimated development cost of more than \$10 million and is located in an environmentally sensitive area of State significance.*

Electricity generating works are defined in the Standard Instrument – Principal Local Environment Plan as:

A building or place used for the purpose of:

- (a) Making or generating electricity, or*
- (b) Electricity storage***

The Project would have a capital investment cost estimate of more than \$30 million (\$418 million). Therefore, the Project is classified as “SSD” under section 4.36 of the EP&A Act.

The Minister for Planning and Public Spaces is the consent authority for SSD, and SSD applications are assessed by DPHI (unless specific conditions occur e.g.:

- 1) where 100 or more people have objected to the application, for wind or solar
- 2) the local council has objected to the application; and/or
- 3) the applicant has disclosed a reportable political donation),

whereby the Independent Planning Commission (IPC) would be the consent authority.

For the purposes of battery energy storage systems, the specific conditions 1 and 2 do not apply.

The provisions of the EP&A Act are regulated by the control authority through the application of the Environmental Planning and Assessment Regulation 2021.

4.2. Permissibility

Under the provisions of the Armidale Regional LEP, the subject land is zoned RU1 Primary Production.

Section 2.36(1)(b) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) states development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone. The land is zoned RU1 and under Section 2.35 of the TISEPP, a prescribed non-residential zone.

The RU1 zoning has a prescribed minimum lot size of 200 hectares according to the provisions of the LEP.

A subdivision of Lot 101 DP1237661 is required to separate the Development Site and the intended Transgrid assets from the remaining agricultural holding. The Project would involve subdivision of land

resulting in the creation of allotments being less than the prescribed minimum lot size, on the Lot Size Map in relation to that land.

The Principal Development Standards of the LEP note that subdivision of a lot in a RU1 Zone should not be permitted when it results in 2 or more lots of less than the minimum lot size. However, the LEP states that consent can be granted for development that contravenes a Development Standard if the Consent Authority is satisfied that there are sufficient environmental planning grounds to justify the contravention.

Despite the provisions of the LEP, the provisions of the EP&A Act provide that the subdivision may be approved by the consent authority, given that the subdivision forms part of a SSD project. According to section 2.6(2) of the State Environmental Planning Policy (Planning Systems) 2021, where a development application comprises development that is only partly SSD, the remainder of the development is also declared to be SSD. Furthermore, under section 4.38(3) of the EP&A Act, consent may be granted to SSD despite being partly prohibited by an environmental planning instrument.

4.3. Pre-condition to exercising the power to grant approval

Table 4-1 Pre-conditions to exercising power to grant approval

Statutory reference	Pre-condition	Relevance	Section in EIS
State Environmental Planning Policy (Transport and Infrastructure) 2021	In accordance with Section 2.119 The consent authority must not grant consent unless it is satisfied of certain matters relating to vehicular access to the classified road, impacts on the safety, efficiency and operation of the classified road and sensitivity of development fronting the classified road.	The Project primary access is from Bayley Park Road via Waterfall Way, a classified road. The Project is considered to be consistent with Section 2.119 as it would not compromise operation of Waterfall Way, as assessed in the EIS.	Section 6.3 and Appendix E.3
	Section 2.122 of the Transport and Infrastructure SEPP requires 'traffic generating development' to be referred to TfNSW.	The Project would result in the generation of additional vehicles on the transport network. As such, a Traffic Impact Assessment has been completed. TfNSW have been consulted throughout the development of the Project and will be invited to provide a submission during the EIS exhibition phase.	Section 6.3 and Appendix E.3

4.4. Mandatory matters for consideration

Table 4-2 Summary of mandatory matters for consideration

Statutory reference	Mandatory consideration	Section in EIS, where relevant
Consideration under the EP&A Act and EP&A Regulation		

Statutory reference	Mandatory consideration	Section in EIS, where relevant
Section 1.3	Objects of the Act: (objects relevant to the Project are highlighted in bold) - o To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources ▪ <i>A VPA and community benefits have been agreed in principle with ARC to provide positive benefits to the local community and region (Section 5 and 6.12).</i> - o To promote the supply, delivery and maintenance of housing, including affordable housing - o To promote productivity through the development and management of the State and its resources - o To protect the environment, including the conservation of threatened species of native animals and plants and ecological communities and their habitats ▪ <i>Avoid and minimise practices have been implemented to reduce impacts to native biodiversity and natural waterway as far as feasible (Section 6.1 and 6.8).</i> - o To promote resilience to climate change and natural disasters through adaptation, mitigation, preparedness and prevention ▪ <i>The Project would aid in reducing reliance on fossil fuel energy generation by providing reliable energy storage for renewable energy projects and limit local potential impacts by climate change through appropriate design (Section 2).</i> - o To promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage ▪ <i>Identified Aboriginal heritage items within the Subject Land will be protected and avoided or salvaged prior to constructed to minimise impact (Section 6.2).</i> - o To promote good design, amenity and the proper construction and maintenance of built environments, including the protection of the health and safety of the occupants of buildings ▪ <i>The Project has been designed to reduce amenity impacts (noise and visual) on nearby non-associated receivers and to comply with relevant bushfire and hazard guidelines (Section 6.4, 6.5, 6.6 and 6.7).</i>	

Statutory reference	Mandatory consideration	Section in EIS, where relevant
	- o To provide opportunities for participation in environmental planning and assessment ▪ <i>The Project has undertaken several community information sessions and continued engagement with the local community and government agencies throughout the planning phase (Section 5).</i> - o To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment ▪ <i>The Project has been designed iteratively based on specialist environmental input to reflect ecological sustainable development (Section 3, 6 and 8.6).</i> - o To promote a proportionate and risk-based approach to environmental planning and assessment ▪ The Project has been assessed through appropriate specialist environmental assessments to the identified required standard (Section 6 and 7). - o To promote the orderly and economic use and development of land ▪ The Project is located on land that is appropriate zoned for a BESS and has been designed to ensure conflicts with surrounding land uses are minimised (Section 2.2.3 and 6.9).	
Section 4.15	Relevant environmental planning instruments • State Environmental Planning Policy (Transport and Infrastructure) 2021 • State Environmental Planning Policy (Planning Systems) 2021 • State Environmental Planning Policy (Resilience and Hazards) 2021 • State Environmental Planning Policy (Biodiversity and Conservation) 2021 - o Inclusive of Part 3.2 Development control of koala habitats • State Environmental Planning Policy (Primary Production and Rural Development) 2021 • Armidale Regional LEP 2013 • Armidale Development Control Plan 2024 (Armidale DCP)	This table. Section 2.2.3 Section 6.1 and the BDAR (Appendix E.1) Biodiversity Conservation Regulation 2017

Statutory reference	Mandatory consideration	Section in EIS, where relevant
	Relevant planning agreement or draft planning agreement • Offer to focus the Voluntary Planning Agreement on in line with the benefit sharing guideline • EP&A Regulation 2021 • Biodiversity Conservation Regulation 2017 Likely impacts of the development (environmental, social and economic) Suitability of the site for development Submissions made in accordance with the Act or regulations Public interest	Section 6.1 Section 5 Section 7
Mandatory considerations under the Environmental Protection and Biodiversity Conservation Act 1999		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Under the EPBC Act, if the Minister determines that an action is a ‘controlled action’ which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minister. Due to the presence of the EPBC listed EEC BGGW, the Project was referred and deemed a ‘controlled action’. An assessment of MNES has been undertaken within the BDAR, assessed under the NSW Bilateral Agreement.	Section 6.1 and Appendix E.1
Mandatory relevant consideration under EPIs		
SEPP Resilience and Hazards – section 3.7	Consideration must be given to current circulars or guidelines published by DPHI as follows: • Hazard Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use and Safety Planning, • Hazard Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis, and • Multi-Level Risk Assessment • A Contaminated Land Assessment has been undertaken in accordance with the NEPM due to previous	Section 6.3, Section 6.5 and Appendix E.3 and Appendix E.5

Statutory reference	Mandatory consideration	Section in EIS, where relevant
	agricultural activities.	
Armidale Regional LEP 2012	The consent authority must have regard to: • The objectives for development in a zone under section 2.3 of the LEP. • The Lot Size Map under section 4.1 and 5.16 of the LEP, where subdivision is proposed • Principal development standards for subdivision under Section 4.6 • Miscellaneous and additional local provisions: - o 5.10 Heritage conservation: objectives to conserve the environmental heritage of the Armidale Region, to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and view, to conserve archaeological sites, to conserve Aboriginal objects and Aboriginal places of heritage significance. - o 5.11 Bushfire hazard reduction: Bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent. - o 5.21 Flood Planning: objective to minimise the flood risk to life and property associated with the use of land, to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change, avoid adverse or cumulative impacts on flood behaviour and the environment, enable the safe occupation and efficient evacuation of people in the event of a flood. - o 6.1 Earthworks: objectives to ensure that earthworks will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land. - o 6.6 Essential services: objective to ensure the following are available – water supply, electricity, disposal and management of sewage, stormwater drainage, suitable road access.	Section 2.2.3 Section 3.6 and 4.2 Section 6.2 and 6.11, Appendix E.2 Section 6.8 and Appendix E.8 Sections 6.9 and 6.10, Appendix E.10 Section 3
Armidale DCP	DCP provisions do not apply to SSDs in accordance with Section 2.10 of the Planning Systems SEPP	N/A
Considerations under other legislation		

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Statutory reference	Mandatory consideration	Section in EIS, where relevant
BC Act – section 7.14	The likely impact of the proposed development on biodiversity values as assessed in the biodiversity development assessment report. The Minister for Planning may (but is not required to) further consider under that Act the likely impact of the proposed development on biodiversity values.	Section 6.1
Native Title Act 1993	There are no areas within the Development Site registered or under assessment under the <i>Native Title Act 1993</i> .	N/A

4.5. Approvals and licences

Table 4-3 Summary of licences and approvals required

Legal instrument	Approving authority	Approval or licence
Roads Act 1993 (NSW) (Section 138)	TfNSW	Any works to public or classified roads require consent under this Act from the road's authority. TfNSW are the road authority for Waterfall Way, while ARC is the road authority for Bayley Park Road. Landowners consent for lodging a DA is required by the relevant Council in which the portion of the Waterfall Way is within under Sections 7 and 145 of the Act. Division 3 Section 88 of the Act allow a roads authority to, despite any other Act or law to the contrary, remove or lop any tree or other vegetation that is on or overhanging a public road if, in its opinion, it is necessary to do so for the purpose of carrying out road work or removing a traffic hazard. Tree trimming within the Bayley Park Road road reserve would be required for safety.
Real Property Act 1900		Any subdivision would require a subdivision certificate under Division 6.4 of the EP&A Act. Any subdivision would be undertaken under the provisions of the <i>Real Property Act 1900</i>.
Protection of the Environment Operations Act 1997 (POEO Act)	Environment Protection Authority (EPA)	Under the POEO Act, regulation of activities with the potential to cause pollution is managed through the requirement for Environment Protection Licences (EPLs). Under section 48 of the Act, an EPL is required for any activity classified as a "scheduled activity" in Schedule 1 Diesel fuel storage associated with the Project does not trigger the requirement for an EPL under the Act, as it does not constitute a scheduled activity within the meaning of Schedule 1 of that Act. Measures to prevent or reduce pollution and/or contamination resulting from the Project, in accordance with the objects of the Act, are detailed in Section 6.5, 6.7, 6.10 and 7.2.

Table 4-4 Licences and approvals not required

Legal instrument	Approving authority	Approval or licence
<i>Fisheries Management Act 1994 (FM Act),</i> <i>Heritage Act 1977,</i> <i>National Parks and Wildlife Act 1974 (NPW Act),</i> <i>Rural Fires Act 1997,</i> <i>Water Management Act 2000 (WM Act).</i>	N/A	Under Section 4.41 of the EP&A Act, certain authorisations are not required if the Project is SSD. The following authorisations are not required for this Project: • A Fisheries permit under the Section 201 and 219 of the <i>Fisheries Management Act 1994</i> • An excavation permit for details heritage surveys under Section 139 of the <i>Heritage Act 1977</i> • An Aboriginal heritage impact permit under Section 90 of the <i>National Parks and Wildlife Act 1974</i>² • The Project would not require a bushfire safety authority under Section 100B of the <i>Rural Fires Act 1997</i> • A water use approval (Section 89), a water management work approval (Section 90) and an activity approval (Section 91) under the <i>Water Management Act 2000</i> would not be required.

² Note that the Project has comprehensively assessed impacts to Aboriginal heritage as part of an Aboriginal Cultural Heritage Assessment (ACHA) during the EIS.

5. Engagement

Engagement with stakeholders is a vital part of developing a Project that responds to its social and environmental context while also working towards achieving community support and social license to develop and operate. While stand-alone BESS projects do not produce energy like renewable energy developments - such as solar and wind farms - they are not isolated developments. As such, the decisions and actions made in a BESS development can influence perceptions and attitudes towards the entire energy industry.

Strong community engagement creates mutual benefits, and when utilised successfully can:

- Ensure impacts will be acceptable to the community
- Spread the benefits within the community, and
- Build long-term relationships and trust with the community.

This section summarises the detailed consultation activities undertaken to achieve the above-outlined goals, considering community, First Nations community and government agency stakeholders. It identifies:

- Issues and views raised by community and stakeholders
- Opportunities to influence the Project
- Plans for future engagement.

The community engagement and consultation summary in this chapter outlines the steps taken to engage with the Armidale community directly and explore both the issues and opportunities associated with the Project through a range of engagement activities. Activities undertaken throughout the Environmental Impact Statement (EIS) phase span from February 2024 to March 2026.

FRV recognises the immense value that community feedback has provided in refining the Project's design – including the naming of the Project and how it can positively contribute to the local community - and understands the way the Armidale East BESS can provide positive, productive benefits to the local area.

This section has been prepared in alignment with the engagement principles, objectives and guidelines outlined in the Community and Stakeholder Engagement Strategy (CSES). The CSES was developed to ensure engagement is consistent with relevant government and industry best-practice guidance, including the NSW Government's *Undertaking Engagement Guidelines for State Significant Projects (2024)* for renewable energy developments. Accordingly, the engagement approach documented in this EIS reflects the expectations of that guideline, including early notification, proportionate engagement with stakeholders, clear communication of project information, and transparent reporting of engagement outcomes. The chapter also demonstrates how engagement activities undertaken to date have been designed and implemented in accordance with these requirements and other applicable government and industry engagement standards.

5.1. Stakeholder identification

A Project team led by NGH was responsible for developing the Engagement Action Plan (EAP) and implementation was done in collaboration between FRV and NGH. A detailed list of Project stakeholders is provided in Table 5-1 and includes the level of impact, influence, and engagement approach, in keeping with the International Association of Public Participation (IAP2) Engagement Framework.

The engagement approach adopted for each stakeholder group identified is summarised in Table 5-1.

Table 5-1 Project stakeholder breakdown and engagement approach

Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
Host landowner	1 involved landowner	- Property impacts - Noise impacts - Visual impacts - Access changes - Flooding - Environmental changes - Commercial agreements - Community benefits - Governance and ownership of the developing entity.	- Develop a strong ongoing relationship - Contribution to engagement planning and delivery - Contribution to the Project's progress, ability to provide local knowledge, advice and input - Involvement in the development of the Community Benefit-Scheme.	H	H	Inform, consult, involve, collaborate
Non-associated receivers, including non-associated rental receivers (see Figure 2-2)	Residential properties within 5km radius of the proposed site, including non-associated rental receivers located on the host landowner's lot. Non-associated	- Property impacts - Noise impacts - Visual impacts - Access changes - Flooding - Environmental changes - Commercial	- Develop a strong partnership with the community - Keep neighbours informed about the Project from early in the planning phase - Identify impacts and mitigations through a collaborative	H	H	Inform, consult, involve, collaborate Consultation will continue through phone calls, distributing letters/door knocks, invitations to the community drop-in

³ In the context of the IAP2 Spectrum, *influence* refers to the extent to which stakeholder input is considered and has the potential to shape decision-making processes.

⁴ *Impact* refers to the tangible effect that stakeholder input has on the final decision or outcome.

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
	receivers engaged with during the Scoping phase listed in Appendix C.1).	agreements - Community benefits - Governance and ownership of the developing entity - Impacts on agricultural outputs.	process - Discuss neighbour benefit sharing options directly - Provide opportunities to raise issues and provide feedback.			sessions and direct face-to-face meetings at their property. If they can't be reached, a letter will be left at the property asking the residents to contact us and discuss the Project.
Broader Community and region	Armidale township including the satellite suburb Hillgrove, residents, businesses, and organisations	- Visual impacts - Noise impacts - Transport access impacts or changes - Environmental changes - Community benefits - Governance and ownership of the developing entity - Regional economic development.	- Develop an understanding of and opportunity to participate in the Project - Provide opportunities to raise issues and provide feedback - Discuss Community Benefit Sharing options.	M	M	Inform, consult, involve This group should continue to be engaged through broader communications during the development application phase through a community drop-in session, a public notice and communications through council. Ideally, communications to this group would make use of the Project web page/site.

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
Traditional Owners	Armidale LALC Registered RAPs	- Property impacts - Visual impacts - Access changes - Environmental changes - Commercial agreements - Community benefits - Governance and ownership of the developing entity - Impacts on cultural heritage.	- Engage with the relevant Local Aboriginal Land Council and RAPs through the formal process - Look for opportunities to contribute to the local story of country and contribute to the local Aboriginal Community. - Involve local community organisations in Community Benefit Sharing initiatives.	H	H	Inform, consult This group should continue to be engaged through community drop-in sessions, meetings and Project update emails. Ideally, communications to this group would make use of the Project web page/site and a direct contact. Formal Consultation with Registered Aboriginal Parties pertaining to Aboriginal Cultural Heritage Assessment will be led by the author of the Aboriginal Cultural Heritage Assessment (ACHA).
Schools, TAFEs and Universities	University of New England TAFE Armidale Public, Private and	- Impacts on local infrastructure - Consideration of impacts	Ensure organisations are updated on education and vocational	L	L	Inform, consult This group should continue to be engaged through broader

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
	Catholic Schools	Community Benefits.	opportunities associated with the Project. Identify relevant community benefit scheme opportunities.			communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through council. Ideally, communications to this group would make use of the Project web page/site.
Government Agencies/Utility owners	DPHI and other agencies through the SEARs process (such as NSW Farmers Association) Transgrid Department of Agriculture Transport for NSW (Rail) / UGL Geo Science NSW Civil Aviation Safety Authority Air Services Australia	- Impacts on local infrastructure - Assessment process - Consideration of impacts - Consideration and mitigation of concerns - Consultation process - Application of standards and frameworks.	- Develop and maintain a positive relationship - Build on previous discussions.	H	H	Inform, consult, involve This group should continue to be engaged directly through phone calls, distributing letters, invitation to the community drop-in session and a direct face to face meeting where possible. Ideally, communications to this group would make use of the

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
	Biodiversity Conservation Trust (BCT) National Parks and Wildlife					Project web page/site.
Council	Armidale Regional Council (ARC)	- Impacts on local infrastructure - Assessment process - Consideration of impacts - Consideration and mitigation of concerns - Consultation process - Application of standards and frameworks.	- Develop and maintain a positive relationship - Identify opportunities to support the local economy - Identify and Leverage council communication channels - Community Benefit Scheme.	H	M	Inform, consult, involve This group should continue to be engaged directly through phone calls, distributing letters, invitations to the community drop-in session and a direct face-to-face meeting where possible. Ideally, communications to this group would make use of the Project web page/site.
State MP	Member for Armidale, The Hon. Adam Marshall MP	- Impacts on local infrastructure - Assessment process - Consideration of impacts - Consideration and mitigation of concerns	- Introduce the Project and its details. - Identify the member's policies, concerns, and opportunities in relation to the	M	M	Inform, consult This group should continue to be engaged directly through phone calls, distributing letters, invitations to the community drop-in

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
		- Consultation process - Application of standards and frameworks.	Project.			session and a direct face-to-face meeting where possible. Ideally, communications to this group would make use of the Project web page/site.
Federal MP	Member for New England, The Hon. Barnaby Joyce MP	- Impacts on local infrastructure - Assessment process - Consideration of impacts - Consideration and mitigation of concerns - Consultation process - Application of standards and frameworks.	- Introduce the Project and its details - Identify the member's policies, concerns, and opportunities in relation to the Project.	M	M	Inform, consult This group should continue to be engaged directly through phone calls, distributing letters, invitations to the community drop-in session and a direct face-to-face meeting where possible. Ideally, communications to this group would make use of the Project web page/site.
Business groups/small businesses	Business New England Armidale township businesses and those with a	- Property impacts - Visual impacts - Access changes - Environmental	Work with Business New England to identify any local businesses that may be impacted by the	M	M	Inform, consult Outside of the sensitive receivers identified, this group should continue to

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
	broader interest in the region Construction companies that may contribute to the battery facility construction and installation	- changes - Commercial agreements - Community benefits - Governance and ownership of the developing entity - Impacts on agricultural outputs.	Project (positive or negative). Identify opportunities to develop or utilise local capability.			be engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through the council. Ideally, communications to this group would make use of the Project web page/site.
Advocacy groups	New England Climate Action Group Sustainable Living Armidale	- Environmental changes - Community benefits - Governance and ownership of the developing entity.	- Consider opportunities for partnerships and community events - Consider advocacy opportunities - Potential for partnerships.	M	M	Inform, consult Outside of the sensitive receivers identified, this group should continue to be engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
						through council. Ideally, communications to this group would make use of the Project web page/site.
Groups of renewable objectors	CWA TBA	- Property impacts - Visual impacts - Access changes - Environmental changes - Commercial agreements - Community benefits - Governance and ownership of the developing entity - Impacts on agricultural outputs.	- Identify and address concerns as required - Prepare responses to known concerns based on previous projects - Manage issues constructively and efficiently - Ensure equity in the engagement (allow other stakeholders time to talk in information sessions).	M/L	L	Inform, consult Outside of the sensitive receivers identified, this group should continue to be engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through council. Ideally, communications to this group would make use of the Project web page/site.
Community organisations	Apex, Rotary, Lions, Animal	- Property impacts - Visual impacts	Identify interests and opportunities to	M	M	Inform, consult Outside of the

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Stakeholder group	Inclusions/details	Interests	Objectives and opportunities	Influence ³ (High/Med/Low)	Impact ⁴ (H/M/L)	Engagement approach
	shelters, environmental groups, CWA, local sporting organisations, tourism groups	• Access changes • Environmental changes • Commercial agreements • Community benefits • Governance and ownership of the developing entity • Impacts on agricultural outputs.	partner and contribute • Look for opportunities to address concerns in the CWA regarding impacts on productive land.			sensitive receivers identified, this group should continue to be engaged through broader communications during the EIS phase through a community open drop-in session, a public notice (print) and communications through council. Ideally, communications to this group would make use of the Project web page/site.

5.1.1. Scoping phase engagement

FRV commenced community engagement and consultation for the Scoping Report in July of 2023. The communication and engagement activities applied a broad approach, and developed stakeholder lists to assess the current state of community sentiment towards the Project while working through queries and concerns and identifying potential community benefit opportunities.

Non-associated receivers were identified through desktop assessment and were contacted via posted mail, resulting in six posted letters to residents within 5km of the site. A further two non-associated receivers, who rent property on the host landowners' land, were identified. Two phone calls were made to these receivers (R8, R9) and PDF versions of the posted letter correspondence were sent to them via email.

The posted mail, phone calls and emails introduced the Project, provided community information drop-in session details, invited discussions surrounding concerns or opportunities, and outlined steps on how to provide feedback. An additional 13 electronic direct mail (EDMs) were sent out to identified community members and organisations introducing the Project, providing details on the information sessions, and providing details on how to provide feedback.

A website was established that contained Project information, a map, frequently asked questions (FAQ) and details of how to contact the Project team. A community feedback survey, which included social and landscape value questions, was also available on the website and through printed material available at the community information session.

In-person meetings were facilitated with representatives from the Armidale Regional Council (ARC), Regional Development Australia (RDA) and the Hillgrove Progress Association. Email correspondence was sent to the Member for Armidale, the Member for New England, Newara Aboriginal Corporation, and Armidale Local Aboriginal Land Council (LALC), TAFE Armidale, University of New England, New England North West NSW Business Chamber, Hillgrove Progress Association and Community Power Agency.

A community information drop-in session was held on Tuesday 1st August 2023 at Armidale Rydges, for which eight people attended. Materials in the form of newsletters, frequently asked questions and fact sheets were available at the session. The drop-in session was advertised through the Armidale Express newspaper, through five posters advertising the session posted around Armidale on various community information boards, and within correspondence shared with the stakeholders outlined above.

During the scoping phase of the Armidale East BESS consultation, the community feedback captured a sense of the perceived issues and opportunities of the Project. The main issues and opportunities for ongoing discussion and consideration during the EIS included:

- The naming of Pint Pot BESS, as a non-associated sensitive receiver property's name is titled Pint Pot and they felt it may cause some confusion in the community. FRV committed to changing the title of the development to Armidale East BESS as a result.
- Professional consultees and Armidale Regional Council raised concerns about the procurement of a localised professional workforce due to skills shortages.
- Professional consultees and Armidale Regional Council raised concerns about the accommodation and housing shortages in the Armidale region.

These issues and opportunities were explored further during the EIS engagement activities and the responses and adaptations applied to the Project are outlined in the section below.

Both FRV and the NSW Government recognise that a significant level of consultation, engagement and information sharing was required during the EIS phase and beyond. As a result, the proponent delivered a robust communications and engagement program that represented a genuine investment in engagement and consultation with the local community.

5.1.2. EIS engagement

Overview of activities

Community consultation for the EIS phase of the Project commenced in February 2024. The EIS period included a range of engagement activities aimed at expanding awareness of the Project, responding to concerns, working through issues raised by the community and wider stakeholders, and capturing opportunities. The Applicant committed to developing detailed answers in response to local enquiries and created in-depth collateral items to accompany engagement activities.

A wide range of communication and engagement activities were applied. The engagement program sought to engage with the wider Armidale community while continuing the conversation and issue-specific discussions with sensitive receivers and targeted stakeholders. The types of activities included:

- Two drop-in information sessions
- Direct communications (letters, emails, phone calls)
- Newspaper advertisements
- Public notice board advertising
- Use of online communication tools; website and survey
- Presentations, meetings and briefings.

The focus and timing of these activities are summarised overleaf.

A confidential consultation log detailing individual consultation efforts and with whom has been provided the Department of Planning, Housing and Infrastructure. It should be noted that for privacy reasons these documents are not for public exhibition but have been included to assist the determining authority with its assessment of the Project on its merits..



Figure 5-1 Community information drop-in session at Kent & Hughes Community House

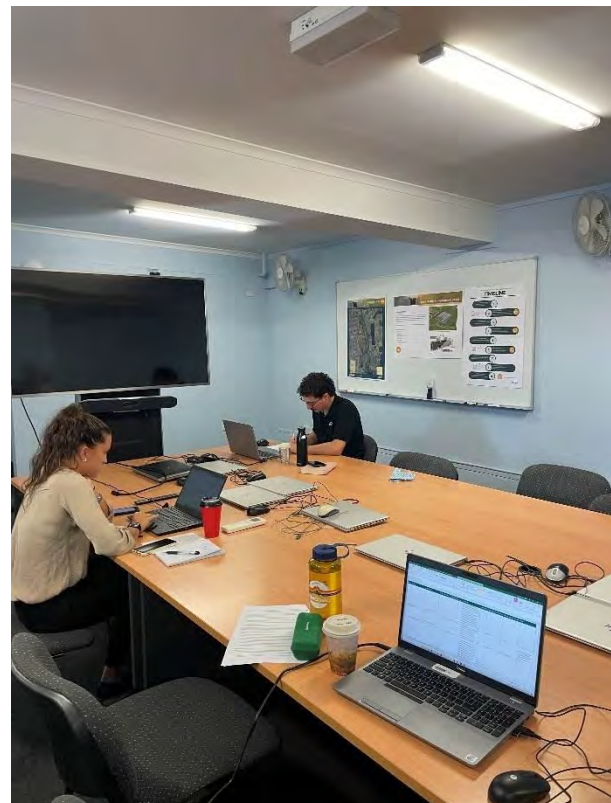


Figure 5-2 Community information drop-in session at Armidale Town Hall Digital Learning Centre

Table 5-2 Overview of EIS phase engagement activities

Activity	Outcome	Delivery timing and reach
Information sessions		
Drop-in information session Kent & Hughes Community House	Explained the Project, outlined the EIS process, discussed issues/opportunities, and engaged with local stakeholders. Materials were produced in large format (i.e., indicative site map, examples of BESS components and the NSW SSD process), along with take-away materials such as Project fact sheets, newsletter and FAQ documents. The Project team completed feedback forms capturing discussions and sentiment, and people were also encouraged to complete the online survey by scanning a QR code to access it and then complete it in their own time.	- Tuesday 2nd April 2024 1:30 pm – 6.30 pm - Reach: Three attendees and face-to-face conversations.
Drop-in information session Armidale Town Hall Digital Learning Centre	Explained the Project, outlined the EIS process, discussed issues/opportunities, and engaged with local stakeholders. Materials were produced in large format (i.e., indicative site map, examples of BESS components and the NSW SSD process), along with take-away materials such as Project fact sheets, newsletter and FAQ documents. The Project team completed feedback forms capturing discussions and sentiment, and people were also encouraged to complete the online survey by scanning a QR code to access it and then complete it in their own time.	- Wednesday 3rd April 2024 8:00 am – 1:00 pm - Reach: Three attendees and face-to-face conversations.
Near neighbour consultation		

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Activity	Outcome	Delivery timing and reach
Letter (postal delivery) to residents within 5 km of the site: Receivers R1 – R6 (See Appendix C.2, C.3, C.4 and C.5)	Provided an update on the Project, overview of EIS process, highlighted opportunities to learn more, provided information on how to find the Project website, responded to key issues and highlighted benefit-sharing opportunities.	- Distribution dates: > Tuesday 19th March 2024 > Friday 31st January 2025 > Friday 20 February 2026 > Monday 9 March 2026 (R6 only) - Reach: all non-associated receivers
In-person meetings at residences	In-person meetings at interested non-associated receiver properties were facilitated to provide updated Project information, outcomes of specialist assessments and provide answers to any questions raised.	- Wednesday 25 February 2026. - Two (2) property visits.
Targeted phone calls/liaison	Phone calls were made to support discussions around coordinating direct face-to-face briefings as well as organising SIA-focused interviews, providing an overview of the Project and answering any questions raised.	Number of calls made: 10.
Property visits for visual assessments	The Landscape and Visual Impact Assessment (LVIA) conducted for the Project assessed eight properties (one associated, seven non-associated) within 4km of the Project using desktop tools, and initial assessments were undertaken. Based on these initial assessments, all receivers were identified as having a very low visual impact rating (i.e. not visible) from their property. As a result, no detailed assessments were required from neighbouring, and no property visits were facilitated with detailed assessment being completed from public viewpoints only. See the Section 6.6.3 (LVIA report) for more information.	Zero (0) property visit required
Traditional media		

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Activity	Outcome	Delivery timing and reach
Public notice in the Armidale Express newspaper (See Appendix C.6)	A public notice (was placed in the local Armidale Express newspaper ahead of the information sessions at the Kent & Hughes Community Centre. The public notice explained the premise of the Project and: • promoted the information sessions • encouraged people to visit the Project website to read the FAQ, and complete the feedback survey • encourage people to set up a meeting with the Project team.	• Friday 22nd March 2024.
Public notice on Community Information Noticeboard x 2 Armidale library noticeboard Town centre noticeboard (See Appendix C.7, C.8)	Public notices were placed on public noticeboards ahead of the information sessions at the Kent & Hughes Community Centre. The public notice explained the premise of the Project and: • promoted the information sessions • encouraged people to visit the Project website to read the FAQ, and complete the feedback survey • encouraged people to set up a meeting with the Project team.	• Monday 1st – Friday 5th April 2024.
Frequently Asked Questions Sheet (See Appendix C.9)	A FAQ sheet was developed to answer common BESS and SSD-related questions. The fact sheet was available at community information drop-in sessions and on the Project website. The FAQ sheet was updated throughout engagement activities to include concerns or opportunities raised to ensure all information included was relevant and timely.	• Throughout the EIS engagement period.
Project fact sheet (See Appendix C.10)	A fact sheet was developed to provide an overview of the Project and the NSW SSD process. The fact sheet was available at community pop-up sessions, provided at briefings, and on the Project website. The fact sheet was updated throughout	• Throughout the EIS engagement period.

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Activity	Outcome	Delivery timing and reach
	engagement activities to include updates to Project details to ensure all information included was relevant and timely.	
Project newsletter (See Appendix C.11 and C.12)	Project newsletters were developed to provide updates on the Project as it progressed. The newsletters are available on the Project website. They were also sent to residences as part of the postal delivery letters for Project updates.	- January 2025 - February 2026
Digital tools		
Website https://armidaleeastbess.com.au/	Provided a central location for updates, information, online survey, and a detailed list of FAWQs. The website has been available throughout Scoping and EIS and will remain a source of information for stakeholders as the Project progresses.	Website reach: 11,508 page views in 2025 1,889 page views from Jan to March 20th, 2026.
Online Survey (See Appendix. C.13)	The online survey aimed to capture thoughts on the Project in a way that informed the SIA and follow-up engagement discussions. The survey was promoted through posted letters, emails, information sessions, stakeholder briefings, newspaper advertisements, public notices, and phone calls.	The survey was live for 9.5 weeks between 7 March 2024 and 13 May 2024. Results from the survey included: 22 surveys completed 16 complete surveys 6 incomplete surveys.
Electronic Direct Mail (EDM) (See Appendix. C.14, C.15 and Appendix C.16)	EDM was sent to recipients who signed up to the email distribution list. EDMs were circulated providing updates on the community information sessions and the Project's progress.	Sent March 2024, February 2025 and February 2026.

Activity	Outcome	Delivery timing and reach
		Delivered to 20 recipients (60 pieces of correspondence total).
Stakeholder group presentations/briefings		
Armidale Regional Council (ARC)	FRV and NGH undertook ongoing consultation with ARC between March 2024 and February 2026 to inform the Project and EIS. Early engagement focused on providing Project updates, outlining the EIS process, identifying key issues, and seeking Council feedback on benefit sharing and local industry participation. ARC representatives also contributed to the Social Impact Assessment (Chapter 6.2). During 2024 and 2025, discussions addressed the Council-led Community Benefit Scheme, water supply, and access and subdivision arrangements. Council initially declined a Voluntary Planning Agreement (VPA), raised concerns regarding regional water availability, and confirmed it would not supply water to REZ projects within the LGA. Council expressed support for the proposed access road design, subdivision approach, and management of environmental impacts associated with Bayley Park Road. Further consultation in 2026 progressed VPA negotiations, with Council accepting the general terms of the agreement. Council will provide a template to guide drafting, with both parties agreeing to a collaborative legal review process. The VPA is proposed to include establishment of a Future Fund as a key public benefit, with flexibility retained in the allocation of funds. An agreement in principle has been reached at a rate of \$150/MWh per year of operation of the Project. Council outlined a governance framework for the Future Fund, comprising an independent board responsible for investment decisions. Contributions are proposed to be invested, with a portion of returns distributed annually for community projects and the remainder retained.	• Direct briefing held with the GM, Chief Officer Planning and Activation • Face-to-face meeting held with ARC on Wednesday 3 April 2024 • SIA interview with ARC representatives on Wednesday 3 April 2024 • Face-to-face meeting held with ARC on 26 February 2025 • Face-to-face meeting held with ARC on 24 February 2026 (FRV representatives only) • Ongoing emails and phone calls throughout the EIS engagement period.

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Activity	Outcome	Delivery timing and reach
Armidale Mayor	FRV and NGH held a direct meeting with the Mayor of Armidale, in consultation with ARC. The discussions focused on providing an update on the Project, an outline of the EIS process, a discussion of key issues and opportunities, and asking for feedback and expectations regarding benefit sharing. The Mayor was also interviewed within the SIA (Section 6.12).	- Face-to-face meeting held in conjunction with ARC meeting on Wednesday 3 April 2024 - SIA interview with Armidale Mayor representatives on Wednesday 3 April 2024.
Armidale Local Aboriginal Land Council (LALC)	The Project team provided an update on the Project, outlined the EIS process, information on benefit sharing, and details on how to complete the survey and provide feedback and requested a meeting for a verbal briefing. Physical offices were visited in an attempt to arrange a meeting, with no success.	- Update provided on Thursday 21 March 2024 - Office visits attempted Thursday 4 April 2024 - Ongoing emails/phone calls attempted throughout EIS engagement period.
<u>Educational Institutions:</u> TAFE NSW – Armidale University of New England (UNE)	The Project team provided an update on the Project, outlined the EIS process, discussed information on benefit sharing, provided details on how to complete the survey and provide feedback. Representatives of UNE Smart Business Incubator were interviewed within the SIA (Section 6.12).	- Update provided on Thursday 21 March 2024 - SIA interview with UNE Smart Business Incubator held on Thursday 4 April 2024 - Ongoing EDM updates throughout the EIS engagement period.
<u>Local Community Groups and/or Interest Groups:</u> Armidale-New England Probus Club Rotary Club of Armidale – AM Rotary Club of Armidale Country Women's Association	The Project team provided an update on the Project, outlined the EIS process, provided information on benefit sharing, and details on how to complete the survey and provide feedback, and requested a meeting for a verbal briefing. Sustainable Living Armidale, Community Power Agency, Hillgrove Progress Association, and BackTrack Youth Works were interviewed for SIA (Section 6.12).	- Update provided on Thursday 21 March 2024 - Updated provided on 4 February 2025 - SIA interview with Sustainable Living Armidale on Thursday 4 April 2024.

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Activity	Outcome	Delivery timing and reach
Armidale Armidale Central Rotary Lions Club Armidale Lions Club Armidale Dumaresq Sustainable Living Armidale Hillgrove Progress Association Community Power Agency BackTrack Youth Works		• SIA interview with Hillgrove Progress Association on Tuesday 2 April 2024 • SIA interview with Community Power Agency on Thursday 4 April 2024 • SIA interview with BackTrack Youth Works on Tuesday 9 April 2024. • Ongoing EDM updates throughout the EIS engagement period.
<u>Professional consultees</u> NSW Farmers Armidale Chapter Regional Development Australia Northern Inland Business New England Business NSW - Armidale Chapter Business NSW – North West Joblink Plus	The Project team provided an update on the Project, outlined the EIS process, information on benefit sharing, and details on how to complete the survey and provide feedback, and requested a meeting for a verbal briefing. Regional Development Australian Northern Inland and Business NSW North West were interviewed for SIA (Section 6.12).	• Update provided on Thursday 21 March 2024 • Updated provided on 4 February 2025 • SIA interview with Sustainable Living Armidale on Tuesday 2 April 2024 • SIA interview with Joblink Plus on Tuesday 2 April 2024 • SIA interview with Business NSW North West on Wednesday 3 April 2024. • Ongoing EDM updates throughout the EIS engagement period.
State MP, Member for Armidale	The Project team provided a brief update on the Project and offered to brief Mr Adam Marshall MP in person. Supporting information was provided by email to the electoral office.	• Update provided on Thursday 21 March 2024 • Update provided on 4 February 2025

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Activity	Outcome	Delivery timing and reach
Federal MP, Member for New England	The Project team provided a brief update on the Project and offered to brief the Hon. Barnaby Joyce MP over Microsoft teams. Invitation accepted, with a meeting scheduled for the 11 th of April 2024. The meeting was postponed by MP, with an offer to reschedule and provide a briefing still outstanding.	• Update provided on Thursday 21 March 2024 • • Meeting scheduled for Thursday 11 April 2024 (postponed until further notice) • Update provided on 4 February 2025 • Update provided on 19 February 2026.
EnergyCo	The Applicant has been in contact to provide project information and help shaping their latest cumulative impact assessment report in the REZ: https://caportal.com.au/energyco/new-england-rez/	• Online meeting held in August 2024, with subsequent follow ups.

5.2. Community views

5.2.1. Overall sentiment

The engagement activities undertaken throughout the EIS phase demonstrated that there is a low to medium concern regarding the Project, which is balanced by a high level of support and encouragement from the wider community – demonstrated through the survey and through discussions held at community drop-in information sessions - particularly when considering the benefits of electricity grid stabilisation.

The proposed Armidale East BESS is located within the NE REZ and is one of seven BESS developments, two wind farm developments, four solar farm development, and one pumped hydro development moving through the state-significant development (SSD) pathway within the Armidale LGA (at the time of EIS engagement commencement). Resultantly, the community has some familiarity with the NSW SSD process and the energy industry as a whole.

The location of the proposed Armidale East BESS has produced minimal concern from the community to date, likely due to its position immediately adjacent to the existing 330kV transmission line, the way it is located away from public areas and other public viewpoints, and the benefits it would bring when considered within the context of other large-scale developments within the region.

The concerns that were expressed by stakeholders were primarily focused on the following topics:

- Concern regarding potential electromagnetic fields (raised by one community member)
- Concern regarding trade block supply of replacement component parts if sourced overseas (raised by one community member)
- Concern regarding the cumulative impact of the development on the wider community from location within the REZ (raised by ARC)
- Concern about waste management (raised by ARC, survey responders and within the SIA)
- Concern about the risks of fire, battery explosions or bushfires (raised by survey responders and within the SIA)
- Concern about strain to workforce due to skills gap (raised within the SIA)
- Concern regarding local housing supply and limited accommodation available (considered one of the major obstacles for the community).

5.2.2. Online survey feedback

Communication tools such as posted letters, electronic emails, public notices, two face-to-face information sessions, SIA and stakeholder briefings resulted in 16 complete responses and six incomplete responses to the online survey for the SIA (22 total). Of the responses received, ten strongly support the Project, five support the Project, one somewhat supports the Project, one was neutral, and one opposed the Project (see Figure 5-3).

Many respondents (14) reported interest in the Project due to the potential positive impacts it may bring to the area, while six reported interest in expanding their knowledge of the Project itself. When considering concerns, respondents indicated that impacts on the use of local roads and effects on natural areas or habitats were of concern. Impacts on visual and noise impacts on neighbours were also considered important.

When considering the Project, 13 respondents reported they were concerned or very concerned about waste management procedures, eleven were concerned or very concerned about its potential impact on waterways, eleven were concerned or very concerned about fire management practices, and eight were concerned in relation to cultural heritage.

Eleven respondents were concerned about the equitable distribution of benefits, eleven were concerned about the potential for diversification of land use/income streams, ten were concerned about the community benefit opportunities driven by the Project, and nine reported concerns relating to the reduction of greenhouse gas emissions and combatting climate change. Cultural heritage, engagement with near neighbours, securing employment or business from the Project, and impacts to property values were equally important to respondents.

When considering community benefit initiatives, respondents nominated public facilities such as swimming pools, playgrounds, and cycleways through Armidale city, maintenance of local areas such as the rail trail and creek lands, sponsorship of events (such as music and art festivals), and the investment of skills and training.

A detailed breakdown of the survey findings, including further data graphs, is included in the SIA in Section 6.12.

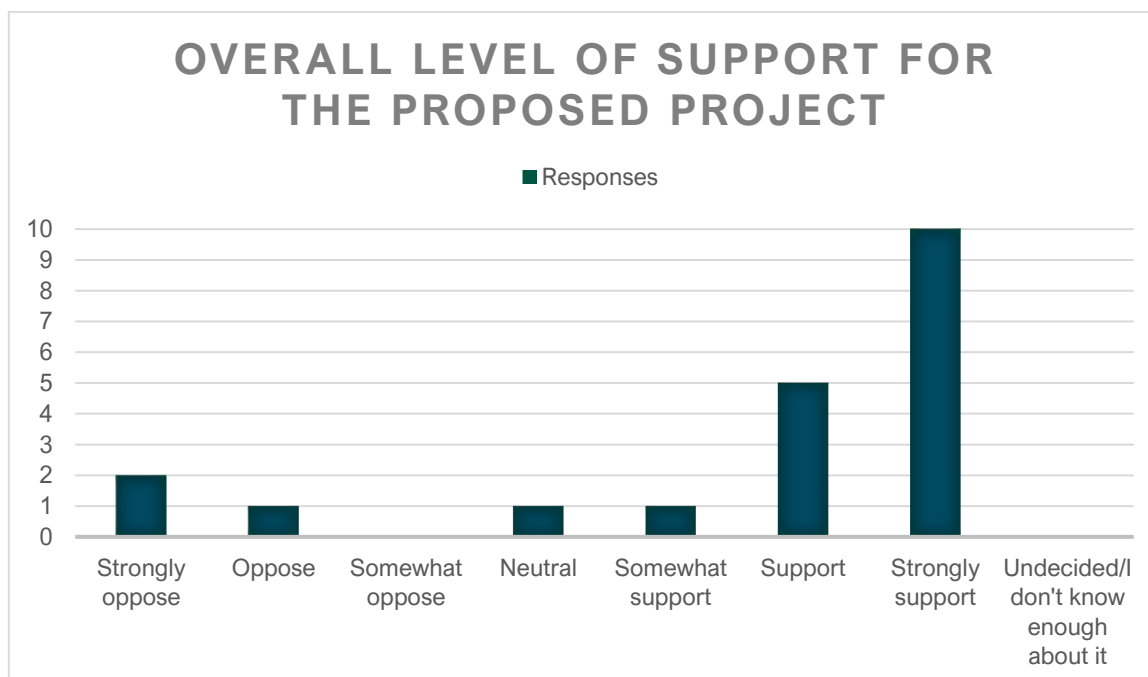


Figure 5-3 Overall level of support for the proposed Project

5.2.3. Summary of key issues and opportunities

The Project team responded to community queries and views on the Project throughout the entire EIS engagement period. These issues varied across topics, and details regarding these concerns can be found below:

Table 5-3 Key community Project issues and opportunities

Topic	Strategic category (as per EIS requirement)	Details
Location of Project	Strategic context of the Project	Many stakeholders who attended the community information sessions, participated in SIA interviews or received a briefing note the appropriateness of the location of the BESS. Its location, immediately adjacent to the existing 330kV power line, and tucked away from public viewing points, was viewed favourably.
Potential noise impacts	Economic, environmental, and social impacts of the Project	Two community information session attendees raised questions regarding the noise emitted from BESS developments during operation. The Project team explained the process of the noise assessments, with the attendees flagging they had no concerns with this particular development due to its remote location. At the time of the community engagement sessions, the noise assessment had not yet been completed. Once complete, the results were analysed and the only exceedance identified was related with the associated landholder. These exceedances have been appropriately communicated to the landowner and will be addressed in consultation with him if it's required by the project
Fire management	Economic, environmental, and social impacts of the Project	Several survey respondents and SIA interviewees noted fire management as a concern when considering the Project. Concerns included fire produced from the BESS itself (in the event it explodes or encounters any other issues resulting in fire) as well as bushfire impacts within the region (i.e. if a bushfire ran through the area into the Development Site). Fire management was noted as being comprehensively addressed within the EIS and will be further detailed through post-approval management strategies. FRV reinforced its commitment with all relevant legislation, applicable standards, and any conditions of consent relating to fire safety and bushfire management, including any requirements of relevant authorities.

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Topic	Strategic category (as per EIS requirement)	Details
Waste management	Economic, environmental, and social impacts of the Project	Several survey respondents, SIA interviewees, and representatives of the ARC flagged waste management as a concern when considering the Project. Appropriate and considered disposal of waste was considered a high priority among these stakeholders, with goals of little to no waste impact (through inappropriate disposal) from the construction of the BESS identified. The Project team discussed waste disposal with ARC, noting their preferences for waste facilities, and discussed the requirement for waste management strategies as part of the post-approval process. Some alternative waste management options have been included in Section 7.1 following consultation with ARC.
Local housing supply	Economic, environmental, and social impacts of the Project	Feedback at the community drop-in sessions, meetings with ARC and SIA interviews all at some point focused on housing constraints in the local area. Discussions focused on the influx of accommodation requirements that will be seen due to Armidale's location within the New England REZ, and what this may do to the local tourism industry. ARC indicated a preference for construction workers to be housed outside of Armidale (i.e. no motels/hotels/existing accommodation used in town) to prevent the loss of accommodation for visitors to the region. The Project team discussed the requirement for accommodation strategies as part of the post-approval process, and such information would help to inform that.
Local employment	Economic, environmental, and social impacts of the Project	Feedback received through the online survey and throughout SIA interviews indicated a level of concern for the lack of local employment opportunities related to the Project. Skills shortages, particularly in relation to trades training, have been identified as being an issue locally, with stakeholders feeling that there are few opportunities for local workforces to be involved in the development of the Project, or it would draw from an already limited pool of skilled workers. Stakeholders noted that skills required for such developments would be very difficult to fill from locals, and resultantly, external workers will need to be sourced and brought in to work on the Project.
Local training opportunities	Economic, environmental, and	Related to concerns raised relating to skills shortages, training opportunities to support REZ development have been highlighted as an opportunity related to the Project. Being home to the University of New England (UNE), Technical and Further Education (TAFE) and The Armidale School (TAS), educational facilities are available locally for such skills

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Topic	Strategic category (as per EIS requirement)	Details
	social impacts of the Project	training, with trades training featuring amongst those. Despite this, the adequacy of trades training has been highlighted as an issue when considering the emerging industry in the area. Partnerships between Proponents and educational/skills providers has been raised as an area of opportunity by several stakeholders and SIA interviewees.
Foreign ownership and energy supply	Issues outside the Project's scope	One attendee of the community drop-in session raised concerns relating to the energy that is stored within the BESS being sent overseas as a result of foreign ownership. The Project team explained that the energy generated and/or stored within the National Energy Market (NEM) grid remains within Australia, within the NEM grid itself.
Replacement of BESS components/trade blocks	Economic, environmental, and social impacts of the Project	One attendee of the community drop-in session raised concerns surrounding the supply of components that compromise the BESS, should they be sourced from overseas countries. The concerns were with the access of replacement components should trade blocks be implemented between such countries and Australia.
Cumulative impacts on the community within the New England REZ	Economic, environmental, and social impacts of the Project	Discussions with the Mayor of Armidale and ARC representatives focused on the cumulative impacts that the community more broadly are experiencing due to the New England REZ. Discussions regarding community benefits (in the form of a VPA) were facilitated, stakeholders stressed the importance of these aspects being thoughtfully considered to compensate for the growth the community will experience. Accommodation and skills shortages were also discussed concerning cumulative impact within the REZ.
Community benefit scheme (CBS)	Economic, environmental, and social impacts of the Project	Community benefit initiatives were one of the most topical items discussed during consultation and engagement activities. Stakeholders, survey responders and interviewees within the SIA flagged the importance of the community having the ability to inform how the funds supplied through the community benefit scheme (CBS) would be spent in the local community. Local public facilities (such as swimming pools and cycleways) and skills and training support were explored as appropriate CBS ideas by several stakeholders.

Topic	Strategic category (as per EIS requirement)	Details
		Discussions were facilitated with ARC surrounding their expectations of the amount that would comprise the voluntary planning agreement (VPA), which has been requested in place of a broader CBS.
Road and transport Impacts	Economic, environmental, and social impacts of the Project	Several survey responders flagged Project impacts to road and transport (through traffic or other) because of the Project as a concern. The Project team discussed the requirement for traffic management strategies as part of the EIS and post-approval process and will work closely with associated agencies to reduce impact on the local area during the construction and operation phases of the Project.

5.2.4. Future community engagement

As the Project progresses, the following engagement is planned for the Project. It is commensurate with the findings of the engagement carried out during the preparation of this EIS. Please refer to the SIA (see Chapter 6.2) for further engagement needs, impacts and benefits.

Table 5-4 Planned future engagement activities

	Construction	Operation
Stakeholders	Non-associated sensitive receivers, wider Armidale community, Armidale Regional Council, Armidale LALC, UNE, TAFE Armidale, local First Nations community, Member for Armidale, Member for New England.	
Key actions	FRV to engage with near neighbours (non-associated and non-associated rental) and the wider Armidale community about planned traffic arrangements, construction activities and impact mitigations.	- FRV to continue to engage with near neighbours (non-associated and non-associated rental) with key details regarding operation details of the site. - FRV to continue to engage with the local community and key community groups to highlight key milestones during operation.

	Construction	Operation
	- FRV to continue to attempt engagement with the LALC and other identified First Nations groups regarding local industry participation opportunities. - FRV to provide updates via letters (up to 5km radius), email updates and public notices regarding construction activities, employment opportunities and expected impacts (traffic, noise, dust). - Delivery of updates to interested stakeholder groups such as non-associated sensitive receivers, Armidale Regional Council, Armidale LALC, and local state and federal representatives. Updates to be provided to stakeholders who have opted into future communications. - Continue engaging with Council for reaching benefit-sharing arrangements as per the Benefit Sharing Guidelines (refer Section 2.6).	- FRV to engage via email and posted letters to residents within a 5 km radius should any maintenance work be carried out during operation and mitigate any impacts that may arise. - Continue to foster strong relationships with the community via the establishment of community partnerships and industry participation. - Continue to establish FRV as an active, responsible member of the wider community. - Proactively communicate the decommissioning strategy (including damaged components, where relevant) to interested stakeholder groups and the wider community.
Consistency with 'Undertaking Engagement Guidelines for State Significant Projects' (DPHI, 2024a)	- Proactive, transparent, and collaborative engagement, spanning from informing on construction activities to involving and collaborating through benefit-sharing opportunities and other community partnership opportunities. - FRV will also continue to gather ideas from the local community regarding opportunities to work with local businesses and minimise construction impacts.	- FRV will continue to actively engage during the operation and decommissioning stage of the Project in line with the conditions of approval. - FRV will also continue to foster strong relationships with key stakeholders and further liaise with Armidale Regional Council regarding the implementation of benefit sharing within the local community through the requested VPA program.
Monitoring of effectiveness for	FRV will continue to liaise with stakeholders and monitor community sentiment to resolve key issues and opportunities.	FRV will continue to proactively engage through the operation and decommissioning stage to ensure the local community and

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	Construction	Operation
community participation	• Explain to stakeholders at post-approval how community views were considered when reaching decisions and how they helped to inform the Project. • FRV will utilise local knowledge and expertise with suppliers and contractors where possible. • FRV will ensure they use appropriate engagement techniques when targeting specific groups, for example, First Nations where engagement will be planned and undertaken by Aboriginal Engagement specialists. • A website will continue to update information on the progress of the Project, and to make information easily accessible to stakeholders.	interested stakeholder groups are well-informed on key elements of the Project. • Proactive engagement will make it easy for the community to access information. • A website will continue to facilitate information on the Project, to make information easily accessible for stakeholders and community members.

5.2.5. Aboriginal community consultation

Consultation with First Nations people has been undertaken and documented in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a). Two avenues for engagement with the local First Nations community were adopted:

1. Engagement through the Engagement Action Plan; Traditional Owners – First Nations community stakeholders were identified as Representative Aboriginal Parties (RAPs), and the Local Aboriginal Land Council (LALC). The engagement sought to:
 - a. Look for opportunities to contribute to the local story of country and contribute to the local First Nations community.
 - b. Involve local First Nations community organisations in Community Benefit Sharing initiatives.

The Armidale LALC received communications relating to the Project throughout both the Scoping and EIS engagement activities, and face-to-face meetings were requested by the Project team.

2. Formal consultation in relation to potential to impact Aboriginal cultural heritage.

In accordance with Step 4.1.2 of the *Consultation Requirements*, NGH contacted a range of organisations on 10 July 2023 to request potential Registered Aboriginal Parties (RAPs) for consultation regarding the Project. The following organisations were contacted:

- NSW Heritage
- Armidale Local Aboriginal Land Council (Armidale LALC)
- Aboriginal Land Rights Act 1983 – ALRA
- National Native Title Tribunal (NNTT)
- Native Title Services Corporation Limited (NTS Corp)
- Northern Tablelands Local Land Services
- Armidale Regional Council Local Council.

In addition, in accordance with Step 4.1.3 of the *Consultation Requirements*, an advertisement was placed in the *Armidale Express* on 28 July 2023 requesting expressions of interest for consultation regarding the Project. This process resulted in approximately 50 potential RAPs for the Project. These potential RAPs were contacted with an invitation to consult on the Project on 20 – 21 July 2023.

- After Stage 1 of consultation, 15 Aboriginal groups registered their interest.
- A copy of the proposed survey and assessment methodology, and a request for cultural knowledge was communicated to the RAPs on 13 August 2023, with a minimum of 28 days provided for a response to the document. Responses were received from a number of parties, some of which were requested to be kept confidential.
- Archaeological surveys were conducted in September 2023, and September 2024.
- A draft copy of the Aboriginal Cultural Heritage Assessment (ACHA) report was sent to the RAPs for a 28-day review period on 5 January 2024. 4 RAPs responded.
- Updates to the draft ACHA were required following a change to the design and footprint of the Project, and the updated draft report was sent to the RAPs for a 28-day review period on 16 December 2024. Four RAPs responded, and the ACHA was updated to reflect their responses
- Further updates to the ACHA were required to include the proposed culvert work along Bayley Park Road. The updated draft report was sent to the RAPs for a 28-day review period on 11 June 2025. Five RAPs responded, and the ACHA was updated to reflect their responses.
- Further updates to the ACHA were required to include the proposed Waterfall Way road upgrades works. The updated draft report was sent to the RAPs for a 28-day review period on 9 March 2026. One RAP responded, and the ACHA was finalised and is appended to this EIS, Appendix E.2.

5.3. Agency engagement

As part of preparing the EIS for the SSD development application, the SEARs require that the relevant State or Government authorities, and infrastructure and service providers be consulted. Table 5-5 summarises the method of consultation. The SEARs, including a cross-reference table showing where each specific matter is provided in the EIS, is included in Appendix A.

Table 5-5 Agency consultation summary

Issue raised by agency	Detail
Department of Planning, Housing and Infrastructure	
Project update	A pre-lodgement meeting with DPPI occurred in November 2025. The purpose of the meeting was to: • Provide updates from the Scoping Report and our last meeting • Provide any specialist assessment highlights • Discuss the options analysis and layout • Provide an update on the consultation outcomes with the public and organisations/agencies • Discuss the expiry of the SEARs.
SEARs extension	On 11 November 2025, the Applicant officially requested an extension to the SEARs, citing the requirements to: • Awaiting confirmation of their successful tender in the Long-term Energy Services Agreement • Completion of the Accommodation and Employment Strategy • Ongoing confirmation of VPA agreement and consent to lodge from Council. A six-month SEARs extension was officially approved in November 2025.
EIS lodgement and SEARs extension	The draft EIS was formally lodged on the Major Projects Portal in March 2026. An official request for information was subsequently issued by the Department on 6 May 2026. Due to timing issues to address the information request, a consequent SEARs extension was requested. A three-month SEARs extension was officially approved in June 2026.
Fire and Rescue NSW	
• Project update • Seeking comment on draft emergency access route	Letter sent informing the agency of the status of the Project on 6 March 2024 providing direct Project team contacts in relation to the detailed assessment and seeking comment on draft emergency access route.

Issue raised by agency	Detail
	Receipt was acknowledged on 12 March 2024 with phone call. FRNSW had no comment on proposed emergency access route noting it was a logical choice, and advised specific comment would be provided in the Final EIS. Correspondence continued due to potential changes to emergency access on 14 June 2025. FRNSW responded on 18 June 2024, advising that emergency access is required to be formalised and confirmed ability to utilise access arrangements as per the emergency management plan. Query raised by NGH to FRNSW on 2 December 2024 on removal of second access road, in which response was provided, along with confirmation there was no flood hazard.
NSW Rural Fire Service	
- Project update - Seeking comment on draft emergency access route	Letter sent informing the agency of the status of the Project on 6 March 2024 providing direct Project team contacts in relation to the detailed assessment and seeking comment on draft emergency access route. Receipt was acknowledged on 19 March 2024. Confirmed that emergency access is suitable and requested ongoing bushfire management during operation. Email received 20 March 2024 confirming management of access route during operations. Advised comment on proposed emergency access route and advised specific comment would be provided in the Final EIS. Query raised by NGH to NSWRFs 2 December 2024 on removal of second access road, along with confirmation there was no flood hazard. Response was received 3 December 2024, noting assurance that the main access remains accessible.
Armidale Regional Council	
Project update, access requirements, water supply, waste facilities	Letter sent providing an update on the status of the Project on 19 March 2024 and request for meeting to discuss VPA and Bayley Park Road upgrades. Receipt was acknowledged on 21 March 2024. FRV and NGH met with members of the ARC on 3 April 2024 (see 5.1.6) and provided update on Project, discussed road widening widths, water, accommodation, and the Council's VPA expectations. Email sent on 17 April 2024 following on from meeting on 3 April 2024 requesting advice on minimum road widening widths and tree clearance. Meeting was facilitated with NGH, FRV and Amber on 23 April 2024. The proposed emergency access road was confirmed to not be Crown land via email on 3 May 2024. Correspondence on 17 March 2025 seeking water source for construction. Response received 7 April 2025, detailing concerns for the Armidale LGA water supply due to number of projects within the REZ. Council will be adopting a

Issue raised by agency	Detail
	policy to not supply town water to any REZ projects (refer Sections 3.5.2 and 6.8.3). An online meeting was held on 28 November 2025, to discuss Project updates and the new Project capacity and layout. Waste and use of Council facilities was also discussed. ARC noted that the regional waste facilities would not have capacity to accept construction waste from the Project. A face-to-face meeting between the Applicant and ARC was held on 24 February 2026 in the Council offices. The Applicant provided updates on timing of lodgement, proposed construction hours (up to 5pm on a Saturday), traffic and road upgrade updates, and a plan for waste and water. ARC was satisfied with the outcomes of what was discussed and noted no objection to extended construction hours following acceptance from the associated receiver (Refer Section 3.5.2).
Traffic assessment	17 April 2024; discussion between FRV, NGH, Amber traffic consultant and Council. Discussed vegetation impacts, road upgrades, site access and haulage to site. Council indicated general support of minimal clearing within road reserve with road upgrades expected to meet Council's general road requirements. High-level strategic plans are provided within the Traffic Impact Assessment (Appendix E.3). Council indicated general support of proposed emergency access. Concerns about bridge of the railway line at intersection of Dangar St and Kentucky St on Waterfall Way. Concerns raised about site inaccessibility during periods of rainfall. Support for bus services for worker transport. 24 February 2026: Update provided during a face-to-face meeting regarding the additional assessment of a route from the Port of Brisbane and the final route assessment within the LGA. Advice was sought regarding approval from Council regarding removal of any signage along the OSOM route. No response was provided by ARC, or any other relevant Council. The Applicant will address approval through the permit application process, as requested by TfNSW.
VPA and other Project commitments	An initial offer for VPA was sent to Council 5 September 2024. Response was received 11 September 2024, noting the offer is not in the public interest. A follow up Teams meeting was held on 26 September, to discuss the terms of the VPA. Project update provided with updated VPA offer and request to meet face-to-face, following publication of DPHI Benefit Sharing Guideline on 30 January 2025. Follow up email sent on 6 February 2025. Meeting facilitated with ARC on 24 February 2025. Discussed VPA (offer aligned with DPHI), with ARC indicating that the VPA are higher based on agreements made with other BESS developers in the region, Discussion facilitated regarding subdivision, with no issues raised.

Issue raised by agency	Detail
	Correspondence received on 6 March 2025 indicating the VPA offer wasn't accepted. At the online meeting held on 28 November 2025, the Applicant shared a Project and Project capacity update. The Applicant was pleased to announce with the update that the revised Project configuration enabled the proposed VPA contribution to align with both, either the ARC internal policy (\$850/MW) OR the NSW Benefit Sharing Guideline (\$150/MWh). At the face-to-face meeting on 24 February 2026, the general terms of the VPA were discussed. Following the meeting, ARC confirmed via email that Council at it's Ordinary Meeting held 18 February accepted the contribution rate proposed under the NSW Government Benefit Sharing Guideline for the Project. ARC noted they would send their VPA template for FRV to mark-up. No adverse feedback on the VPA offer was noted from the Council Ordinary Meeting. Delivery of the Future Fund was also discussed. On 10 April 2026, the VPA contract template was requested from ARC. Conversations between ARC and the Applicant noted that the VPA could only contribute toward public purposes, not the Future Fund (May 2026). The VPA template from ARC is outstanding, until the EIS is exhibited on the Major Projects Portal. This is in order for the Applicant to confirm the exhibited capacity and allow enough time for ARC to draft the VPA template
Landowner consent (Bayley Park Road asset owner)	At the online meeting held on 28 November 2025, landowner consent for lodgement of the DA for works within Bayley Park Road was requested. It was noted that consent would not be provided until the VPA had been agreed. At the face-to-face meeting on 24 February 2026 following acceptance of the VPA, ARC agreed to provide landowner consent. An updated Letter of Consent to upgrade Bayley Park Road at the Waterfall Way intersection was requested by the Applicant in June 2026. A new Letter of Consent was provided on XX/09/2026.
Hydrology	ARC was contacted by Cumulus Engineering, to discuss hydrology and obtain flood studies for the area. It was determined the Armidale flood study did not cover the Development Site and was therefore not utilised for model variation or comparison.
Geological Survey of NSW – Mining Exploration and Geoscience	
Project update	Letter sent informing the agency of the status of the Project on 6 March 2024 and request for contact details for overlapping Exploration Licence. Provided direct Project team contacts in relation to the detailed assessment. Receipt was acknowledged on 7 March 2024, and details for Kooky Resources provided.

Issue raised by agency	Detail
Heatherington Exploration/Kooky Resources/Thunderbird Resources	
Project update	Letter sent to Heatherington Explorations on the status of the Project on 7 March 2024 and requesting comment in regard to the extinguishment of access. Receipt was acknowledged on 7 March 2024, chasing comment from Kooky Resources. Correspondence received on 11 December 2024 from Heatherington Explorations, notifying us that the licence had been purchased by Thunderbird Resources. NGH reached out to Thunderbird Resources 11 December 2024 requesting a meeting to discuss the licence. Virtual meeting held 12 December 2024, to talk over the Project. Email and written letter received from Thunderbird Resources 29 January 2025, stating they: 1. are exploring plans for their tenements and securing land access 2. are supportive of renewable energy 3. have exclusive rights to explore on their tenements, and reserve those rights 4. wish to share their plans further with FRV. NGH facilitated an online meeting to discuss the letter and talk over Thunderbird plans for exploration in the area. NGH and FRV note they acknowledge Thunderbirds rights as granted tenements for mineral exploration, with zero intent to restrict access. Follow-up discussions occurred on several occasions in May, July, September and November 2025 and an online meeting was held in November 2025 between the Applicant and Thunderbird Resources. Thunderbird advised that exploration studies within the Achill Prospect area (approximately 10km south from the Development Site in a straight line) are ongoing, including drilling activities following positive indications of gold and antimony mineralisation. Thunderbird also noted its broader interest in the Metz area and indicated that exploration activities may expand in the future. The Applicant will continue to maintain communication with Thunderbird Resources as both projects progress.
Transport for NSW	
Project update	Email sent informing the agency of the status of the Project on 6 March 2023, seeking comment on draft emergency access route. Provided direct Project team contacts in relation to the detailed assessment. Receipt was acknowledged on 8 March 2024 with email. TNSW assigned case officer. No further response received.
Traffic assessment	TfNSW were contacted via phone and email in July 2024 and in September 2024 by Amber for feedback on the proposed access strategy and routes to site,

Issue raised by agency	Detail
	including a review of the sight distance provided at the intersection of Bayley Park Road and Waterfall Way. TfNSW also advised utilising growth rate of 1.5% per annum for traffic forecasts. Further consultation via email was undertaken requesting guidance on anticipated bridge and culvert assessments for both OSOM routes using 14x8 platform trailer carrying a 149t transformer. Advised that one bridge on Port of Brisbane route (located north of Glen Innes over Beardy Waters) will require further assessment, but both route options were otherwise suitable.
UGL Regional Linx	UGL Regional Linx were contacted via phone and email in April and May 2024 by Amber on the potential use of the Dangar Street bridge in Armidale based on a preliminary load configuration of the heavy vehicle requiring escort delivering the transformer. The recommendation was that the bridge was not suitable for the preliminary load configuration. As a result of the feedback the proposed high-risk OSOM route to site avoids the use of this bridge. UGL Regional Linx were contacted via email in December 2025 on the potential use of the Kentucky Street bridge in Armidale, and the Bell Street bridge in Muswellbrook, based on a load configuration of the heavy vehicle requiring escort delivering the transformer. UGL have provided conditional approval for both bridges to be used in the route, noting that the UGL RL-CRN Heavy Vehicle Assessment process must be followed for the application.
Transgrid	
Project update	FRV has been actively engaging with TransGrid since the early stages of the project, beginning with the submission of the initial connection enquiry and receipt of feedback in August 2023. Since then, a collaborative relationship has been maintained through regular communication and meetings. FRV has kept TransGrid informed of the project's progress, including updates on the EIS process. A draft project layout was shared via email on 6 June 2024, with formal acknowledgment of receipt received on 7 June 2024. Subsequent iterations of the design were discussed in follow-up communications throughout July and August 2024. Further engagement has also occurred throughout 2025 and 2026 as part of the grid connection process, including ongoing planning and design discussions to support the development of the connection infrastructure and ensure alignment with Transgrid's technical and operational requirements.

Issue raised by agency	Detail
Conservation Programs, Heritage and Regulation (CPHR) (formally the Biodiversity Conservation Division/ Service)	
Project update	Letter sent informing the agency of the status of the Project on 13 March 2024, seeing advice on Project and providing direct Project team contacts in relation to the detailed assessment.
Biodiversity assessment methodology	Contacted CPHR on March 2024 to advise the methodology proposed for the biodiversity assessment (consultation attached in 0). CPHR advised a field investigation would be required to determine if a full BDAR or BAM 2020 streamlined assessment would be appropriate. Site meeting occurred on 14 March 2024: discussed Box Gum Woodland – avoid and minimise options, mapping approach, Eastern Pygmy-possum survey required. On 30 April 2025, further discussed avoidance and minimisation measures for Box Gum Woodland, and requirements for SAIL. CPHR advised that SAIL is determined by DPHI, not CPHR therefore discussion on ‘appropriate and additional measures’ is premature.
Department of Climate Change, Energy, the Environment and Water (Cwth)	
Referral	A pre-referral meeting was held on 25 July 2024, to introduce the Project and the proposed referral under the EPBC Act. The Project was then referred and ultimately determined a Controlled Action due to listed threatened species and communities on 17 March 2025. Project updates were provided in July 2025, to detail minor project updates, results of former CPHR consultation and further studies.
Biodiversity Offset Scheme Help Desk	
Agency advice	Letter sent requesting advice and survey effort for Pygmy Possum on 20 March 2024. Acknowledged and advice received 20 March 2024. Specific advice was provided on 10 May 2025 and incorporated into the BDAR regarding Pygmy possum.
Crown Lands	
Project update	Letter sent informing the agency of the status of the Project on 5 May 2024 and providing direct Project team contacts in relation to the detailed assessment and requesting clarity on proposed emergency access road.

Issue raised by agency	Detail
	Receipt was acknowledged on 5 May 2024, confirming the formally proposed emergency access road is not on Crown Lands.

6. Assessment of key issues

Standalone technical assessments are provided in Appendix E by specialists experienced and qualified in their respective fields. This section provides a less technical summary of the key results and includes all relevant mitigation measures required to manage the impacts identified. It aims to improve the accessibility of the environmental assessment as a whole for all interested members of the public and to all government agency staff participating in the determination of the Project's approvability.

6.1. Biodiversity

This section summarises the findings of the Biodiversity Development Assessment Report (BDAR) undertaken by NGH Pty Ltd, provided in Appendix E.1. The BDAR was prepared to respond to the Project and supplementary SEARs and provides an assessment of the potential biodiversity impacts of the Project and the recommended measures to mitigate and offset them.

6.1.1. Approach

The BDAR was completed to provide an assessment of the biodiversity values associated with the BESS and to assess the potential impacts of the construction and operation of the Project in accordance with the NSW Biodiversity Assessment Method 2020 (BAM) (DPIE, 2020a).

In consultation with the NSW Conservation Programs, Heritage and Regulation Group (CPHR) (formerly the Biodiversity Conservation Division), the assessment included:

- Site visits to confirm the extent and condition of landscape features in and around the Subject Land
- Aerial photographic interpretation
- Review of existing vegetation mapping
- Detailed field surveys

Detailed survey methods, assumptions and limitations are provided in the appended BDAR. In summary, they included:

- Habitat constraints – April 2023
- BAM floristic plots – April 2023, March 2024, September 2024 and June 2025
- Targeted flora surveys – April 2023, October 2023, March 2024, September 2024, November 2024, June 2025 and December 2025
- Targeted fauna surveys – April 2023, October 2023, March 2024, November 2024

The BDAR includes prescriptive mitigation measures to address the impacts identified. Where impacts cannot be avoided or sufficiently minimised, a biodiversity offset obligation applies to the Project. This is calculated using the BAM and can be made up of ecosystem credits (generally reflecting the Plant community types and broad ranging species likely to be affected) and species credits (reflecting impacts on specific species or their habitat).

Definitions

The BAM is legislated under the NSW *Biodiversity Conservation Act 2016* (BC Act) and as such, terminology is prescribed and sometimes differs from the terms used in the EIS (see Table 6-1 below).

Table 6-1 Terminology used in the BDAR and this chapter and the equivalent term used in EIS

Term used in this summary as per the BAM	Definition	Equivalent term in the rest of this EIS
Development Site	All private lots affected by the Project	Subject Land

Term used in this summary as per the BAM	Definition	Equivalent term in the rest of this EIS
Subject Land	Area of land subject to survey and desktop assessment for the purposes of the BDAR to assess the direct and indirect impacts of the Project	Development Site

Avoid and minimise impacts

A key requirement of the BAM is to demonstrate ‘avoid/minimise’ actions the Project has taken and rely on biodiversity offsets for impacts only where avoid and minimise actions have been adopted as far as practical.

The design of the Project is the result of an iterative process. The design has been adapted progressively as information regarding site constraints, community feedback, potential impacts, and risks associated with the proposal have become available, including biodiversity matters. This has been done in consultation with CPHR.

Avoidance and minimisation of impacts has been achieved via the following steps:

1. **Development Site Selection:** By choosing a historically cleared and fragmented site, significant biodiversity was avoided, thereby reducing potential impacts on native ecosystems
2. **Access Track Design:** In areas where the access track passes through sensitive regions, its width was reduced. This minimised the disturbance to the surrounding environment and prevented unnecessary clearing of scattered trees. Where possible, the alignment of the access road was positioned along the property boundary to further minimise vegetation impacts, as these areas benefit from existing clearing entitlements
3. **Waiting Bays and traffic management:** To further reduce impacts, particularly on the *Eucalyptus nicholii* species, waiting bays have been implemented into the design. This approach decreased the number of affected *Eucalyptus nicholii* trees from 15 to three.

While the BESS site is located within a patch of Box Gum Woodland listed as a Critically Endangered Ecological Community (CEEC) under both the EPBC Act and the BC Act, this location was selected due to its natural elevation, which avoids flooding constraints that affect nearby cleared areas (see Figure 2-5). Alternative sites that appeared more suitable due to the absence of trees were deemed unfeasible due to their location on flood-prone land. Furthermore, if the BESS were to be constructed in these cleared but flood-prone areas, additional transmission line infrastructure would be required to connect to the existing grid. Such infrastructure would likely result in further impacts to vegetation, undermining the benefit of avoiding tree removal within the BESS footprint. Therefore, locating the BESS directly adjacent to the existing transmission line minimises overall biodiversity impacts as much as possible when considering all project constraints.

Following concerns raised by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding the potential for significant impacts to the Box Gum Woodland CEEC listed under the EPBC Act, NGH undertook additional ecological surveys within the broader Development Site. These concerns were raised as part of the referral decision, which determined the Project to be a controlled action. The additional surveys aimed to identify other remnant patches of the EPBC Act listed CEEC beyond the Development Footprint. The assessment

confirmed the presence of an additional 17.79ha of the CEEC within the Development Site. Importantly, these areas will be entirely avoided by the Project.

For more information on the avoidance and minimisation, refer to Section 7 of the appended BDAR.

6.1.2. Existing environment

Landscape context

The Development Site falls across the New England Tablelands Interim Biogeographical Regionalisation for Australia (IBRA) bioregion and the Armidale Plateau subregion. The subregion is characterised by undulating to hilly plateaus up to 1100 m above sea level. The landscape is stepped across basalt flows and broad valleys, steepening in the east at the head of the Great Escarpment gorges. Typical Vegetation within this subregion includes (NPWS, 2003):

- Open Ribbon Gum (*Eucalyptus viminalis*) forest and woodland with Snow Gum (*Eucalyptus pauciflora*) and Black Sallee (*Eucalyptus stellulata*) on basalt
- Yellow Box (*Eucalyptus melliodora*), Blakely's Red Gum (*Eucalyptus blakelyi*), Rough-barked Apple (*Angophora floribunda*) and Apple Box (*Eucalyptus bridgesiana*) on sedimentary rocks
- Silver-top Stringybark (*Eucalyptus laevopinea*) and New England stringybark (*Eucalyptus caliginosa*) on dry aspects
- Blakely's Red Gum (*Eucalyptus blakelyi*), Yellow Box (*Eucalyptus melliodora*), and Apple Box (*Eucalyptus bridgesiana*) on moist well-drained slopes
- New England Peppermint (*Eucalyptus novo-anglica*) with Ribbon Gum (*Eucalyptus viminalis*) on flats.

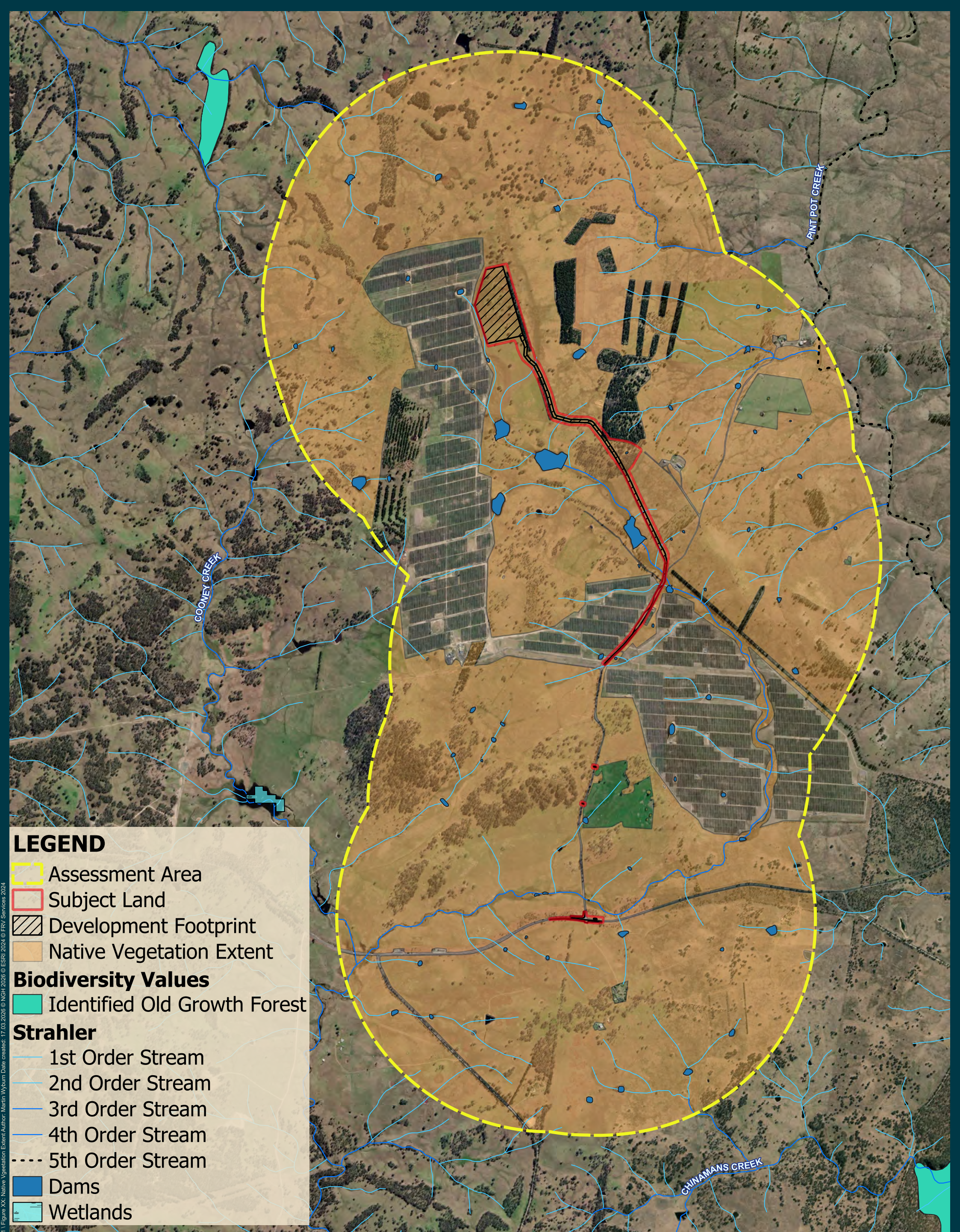
The aquatic environment within the Subject Land is sparse. Eight (8) first order Strahler streams exist within the Subject Land; however, surface water flow would only be present in periods of heavy rainfall. There is one (1) dam within the Subject Land which features some aquatic and minimal fringing vegetation. No wetlands occur within 10km of the Subject Land. An EPBC Act protected matters search completed on 2 May 2024 and updated on 22 October 2025 did not identify any Ramsar wetlands that may relate to the Project.

Bayley Park Road crosses a third-order stream (Limerick Creek) that flows from the north-west to the south-east. Limerick Creek is mapped as Key Fish Habitat (KFH) under the NSW *Fisheries Management Act 1994* (FM Act), however was not included in the SEARs for this project. The Project intersects with Limerick Creek KFH at the access point from Bayley Park Rd. During wet periods on field surveys this area did contain seasonal pools of water and a minimal flow of water. The vegetation type adjacent to the road along Limerick Creek was recognised as the endangered ecological community *Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions* based on dominance of *Carex appressa* and the presence of *Typha orientalis* and *Juncus* spp. This vegetation is not in the Subject Land and therefore is not included in the assessment.

The Subject Land falls across two Mitchell landscapes being the Dingo Spur Meta-sediments and the Moonbi – Walcha Granites. The Dingo Spur Meta-sediments is the dominant Mitchell Landscape within Subject Land and features steep terrain with a dendritic drainage system leading to deep gorges and high waterfalls on the Great Escarpment. Elevations range from 300m to 1400m, with a local relief of 600m. The tablelands consist of Permo-Carboniferous mudstone, lithic sandstone, tuff, slate, hornfels, and some schist. Vegetation includes coastal closed forests, dry hardwood forests, and cold high plateau components. River oak (*Casuarina cunninghamiana*) lines streams, and dry hardwood forests include species like yellow box (*Eucalyptus melliodora*), Blakely's red gum

(*Eucalyptus blakelyi*), broad-leaved stringybark (*Eucalyptus caliginosa*), and cabbage gum (*Eucalyptus amplifolia*) on valley floors.

The native vegetation cover within the Study Area was estimated to be 1,921ha out of a total area of 2,414 ha. This equates to 79% native vegetation coverage. Figure 6-1 below illustrates the native vegetation cover in the Study Area.



Datum: GDA2020 / MGA Zone 56

Armidale East BESS

Figure 6-1 Native Vegetation Extent, Biodiversity Values, Waterbodies and Wetlands within the Assessment Area



Plant Community Type (PCT)

Vegetation within the Subject Land has been assessed as aligning with two BioNet Vegetation Classification PCTs. These PCTs and their extent within the Subject Land and Development Footprint are listed in Table 6-2.

Table 6-2 PCTs identified within the Subject Land and Development Footprint

PCT ID	PCT name	Subject Land area (ha)	Development Footprint area (ha)
3352	Armidale Quartz Stringybark Forest	8.71	2.58
3359	New England Hills Stringybark-Box Woodland	19.11	14.33
Total Area		27.82	16.91

PCT 3352 occurred in two condition states across the Subject Land. These are:

- **PCT 3352 High:** This zone occurs as a mid to high woodland and open woodland to approximately 10 m dominated by *Eucalyptus youmanii* (Youman's Stringybark) often with *Eucalyptus caliginosa* (Broad-leaved Stringybark) along the southern slope and with *Eucalyptus andrewsii* (New England Blackbutt) along the crest of the hill. A sparse mid and lower stratum occurs dominated by native shrubs and grasses including *Bursaria spinosa*, *Hibbertia linearis*, *Hibbertia obtusifolia*, *Poa sieberiana* and *Microlaena stipoides*
- **PCT 3352 Low:** This zone occurs generally as a derived native grassland with evidence of heavy grazing; a higher exotic weed cover than the high condition zone.

PCT 3359 occurred as three condition states across the Subject Land. These are:

- **PCT 3359 Moderate:** This zone occurs as a tall open sclerophyll forest dominated by *Eucalyptus blakelyi* (Blakely's Red Gum), *Eucalyptus nicholii* (Narrow-leaved Black Peppermint), *Eucalyptus caliginosa* (Broad-leaved Stringybark), *Eucalyptus dalrympleana* (Mountain Gum) and *Eucalyptus melliodora* (Yellow Box) which was found outside the plots. The mid stratum is sparse and includes *Pimelea neo-anglica* (Poison Pimelea) and Hickory Wattle (*Acacia implexa*). The ground cover is generally intact and excluded from grazing and commonly included *Elymus scaber* (Common Wheatgrass), *Wahlenbergia gracilis* (Sprawling Bluebell), *Calotis cuneifolia* (Purple Burr-Daisy) and *Cynodon dactylon* (Common Couch). Common exotic species included *Cirsium vulgare* (Spear Thistle), *Cenchrus clandestinus* (Kikuyu Grass) and *Hypochaeris radicata* (Catsear). This zone has the highest condition score for PCT 3359 and was assigned a rating of moderate.
- **PCT 3359 Low to Moderate:** Similar to Zone 3, this zone occurs as a tall open sclerophyll forest dominated by *Eucalyptus blakelyi*, *Eucalyptus caliginosa*, *Eucalyptus melliodora* and *Eucalyptus moluccana*. This zone differs from Zone 3 due to the sparseness of trees due to clearing and the evidence of intensive grazing in the understorey. As such, the VI score for this zone was lower than Zone 3 and was rated as Low-Moderate condition.
- **PCT 3359 Low:** This zone occurs generally as a derived native grassland of PCT 3359 which has been subject to heavy grazing and has a high abundance of exotic species.

Of the two PCTs present within the Subject Land, only PCT 3359 is associated with Threatened Ecological Communities (TECs). These are:

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

The BC Act form of this TEC occurs in all three vegetation zones within PCT 3359. The EPBC Act form of this TEC only occurs within the Low-Moderate Condition zone of PCT 3359. This is due to this zone having a predominately native understorey, the patch size of the zone being more than 0.1ha and the patch containing at least 12 native, non-grass understorey species. The other two zones do not meet all of these criteria. For more information, as well as the assessments undertaken to determine the presence/absence of these TECs, refer to Section 4.3 of the appended BDAR.

Threatened species identified onsite or assumed to occur

Thirteen candidate species were excluded from assessment due to the lack of geographic or habitat constraints as outlined within the BAM Calculator (BAM-C) for these species. These species were:

- Beadle's Grevillea (*Grevillea beadleana*)
- Regent Honeyeater (*Anthochaera phrygia*) (Breeding)
- South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) (Breeding)
- Large-eared Pied Bat (*Chalinolobus dwyeri*)
- Swift Parrot (*Lathamus discolor*) (Breeding)
- Large Bent-winged Bat (*Miniopterus orianae oceansis*) (Breeding)
- Barking Owl (*Ninox connivens*)
- Powerful Owl (*Ninox strenua*)
- Southern Greater Glider (*Petauroides volans*)
- Squirrel Glider (*Petaurus norfolcensis*)
- Brush-tailed Rock-wallaby (*Petrogale penicillata*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (Breeding)
- Masked Owl (*Tyto novaehollandiae*)

Eight threatened species were recorded in the Subject Land either incidentally or during targeted surveys (species listed in **bold** are ecosystem credit species):

- Narrow-leaved Peppermint (*Eucalyptus nicholii*)
- Southern Myotis (*Myotis macropus*)
- Eastern Cave Bat (*Vespadelus troughtoni*) – *No credits generated in accordance with NSW guidelines
- Booroolong Frog (*Litoria booroolongensis*)
- **Large Bent-winged Bat (*Miniopterus orianae oceansis*) (Foraging)**
- **Little Bent-winged Bat (*Miniopterus australis*) (Foraging)**
- **Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*)**
- **Greater Broad-nosed Bat (*Scoteanax rueppellii*)**
- **Scarlet Robin (*Petroica boodang*).**

6.1.3. Potential impacts

After the consideration to avoid and minimise impacts, the following residual biodiversity impacts are considered relevant to the Project and will generate a biodiversity offset obligation.

Direct impacts

The construction and operational phases of the Project have the potential to impact biodiversity values through habitat clearance (and associated noise and disturbance) and ongoing existence of infrastructure (which may create barriers to movement and generate noise and disturbance).

Direct impacts include:

- Clearing of 16.91ha of native vegetation, of which 14.33ha is BC Act listed Box Gum Woodland, and 4.39ha is EPBC Act listed Box Gum Woodland
- Direct impacts to 5.96ha of suitable habitat for the Southern Myotis
- Removal of three individuals of *Eucalyptus nicholii*
- Three hollow bearing tree's to be removed.

Indirect impacts

Indirect impacts are those that are not directly related to clearing of native vegetation. Indirect impacts that contribute to key threatening processes from the Project include soil and water contamination, spread or colonisation of weeds, reduced habitat connectivity and the generation of noise light and dust pollution.

Potential indirect impacts include:

- Inadvertent impacts on adjacent habitat or vegetation
- Reduced viability of adjacent habitat due to edge effects
- Increased risk of starvation, exposure and loss of shade or shelter
- Reduced viability of adjacent habitat due to vehicle traffic
- Transport of weeds and pathogens from the site to adjacent vegetation
- Cumulative loss of breeding habitat and competition for remaining resources
- Trampling of threatened flora species
- Inhibition of nitrogen fixation and increased soil salinity
- Rubbish dumping
- Wood collection
- Increase in predatory and pest animal species populations
- Disturbance to specialist breeding and foraging habitat
- Earthworks and mobilisation of sediments
- Increased risk of fire

For more information refer to Section 8.2 of the appended BDAR.

Prescribed impacts

The BAM identified specific 'prescribed impacts' that may affect biodiversity values that must be considered. They can be direct and/or indirect impacts. Those relevant to the Project include:

- Impacts on non-native vegetation
- Impacts on habitat connectivity
- Impacts on water quality and hydrological processes
- Impacts of vehicle strikes on threatened fauna or fauna part of a TEC.

Mitigation for these has been recommended where warranted. For more information refer to Section 8.3 of the appended BDAR and summary mitigations measures at the end of this chapter.

Uncertain impacts

Uncertain impacts are those which cannot be quantified and are difficult to define spatially prior to action commencement, such as tree branch lopping and trimming along existing access roads. Minor branch trimming and lopping would be required along sections of the Council managed road reserve of Bayley Park Road where vegetation is overhanging to improve road user safety including passage of trucks for the Proposal.

The minor nature of these works would not meet the criteria for native vegetation clearing under the *Local Land Services Amendment Act 2016*. Lopping overhanging vegetation to maintain safety on a public road falls into an allowable activity under the *Roads Act 1993*. An offset under the BC Act is not considered necessary for tree trimming and lopping. The activity has been included in the BDAR to provide for mitigation measures to protect potential biodiversity values.

Potential Serious and Irreversible Impact (SAIL) entities

Serious and Irreversible Impact (SAIL) entities are entities considered unable to withstand any further loss and for which offsets may not be achievable or appropriate. The BDAR evaluates these entities in more detail. The criteria used to determine if a development will have serious and irreversible impacts include impacts that:

- Will cause a further decline of the species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to be in a rapid rate of decline, or
- Will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to have a very small population size, or
- Impact on the habitat of a species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to have a very limited geographic distribution, or
- Impact on a species or ecological community that is unlikely to respond to measures to improve habitat and vegetation integrity and therefore irreplaceable.

One threatened ecological community occurs within the Subject Land and is classified as a SAIL entity as indicated in Table 6-3 below. It has been assessed in greater detail in the BDAR, so the determining authority can make a decision as to whether the Project would result in a SAIL.

Table 6-3 Entities at risk of an SAIL

SAIL Entity	Reason for inclusion in assessment
<i>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.</i>	Included in current list of entities at risk of an SAIL and is likely to be impacted by the proposal

Approximately 14.33ha of this community will be impacted by the Project. The majority of this community to be impacted is comprised of a Derived Grassland in low condition. This grassland has been subject to heavy grazing and has a high abundance of exotic species present. The 9.46ha of low condition TEC that will be impacted (Zone 5) will have minimal impacts on ecological processes such as habitat provision for other threatened flora and fauna as this vegetation zone is not in a condition that supports unique or rare species or ecological processes. The removal of 4.87ha of low-moderate and moderate condition patches of the TEC (Zone 3 and Zone 4) may cause minor disruptions to ecological processes, however, due to the fragmented

nature of these woodland areas it is unlikely they support unique or rare species or ecological processes. The vegetation integrity scores for each of the zones are shown in Table 6-4 below.

Table 6-4 Vegetation Integrity Score for the SAI TEC

Vegetation zone ID	PCT / Zone	Area (ha)	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation Integrity Score	Hollow bearing tree's present?
3	3359 Moderate	0.48	57.6	44.1	88.4	60.8	Yes
4	3359 Low-Moderate	4.39	30.5	55.8	42	41.5	Yes
5	3359 Low	9.46	18.9	51.7	1.1	10.4	No

Offset obligation – NSW BC Act

An offset obligation is generated for the Project due to the clearing of native vegetation (generating ecosystem credits) and species habitat (species credits). The BAM calculates the credit obligation based on the extent and quality of the vegetation and habitat being removed as well as the number of individual flora species being removed. Two vegetation zones (Zone 2 and Zone 5) do not require ecosystem credits due to the VI score being less than 15. The remaining three vegetation zones do require ecosystem credits. Table 6-5 lists the vegetation zones requiring offsetting and their credit obligation.

Additionally, only two of the detected candidate species require species credits. Under the BAM credits are only required for the Little Bent-winged Bat and the Eastern Cave Bat if breeding habitat is present and will be impacted. No breeding habitat for these species is present within the Subject Land and therefore credits are not required. Table 6-6 lists the species requiring offsetting and their credit obligation.

Table 6-5 Ecosystem credit requirement

Zone ID	PCT ID	PCT name	Zone area (ha)	Vegetation integrity score	Ecosystem credits required
1	3352	Armidale Quartz Stringybark Forest	0.55	65.1	18
3	3359	New England Hills Stringybark-Box Woodland	0.47	60.8	18
4	3359	New England Hills Stringybark-Box Woodland	4.39	41.5	114

Table 6-6 Species credit requirements

Species credit species	Impact area	Species credit required
<i>Eucalyptus nicholii</i> Narrow-leaved Black Peppermint	3 individuals	6
<i>Myotis Macropus</i> Southern Myotis	5.60 ha	69

Offsets required under the Commonwealth EPBC Act

The Project was referred to DCCEW for consideration due to clearing of Box Gum Woodland CEEC and *Eucalyptus nicholii*. The Project was determined to be a controlled action under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 17 March 2025. An assessment of significance was undertaken for four EPBC listed entities including:

- White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland
- Narrow-leaved Black Peppermint (*Eucalyptus nicholii*)
- Diamond Firetail (*Stagonopleura guttata*)
- Brown Treecreeper (*Climacteris picumnus victoriae*).

The Project will result in the removal of approximately 4.39ha of Box-Gum Woodland CEEC within the Development Footprint and within this area the vegetation will be cleared and will no longer qualify as the EPBC Act listed ecological community. This represents a noticeable change in species composition and structure at the site level, particularly due to the loss of mid and overstorey species such as *Eucalyptus blakelyi* and *Eucalyptus melliodora*, which will not regenerate beneath the infrastructure. However, historical clearing and grazing have already altered vegetation composition within the Subject Land, and extensive areas of CEEC remain locally, including approximately 17.79ha avoided within the Project Site and larger intact woodland areas to the north and west.

Additional hollow-bearing trees and habitat resources persist within the avoided area and surrounding landscape, maintaining ecological connectivity and function. While the Project is expected to contribute to localised habitat loss and fragmentation, it is unlikely to substantially alter the extent, condition, or ecological function of the Box-Gum Woodland CEEC at the local or regional scale. A non-significant impact is therefore anticipated at the broader landscape level. A non-significant impact is also expected for the threatened species that were assessed,

The requirement to settle EPBC offset obligations will be undertaken in accordance NSW offset rules and consistent with the endorsed NSW-Commonwealth Bilateral Agreement. That is, offset obligations for these entities can be met under the NSW Biodiversity Offset Scheme. Additional Commonwealth offsets are not considered to be required.

6.1.4. Mitigation measures

Mitigation strategies developed to address direct impacts include:

- Potential displacement, injury or death of fauna will be mitigated through presence of fauna spotter catcher during hollow-bearing tree clearing and nest box installation.

Mitigation strategies considered for indirect impacts include:

- Inadvertent impacts of adjacent habitat or vegetation will be mitigated through clear physical demarcation of the boundary between not impacted areas and areas slated for clearing
- Edge effects will be mitigated through control of weeds
- Transport of weeds and pathogens will be mitigated by a basic vehicle (and machinery) hygiene protocol
- Cumulative loss of hollow bearing tree's will be mitigated by replacing lost hollows with nest boxes
- Rubbish dumping during the construction phase will be mitigated through standard high quality construction practices including maintaining a clean site and depositing rubbish at suitable facilities
- Mobilisation of sediments will be mitigated through application of standard erosion and sediment control practice
- Pre-clearance surveys will mitigate inadvertent impacts upon hollows, nests or threatened species during tree branch lopping and trimming.

Specific safeguards and mitigation measures to address biodiversity impacts as set out in the BDAR are outlined in Table 6-7.

Table 6-7 Biodiversity mitigation measures

Mitigation number	Mitigation measure	Project Stage
BIO1	A Biodiversity Management Plan will be prepared prior to construction to include all recommendations of the BDAR. It will include, but not be limited to: • Clearing limits and auditing mechanism to ensure limits are not exceeded • Requirement for pre-clearance surveys by suitably trained person/s during construction phase (including for tree trimming) • Requirement for presence of fauna spotter catchers (FSC) during removal of important habitat elements (e.g. hollow bearing trees) during construction phase to relocate or arrange for care of injured individuals. • Method to record details of above actions • Location for nest box installation, details of nest box type required and method for recording installation details including location. • Demarcation (flagging) of no-go zones, vegetation for retention, habitat trees and habitat features. Physical demarcation required; not to rely on operators' GPS. • Maps of threatened flora habitat outside of Development Footprint (using species polygons) and requirement for inclusion in toolbox talks (i.e. contractor briefings). • Buffer zones • Designated parking areas • Standard basic vehicle hygiene protocol (wash-down facilities) in line with NSW <i>Hygiene Guidelines</i> (DPIE 2020) and best practice weed management consistent with guidelines provided by DPI NSW, focusing on priority weeds.	Prior to construction

Mitigation number	Mitigation measure	Project Stage
	• Proformas for construction company to fill out to evidence adherence. • Details of hollow bearing trees/hollows to be cleared. • Details of nest boxes sizes required, and number if applicable. • Survey to identify areas outside Development Footprint (in adjacent habitat) where removed habitat features can be re-located and locations for nest boxes. This may be done in stages. • Nest-boxes to be installed prior to clearing hollow bearing trees. This may be done in stages. • Maps of above to be provided to construction contractor following survey and in later audit report. • Auditing mechanisms to check effective relocation of features, including proformas to record nest box installation and FSC activity.	
BIO2	Adaptive management strategy to prevent the trampling of threatened flora species	Construction Operation Decommissioning
BIO3	The Project's offset obligation will be met in accordance with the NSW Biodiversity Offset Scheme, and will be achieved by either/or a combination of: • Retiring credits under the Biodiversity Offset Scheme based on the like-for-like rules, or • Making payments into the Biodiversity Conservation Fund using the offset payments calculator, or • Funding a biodiversity action that benefits the threatened entities impacted by the development	Prior to construction

6.2. Aboriginal heritage

This section summarises the findings of the Aboriginal Cultural Heritage Assessment (ACHA) undertaken by NGH Pty Ltd, provided in Appendix E.2. The ACHA was prepared in response to the Project SEARs and provides an assessment of the potential Aboriginal heritage impacts of the Project, along with recommended mitigation measures.

6.2.1. Approach

The ACHA report was prepared in accordance with the following guidelines:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011)
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010a): and
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRP)* (DECCW, 2010b).

On 16 June 2023 an extensive search of the AHIMS database was undertaken over a ~14km E/W x ~10km N/S search area centred on the Development Site. As AHIMS searches are only valid for a 12-month period an updated search over the same area as noted in this section was undertaken on 11 July 2024 (Client Service ID: 909232) and again on 04 June 2025 (Client Service ID 1011161).

Survey transects were undertaken on foot and traversed the entire Development Site during a single day of survey in September 2023 and an additional half a day of survey in September 2024.

Consultation

The consultation with Aboriginal stakeholders was undertaken in accordance with clause 60 of the *National Parks and Wildlife Amendment Regulation 2019* following the consultation steps outlined in the guidelines. There are 15 Registered Aboriginal Parties (RAPs) for this Project who have been consulted with continuously as part of this ACHA. A copy of the draft ACHA and Archaeological Technical Report (ATR) was provided to all the RAPs for comment. Consultation with Aboriginal stakeholders is also outlined in Section 5.2.5 above.

6.2.2. Existing environment

Archaeological context

The Development Site is within the traditional lands of the Anaiwan language group, however this is disputed and noted to also be within the lands of the Gumbaynggirr language group. The Anaiwan group are part of the Nganyaywana language group according to Horton (1994). However, borders were not static, but most likely fluid, expanding and contracting over time to the movements of smaller family or clan groups.

The Aboriginal Heritage Information Management System (AHIMS) provides a database of previously recorded Aboriginal heritage sites in NSW. As a starting point, an extensive search of AHIMS will indicate whether any sites are known within or adjacent to the Development Site.

There were 66 Aboriginal sites and no declared Aboriginal Places recorded within the search area. The results of the AHIMS search are shown in Figure 6-2 and summarised in Table 6-8 below.

Table 6-8 Breakdown of previously recorded Aboriginal sites in the region

Site type	Number	%
Artefact (1 or more)	55	83.3
Modified Tree	8	12.1
Stone Arrangement	2	3.1
Artefact and Modified Tree	1	1.5
Total	66	100

There are ten sites previously recorded within 500m of the Development Site. The nearest previously recorded site to the Development Site is the now destroyed site AHIMS # 21-1-0156/ Bay Park Isolated Artefact 25 which was located approximately 8m west of the BESS site. Registered sites in proximity to the Development Site are shown in Figure 6-2 below.

Overall, the most common site types in the region are stone artefact sites (with one or more stone artefacts), followed by modified trees and stone arrangements. A number of sites within the search area have been recorded to have been destroyed through the approvals issued to facilitate development, such as those approved for impacted by the construction of the adjacent Metz Solar Farm (SSD-7931).

Additional searches

Other heritage register searches were undertaken to identify any items or places in proximity to the Development Site, with a focus on the immediate area and its surrounding landscape. The following resources were used as part of this assessment:

- The NSW State Heritage Inventory (SHI): this includes items on the State Heritage Register (SHR), items listed by state agencies, and items listed on Local Environment Plans (LEP).
- The Australian Heritage Database: this includes items on the National and Commonwealth Heritage Lists, to identify any items that are currently listed within or adjacent to the Development Site.

The results of the NSW SHI database search show that no items listed on the SHI are within or in close proximity to the Development Site.

The results of the Australian Heritage Database search indicated that no items listed on the Australian Heritage Database and within or in close proximity to the Project.

No other known previously recorded heritage sites are located within or adjacent to the Development Site.

Archaeological investigation summary

The survey fieldwork was undertaken over a single day on 27 September 2023 and half a day on 05 September 2024. The September 2023 survey team consisted of two NGH archaeologists and two Aboriginal site officers representing the Iwatta Aboriginal Corporation. The September 2024 survey team consisted of one NGH archaeologists and one Aboriginal site officer representing the Nunawanna Aboriginal Corporation.

The Development Site was divided into three survey units - BESS site (Survey unit 1), proposed new access track (Survey unit 2) and the existing road upgrades proposed for Bayley Park Road and at the intersection of Waterfall Way (Grafton Road) (Survey unit 3) - based on the proposed development activities.

During the survey, notes were made about visibility, photographs were taken, and any exposures, rock outcroppings and mature native trees were inspected for evidence of Aboriginal objects.

The area of the proposed existing road upgrades along Bayley Park Road and at the intersection of Waterfall Way (Grafton Road) with Bayley Park Road was determined to have low potential for the presence of intact subsurface deposits despite the proximity to Limerick Creek due to the high levels of disturbance the area had been subject to during the construction and maintenance of the existing road.

All mature native trees within the Project Area (including the intersection works area) were inspected with no evidence of cultural modification recorded.

During the survey the location of the previously recorded destroyed site AHIMS #21-1-0156/ Bay Park Isolated Artefact 25 which is directly adjacent to the BESS site was inspected, with no Aboriginal objects identified.

A total of four new Aboriginal sites (three isolated finds and one low density artefact scatter) were recorded. These sites are summarised in Table 6-9. No other Aboriginal objects were identified during the surveys.

Table 6-9 Summary of all Aboriginal objects recorded during the surveys.

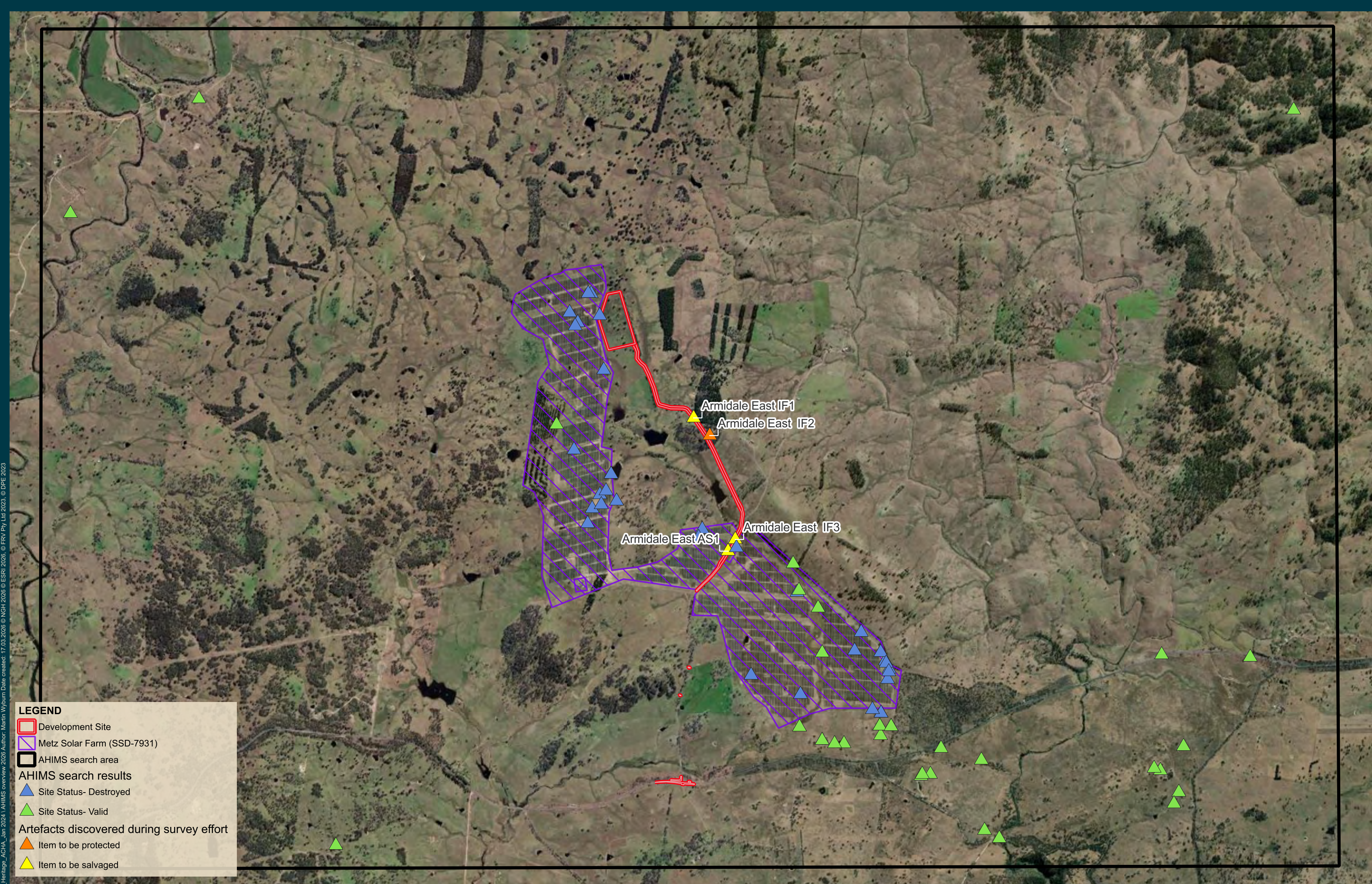
AHIMS #	Site Name	Site Type	Brief Description
21-4-0461	Armidale East IF1	Isolated Find	1 x quartz proximal flake
21-4-0463	Armidale East IF2	Isolated Find	1 x silcrete medial fragment
21-4-0460	Armidale East IF3	Isolated Find	1 x chert proximal fragment
21-4-0462	Armidale East AS1	Artefact Scatter	Low density artefact scatter with 13 artefacts recorded in exposures in the road reserve of Bayley Park Road. The site is bisected by Bayley Park Road with no artefacts recorded within the disturbed footprint of the existing road or its table drain.

It was concluded based on the visual inspections undertaken (September 2023 and September 2024) and the above noted items that there was low potential for the presence of intact subsurface deposits with high densities of cultural material within the Development Site due to the shallow soil profile and distance to water from the BESS site (Survey unit 1) and the proposed new access track (Survey unit 2).

The existing disturbed road corridors (Survey unit 3) were also determined to have low potential for the presence of intact subsurface deposits, despite proximity to Limerick Creek, due to the high level of disturbance clearly visible along Bayley Park Road and Waterfall Way (Grafton Road) within the Development Site.

The results of this survey are in line with those previously noted for the adjacent Metz Solar Farm and are not unexpected.

Ref: 230261 Armidale East BESS_Heritage_ACHA_Jan 2024 | AHIMS overview 2026 Author: Martin Wyburn Date created: 17.03.2026 © NGH 2026 © ESR 2026, © FRV Pty Ltd 2023, © DPE 2023



Datum: GDA94 / MGA zone 56

6.2.3. Potential impacts

The Project and associated construction activities would require the use of heavy machinery and would cause significant ground disturbance. Any Aboriginal heritage objects that are within this footprint would therefore likely be impacted. As detailed above and in the ACHA (Appendix E.2), four new archaeological sites were identified during the field assessment (Armidale East IF1, Armidale East IF2, Armidale East IF3 and Armidale East AS1), along with the above mentioned previously destroyed AHIMS site adjacent to the BESS site. Armidale East IF1, Armidale East IF3 and Armidale East AS1 fall within the Development Site. The site Armidale East IF2 will be avoided by the proposed works. Table 6-10 provides a summary of the degree of harm and the consequence of that harm upon the heritage values of each valid Aboriginal site within and directly adjacent to the Development Site.

The low-density nature of the stone artefactual material across the Development Site provides little research value apart from what has already been gained. While two of the three isolated finds and the low density artefact scatter site recorded during the surveys are rated as having total loss of scientific value, it is argued here that there are likely to be a number of similar sites in the local area and therefore the impact to the overall local archaeological record is low.

It is also noted that Armidale East IF2 will be avoided by the development through the redesign and reduction of the works corridor.

Unexpected finds

All Aboriginal heritage objects are protected under the NPW Act Under Part 6 of the Act, though in SSD, Consent may be issued that allows for conditional harm to Aboriginal objects. However, there are some circumstances where despite undertaking appropriate heritage assessment prior to the commencement of works, Aboriginal cultural heritage items are encountered that were not anticipated that may be of scientific and/or cultural significance. Therefore, it is possible that unexpected heritage items may be identified during construction, operation, and maintenance works. If an unexpected find of an Aboriginal object and remains are discovered during construction, then an Unexpected Finds Protocol would be followed. The protocol is detailed in the ACHA and includes a procedure for Unexpected human skeletal remains and for unexpected Aboriginal objects.

Environmental Impact Statement

Armidale East Battery Energy Storage System



Table 6-10 Identified risk to known sites

AHIMS #	Site name	Site type	Site integrity	Scientific significance	Type of harm	Degree of harm	Consequence of harm	Recommendation
21-4-0461	Armidale East IF1	Isolated find	Poor – 100+ year history of agricultural and pastoral use.	Low	Direct	Total	Total loss of value	A reasonable attempt to collect the surface object within the approved development footprint at this site must occur following approval of this SSD Project in line with the surface collection methodology provided in Appendix D of the ACHA for this Project.
21-4-0463	Armidale East IF2	Isolated find	Poor – 100+ year history of agricultural and pastoral use.	Low	Nil	Nil	Nil	Avoid impacts to this site which is outside the proposed development footprint with a minimum 10m buffer. To ensure no inadvertent impacts occur to this site either the boundary of the approved works areas in proximity to this site, or the site itself should be demarcated prior to any construction works commencing.
21-4-0460	Armidale East IF3	Isolated find	Poor – – within area disturbed by construction and maintenance of Bayley Park Road.	Low	Direct	Total	Total loss of value	A reasonable attempt to collect the surface object within the approved development footprint at this site must occur following approval of this SSD Project in line with the surface collection methodology provided in Appendix D of the ACHA for this Project.
21-4-0462	Armidale East AS1	Low density artefact scatter	Poor – within area disturbed by construction and maintenance of Bayley Park Road	Low	Direct	Total	Total loss of value	A reasonable attempt to collect the surface object within the approved development footprint at this site must occur following approval of this SSD Project in line with the surface collection methodology provided in Appendix D of the ACHA for this Project.

6.2.4. Mitigation measures

Specific safeguards and mitigation measures relating to Aboriginal heritage, as recommended in the ACHA report, are provided in Table 6-11.

Table 6-11 Aboriginal heritage mitigation measures

Mitigation number	Mitigation measure	Project stage
AH1	All works must be within the area assessed for the Development Site.	All stages
AH2	Aboriginal heritage will be included within the Environmental Management System (EMS) or equivalent for the Project. This will include an unexpected finds protocol and an onsite induction and be developed in consultation with the RAPs for the Project.	Prior to construction
AH3	The works must avoid Armidale East IF2 which is outside the Development Site with a minimum 10m buffer.	All stages
AH4	If complete avoidance to any of the valid isolated finds and the artefact scatter sites recorded within the Development Site is not possible a reasonable and feasible attempt, through the visual inspection of the sites by an archaeologist with an Aboriginal community representative (as selected by the Proponent), must occur in an attempt to collect the surface stone artefacts within the approved development footprint at each of these recorded locations. This must occur following the development consent which is issued for State Significance Developments.	Prior to construction
AH5	Until surface collection salvage has occurred, a minimum 10m buffer must be maintained around Armidale East IF1. No physical marking or fencing of this buffer is proposed.	Construction Operation Decommissioning
AH6	The Applicant will inform the local council and the owners of the adjacent Metz Solar Farm about the location of Armidale East IF3 and Armidale East AS1 (which are adjacent to Bayley Park Road) to ensure no inadvertent harm occurs for works which are not related to this Project.	All stages
AH7	No works for the Project can occur within the road shoulder or road reserve in proximity to Armidale East IF3 and Armidale East AS1 until surface collection salvage has occurred.	Prior to construction Construction

Mitigation number	Mitigation measure	Project stage
AH8	As the previously recorded site AHIMS # 21-1-0156/ Bayley Park Isolated Artefact 25 which is adjacent to the Project Area is listed on the AHIMS database as totally destroyed no approval for harm (including inadvertent harm) to this site is required for this Project. However, taking into consideration RAP requests, if any ground disturbance is proposed in close proximity to this destroyed site should be inspected during the surface collection salvage program.	Prior to construction
AH9	The collection and relocation of the surface stone artefacts within the approved development footprint which is issued for State Significance Developments should be undertaken by an archaeologist with representatives of the RAPs, as selected by the Proponent, and be consistent with Requirement 26 of <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> and/or the wishes of the RAPs. The relocation area must not be subject to any future ground disturbance. The surface collection salvage of Aboriginal objects can only occur following development consent that is issued for SSD projects and must occur prior to any construction works commencing.	Prior to construction
AH10	To avoid potential for delays to the Bayley Park Road proposed upgrade works, we propose to undertake the surface collection of stone artefacts at Armidale East IF3 and Armidale East AS1, along Bayley Park Road, as soon as possible following approval of the development consent for the Project. We request that as part of any approvals issued that the surface collection of Armidale East IF3 and Armidale East AS1 is permitted to take place prior to the approval of a Cultural Heritage Management Plan (CHMP) for the Project	Prior to construction
AH11	All objects salvaged must have their long-term relocation details submitted to the AHIMS database. An Aboriginal Site Impact Recording Form (ASIRF) must be completed and submitted to AHIMS following harm for each site collected or destroyed from salvage and/or construction works as approved in the development consent for this SSD Project.	Prior to construction
AH12	Further archaeological assessment would be required if the proposed activity extends beyond the area assessed in this report. This would include consultation with the registered Aboriginal parties and may involve further field survey.	All stages
AH13	The Applicant will prepare a CHMP to manage the salvage and relocation of artefacts, and to address the potential for finding additional Aboriginal artefacts and objects during the construction of the Project. The Plan will include the unexpected finds procedure to manage any objects suspected to be Aboriginal in origin during the construction,	Prior to construction

Mitigation number	Mitigation measure	Project stage
	maintenance, operation, upgrading and decommissioning works and include requirements for heritage to be included as part of the site inductions. Preparation of the CHMP should be undertaken in consultation with the RAPs.	
AH14	In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity and follow the unexpected finds protocol. The NSW police must be notified. Further assessment will be undertaken to determine if the remains were ancestral Aboriginal or not. If the remains are deemed to be ancestral Aboriginal in origin Heritage NSW would be sought to advise the Proponent on the appropriate actions required. An unexpected find protocol for suspected human remains must be included in the CHMP for the Project.	All stages

6.3. Access and traffic

This section summarises the findings of the Traffic Impact Assessment (TIA) undertaken by Amber Organisation Pty Ltd on behalf of the Applicant. The TIA was prepared to address the Project SEARs in relation to traffic and transport and is attached as Appendix E.3.

A Preliminary Technical Guidance (PTG) Report was also prepared by J.C. Engineers, which assessed the proposed access track and the existing Bayley Park Road, offering insights and recommendations regarding their constructability and engineering design. The information within the PTG would be utilised as a basis to inform the detailed design of the Project, with further detailed assessment to be undertaken once the civil contractor is engaged.

6.3.1. Approach

The Traffic Impact Assessment was prepared to assess the construction, operational, and decommissioning traffic impacts, and the access arrangements of the Project.

The assessment responds to the SEARs and details how road impacts of the Project traffic, particularly from heavy vehicle use, and oversize/over-mass (OSOM) vehicles, will be avoided or managed using road-use management strategies. More specifically, the TIA addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes during construction, operation, and decommissioning
- An assessment of the potential traffic impacts of the Project on road network function and safety
- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the Project, including OSOM vehicles
- Details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control dust generated by traffic volumes; and
- Details of access roads and how these connect to the existing road network and ongoing operational maintenance.

The traffic assessment has been undertaken in accordance with the TfNSW Guide to Transport Impact Assessment and relevant Austroads Guidelines. It has also been undertaken in consultation with Transport for NSW and Armidale Regional Council.

6.3.2. Existing environment

Road network

The Project Area is connected with the surrounding State Road network through Bayley Park Road and Waterfall Way which provide access to the nearby township of Armidale to the west:

Waterfall Way (Grafton Road)

- Classified as a State Road which runs in a general east-west alignment between Armidale and Raleigh
- It has a typical carriageway width of 7m which accommodates one lane of traffic in each direction with narrow sealed shoulders.
- A posted 100km/h speed limit applies
- The road accommodates a moderate proportion of heavy vehicles
- Currently experiences most vehicles between the hours of 7:00am and 6:00pm, with very low volumes outside these times

- The road experiences a relatively even distribution of traffic across the day in both directions
- Currently accommodates a low level of traffic for its road classification.

Bayley Park Road

- Classified as a local road which runs in a general north direction from Waterfall Way for approximately 4.5km where it currently ends at a private property access
- As a result of the development of the adjacent Metz Solar Farm, the road was widened to the solar farm main access, resulting in a width between 6m and 8m, allowing for two-way vehicle movement, with further widening at bends.
- Further north of the Metz Solar Farm access, Bayley Park Road is unsealed and approximately 4m in width.
- Bayley Park Road has several existing cattle grids as well as waiting bays within the road shoulder, several drainage culverts and vegetation within proximity to the road extent.
- Currently accommodates a very low level of traffic which would be expected given the nature of the surrounding land uses.

The Waterfall Way/Bayley Park Road intersection

- A priority-controlled T-intersection that was upgraded with a Basic Left Turn (BAL) treatment to facilitate the construction of the Metz Solar Farm
- Currently carries a very low level of traffic, with a total of 100 vehicles and 139 vehicles recorded in the morning and evening peak hours, respectively
- Survey results indicate both roads accommodate a low level of traffic and are able to readily accommodate an increase in traffic.

Public transport

No public transport services or bus stops are provided within the vicinity of the Project Area

Two school bus services operate in the surrounding area along Waterfall Way which are the Hillgrove and Wollomombi bus routes, with the bus service passing Bayley Park Road at 7:45am travelling to Armidale and at 4:05pm travelling to Hillgrove.

Restricted vehicle access

The TfNSW Restricted Vehicle Access Map for the surrounding area shows that the Development Site generally has access to B-Double approved road network via Waterfall Way with Bayley Park Road within the approved area, with conditions.

The Development Site has convenient access to the Class 1 OSOM approved road network via Waterfall Way. However, Bayley Park Road is unrated and requires approval from ARC. The Development Site generally has access to the Special Purpose Vehicle (SPV) Level 4/12t per axle approved network from the south via Waterfall Way and Bayley Park Road.

Crash history

Two serious injury crashes and one moderate injury crash occurred within the search area between 2020 and 2025. The crash search indicates that there are no discernible crash trends within the surrounding road network, and the crashes are distributed on the network with no 'Black Spots'. It is noted that no crashes were recorded along Bayley Park Road including at the intersection with Waterfall Way.

Given the results, it is concluded that the road network is currently operating in a relatively safe manner near the proposed site access.

6.3.3. Potential impacts

Construction impacts

Pre-construction works

The Project may include physical pre-construction works ahead of the main construction phase including construction of the main private access road and site access, public road works and intersection upgrades, installation of fencing, artefact salvage if required, geotechnical drilling and/or surveying and preparation of construction compounds and Development Site facilities.

Traffic will be generated for pre-construction works which will be primarily related to preparing for the road upgrades (e.g. transportation of materials) as well as undertaking the vegetation trimming and grading works to improve intersection sight distance.

The pre-construction traffic volumes have been provided by the Applicant, as follows:

- Up to 60 vehicles in a day (120 trips), which would occur over a short period (up to a week) to transport road construction materials.
- A maximum of 10 vehicle trips in the road network peak hour.
- All vehicle trips would travel to and from the west (Armidale) and enter Bayley Park Road from Waterfall Way via left turns only.
- The largest vehicle will be 19m long articulated vehicles.

Construction

The construction of the Project is anticipated to commence in Q2 of 2028 and would take approximately 30 months. The peak construction period of six to nine months is expected. Table 3-4 summarises the forecast traffic volumes expected to be generated during the construction period of the Project.

Overall, the Project is expected to generate approximately 68 light vehicles per day (vpd) and 186 heavy vpd during the peak construction period, which would reduce to 28 light vpd and 30 heavy vpd during the average construction periods (Table 3-4). High Risk OSOM vehicles (i.e. those requiring an escort) would contribute the smallest percentage of vehicles accessing the Development Site during the construction period and are subject to separate permit applications and regulations.

For the purposes of this assessment, it is conservatively assumed that the evening peak hour (5:00pm to 6:00pm) Project traffic is the same as the morning peak (6:00am and 7:00am).

Class 1 restricted access vehicles are expected for loading/unloading and general construction purposes during both construction and decommissioning. It is noted that Bayley Park Road is unrated for Class 1 exempt vehicles, and any required mitigation measures would be confirmed as part of specific permits that will be applied for prior to construction.

The majority of light vehicles and all heavy vehicles are expected to access the site from the west given the location of Armidale and surrounding towns, as well as the State Road connections from Armidale to the north and south. Only a small proportion of light vehicles are expected to come from the east which would be associated with local staff only. Heavy vehicles would be distributed throughout the day and the number of inbound and outbound vehicles would be split evenly.

Accordingly, the following distribution for the AM peak hour has been adopted:

- Light vehicles: 90% from the west, 10% from the east
- Shuttle Buses: 100% from the west
- Heavy Vehicles delivering materials: 100% from the west, and
- Heavy Vehicles delivering plant and large Project components: 100% from the west.

The resulting peak hour volumes generated by the Project at the intersection with Bayley Park Road are outlined in Figure 6-3 and Figure 6-4.

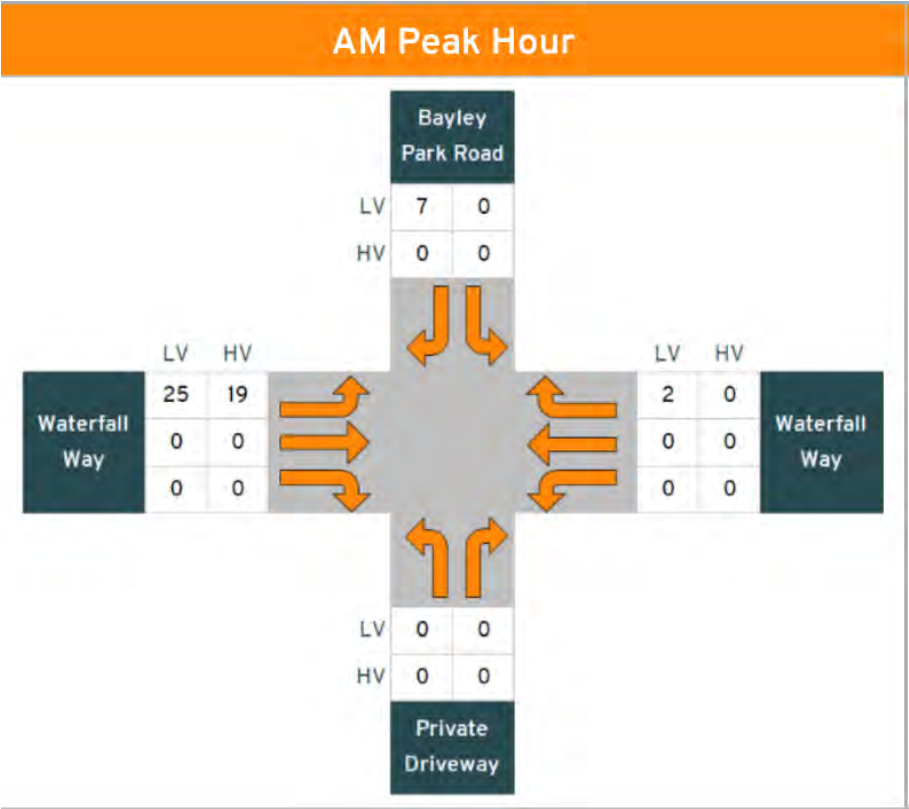


Figure 6-3 Project traffic at the AM peak (Amber, 2026)

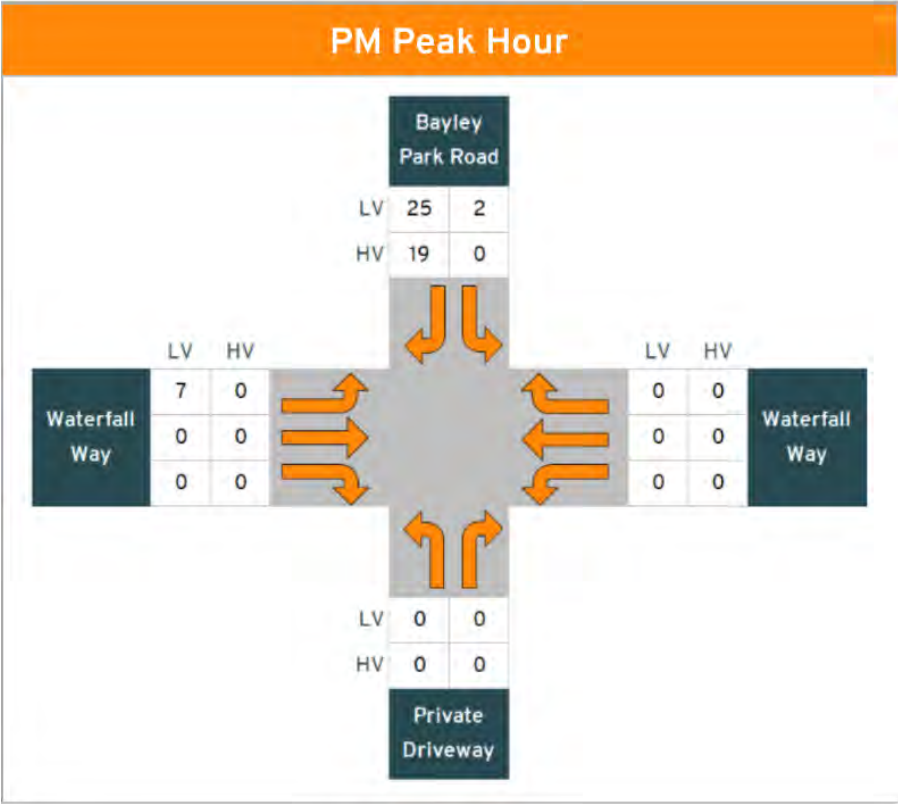


Figure 6-4 Project traffic at the PM peak (Amber, 2026)

Road capacity

The mid-block traffic assessment results are provided in Table 6-12. This suggests that all roads will continue to operate with an excellent level of service based on the RTA Guide.

Table 6-12 Mid-block traffic assessment (Source: Amber 2026)

Road	Peak Hour Traffic- 2024 (vph)	Peak Hour Traffic- 2030 (vph)	Project Peak Hour Traffic- 2030 (vph)	Total Peak Hour Traffic- 2030 (vph)	LOS
Waterfall Way (AM peak)	126	146*	51	197	A
Waterfall Way (PM peak)	132	152*	51	203	A
Bayley Park Road (AM peak)	10	11	53	64	A
Bayley Park Road (PM peak)	9	10	53	63	A

*Figure includes cumulative traffic

Intersection performance

In order to determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period, an analysis of the operation of the intersection of Waterfall Way and Bayley Park Road was carried out to determine the intersections level of service (LOS) designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays).

The modelled traffic volumes at peak hours consist of the sum of the following:

- Existing surveyed traffic volumes adjusted by an estimated 1.5% compounded annual growth rate over 3 years to reflect the end of the construction period in 2030; and
- Construction traffic volumes plus the cumulative impacts of the projects.

The results of the intersection analysis indicated the following:

- The intersection is expected to operate with minimal queue lengths on all legs;
- The overall average delay at the intersection is 3.5 and 2.8 seconds in the morning and evening peak hour respectively which is considered to be minor; and
- The intersection is expected to continue to operate with good level of service (LOS A).

Accordingly, the intersection is expected to continue to operate with a good level of service with minimal queuing and delays expected during the peak construction period.

The majority of the project traffic is expected to travel to/from the west of the intersection with construction personnel, materials and equipment turning left into Bayley Park Road from Waterfall Way. The intersection is currently provided with a Basic Left Turn (BAL) treatment. Therefore, the intersection would require an upgrade to a Basic Right Turn (BAR) and BAL turn treatment to comply with the Austroads Guide.

Accordingly, it is concluded that the intersection upgrade would suitably accommodate the vehicles expected to access the site.

Intersection sight distance

Intersection sight distance could be provided in both directions subject to minor works to trim vegetation and re-grading of verges, all within the road reserve. The initial clearing and necessary regrading will be undertaken prior to works commencing, along with necessary maintenance throughout the construction period to ensure the 300 metres safe intersection site distances is maintained.

Subject to these minor works, the intersection of Waterfall Way and Bayley Park Road can be provided with 300 metres of safe intersection site distances in both directions.

Heavy vehicle routes

The following provides a review of the access routes associated with the delivery of major components excluding High Risk OSOM vehicles. The proposed construction materials are planned to be principally delivered from either the Port of Newcastle or the Port of Brisbane using heavy vehicles. The access routes generally utilise roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map.

All heavy vehicles access the site from the Port of Newcastle are proposed to access the site via the route detailed in Table 6-13 and Figure 6-5 below.

All heavy vehicles access the site from the Port of Brisbane are proposed to access the site via the route detailed in Table 6-14 and Figure 6-6.

Table 6-13 Heavy vehicle routes from Port of Newcastle - Access roads (Amber, 2026)

Road Name	Jurisdiction	B-Double Approved
Selwyn Street	City of Newcastle	Approved
George Street		
Industrial Drive (A43)	TfNSW	
Pacific Highway (A43)		
New England Highway (A1)		
John Renshaw Drive (B68)		
Hunter Expressway (M15)		
New England Highway (A15)		
Uralla Road (B78)		
Kentucky Street (B78)		

Road Name	Jurisdiction	B-Double Approved
Barney Street (B78)		
Waterfall Way (B78)		
Bayley Park Road	Armidale Regional Council	Approved with conditions

Table 6-14 Heavy vehicle routes from Port of Brisbane - Access roads (Amber, 2026)

Road Name	State	Jurisdiction	B-Double Approved
Port Drive	Queensland	Queensland TMR	Approved
Port of Brisbane Motorway (M4)			
Gateway Motorway (M2)			
Logan Motorway (M2)			
Ipswich Motorway (M2)			
Cunningham Highway (A15)			
New England Highway (A15)			
New England Highway (A15)	New South Wales	TfNSW	
Glen Innes Road		TfNSW & Armidale Regional Council	
Erskine Street			
Marsh Street			
Barney Street (B78)		TfNSW	
Waterfall Way (B78)			
Bayley Park Road		Armidale Regional Council	Approved with conditions

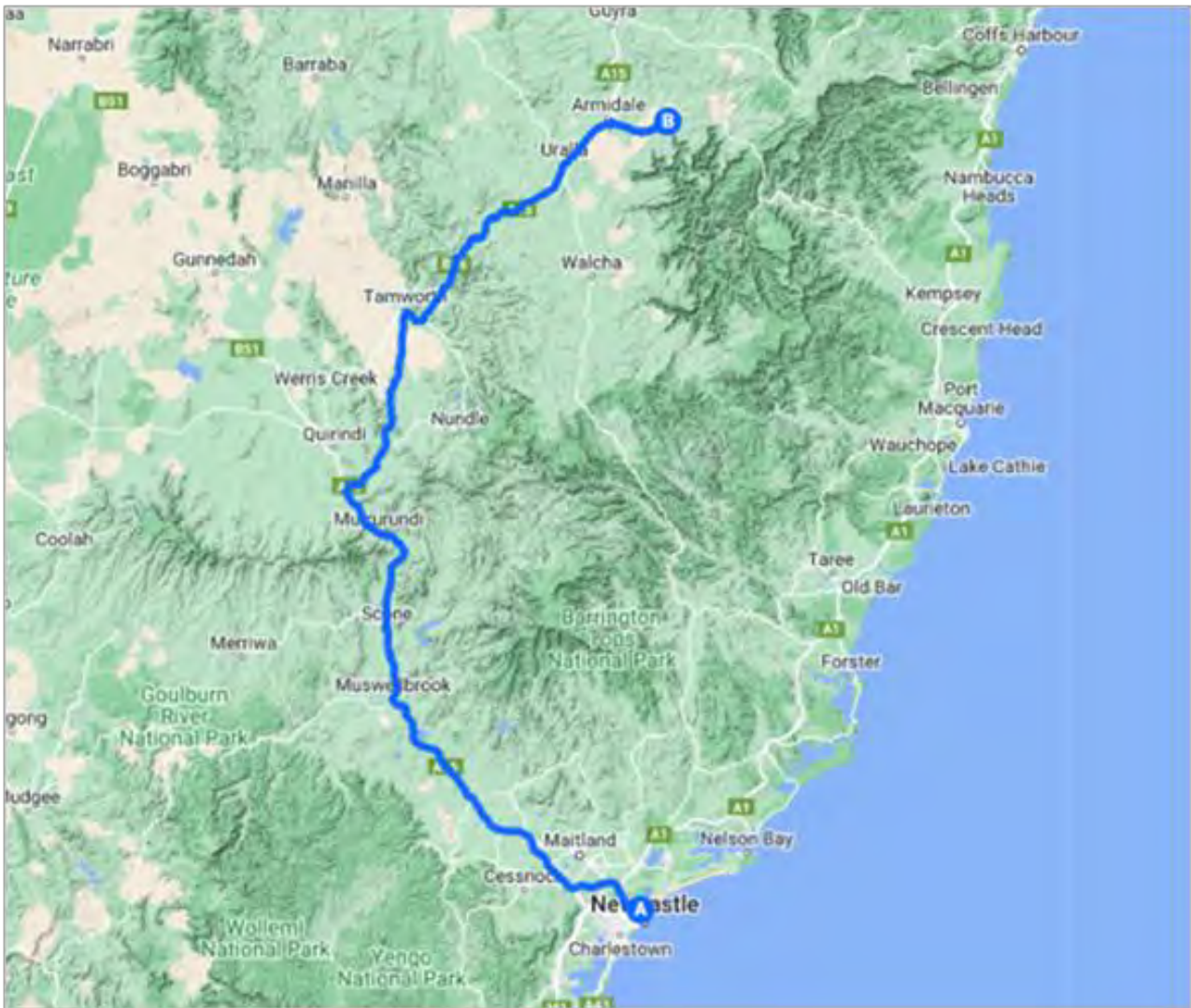


Figure 6-5 Access route from the Port of Newcastle to site (Amber, 2026)

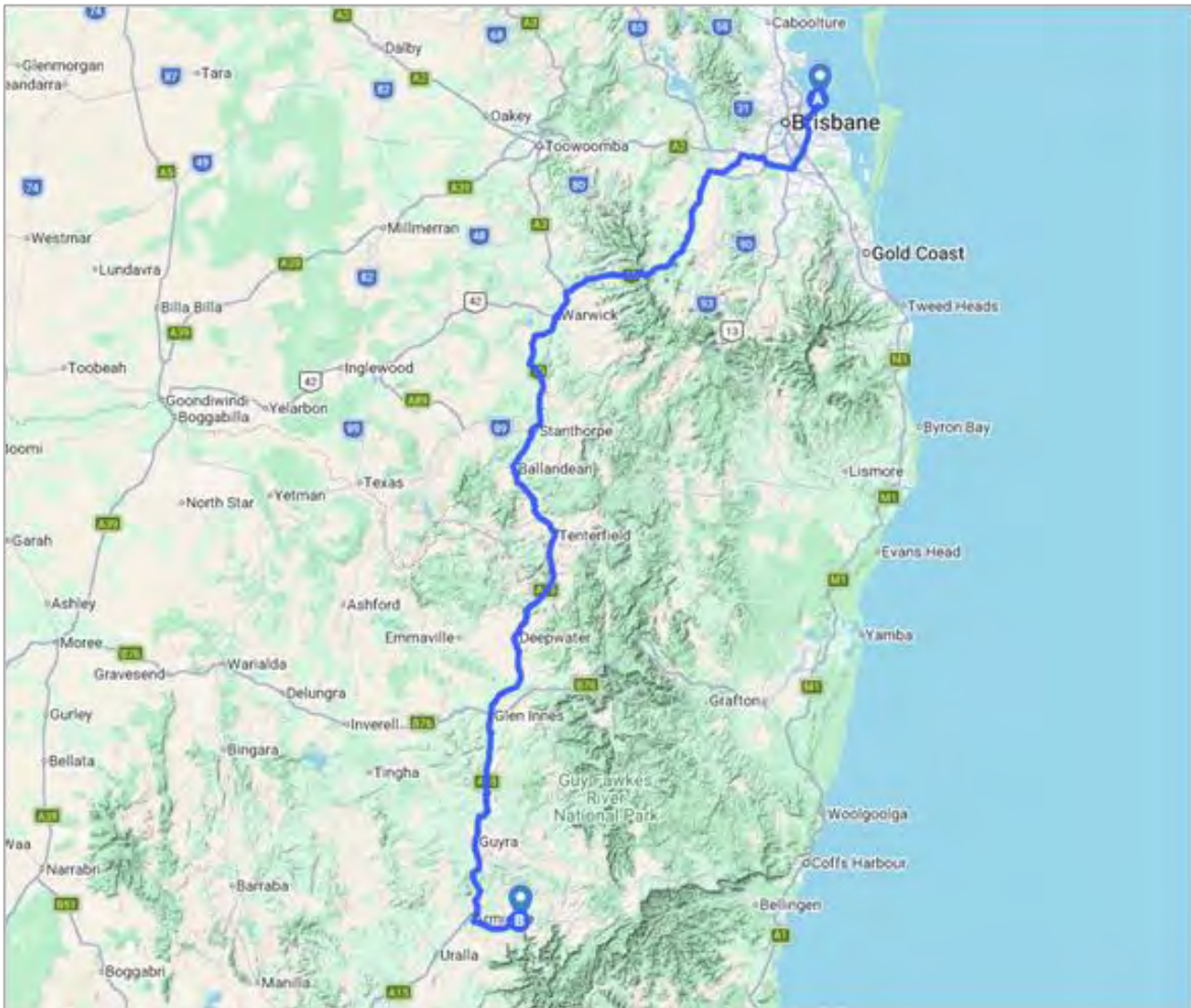


Figure 6-6 Access route from the Port of Brisbane to site (Amber, 2026)

High-risk OSOM vehicle route assessment

A detailed route assessment was carried out from the Port of Newcastle, NSW and the Port of Brisbane, Qld, to cover the delivery of the site transformer. The delivery of the transformer by the OSOM vehicle has been identified for the expected transformer model (subject to procurement and design). The vehicle used for the assessment is shown within Figure 6-7 and is based on feedback from a transport company which confirmed that the vehicle specification would be suitable for the weight and size of the transformer.

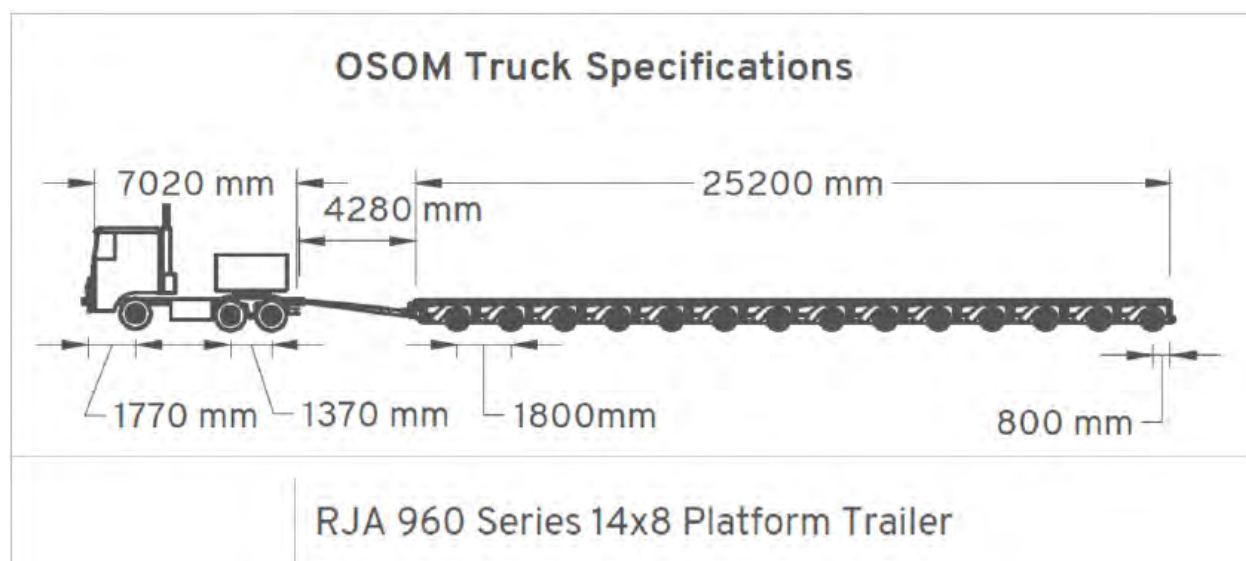


Figure 6-7 High-risk OSOM vehicle combination

Port of Newcastle OSOM route

The proposed OSOM varies from the main heavy vehicle access route to minimise any height restrictions associated with bridges and overpasses. The route primarily uses State and Regional roads from the Port of Newcastle via Mount Thorley, Muswellbrook, Tamworth and Armidale with 4 truck rest areas that could be used along the route. The OSOM transformer route would utilise the roads to access the site as outlined in Figure 6-8 and Table 6-15. All roads on the route are approved (or in progress) for the use of OSOM vehicles, except for the local roads within Armidale. Relevant permits will be applied for as part of the TMP.

The assessment of the access route identified that the vehicle is able to access the site with minor civil works, signage relocation and suitable traffic management measures. A total of 30 points of interest for further assessment and potential road upgrades were identified as part of the assessment of the access route and are provided in Appendix C of the TIA.

It is concluded that the proposed route is suitable for use by OSOM vehicles associated with the Project with permits to be applied for as part of the TMP. It is recommended that any OSOM movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

UGL Regional Linx were contacted via email in December 2025 on the potential use of the Kentucky Street bridge in Armidale, and the Bell Street bridge in Muswellbrook, based on a load configuration of the heavy vehicle requiring escort delivering the transformer. UGL have provided conditional approval for both bridges to be used in the route, noting that the UGL RL-CRN Heavy Vehicle Assessment process must be followed for the application (refer to Appendix G of the TIA).



Figure 6-8 OSOM route from Port of Newcastle (Amber, 2026)

Table 6-15 OSOM Port of Newcastle route - Access Roads (Amber, 2026)

Road Name	Jurisdiction
Selwyn Street	City of Newcastle
George Street	
Industrial Drive (A43)	TfNSW
Pacific Highway (A43)	

Road Name	Jurisdiction
New England Highway (A1)	
John Renshaw Drive (B68)	
Hunter Expressway (M15)	
Golden Highway (B84)	
Denman Road	
New England Highway (A15)	TfNSW
Whitehouse Lane	Tamworth Regional Council
Marsden Park Road	
Calala Lane	
O'Briens Lane	
Nundle Road	
New England Highway (A15)	TfNSW
Uralla Road (B78)	
Kentucky Street (B78)	
Dangar Street (B78)	
Barney Street (B78)	
Waterfall Way (B78)	
Bayley Park Road	Armidale Regional Council

Currently, there are multiple state road upgrade Projects either in construction or planned for construction. These include the Hexham Straight Widening and the Port to REZ. Noting that these upgrades are likely to complete prior to construction commencing for this Project. By their nature, they are expected to facilitate access for heavy vehicles including high-risk OSOM movements. It should be noted that there is currently

limited available public information on these projects, the route assessment is based on routes using roads that are currently available for use, which could be updated at a later date as part of a future NHVR permit.

Port of Brisbane OSOM route

The proposed OSOM varies from the main heavy vehicle access route to minimise any height restrictions associated with bridges and overpasses. The route primarily uses State and Regional roads from the Port of Brisbane via Warwick, Stanthorpe, Tenterfield, Glen Innes and Armidale with 4 truck rest areas that could be used along the route. The OSOM transformer route would utilise the roads to access the site as outlined in Figure 6-9 and Table 6-16. All roads on the route are approved (or in progress) for the use of OSOM vehicles, except for some local roads within Glen Innes Armidale. Relevant permits will be applied for as part of the TMP.

The assessment of the access route identified that the vehicle is able to access the site with minor civil works, signage relocation and suitable traffic management measures. A total of 30 points of interest for further assessment and potential road upgrades were identified as part of the assessment of the access route and are provided in Appendix C of the TIA.

It is concluded that the proposed route is suitable for use by OSOM vehicles associated with the Project with permits to be applied for as part of the TMP. It is recommended that any OSOM movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

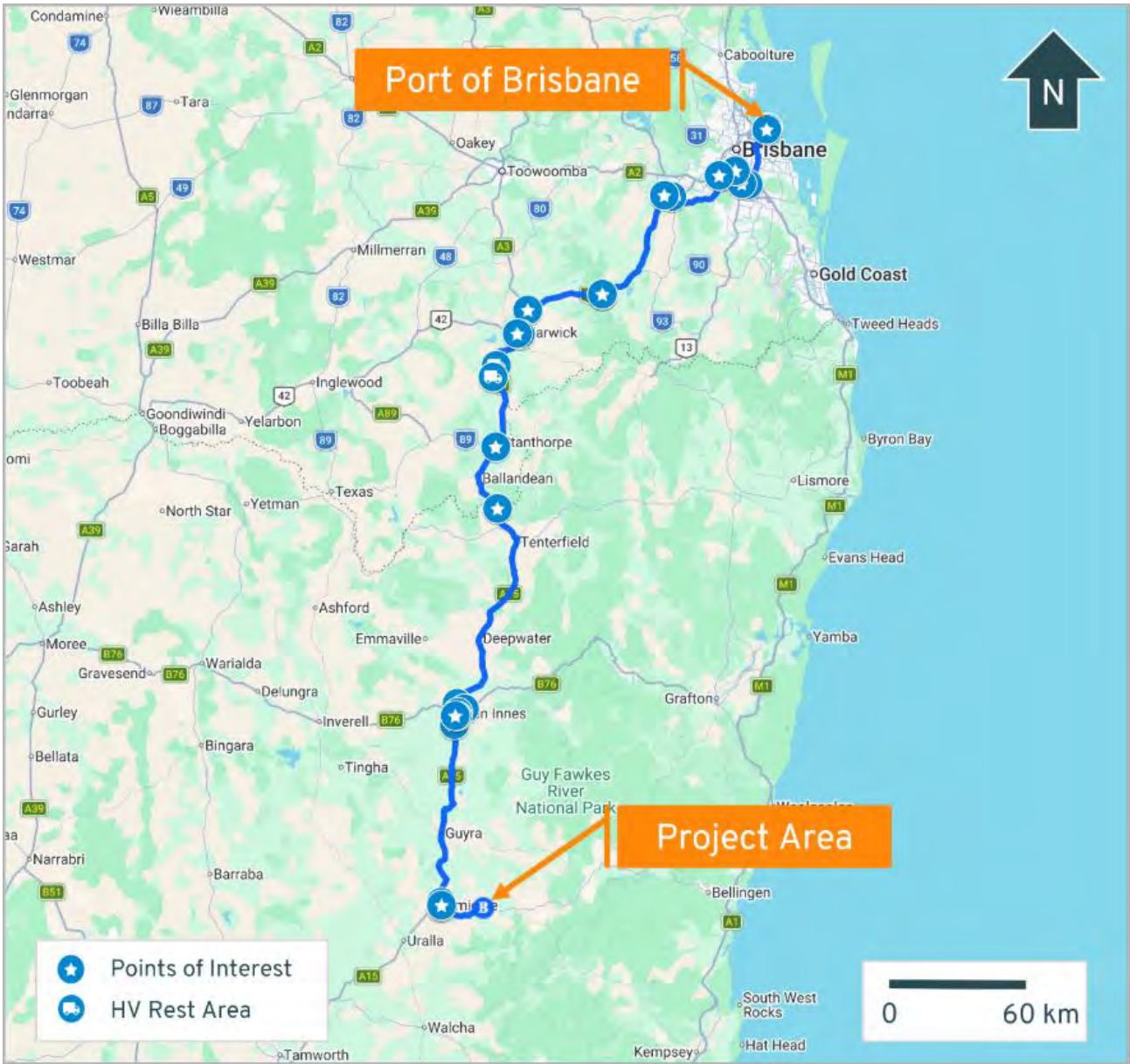


Figure 6-9 OSOM route from Port of Brisbane (Amber, 2026)

Table 6-16 OSOM Port of Brisbane route - Access Roads (Amber, 2026)

Road Name	State	Jurisdiction
Port Drive	Queensland	Queensland TMR
Port of Brisbane Motorway (M4)		
Gateway Motorway (M1)		
Compton Road (30)		Brisbane City Council

Road Name	State	Jurisdiction
Beaudesert Road (13)		Queensland TMR
Granard Road (2)		
Ipswich Motorway (M2)		
Centenary Motorway (M5)		
Cunningham Highway (15)		
New England Highway (15)		
New England Highway (A15)	New South Wales	TfNSW
Golf Links Road		Glen Innes Severn Shire Council
Gwydir Highway (B76)		TfNSW
Hunter Street		Glen Innes Severn Shire Council
Heron Street		
New England Highway (A15)		TfNSW
Glen Innes Road		Armidale Regional Council
Erskine Street		
Marsh Street		
Barney Street (B78)		TfNSW
Waterfall Way (B78)		
Bayley Park Road		Armidale Regional Council

The assessment of the access route from Port of Brisbane identified that the vehicle is able to access the site with minor civil works, temporary signage removal and suitable traffic management measures.

Swept path analysis

To test the concept road layout swept paths were undertaken as part of the route assessment of the High Risk OSOM vehicle as shown in Appendix C. The swept paths show that the largest vehicle combinations to site are able to utilise the road without further widening or works.

Swept paths confirm that the intersection can safely accommodate 19m articulated vehicles (refer to Appendix E of the TIA)

Cumulative traffic impacts

Cumulative impacts and nearby major projects are covered in more detail in Section 7.3 of this report. Regarding cumulative traffic impacts the TIA has considered that the following Projects may add the cumulative traffic loads along Waterfall Way during the construction period:

- Armidale BESS
- Wongalea BESS
- Hollaway BESS, and
- Kooyong BESS

The additional movements from these projects (where a TIA has been prepared) have been factored into this TIA's traffic assessment. Given that the overall average delay at the Waterfall Way/Bayley Park Road intersection is 3.5 and 2.8 seconds in the morning and evening peak hour respectively, the potential cumulative delay is considered minor

Operation impacts

During operation, the BESS is expected to generate a minimal level of traffic associated with maintenance and operation services. The BESS is expected to be operated by up to five maintenance staff resulting in a traffic generation of up to 20 vehicle movements per day which would result in a negligible change to the traffic environment. There would also be occasional light commercial vehicles delivering parts to the Project Area, as required for maintenance

Decommissioning impacts

Traffic generation during decommissioning would be similar to traffic generation during the average (non-peak) construction period. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities. This would aim to ensure adequate road safety and road network operations are maintained.

6.3.4. Mitigation measures

Safeguards and mitigation measures to address traffic risks, as recommended in the TIA, are provided in Table 6-17 below.

Table 6-17 Traffic and access mitigation measures

Mitigation number	Mitigation measures	Project stage
T1	A Construction Traffic Management Plan (CTMP) will be prepared and implemented. The CTMP will be prepared in consultation with TfNSW and relevant councils and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The CTMP will provide additional information regarding the traffic volumes, distribution and vehicle types broken down into: • Hours and days of construction.	Prior to construction Construction

Mitigation number	Mitigation measures	Project stage
	- Schedule for phasing/staging of the Project. - The origin, destination and routes for: - Employee and contractor light vehicles. - Heavy vehicles. - OSOM vehicles The CTMP will include but not be limited to the following key safety initiatives: - Designated transport routes, access and delivery schedules, - Emergency protocols for accessing and exiting the Development Site - Driver Code of Conduct, - Implementation of the shuttle bus program, - OSOM vehicle haulage and operating protocols, - Heavy vehicle scheduling to avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users - Key information relating to road safety to be provided to all staff, - Consultation with neighbours and local authorities regarding heavy vehicle and OSOM deliveries, - Regular dilapidation reports to be provided to ensure the road network is kept in a safe condition, - Suitable signage on Waterfall Way and surrounding roads to advise road users of changed conditions, and - On-site requirements including: - Parking - Loading, unloading and storage - Speed restrictions - Appropriate dust suppression measures - Maintenance program for access tracks to ensure safe access	
T2	A Decommissioning Traffic Management Plan (DTMP) will be prepared and implemented. The DTMP will be prepared in consultation with TfNSW and relevant councils and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The DTMP will include the same information regarding the traffic volumes, distribution and vehicle types and key safety initiatives as detailed in the CTMP.	Prior to decommissioning
T3	Where a coordinated worker transport program is adopted, measures to detail how the shuttle bus program will be implemented and monitored will be included within the EMS and/or CTMP.	Prior to construction Construction

Mitigation number	Mitigation measures	Project stage
T4	A Driver Code of Conduct will be implemented as a measure to maintain safety within and around the site.	Prior to construction Construction
T5	Prior to construction, a pre-condition survey of the relevant sections of Bayley Park Road will also be undertaken in consultation with Armidale Regional Council. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.	Prior to construction
T6	A program of consultation will be initiated to ensure local residents are aware of construction traffic accessing the Project.	All stages
T7	Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.	All stages
T8	Heavy vehicles will avoid travel during peak school bus operating times on local roads to limit the interaction of larger vehicles and vulnerable road users.	Construction Decommissioning
T9	To manage the risk of conflict of light and heavy vehicle access to site on Bayley Park Road there are to be clear passing areas with signage, traffic controllers / traffic signals to suitably control traffic in consultation with ARC.	Construction Decommissioning
T10	OSOM vehicle trips will be timed where feasible so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.	Construction Decommissioning
T11	Specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These will warn existing road users of changed traffic conditions.	Construction Decommissioning

6.4. Hazards – Bushfire

Ember Bushfire Consulting has prepared a Bushfire Assessment Report (BFAR) to address the Project SEARs and to establish the level of bushfire threat to and from the Project and suggest mitigation measures to minimise the risk. The BFAR is attached as Appendix of this document and summarised below.

6.4.1. Approach

The Project Area includes land designated bushfire-prone by ARC and the NSW Rural Fire Service (RFS). As such, it is subject to Section 4.14 of the EP&A Act and the provisions of the NSW RFS document *Planning for Bushfire Protection 2019* (PBP). The methods used in this assessment include:

- Desktop analysis – review available mapping, policy documents and development plans
- Site inspection – evaluate context of the Development Site, determine bushfire threats, options for asset protection zones, access roads and infrastructure
- Assessment of Project against SEARs and PBP requirements
- Recommend protection measures that have been adopted as Project mitigation measures.

6.4.2. Existing environment

The Project Area and its surrounding topography is considered open and predominantly flat and is in the New England fire weather area. The Subject Land has landforms sloping gently from the northeast to the southwest in the order of 0-2° downslope towards natural watercourses that flows onto Limerick Creek.

While the Development Site is not mapped as bushfire prone land, areas of the Subject Land and surrounds are mapped as bushfire prone (refer to Figure 6-10). The greatest threat from bushfire would come from the heavily vegetated regions southeast of Waterfall Way approximately 7km southeast of the Project Area extending further southeast of Hillgrove into Oxley Wild Rivers National Park.

The last major bushfire in the area was the Warm Crossing Wildfire during the 2019-2020 bushfire season which burnt significant area on the northwest side of the Oxley Wild Rivers National Park. The burnt-up area is approximately 13km south of the Subject Land.

The Forest Fire Danger Index (FFDI), which measures the degree of danger of fire in Australian vegetation, for the 1:50 year fire weather scenario for the New England fire weather area is FFDI 80. FFDI is based on a combination of different weather conditions known to influence the risk of dangerous bushfire conditions in Australia, including temperature, rainfall, humidity and wind speed. It is measured from 0 (Low) to 100+ (Catastrophic).

The Project Area is serviced by NSW RFS New England district fire brigades under the control of Armidale Fire Control Centre. The NSW RFS New England district brigades comprise approximately 40 brigades and 3 control centres, Armidale, Uralla and Walcha. Hillgrove Brigade of the NSW RFS is the closest (approximately 14km by road); however, the most likely brigade to attend in the first instance would be the Dumaresq Brigade based in Armidale. The attending fire brigade depends on the type and level of incident requiring response.

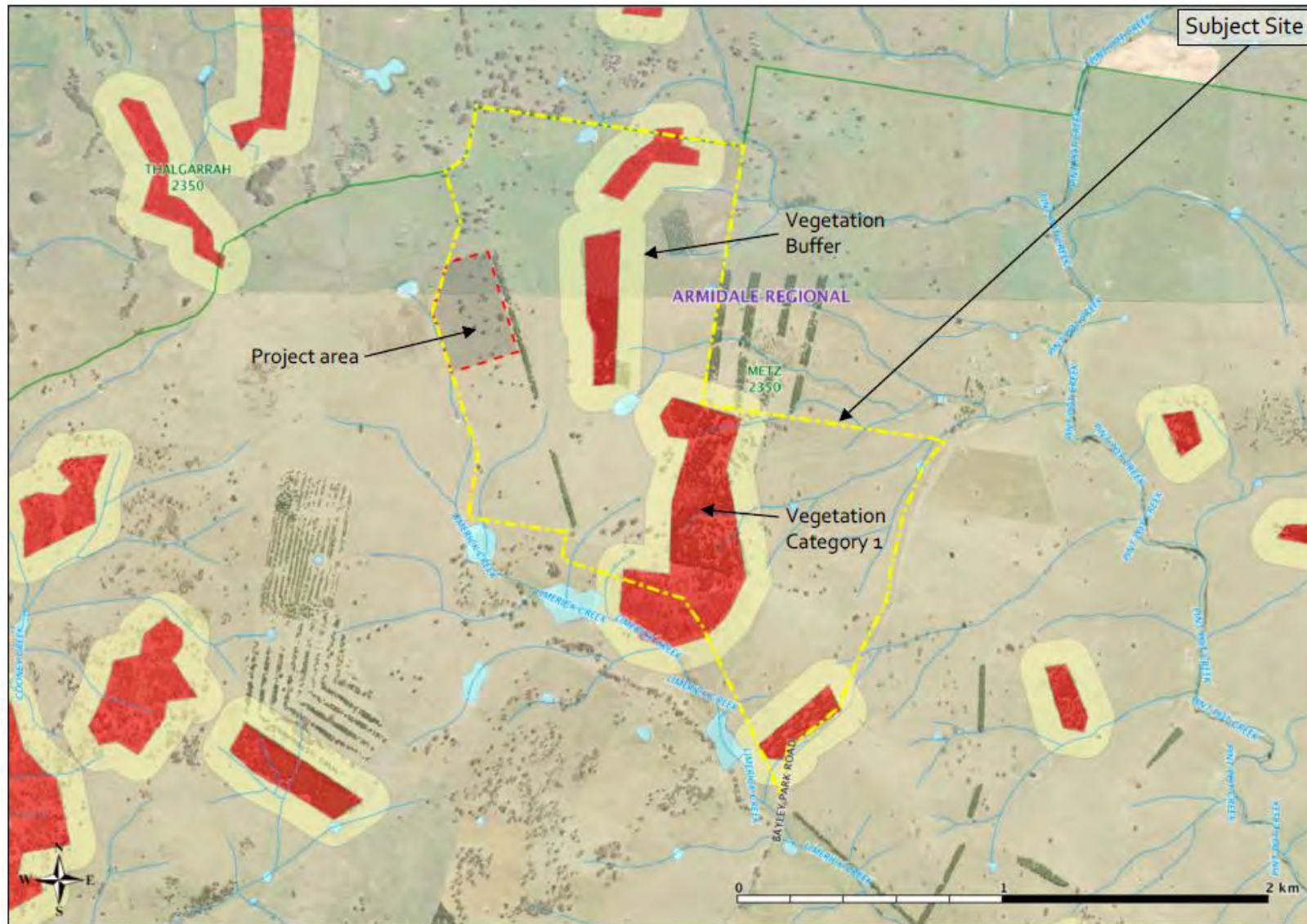


Figure 6-10 Involved Lands bushfire prone land map (Source: Ember, 2026)

6.4.3. Potential impacts

Construction and decommissioning

Potential fire ignition sources during construction and decommissioning stages of the Project include:

- Earthworks and slashing machinery causing sparks
- Hot works activities such as welding, soldering, grinding and use of a blow torch
- Sparks and contact ignition from vehicles in long combustible vegetation
- Smoking and careless disposal of cigarettes
- Use of petrol-powered tools
- Operating plant fitted with power hydraulics on land containing combustible material
- Electrical faults during testing and commissioning
- Storage of chemicals and hazardous materials.

The Development Footprint is predominantly on low slope land in a low (grassland) fuel environment. Bush fire risks during construction and decommissioning would be managed through the standard mitigation measures recommended in this EIS.

Proposed access road via Bayley Park Road, as well as any internal construction tracks would provide RFS and emergency service access throughout the site.

Operation

There are two bushfire risks associated with the operation of the Project:

1. Bushfire from the surrounding area may impact on the Project infrastructure
2. The Project operation and maintenance activities may create a fire that could spread to the surrounding areas.

The key risk identified for Project operational fire risk is in relation to the operation of LFP batteries. LFP cells contain highly flammable electrolytes within a metal prismatic can or metalized pouch that have seals designed for a 20-year service life. They are more stable, however, than Lithium-ion because they offer enhanced safety, longer lifespan, and better thermal protection.

Identified fire hazards associated with the operation of the BESS have been rated as Very Unlikely to Extremely Unlikely (see Preliminary Hazards Analysis report – Appendix E.5) if the appropriate controls and mitigation measures are adhered to.

The Project has included the following design elements to reduce both bush fire risks:

- Asset Protection Zones (APZ) and setbacks
 - o The Project would have a minimum 11m APZ to provide a buffer zone between identified hazards and structures, incorporating an all-weather, gravel road
 - o This will minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke and ember attack.
- Landscaping
 - o Landscape design for areas identified as APZ surrounding the BESS, substation and associated infrastructure is to incorporate non-combustible mulch (stone or aggregate), where practicable
 - o Vegetation in areas identified as APZ will to be managed for the life of the Project as per the requirements of Asset Protection Zone Standards – Appendix 4 of PBP 2019 to eliminate the growth of vegetation or storage of combustibles near this infrastructure.
- Site access

- o The Project access road is designed to be used by emergency services in the event of fire or other emergency situation
- o The Development Site is designed to include internal road network and perimeter road surrounding the BESS area, with the potential of access gates along the perimeter. The proposed access provisions will ensure that the Project can comply with PBP 2019 access requirements.
- Fire-fighting resources and preparedness
 - o Adequate water supply will be located so that it is readily accessible by emergency crews for either protection from external bushfire threat or to protect surrounding exposures should the BESS become involved in fire.
 - o The Project design and layout includes a 5 x 115KL non-combustible water tank providing a significant volume of water designated for firefighting purposes.

With the above design elements in place, the Project will be capable of:

- Affording structures protection from exposure to bushfire
- Provide for a defensible space
- Provide appropriate separation between a hazard and structures to prevent the likely spread of fire
- Ensure appropriate operational access and egress
- Provide for ongoing management and maintenance
- Ensure that utility services are adequate to meet the needs of firefighters

Therefore, the Project is deemed capable of complying with the specific broad objectives of the PBP.

6.4.4. Mitigation measures

Safeguards and mitigation measures to address bushfire hazard, as recommended in the BFAR, are outlined in Table 6-18.

Table 6-18 Bushfire management mitigation measures

Mitigation number	Safeguards and mitigation measures	Project stage
BF1	Dangerous or hazardous materials will be stored and handled in accordance with AS1940-2004: <i>The storage and handling of flammable and combustible liquids</i> .	Construction Operation Decommissioning
BF2	Develop a Bushfire Emergency Management and Operations Plan in consultation with NSW RFS and FRNSW to include but not be limited to: • Detailed measures to prevent or mitigate fires igniting • Construction work that should not be carried out during total fire bans • Availability of fire-suppression equipment, access and water • Storage and maintenance of fuels and other flammable materials • Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate	Construction Operation Decommissioning

Mitigation number	Safeguards and mitigation measures	Project stage
	• Appropriate bush fire emergency management planning. • Provide a defendable space - o An APZ of minimum 11m will be maintained between remnant or planted woody vegetation and the BESS and ancillary infrastructure. • Maintain grass within the APZ at a low and manageable height throughout the fire season (October to April). • Keep grass outside the APZ at a moderate, well-controlled height throughout the fire season • 5x non-combustible 115kL water storage tank/s will be installed adjoining the main internal access road, or nearby the BESS, for fire-fighting and other non-potable water uses. The final location/s of water tanks will be to the satisfaction of the relevant authority. • Provided a contact point for the BESS to the NSW RFS and Fire and Rescue NSW during construction and operation. • Protocols to manage activities in bushfire danger weather, including Total Fire Ban days, will be developed. • Preparation of a specific Battery Fire Response Plan, under the general BFEMOP, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines.	
BF3	Prior to commencing construction of the battery storage, the Applicant must prepare a Fire Safety Study for the development, to the satisfaction of FRNSW and the Planning Secretary in writing. The study must: • Be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 2 'Fire Safety Study' guideline • Describe the final design of the battery storage • Include reasonable worst-case bush fire scenario to and from the battery storage and the associated bush fire management • Identify measures to eliminate the expansion of any fire incident including: - o Adequate fire safety systems and appropriate water supply; - o Separation and / or compartmentalisation of battery units; - o Strategies and incident control measures specific to the battery storage design. Following approval by the Planning Secretary, the Applicant must implement the measures described in the Fire Safety Study.	Prior to construction
BF4	Following commissioning of the BESS, the local NSW RFS and Fire and Rescue brigades will be invited to an information and orientation day	Operation

Mitigation number	Safeguards and mitigation measures	Project stage
	covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site	
BF5	The access track will comply with the requirements of property access roads in accordance with Table 5.3b of the PBP. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies.	Construction Operation Decommissioning
BF6	A Hot Works Permit system shall be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	Construction Operation Decommissioning
BF7	Prior to operation of the BESS, an Emergency Response Plan (ERP) will be prepared in consultation with the RFS and FRNSW. This plan must include but not be limited to: - Specifically addresses foreseeable onsite and off-site fire events and other emergency incidents. - Risk control measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the system (either in its entirety or partially, as determined by risk assessment). - Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. - Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point. Once constructed and prior to operation, the operator of the facility will contact the relevant local emergency management committee.	All stages

6.5. Hazards – Hazardous material and electromagnetic fields

This section summarises the findings of the Preliminary Hazards Analysis (PHA) undertaken by Pando Consulting and the Preliminary Risk Screening completed by NGH, as well as summarising impacts of EMF. to address all hazard related matters required by the SEARs. The PHA is attached as Appendix E.5 of this EIS and summarised in this section.

6.5.1. Approach

The PHA was been prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis (DoP, 2011a) and Multi-Level Risk Assessment (DoP, 2011a). The PHA considers all recent standards and codes and verifies separation distances to on-site and off-site receptors to prevent fire propagation.

The PHA also assesses compliance with Hazardous Industry Advisory Paper No. 4 ‘Risk Criteria for Land Use Safety Planning (DoP, 2011c) including the key design parameters. The PHA provides a basis for an informed judgment to be made on the acceptability of the Project. The PHA presents the results of a generalised BESS PHA using Lithium Iron Phosphate (LFP) cell chemistry.

The methodology undertaken includes:

- Risk screening based on the SEPP 33 screening procedure (used in the absence of a screening process under the new Resilience and Hazards SEPP) that is based on the quantity of dangerous goods stored or transported, the frequency of transportation movements and, in some cases, the distance of the materials from the site boundary.
- Classification of goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail Code (ADG Code), in line with the application guidelines for SEPP 33 (DoP, 2011a)
- Identification of the nature and scale of all hazards at the Project, and the selection of representative incident scenarios.
- Analysis of the consequences of these incidents on people, property, and the biophysical environment.
- Evaluation of the likelihood of such events occurring and the adequacy of safeguards.
- Calculation of the resulting risk levels of the facility.
- Comparison of these risk levels with established risk criteria and identification of opportunities for risk reduction.
- Mitigation measures have been developed to address the risks identified.

A schematic of the hazard analysis process is included below in Figure 6-11.

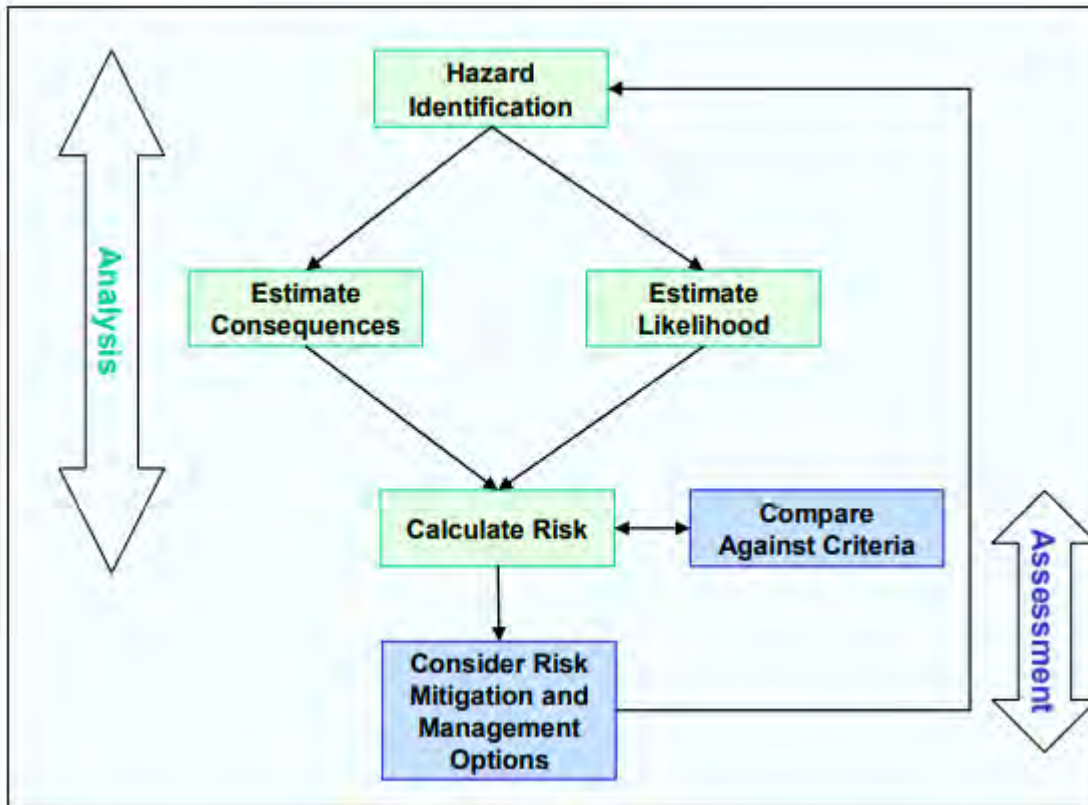


Figure 6-11 Basic methodology for hazard analysis (Source: HIPAP 6)

Criteria

A risk matrix (refer to Figure 6-12) was used to assess the potential hazards based on the likelihood criteria in Table 6-19.

Table 6-19 Likelihood categories

Category	Description
1. Extremely unlikely	Never heard of in the industry, not realistically expected to occur
2. Very Unlikely	Heard of in the industry, but not expected to occur
3. Unlikely	Could occur within the next 10 years
4. Likely	Could occur in the next year

			Likelihood			
			1 Extremely Unlikely	2 Very Unlikely	3 Unlikely	4 Likely
			Never heard of in the industry, not realistically expected to occur	Heard of in the industry, but not expected to occur	Could occur in the next 10 years	Could occur in the next year
Severity	4 Major	Fatality / permanent injury				
	3 Moderate	Severe injury / lost time				
	2 Minor	Minor injury / visit to doctor				
	1 Insignificant	Slight injury / first aid				

Risk Acceptance Criteria	High - Unlikely to be tolerable, review activity
	Medium - Tolerable if reasonably practicable
	Low - Broadly acceptable

Figure 6-12 Qualitative risk matrix

6.5.2. Potential impacts

Preliminary Risk Screening

The ADG Code lists nine classes of dangerous goods. The dangerous goods that would require transportation and storage during construction and operation of the Project are identified in Table 6-20 with ADG Code classification, relevant quantity and transportation thresholds, and storage arrangements. A development which exceeds screening thresholds in the guidelines for SEPP 33 (DoP, 2011a) would be considered potentially hazardous. For quantities below the given thresholds, the SEPP indicates that there is unlikely to be a significant off-site risk, in the absence of other risk factors.

In terms of the class, transportation and storage of dangerous goods, the Project would not exceed SEPP 33 thresholds.

Table 6-20 Dangerous good and SEPP thresholds relevant to the Project

Hazardous material	Storage threshold	Transport threshold		Onsite storage arrangements for the Project	Exceeds SEPP 33 thresholds?
		Movements	Quantities		
Class 2.2 Non-flammable, non-toxic gases					
Inert fire suppression gas	NA	NA	NA	Compressed in steel bottles in BESS	No
Class 3 Flammable liquids					
Miscellaneous flammable liquids in small	Applying SEPP33 Figure 8 graph if	>500 cumulative >30/week	1 tonne	Stored in Diesel tank	No

Hazardous material	Storage threshold	Transport threshold		Onsite storage arrangements for the Project	Exceeds SEPP 33 thresholds?
		Movements	Quantities		
containers (Packaging Group I)	greater than 2 tonne			33m from site boundary	
Refrigerant	Applying SEPP33 Figure 8 graph if greater than 2 tonne	N/A	N/A	BESS refrigeration/chiller units stored in equipment and packages	No
Class 6.1 Toxic substances (PG II, III)					
Pesticides (herbicides)	2.5 tonnes	All	Less than 100kg	Secure operations storage building.	No
Class 9 Miscellaneous dangerous substances and articles					
Li-ion batteries	NA	>1000 cumulative >60/week	No limit	Energy Storage Facility buildings in a secure compound.	No
Coolant	N/A	>1000 cumulative >60/week	No limit	BESS coolant stored in equipment and packages	No

Hazard identification and analysis

Hazard Identification aims to identify all reasonably foreseeable hazards and associated events that may arise due to the operation of the facilities and defining the relevant controls through a systematic and structured approach. The identified hazards, events, applicable infrastructure and the relationships with causes, consequences and controls are summarised in the hazard register that is contained in Table 5-4 of the PHA.

A total of 17 hazardous events were identified, with none assessed to have a significant off-site impact due to their consequences and controls

- 13 medium-risk events
- 4 low-risk events.

Most of the medium-risk events are related to fire events. The primary exposure to fire events will be to the Project's construction and operations workforce, with minimal offsite impacts anticipated.

The qualitative assessment of a thermal runaway event indicates that, due to the separation distances, a multi module fire (i.e., fire propagating from battery container to battery container or battery unit to battery unit) is a non-credible event.

The risk assessment concluded that there is no potential for offsite fatalities or injuries. Therefore, the Project aligns with land use planning criteria. The identified risk events pertain to onsite impacts and were assessed against the requirements of the *Work Health and Safety (WHS) Act* to reduce risk to SFARP. The Project deemed these risks as tolerable, considering the measures taken So Far As Is Reasonably Practicable.

Electric and magnetic fields

Electric and magnetic fields (EMF) are naturally present in the environment. They are present in the earth's atmosphere as electric fields, while static magnetic fields are created by the earth's core. EMF are also produced wherever electricity or electrical equipment is in use, meaning people are exposed to them as part of daily life.

There are well-established acute effects on the nervous system due to exposure to high levels of EMF, and limited studies on the effects of long-term exposure to EMF. The International Agency for Research on Cancer has classified EMF as 'possibly carcinogenic to humans. However, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) views that the current existing scientific evidence is too weak to ascertain a causal relationship that prolonged exposure to EMF is related long term health impacts. The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) are a federal government agency assigned with the responsibility for protecting the health and safety of people and the environment from EMF. ARPANSA advises that *"The scientific evidence does not establish that exposure to [EMF] found around the home, the office or near powerlines and other electrical sources is a hazard to human health"*.

The PHA assesses the typical exposure levels to EMF for the Project and concluded that assuming controls are in place, unsafe human exposure to EMFs due to the Project is extremely unlikely. The controls in that would be in place are:

- Location siting and selection (incl. separation distance)
- Optimising equipment layout and orientation
- Reducing conductor spacing
- Balancing phases and minimising residual current
- Incidental shielding (i.e., BESS building/enclosure, switch room)
- Equipment and systems will be designed and tested to comply with international standards and guidelines
- Exposure to personnel is short duration in nature (transient)
- Physical warning signs (e.g., danger or restricted access).

Fire risk

As noted above, most of the medium-risk events are related to fire events. In addition, the SEARs includes a requirement to *'consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation'*.

Separation distance may be the most effective control to reduce the likelihood and consequence of fire propagation as a result of thermal runaway event. The separation distances for the BESS, as presented in Figure 6-13, include:

- Project APZ of 11m and including the 5m internal roads
- Substation exclusion zone of 20m
- Separation distance of 3.5m between BESS container pairs and 0.3m back-to-back
- Separation distance of 3.5m between BESS containers and PCS.

In accordance with the National Fire Protection Agency (NFPA) 855 *Standard for the Installation of Stationary Energy Storage Systems* (NFPA 855), the minimum clearance to enclosures for outdoor stationary Energy Storage Systems (ESS) installations is 10 feet (3.05m). The proposed separation distance of 3.5m exceeds the NFPA 855 guidelines.

As the separation distance of 3.5m exceeds NFPA 855 and other BESS facilities, it is considered appropriate at the planning phase of the development. Subject to the implementation of the recommendations of the PHA, including the proposed separation distances, the likelihood of a multi-module fire would be minimised to a non-credible event (refer to Figure 6-13).

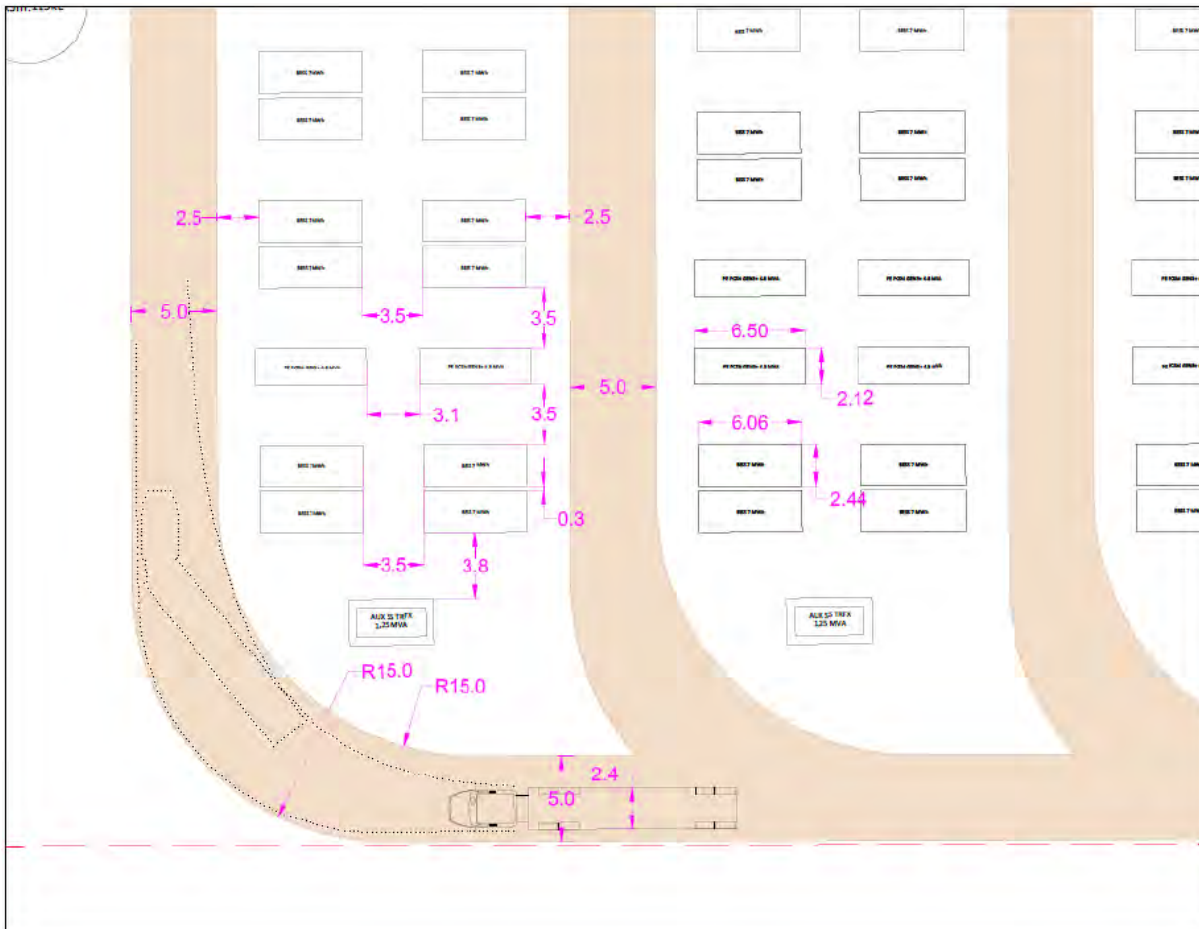


Figure 6-13 BESS separation distances (Source: FRV)

Recommendations following the Victorian Big Battery Fire

Recommendations were provided in the *Victorian Big Battery Fire Statement of Technical Findings* – Victorian Government 2021 (ESV, 2021) following an investigation into the Victorian Big Battery Fire. In response to the recommendations, the Applicant, makes the commitments presented in Table 4-1 of the PHA.

It is unlikely that the Applicant will use the Tesla Megapack. Following installation, the Applicant will commission any liquid chiller and cooling pipes to ensure functionality. DC fuses will remain in service for protection purposes, no matter if the key lock is isolated or not. However, if the Applicant chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented.

6.5.3. Mitigation measures

Safeguards and mitigation measures to address hazards, as recommended by the PHA, are provided in Table 6-21.

Table 6-21 Hazard mitigation measures

Mitigation number	Mitigation measure	Project stage
H1	The results of the PHA will be used as inputs into other safety studies, such as: • Fire safety study • Emergency response plan • Bush Fire Emergency Management and Operations Plan in accordance with the <i>Bushfire Assessment Report</i>.	All stages
H2	Prior to construction, the Applicant will procure a BESS where the original equipment manufacturer has conducted and documented full-scale fire testing in accordance with UL 9540A protocols or similar, which demonstrates non-propagation of thermal runaway between adjacent BESS units.	Design
H3	The detailed design of the BESS will be undertaken to comply with the requirements of section 3.2 of the PHA, including separation distances, UL9540A test reports and OEM recommendations.	Design
H4	The Applicant will consult with Fire and Rescue NSW (FRNSW) to ensure that relevant aspects of fire protection measures have been included in the design. This may include: • Type of firefighting or control medium. • Demand, storage, and containment measures for the medium. • The above aspects will form an input to the Fire Safety Study, which may be required as part of the development consent conditions, for review and approval by FRNSW.	Design Construction Operation
H5	If the Applicant chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented	All stages

6.6. Visual amenity

Moir Landscape Architecture Pty Ltd (Moir LA) prepared a Landscape and Visual Impact Assessment (LVIA) to address the SEARs in relation to potential visual amenity impacts. It is summarised below and appended in full in Appendix E.6.

Terms: The LVIA considered potential for impact within a 5km radius from the Subject Land; referred to as the *Study Area* in this section.

6.6.1. Approach

Visual impacts are anticipated where a development is in contrast with the existing landscape character of an area and/or the scenic values and sensitivity of receivers. To assess the degree of visual impact, the LVIA identifies and determines the landscape character, key landscape features and sensitivity of public and private views to the Project. The potential visual impact of the Project is then assessed based on the relationship between the visual sensitivity and visual magnitude. The assessment was undertaken as follows:

- Objective assessment of the relative aesthetic value of the landscape; defined as visual quality and expressed as high, moderate, low or very low. This assessment generally relates to variety, uniqueness, prominence and naturalness of the landform, vegetation and water forms within each character type.
- Determination of the landscape sensitivity and its ability to absorb different types of development on the basis of physical and environmental character.
- An assessment of viewer sensitivity to change. This includes how different groups of people view the landscape (for example, a resident as opposed to a tourist), and how many people are viewing the Project and from how far away.
- Viewpoint analysis to identify areas likely to be affected by development of the site and a photographic survey using a digital camera and a handheld GPS unit to record position and altitude.
- Preparation of photomontages depicting the Project.
- Assessment of visual impacts.
- Suggestions are made for suitable development patterns that would maintain the area's visual quality.

The LVIA considered potential for impact within a 5km radius from the Subject Land (the Study Area). The Project is not anticipated to be discernible beyond this point.

Viewpoint analysis

The viewpoint analysis considers the likely visual impacts of the Project on the existing landscape character and visual amenity by selecting prominent sites, otherwise referred to as viewpoints. Once the viewpoints have been selected, panoramic photographs are taken representing the central field of vision of the human eye.

The visual impact of the viewpoint is then assessed both on site and with the topographic and aerial information to ensure accuracy. For each viewpoint, the potential visual impacts are analysed through a combination of the 3D terrain modelling, topographic maps and on-site analysis. Viewpoint photographs and analysis have been included in the VIA which has resulted in nil impact to any sensitive receivers within the 5km area.

Impacts to non-associated receivers

Moir Studio have developed a framework for defining and rating the level of visual effect from each residence, based on a number of industry guidelines. Through this they have developed a 'Sensitive

Receptor Assessment Matrix' which includes eight factors that can be summarised into an overall visual impact rating (refer to Table 6-22 below).

Table 6-22 Sensitive Receptor Assessment Matrix (Source: Moir LA, 2026)

RECEIVER VISUAL IMPACT RATING				
	VERY LOW	LOW	MODERATE	HIGH
Distance	The Project will not be visible.	The Project may be visible in distance or very partially visible in the foreground.	The Project maybe visible in the middle ground or a small extent may be visible in the near ground.	The Project will be highly visible in the foreground.
Type of views		Views from the receiver are not focused on the Project.	Views from the receiver are not focused entirely on the Project.	Views are focused directly towards the Project.
Direction of view		The Project may be visible in peripheral views or form a very minor element in primary views.	The Project may be visible from, yet will not dominate primary views.	The Project will be highly visible and has the potential to be a dominant element in primary views from the property.
Extent of visibility		The Project may be partially visible or fragmented.	The Project may be visible from the receiver yet will not significantly alter the existing visual character.	The Project has the potential to significantly alter the existing visual character when viewed from the receiver.
Scale of change		The Project may be visible yet will not change to the existing visual character.	The Project has the potential to become a noticeable element in the view, yet will not overly diminish the existing visual character.	The Project has the potential to alter the existing visual character.
Degree of contrast		The Project will have a low level of contrast with the existing landscape.	The Project will result in a moderate level of contrast with the existing landscape.	The scale of the Project will result in a high level of contrast with the existing landscape.
Duration of change		Changes are temporary.	Changes to the landscape have the potential to be reduced over time (with the employment of mitigation methods).	Changes to the landscape are continuous and / or irreversible.
Mitigation Options		Existing screening factors contribute to reducing the potential visibility.	Some existing screening factors may contribute to fragmenting the Project or there is opportunity to screen the Project.	Limited opportunities to screen the Project.

6.6.2. Existing environment

Key landscape features

The key landscape features within the Study Area are summarised in Table 6-23 overleaf.

Table 6-23 Key landscape features

Feature	Description
Topographic Character	Typically consists areas of flat land, gentle undulations within the range of 970 to 1060 AHD
Hydrological Character	A small number of Strahler streams with surface water flow only present in periods of heavy rainfall. A separate first order stream runs adjacent to the western side of the Development Site. Bayley Park Road crosses a third-order stream (Limerick Creek) that flows from the north-west to the south-east. During field surveys this area did contain seasonal pools of water and a minimal flow of water. The hydrology of the Project Area is detailed in Section 6.8
Vegetation Character & Nature Reserves	Vegetation in the Study Area is typical of the Armidale Plateau subregion. Dominant vegetation communities consist of eucalyptus varieties Land throughout the Study Area has been heavily modified and cleared to allow for agricultural practices. Within the Development Site, established native vegetation is scattered throughout pastures, with dense vegetation located along the localised undulations. Vegetation is associated with rural properties in the form of windbreaks or screening elements providing visual amenity within the immediate surrounds of the Development Site. The vegetation of the Project Area is detailed in Section 6.1.
Roads	Waterfall Way (B78), is a main transport corridor and National Highway to the south of the Subject Land. This classified scenic route connects Armidale to the east coast at Coffs Harbour, passing through the townships of Ebor and Dorrigo. The Subject Land is accessed by Bayley Park Road, off Waterfall Way. Other local roads servicing nearby rural properties and residential dwellings are identified as: • Old Hillgrove Road • Metz Road • Silverton Road, all to the south of the Project Area • Chandler Road to the north.
Infrastructure	Energy infrastructure including the Metz Solar Farm and associated infrastructure is located in the immediate surrounds of the Project. These elements are an existing feature within the landscape when travelling along Waterfall Way.

Feature	Description
Rural Residential Developments & Urban Development	The regional urban centre of Armidale is located approx. 7km west of the Development Site, outside of the Study Area, with a population of 23,927 (ABS, 2021). Between the Project Area and the urban centre of Armidale, there are a number of rural residential developments, identified as R5 Large Lot Residential. These developments are typically single storey development on acreage. Vegetation in the form of wind breaks or screening elements surrounding dwellings provide visual amenity to these dwellings



Figure 6-14 (Drone Image) Metz Solar Farm and surround RU1 lands (Source: Moir LA, 2026)



Figure 6-15 (Drone Image), The transport and communication and grazing modified pastures land uses captured near the Project. Pictured is existing Metz Solar Farm. (Source: Moir LA, 2026)

Landscape character zones

Two (2) key Landscape Character Zones (LCZ) have been identified within the Development Site. These are detailed in Table 6-24 overleaf.

Table 6-24 Landscape character zones

Landscape Character Zone	Description	Key landscape features	Key viewpoints	Scenic quality rating
LCZ01 Grazing Pasture Depressions	This LCZ is zoned as RU1 Primary Production, consisting of rural properties. Land is generally gently undulating and has been cleared. The land use within this LCZ is largely modified and utilised for agricultural practices and the Metz Solar Farm. There are remnant stands of vegetation within grazing lots, windbreak vegetation and residential vegetation associated with dwellings. The Metz Solar Farm and associated infrastructure is viewed as a key landscape feature in the area.  Figure 6-16 (Drone Image) Grazing Pasture Depressions, Rural Properties (Moir LA - 05/2024)	Rural Properties Open Pastures Metz Solar Farm and associated infrastructure	Bayley Park Road Waterfall Way Chandler Road	LOW
LCZ02 Vegetated Undulations	This LCZ is defined by undulating and generally vegetated to densely vegetated hills. Vegetation includes remnant woodlands species characteristic of the New England Tableland Bioregion. Surrounding land is typically used for grazing on native and improved pastures, and is sparsely populated with remnant trees, and in some areas, rocky outcrops.  Figure 6-17 (Drone Image) Views of vegetated undulations (Moir LA - 05/2024)	Vegetated undulations Ridgelines	Bayley Park Road Waterfall Way	Moderate

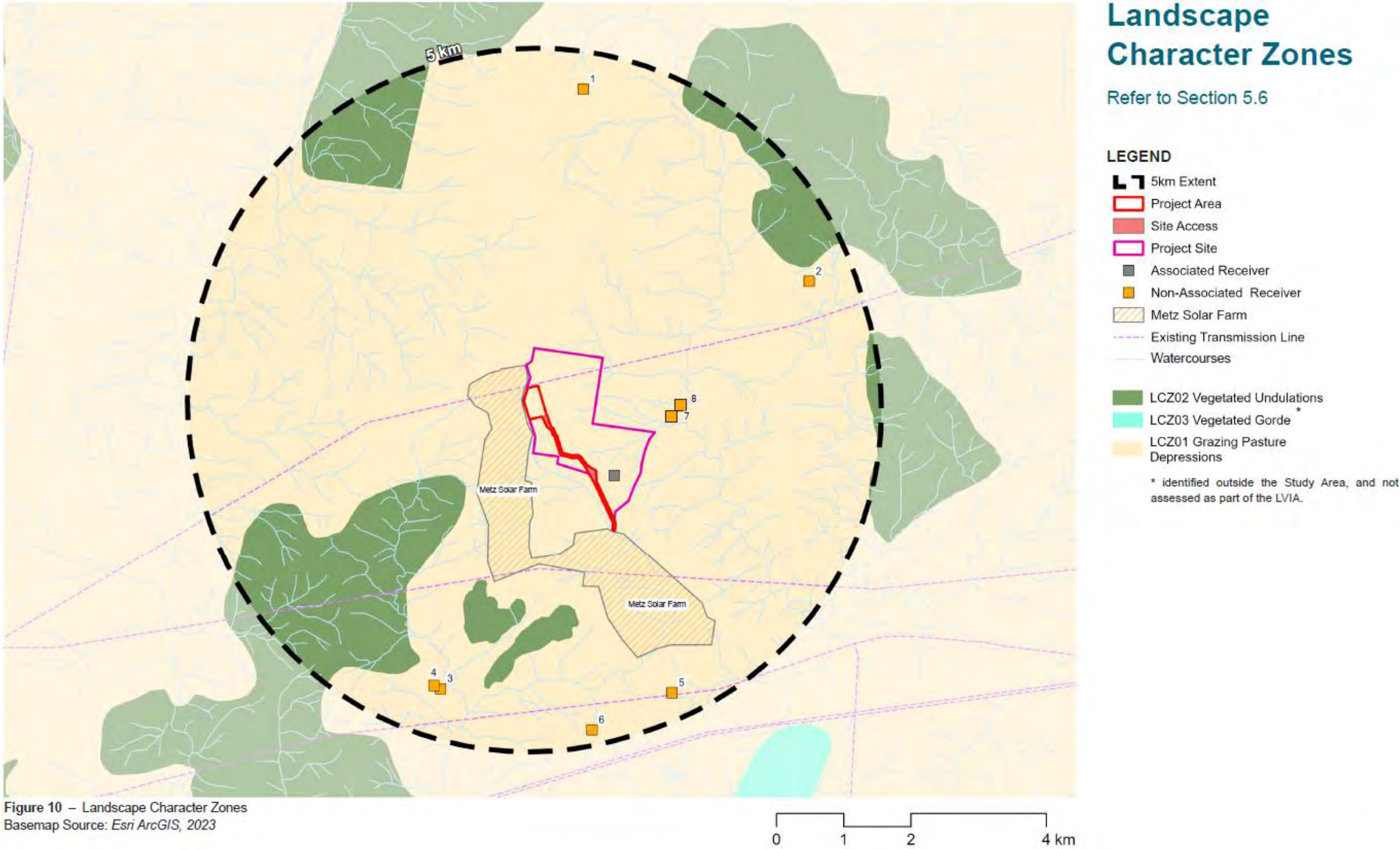


Figure 6-18 Landscape Character Zones (Source: Moir LA, 2026)

6.6.3. Potential impacts

Zone of visual influence

An initial visibility assessment was undertaken utilising Zone of Visual Influence (ZVI) mapping. This tool assists in defining the 'Visual Catchment' for the Project. The ZVI represents the area over which a development can theoretically be seen and is based on a Digital Terrain Model (DTM). Fieldwork assessments are then undertaken predominantly within the areas with the potential for visual impacts.

The ZVIs has been prepared based on the maximum assumed height of 5.5m for the BESS infrastructure (inclusive of the optional noise wall) and 30m for the substation within the Project Area and shows:

- Areas projected to experience up to 100% visibility of the Project:
 - o Areas to the west of the Subject Land – the highest degree of visibility
 - o Elevated areas to the south, outside the Subject Land – high visibility
 - o Isolated areas to the north
 - o A linear stretch of land to the east, outside the 2km radius.
- Areas likely to have no visibility of the Project:
 - o Areas to the west, outside the Subject Land, but within a 2km radius, due to intervening topography
 - o From Waterfall Way.

No dwellings within the 5km study area will have views to the Project.

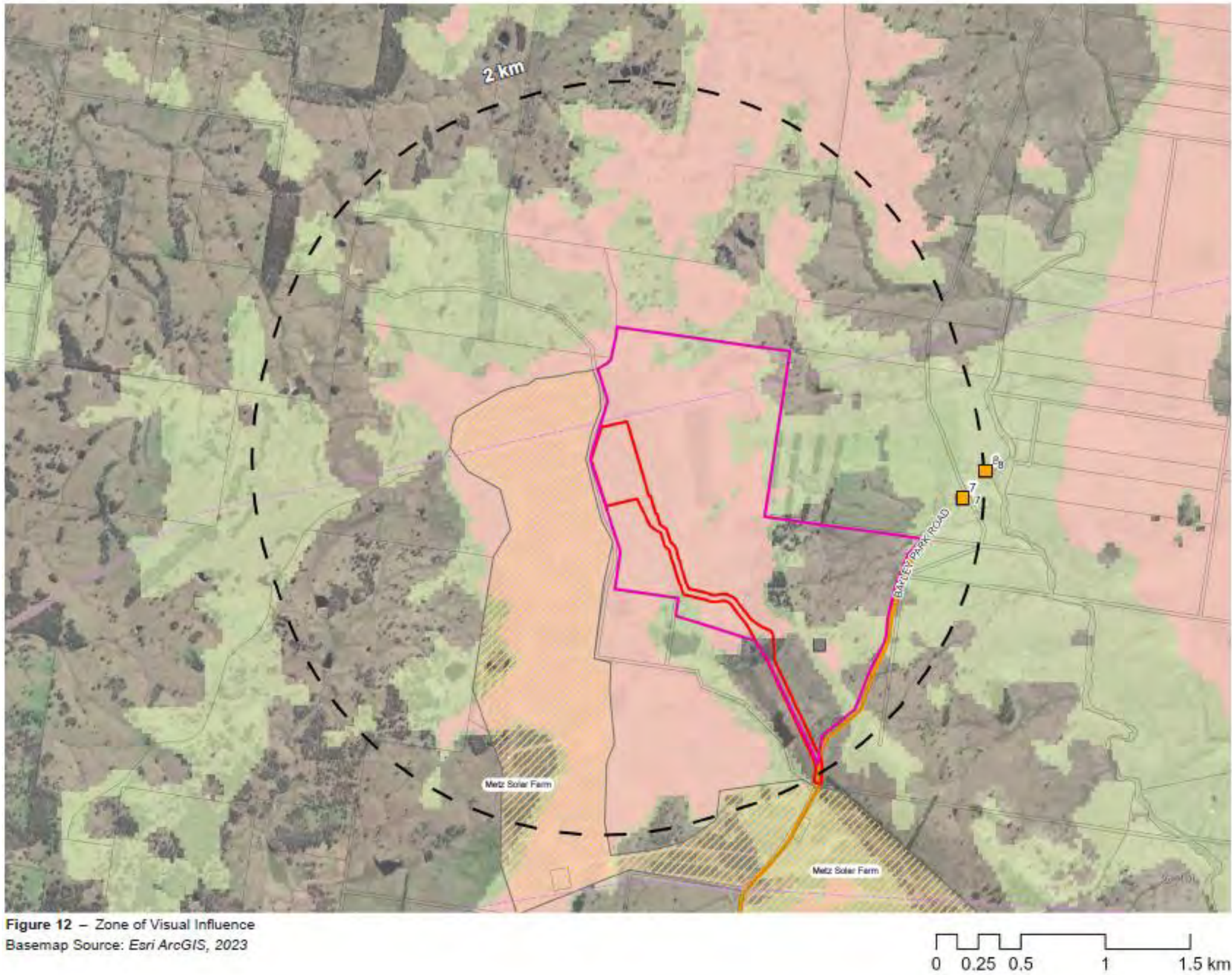
Viewpoint analysis

A total of 7 viewpoints were selected from publicly accessible locations to represent a range of views surrounding the Subject Land (refer to Figure 6-20). The visual sensitivity and visual magnitude of each viewpoint have been assessed which, when combined, results in an overall visual impact for each viewpoint (refer to Figure 6-19).

All viewpoints have been identified as having no visual impact, resulting in a 'NIL' rating. Visual impacts were assessed to have no views to the Project due to mitigating factors such as distance, vegetation and topography.

Table 6-25 Public viewpoint visual impact rating (Moir, 2024)

VIEWPOINT	LOCATION	VISUAL SENSITIVITY	VISUAL MAGNITUDE	POTENTIAL VISUAL IMPACT
VP01	Waterfall Way, Metz	LOW	NIL	NIL
VP02	Waterfall Way, Metz	LOW	NIL	NIL
VP03	Bayley Park Road, Metz	VERY LOW	NIL	NIL
VP04	Bayley Park Road, Metz	VERY LOW	NIL	NIL
VP05	Waterfall Way, Metz	LOW	NIL	NIL
VP06	Waterfall Way, Hillgrove	LOW	NIL	NIL
VP07	Chandler Road, Thalgarrah	VERY LOW	NIL	NIL



Zone of Visual Influence (2 km)

Refer to Section 6.2

LEGEND

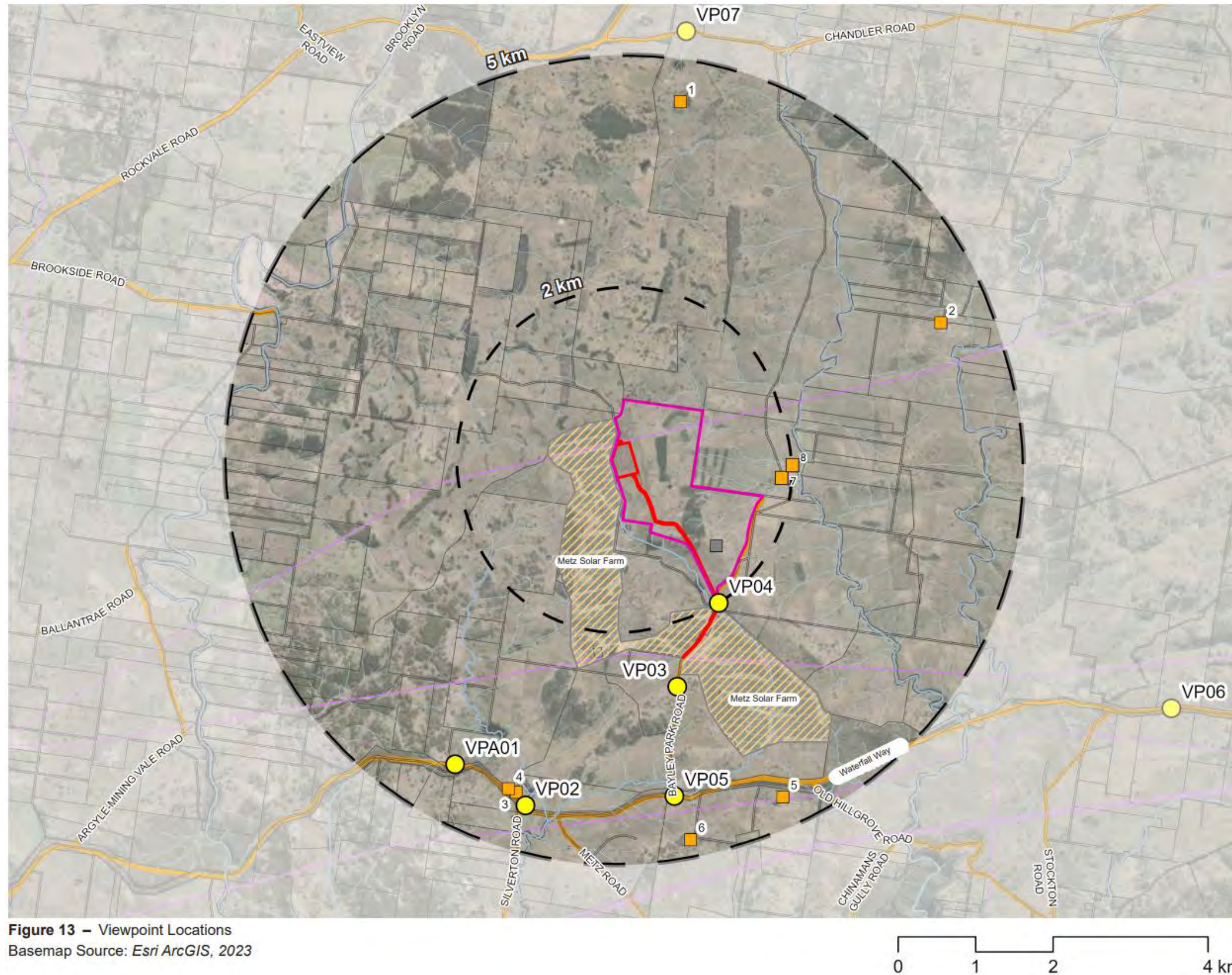
- 5km Extent
- 2km Extent
- Project Site
- Project Area
- Associated Receiver
- Non-Associated Receiver
- Existing Transmission Line
- Lot
- Road

ZVI (Based on 5.5m BESS Height and 30m Substation Height)

- Substation & BESS Visible
- Substation Visible

NOTE
ZVI is a preliminary assessment tool that represents a bare ground scenario - i.e. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the map is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.

Figure 6-19 Zone of visual influence (Source: Moir LA, 2026)



Viewpoint Locations (5km)

Refer to Section 7.2

Figure 6-20 Viewpoints (Source: Moir, 2026)

Impacts to non-associated receivers

Eight non-associated receivers have been identified within 5km of the Development Site (refer Figure 6-12). The assessment result summary is outlined in Table 6-26.

All eight have been identified as having a **very low** visual impact rating due to their distance from the Development Site, combined with intervening topography, vegetation and existing built structures between the receivers and the Development Site. Generally, no mitigation is considered to be warranted for this level of impact.

Table 6-26 Visual assessment results

ID	Elevation	Distance to the Project	Visual impact rating	Mitigation measures
R1	1083m	4.49km	Very Low	Nil
R2	1031m	4.31m	Very Low	Nil
R3	1010m	4.26km	Very Low	Nil
R4	1010m	4.57km	Very low	Nil
R5	1008m	4.76km	Very Low	Nil
R6	1033m	4.76km	Very low	Nil
R7	999m	1.85km	Very low	Nil
R8	992m	1.95km	Very low	Nil

Night lighting

The Dark Sky Region is centred upon the Siding Spring Observatory, which is considered Australia's most important visible-light observatory. Mitigation of dust and light spill are appropriate to protect the region. The Project Area is not located within the 200km radius of the *Dark Sky Region* and is approximately 272km north-east of the Siding Spring Observatory.

The Development Site is located in close proximity to Metz Solar Farm Substation, where there are existing sources of night lighting from infrastructure elements. Existing lighting associated with rural residential and motor vehicles are dispersed around the peripheries of the LVIA Study area.

The requirements for night lighting on ancillary infrastructure are generally limited to security lighting to the Substation and within the operations and maintenance facility. The light sources are limited to low-level lighting for security, night-time maintenance and emergency purposes. There would be no permanently illuminated lighting installed. The proposed ancillary infrastructure has been carefully sited to minimise visibility from existing residences and publicly accessible viewpoints. It is unlikely the proposed night lighting associated with the ancillary infrastructure would create a noticeable impact on the existing night-time landscape.

It is likely there would be limited or no visual impacts resulting from night lighting of the Project. Mitigation measures can reduce the risk that it would be visible to nearby receivers.

Cumulative visual impacts

Cumulative landscape and visual effects result from additional changes to the landscape or visual amenity caused by the Project in conjunction with other developments or actions that occurred in the past, present or are likely to occur in the foreseeable future. The potential cumulative visual impact will also be assessed in relation to the potential visual impact when viewed sequentially. If the Project is viewed in succession as a traveller moves through the landscape (e.g. Motorist travel routes) this may result in a change in the overall perception of the landscape character. The viewer may only see one development at a time, but if each successive stretch of the road is dominated by views of a development, then that can be argued to be a cumulative visual impact.

Due to the isolated location of the Project, existing vegetation and undulating topographic character of the area, there are limited opportunities to view the Project. The ZVI mapping demonstrated that there are no opportunities to view the Project and therefore no opportunity to the Metz Solar Farm consecutively and / or in conjunction with any proposed Projects in the area. The cumulative visual impact resulting from the Project is negligible.

6.6.4. Mitigation measures

Safeguards and mitigation measures to address visual amenity impacts, as recommended by the LVIA, are detailed in Table 6-27 below.

Table 6-27 Visual amenity mitigation measures

Mitigation number	Mitigation measure	Project stage
V1	The design of the Project's ancillary infrastructure will consider the use of materials that integrate with the surrounding landscape. Where possible, suitable colours and finishes will be chosen for project infrastructure to minimise visual impacts including ancillary infrastructure such as the O&M buildings/facilities. These buildings and materials will be designed to blend in with the local rural landscape. In case a noise wall is required, the Applicant will consult with adjacent neighbours and Council on the proposed colour and/or materials used to construct the noise wall.	Design Construction
V2	Cut off and shielded light fittings (or similar technologies) would be used where appropriate to minimise glare and light spill onto private property and prevent light shining above the horizontal.	Design
V3	External lighting shall be installed to comply with Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version.	Design
V4	Construction of the access road will minimise cut and fill so far as practicable and prioritise the use of local materials where possible	Construction

Mitigation number	Mitigation measure	Project stage
V5	Use of neutral colours and a low reflectivity surface treatment on power poles as practical to ensure that glint is minimised.	Design
V6	To the extent feasible, the project will reduce light spill/pollution and reduce the impact of light pollution on wildlife.	Design

6.7. Noise and vibration

This section summarises the findings of the Construction and Operation Noise and Vibration Assessment undertaken by Renzo Tonin & Associates to address the SEARs in relation to potential noise and vibration impacts. The full NVIA as attached as Appendix E.7.

6.7.1. Approach

Noise and vibration impacts from the construction and operation phases of the Project are addressed in the Construction and Operation Noise and Vibration Assessment in accordance with relevant Council and NSW Environment Protection Authority's (EPA) requirements and guidelines, including:

- NSW 'Interim Construction Noise Guideline' (ICNG – DECC, 2009)
- NSW 'Noise Policy for Industry' (NPfI – EPA, 2017)
- 'Assessing Vibration: A Technical Guideline' (DECC, 2006)
- NSW 'Road Noise Policy' (RNP – DECCW, 2011).

Construction Noise

For construction noise, a quantitative assessment was carried out, consistent with the ICNG requirements. The construction noise management levels (NML) established for the nearest noise sensitive residential receivers are presented in Table 6-28. Noting that construction works occur during the daytime period only; hence, only the day period is assessed.

Table 6-28 Construction Noise Management Levels (NML) at Residential Receivers, dB(A)

Location Description Day	LA90 Background Noise Level (RBL)	Day Noise Management Level $L_{Aeq}(15min)$
All residential receivers	35	45

Noise emissions were predicted by modelling the noise sources, receiver locations, topographical features of the intervening area, and possible noise control treatments using the CadnaA (version 2023) noise modelling computer program.

Construction vibration assessment

Assessment of potential disturbance from vibration on human occupants of buildings is made in accordance with the EPA's 'Assessing Vibration; a technical guideline' (DECC, 2006). The guideline provides criteria which are based on British Standard BS 6472-1992 'Evaluation of human exposure to vibration in buildings (1-80Hz)'. Sources of vibration are defined as either 'Continuous', 'Impulsive' or 'Intermittent' (refer Appendix E.7) for definitions of vibration.

Vibration criteria is applied in three directional axes, x-axis (front to back), y- axis (right side to left side), and z-axis (foot to head).

The preferred and maximum values for continuous and impulsive vibration are defined in Table 2.2 of the guideline (DEC, 2006) and are presented below in Table 6-29. Daytime is noted as being between 7:00am and 10:00pm and night-time is 10:00pm – 7:00am.

Table 6-29 Preferred and maximum vibration levels for human comfort

Location	Assessment Period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration (weighted RMS acceleration, m/s ² , 1-80Hz)					
Residences	Daytime	0.010	0.0071	0.20	0.14
	Night-time	0.007	0.005	0.014	0.10
Workshops	Day or night-time	0.04	0.29	0.80	0.058
Impulse vibration (weighted RMS acceleration, m/s ² . 1-80Hz)					
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Workshops	ay or night-time	0.64	0.46	1.28	0.92

The acceptable vibration dose values (VDV) for intermittent vibration are defined in Table 2.4 of the guideline and are reproduced in Table 6-30 for the applicable receiver type.

Table 6-30 Acceptable vibration dose values for intermittent vibrations (m/s^{1.75})

Location	Daytime		Nighttime	
	Preferred value	Maximum value	Preferred value	Maximum value
Residences	0.010	0.0071	0.20	0.14
Workshops	0.04	0.29	0.80	0.058

Operational noise assessment

Noise impact from the general operation of the BESS Project is assessed against the NSW 'Noise Policy for Industry' (NPfI). The assessment procedure in terms of the NPfI has two components:

- Controlling intrusive noise impacts in the short-term for residences; and
- Maintaining noise level amenity for residences and other land uses.

The noise trigger level for the Project operation is 40 L_{Aeq 15 min} during the Day and 35 L_{Aeq 15 min} during both Evening and Night. In accordance with the NPfI, noise impact have been assessed against the Project noise trigger level, which is the lower value of the Project intrusiveness noise levels and Project amenity noise levels.

Furthermore, in accordance with Fact Sheet D, Table D.1 of the NPfl noise predictions were prepared for the following standard and noise-enhancing meteorological conditions:

1. Standard meteorological conditions – 0.5m/s wind velocity at 10m from ground level between each noise source and each noise receiver. Wind direction was based on wind travelling from the source to the receiver.
2. Slight to gentle breeze – 3m/s wind velocity at 10m from ground level between each noise source and each noise receiver (as per NPfl default wind conditions). Wind direction was based on wind travelling from the source to the receiver.
3. Moderate temperature inversion – applicable for noise predictions during night-time periods only. F-class temperature inversion with 2m/s wind velocity at 10m from ground level between each noise source and each noise receiver.

Sleep disturbance assessment

To assess the likelihood of sleep disturbance, the potential of maximum noise level events from the Project during the night-time period has been considered. In accordance with the NPfl, a detailed maximum noise level event assessment should be undertaken where the subject development night-time noise levels at a residential location exceed:

- LAeq,15min 40dB(A) or the prevailing RBL plus 5dB, whichever is the greater, and/or
- LA_{Fmax} 52dB(A) or the prevailing RBL plus 15dB, whichever is the greater.

Road noise assessment

For existing residences affected by additional traffic on existing arterial roads generated by land use developments, the following RNP road traffic noise criteria would apply.

Table 6-31 RNP Road Traffic Noise Criteria, dB(A)

Road Category	Type of Project/Land use	Assessment Criteria, dB(A)	
Freeway/arterial/sub arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	LAeq,(15 hour) 60 (external)	LAeq,(9 hour) 55 (external)

As construction works are to occur only during the day-time period, only the traffic noise criteria for the day period are assessed against.

6.7.2. Existing environment

There are nine affected receivers identified surrounding the Project Area (refer to Table 6-32). They are all residential properties that are classified as rural under NPfl guidelines. A review of the Metz Solar Farm noise assessment (TTM Consulting, 2017) was undertaken to understand the background noise for the Project Area and surrounds. The assessment concluded that the operational noise was well below the NPfl trigger levels. It was concluded that a conservative approach based on the NPfl was sufficient without a requirement for background noise monitoring. As such, the minimum assumed Rating Background Levels (RBLs) have been adopted for all receiver locations for this assessment:

- **Day** (defined as 7:00am to 6:00pm, Monday to Saturday and 8:00am to 6:00pm Sundays & Public Holidays) – 35 dB(A)

- **Evening** (defined as 6:00pm to 10:00pm, Monday to Sunday & Public Holidays) – 30 dB(A) .
- **Night** (defined as 10:00pm to 7:00am, Monday to Saturday and 10:00pm to 8:00am Sundays & Public Holidays) 30 dB(A).

Table 6-32 Receiver locations

Affected receiver	Distance from Subject Land (m)
R1	4,400 north
R2	4,300 northeast
R3	4,285 southwest
R4	4,280 southwest
R5	4,800 southeast
R6	4,640 southeast
R7	1,400 southeast
R8	1,860 east
R9	1,970 east

6.7.3. Potential impacts

Construction noise

The modelling as presented in full in the specialist noise and vibration report in Appendix E.7 indicates that the predicted noise impacts during construction of the BESS and associated infrastructure would comply with the noise management level at all receivers, both within and outside standard daytime hours.

The predicted construction noise levels from construction of the access road would be exceeded only at R7 (associated receiver), by approximately up to 3dB(A) above the Day Noise Management Level of 45dB(A). It should be noted that the exceedances predicted are based on the plant and equipment operating at a location closest to the corresponding receiver location and/or the three loudest plant and equipment operating concurrently. This scenario would not typically occur on site and would only be for a short duration. Predicted construction noise levels have been discussed and agreed upon with the associated landowner prior to submission of the EIS. Any exceedances will be addressed directly as required.

There would be an estimated exceedance of up to 8dB(A) for R7 during *the extended* construction hours period on Saturdays (40dB(A). It is noted that the exceedance would only occur during the short site preparation works period, ahead of the main construction works.

Construction noise levels at all non-associated receivers *during all periods* (including Saturdays up to 5pm) are predicted to be below the highly noise affected level of 75dB(A).

The construction noise levels at each receiver location during the construction at the intersection of Waterfall Way and Bayley Park Road are all below the daytime noise management level, when the top six items plus the diesel generator are in operation concurrently (refer to Table 4-6 of the NVIA (Appendix E.7)).

Construction vibration

As the nearest receiver is in excess of 200m from the Project. Structural damage from vibration is not expected to be an issue (refer to Appendix E.7).

Operational noise

The operational noise levels generally comply with the Project noise trigger levels for all receivers except for Receiver R7 (associated receiver) (refer to Table 6-33).

Predicted exceedances for Receiver R7 are up to 4 dB(A) for the evening and night periods during adverse meteorological conditions. It is noted that Receiver R7 is an associated landowner and exceedances can be managed through the implementation of at-property treatment and/or negotiated agreements, and through reducing noise exceedances through battery container orientation to reduce propagation of noise.

The associated receiver has been consulted on the potential exceedances, and understands the assessment is a worst-case prediction. The associated receiver understands the risk and implications and is satisfied with the assessment outcomes, subject to future conversations if exceedances are confirmed after the detail design phase. It is noted that as a Project associated receiver, the EIS is not required to assess and mitigate impacts to the degree that a non-associated receiver would be considered.

Table 6-33 Predicted LAeq,15min Operational Noise levels at sensitive receiver locations, dB(A) (Source, Renzo Tonin, 2026)

Receiver Location	Project Noise Trigger Levels			Predicted Operational Noise Levels			Comply? (Yes/No)
	Day	Evening	Night	Calm & Isothermal Conditions	Slight to Gentle Breeze	Moderate Temperature Inversion ¹	
Receiver R1	40	35	35	24	24	24	Yes
Receiver R2	40	35	35	25	25	25	Yes
Receiver R3	40	35	35	25	25	25	Yes
Receiver R4	40	35	35	25	25	25	Yes
Receiver R5	40	35	35	24	24	24	Yes
Receiver R6	40	35	35	23	23	23	Yes
Receiver R7	40	35	35	38	39	39	No
Receiver R8	40	35	35	35	35	35	Yes
Receiver R9	40	35	35	34	35	35	Yes

Notes: 1. Applicable for the night time period only

Sleep disturbance

During the night-time period, operational noise emissions from the BESS are considered to be continuous with no potential for high peak noise level events. Therefore, the LAmax noise levels experienced at the identified receivers will be similar to the predicted LAeq,15min noise levels. Hence, it is expected that both the

$L_{Aeq,15min}$ and L_{AFmax} will be well below the nominated sleep disturbance criteria of 40dB(A) and 52dB(A), respectively, for all non-residential receivers.

Road noise assessment

Results of the road traffic noise prediction are presented in Table 6-32 below. Road traffic noise level contributions from the vehicle movements associated with the construction works are within the applicable noise criteria based on the dwellings being at the closest typical distance from the roads.

The predicted noise levels are at least 2dB(A) less than the relevant traffic noise criterion and as such, it is not expected that the traffic noise contribution from the construction vehicles would result in an exceedance of the traffic noise criterion and /or increase the existing traffic noise levels by more than 2dB(A).

Table 6-34 Road traffic noise prediction, $L_{Aeq,(15\text{ hour})}$ 60 (Source: Renzo Tonin, 2026)

Receiver	Assessment Criteria, dB(A)	Traffic Movements	Posted speed (km/hr)	Distance to road	Predicted noise level	Exceedance?
Residences on Waterfall Way	$L_{Aeq,(15\text{ hour})}$ 60	As per Table 7.1 of Appendix E.7	100	30m	46	No

As a result, the construction works for the Project would not adversely contribute to the existing traffic noise levels are the most affected residences along the surrounding road network.

No mitigation measures are required for managing road traffic noise.

Operational vibration

Vibration generating activities would occur only during the construction phase of the Project. There are no vibration generating activities expected during the operational phase.

Cumulative noise impact

It is likely that the Project would be operating concurrently with the adjacent Metz Solar Farm. Therefore, cumulative noise impacts at the nearest affected receivers due to both sites operating have been considered.

The outcomes of the operational noise assessment for the Metz Solar Farm were compared with the potential construction noise impacts arising from the Project. The Metz Solar Farm assessment concluded that a buffer of 350m from the nearest inverters and sensitive receivers must be maintained to comply with the NPfl.

The nearest inverter for the Metz Solar Farm to a sensitive receiver, when incorporating the Development Footprint of the Armidale East BESS, is approximately 1100m away. Therefore, it is unlikely that cumulative impacts from the operational Metz Solar Farm and the Project would arise.

An assessment of the cumulative operational noise from the Project and the Metz Solar Farm has been quantified with the publicly available data and are presented in Table 6-35 below for the applicable meteorological conditions.

Based on the predicted cumulative noise levels presented in the table above, undertaken with public available data, predicted cumulative noise levels at the nearest receivers comply with the nominated criteria under all scenarios and no mitigation is required.

Environmental Impact Statement

Armidale East Battery Energy Storage System



Table 6-35 Predicted LAeq,15min Cumulative Operational Noise Levels at Receiver Locations, dB(A) (Source: Renzo Tonin, 2026)

Receiver Location	Recommended Amenity Noise Level, L _{Aeq, 15min} ¹			Predicted Operational Noise Levels, L _{Aeq, 15min}									Comply? (Yes/No)
				Standard Conditions			Slight to Gentle Breeze			Moderate Temperature Inversion ²			
	Day	Evening	Night	Armidale East BESS	Metz Solar Farm	Cumulative ³	Armidale East BESS	Metz Solar Farm	Cumulative ³	Armidale East BESS	Metz Solar Farm	Cumulative ³	
Receiver R1	53	48	43	23	-	23	23	-	23	23	-	23	Yes
Receiver R2	53	48	43	24	-	24	24	-	24	24	-	24	Yes
Receiver R3	53	48	43	24	-	24	24	-	24	24	-	24	Yes
Receiver R4	53	48	43	24	-	24	24	-	24	24	-	24	Yes
Receiver R5	53	48	43	23	35	23	23	38 ⁴	38	38	38 ⁴	38	Yes
Receiver R6	53	48	43	23	-	23	23	4 ⁴	23	23	4 ⁴	23	Yes
Receiver R7	53	48	43	38	-	38	39	-	39	39	-	39	Yes
Receiver R8	53	48	43	35	-	35	35	-	35	35	-	35	Yes
Receiver R9	53	48	43	34	-	34	34	-	34	34	-	34	Yes

Notes: 1. Recommended amenity noise level is 'Rural' recommended amenity noise level plus 3 dB(A) to convert from a period level to a 15-minute level

2. Applicable for the night time period only

3. Overall combined noise level from Armidale East BESS and Metz Solar Farm operating concurrently

4. Based on worst-case meteorological noise modelling conditions

6.7.4. Mitigation measures

While no noise criteria exceedances are anticipated for any non-associated receiver, as recommended by the Construction and Operation Noise and Vibration Assessment, a series of mitigation strategies can be adopted to further reduce the potential impacts of the Project.

Safeguards and mitigation measures to address noise and vibration impacts are detailed in Table 6-36 below.

Table 6-36 Noise and vibration mitigation measures

Mitigation number	Mitigation measure	Project stage
NV1	The Applicant will: - Establish a complaints procedure, including signage and other means to advertise the contact number regarding complaints. - Publish relevant details of the complaints procedure on its website. - Respond to complaints in a timely manner and keep relevant parties informed of progress. - Take all complaints seriously and will make all reasonable attempts to resolve them expeditiously and without delay.	All stages
NV2	During Construction, the Applicant will appoint a “Neighbour Liaison Officer” with the aim of: - Providing information about the construction schedule and upcoming planned noisy or disruptive activities - Maintaining good relations with people living and working in the vicinity of a construction site. - The Neighbour Liaison Officer will be adequately trained and experienced.	Construction Upgrades Decommissioning
NV3	A Noise Management Plan will be developed and implemented to ensure the following actions minimise noise: - All engine covers will be kept closed while equipment is operating. - Where possible use less noisy plant and equipment. - Where possible, only light works will be conducted outside of standard operating hours. - Provide special attention to the use and maintenance of ‘noise control’ or silencing kits fitted to machines to ensure they perform as intended. - Plant and equipment will be properly maintained - Machines found to produce excessive noise compared to industry best practice would be removed from the site or stood down until repairs or modifications can be made - Avoid any unnecessary noise when carrying out manual	Construction

Mitigation number	Mitigation measure	Project stage
	operations and when operating plant. Any equipment not in use for extended periods during construction work will be switched off.	
NV4	For construction works conducted within close proximity to the dwelling/building of Receiver R7, the Applicant will consult directly with this receiver regarding potential noise impacts. Any potential noise exceedances will be managed through agreed measures such as time restrictions and/or providing periods of repose for residents, where feasible and reasonable.	Construction

6.8. Hydrology and flooding

Cumulus Engineering (Cumulus) completed the assessment of potential hydrological impacts of the Project. It is supplemented by NGH's assessment to address all water related matters required by the SEARs (refer to Appendix E8.1). The findings and the assessments are summarised below.

6.8.1. Approach

The hydrology assessment involved the assessment of likelihood of groundwater dependent ecosystems in the locality is based on the Bureau of Meteorology Groundwater Dependent Ecosystems Atlas.

The flooding assessment involved:

- Review of the Armidale Flood Study Review and Update – Stage 3 (ARC, 2015)
- The RORB Hydrological model was used to characterise the existing local hydrology of the Development Site and assess the potential Project impacts
 - o It is anticipated that that shorter duration storm events are critical and, therefore, a range of short duration storm events with associated peak mean temporal patterns for the 5%, 1% 0.5% and 0.2% AEP and Probable Maximum Flood (PMF) events were adopted.
- Delineation of the catchment surrounding the Project Area was determined through automated tools in QGIS.
- Outputs of the automated process were validated and adjusted visually using topographical data and aerial imagery.

The purpose of the analysis was to define the flood behaviour, including depth of inundation, flood velocity and flood hazard within and outside the Development Site/Project Area. This work is undertaken in tandem with the development of the Project layout and ensures infrastructure has not been located in areas that exacerbate risks of flooding, changes to local hydrology or exacerbate erosion.

6.8.2. Existing environment

Surface water

The Project Area is mapped as having a number of unnamed first and second order Strahler streams (refer to Figure 6-21). None of the mapped streams are perennial in nature. Limerick Creek, a third order stream (in the Strahler Stream Order) flows in a north to southeast direction just outside the western boundary of Development Site.

The Development Site contains five farm dams, none of which would be within the Development Footprint.

Existing flooding

The Development Site is not identified as flood prone land under the Armidale Regional LEP 2012. The Development Site is located at the top of the catchment with no overland flows from external catchments.

It is anticipated that that shorter duration storm events are critical and therefore a range of short duration storm events with associated peak mean temporal patterns for the 5%, 1% 0.5% and 0.2% AEP and Probable Maximum Flood (PMF) events were adopted.

Hydraulic modelling was conducted to characterise the existing local hydrology of the Development Site. Results of the 1% AEP shows that the flood extents due to riverine flows generally stay within the embankments of Limerick Creek, with no inundation of the Development Site directly from the creek. Depths

observed on the Development Footprint are generally less than 50mm with several localised low points resulting from flood depths up to 260mm deep.

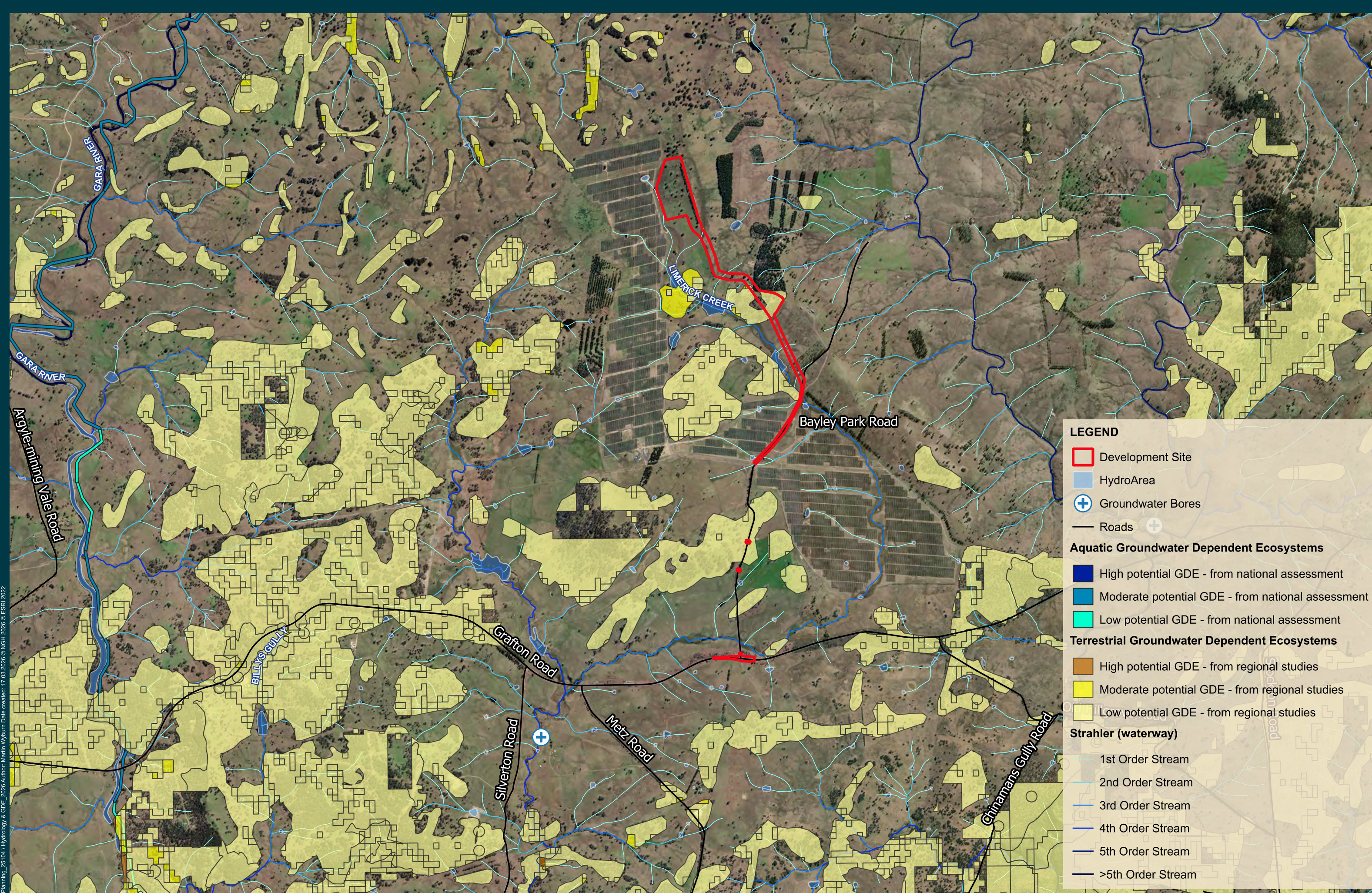
Flood hazard vulnerability throughout the Development Site is generally categorised as H1 (no restrictions). This means it is generally safe for vehicles, people and buildings with hazards higher than H1 (areas are unsafe and unsuitable for people, vehicles or buildings) generally concentrated to Limerick Creek (Figure 6-23).

Groundwater

The Project Area is situated within the New England Fold Belt Coast Groundwater Source and falls under the Water Sharing Plan for the NSW North Coast Fractured and Porous Rock Groundwater Sources 2016 under the *Water Management Act 2000* (NSW Government, 2016).

Groundwater Dependent Ecosystems (GDEs) include ecosystems which may rely on the surface expression of groundwater (including surface water ecosystems that may have a groundwater component) and ecosystems which may rely on the subsurface presence of groundwater (including vegetation ecosystems). The Project Area is not mapped as containing any Aquatic GDEs. However, parts of the southwestern side of the Project Area is mapped as having moderate and low potential for Terrestrial GDEs (Figure 6-21). The Project would largely avoid these mapped terrestrial GDEs; however, low potential Terrestrial GDEs traverse the proposed access road.

The NSW DPI database of groundwater sites lists no bores located within the Project Area. There are no groundwater bores within 4km of the Project Area.



Datum: GDA94 / MGA zone 56

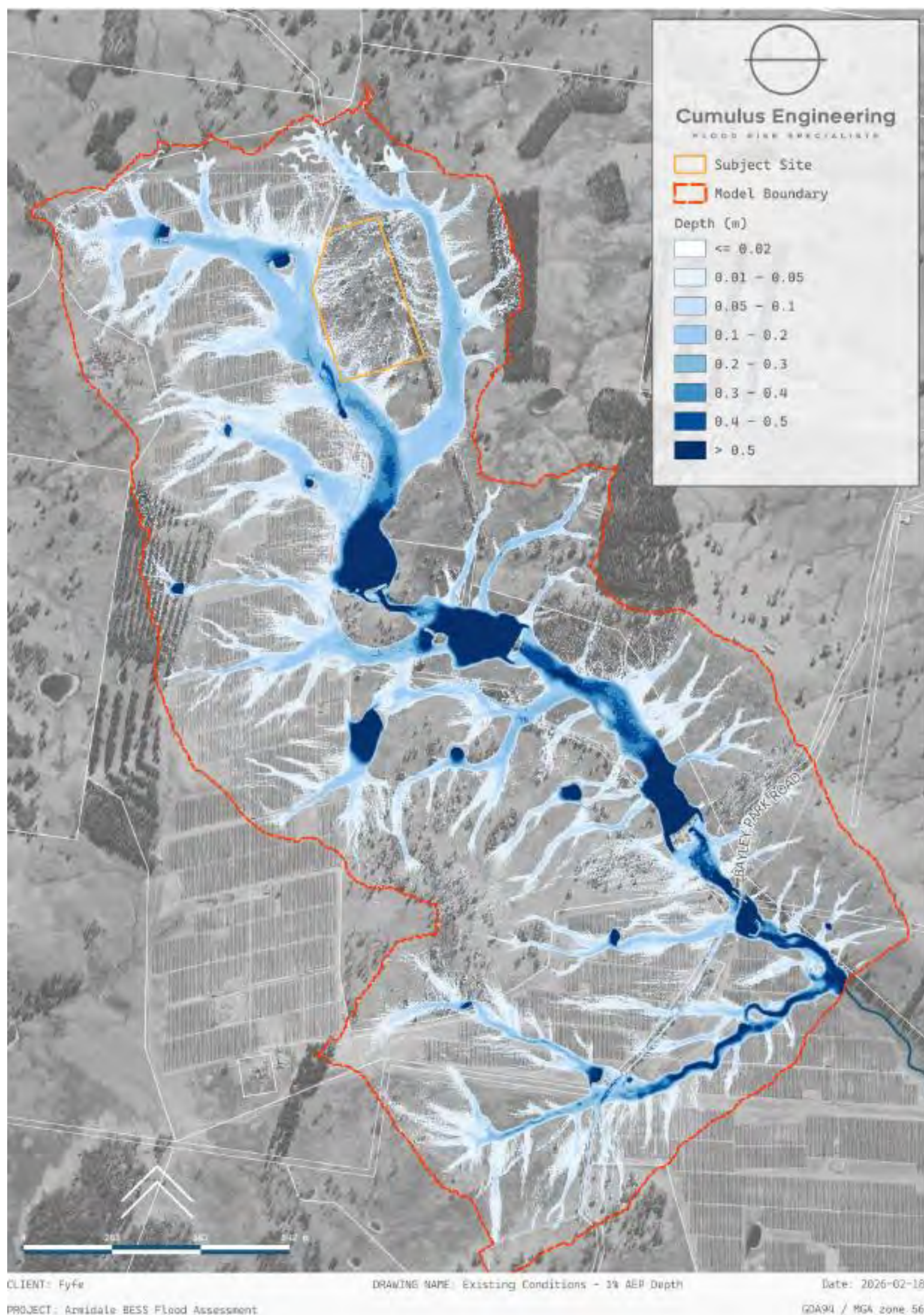


Figure 6-22 Existing conditions 1% AEP depth (Source: Cumulus, 2026)

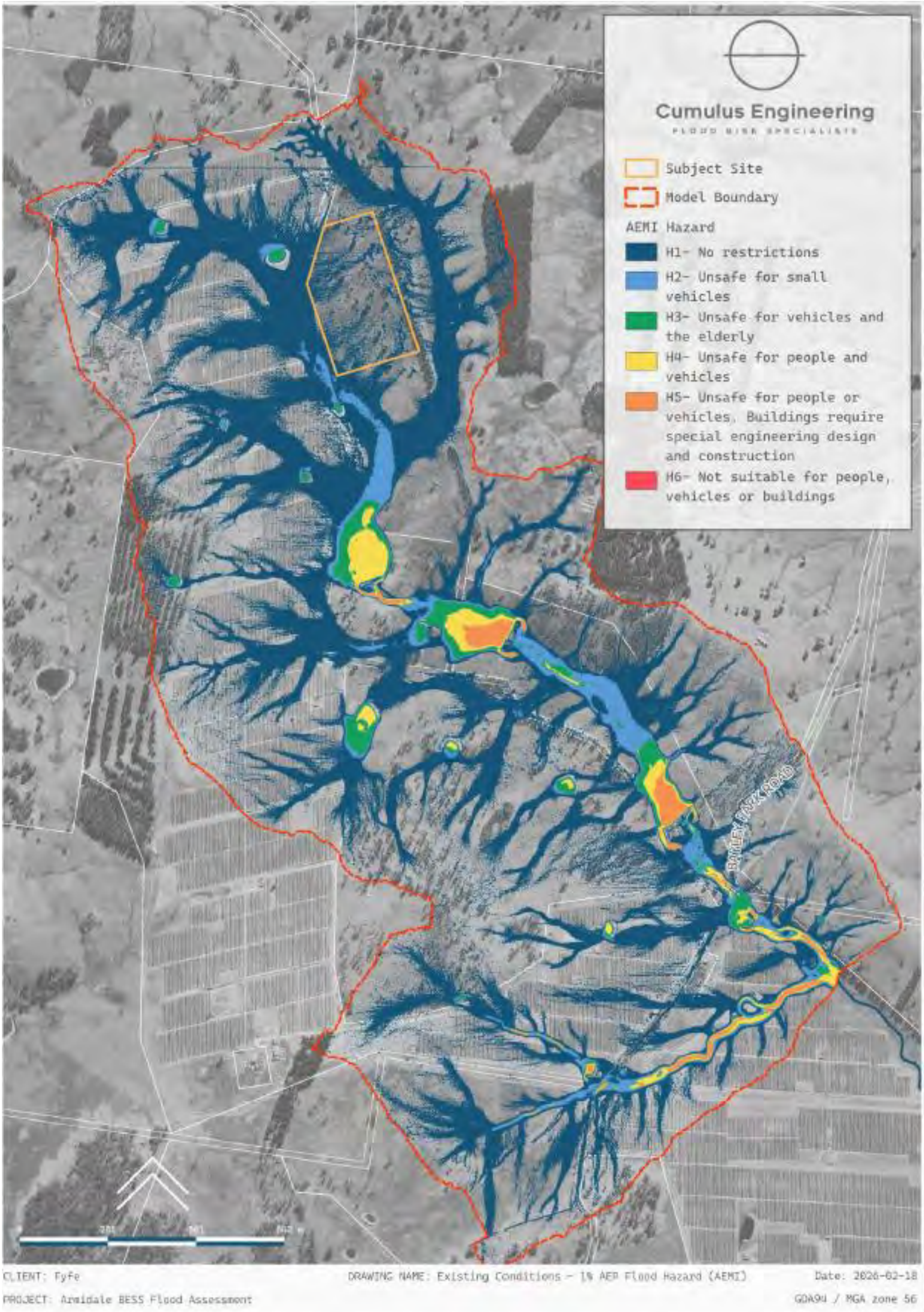


Figure 6-23 Existing conditions 1% AEP Hazard (Source: Cumulus, 2026)

6.8.3. Potential impacts

Construction

Water use

Water use during construction would be minimal and primarily required for dust suppression on unsealed roads and for the construction of new roads, with usage varying depending on weather conditions. Non-potable water requirements are anticipated to total approximately 2-3 ML for the construction phase, although this is a bulk estimate and final volumes are expected to be lower. Five 115 kL fire water tanks are planned to be located onsite, to be filled from available sources and retained for emergency use only during construction. During operations, water levels would be maintained via tanker water trucks. Potable water demand during construction is estimated at approximately 0.5 ML.

Considering Council's feedback on water supply availability for construction purposes, the Project has identified several feasible and compliant water-sourcing alternatives to ensure all water is obtained sustainably from appropriate sources. Options include sourcing water from licensed commercial suppliers inside or outside the LGA, depending on availability, including carriers based in neighbouring LGAs or larger regional centres such as Tamworth or Newcastle. Where commercial supply is limited, the Project may obtain water under a valid Water Access Licence (WAL) through licence purchase, temporary trading, or agreements with existing licence holders. As a further alternative, water may be purchased from neighbouring landholders holding existing water entitlements, including the landowner, with any supply formalised through a Water Supply Agreement. All extraction would remain compliant with NSW water licensing requirements and relevant Water Sharing Plan limits.

These sourcing pathways provide flexibility and ensure secure and lawful access to construction water. The preferred option will be confirmed pre-construction once the EPC contractor is appointed, when detailed water needs and availability are known, and in consultation with Armidale Regional Council.

Surface water quality

The construction phase has low potential to impact water quality and quantity. Construction of the Project would disturb soils and potentially lead to sediment or other pollutants being present in runoff, mobilising and entering local waterways, adversely impacting on water quality. Activities that may contribute to this include:

- Excavations for the construction of internal roads and associated drainage, parking areas, footings for onsite substation, inverters and footings for temporary staff amenities and offices during construction.
- Trenching for underground cable installation (limited in BESS developments compared to solar farms).
- Construction of hardstand areas and access tracks would result in soil compaction, consequently reducing soil permeability, increasing surface water runoff and the potential for concentrated flows.

During construction, as much groundcover as possible would be retained and protected, by rationalising laydown areas and tracks. Only discrete footprints would be levelled where required or footings or hardstand areas.

The construction phase would entail the following water pollution risks that will require management:

- A hydrocarbon spill risk from use and re-fuelling of construction vehicles and machinery.
- On-site concreting for building and equipment foundations.
- Wash off from curing asphalt pavement and road seal.
- Storage and use of paints, cleaning solvents and other chemicals.
- Pesticide and herbicide storage and use.
- Fertilisers used for revegetation.

- Runoff from waste materials.

Activities with the potential for adverse water quality impacts would be managed through the development of site-specific sediment control plans and spill control plans during the construction, operation and decommissioning stages. Additionally, impacts to local water quality can be minimised by ensuring erosion and sediment control plans include measures to ensure 'Blue Book' (Landcom, 2004) criteria are met prior to discharge of water offsite.

Groundwater

Use of groundwater would not be extracted during the life of the Project nor likely impacted throughout the life of the Project. As previously highlighted, at this stage several options for obtaining water supply during the construction phase are being considered, including obtaining an access license both within and outside of the Armidale. This is not the preferred option, however, if required, a licence would be obtained for water extraction. This would be confirmed once the EPC contractor is appointed, pending Project approval.

Flooding hazard

Results of the 1% AEP design conditions shows that flood depths outside of the Development Site are unaffected by the Project. The only increases in concentration of flood depths would be in areas of higher roughness i.e. at the substation and within the BESS. Flood depths within the Development Site would generally remain below 50mm as per the existing conditions, with AEMI Hazard Category remaining at H1 - no restrictions.

The adoption of the design scenario demonstrates that the Project has not caused any increases in flood heights both to neighbouring properties and to downstream properties. This is also reflected in the flood height difference between existing and design conditions for the 5%, 0.2% and 0.5% AEP events as well as the PMF events (as illustrated in Appendix B of Flood Assessment).

The proposed layout of the Development Site has a single access and egress route which crosses Limerick Creek approximately 2.5km downstream from the Subject Land. The proposed access route is subject to inundation from the Creek in all modelled events exceeding the 5% AEP event therefore restricting evacuation of the site in a flood event.

Hydraulic modelling of the 1% AEP event for the critical storm duration affecting the Limerick Creek crossing (i.e. a 90 -minute storm event) indicates that flood hazard across the access road reaches H2 approximately 1 hour and 40 minutes after the onset of rainfall, rendering the crossing impassable. Under this scenario, the road remains blocked for approximately two hours, after which the flood hazard reduces to a H1 category.

It is therefore recommended that a Flood Emergency Response Plan be adopted for the site, in order to manage safe evacuation of personnel if they are located on site at the time of a significant event. There are currently no stream gauges within the catchment; therefore, flood awareness and response would need to rely primarily on Bureau of Meteorology (BoM) Severe Weather Warnings. These warnings would act as triggers for evacuation to ensure all personnel can exit the site via the access route before local water courses rise to impassable level. In addition, access to the site would be restricted during adverse weather conditions, and in the unlikely event of unexpected flooding, the site office would be equipped with adequate supplies to ensure personnel can safely remain on-site until conditions allow for safe evacuation.

Alternatively, given that the Development Site itself is located above the Probable Maximum Flood (PMF) level, response times are relatively short, and the duration of inundation across the access route is limited.

It is important to acknowledge that the operation of the BESS is proposed to be undertaken remotely, therefore there will be no physical presence of workers onsite during day-to-day operations.

The assessment has demonstrated that:

- The Development Site would not be significantly impacted in the 5%, 7%, 0.5% and 0.2% AEP events or the PMF event, the site is within an area of low flood risk.

- The Project would not adversely impact neighbouring properties and/or properties and infrastructure located downstream of the site, with little to no changes in flood levels for even extreme events.
- Access to the Development Site is impacted in flood events exceeding the 5% AEP event, restricting access and egress in a flood event. It is recommended that a Flood Emergency Response Plan (FERP) be implemented as part of this development in order to facilitate safe evacuation prior to inundation of the access road.

Creek crossings

As detailed in Section 6.1, Limerick Creek is mapped as Key Fish Habitat (KFH). During the wet period, Limerick Creek was observed to contain seasonal pools of water and a minimal flow of water. It is not expected at this stage that any works will be required to upgrade or maintain the existing Limerick Creek crossing. However, if after the detail design phase such works are required, they will be undertaken in accordance with the DPIRD Fisheries Policy & Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013) and Why do fish need to cross the road? Fish passage requirements for waterway crossings (2003) and Controlled activities – Guidelines for watercourse crossings on waterfront land (NSW DPE, 2022).

While Limerick Creek is mapped as KFH, there are no recorded freshwater threatened species or ecological communities associated with it under the *Fisheries Management Act 1994*. And as such, an assessment on aquatic threatened species, population or communities is not required.

With the effective implementation of mitigation measures, the overall impact of the Project on the local aquatic environment is considered to be manageable.

Operation

Impact to groundwater and flooding hazard would remain unchanged during operation. The impact of the Project on flooding would be consistent with the operation stage.

Water use

Water use volumes during operation would be minimal, at approximately 0.5ML per year, which would be used largely for plant watering and staff amenities. Water would be sourced from a private supplier and transported to the Project.

Ablution facilities would be connected to a septic tank installed in line with ARC requirements.

Approval under section 68 of the *Local Government Act 1993* is required to operate an onsite sewage management system and to draw water from a council standpipe.

Surface water quality

Potential for any impact to surface water quality during operation is negligible. Appropriate drainage features would be constructed along internal access roads to minimise the risk of dirty water leaving the site or entering waterways. A small part of the Development Site would remain vegetated, with the exception of internal roads, parking areas and areas around the O&M building. Risks to water quality impacts during operation would therefore be low.

There would be a low risk of contamination in the event of a chemical spill (fuels, lubricants, herbicides etc.) as storage and emergency handling protocols would be implemented.

Site water balance

The detailed and consolidated site water balance for the Project once in operation is provided in Appendix E8.2. The Development Site would remain vegetated except for the access track and the compacted and gravelled BESS hardstand accommodating the Project infrastructure. The hardstand area will accommodate the BESS and associated infrastructure, including the batteries, substation, harmonic filter, and the operation

and maintenance building with parking. Adjacent to the northern boundary of the BESS hardstand is approximately 0.7ha of land that will remain vegetated where the Project connects to the 330kV powerline (transmission connection area, refer to Figure 3-1)

The impervious fractions (NSW Government, 2025) used in the site water balance are provided in Table 6-37.

Table 6-37 Runoff coefficients for the Project

Feature	Impervious fraction
Development Site, transmission line connection	0.1
Containers of batteries, O&M Building	1.0
Compacted gravel hardstands and roads (BESS hardstand, laydown, parking, Harmonic Filter, substation)	0.85

Water balance calculations used the design rainfall event for a 63.2% Annual Exceedance Probability (AEP) for a 24-hour period. The latest 2016 rainfall Intensity Frequency Duration (IFD) data was obtained from the Bureau of Meteorology (BOM). The IFD Design Rainfall Depth for the proposal (-30.496224, 151.852573) for a 63.2% AEP with a 24-hour duration is 56.6mm. A summary of the site water balance is provided in

Table 6-38.

Table 6-38 Site water balance for the operational phase of the Project using a design rainfall event of 63.2% AEP 24-hour duration.

Feature	Impervious Fraction	Size (m ²)	63.2% AEP 24 hour (m ³)	Runoff (m ³)	Comment
Development Site	0.1	151440	8571.15	857.15	Vegetated component of Development Site not including internal access track, BESS hardstand, BESS infrastructure or transmission line connection.
BESS Hardstand	0.85	24560	1390.096	1181.5816	This is the gravel hardstand area located around BESS infrastructure and includes internal roads and APZ.
Internal access track	0.85	18000	1018.8	86598	Calculated with an average road width of 20 metres.
Laydown	0.85	7710	436.386	370.9281	Gravel hardstand.

Feature	Impervious Fraction	Size (m ²)	63.2% AEP 24 hour (m ³)	Runoff (m ³)	Comment
Battery containers	1.0	37600	2128.16	2128.16	300 containers with the following approximate dimensions – 6.06 metres long by 2.44 metres wide.
Substation	0.85	27200	153952	1308.592	Positioned on gravel hardstand.
O&M Building	1.0	1950	110.37	110.37	Water would not be captured from the roof, with 100% of rainfall captured in guttering and discharged to the receiving environment (paddocks).
Harmonic Filter	0.85	5280	29.848	254.020	Positioned on gravel hardstand.
Transmission line connection	0.1	7250	410.35	41.035	This area is located beneath existing transmission lines and will remain vegetated.
Dams	0.081	810	45.846	38.97	Storage
Water tank	0.02	200	11.32	11.32	Storage
Total		305,270	17,278	7299.82	Runoff from the BESS hardstand would flow in a south-westerly direction and infiltrate the vegetated Development Site, follow natural and normal water flows surrounding agricultural land or flow into Limerick Creek.

A total of 17.3 ML of rain falls within the Development Site during a 63.2% AEP for a 24-hour duration. Of this volume of rainfall, 47.7% or 8.2 ML is runoff due to the impervious nature of the compaction of the gravel roads, gravel hardstands and BESS infrastructure. A small part of the site would remain vegetated and uncompacted. Runoff from the BESS hardstand would flow in a south-westerly direction and infiltrate the vegetated Development Site, follow natural and normal water flows surrounding agricultural land or flow into Limerick Creek.

As stated above, the proposed access route is subject to inundation from the Creek in all modelled events exceeding the 5% AEP event therefore restricting evacuation of the site in a flood event. During the operational phase, the risk to human life from flooding is inherently minimised as there will be no permanent on-site staff with only periodic visits by workers for essential maintenance and optimisation of the BESS. The BOM would be monitored and checked prior to any scheduled maintenance that requires staff to be on-site.

Decommissioning

During the decommissioning stage, the potential impacts on water quality and quantity would be similar to or less than construction. It is likely the risk and area of disturbance during decommissioning would be less than construction due to the existing access tracks and reduced ground disturbance required. Underground infrastructure is planned to be removed and recycled as much as possible, with the aim to return flood conditions and water quality to pre-development conditions.

6.8.4. Mitigation measures

Safeguards and mitigation measures to address hydrology and flooding impacts are detailed in Table 6-39 below.

Table 6-39 Safeguards and mitigation measures for hydrology, erosion and water resources.

Mitigation number	Mitigation measures	Project stage
W1	Buildings and structures - Buildings and structures will be located outside high Hazard areas (H5 and above). - Finished floor level of all buildings would be a minimum 500mm above the 1% AEP flood level. - Drainage works will be established at and around the proposed substation site to manage and divert upslope flows around the area to ensure it remains free of flooding up to the PMF event. Electrical infrastructure - All electrical infrastructure, including power conversion stations and substation, will be located above the 1% AEP flood level plus minimum 500mm freeboard. Works in waterways - Flood warning signs and flood level indicators will be placed on each vulnerable points as identified in Flood study. - At commencement of operations, a Business Floodsafe Plan will be prepared for the Project to ensure the safety of employees during flood events in general accordance with the NSW SES “Business Floodsafe Toolkit and Plan”. Access roads - Roads will be kept as close to natural ground levels as possible.	Design
W2	All staff will be appropriately trained through toolbox talks for the minimisation and management of accidental chemical (e.g., fuel) spills.	Prior to construction
W3	A Flood Emergency Response Plan will be developed for construction and operation of the project and to facilitate safe evacuation prior to inundation of the access road	Prior to construction
W4	All fuels, chemicals, and liquids will be stored at least 50m away from any drainage lines and will be stored in an impervious bunded area.	Pre-construction Construction
W5	All chemicals and fuels used on-site will be stored and handled in accordance with: - The requirements of all relevant Australian Standards. - The NSW EPA’s <i>Storing and Handling of Liquids: Environmental</i>	All stages

Mitigation number	Mitigation measures	Project stage
	<i>Protection – Participants Handbook</i> if the chemicals are liquids. In the event of an inconsistency, the most stringent requirement will prevail to the extent of the inconsistency.	
W6	Adequate incident management procedures will be incorporated into the Construction and Operation Environmental Management Plans, including requirement to notify EPA for incidents that cause material harm to the environment (refer s147-153 POEO Act).	Construction Operation Decommissioning
W7	The refuelling of plant and maintenance of machinery will be undertaken in impervious bunded areas and at least 50 m away from any drainage lines.	Pre-construction Construction
W8	Machinery will be checked daily to ensure there is no oil, fuel or other liquids leaking from the machinery.	Pre-construction
W9	Ensure appropriate operational drainage controls are incorporated into the detailed design.	Design
W10	Erosion and sediment control measures will be implemented to mitigate any impacts in accordance with Managing Urban Stormwater: Soils & Construction (Landcom 2004), including for water access at any location.	Prior to construction Construction
W11	Protection shall be provided as required for the works in the vicinity of waterways to minimise runoff from construction into these waterways and waterbodies	Construction
W12	Work would not occur during high rainfall events and flooding	Construction
W13	Waterway crossings will be designed to facilitate fish passage and in accordance with DPIRD Fisheries Policy & Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013) and Why do fish need to cross the road? Fish passage requirements for waterway crossings (2003).	Design Prior to construction
W14	If works on Limerick Creek are required, they will occur when conditions are dry and outside of key fish breeding season.	Construction

6.9. Land use compatibility

This section summarises the land use compatibility of the site and surrounds.

6.9.1. Approach

A desktop assessment informed by the results of the soil investigation was undertaken by NGH.

Land Use Conflict Risk Assessment (LUCRA)

A Land Use Conflict Risk Assessment (LUCRA) has been applied to analyse the compatibility of a change in use as a result of the Armidale East BESS. A LUCRA has been carried out in accordance with the DPI *Land Use Conflict Risk Assessment Guide* (DPI, 2011). The LUCRA assessment is primarily used to investigate agricultural developments but can be used to assess other land uses, in this case, residential land use, utilities, transport and reserves. This assessment aims to identify and rank potential land use conflicts to ensure they are adequately managed.

The risk ranking in has been determined using the matrix and in accordance with the probability table and measure of consequence table in the DPI's Land Use Conflict Risk Assessment Guide (DPI, 2011). The matrix ranks the risk of impacts according to the probability of occurrence and the consequence of the impact. The risk ranking from 1 to 25 is a result of the probability and consequence. For example, a risk ranking of 25 is the highest magnitude of risk.

Table 6-40 LUCRA Risk Ranking Matrix

Probability	A	B	C	D	E
Consequence					
1	25	24	22	19	15
2	23	21	18	14	10
3	20	17	13	9	6
4	16	12	8	5	3
5	11	7	4	2	1

Potential impacts of the Project are assessed against the land use conflict risk assessment table from the Land Use Conflict Risk Assessment Guide (DPI, 2011).

Table 6-41 Probability table - to score the likelihood of the consequence happening

Level	Descriptor	Description
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur, or 'it has happened'
C	Possible	Could occur, or 'I've heard of it happening'

Level	Descriptor	Description
D	Unlikely	Could occur in some circumstances, but not likely to occur.
E	Rare	Practically impossible

Table 6-42 Measure of consequence

Level	Descriptor	Description
1	Severe	- Severe and/or permanent damage to the environment - Irreversible - Severe impact on the community - Neighbours are in prolonged dispute and legal action involved.
2	Major	- Serious and/or long-term impact to the environment - Long-term management implications - Serious impact on the community - Neighbours are in serious dispute.
3	Moderate	- Moderate and/or medium-term impact to the environment and community - Some ongoing management implications - Neighbour disputes occur
4	Minor	- Minor and/or short-term impact to the environment and community - Can be effectively managed as part of normal operations - Infrequent disputes between neighbours
5	Negligible	- Very minor impact to the environment and community - Can be effectively managed as part of normal operations - Neighbour disputes unlikely

6.9.2. Existing environment

Land use

Land use in the majority of the Project Area is currently mapped as grazing modified pastures (refer to Figure 6-24). The access road and intersection works are mapped as a mix of grazing modified pastures, grazing native vegetation, river, environmental forest plantation and roads. The Development Site is currently utilised for grazing (modified pastures).

NSW state mapping (DPE, 2023) shows there are five existing land use activities relevant to the Project Area, these are:

- Grazing native vegetation (6.13ha)
- 3.1.4 Environmental forest plantation (2.79ha)
- 3.2.0 Grazing modified pastures (21.24ha)

- 5.7.2 Roads (0.15ha)
- 6.3.0. River (0.12ha).

The surrounding area is mapped as a mix of grazing modified pastures, grazing native vegetation and environmental forest plantation. The existing landscape is dominated by the adjacent Metz Solar Farm that implements sheep grazing under the solar array. The Waterfall Way / Bayley Park Road intersection is mapped as roads infrastructure, surrounding by grazing modified pastures, grazing native vegetation, and rivers. Reserves are present within the locality. Flood prone land is discussed in Section 6.8.

The surrounding land uses are described in Table 6-43.

Table 6-43 Surrounding land uses

Land use	Description
Reserves	The Yina National Park and Oxley Wild Rivers National Park are located approximately 8.8km west and 9.7km south of the Development Site.
Major Projects	Within the immediate locality and broader region there are several renewable and other major projects proposed or operating, including (refer to Section 2.1, Section 7.3 and Figure 7-3):
Crown land and paper roads	The Project Area intersects with Crown road reserve managed by ARC (Bayley Park Road) and TfNSW (Waterfall Way). The intersection works also fall within a mapped Travelling Stock Reserve (TSR) managed by Local Land Services.
Drinking water catchments	The Project is not located within a drinking water catchment.
Exploration licences and mining leases	Exploration lease (EL9053) held by Thunderbird Resources Pty Ltd - Consultation suggests early exploration is occurring within their lease boundary, with the associated landholder already being approached for access.

Land zoning / permissibility

As stated in Section 4.2 of this report, the Development Site is zoned RU1 Primary Production under the provisions of the Armidale Regional LEP, and the Project is prohibited under this LEP.

Section 2.36(1)(b) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) states development for the purpose of electricity generating works may be carried out by any person with consent on any land in a non-prescribed residential zone. The land is zoned RU1 and under Section 2.35 of the TISEPP, a non-prescribed residential zone.

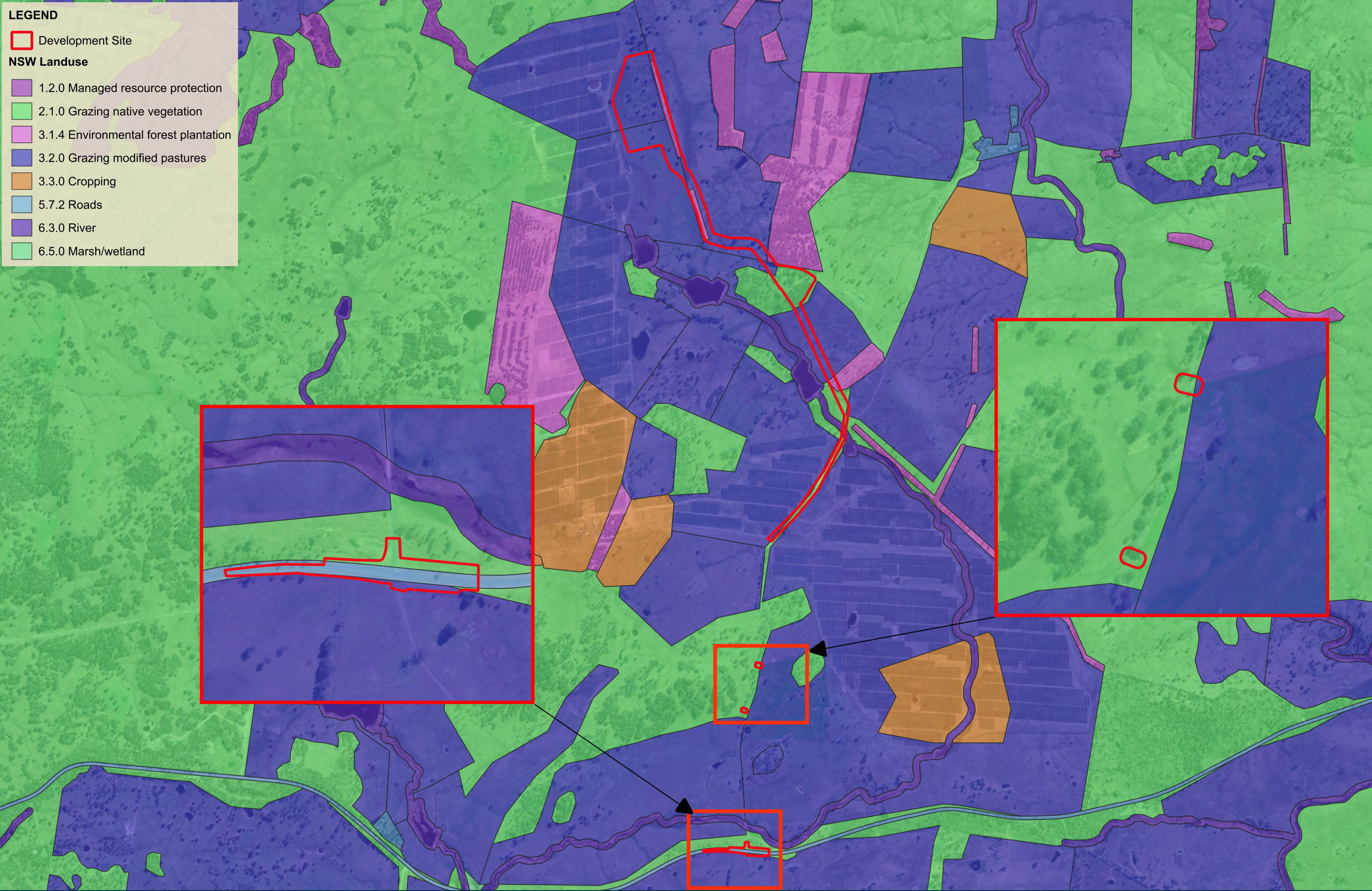
As such, the provisions of the TISEPP prevail over the Armidale LEP, and the Project is permissible development.

LEGEND

 Development Site

NSW Landuse

-  1.2.0 Managed resource protection
-  2.1.0 Grazing native vegetation
-  3.1.4 Environmental forest plantation
-  3.2.0 Grazing modified pastures
-  3.3.0 Cropping
-  5.7.2 Roads
-  6.3.0 River
-  6.5.0 Marsh/wetland



Datum: GDA94 / MGA zone 56

Agricultural use: Land and soil capability

Regional agricultural economy

The Project Area is located within the New England and North West region, in which agriculture occupies approximately 7,320,936ha (73.84%) of the region (total 9,914,594ha) (ABARES, 2025). Grazing native vegetation and cropping are the most common land uses within the region occupying 31.84% and 22.57% respectively.

Based on gross value of agricultural production, the top three agricultural commodities in the region are wheat (\$828m commodity value in the region), cattle and calves (\$808m commodity value in the region) and Cotton (\$438m commodity value in the region). These three commodities contributed 64% of the total value in the agricultural production in the region, which is valued at \$3,265 million.

As of March 2025, there are 4,036 farms within the region with beef cattle farming and other grain growing farms being the most common type of farm.

Biophysical Strategic Agricultural Land (BSAL) is land that is considered to be of high agriculture value capable of sustaining high levels of productivity. There is no BSAL land mapped within or near the Development Site.

There is no mapped State Significant Agricultural Land (SSAL) mapped on or near the Project Area.

Site conditions

The Land and Soil Capability Assessment Scheme provides land and soil capability (LSC) classes useful for broad-scale assessment of land capability (OEH, 2012). The eight classes describe land capability ranging from extremely high capability land (class 1) to extremely low capability land (class 8). A pre-determined set of biophysical land and soil features including landform position, slope gradient, drainage, climate, soil type and soil characteristics are used to determine potential land and soil hazards. These classes are used to inform long term land management practices with the aim of ensuring degradation to soil, land, air and water resources does not occur.

The Development Site is mapped as Class 5 and Class 6 and considered moderate-low and low capability land (refer to Figure 6-29 and Table 6-44). Limitations need to be carefully managed to prevent long-term and severe land and environmental degradation.

Table 6-44 Land and soil capability definitions (OEH, 2012)

Class	Category	Definition	Limitations	Area (ha) within Development Footprint (%)
Class 5	Moderate–low capability land	Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.	Land can have highly erodible soils and/or significant existing soil erosion, or land that will be subject to wind erosion when cultivated and left bare. Other limitations include shallow soils, stoniness, climatic limitations, acidification, potential for structure decline and salinity hazards.	11.98ha (98.4%)

Class	Category	Definition	Limitations	Area (ha) within Development Footprint (%)
Class 6	Low capability land	Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.	Land can erode severely even without cultivation, or land that will be subject to severe wind erosion when cultivated and left exposed. Other limitations can include shallow soils (less than 50 cm deep), stoniness, rock outcrop (50–70% coverage), salt outbreaks, naturally acid soils of low fertility, major flow lines with high flows and flooding, areas that are poorly drained and wet for long periods, areas that are severely eroded, including scalds, and strong climatic limitations.	0.019ha (0.16%)

6.9.3. Potential impacts

Potential land use impacts relevant to the Project include:

- Construction
 - o Land use conflict with existing or adjacent activities – primarily due to noise, visual and traffic impacts associated with earthworks.
 - o Land degradation, through physical impacts such as erosion or contamination risks.
- Operation
 - o Land use conflict with existing or adjacent activities
 - o Land degradation, through physical impacts such as weed ingress or contamination risks.

The Project would involve earthworks, ground disturbance, and change its current use to energy storage and would therefore preclude agricultural production from the Development Site, access, and transmission lines, during construction and operation.

Compatibility and conflicts: Land Use Conflict Risk Assessment (LUCRA)

The results of the LUCRA are summarised in Table 6-45.

Table 6-45 LUCRA assessment for Armidale East BESS including consideration of mitigation options

Identified Potential Conflict	Risk Rating		Management Strategy	Revised Risk Rating	
Agriculture					
Agricultural expansion (land opportunities)	E3	6	The Project would result in the loss active grazing land. This may be a permanent impact, given the degree of earthworks required to establish the Project. However, in the context of viable agricultural operations, the impact area (about 12ha within the fenced area of the BESS) represents a small proportion of the local resource. All areas outside the fenced area of the BESS could be grazed.	D4	5
Contaminated surface water runoff	D2	14	Implementation of soil and water management plan and an erosion and sediment control plan will minimise the potential impact.	D4	5
Weed and pest control	A3	20	Implementation of pest and weed management plan during construction and operation phases.	D4	5
Rural residential					
Dust	A3	20	Dust generated during the construction and decommissioning stages will be managed using water cars when required. Dust is not expected to generate a significant land use conflict during operation.	D4	5
Visual amenity	E3	6	All ancillary infrastructure will be coloured to blend in with the surroundings. Visual assessments have been undertaken and demonstrates impacts to be minimal or negligible.	E4	3
Noise	E1	15	Noise generated during construction and decommissioning stages will be	C4	8

Identified Potential Conflict	Risk Rating		Management Strategy	Revised Risk Rating	
			minimised through the implementation of mitigation measures. Where regular practices are incorporated into operation, noise is not expected to generate a land use conflict.		
Utilities					
Fire/Bushfire	C1	22	Implementation of a Bushfire Management Plan and a minimum 11m APZ will significantly reduce the probability of the BESS operation starting a fire or bushfire damaging the BESS infrastructure or escaping onto neighbouring properties.	D3	9
Traffic generation and disruption	C4	8	Traffic generation and disruptions during construction and decommissioning stages are considered likely, however, the impact would be temporary and able to be managed in the TIA. Traffic would not to generate a land use conflict during operation.	C4	8
Mining					
Mining land use	E2	10	Approximately 12ha (and to a maximum depth of 1000mm) of land would temporarily be removed from exploration and mining activities for the life of the BESS. There is a current mineral exploration title held across the Development Site. After decommissioning, the BESS infrastructure would be removed and the site made available for alternative land uses if desired.	D5	2
Biodiversity					
Prescribed impact	D4	5	- Impacts on non-native vegetation - Impacts on habitat connectivity	E5	1

Identified Potential Conflict	Risk Rating		Management Strategy	Revised Risk Rating	
			- Impacts on water quality and hydrological processes - Impacts of vehicle strikes on threatened fauna or fauna part of a TEC.		
Other; transport, reserves. The site is small, and the construction, operation and decommissioning activities are considered unlikely to affect these nearby land uses.					

Construction and operation

Agriculture

The potential impacts of the Project on agriculture are detailed below with respect to *Primefact 1063: Infrastructure on rural land* (DPI, 2013). During operation the Development Footprint would change from agricultural land use to energy storage.

- Resource loss and fragmentation
 - Agricultural activities within the part of the Subject Land would temporarily cease upon commencement of construction in areas. However, upon operation, only the fenced area in the Development Footprint and potentially the new access road would be excluded from agricultural activity.
 - The Project would result in the temporary loss of about 12ha (BESS fenced area) and about 5ha (access road) of agricultural land for the life of the BESS (up to 40 years); this is negligible given the small area and does not significantly reduce the availability of land for primary production in the region.
 - The Project is not placed on land that is of higher quality LSC than the surrounding lands. It is not classified as BSAL. As such there would be no losses of uniquely high value land to the locality during the construction and operation of the BESS.
 - The Development Site constitutes 12ha. On this basis, use of the Development Site for the BESS would not significantly impact on the availability of Class 5 or 6 land in the region or the local agricultural economy.
- Impacts on farming operations and livestock
 - Agricultural use of the land would be expected to continue post construction on the rest of the Subject Land outside the fenced Development Footprint (approximately 227ha) The existing landowner would continue to use the remaining land for agricultural production (i.e. grazing).
 - The Project would not affect access or agricultural land uses on surrounding properties during the operation phase. The Project is not considered to be an incompatible land use with a potential to create land use conflicts.
 - Impacts on soil and erosion risks are assessed in Section 6.10, impacts on downstream water quality are assessed in Section 6.8 and impacts on local air quality are assessed in Section 7.2. These assessments conclude that the Project would not be likely to adversely affect land use or activities on neighbouring properties or elsewhere in the locality, subject to identified mitigation measures.

- Increased weed, biosecurity and bushfire risks
 - o The increased movement of vehicles, machinery and people to and within the Development Footprint, particularly during construction and decommissioning poses the largest risk to biosecurity. Weed seeds can be transported via tyres and undercarriages of vehicles and clothing of staff resulting in a risk of spreading weeds. Confining vehicles and machinery movements to formed access tracks during all phases and implementing a washdown procedure for vehicles entering and leaving the site would mitigate potential risk of seed dispersal.
 - o Risk of increasing pest animals, (cats and foxes) at the site during operation would be managed by ensuring putrescible waste is covered and removed regularly. Targeted pest management during the operational phase of the Project would control cat, rabbit and fox numbers. Resources and cover for pest species would be reduced.
 - o Preparation of a Weed Management Plan for all phases of the Project based on Armidale Regional Council and NSW Weed wise requirements would assist in the management of weeds for all phases of the Project including rehabilitation.
 - o Prior to commencement of construction, representative soil samples would be gathered as part of a specialist soil survey in order to establish baseline data on the existing agronomic characteristic of the soil. The survey would include sampling for full soil nutrient balance, nutrient store (plant available, exchangeable and total) for all major minerals and trace minerals, acidity, organic matter, soil texture.

Rural residences

Residences located near the site or along the access route may experience temporary noise, dust and traffic during construction. Traffic and activities onsite during operation would be minimal compared to construction and are unlikely to generate substantial noise and dust (refer to Section 6.7.3). During operation there is a very low likelihood for potential visual impacts (refer to Section 6.6.3). These potential impacts to residences during construction and operation are best managed through consultation and mitigation measures outlined for each specific issue outlined in Section 5, Section 6.5 and Section 6.7.

Mining

An existing exploration lease (EL9053) held by Thunderbird Resources Pty Ltd is mapped across the Development Site.

Consultation with Thunderbird Resources suggests early exploration is occurring within their lease boundary, with the associated landholder already being approached for access. It is not the intent of the Applicant to impede on exploration activity in the area. However; given the small area of the BESS adjacent to the existing Metz Solar Farm and the reversible nature of the development, long term sterilisation of land available for mining exploration is deemed a negligible risk.

The placement of the BESS adjacent to existing infrastructure places it well to avoid any fragmentation of land with mining potential. It is unlikely that any potential mining activities would impact on the BESS development.

Other land uses

During construction, and operation of the Project, there is unlikely to be any impacts on other land uses including:

- Industry and commercial use (transmission line) – minimal impact is anticipated during the connection to the transmission line, and no impact to the adjacent Metz Solar Farm.
- Crown Land – there is Crown land and a TSR that intersects the Development Footprint across the access road and intersection of Bayley Park Road and Waterfall Way.

Decommissioning

The potential impacts of the Project during decommissioning on surrounding land uses is considered to be manageable with the implementation of the mitigation measures presented in this EIS. The Project is considered largely reversible given the relatively low impact on the soil surface. Certain infrastructure, such as the switching station (which will be owned by Transgrid) might remain. This includes substation bays, switchgear, overhead lines and underground cables for the Terminal Station area. During decommissioning, all BESS related infrastructure would be removed and rehabilitation would commence. The aim will be to return the disturbed area to a safe, non-polluting and stable state (9.5ha). The broader area would remain suitable for continued agricultural or other land use options (234.5ha). With successful rehabilitation, the Development Footprint may be returned to grazing use however, reflecting uncertainty, the assumption is that the area may not be fully returned its existing land soil capability.

Potential impacts to surrounding land uses are most relevant to agricultural activities. Existing agricultural land uses, or future agricultural land uses on the Development Footprint or adjacent land are not anticipated to be impacted due to the reversible nature of the Project.

BESS infrastructure would be removed from the compacted gravel hardstand surrounding the site. Following the removal of the hardstand, topsoil would be reinstated, and the area could be revegetated. A Rehabilitation Plan associated with decommissioning activities would be developed and implemented with the objectives of:

- Returning the land to its pre-development capability and improving the current state of the land.
- Soil resource management.
- Landform and land use areas.
- Development of completion criteria and monitoring reporting.

The plan would be informed by soil information derived from the baseline nutrient soil surveys to be undertaken prior to construction (refer Section 6.10.4).

Impacts during decommissioning for the other surrounding land uses would be similar to construction and operation as discussed above.

Cumulative impacts

Cumulative impacts relating to Land compatibility have been assessed in this Section and appropriate mitigation strategies pertinent to each impact has been captured within the body of the EIS.

6.9.4. Mitigation measures

Safeguards and mitigation measures relevant to land use compatibility are detailed below in Table 6-46

Table 6-46 Land use compatibility mitigation measures

Mitigation number	Mitigation measure	Project Stage
LU1	A Revegetation and Rehabilitation Plan is to be prepared in consultation with NSW Department of Primary Industries prior to decommissioning to return the land to safe stable non-polluting productive state. The Plan will include measures for stabilisation and topsoil amelioration (e.g., incorporation of organic matter to improve soil structure or gypsum to	Decommissioning

Mitigation number	Mitigation measure	Project Stage
	improve structure, reduce hard-setting surfaces and reduce soil dispersion).	
LU2	A Weed and Biosecurity Management Plan is to be prepared in consultation with NSW Department of Primary Industries prior to construction commencing to manage weed and biosecurity risks arising from the Project	Prior to construction

6.10. Geology and soils

NGH completed the assessment of potential soil and contamination impacts of the Project to address all soil and contamination related matters required by the SEARs (refer to Appendix E.9). The findings are the assessment are summarised below.

6.10.1. Approach

This assessment has been developed using a desktop assessment and soil survey to determine the soil characteristics and to consider the potential for erosion to occur. As there are no set guidelines for soil sampling for a BESS site, the soil survey was carried out in accordance with the Large-Scale Solar Energy guidelines (DPHI, 2022a). This to determine the soil characteristics and the potential for erosion to occur during construction, operation and decommissioning.

Soil survey

The soil investigation comprised of a drilling program carried out in May 2024 using a 3T excavator, excavating to a depth of 1.5m (unless refusal) and 0.9m wide.

The soil sampling and classification was undertaken in accordance with the *Australian Soil and Land Survey Field Handbook* (CSIRO, 2009) and the *Australian Soil Classification* (Isbell, 2021) The density for number of boreholes completed was undertaken in accordance with the *Guidelines for Surveying Soil and Land Resources* (CSIRO, 2008) for a moderately (semi-detailed) intensity level (refer Table 6-47).

Table 6-47 Recommended soil survey intensity

Intensity level	Inspection density	Publication scale	Objectives
Moderately (semi-detailed)	1 to 5 ha to 25 ha i.e. 4 to 20 per km ²	1:25 000	Moderately intensive uses at ‘field’ level, detailed Project planning

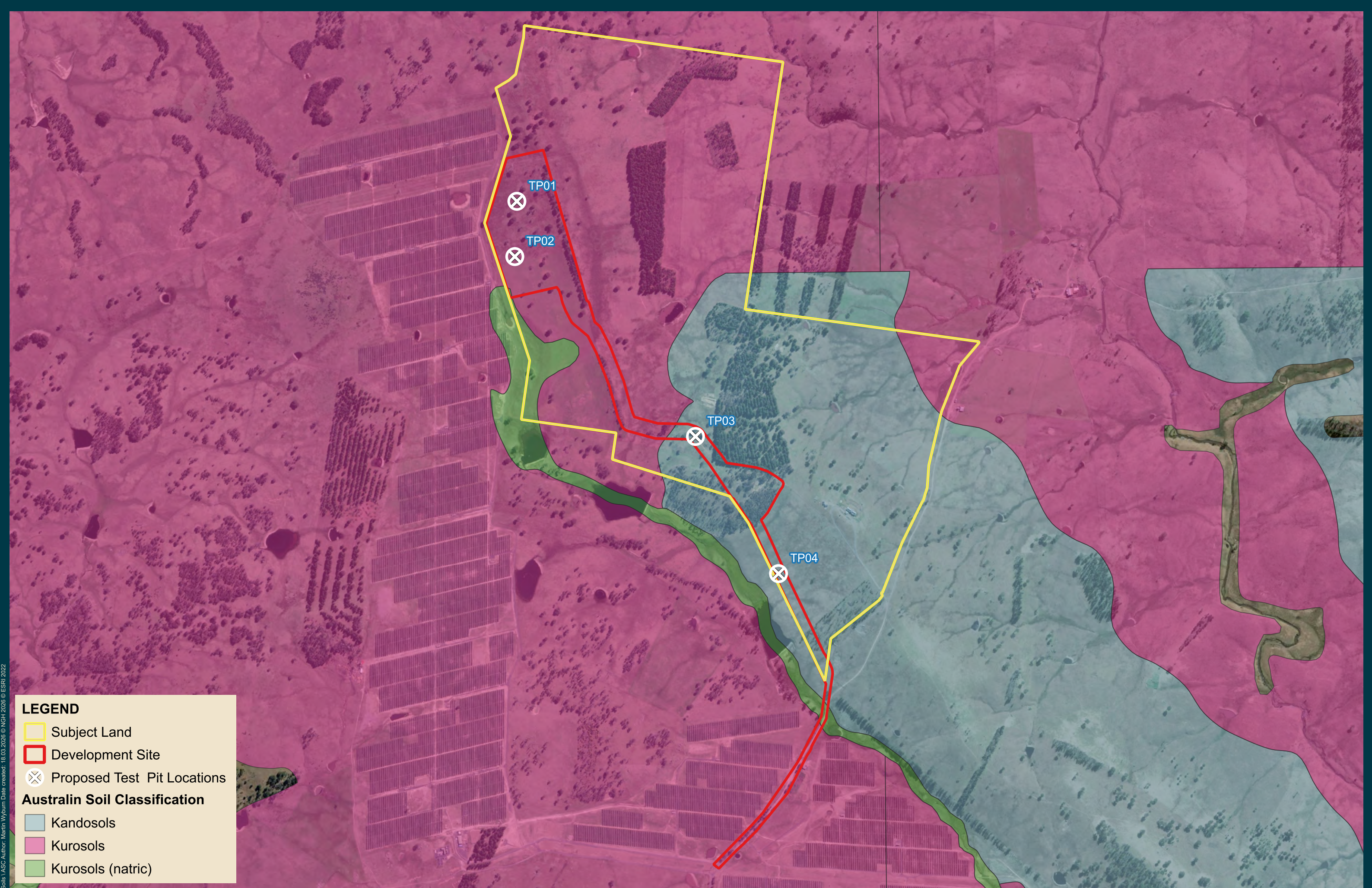
The total number of sampling points required has been calculated as 1 site per 5.5ha for a total of 4 test pits (refer to Figure 6-25). The test pits (TP) were located within the indicative Project Development Footprint and along the proposed access track.

Contaminated land

A search of the following registers was conducted on 4 April 2025 for the Armidale Regional Council LGA:

- NSW Contaminated Land List
- Contaminated land – Records of Notice
- Former Gasworks.

Aerial images are compared to identify changes to the Development Site over time with particular interest in the addition or removal of built infrastructure and use of the land. Publicly available aerial imagery for the site commences in 1986. The aerial imagery is reviewed in sequence to note changes within the Development Site.



LEGEND

- Subject Land
- Development Site
- Proposed Test Pit Locations

Australin Soil Classification

- Kandosols
- Kurosols
- Kurosols (natric)

Datum: GDA94 / MGA zone 56



Armidale East BESS
Figure 6-27 Australian Soil Classification

6.10.2. Existing environment

Landform

The Project Area is generally characteristic of undulating plains and long foot slopes with low relief. Occasional rocky outcrops are present on the more erosionally-dominated slopes (DPIE, 2024). The area has patches of remnant vegetation with scattered trees throughout the landscape. The groundcover is dominated with exotic tussock grass with some weeds present. The site is fenced, and adjacent land has historically been used for grazing and cropping.

Onsite observations noted the site to be gently undulating to flat. There were scattered trees observed throughout the paddock as well as a mix of exotic weeds and tussock type grasses. Ground cover varied from heavily grazed to dense and weedy with a mix of introduced, naturalised and native grasses (refer to Figure 6-26 and Figure 6-27).

Surface conditions include:

- Vegetation covering most of the soil (generally >90%)
- Small patches of rocky outcrop
- Mostly cleared of tall standing native vegetation.



Figure 6-26 Rocky outcrop near TP01 onsite



Figure 6-27 Undulating hills on and around the Development Site.

Geology

The desktop assessment indicates that the majority of the Development Site largely overlays the Girrakool beds (Agnes Greywacke) formation (Australian Government, 2024). This formation is primarily composed of low-grade metamorphosed greywacke, mudstone, and chert. A small portion of the Development Site to the south occurs on the Hillgrove Monzogranite formation (Australian Government, 2024), which is primarily composed of monzogranite. This formation is characterised by its coarse-grained texture.

Soils

The desktop assessment indicates that the topsoil and subsoil of the Development Site is a combination of:

- Australian Soil Classification (ASC) Kurosols and Kandosols (refer to Figure 6-25)
- Great Soil Group of Yellow Earths and Yellow Podzolic Soils – less fertile with a small area mapped as Soloths (refer to Figure 6-28)
- Class 5 and Class 6 Land and Soil Capability (LSC) (refer to Figure 6-29)
- Low soil fertility
- Located within the Middle Earth Soil Landscape characterised by gently undulating plains and rises forming on generally long foot slopes with slopes ranging from 0 – 10% of local relief 0 – 30 m.

The predominant mapped soil as per the ASC across the Development Site are Kurosols. Kurosols on this site are associated with the Yellow Podzolic Earths (less fertile) and Middle Earth Landscape. Limitations associated with this soil type include:

- Severe gully erosion risk, sheet erosion risk and localised groundwater pollution hazard.
- Erosion hazard for disturbance is:
 - o moderate to high when disturbed under non-concentrated water flows
 - o very high with concentrated flows.
- Low risk of wind erosion.

All topsoils recorded show:

- Electrical conductivity values of <6 indicating that they are non-saline.
- That generally the topsoils are non-sodic and not saline.
- They are not considered dispersive but will slake.
- Moderate to high erosion potential once disturbed

Further, the subsoils are:

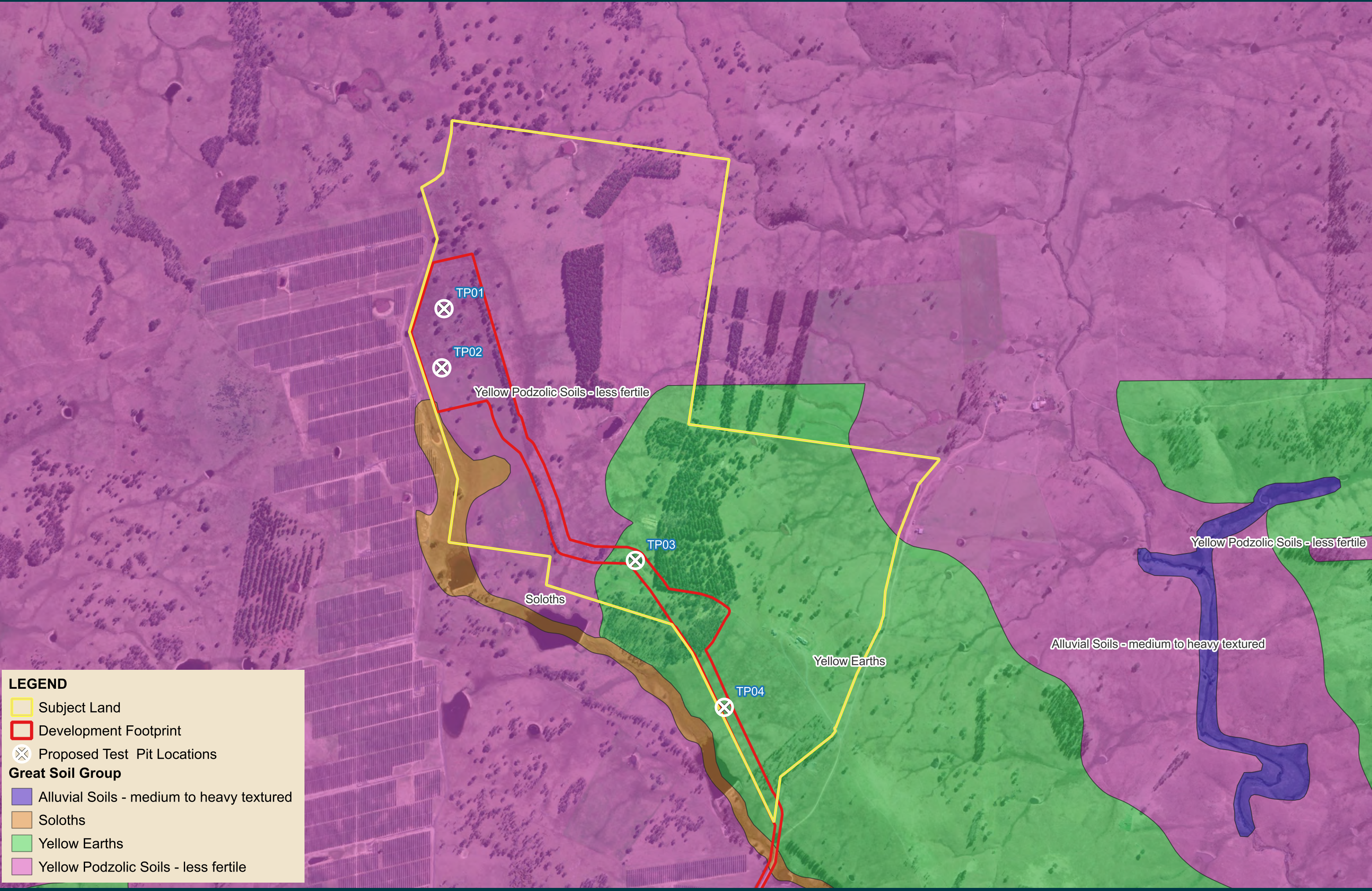
- Moderately to highly dispersive
- A high risk of dispersion following disturbance.

Overall, the soils sampled at this site:

- Have poor nutrient status and an unbalanced cation exchange capacity.
 - o It is important to rehabilitate the soil to support the growth of soil stabilising pasture species that will stabilise the soil for the life of the Project and prevent the loss of soil due to erosional processes.
- Have very low levels of plant available phosphorous in all surface soils tested
 - o Amelioration would be required to restore this site to be able to have the capacity to support pasture growth in the future and for vegetation purposes to meet SEARs commitments.
- Organic matter could be improved by retaining plant cover and encouraging microbial activity to breakdown organic matter and fix organic carbon into the soil.

The Soil Survey Report will be used to inform rehabilitation. Areas of ground disturbance will be rehabilitated as soon as practicable.

Ref: 22-014_Pit_Loc_BESS_Soils | GSG Author: Martin Wyburn Date created: 18.03.2025 © NGH 2025



LEGEND

- Subject Land
- Development Footprint
- Proposed Test Pit Locations
- Great Soil Group**
- Alluvial Soils - medium to heavy textured
- Soloths
- Yellow Earths
- Yellow Podzolic Soils - less fertile

Datum: GDA94 / MGA zone 56



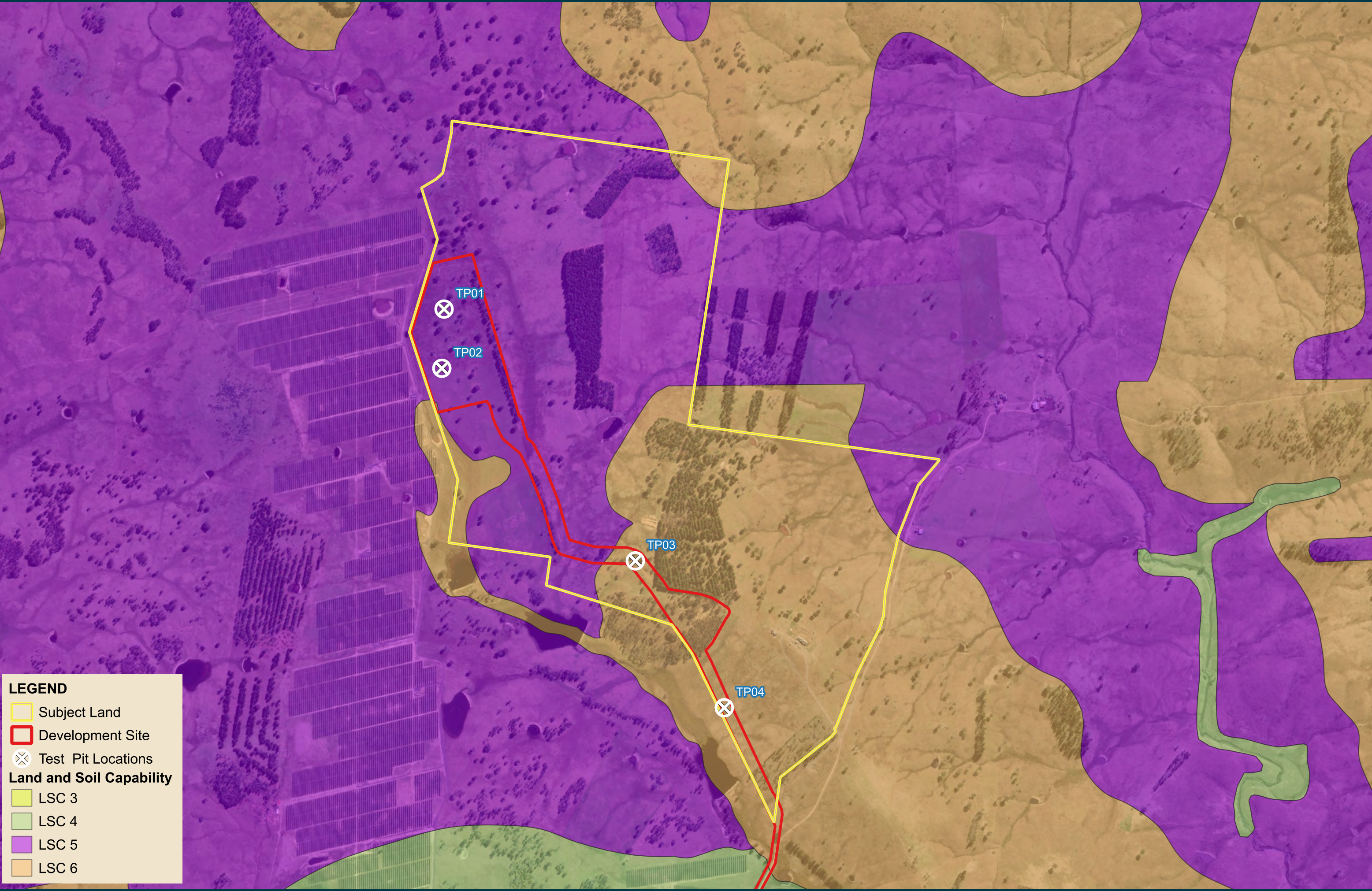
NGH
A FYFE Company



0 0.5 1 km

Armidale East BESS
Figure 6-30 Great Soil Group

Ref: 22-014_Prim_Pol_BEES_Soils_Land and Soil Capability Author: Martin Wyburn Date created: 18.03.2026 © NGH 2026



LEGEND

Subject Land

Development Site

Test Pit Locations

Land and Soil Capability

LSC 3

LSC 4

LSC 5

LSC 6

Datum: GDA94 / MGA zone 56

NGH
A FYFE Company

0 0.5 1 km

Armidale East BESS
Figure 6-31 Land and Soil Capability

Contaminated land

Results of the register search are detailed below:

- Sixteen (16) notified sites were recorded under Section 60 of the CLM Act with regards to the Duty to Report Contamination.
- Six sites were recorded under the Section 58 of the *Contaminated Land Management Act 1997* (CLM Act) Record of Notices.
- One former gasworks site was recorded.

The searches identified no record of contamination within the Development Site. Refer to Section 4 of the EIS for a list of planning instruments applicable to the Development Site.

Aerial imagery review

The comparison of aerial imagery discussed above is detailed in Table 6-48 overleaf.

Table 6-48 Aerial photography review

Year	Image	Development Site	Land immediately surrounding the Development Site
2003		Most of the site has been cleared. Vegetation buffers occur along the eastern boundary of the northern portion of the Development Site, as well as along the western boundary of the Development Site. Remnant vegetation occurs within the central and southern portions of the Development Site. There are a number of existing access tracks occurring within the Development Site. A farm dam occurs within the middle portion of the Development Site.	Most of the surrounding landscape has been cleared. Stands of vegetation occur to the east and west of the Development Site. Several access tracks and farm dams occur within proximity to the Development Site. Fenced agricultural land occurs immediately south of the Development Site.

Environmental Impact Statement

Armidale East Battery Energy Storage System



Year	Image	Development Site	Land immediately surrounding the Development Site
2011	 An aerial photograph showing a landscape with green fields, some trees, and a road. A red line outlines a specific area of land, which is the development site. The surrounding area includes various types of vegetation and some structures.	No notable changes.	Additional vegetation has been planted on either side of the Development Site. An additional dam has been constructed to the west of the Development Site.

Year	Image	Development Site	Land immediately surrounding the Development Site
2018		No notable changes.	There is evidence of cropping to the east and west of the Development Site.

Year	Image	Development Site	Land immediately surrounding the Development Site
2023		No notable changes.	Metz Solar Farm has been constructed to the west and south of the Development Site. Vegetation has been cleared (for Metz Solar Farm).

6.10.3. Potential impacts

Construction

Erosion and sedimentation

The proposed disturbance area for the Development Footprint is approximately 12ha for the BESS siting and 5ha for the access road. Construction activities that may adversely impact soils include the use of plant and equipment and earthworks.

The soil disturbance has the potential to result in the following impacts:

- Reduce soil stability and increased susceptibility to erosion as a result of vegetation removal or soil exposure in areas identified with a dispersive subsoil
- Loss of topsoil and impacts on waterways due to increased erosion and associated sedimentation hazard
- Reduced soil permeability and increased run-off as a result of soil compaction for internal access roads and hardstand areas
- Risk of exposing buried contaminants (pesticides and hydrocarbons).

Erosion and sedimentation impacts that may arise as a result of construction and decommissioning can be minimised by carrying out the activities in accordance with the provisions of the *Managing Urban Stormwater: Soils and Construction "Blue book"* (Landcom, 2004).

Site specific erosion and sediment control requirements are informed by the results of the soil survey (refer to Appendix E.9).

Contamination

As detailed in Section 6.8 of the EIS, the Development Site is mapped as having a number of unnamed first and second order Strahler streams. None of the mapped streams are perennial in nature. One farm dam occurs within the Development Site. In addition to this, hydrological modelling indicates that the Development Site does not receive stormwater runoff from adjacent lands. As detailed in Section 6.8.2, the Development Site is mapped as containing low to moderate potential GDEs. No groundwater bores occur within, or within 4km of the Development Site. As such, it is considered unlikely that the Development Site poses a contamination risk to sensitive environmental receivers (e.g. waterbodies) or groundwater sources / GDEs. In addition to this, it is considered unlikely that the Development Site has been impacted by offsite contamination sources.

The Development Site was assessed against the requirements of the Resilience and Hazards SEPP 2021 by determining whether the site has the potential to be contaminated based on historic and current land use activities within the site and from surrounding sites. No previous contamination investigations are known to have been completed for the Development Site.

The results of the contamination desktop assessment indicate that the potential for contamination to occur with the Development Site is low. The low risk of contamination does not warrant further assessment. As such, this risk of impacts to potential contaminated soil during the construction phase of the Project are anticipated to be negligible. . An unexpected finds procedure for contamination would be developed as part of the Soil and Water Management Plan (SWMP). The unexpected finds procedure would be implemented in the unlikely event that contamination is identified onsite during construction.

Operation

During operation, the primary land use would transition from agricultural use (grazing) to energy storage. This is limited to a relatively small fenced area of 12ha fenced area of the Development Site and the 5ha of access road. Fencing of the access road will be determined in negotiations with the associated receiver.

Erosion and sedimentation

Activities that could cause erosion and sedimentation associated with the operation stage would be mostly confined to formalised access tracks. Vehicles would be infrequent and limited to the access track and parking area.

Soil disturbance would be minimised by rehabilitation measures undertaken during construction and establishment of groundcover following soil disturbance activities within the areas free of infrastructure, under a hardstand or part of the access road. The risk to soil impacts is considered low with the implementation of appropriate mitigation measures.

Contamination

Noting that the potential for contamination to occur within the Development Site is considered to be low, contamination impacts during operation are considered unlikely.

Decommissioning

When the BESS is decommissioned, all above ground infrastructure (including concrete footings and slabs) and below ground infrastructure, would be removed. Rehabilitation of the site would commence. All buildings (excluding the Terminal Station) would be removed, including all battery components and their associated footprints. Infrastructure will generally be removed to a depth of 1000mm with materials recycled where possible.

Following decommissioning, rehabilitation of the Development Site would be undertaken to return the land to safe, stable non-polluting, productive state,. This would be informed by a Revegetation and Rehabilitation Plan (detailed above as Mitigation Measure LU1).

6.10.4. Mitigation measures

Safeguards and mitigation measures for soil and contamination are detailed in Table 6-49 below.

Table 6-49 Soils mitigation measures

Mitigation number	Mitigation measures	Project stage
SO1	A construction Erosion and Sediment Control Plan (ESCP) will be prepared for the Project in accordance with Landcom Soils and Construction: Managing Urban Stormwater (Landcom, 2004).	Construction Operation Decommissioning
SO2	A Soil and Water Management Plan (SWMP) including site specific Erosion and Sediment Controls would be prepared, implemented and monitored during the construction of the Project, to minimise soil and water impacts. The SWMP will be prepared in accordance with the 'Blue Book' Volume 1 Managing Urban Stormwater: Soils and Construction (Landcom 2004) and include:	Construction Decommissioning

Mitigation number	Mitigation measures	Project stage
	- At the commencement of the works, and progressively during construction, install the required erosion control and sediment capture measures. - Regularly inspect erosion and sediment controls, particularly following rainfall. - Maintain a register of inspection and maintenance of erosion control and sediment capture measures. - Ensure that machinery leaves the site in a clean condition to avoid tracking sediment onto public roads. - In all excavation activities, separate subsoils and topsoils and ensure that they are replaced in their natural configuration to assist revegetation. - Stockpile topsoil appropriately to minimise weed infestation, maintain soil organic matter, and maintain soil structure and microbial activity. - Manage works in consideration of heavy rainfall events. - Areas of disturbed soil would be rehabilitated promptly and progressively during construction. - Spill procedure. - Unexpected, contaminated finds procedure.	
SO3	The design, construction and decommissioning of the Project will minimise the extent and duration of ground disturbance and avoid disturbing steep slopes where practicable.	Prior to construction
SO4	The Applicant will progressively rehabilitate where practicable any area of the Development Footprint not under hardstand, road or infrastructure to reduce erosion impacts to disturbed soil, including but not limited to table drains, vegetated asset protection zones.	Construction Decommissioning
SO5	Topsoil will be stripped and stockpiled separately. Avoid stockpiling soil greater than 2m in height to prevent soil structural decline. Stockpiles will be stabilised with a groundcover (i.e. geotextile or similar) if stockpiling is required for more than six weeks, progressively rehabilitate any area of the development footprint not under hardstand, road or infrastructure to reduce erosion impacts to disturbed soil.	Construction Decommissioning
SO6	The Applicant will avoid altering the groundwater and surface water regime to prevent mobilisation of any salt stores, however low, in the soil.	Construction
SO7	At least 70% groundcover will be maintained on the areas not under infrastructure or required for hardstands throughout the Development Footprint during operation to reduce the risk of erosion.	Operation

Mitigation number	Mitigation measures	Project stage
SO8	The soil survey results (this document), Australian Soil and Land Survey Handbook (CSIRO, 2009), Guidelines for Surveying Soil and Land Resources (CSIRO, 2008) and the Land and Soil Capability Assessment Scheme: second approximation (NSW OEH, 2012) will be used when returning the site to the pre-development farmland capability.	Decommissioning

6.11. Non-Aboriginal heritage

This chapter provides an assessment of the non-Aboriginal heritage undertaken by NGH within or adjacent to the Project and determines whether there are any impacts to non-Aboriginal heritage.

6.11.1. Approach

The Heritage Impact Assessment was prepared in accordance with the following guidelines and publications:

- *Assessing Heritage Significance* (NSW Heritage Office, July 2001)
- *The NSW Heritage Manual*
- *The Burra Charter – The Australia International Council on Monuments and Sites (ICOMOS) Charter for Places of Cultural Significance* (ICOMOS, 1999).

Desktop review

Desktop searches were undertaken on the 18 September 2023 of the relevant historic heritage registers including the Australian Heritage Database, the NSW State Heritage Inventory (SHI) and Section 170 registers, to identify any items that are currently listed within or adjacent to the Development Site. The Australian Heritage Database includes items on the National and Commonwealth Heritage Lists while the SHI includes items on the State Heritage Register and items listed by state agencies and local government.

6.11.2. Existing environment

The results of the NSW SHI database search show that no items listed on the SHI are within or in close proximity to the Development Site.

The nearest State Heritage Register listed items are in Armidale approximately 17km west of the Project; and

The nearest LEP listed items are sharing sheds on Hillgrove station approximately 6km southeast of the Development Site (Item 204 and 338), a culvert on Gara Road (Item 222) approximately 12km west of the Project Area and a Eucalyptus Tree with a surveyor's mark on Middle Farm Road (Item 149) approximately 12km west of the Development Site.

The results of the Australian Heritage Database search indicated that no items listed on the Australian Heritage Database and within or in close proximity to the Development Site.

There are no recorded non-Aboriginal heritage sites within or in close proximity to the Development Site.

Significance assessment

As no heritage items or potential for heritage items were identified during the site visit it is not necessary to undertake an assessment of significance.

6.11.3. Potential impacts

The Project is not considered likely to have a significant impact in accordance with the NSW *Heritage Act* 1977, the EP&A Act, or the EPBC Act, in terms of heritage.

There are no anticipated impacts on any of the above identified heritage items during construction, operation or decommissioning, due to the location of the proposed solar farm.

Non-Aboriginal heritage unexpected finds procedure

Although there were no objects of historical significance encountered during the site visit or background research, unexpected finds cannot be ruled out. It is unlikely that historical objects will be encountered during construction for this Project but in the event that they are the unexpected finds procedure will be used.

An unexpected heritage item means any unanticipated discovery of an actual or potential heritage item, for which the Applicant does not have prior approval to disturb or does not have a safeguard in place to manage the disturbance.

These discoveries are categorised as either:

- a) Aboriginal objects
- b) Historic/non-Aboriginal heritage items
- c) Human skeletal remains.

This procedure relates specifically to Historic/non-Aboriginal heritage items. For Aboriginal objects and Human skeletal remains refer to the ACHA.

If suspected Historic/non-Aboriginal heritage items are discovered onsite then the following procedure will take place:

1. All work will cease in that area and notify a Project Manager or Supervisor immediately of the find,
2. A 'no-go' zone will be established around the find, using visibility fencing (where applicable),
3. Inform all on-site personnel and staff of the find and the demarcated 'no-go' zone,
4. Contact a qualified archaeologist/heritage consultant to inspect the find and provide recommendations.
5. In the event that human remains are identified, follow the ACHA protocol
6. Once clearance of the site has been given by the qualified archaeologist/heritage consultant then works may proceed within the 'no-go' zone UNLESS specifically instructed by the professional that no further works can be completed.

6.11.4. Mitigation measures

Safeguards and mitigation measures for non-Aboriginal heritage are detailed in Table 6-50 below

Table 6-50 Non-Aboriginal heritage mitigation measures

Mitigation number	Mitigation measure	Project stage
NAH1	Should an item of historic heritage be identified, the Heritage NSW will be contacted prior to further work being carried out in the vicinity in accordance with the non-Aboriginal heritage unexpected finds procedure in the EIS.	Construction Operation Decommissioning
NAH2	In the event of an item of heritage significance being uncovered, works will cease in the vicinity of the find and the site manager contacted immediately. Works should not recommence until an investigation has	Construction Operation Decommissioning

Mitigation number	Mitigation measure	Project stage
	been completed by suitably qualified person in accordance with NSW Heritage Branch guidelines.	

6.12. Social and economic impacts

NGH completed the assessment of potential social and economic impacts of the Project to address all relevant matters required by the SEARs (refer to Appendix E.10). The findings of the assessment are summarised below.

An Accommodation and Employment Strategy (AES) has been proactively prepared as a result of advice received from Armidale Regional Council and DPHI. The AES is summarised below and attached as Appendix E.11.

6.12.1. Approach

Social impact

A Social Impact Assessment (SIA) was prepared by NGH in accordance with DPHI's *Social Impact Assessment Guidelines 2023* (the SIA Guideline) (DPHI, 2025) and informed by the practice as outlined in the SIA Guideline and the International Association for Impact Assessment (IAIA) Guidance Note, *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects* (Vancley, Esteve, Aucamp, & Franks, 2015). The SIA aims to identify, predict and evaluate the likely social impacts arising from the Project, and to propose appropriate responses to mitigate and manage negative impacts and enhance positive benefits. The methodology is outlined below:

- **Social** – including an assessment of the social impacts or benefits of the Project for the region and the State as a whole in accordance with the *Social Impact Assessment Guideline* (DPHI, 2025) including consideration of any increase in demand for community infrastructure services, construction workforce accommodation, and potential opportunities for nearby settlements.
- **Economic** – including an assessment of the economic impacts or benefits of the Project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing programs.

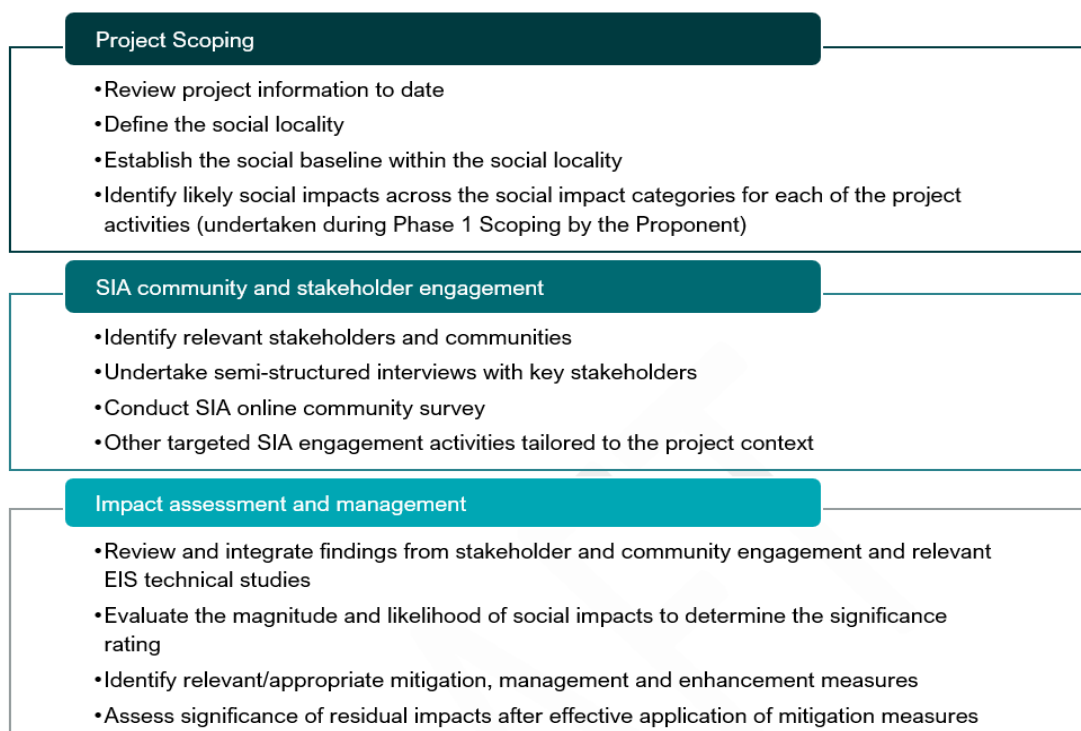


Figure 6-30 Overview of SIA methodology

Accommodation and employment

The preparation of the AES applied a mixed-methods approach combining desktop-based assessment with targeted consultation. This methodology enabled the identification of regional accommodation capacity, labour-market conditions, and potential cumulative pressures associated with the Project's construction period, which informed the accommodation strategy.

Consistent with the NSW Government's SIA Technical Supplement's definition of "local" *as long term residents of an area within a specific driving time, e.g. 1 hour* (p.26) (DPHI, 2025), relevant towns and centres within a one hour drive-time defined the regional labour and accommodation catchment for the AES (the 'Project catchment').

6.12.2. Existing environment

Social baseline

The Armidale Regional LGA has a population of 29,124. The majority of residents live in the urban area of Armidale, which serves as a significant academic and service hub for the broader New England North West region. The area is noted for its inclusion of Ezidi refugees, (an ethno-religious group originally from Iraq who have sought refuge in Australia) with over 600 having settled in Armidale since 2018. The region's median age of 37 years, while the Metz locality has an older median age of 43 years.

Housing in the Armidale LGA is primarily composed of separate houses, with 34.6% of homes owned outright. However, the region faces significant challenges with housing affordability, particularly for renters. In 2021, 35.3% of rental households were in housing stress. The region's housing market is under additional pressure due to anticipated workforce influxes associated with the development of large-scale renewable energy projects within the NE REZ.

Despite strong educational attainment, there are challenges in aligning education with emerging industry needs, particularly in renewable energy, leading to a skills gap and rising unemployment. Health and well-being are also key concerns, with high rates of mental health issues and limited access to medical services, exacerbated by the region's rural and remote location.

Economic baseline

Economically, Armidale LGA has experienced growth driven by key industries such as education, agriculture, and renewable energy. The area recorded a Gross Regional Product of \$1.99 billion in 2023, with the largest value-adding industry being education and training.

Socio-economic planning context at the regional level is guided by the New England North West Regional Plan 2041 (the Regional Plan) (DPE, 2022a). The plan aims to support productive and innovative growth for the region by protecting and enhancing the region's natural assets, improving transport connectivity and infrastructure, and investing in emerging industries, with a focus on renewable energy technology and investment. The plan also has a strong emphasis on housing, as it aims to ensure that housing options can meet regional demand for affordable accommodation over the coming years.

The Moore Special Activation Precinct (SAP) is a strategic priority to stimulate economic opportunities and diversify the region's economy. The 40-year plan aims to capitalise existing major transport routes, such as the Inland Rail project, to attract new business opportunities across region. Leveraging the area's strengths, the SAP involves targeted infrastructure investments to support business growth in agribusiness, logistics and renewable energy. This, in turn, will drive demand for housing and community services, enhancing the economic and social viability of the area (DPE, 2022a).

Regarding the Armidale LGA in particular, priority actions identified in the Regional Plan include the development of a Local Housing Strategy, which was endorsed at the Ordinary Council meeting on 26 June 2024. The strategy addresses six key planning priorities - diversity and density, sustainability and resilience, character and liability, affordability, responsiveness to community need, and supply and infrastructure – and proposed to deliver 4,400 new homes to meet the housing needs of the region (ARC, 2024). Other actions centred around capitalising upon the LGA's existing facilities and services (e.g. Armidale Rural Referral Hospital, UNE, Armidale Regional Airport, and the NBN fibre) to assist further growth in health, high-order education, and tourism industries and businesses. Agribusiness, Agtech, and greenhouse industries were also noted as emerging sectors which could help to diversify Armidale's local economy. Leveraging the LGA's location within the REZ to identify and promote renewable energy developments was another key identified opportunity.

At the local level, socio-economic planning is guided by ARC's Local Strategic Planning Statement (LSPS). Key planning priorities identified within this plan include a focus on developing employment land (defined as land that is required and suitable for commercial or industrial and related purposes) in relation to the three identified engine industries: controlled environment horticulture, renewable energy, and manufacturing (ARC, 2024). Ensuring water security and accessibility is identified as a crucial element to facilitating this growth. Supporting growth and protection of existing events and attractions for tourists, including natural assets, was also a key planning priority (ARC, 2024).

New England REZ and Armidale Regional Council's responses

The NE REZ was formally declared by the NSW Government in December 2021, under the Electricity Infrastructure Investment Act 2020. REZs are defined geographic zones that allow for a grouping together of new renewable energy generation so that energy can be efficiently stored and transmitted across NSW. REZs are the equivalent of modern-day power stations in that they combine:

- New renewable energy infrastructure, including generators (such as solar and wind farms).
- Storage (such as batteries and pumped hydro).
- High-voltage transmission infrastructure (EnergyCo, 2024)

The REZ declaration will likely further concentrate renewable energy development in the New England region. Already, there are several solar and wind developments that have either been constructed or are under construction in the Armidale region, and this includes the Metz SF adjacent to the Project.

In the wake of the REZ declaration and the associated scale of development activity, local councils (and communities) are in many cases under resourced to deal with the volume of projects they are required to assess. Embracing renewables projects has been of consideration for Armidale Regional Council, with Council plans and strategies identifying significant economic opportunities associated with REZ induced development (ARC, 2024).

However, the Council is working in a complex environment, negotiating with a stream of proponents about multiple development projects. At the same time, they are dealing with the practical realities of trying to realise positive benefits and minimise negative impacts for their local community.

To aid with this and to formally articulate their position, the Council has recently developed a draft *Renewable Energy Community Benefits Framework* to guide negotiations between the Council and developers of renewable energy projects regarding planning agreements and benefit sharing. The framework states that:

"The minimum community benefit threshold for ARC is \$850 per megawatt of capacity for energy storage developments (including pumped hydro)" (ARC, 2024)

However, the "Benefit Sharing Guideline" published by the Department of Planning, Housing and Infrastructure reflects "\$150 per megawatt hour per annum for stand-alone battery energy storage systems located in a rural zone (i.e. RU1 Primary Production, RU2 Rural Landscape, RU3 Forestry, RU4

Primary Production Small Lots)” (p.24). In accordance with the guideline, the Applicant has agreed in principle that the voluntary planning agreement (VPA) will apply the maximum contribution rate specified in the guideline. This approach reflects current market practice for long-duration storage projects and the Applicant’s consideration of adapting its community benefit framework for the Project in line with the guideline, with the final funding value to be determined through the VPA process.

Concerns regarding the cumulative impacts of NE REZ workforces on future housing and accommodation have also been a key point of consideration in the Armidale LGA. The council have identified the potential to develop temporary workers’ accommodation precincts within Armidale and Guyra to support horticulture and REZ growth. Many other deliverables to develop residential and tourist accommodation options were also highlighted to offset housing impacts on residents (ARC, 2024a).

Acknowledging these accommodation pressures, the Project has developed an AES as part of the EIS (see Appendix E.11), which outlines workforce and accommodation management measures intended to minimise impacts on local housing, community services and the broader accommodation market, including in the context of concurrent REZ-related development.

6.12.3. Potential impacts

Social impact

Potential impacts were identified through stakeholder and community engagement and from comparative studies. The significance of these impacts were assessed using the risk matrix, taking into consideration the likelihood and magnitude of impacts (DPIE, 2023). The key themes of the SIA impact assessment include how the Project would impact on:

- Livelihoods
- Accessibility
- Community
- Health and wellbeing
- Way of life
- Culture
- Surroundings
- Decision making systems
- Key cumulative impacts

Table 6-51 and Table 6-52 present a summary of potential social impacts and response measures. The stakeholder significance rating has been determined by the perceived importance of the issue to the affected stakeholder group, their sensitivity to the impact, and the frequency that the issue was raised by the group during the consultation and engagement processes. The significance rating (unmitigated) further considers the issue in light of additional information drawn from the technical assessments and comparative studies. The residual impact significance rating represents the likely significance of an issue once the proposed mitigation/enhancement measure/s have been successfully implemented. These impacts are presented by Project phase, with construction impacts listed first.

Table 6-51 Social impact assessment summary - Positive social impacts

Social Impact Category	Potential Social Impact	Project Aspect/Activity	Timing /Duration	Affected Stakeholder Group	Evaluated Impact Significance	Existing and Potential Mitigation Measure	Residual Significance
Livelihood	Increased local employment opportunities	Establishment, construction, and operation of Project infrastructure.	C, O, D	Broader community	High (Likely + Moderate)	- Engage with workforce development programs and agencies to advertise jobs through local networks - Consider providing training opportunities to ensure local workers are qualified for REZ-related vacancies.	Very High
	Increased procurement opportunities			Broader community, Local service providers and businesses	Medium (Likely + Medium)	- Pursue vendors via ICN and other local agencies to ensure equal opportunity for small local businesses. - Explore partnership opportunities between small and large businesses.	High
	Skills development and training opportunities		C, O	Broader community, Vulnerable populations	High (Possible + Major)	Possibility to collaborate with local Council, education centres, and other key regional economic development stakeholders to support local workforce development.	Very High
	Increased local economic activity	Establishment, construction, and operations of Project infrastructure.	C, O, D	Broader Community	Medium (Likely + Minor)	Develop Accommodation and Employment Strategy in consultation with local stakeholders.	High
Community	Increased community investment	Community benefit fund leading to improved social and community infrastructure	C, O	Broader community, Local service provides, Community groups, Local government, Vulnerable populations	Medium (Likely + Moderate)	- Develop and implement the CBSP with Council and key stakeholders, including the local Aboriginal stakeholders. - Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project and the CBSP. - Communicate strategies clearly to community as per CSES.	High
Decision-making Systems	Project engagement and decision-making	Community and stakeholder engagement activities	P, C, O	Broader Community	High (Likely + Major)	- Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project and the Community Benefit Sharing Program. - Work with economic development stakeholders to showcase the Project and the industry within the region. Tell the positive story of the Project's success. - Ensure open, transparent, timely and accessible communication of Project information. - Provide multiple Project contact options and feedback mechanisms for the community and stakeholders. - Ensure community feedback is demonstrably considered in Project planning. - Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints.	Low
	Lack of distributional fairness				Medium (Possible + Moderate)		Low

Table 6-52 Social impact assessment summary - Negative social impacts

Social Impact Category	Potential Social Impact	Project Aspect/Activity	Timing /Duration	Affected Stakeholder Group	Evaluated Impact Significance	Existing and Potential Mitigation Measure	Residual Significance
Livelihood	Reduced labour availability for local businesses and services	Establishment and construction of Project infrastructure		Broader Community, Local service providers and businesses	Medium (Possible + Moderate)	- Engage with Council and other proponents operating in area to minimise cumulative impacts during Project construction. - Develop Accommodation and Employment Strategy in consultation with local stakeholders. Specific intent and mitigation measures for these plans are outlined in Section 6.3.	Low
Accessibility	Increased pressure on housing and accommodation	Establishment and construction of Project infrastructure	C	Accommodation providers and the Broader community	High (Likely + Moderate)	- Maximise local employment of local people (inc. gap year and student population). - Engage with Council to explore the possibility and the potential to develop a worker accommodation camp on the outskirts of Armidale. - Engage with regional stakeholders and other proponents, where relevant, to understand construction timing across projects. - Collaborate with local councils and other key regional economic development or social sector stakeholders to support housing responses in the region. - Explore options to utilise any existing accommodation facilities within Armidale. - Engage regularly with Council to discuss and respond to any emerging community and business concerns. - Engage with accommodation providers to avoid negatively impacting on tourism opportunities and vulnerable populations who are utilising temporary accommodation. - Where possible, schedule major construction periods to minimise overlap with key regional events and festivals. - Engage with Council in regional planning efforts to advocate for investment in short-term accommodation to alleviate housing pressure for future projects.	Low
	Increased pressure on social infrastructure and services	Establishment and construction of Project infrastructure		Health providers, Broader community	Medium (Possible + Moderate)	- Ensure appropriate first aid arrangements are in place at the Development Site and promote the use of telehealth services to workers. - Engage regularly with Council and social service providers to discuss and respond to any emerging community and business concerns. - Develop policies and guidelines detailing expectations for Project workforce behaviours and safety. - Engage with medical and emergency services about the scale, timing and workforce arrangements for the Project's construction phase. - Ensure consistent community engagement as per the CSES to adjust to community demands throughout duration of Project. - Avoid as much as possible major construction periods during key regional events and festivals.	Low
	Increased traffic and road safety impacts	Movement of construction material & increased traffic due to workforce travel		Broader community and road users	Medium (Possible + Minor)	- Aim to stagger construction hours around peak travel time to accommodate local traffic. - Implement traffic management measures outlined in Construction Traffic Management Plan (as outlined in Section 6.3 of EIS). - Communicate traffic management measures to the near neighbours and local community. - Engage with medical and emergency services about the scale, timing and workforce arrangements for the Project's construction phase. - Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints.	Low

Social Impact Category	Potential Social Impact	Project Aspect/Activity	Timing /Duration	Affected Stakeholder Group	Evaluated Impact Significance	Existing and Potential Mitigation Measure	Residual Significance
	Changes in community composition, cohesion, and feel	Payments to host landholders and difference in attitudes towards the Project	P, C, O, D	Host landholders, near neighbours and the Broader Community	Medium (Possible + Moderate)	- Develop policies and guidelines detailing expectations for Project workforce behaviours and safety. - Continue regular engagement with Councils and the community, particularly during construction, to discuss and adaptively respond to any emerging community and business concerns. - Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints. - Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project and the CBSP.	Low
Health and Wellbeing	Health and wellbeing impacts for near neighbours	Establishment of Project	P, C, O	Host landholders, near neighbours and the Broader Community, Health providers	Negligible (Very unlikely + Minimal)	Ensure open, transparent, timely and accessible communication of Project information with the aim of minimising uncertainty and addressing concerns.	Negligible
	Risks to the construction workforce's health and wellbeing	Establishment and decommissioning of Project	C, O, D	Construction workers, Health providers	Negligible (Very unlikely + Minimal)	- Develop policies and guidelines detailing expectations for Project workforce behaviours and safety, and to support the workforce's health and mental health. - Prohibit drugs or alcohol on-site.	Negligible
Way of Life	Amenity impacts (noise and air quality)	Establishment and operations of Project	C, O	Proximal landholders, nearby residents, and Broader community	Low (Unlikely + Minor)	- Implement measures outlined in the Construction Environmental Management Plan, including traffic and noise management measures. - Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints. - Ensure open, transparent, timely and accessible communication of Project information, including transport.	Negligible
	Crime and safety	Establishment and operations and decommissioning of Project	C, O, D	Proximal landholders, nearby residents, and Broader community	Low (Unlikely + Minor)	- Develop policies and guidelines detailing expectations for Project workforce behaviours and safety. - Ensure proper safety and security protocols/ systems are in place surrounding property.	Negligible
Culture	Potential loss/damage to Aboriginal cultural heritage	Construction and operation of Project infrastructure	C, O	First Nations People	Medium (Unlikely + Major)	- Consider amendments to Project design to avoid areas of potentially high cultural value. - Implement mitigation measures outlined in the Aboriginal Cultural Heritage Assessment (ACHA), including preparation of a Cultural Heritage Management Plan (CHMP). - Ongoing engagement with Aboriginal stakeholders throughout construction. - Ensure that local Aboriginal people are given opportunity to facilitate Aboriginal Cultural Heritage Awareness Inductions and other related programs for the Project.	Low
Surroundings	Visual impacts and industrialisation of the local landscape	Construction, operation, and	C, O, D	Proximal landholders, near neighbours	Low (Unlikely + Minor)	- Implement measures outlined in the Land and Visual Impact Assessment. - Community engagement as per the Stakeholder and Community Engagement Plan.	Low

Social Impact Category	Potential Social Impact	Project Aspect/Activity	Timing /Duration	Affected Stakeholder Group	Evaluated Impact Significance	Existing and Potential Mitigation Measure	Residual Significance
		decommissioning of Project infrastructure					
	Fire safety	Establishment, construction and operation of Project infrastructure	C, O	Proximal landholders, Broader Community	Medium (Possible + Moderate)	- Implement the protection and prevention measures as outlined in the Bush Fire Assessment Report in the EIS (6.5). - Communicate mitigation measures to stakeholders and provide grievance processes to allow stakeholders to express concerns, if necessary.	Low
	Potential environmental impacts	Establishment, construction, operation, and decommissioning of Project infrastructure	C, O, D	Proximal landholders, near neighbours	Low (Unlikely + Moderate)	- Implement proposed soil, dust, and water management measures as outlined in the Construction Environmental Management Plan (as outlined in Section 6.1 of EIS). - Engage with the community to allay concerns about the real and perceived impacts to the environment.	Low
Key cumulative impacts	Key cumulative impacts	All Project stages, Community and Stakeholder Engagement	P, C, O, D	Broader Community	High (Almost certain + Moderate)	- Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project and the Community Benefit Sharing Program. - Work with economic development stakeholders to showcase the Project and the industry within the region. Tell the positive story of the Project's success. - Ensure open, transparent, timely and accessible communication of Project information. - Provide multiple Project contact options and feedback mechanisms for the community and stakeholders. - Ensure community feedback is demonstrably considered in Project planning. - Ensure development of Community Benefit Sharing Program, co-designed by Applicant, Council, and local community.	Low

Accommodation and employment

Employment strategy

Several options were examined to strengthen local employment outcomes and build workforce capability in the region. Drawing primarily on a non-local workforce could allow the Project to access experienced workers quickly; however, it would contribute little toward addressing local skill shortages, labour demand or creating longer-term opportunities (refer to Table 6-1 of the AES, Appendix E.11).

The Applicant's preferred approach would support pathways to increase locals with skills and qualifications to work within renewable energy and support a reduced need to source accommodation, as many workers would already reside within a reasonable commuting distance. Employment of locally registered contractors may further support regional participation, as these businesses often draw on an existing local workforce; however, this will be subject to workforce availability and contractor resourcing models. This approach will operate alongside early training initiatives to proactively develop local workforce capacity.

These measures are focused on maximising the involvement of local people and businesses in the Project, with an emphasis on employing contractors and subcontractors registered in Armidale Regional Council and Uralla Shire Council to strengthen regional economic participation while minimising accommodation demand.

Accommodation strategy

The accommodation inventory indicates tight rental vacancy conditions in the Project catchment, limiting the suitability of private rental housing and commercial short-term accommodation for the construction workforce.

Options to accommodate construction workers are available in the form of underutilised and vacant student accommodation suitable for the temporary construction workforce and available long-term rental properties for the operational workforce. Options are being explored for the Applicant to collaborate with other developers/contractors and the possibility of utilising temporary accommodation that is currently being planned for other major projects in the region (refer to Table 7-1 of the AES, Appendix E.11).

Based on the accommodation inventory and assessment of available pathways, the preferred approach to accommodate the Project construction workforce is to use repurposed accommodation, more specially the underutilised student accommodation located at UNE, Armidale. This would be subject to availability, suitability, commercial arrangements and separation from student use at the relevant time. If the construction workforce cannot be accommodated within UNE facilities, housing the Project's construction workforce in purpose-built or modular temporary accommodation that has been constructed or is planned for other Major projects in the Project catchment area should be explored, along with larger houses and motels that have been converted to short-term accommodation.

The Applicant is currently evaluating and considering other targets as part of the Long-Term Energy Service Agreements (LTESA) process, which was recently awarded. In the context of LTESA targets, alternative definitions of 'local' would apply, including 'local worker' (refers to jobs for people in NSW) and 'local content' (refers to goods, services, and resources produced, manufactured, or supplied within Australia and New Zealand).

The potential targets that would be used in the LTESA process, currently considered by the Applicant, are as follows:

- Percentage of local employment – 65% of the total project workforce (TPW) during construction, and 75% of TPW during operation
- First Nations employment target – 5% of TPW during construction, and 5% of TPW during operation
- Local procurement target – 28% of total Capex during construction, and 78% of total Opex during operation (for goods and services)

- First Nations subcontracting target – 2.5% of TPW during construction, and 0.5% of TPW during operation
- Percentage of women – 12% of TPW during construction, and 10% of TPW during operation
- Targets for underrepresented groups – 15% of TPW during construction, and 25% of TPW during operation
- Learning workers / apprentices – 20% of TPW during construction, and 25% of TPW during operation

Traditional Owners and Aboriginal governance

The Development Site is in an area that contains the indeterminate boundaries between the Nganyaywana, Anaiwan, the Gumbaynggirr language groups. It is likely that the boundaries of cultural areas, including language groups, likely incorporated a degree of fluidity prior to the impacts of colonisation, and that the processes of dispossession, have significantly impacted the connections between family and tribal or language groups in addition to disrupting the connections to land (Horton, 1994).

Due to a complicated colonial history marked by displacement and dispossession, there is contestation regarding the traditional ownership of the lands of the Armidale Regional LGA. Despite this, it is widely acknowledged that the Anaiwan, Gumbaynggirr, Dunghutti, and Gomeroi (Kamilaroi) peoples have all cared for various parts of the lands within the council area for generations (UNE, 2024).

Across the Armidale LGA there are two LALCs: the Armidale LALC and Guyra LALC. The Anaiwan LALC is in Tingha within the Inverell LGA (NSW Aboriginal Land Council, 2024) The Gomeroi people have lodged a native title claim in the west of the Armidale LGA (National Native Title Tribunal, n.d.).

These bodies liaise with the ARC through the Aboriginal Advisory Committee. Within Council, the Aboriginal Community Development Officer coordinates local Aboriginal interagency meetings, which are a key mechanism of organisation and communication for Aboriginal community support and development within the LGA. They also facilitate the [Aboriginal Action Plan 2015-2019](#), which seeks to uphold the rights and recognition of local Aboriginal people and communities through consultation with Gayinyaga Consultative Committee, Armidale Aboriginal Elders, Local Services, and Council Managers

6.12.4. Mitigation measures

To address the identified impacts, the Project commits to further targeted community engagement, adopting an appropriate benefit sharing program and developing a detailed plan regarding the management of the Project's work force and accommodation requirements. Safeguards and mitigation measures for social and economic impacts are detailed in Table 6-53 below

Table 6-53 Social and economic mitigation measures

Mitigation Number	Mitigation measures	Project stage
SIA1	The Community and Stakeholder Engagement Strategy (CSES) will be updated through all stages as required, and will include methods to:: • Provide open, transparent, timely, and accessible communication of Project information to minimise uncertainty and address concerns. • Address concerns about potential amenity and safety impacts (e.g., traffic, noise, and visual), as well as real and perceived impacts on the environment.	Prior to construction Construction Operation

Mitigation Number	Mitigation measures	Project stage
	- Continue regular engagement with Councils, particularly during construction, to discuss and adaptively respond to any emerging community and business concerns. - Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints. - Communicate intentions about the accommodation of both the construction and operational workforces. - Engage with the community to allay concerns about the real and perceived. - Establish a Community Benefit Sharing Program (CBSP). The Applicant and the Council agreed in principle that the Voluntary Planning Agreement (VPA) will be developed following the NSW “Benefit Sharing Guideline.” - Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project and the Community Benefit Sharing Program. - Ensure representation of Traditional Owners and other key local Aboriginal stakeholders. - Collaborate with local councils and other key regional economic or social development stakeholders to support regional economic and social development initiatives. - Work with economic development stakeholders to showcase the Project and the industry within the region. Tell the positive story of the Project’s success. - Integrate engagement needs for developing the Industry and Aboriginal Participation Plan (IAPP) and Community Benefit Sharing Program (CSBP). - Develop Industry and Aboriginal Participation Plan in collaboration with Aboriginal stakeholders	
SIA2	The Applicant will develop a Community Benefits Sharing Program (CBSP) against the agreed VPA in consultation with Council, which will inform the development of the Project’s CSES. As part of the CBSP, the Applicant will explore the possibility of sponsoring community programs, as well as: - Continue to consult the community to understand needs and priorities to tailor the CBSP initiatives throughout the life of the Project. - Collaborate with other industry and renewable energy developers to ensure coordination in the administration of funds	Prior to construction

Mitigation Number	Mitigation measures	Project stage
	across the communities most impacted by development within the region to avoid overlap and duplication	
SIA3	When appointed, the EPC Contractor will support implementation of relevant AES measures during construction, with the Project Manager responsible for monitoring progress and ensuring agreed targets are achieved as set out in the AES. The AES will be routinely monitored and updates as required should changes to the Project occur.	All stages

7. Assessment of additional issues

7.1. Resource use and waste generation and management

This chapter provides a desktop assessment of the resource use and potential waste generation associated with the construction, operation, and decommissioning phases of the Project. It also outlines proposed management measures to minimise environmental impacts and ensure compliance with relevant legislation and industry best practices.

7.1.1. Existing environment

Resource use

Construction phase

Key resources required during the Project construction phase include:

- **Water:** Used for dust suppression, concrete batching, and other site works. Estimated usage is around 2-3ML and will be sourced from local sources, outside the LGA suppliers or existing water entitlements. More information in Section 6.8.
- **Construction materials:** Includes steel, concrete, crushed rock, fencing, and prefabricated modular components for the BESS enclosure and foundations.
- **Others:** Diesel for vehicles and equipment, and electricity for temporary site facilities.

Operational phase

Key resource consumption during the operational phase is minimal and primarily includes:

- **Electricity:** Used for auxiliary systems, monitoring equipment, and site lighting.
- **Water:** Only small volumes may be required for maintenance activities up to 0.5ML.
- **Consumables:** Spare parts, filters, and occasional replacement components as part of routine maintenance.

Decommissioning phase

At end-of-life, resource use is expected to be limited to machinery and equipment required for dismantling and site rehabilitation.

7.1.2. Waste generation and management

Statutory requirements

Legal requirements for the management of waste in NSW are governed by the NSW *Protection of the Environment Operations Act 1997* (POEO Act) and the Protection of the Environment Operations (Waste) Regulation 2014. Unlawful transportation and deposition of waste is an offence under Section 143 of the POEO Act.

The NSW *Waste Avoidance and Resource Recovery Act 2001* include waste minimisation and management objectives to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. The Project's resource management options would be considered against a hierarchy of the following order:

- Avoidance of unnecessary resource consumption

- Resource recovery (including reuse, reprocessing, recycling and energy recovery)
- Disposal.



Figure 7-1 Waste hierarchy, Source: (NSW EPA, 2014)

The NSW Waste Avoidance and Resource Recovery Strategy, the 'WARR Strategy', provides a framework for achieving these statutory objectives (NSW EPA, 2014).

Adopting the above principles would encourage the most efficient use of resources and reduce costs and environmental harm in accordance with the principles of ecologically sustainable development.

The following additional pieces of legislation and guidance are also considered in this assessment:

- NSW Waste Avoidance and Resource Recovery Strategy 2014-2021
- NSW Waste and Sustainable Materials Strategy 2041, Stage 1: 2021:2027
- *NSW Environmental Planning & Assessment Act 1979* (EP&A Act), specifically Ecologically Sustainable Development
- NSW Waste Classification Guidelines 2014
- *NSW Water Management Act 2000*
- *NSW Dangerous Goods (Roads and Transport) Act 2008*
- *Commonwealth Hazardous Waste Act 1989*

Regional waste disposal capabilities

Recyclable waste is likely to be generated from packaging (cardboard, plastic, wood). Non-recyclable waste would be disposed of at an appropriate licensed facility. Ongoing engagement with ARC have highlighted the limited capabilities of local waste facilities to accept waste from renewable energy projects within the LGA. As such, a search of alternative waste facilities outside of the LGA and closer to the ports of origin were investigated. The following waste facilities have been identified as potential options:

Options outside of the LGA –

- Tamworth Landfill – accepts all construction and general waste (Putrescible and Non-putrescible)
- Bendermeer Transfer Station – Accepts most waste excluding asbestos. Brick and tile, clean concrete and large furniture
- Englands Road Waste Management Facility – accepts all construction and general waste
- Woolgoolga Transfer Station – accepts all general waste, does not accept large construction waste

Options closer to ports/supplier

- SUEZ Newcastle Resource Recovery Centre – not open for public- accepts most general and construction waste
- Summerhill Waste Management Facility accept all construction and general waste (Putrescible and Non-putrescible) and wide variety of special waste
- Veolia Port Botany Waste Transfer Station – accepts most solid and industrial waste – does not accept batteries
- Cleanaway Artarmon Resource Recovery Centre – accepts most construction and general waste (Putrescible and Non-putrescible)

Batteries:

- Yennora Copper Battery Recycling Sydney
- Randwick Recycling Centre – accepts lithium-ion batteries

While all options have been considered and theoretically feasible at this stage, the selected EPC contractor would determine the most efficient and environmentally conscious options when selecting any potential waste facilities.

As such, where possible, more sustainable packaging material options would be selected (e.g. reduced insulation/padding thickness and the use of biodegradable starch over cardboard and polystyrene). The Applicant would work with commercial services to recycle as much packaging as practicable.

The Project may also utilise supplier take-back and reverse logistics programs where available under relevant supply contracts, including pallets, packaging, and other reusable components to improve resource recovery and reduce off-site waste disposal; additionally, subject to availability within the local LGA, the Project may explore opportunities to repurpose suitable materials through community organisations, consistent with initiatives undertaken on other FRV projects such as donating pallets for community woodworking programs or establishing recycling collection points for local charities. These measures are supplementary rather than applicable to all waste streams and would be assessed closer to construction in consultation with the EPC contractor and Armidale Regional Council.

Current waste streams

The Development Footprint is utilised for agricultural practices (Grazing), and therefore current waste streams pertain to agricultural products such as chemical disposal, machinery waste (e.g. batteries, tyres), and general waste.

Industry context

Australia currently recycles approximately 10% of its lithium-ion and LFP battery waste (CSRIO, 2024), compared to a recovery rate of around 98% of lead acid batteries. However, this figure for Li-ion batteries includes a wide range of sources such as consumer electronics, e-bikes, and vapes, not just large-scale battery systems like BESS. However, BESS units present significantly greater recycling value due to their large size, higher material concentration, and the relative ease of disassembly compared to smaller,

integrated batteries. BESS units contain valuable and recoverable materials such as lithium, copper, aluminium, and iron, which can be extracted and reused in the manufacture of new batteries. According to CSIRO research (King, Boxall, & Bhatt, 2018), BESS are expected to play an increasingly important role in Australia's battery circular economy, with recovered materials likely to be redirected into battery manufacturing as demand grows.

In Australia, B-cycle is the nationally recognised, government-backed battery stewardship scheme managed by the Battery Stewardship Council (BSC) and authorised by the Australian Competition and Consumer Commission (ACCC). (Battery Stewardship Council, 2025) B-cycle promotes the safe collection, handling, and recycling of used batteries, including LFP chemistries. It is important to note that the scheme remains voluntary, although there are ongoing discussions about expanding its scope and introducing mandatory requirements in the future.

As of 2024, there are 10 B-cycle-accredited, EPA-licensed recyclers in Australia that collect, sort, and process mixed batteries, including LFP types. While many of these operators have traditionally handled small-format batteries, the capacity to manage large-format and commercial-scale LFP batteries is rapidly growing. (Ev, 2025) Industry leaders such as Hithium are actively supporting recycling efforts by designing BESS units with end-of-life recycling in mind and partnering with licensed processors. (Rogan, 2025)

In addition, a growing number of BESS manufacturers and suppliers, such as Tesla, offer take-back schemes, whereby end-of-life systems can be returned to the manufacturer or their recycling partners for environmentally responsible dismantling and material recovery (Tesla, 2025). This closed-loop approach is expected to become standard practice as the industry matures and regulatory frameworks evolve.

In March 2025, New South Wales (NSW) introduced the *Product Lifecycle Responsibility Act* which was assented in April 2025, becoming the first Australian state to introduce mandatory product stewardship requirements for batteries. This legislation obliges battery suppliers to adhere to strict guidelines concerning design, manufacturing, reuse, recycling, and safe disposal. It also mandates the establishment of collection points and public education initiatives to ensure responsible battery management

Although the NSW legislation and B-cycle scheme initially target smaller batteries, the evolving regulatory landscape indicates a move towards broader responsibilities for all battery types. With the increasing deployment of utility-scale BESS in Australia, the volume of batteries reaching the end of their operational life is expected to rise significantly over the coming decades. This trend is anticipated to drive further investment in domestic battery recycling infrastructure, including the establishment of new specialised processing facilities for LFP and other advanced chemistries.

Other State Significant Developments have identified opportunities for reuse of construction waste within local communities:

- Men's sheds
- TAFE, high schools and trade schools
- Day care centres
- Sporting grounds
- Local farmers
- Garden centres.

This is an emerging opportunity for the Renewable Energy Sector and energy storage developers to demonstrate coordinated reuse options within local communities. Community and business initiatives could see substantial benefits from Project waste streams that lead to:

- Timber and metal supplied to trade schools and local craft workshops
- Composted materials supplied to local gardeners and farms
- Biowastes treated to allow for use as an agricultural land treatment
- Disposal, as a last option.

7.1.3. Potential impacts

Construction phase

The material requirements of the Project are set out in Section 3.5 for construction, operation and decommissioning. The final volumes of waste materials would not be known until the detailed designs are completed and a construction contractor is appointed. As such details in this assessment are estimates only and would be formalised in a Waste Management Plan (WMP) in the post approvals stage.

The materials required for the BESS (Batteries, cabling and quarry materials) are expected to have adequate supply stores available. Where materials are required that are in short supply, alternative materials may be sought to meet timelines and reduce costs. In considering the volumes required, the Project is unlikely to place significant pressure on the availability of local or regional resources. The use of the required resources is considered reasonable in light of the benefits of supporting renewable electricity generation.

Wastes that are likely to be generated from the Project during construction include:

- General construction waste: Packaging materials, timber off-cuts, metal scraps, and concrete washout.
- Soil and vegetation: From earthworks and minor vegetation clearing.
- Hazardous waste: Small quantities of oils, fuels, and lubricants associated with machinery.

Table 7-1 overleaf summarises the waste streams and estimated quantities during the construction phase.

Environmental Impact Statement

Armidale East Battery Energy Storage System



Table 7-1 Estimated construction waste streams and quantities

Waste type	Description	Additional comments	Estimated quantity	Proposed management
General waste	Such as concrete offcuts, steel, pallets, etc.	Waste minimised due to prefabricated components and accurate material estimation	Around 50-100 tonnes	Removed off-site to return to suppliers or recycling contractors where feasible
Vegetation	From site clearing	NA	Within the 12ha site and 5ha access road	Vegetation may be mulched onsite or sent to a green waste facility
Surplus spoil	From earthworks	Large part of it will come from the new 2km road construction process.	Quantity depends on site topography and earthworks design.	Part would be reused onsite, when possible, for landscaping, bunding, road base, etc.
Domestic waste	From construction personnel (e.g. plastics, packaging, food waste)	Includes recyclable and putrescible waste from site compounds	Up to 10-15 tonnes per year. Daily generation assumed to be around 0.5–1 kg/person/day	Removed off-site to return to suppliers or recycling contractors where feasible.
Chemicals and oils	Lubricants, solvents, contaminated materials.	Includes used oil, small amounts of solvents or fuel residues from equipment maintenance	Minimal	Off-site disposal at an appropriately licenced facility
Wastewater	Kitchens, washing areas etc.	Includes greywater from showers, sinks, kitchens, etc.	Up to 0.5ML. Based on 50–100 L/person/day of greywater generation	Off-site disposal at an appropriately licenced facility
Septic waste	From on site amenities such as toilets.	NA	Up to 0.5ML. estimated 20–40 L/person/day of blackwater.	Collected periodically by licensed contractors for offsite treatment.

All waste would be transported and disposed of in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014) and the POEO Act.

The impact from waste generation, on regional waste facilities is assessed to be moderate without the implementation of any recycling or re-use measures. It is critical that all waste stream end locations are identified prior to construction and any limitations of facilities is communicated through updates to the Waste Management Plan.

With the implementation of a detailed Waste Management Plan and identification of recycling waste facilities, the impacts from construction waste disposal on regional landfills, the biological environment and social environment is assessed to be minor.

Table 7-2 overleaf provides a summary of expected construction waste stream types and options for reducing, reusing and recycling.

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Table 7-2 Expected waste streams and potential waste options during construction

Components	Waste stream details	Waste hierarchy options		
		Reduce/Avoid	Reuse	Recycle
Construction				
Excavated soils	Greatest during construction for BESS hardstand. Other activities will better achieve cut and fill balance.	♻ Minimise disturbance areas, ensure cut and fill balance.	♻ Soil to be retained and reused onsite.	🚫 N/A
Excess construction materials: Concrete aggregates Timber products Masonry products	Greatest during construction.	♻ Reduce water consumption by installing water saving appliances	♻ Offer to local TAFE and high schools	♻ Recyclable material to be sorted and disposed at appropriate facilities
Paper and cardboard	Life of project.	🚫 N/A	🚫 N/A	♻ Recycled at appropriate facility
Packaging timber: Pallets, timber cable drums	Greatest during construction.	🚫 N/A	♻ Offer to local TAFE, High School and Art community, local contractors	♻ Recycled at appropriate facility
Packaging (plastics)	Greatest during construction when highest volume of staff onsite.	♻ Packaging is minimised	🚫 N/A	♻ Sort and recycle at appropriate facility

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Components	Waste stream details	Waste hierarchy options		
		Reduce/Avoid	Reuse	Recycle
Packaging (ferrous and non-ferrous metals)	Greatest during construction.	○ N/A	○ N/A	♻ Sort and recycle at appropriate facility
Putrescible waste: Food waste, food packaging	Greatest during construction when highest volume of staff onsite.	♻ Avoid plastic	○ N/A	♻ Sort on site (glass, plastic, green) 90% recycle
Bio waste (septic) / black water	Greatest during construction when highest volume of staff onsite.	♻ Install water saving appliances. Install bio-septic tank or worm farm waste composting septic (or similar) tank to reduce volume of biohazard black water.	♻ Utilise local composting facilities to incorporate into their activities for end use to be on farm (associated land) soil improvement.	♻ Treated and disposed of by appropriately licensed contractor

Operation/decommissioning phase

Waste generation during operations is expected to be minimal, comprising:

- **Routine maintenance waste:** Spare parts, used filters, and packaging.
- **E-waste:** End-of-life components such as sensors, controllers, or communication equipment
- **Replacement:** The average life of the LFP batteries is assumed to be between 15-20 years, depending on how many cycles per day are performed. That means that the batteries from the Project will require at least one replacement or what is also called repowering during the life of the BESS.
- **Other waste:** Safe handling of any battery cell failures.

Also, potential waste streams during decommissioning include:

- **Battery modules:** End-of-life battery units will be collected and sent for recycling or processing by licensed facilities in line with circular economy principles.
- **Structural materials:** Steel, concrete, and cabling removed from site.
- **General demolition waste:** Similar in nature to construction waste but potentially less quantities.

LFP batteries are classified as hazardous waste under the Commonwealth *Hazardous Waste Act 1989*, and as Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code). The ADG Code provides specific provisions and packaging requirements for the safe transport of LFP batteries intended for disposal or recycling.

All spent batteries will be recycled by EPA-permitted and licensed recyclers accredited to handle LFP batteries. Batteries will be stored, handled, and transported in accordance with manufacturer guidelines and the ADG Code to ensure compliance with safety and environmental regulations.

As previously mentioned, recent regulatory developments in NSW indicate the introduction of mandatory product stewardship requirements for batteries, which will require suppliers to ensure battery reuse and recycling, and to establish accessible locations for responsible end-of-life management. These obligations will be proactively addressed within both EPC and O&M contracts to ensure compliant battery replacement during operation and full recovery at end-of-life. The Applicant has already consulted with various Li-ion battery suppliers, including Canadian Solar for SolBank BESS, and it has been confirmed that suppliers provide or support end-of-life recycling services. This may involve the client removing and shipping battery cells or modules to the supplier's nominated recycling facility or engaging the supplier directly to carry out the removal, recycling of battery cells or modules, and recovery of other system components.

Table 7-3 overleaf provides a summary of expected operation and decommissioning waste stream types and options for reducing, reusing and recycling.

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Table 7-3 Estimated waste streams during operation and decommissioning

Components	Quantification		Waste hierarchy options		
			Reduce/Avoid	Reuse	Recycle
Operation / Decommissioning					
Ancillary buildings and structures	Greatest during decommissioning	Battery containers, O&M buildings, fences etc.	○ N/A	♻ Option to reuse on other infrastructure projects depending on the condition of the infrastructure at the time of decommissioning.	♻ Recycled at licensed and approved metal recycling facility
LFP batteries	During operation (component failure) but greatest during decommissioning when the battery is disassembled and removed. Components may also require disposal during operation as they reach the end of their life span.	Approximately 3,200 tonnes	○ N/A	○ N/A	♻ Recycled at approved recycling facility
Electrical cables Recovered electrical cables	Greatest during decommissioning	Approximately 150 tonnes (subject to detailed design); some may be retained in situ where dependant on disturbance risks and recovery costs.	○ N/A	○ N/A	♻ Recycled at licensed and approved metal recycling facility

7.1.4. Mitigation measures

To manage resource use appropriately and to minimise the creation of waste as much as practical, the following safeguards and mitigation measures would be adopted.

Table 7-4 Resource use and waste mitigation measures

Mitigation Number	Mitigation measures	Project stage
R1	A Waste Management Plan (WMP) will be developed to minimise waste, including: • Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy. • Quantification and classification of all waste streams. • Confirmation and evidence of waste management agreements with waste facilities prior to the disposal of any waste product. - o Defining appropriate lines of communication for each waste stream so any restrictions can be identified. • Provision for recycling management on-site. • Provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant). • Tracking of all waste leaving the site. • Disposal of waste at licenced facilities permitted to accept the waste. • Requirements for hauling waste (such as covered loads).	Construction Operation
R2	A septic system would be installed and operated according to the Armidale Regional Council regulations.	Construction Operation
R3	Where possible, waste would be removed on a daily basis, or as soon as reasonably practical, to maintain the Development Footprint being litter free.	Construction
R4	Batteries would be kept, stored, managed and transported according to manufacturer's instructions and the ADG Code. Any spent batteries would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of LFP batteries.	Construction Operation Decommissioning
R5	Develop a Decommissioning Waste Management Plan, when the project is planned for decommissioning.	Decommissioning

7.2. Air quality and climate

7.2.1. Existing environment

Air Quality

Air quality for the Armidale Dumaresq LGA is generally expected to be good and typical of that found in a rural setting of NSW. Existing sources of air pollution within the LGA would include:

- Vehicle emissions – expected to be low for the site considering the low traffic amounts in the vicinity of the site and low intensity of land use and low density of settlement.
- Dust during dry periods – expected to be higher in dry and windy weather, generated from traffic on unsealed roads and bare areas of ground.
- Agricultural activities, particularly stubble burning and harvests. Cropping is limited in the immediate area.

During colder months, there may be a small increase in air contaminants due to smoke emissions from the operation of solid fuel heating. Locally, this would be negligible given the low density of settlement.

A search of the National Pollutant Inventory (DCCEEW, 2024) identified two facilities within the Armidale Dumaresq LGA that are required to record emissions. The facilities include one gas manufacture and one petroleum products handling at Armidale Airport. Both of these facilities are located within the township of Armidale.

The Dark Sky Region is centred upon the Siding Spring Observatory, which is considered Australia's most important visible-light observatory. Mitigation of dust and light spill are appropriate to protect the region. The Project Area is not located within the 200km radius of the *Dark Sky Region* and is approximately 272km north-east of the Siding Spring Observatory.

One associated receiver is located within the Subject Land. There are three residences within 4km of the BESS Development Site and one of them is an associated receiver. The closest non-associated receiver is 1.8km east from the site.

Traffic on the surrounding roads of the Development Site would be limited to private transport, with heavy vehicles being used in the harvest season or cattle transport.

Climate

The Project Area is located within the New England Tableland Bioregion. The New England Tableland is dominated by temperate to climate characterised by warm summers (NSW Government, 2016). The closest climate data for the Project Area is the Armidale Weather Station (Tree Group Nursery) (site number 056037). Table 7-5 outlines the available data for this weather station from the Bureau of Meteorology (BOM, 2024).

Table 7-5 Climate summary of Armidale (Tree Group Nursery) (site number 056037)

Aspect	Annual Mean	Mean Minimum Range	Mean Maximum Range
Temperature ⁵	20.4°C maximum 6.3 °C minimum	13.1 °C (January) to -0.3 °C (July)	27.1 °C (January) to 13.2 °C (July).
Rainfall ⁶	752.9mm	31.1mm (May)	95.6mm (Feb)
Wind ⁷	NA	6.1km per hour (9am) 10.9km per hour (3pm)	10.5km per hour (9am) 13.1km per hour (3pm)

Climate change

Climate change refers to the warming temperatures and altered climatic conditions associated with the increased concentration of greenhouse gases in the atmosphere. Climate change projections for Australia includes more frequent and hotter hot days and fewer frost days, rainfall declines in south eastern Australia and more extreme weather events including intense rainfall, severe drought and harsher fire (CSIRO, 2016). 2019 was Australia's hottest and driest year on record, with the annual mean temperature 1.52 °C above average and rainfall 40% below average nationally (BOM, 2020). At the global level, 2019 was the second-warmest year on record, and the fifth hottest year in a row (BOM, 2020). The annual mean air temperature in Australia is projected to increase by 2.8-5.1°C by 2090 (above the 1986-2005 period) (CSIRO, 2015).

In 2014, the NSW OEH published climate change projection snapshot reports for the NSW and ACT governments as part of the NSW and ACT Regional Climate Modelling (NARClIM) project, and in 2024 this was updated with the completion of NARClIM 2.0 by AdaptNSW (NARClIM, 2024)

NARClIM 2.0 provides historical and projected climate data from 1951 to 2100. The two main scenarios in the NARClIM 2.0 New England snapshot are a low-emissions future with a global transition towards sustainable and equitable development and a high-emissions future of regional conflict and development where countries do not collaborate on tackling climate change and do not focus on sustainable and equitable development.

Figure 7-2 below is the projected changes summary for the New England and North West region under the low and high emissions scenario. The key takeaways for the region are that hot days are expected increase while cold nights are expected to decrease under both scenarios, severe fire weather is also expected to increase. However, it should be highlighted that changes would be vastly reduced under the low emission scenario. In terms of rainfall in the region the snapshot does predict an overall reduction in rainfall under both scenarios, which could impact agriculture productivity, water security and native species' reproductive cycles.

⁵ Based on data collected between 1994 – 2024.

⁶ Based on data collected between 1994 – 2024.

⁷ Based on data collected between 1994 – 2010.

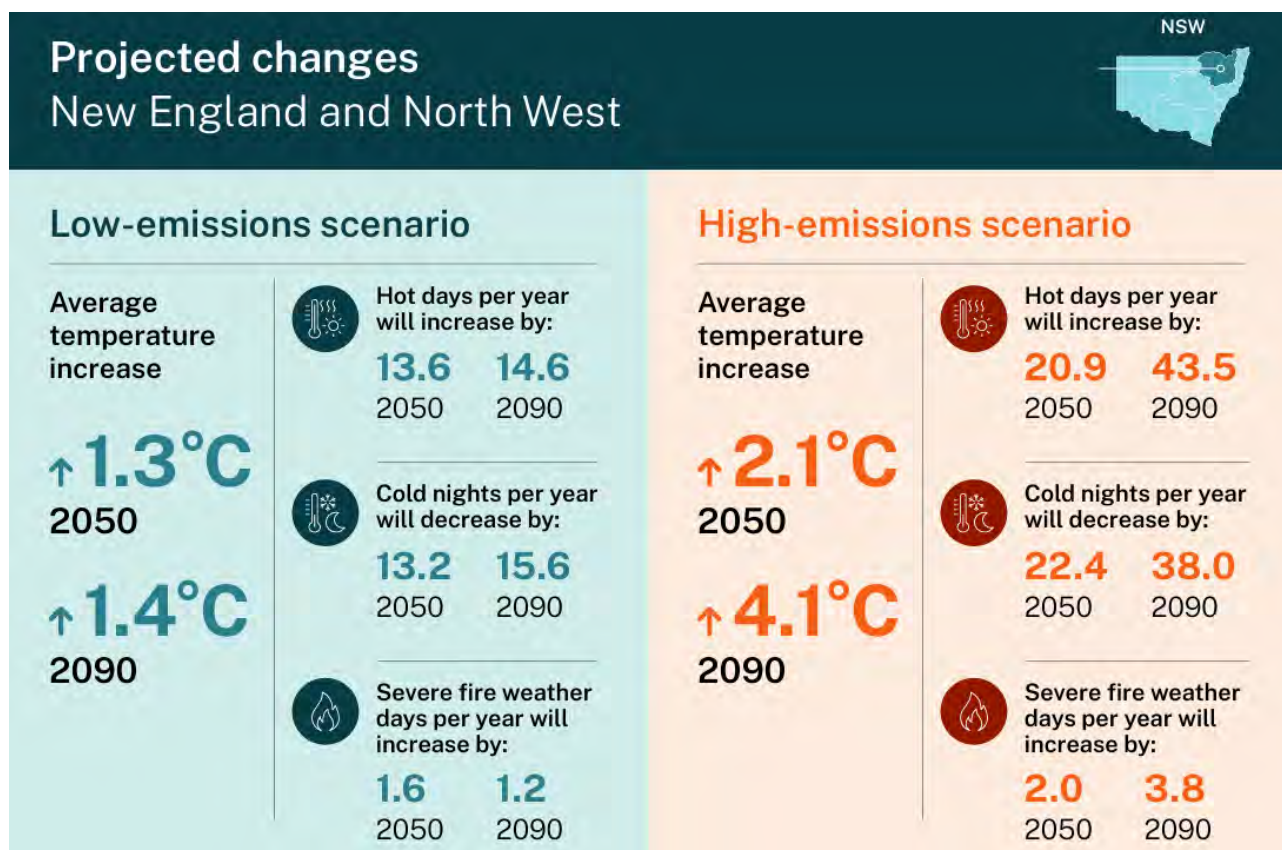


Figure 7-2 Projected climate change impacts for the New England region

7.2.2. Statutory consideration

It is noted that POEO Act regulates pollution including air pollution. It requires that no vehicle shall have continuous smoky emissions for more than ten seconds. Limits on dust emission of less than 4 mg/m/m2 are also specified.

7.2.3. Potential impacts

Construction and decommissioning

Air quality

Air quality can be affected by dust and emissions generated during the construction works. The sources of dust and emissions at the Development Site during construction would include:

- Excavation and earthworks, such as groundbreaking, levelling (cutting and filling), trenching, etc. – generally, the impacts would be in discrete areas and located well away from receivers.
- Vehicle movements over unsealed surfaces including internal and external access tracks. Up to 3km of track (2km new road + 1km of road upgrade) would be installed.
- Dust from uncovered stockpiled powdery materials or truckloads.
- Emissions (e.g. Nox, Sox and CO) and particulates from vehicles, diesel generators, heavy plant and other mechanical equipment.
- Stored VOCs and other volatile hazardous materials such as paints, fuels and solvents. These would be limited.

Dust and air emissions can be a nuisance to nearby receivers including residences, farm workers and motorists. Three residences occur within 4km of the Development Site. The closest non-associated rental

receiver is 1.8m east of the Development Site and would potentially be impacted by dust generated by the Project's traffic.

The degree of impact can be influenced by weather and climate. Work carried out during long periods of dry weather and high winds have a greater potential to generate dust which can impact air quality. Construction work during summer months may require greater dust suppression measures to manage any increased impacts.

The construction phase is expected to be up to 30 months in duration. The air quality impacts from construction works on the Development Site, are considered to be negligible due the proposed smaller footprint, minor earthworks activities and the distance from receivers. Potential air quality impacts are likely to occur along Bayley Park Road due to parts being unsealed and are used by motorists. However, the potential impacts are considered manageable with the implementation of mitigation measures.

No air quality impacts in addition to those mentioned for construction are anticipated during the decommissioning phase. Traffic requirements would be similar in type but of shorter duration than that required for the construction phase.

Climate and climate change

While the manufacture of batteries and the construction and decommissioning process will generate emissions that contribute to climate change, negligible climatic impacts are anticipated as a consequence of the construction and decommissioning activities for the BESS. Haulage traffic and plant and equipment would generate emissions, however, the short duration of the work and the scale of the proposed BESS suggests this contribution would be negligible in a local or regional context. Furthermore, in the context of the network benefits that storage will bring to reducing broader emissions of fossil fuel electricity generation, the net effect is considered positive.

Operation

Air quality

Operational and maintenance process of the BESS would generate very low emissions of pollutants. Specifically, the source of these pollutants is vehicle emissions from staff vehicles and maintenance equipment. However, it is likely that no vehicles would be present at the site on a permanent basis, with only occasional visits by standard vehicles. Fuel would also be required for temporary power generation in the event of an unplanned outage.

Maintenance activities during operation would result in some minor, localised dust generation from vehicles travelling on the unsealed access roads. A groundcover management plan would be implemented to reduce dust production from disturbed areas. The impacts on local and regional air quality are expected to be negligible during normal operation.

Climate

The BESS would help store renewable energy generated during off peak hours and release it during morning and evening peaks when the energy generation would be lower than actual demand. This procedure would offset energy required from non-renewable sources during the times of peak demand. Therefore, would result in overall positive climate impacts.

7.2.4. Mitigation measures

Mitigation measures and safeguards in relation air quality are detailed in Table 7-6 below.

Table 7-6 Air and climate mitigation measures

Mitigation Number	Mitigation measures	Project stage
A1	Management protocols will include measures to minimise impacts on air quality including: • Identification of high-risk construction activities with potential to generate dust, and control measures for the activities • A process for monitoring dust on-site and weather conditions, as well as procedures for altering management measures where required • A map identifying locations of sensitive receivers • Notification of relevant stakeholders to hours of work and duration of work • An accessible complaints process with a timely response protocol.	All stages
A2	Dust generation by vehicles accessing the site and earthworks at the site will be suppressed using water applications or other means as required, using visual cues. • Covering dirt, sand, soil, or any loose material while in transport • Clean-up of any material spillage on the roads • Limiting construction vehicle speeds on unsealed roads • Checking of weather conditions (such as wind strength and direction) prior to major potential dust emitting activities	Construction Decommissioning
A3	Stockpiles will be covered or stored in areas not subject to high winds, and vehicle loads of material which may create dust would be covered while using the public road system.	Construction Decommissioning
A4	All vehicles and machinery used at the site will be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant will be operated efficiently and turned off when not in use.	All stages
A5	Fires and material burning will be prohibited on site unless directed by RFS for hazard control.	All stages
A6	Works that disturb vegetation, soil or stockpiles will not be carried out during strong winds (over 40 km/h).	Construction

Mitigation Number	Mitigation measures	Project stage
A8	Materials will be delivered as full loads, and local suppliers utilised where possible, to minimise haulage emissions.	Construction

7.3. Cumulative impacts

7.3.1. Approach

Cumulative impacts are the amalgamated impacts caused by the combination of past, present, and reasonably foreseeable future actions. Cumulative impacts can accumulate over time and can be positive, negative or benign.

This EIS addresses the NSW Government's *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2022). It considers Strategic and Project-level Cumulative Impact Assessment (CIA).

Strategic-level CIA

The strategic-level CIA has been identified as predominantly positive cumulative impacts and are detailed in Section 1.8. In summary, they include the Project's cumulative contribution to:

- Federal and state regional renewable energy and storage policies
- Regional and local land use plans
- Potential contribution in a reduction in energy costs
- Understanding and protecting the site's unique environmental and social context
- Community benefits.

Project-level CIA

The Project-level cumulative impact risks exist where the Project may interact with other large developments in the region. The cumulative impact study area has been considered based on significant development projects within 50km of the Project, within the following LGAs:

- Armidale Regional
- Uralla Shire
- Walcha Council

Significant development projects are considered as the following in alignment with Section 3.4 of the *Cumulative Impact Assessment Guidelines for State Significant Projects*:

- Other State significant development (SSD) and State significant infrastructure (SSI) projects
- Projects that are classified as designated development and require an EIS
- Projects that require assessment under Division 5.2 of the EP&A Act that are likely to significantly affect the environment and require an EIS
- Projects that have been declared to be controlled actions under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
- Any major greenfield and urban renewal developments that are scheduled for the area (e.g. new areas zoned for urban development).

Being located within the New England Renewable Energy Zone (REZ), local cumulative impacts could be relevant for several nearby utility scale renewable facilities. However, there is a significant level of uncertainty regarding which projects will ultimately be constructed due to the competition over grid capacity. As such, for the purposes of this Project, only projects within 50km (refer to Table 7-7) have been considered in regard to cumulative impacts.

The key cumulative environmental considerations considered in this EIS include:

- Mandated by the Project SEARs:
 - o Biodiversity (refer to Section 6.1)
 - o Access and traffic (refer to Section 6.3)

- o Noise (refer to Section 6.7)
- Project identified or guideline prescribed impacts
 - o Land use compatibility (refer to Section 6.9)
 - o Social and economic (refer to Section 6.12)

Existing environment

Table 7-7 below lists the significant developments in the study area currently proposed as of 23 October 2025 within, their brief description, distance from the Development Site their anticipated construction timeline and a statement on the key potential cumulative impacts. The distribution of these Projects is shown in Figure 7-3.

It is noted that there is a high degree of uncertainty regarding the timing of this and other Projects, whether they are still in assessment or have been approved. The energy transition is attempting to affect a rapid change in NSW energy production, storage and distribution. This is leading to delays in renewable energy development assessment and approvals. The projects are being developed in a rapidly changing policy, technology and market context which also affects the speed at which project can progress from inception to construction.

As stated in the Project description the Armidale East BESS existing indicative construction timeline is expected to run from Q2 2028 through to Q1 2030, the key cumulative impact interactions would be expected during construction with the exception of noise which has the potential to extend into operation.

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Table 7-7 Significant developments within 50km of the Project (Information based on latest public documentation on the NSW Major Projects website from September 2026)

Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
Metz Solar Farm	Approved in 2017	100MW SF, no storage specified Construction jobs not specified 8-12 full time equivalent job during operation \$130m capital investment (prior to EDC)	Adjacent to Project	Construction complete, in operation	Social Noise Visual
Oxley Solar Farm	Approved in 2023	225MW SF, 50MW storage 300 full time equivalent jobs during peak construction 5 full time equivalent jobs during operation \$370m capital investment (prior to EDC)	8.1km southwest	Planned construction start of Q3 2023 Construction has not commenced. No post-approval documents/management plans approved	Traffic Social
Gara BESS	Assessment	400MW / 1760MWh storage Up to 70 full time equivalent jobs during construction Up to 5 full time equivalent jobs during operation	10.26km southwest	Construction commencement late 2025, approximately 11 month construction period	Traffic Social

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Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
		EDC not specified			
Wongalea BESS	Prepare EIS	300MW / 1200MWh storage Up to 150 full time equivalent jobs during construction Up to 2-5 full time equivalent jobs during operation \$500mil CIV	12.7km west southwest	Construction commencement not stated, approximately 24-28 months construction period	Traffic Social
Kooyong BESS	Prepare EIS	200MW / 800MWh storage Up to 70 full time equivalent jobs during construction Up to 3 full time equivalent jobs during operation EDC not specified	13.3km southwest	Construction commencement late 2028, approximately 12 month construction period	Traffic Social
Holloway BESS	Prepare EIS	250MW / 1000MWh storage Up to 80 full time equivalent jobs during construction Up to 3 full time equivalent jobs during operation EDC not specified	13.5km	Construction commencement unknown, approximately 12-18 months construction period	Traffic Social

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Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
Eathorpe BESS	Withdrawn	100MW / 200MWh storage 100 full time equivalent jobs during construction Up to three full time equivalent during operation EDC not specified	13.5km west	Project has been withdrawn	N/A
Armidale BESS	Approved in 2025	150MW / 437MWh storage 150 full time equivalent jobs during construction Two full time equivalent jobs during operation EDC not specified	13.85km west	Construction commencement late 2025, approximately 24 months construction period	Traffic Social
Doughboy WF	Withdrawn	No details available	15.9km northeast	Project has been withdrawn	N/A
Tilbuster SF	Mod 1 Approved in 2022	150MW SF, 40MW storage 150 full time equivalent jobs during peak construction 5 full time equivalent jobs during operation	20.5km northwest	12 months construction commencing 2021. Construction has not commenced. No post-approval documents/management plans approved	Traffic Social

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Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
		\$152m capital investment (prior to EDC)			
Tilbuster 2 SF	Assessment	140 MW Up to 100 full time equivalent job during construction 5 full time equivalent jobs during operation \$160mil EDC	21km northwest	Construction commencement 2026, approximately 9 months construction period	Traffic Social
New England SF	Approved in 2020	720MW, 200MW storage Up to 700 full time equivalent job during construction 15 full time equivalent jobs during operation EDC not specified	26.2km southwest	Project is in operation	Social
Uralla SF	Withdrawn	No details available	29km southwest	No details available	N/A
Salisbury SF	Withdrawn	No details available	31.4km southwest	Project has been withdrawn	N/A

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Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
Deeargee SF	Prepare EIS	320MW SF, 700MW storage 400 full time equivalent jobs during construction Approximately 5-10 full time equivalent jobs during operation EDC not specified	34.3km southwest	Construction expected to commence 2027. 24 month construction period.	Traffic Social
Hillview SF	Prepare EIS	272MW, no storage specified Approximately 300 full time equivalent job during construction Approximately 15 full time equivalent jobs during operation EDC not specified	36km southwest	Construction expected to commence late 2027-2028 24 month construction period	Traffic Social
Hillview WF	Prepare EIS	55 wind turbine generators, approx. 200-300MW Approximately 210 full time equivalent jobs during construction Approximately 17 full time equivalent jobs during operation EDC not specified	36km southwest	Construction expected to commence 2028 Approximately 30 months period	Traffic Social

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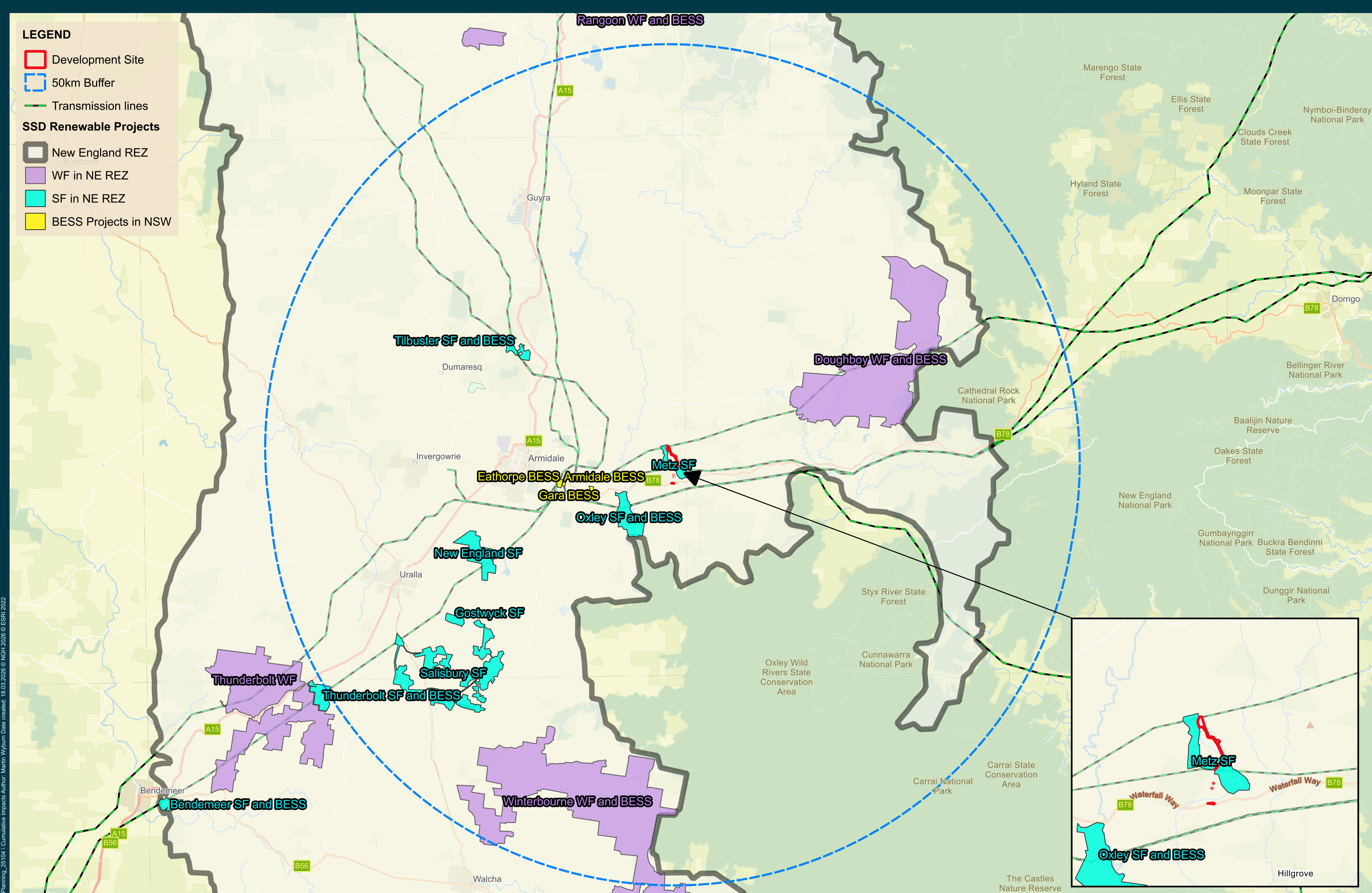
Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
Winterbourne WF	Response to submissions	Up to 119 wind turbine generators 100MW storage Up to 400 full time equivalent jobs during construction Up to 40 full time equivalent jobs during operation \$1.59m capital investment (prior to EDC)	37.6km south	Construction commencement not specified, approximately 30 months construction period	Traffic Social
Boorolong WF	Withdrawn	Up to 71 wind turbine generators 150MW storage Up to 350 full time equivalent jobs during construction FTE jobs during operation not stated	38km northwest	Project has been withdrawn	N/A
Northern Tablelands WF	Prepare EIS	Up to 79 wind turbine generators 800MW storage 400 full time equivalent jobs during construction	39km northwest	Construction expected to commence 2030 Approximately 24-48 months period	Social

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Project / Applicant	Project phase as of February 2026	Project Description, maximum expected workforce (FTE) & Estimated Development Cost (AUD)	Approximate distance from the Development Site	Stated construction commencement	Key cumulative impacts considered
		Up to 15 full time equivalent jobs during operation EDC not specified			
Oven Mountain Pumped Hydro Energy Storage	Assessment	900MW / 8 hours storage 600 full time equivalent jobs during construction Up to 20 full time equivalent jobs during operation \$1.97 billion capital investment (prior to EDC)	42km southeast	Construction expected to commence 2025 Approximately 5 years period	Social Traffic
Thunderbolt SF	Withdrawn	No details available	48.9km southwest	N/A	NA



Datum: GDA94 / MGA zone 56

7.3.2. Potential impacts

Cumulative impacts to biodiversity

An assessment of proposed development projects within 50km of the Development Site has been carried out to provide a summary of potential cumulative impacts to biodiversity. 22 developments were identified through the major project's portal and listed in the BDAR.

Impacts resulting from the project are largely consistent with impacts that are considered to occur at other nearby projects within the 50km radius. The summary of biodiversity impacts from publicly available information was reviewed to gain an understanding of the main biodiversity impacts and how these may contribute to cumulative impacts when considering the development of the project. The proposed Armidale East BESS has taken steps to avoid and minimise impacts to native vegetation in accordance with relevant guidelines, despite this, residual impacts will occur. As such, the project will add a minor increase to cumulative impact of vegetation clearing within the assessed 50km buffer but is considered manageable with the mitigation measures proposed in Section 6.1.

Cumulative impacts to noise sensitive receivers

The Project would be operating concurrently with the adjacent Metz Solar Farm. Therefore, cumulative noise impacts at the nearest affected receivers due to both sites operating have been considered.

Based on the predicted cumulative noise levels presented in Section 6.7, predicted cumulative noise levels at the nearest receivers comply with the nominated criteria under all scenarios.

Cumulative impacts on visual amenity

Cumulative landscape and visual effects result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it) or actions that occurred in the past, present or are likely to occur in the foreseeable future. Four infrastructure projects are located within a 10km radius the Project, refer to Section 6.6.3.

Due to the isolated location of the Project, existing vegetation and undulating topographic character of the area, there are limited opportunities to view the Project. Therefore, there are no opportunities to view the Project consecutively and / or in conjunction with existing or proposed Projects in the area. The cumulative visual impact resulting from the Project is negligible.

Cumulative impact of access and traffic

The additional traffic movements from Armidale BESS have been factored into the traffic impact assessment detailed in Section 6.3.3.. As a TIA for Wongalea BESS, Holloway BESS and Kooyong BESS has not been published, the expected traffic numbers are unknown.

The overall assessment, which incorporated cumulative traffic impacts found that the road network can readily accommodate the traffic generated by the Project during the construction, operation, and decommissioning periods

Cumulative social and economic impacts

Key cumulative impacts were considered at all Project stages and discussed during the community and stakeholder engagement. Through the implementation of existing and potential mitigation measures detailed in Section 6.12.3, the residual risk of cumulative social and economic impacts is considered low.

Key uncertainties

In the absence of certainty, this cumulative impact assessment chapter has considered that it is possible that all of the projects listed in Table 7-7 will progress to completion and be developed within the general parameters described therein. This is considered as a 'worst-case' scenario as a number of the projects are only proposed. Not all of these will be approved, and if approved, not all will be developed to their full scope, or at the same time as the Project.

Projects which may be proposed after this EIS will be required to take into account this Project (in addition to other relevant projects) in their consideration of cumulative impacts.

7.3.3. Mitigation measures

The chapters above have considered each Project impact in isolation and provided mitigation strategies where required to address impacts. No additional mitigation measures are proposed for the Project. It is considered that all mitigation measures included in each impact chapter and summarised in Appendix D will work together to minimise the risk of cumulative impacts with other projects.

8. Justification of the Project

If constructed, the Project would have a contribution to storing power and stabilising the grid for up to 40 years; and would address the following key issues identified in Section 2.

- Assisting Australia's energy transition from fossil fuels to renewable energy.
- Contribute to achieving net-zero emissions by 2050 by providing storage and discharge of renewable energy during time of high generation/low demand, and high demand/low generation.
- Provide system strength services to the transmission (and distribution) networks in the area, therefore, providing security of supply and safeguarding the energy network.
- Increased economic activity locally and more broadly through grid investment and influx of construction project and personnel spending in the local community during the construction period.
- Delivering direct employment and labour opportunities during construction, operation, decommissioning and rehabilitation from a variety of skill sets.

8.1. Responsive design and mitigation

The Project is appropriately located to support grid capacity in a region transitioning to renewable generation sources. The Project would be strategically located within the New England REZ.

The feasibility of alternatives is considered in Section 2.2.3. The Project has been designed to be responsive to the Development Site's environmental features. Specifically, the Development Footprint is designed in such a way that potential impacts to biodiversity values are minimised by avoiding highly constrained areas such as TECs and threatened species. Potential environmental and social impacts have been identified in this EIS and are considered manageable.

8.2. Consistency with strategic context

The Project is consistent with the strategic context (refer to Section 2) as it would:

- Support Government policy, including:
 - o 2024 Integrated System Plan (ISP)
 - o Climate Change (Net Zero Future) Act 2023
 - o NSW Net Zero Plan
 - o NSW Electricity Infrastructure Roadmap (2020)
 - o NSW Transmission Infrastructure Strategy (2018)
 - o NSW Electricity Strategy (2019)
- Be consistent with regional plans, including:
 - o New England North West Regional Plan 2041
 - o Armidale Regional Local Strategic Planning Statement 2024
 - o Armidale Regional Council Renewable Energy Action Plan
 - o Armidale Plan 2040
- Avoid impacts on key natural and built features with significant conservation value
- Provide economic benefits to regional community
- Be located on a site that is suitable for the Project, as it:
 - o Is adjacent to transmission lines
 - o Would require minimal vegetation clearing
 - o Is adjacent to Metz Solar Farm
 - o Compliance with statutory requirements

The Project is consistent with the relevant statutory requirements (refer to Section 4) as it is permissible under the *Environmental Planning and Assessment Act 1979* (EP&A Act), the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) and the State Environmental Planning Policy (Planning Systems) 2021. As State Significant Development, the Project and its associated subdivision is permissible, despite the Armidale LEP requirements.

8.3. Community views and benefits

The engagement activities undertaken throughout the EIS phase are summarised in Section 5. Overall, the engagement program indicates that concern around the Project is low to moderate, with a high level of support and encouragement from the wider community when considering the benefits of electricity grid stabilisation.

The location of the proposed Armidale East BESS has produced minimal concern from the community due to its position immediately adjacent to the existing 330kV transmission line and Metz Solar Farm, the way it is tucked away from public areas and other public viewpoints, and the benefits it would bring when considered within the context of other large-scale developments within the region.

The concerns that were expressed by stakeholders were primarily focused on the following topics:

- Concern regarding potential electromagnetic field (raised by one community member)
- Concern regarding trade block supply of replacement component parts if sourced overseas (raised by one community member)
- Concern regarding the cumulative impact of the development on the wider community from location within the REZ (raised by ARC)
- Concern about the environment through waste management (raised by ARC, survey responders and within the SIA)
- Concern about the fire risk via battery explosions or bushfires (raised by survey responders and within the SIA)
- Concern about strain to workforce due to skills gap (raised within the SIA)
- Concern regarding local housing supply and limited accommodation available (considered one of the major obstacles for the community).

The key benefits of the Projects are considered to outweigh the impact of the development, which will be minimised as far as practicable through the mitigation measures outlined in the EIS. These benefits are summarised below:

- ✓ Builds on the aims of the New England REZ by being strategically located to maximise the benefits of and smooth the transition to greater renewable energy development
- ✓ Builds on the aims of the NSW Electricity Infrastructure Roadmap to transition away from coal fired energy, towards greater levels of renewable energy
- ✓ Stabilises and secures the supply of electricity for residents, business owners and service providers
- ✓ Assists to drive down the wholesale electricity prices for energy consumers
- ✓ Generates local employment, economic stimulus and other local economic benefits.

8.4. Uncertainty

Key areas of uncertainty have been clearly identified within the EIS. Primarily, this relates to Project design and component selection. A high-level *indicative* infrastructure layout is provided noting the detailed design stage commences only *after approval has been granted*. It will be informed by further topographic and geotechnical surveys and will be subject to commercial tendering and procurement processes to arrive at the final design and construction program. To address the uncertainty that this brings to the assessment and

approval process, the Applicant seeks to gain consent for a maximum 'Development Footprint' (all areas that may be subject to disturbance to construct and operate the facility). This builds conservatism into the assessment and mitigation of Project impacts and allows for necessary flexibility in detailed design.

Additionally, as noted in Section 7.3.2, there is a high degree of uncertainty regarding the cumulative impacts, around construction timing of other large scale renewable energy projects with this Project, whether they are still in assessment or have been approved.

8.5. Compliance and monitoring

All commitments and mitigation measures will be managed through the implementation of a Project Environmental Management Strategy (EMS). The EMS will comprise a Construction Environmental Management Plan (CEMP), an Operation Environmental Management Plan (OEMP) and a Decommissioning Environmental Management Plan (DEMP). These plans will be prepared sequentially, prior to each stage of works by the contractor (CEMP, DEMP) and Applicant (OEMP). Operating within these overarching plans will be a number of sub-plans, these are all included in Table 8-1.

The EMS will include performance indicators, timeframes, implementation and reporting responsibilities, communications protocols, a monitoring program, auditing and review arrangements, emergency responses, induction and training and complaint/dispute resolution procedures. A monitoring and auditing program will clearly identify any residual impacts following mitigation.

The plans will incorporate all of the specific protocols and mitigation measures contained in this EIS and any additional applicable requirements from the DPHI's Conditions of Consent. They will be submitted to DPHI for endorsement prior to commencement of works.

In addition to the Project specific management plans, in line with other State Significant Development consent, it is expected that the DPHI will condition the following in relation to this Project:

- Detailed plans of the final layout, showing comparison to the approved layout, prior to commencing construction.
- Incident and non-compliance notification requirements.
- Independent environmental audits.

Key plans identified in this EIS, and which will be prepared in consultation with relevant stakeholders are summarised in Table 8-1.

Table 8-1 Specific management plans required for the Armidale East BESS Project

Management plan	Applicable Project phase	Timing of delivery
Environmental Management System (EMS)	Construction	Prior to construction
Construction Environmental Management Plan (CEMP)	Site establishment Construction	Prior to site establishment Prior to construction
Biodiversity Management Plan (BMP)	Construction	Prior to construction
Stormwater Management Plan (SMP)	Construction	Prior to construction
Erosion and Sediment Control Plan (ESCP)	Site establishment	Prior to site establishment

Management plan	Applicable Project phase	Timing of delivery
	Construction	Prior to construction
Construction Traffic Management Plan (CTMP)	Construction	Prior to construction
Fire Safety Study (FSS)	Operation	Prior to operation
Emergency Response Plan (ERP)	Operation	Prior to operation
Bush Fire Emergency Management and Operations Plan (BFEMOP)	Operation	Prior to operation
Landscape Management Plan (LMP)	Construction	Prior to construction
Noise Management Plan (NMP)	Construction Operation	Prior to construction Prior to operation
Soil and Water Management Plan (SWMP)	Operation	Prior to operation
Groundcover Management Plan (GMP)	Construction	Prior to construction
Community and Stakeholder Engagement Strategy (CSES)	Construction	Prior to construction
Accommodation and Employment Strategy (AES)	Prior to construction	
Community Benefit Sharing Program (CBSP)	Prior to construction	
Waste Management Plan (WMP)	Prior to construction	
Operation Environmental Management Plan (OEMP)	Prior to commissioning	
Decommissioning Environmental Management Plan (DEMP)	Prior to decommissioning	
Revegetation and Rehabilitation Plan (RRP)	Prior to decommissioning	
Decommissioning Waste Management Plan (DWMP)	Prior to decommissioning	

8.6. Ecologically sustainable development

8.6.1. The Precautionary Principle

The Precautionary Principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This EIS has been prepared utilising the precautionary principle. That is, if threats are perceived as possibly leading to serious or irreversible environmental damage, then either the non-development of the Project would occur, or the development modified to ensure that such threats do not exist.

This EIS assesses the environmental and social impacts associated with the Project. A conservative approach was adopted for the assessments, which were often based on the worst-case scenarios. This has been the approach in relation to the recommended mitigation measures. No threat of serious or irreversible environmental damage is considered likely as a result of this Project. Appendix D details the ongoing management measures to minimise environmental and social impacts.

8.6.2. Inter-generational equity principle

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The Project would not impact on natural or cultural features to a level that would compromise the health, diversity or productivity of the environment to a level that would impact on future generations. Furthermore, this Project would provide stability and reliability to the renewable energy supply in the area. This would help facilitate the transition to low carbon energy generation and help to reduce greenhouse gas emissions to minimise climate change implications for future generations.

Conservation of biological diversity and ecological integrity

The Project has been developed to avoid native vegetation and habitat as much as practical. The assessment has identified that the works would not impact significantly on the biological diversity and ecological integrity of the locality. Furthermore, safeguards have been developed that would assist in protecting nearby habitats and species.

Appropriate evaluation of environmental matters

This principle relates to giving monetary values to environmental resources. These matters ensure that the development would conform to the principles of ecologically sustainable development. Environmental matters were considered during the iterative design of this Project to ensure environmental impacts were avoided or minimised through design and/or mitigation measures.

Environmental management safeguards and mitigation measures would be implemented during the construction, operation and decommissioning of this Project that will ensure impacts are managed and natural and cultural values protected.

8.7. Where to from here?

During the public exhibition of this EIS, the local community, local council and government agencies are invited to make informed submissions in relation to the Project. The consent authority would consider any formal submissions made during the exhibition period. The Applicant's response to all matters raised in submissions will also be exhibited as Department of Planning, Housing and Infrastructure (DPHI) commence preparation of their own assessment of the Project's impacts and its merits and make a recommendation regarding its ability to be approved.

The local community is encouraged to take the opportunity to make a submission directly to the DPHI and to participate in the future engagement activities planned prior to the Project's determination.

9. References

- ABARES. (2025). *About my region dashboard Broad land use in New England and North West*. Retrieved from https://public.tableau.com/app/profile/australian.bureau.of.agricultural.and.resource.economics.and.sci/viz/AMR_v9_A3L/Dashboard1
- AEMO. (2024). *2024 Integrated System Plan*. Retrieved from AEMO: <https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en>
- AEMO. (2025, June). *2025 Electricity Statement of Opportunities*. Retrieved from https://aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2025/2025-wem-electricity-statement-of-opportunities.pdf?la=en
- ARC. (2015). *Armidale Flood Study Review and Update - Stage 3*. Armidale Regional Council.
- ARC. (2022). *Armidale Regional Council Renewable Energy Action Plan*. Retrieved from Your Say Armidale: <https://yoursay.armidale.nsw.gov.au/arc-renewable-energy-action-plan>
- ARC. (2024). *Draft Local Housing Strategy*. Retrieved from <https://yoursay.armidale.nsw.gov.au/draft-local-housing-strategy>
- ARC. (2024). *LSPS*. Retrieved from Local Strategic Planning Statement - Advancing Our Region: <https://yoursay.armidale.nsw.gov.au/draft-local-strategic-planning-statement>
- ARC. (2024). *Renewable Energy Community Benefit Framework*. Armidale: Armidale Regional Council.
- ARC. (2024a). *Appendix A*. Retrieved from Advancing our region: Toward 50,000: https://ehq-production-australia.s3.ap-southeast-2.amazonaws.com/392e99bab69129230868753f45fdeb59853d5e7c/original/1707438490/7f24b6443e8950c4b53a4259f54c5b72_Armidale_LSPS_-_20_Year_Action_Plan.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4K
- Australia Institute. (2015, August). *Take the pressure down. Sorting scare and substance in the renewable energy target debate*. Retrieved from <http://www.tai.org.au/sites/default/files/Take%20the%20pressure%20down%20-%20FINAL.pdf>
- Australian Government. (2024). *Australian Stratigraphic Units Database*. Retrieved from Geoscience Australia: <https://www.ga.gov.au/data-pubs/datastandards/stratigraphic-units>
- Battery Stewardship Council. (2025). *Australia's official battery stewardship scheme - B-cycle*. Retrieved from B-cycle Battery Recycling: <https://bcycle.com.au/>
- BOM. (2020). *Climate Data Online*. Retrieved from http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=203&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=056037
- BOM. (2024). *Climate statistics for Australian locations*. Retrieved from Monthly climate statistics - Summary statistics ARMIDALE (TREE GROUP NURSERY).
- Clean Energy Council. (2025). *Clean Energy Australia Report*. Retrieved from <https://cleanenergycouncil.org.au/getmedia/f40cd064-1427-4b87-afb0-7e89f4e1b3b4/clean-energy-australia-report-2025.pdf>
- Clean Energy Council. (2025). *Clean Energy Australia Report 2024*. Retrieved from <https://cleanenergycouncil.org.au/getmedia/f40cd064-1427-4b87-afb0-7e89f4e1b3b4/clean-energy-australia-report-2025.pdf>

- Climate Change Authority. (2025). *2035 Targets Advice*. Retrieved from <https://www.climatechangeauthority.gov.au/sites/default/files/documents/2025-09/2035%20Targets%20Advice.pdf>
- CSIRO. (2008). *Guidelines for Surveying Soil and Land Resources*.
- CSIRO. (2008). *Guidelines for Surveying Soil and Land Resources*. CSIRO.
- CSIRO. (2009). *Australian Soil and Land Survey Field Handbook (third edition)*. CSIRO Publishing.
- CSIRO. (2009). *Australian Soil and Land Survey Field Handbook*.
- CSIRO. (2015). *Climate Change in Australia*. Retrieved from <http://www.climatechangeinaustralia.gov.au/en/>
- CSIRO. (2016). *State of the climate*. Retrieved from <https://www.csiro.au/en/Showcase/state-of-the-climate>.
- CSRIO. (2024, May 23). *Recycling lithium-ion batteries for a brighter tomorrow*. Retrieved from CSIRO: <https://www.csiro.au/en/news/all/articles/2024/may/lithium-ion-battery-recycling>
- DCCEEW. (2024). *2021/2022 data within ARMIDALE DUMARESQ - All Substances from All Sources*. Retrieved from DCCEEW.
- DCCEEW. (2025). *Australia's Net Zero Plan*. Retrieved from <https://www.dcceew.gov.au/sites/default/files/documents/net-zero-report.pdf>
- DEC. (2006). *Assessing Vibration : a technical guideline*.
- DECCW. (2010a). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
- DECCW. (2010a, August). *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW*. Retrieved from Part 6 of the National Parks and Wildlife Act 1974: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/code-of-practice-for-archaeological-investigation-of-aboriginal-objects-100783.pdf>
- DECCW. (2010b, April). *Aboriginal Cultural Heritage Consultation Requirements for Proponents*. Retrieved from Part 6 National Parks and Wildlife Act 1974: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/aboriginal-cultural-heritage-consultation-requirements-for-proponents-2010-090781.pdf>
- Department of Industry and Science. (2015). *Energy White Paper*. Retrieved from https://www.abc.net.au/reslib/201506/r1437292_20785622.pdf
- Department of Industry, Science, Energy and Resources. (2021). *Australia's whole-of-economy Long-Term Emissions Reduction Plan*. Commonwealth of Australia.
- DoP. (2011a). *Hazardous and Offensive Development Application Guidelines Applying SEPP 33*. Sydney: Department of Planning.
- DoP. (2011a). *Hazardous Industry Planning Advisory Paper No. 6 Hazard Analysis*. Sydney: Department of Planning.
- DoP. (2011c). *Hazardous Industry Planning Advisory Paper No 4 - Risk Criteria for Land Use Safety Planning*. Sydney: Department of Planning.
- DPE. (2022). *New England North West Regional Plan 2041*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2023-03/new-england-north-west-regional-plan-2041.pdf>
- DPE. (2022a). *New England North West Regional Plan 2041*. Sydney: Department of Planning and Environment.
- DPE. (2022b). *Cumulative Impact Assessment Guidelines for State Significant Projects*. Retrieved from <chrome-extension://efaidnbmninnibpcapjpcglclefindmkaj/https://www.planning.nsw.gov.au/>

/media/Files/DPE/Guidelines/Policy-and-legislation/SSPT-Guidelines/GD1259-RAF-Assessing-Cumulative-Impacts-Guide-final.pdf

DPE. (2023). *Riverina Murray Regional Plan*. Department of Planning and Environment.

DPHI. (2022). *Cumulative Impact Assessment Guidelines for State Significant Projects*. State of New South Wales Department of Planning, and Environment.

DPHI. (2022). *State significant development guidelines - preparing an environmental impact statement. Appendix B to the state significant development guidelines*. State of New South Wales Department of Planning and Environment.

DPHI. (2022a). *Large-Scale Solar Energy Guideline*. Department of Planning, Housing and Infrastructure.

DPHI. (2023). *Social Impact Assessment Guideline*. Department of Planning, Housing and Infrastructure.

DPHI. (2024). *Benefit Sharing Guideline - Guidance for large-scale renewable energy Projects*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2024-11/benefit-sharing-guideline.pdf>

DPHI. (2024). *Benefit-Sharing Guideline - Guidedance for large-scale renewable energy projects*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2024-11/benefit-sharing-guideline.pdf>

DPHI. (2024a). *State Significant Development Guidelines*. State of New South Wales Department of Planning, Housing and Infrastructure.

DPHI. (2024a). *Undertaking Engagement Guidelines for State Significant Projects*. Department of Planning, Housing and Infrastructure.

DPHI. (2024b). *Undertaking Engagement Guidelines for State Significant Projects*. State of New South Wales Department of Planning, Housing and Infrastructure.

DPHI. (2024c). *Benefit-Sharing Guideline - Guidedance for large-scale renewable energy projects*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2024-11/benefit-sharing-guideline.pdf>

DPHI. (2025). *Social Impact Assessment Guideline*. State of New South Wales Department of Planning, Housing and Infrastructure.

DPHI. (2026). *State Significant Development Guidelines*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2023-03/state-significant-development-guidelines.pdf>

DPHI. (2026a). *State Significant Development Guidelines - preparing an environmental impact statement. Appendix B*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2023-03/ssd-guidelines-preparing-an-environmental-impact-statement.pdf>

DPHI. (2026b). *Undertaking Engagement Guidelines for State Significant Projects*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2023-03/undertaking-engagement-guidelines-for-ssp.pdf>

DPHI. (2026c). *Cumulative Impact Assessment Guidelines for State Significant Projects*. Retrieved from <https://www.planning.nsw.gov.au/sites/default/files/2023-03/cumulative-impact-assessment-guidelines-for-ssp.pdf>

DPHI. (2026d). *Social Impact Assessment Guideline for State Significant Projects*. Retrieved from <https://www.planningportal.nsw.gov.au/sites/default/files/documents/2026/Social%20Impact%20Assessment%20Guideline.pdf>

DPI. (2011). *Land Use Conflict Risk Assessment (LUCRA) Guide*. Retrieved from Department of Primary Industries: <https://www.movementandplace.nsw.gov.au/place-and-network/built-environment-indicators/impervious-surface#metricsindetail>

- DPI. (2013). *Infrastructure proposals on rural land*. Department of Primary Industries.
- DPIE. (2020, November). *NSW Electricity Infrastructure Roadmap Building an Energy Superpower Overview*. Retrieved from https://www.energy.nsw.gov.au/sites/default/files/2022-08/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Overview_1.pdf
- DPIE. (2020a). *Biodiversity Assessment Method*. Department of Planning, Industry and Environment.
- DPIE. (2023). *Technical Supplement - Social Impact Assessment Guidelines for State Significant Projects*. Department of Planning, Industry and Environment.
- DPIE. (2024, March Monday). *eSPADE*. Retrieved from NSW Soil and Land Information: <https://www.environment.nsw.gov.au/eSpade2Webapp/#>
- EnergyCo. (2024, February). *New England Renewable Energy Zone*. Retrieved from <https://www.energyco.nsw.gov.au/ne-rez>
- EnergyCo. (2024). *Renewable Energy Zones*. Retrieved from NSW Government: <https://www.energyco.nsw.gov.au/renewable-energy-zones>
- ESV. (2021). *Victorian Big Battery Fire Statement of Technical Findings*. Retrieved from Victorian Government: https://www.energysafe.vic.gov.au/sites/default/files/2022-12/VBB_StatementOfFindings_FINAL_28Sep2021.pdf
- Ev, F. (2025, January 16). *Envirostream Australia signs battery recycling agreement with Hithium*. Retrieved from PV magazine: <https://www.pv-magazine-australia.com/2025/01/16/envirostream-australia-signs-battery-recycling-agreement-with-hithium>
- Finkel, A., Moses, K., Munro, C., Effene, T., & O'Kane, M. (2017, June 1). Retrieved from Independent Review into the Future Security of the National Electricity Market - Blueprint for the Future: <https://www.energy.gov.au/sites/default/files/independent-review-future-nem-blueprint-for-the-future-2017.pdf>
- Horton, D. (1994). *The encyclopaedia of Aboriginal Australia: Aboriginal and Torres Strait Islander history, society and culture*. Canberra: Aboriginal Studies Press.
- Isbell. (2021). *Australian Soil Classification*.
- Landcom. (2004). *Managing Urban Stormwater: Soils and construction - Volume 1*. Retrieved from Department of Planning and Environment: <https://www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-edition>
- Landcom. (2004). *Managing Urban Stormwater: Soils and Construction, Volume 1, 4th edition*.
- NARClm. (2024). *New England and North West Climate Change Snapshot*. Sydney: Adapt NSW.
- National Native Title Tribunal. (n.d.). *Register of Native Title Claims Details*. Retrieved from NNTT: http://www.nntt.gov.au/searchRegApps/NativeTitleRegisters/Pages/RNTC_details.aspx?NNTT_Fileno=NC2011/006
- NPWS. (2003). *The Bioregions of NSW: their biodiversity, conservation and history*. Sydney: National Parks and Wildlife Services.
- NSW Aboriginal Land Council. (2024). *Land Council Map*. Retrieved from New South Wales Aboriginal Land Council: <https://alc.org.au/land-council-map/>
- NSW Department of Planning and Environment. (2018, November). Retrieved from https://www.energy.nsw.gov.au/sites/default/files/2018-11/DPE8754%20NSW%20Transmission%20Infrastructure%20Strategy_WEB.ACC_.PDF

- NSW DPE. (2022, May). *Controlled activities – Guidelines for watercourse*. Retrieved from NSW Government - Department of Planning and Environment Fact Sheet: https://water.dpie.nsw.gov.au/__data/assets/pdf_file/0010/386209/licensing_approvals_controlled_activities_watercourse_crossings.pdf
- NSW DPIE. (2019, November). Retrieved from https://www.energy.nsw.gov.au/sites/default/files/2019-11/NSW%20Electricity%20Strategy%20-%20Final%20detailed%20strategy_0.pdf
- NSW DPIE. (2020, November). *NSW Electricity Infrastructure Roadmap*. Retrieved from <https://www.energy.nsw.gov.au/sites/default/files/2020-12/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Detailed%20Report.pdf>
- NSW EPA. (2014). *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. Retrieved from <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastestrategy/140876-warr-strategy-14-21.pdf?la=en&hash=EC6685E6624995242B0538B18C2E80C0CA2E51B3>
- NSW Government. (2024). *NSW Renewable Energy Planning Framework*.
- NSW Government. (2013a). *Local Land Services Act 2013 No 51*. Retrieved from NSW Legislation: <https://legislation.nsw.gov.au/view/html/inforce/current/act-2013-051#sch.5A-pt.4>
- NSW Government. (2016). *Water Sharing Plan for the North Coast Fractured*. Retrieved from <https://legislation.nsw.gov.au/view/whole/html/inforce/current/sl-2016-0375>
- NSW Government. (2023). *The Climate Change (Net Zero Future) Act 2023*. Retrieved from NSW Climate and Energy Action: [https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/climate-change-net-zero-future-act-2023#:~:text=The%20Climate%20Change%20\(Net%20Zero%20Future\)%20Act%202023%20legislat es%20our,support%20on%2030%20November%202023.](https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/climate-change-net-zero-future-act-2023#:~:text=The%20Climate%20Change%20(Net%20Zero%20Future)%20Act%202023%20legislat es%20our,support%20on%2030%20November%202023.)
- NSW Government. (2024). *Living and working near transmission line easements*. Retrieved from Energy Co: <https://www.energyco.nsw.gov.au/sites/default/files/2023-12/fact-sheet-http-living-working-with-easements-dec-2023.pdf>
- NSW Government. (2025). *Impervious surface*. Retrieved from Movement in place: <https://www.movementandplace.nsw.gov.au/place-and-network/built-environment-indicators/impervious-surface#metricsindetail>
- NSW OEH. (2004). *Landcom's Managing Urban Stormwater: Soils and construction - Volume 1*. Retrieved from Department of Planning and Environment: <https://www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-edition>
- NSW OEH. (2012). *The land and soil capability assessment scheme: Second approximation*. Office of Environment and Heritage.
- OEH. (2011, April). *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. Retrieved from Part 6 National Parks and Wildlife Act 1974: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/guide-to-investigating-assessing-reporting-aboriginal-cultural-heritage-nsw-110263.pdf>
- OEH. (2012, October). *The land and soil capability assessment scheme Second approximation*. Retrieved from <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Land-and-soil/land-soil-capability-assessment-scheme-120394.pdf#:~:text=The%20land%20and%20soil%20capability%20%28LSC%29%20assessment%20 scheme,Native%20Vegetation%20Act%202003%20%28DN>
- Rangarajan, A., Foley, S., & Truck, S. (2023). Assessing the impact of battery storage on Australian electricity markets. *Energy Economics*, 106601.

- Rogan, A. (2025, January 15). *Livium signs Hithium battery recycling deal*. Retrieved from Mining.com.au: <https://mining.com.au/livium-signs-hithium-battery-recycling-deal/#:~:text=Under%20the%20agreement%2C%20Livium%20will,on%20a%20non%2Dexclusive%20basis>
- Sinclair Knight Merz . (2013, June 20). *Estimating the Impact of the RET on Retail Prices*. Retrieved from <<http://images.smh.com.au/file/2013/06/25/4518185/SKM.pdf?rand=1372130430845>>
- Tesla. (2025). *Battery Recycling*. Retrieved from Tesla: https://www.tesla.com/en_au/support/sustainability-recycling
- TTM Consulting. (2017). *Environmental Acoustic Assessment - Metz Solar Farm*. Sydney: TTM Consulting Pty Ltd.
- UNE. (2024). *TRACKS and Indigenous Australians Orientation*. Retrieved from UNE: <https://www.une.edu.au/current-students/get-started/orientation/tracks-and-indigenous-australians>
- Vanclay, F., Esteevs, A. M., Aucamp, I., & Franks, D. (2015). *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*. Fargo ND: International Association for Impact Assessment.

Appendix A Secretary's Environmental Assessment Requirements

The following cross reference table is provided to demonstrate the EIS has addressed the Project-specific Secretary's Environmental Assessment Requirements (SEARs) issued for the Project.

Table 9-1 Project-specific Secretary's Environmental Assessment Requirements

Issue summary	Addressed in this EIS
The Environmental Impact Statement (EIS) for the development must meet the minimum form and content requirements in Part 8 of the Environmental Planning and Assessment Regulation 2021 (the Regulation) and must have regard to the <i>State Significant Development Guidelines</i>, and any relevant planning circulars. In particular, the EIS must include:	
A stand-alone executive summary.	Provided following the table of contents
- A full description of the development, including: - details of construction, operation and decommissioning, including any staging of the development; - the Project Area (as per Table 1 of the SSD guidelines – preparing an environmental impact statement) and Development Footprint (disturbance area including but not limited to areas for infrastructure, road works, access tracks, defensible space, fencing and temporary - a high quality site plan at an adequate scale showing all infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process); - a high quality detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development; and - confirmation if the project is designated development in accordance with the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) and the Regulation;	Descriptions and indicative designs provided in Section 3 The Project is not designated development as it is classified as a State significant development. State significant development is excluded from designated development classification under Section 4.10 of the EP&A Act.
a strategic justification of the development focusing on site selection and the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses (including existing land use, other proposed or approved energy facilities, major projects, rural/residential development, Crown lands within and adjacent to the Development Site and subdivision potential);	The project justification is included in Section 8. Potential land use conflict is assessed in Section 6.9.
a risk assessment of the potential environmental impacts of the development, identifying the key issues for further assessment;	Section 5 and Section 7

Issue summary	Addressed in this EIS
- an assessment of the likely impacts of the development on the environment, and any other significant issues identified in this risk assessment, focusing on the specific issues identified below, including: - a description of the existing environment likely to be affected by the development using sufficient baseline data; - an assessment of the likely impacts of all stages of the development (which is commensurate with the level of impact), including any cumulative impacts of the site and existing, approved or proposed developments in the region and impacts on the site and any road upgrades, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice including the <i>Cumulative Impact Assessment Guideline</i> (DPIE); - a description and assessment if staging of the project is proposed, including any site mobilisation or pre-construction works; - a description of the measures that would be implemented to avoid, mitigate and/or offset the impacts of the development (including draft management plans for specific issues as identified below); and - a description of the measures that would be implemented to monitor and report on the environmental performance of the development;	Impact assessment chapters are included as Section 5 and Section 7 Monitoring and performance is covered in Section 8.5.
a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; and	A list of all management plans to be completed is included in Section 8.5, the summarised mitigation commitments of the EIS are included in Appendix D
a detailed evaluation of the merits of the project as a whole having regard to: the requirements in Section 4.15 of the Environmental Planning and Assessment Act 1979 (EP&A Act), and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development; the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; feasible alternatives to the development and its key components, including siting and project design alternatives to avoid areas of biodiversity value, opportunities for shared infrastructure with proposed developments in the region, and the consequences of not carrying out the development; and a detailed consideration of the capability of the project to contribute to	Principles of ecologically sustainable development are discussed in Section 8.6 Site suitability, alternatives and consideration of the capability of the project to contribute to the security and reliability of the electricity system in the National Electricity Market are discussed in Section 1.6

Issue summary	Addressed in this EIS
the security and reliability of the electricity system in the National Electricity Market, having regard to local system conditions and the Department's guidance on the matter.	
a signed statement from the author of the EIS, certifying that the information contained within the document is neither false nor misleading.	Top of this report.
Capital Investment Value and Employment - Provide a detailed calculation of the capital investment value (CIV) of the development, prepared by an AIQS Certified Quantity Surveyor or RICS Chartered Quantity Surveyor in accordance with Planning Circular PS 21-020: Calculation of Capital Investment Value. The calculation of the estimated CIV is to be accurate at the date of application and includes details of all components and assumptions from which it is derived. - Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided. The development application must be accompanied by: - the consent of the owner/s of the land (as required in Section 23(1) of the EP&A Regulation); and - a declaration from a Registered Environmental Assessment Practitioner that the EIS includes the information specified in the Department's Registered Environmental Assessment Practitioner Guidelines.	CIV (now an EDC report) supplied directly to DPHI. Job estimates are discussed in Section 2.5 and included in The Project would involve the construction, operation, and decommissioning of a BESS with a capacity of up to approximately 377MWAC with up to 2,310MWh storage. The Project would supply electricity to the national electricity market during peak periods and will have an operational life of up to 40 years. Table 3-1 provides an overview of the Project including the Development Site details and context, key components and the Project timing. The indicative Development Site layout of all infrastructure features is presented in Figure 3-1. Note that the current indicative layout provided has been developed based on the most recent information and requirements provided by suppliers. As technology continues to evolve rapidly, project considerations may change, and the layout may

Issue summary	Addressed in this EIS
	undergo further iterations before the final design is confirmed. This will also be clearer as the Project progresses in other approvals (such as grid connection process) and once a specific technology provider is selected during the detailed design phase. Table 3-1 Landowner consents have been provided directly to DPHI. Registered Environmental Assessment Practitioner declaration is included following the table of contents.
Key Issues	
Biodiversity	
• an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the Biodiversity Conservation Act 2016 (NSW) (BC Act), the Biodiversity Assessment Method (BAM) 2020 and documented in a Biodiversity Development Assessment Report (BDAR), including a detailed description of the proposed regime for avoiding, minimising, managing and reporting on the biodiversity impacts of the development over time, and a strategy to offset any residual impacts of the development in accordance with the BC Act, unless CPHR and DPHI determine the proposed development is not likely to have any significant impacts on biodiversity values;: • an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the Fisheries Management Act 1994, and a description of the measures to minimise and rehabilitate impacts; • an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the Fisheries Management Act 1994, and a description of the measures to minimise and rehabilitate impacts; • if an offset is required, details of the measures proposed to address the offset obligations.	Summarised in Section 6.1 and attached as Appendix E.1

Issue summary	Addressed in this EIS
Heritage	
- an assessment of the impact to Aboriginal cultural heritage items (cultural and archaeological) in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010), including results of archaeological test excavations (if required); - evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010); and - assess the impact to historic heritage having regard to the <i>NSW Heritage Manual</i>.	Aboriginal cultural heritage summarised in Section 6.2 and attached as Appendix E.2 Non-Aboriginal heritage included in Section 6.11.
Land	
- a detailed justification of the suitability of the site and that the site can accommodate the proposed development having regard to its potential environmental impacts, land contamination, permissibility, strategic context and existing site constraints; - an assessment of the potential impacts of the development on existing land uses on the site and adjacent land, including: - agricultural land, flood prone land, Crown lands, mining, quarries, mineral or petroleum rights; and - a soil survey to determine the soil characteristics and consider the potential for salinity, acid sulfate soils and erosion to occur; - a cumulative impact assessment of nearby developments; - an assessment of the compatibility of the development with existing land uses, during construction, operation and after decommissioning, including: - consideration of the zoning provisions applying to the land, including subdivision (if required); - completion of a Land Use Conflict Risk Assessment in accordance with the Department of Industry's Land Use Conflict Risk Assessment Guide; - assessment of impact on agricultural resources and agricultural production on the site and region.	Section 6.9 for Land use compatibility and LUCRA. Section 6.10 for soils and capability for rehabilitation with detailed assessment in Appendix E.9 Section 6.8 for hydrology and flooding Section 6.10 for soil survey Cumulative impacts, refer Section 7.3 Section 4.2 Section 6.9 Section 6.9
Visual	
including a detailed assessment of the likely visual impacts of all components of the project (including transmission lines, substations and any other ancillary infrastructure) on surrounding residences and	Summarised in Section 6.6 and attached as

Issue summary	Addressed in this EIS
key locations, scenic or significant vistas and road corridors in the public domain and provide details of measures to mitigate and/or manage potential impacts.	Appendix E.6
Noise	
including an assessment of the construction noise impacts of the development in accordance with the Interim Construction Noise Guideline (ICNG), operational noise impacts in accordance with the NSW Noise Policy for Industry (2017), cumulative noise impacts (considering other developments in the area), and a draft noise management plan if the assessment shows construction noise is likely to exceed applicable criteria.	Summarised in Section 6.7. and attached as Appendix E.7 Operational noise contours were deemed not necessary due to full compliance with zero operational exceedances
Transport	
an assessment of the peak and average traffic generation, including over dimensional vehicles, construction worker transportation and transport of materials by rail; an assessment of the likely transport impacts to the site access route(s), site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance; a cumulative impact assessment of traffic from nearby developments; provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authority; and an assessment of impacts of any road works proposed including an heritage, noise, and biodiversity.	Summarised in Section 6.3 and attached as Appendix E.3 Impacts on heritage, noise and biodiversity from the intersection upgrades works are detailed in Section 6.1, Section 6.2 and Section 6.7
Water	
- a detailed and consolidated site water balance and an assessment of the likely impacts of the development (including flooding) on surrounding watercourses (including their Strahler Stream Order) and groundwater resources and measures proposed to monitor, reduce and mitigate these impacts including water management issues; - details of water requirements and supply arrangements for construction and operation; - a description of the erosion and sediment control measures that would	Summarised in Section 6.8. Flooding assessment appended in Appendix E8.1 A description of the erosion and sediment control measures that would be implemented is included in

Issue summary	Addressed in this EIS
be implemented to mitigate any impacts in accordance with Managing Urban Stormwater: Soils & Construction (Landcom 2004); • assessing the impacts of the development, including any changes to flood risk and overland flows on-site or off-site, and detail design solutions and operational procedures to mitigate flood risk where required; and • where the project involves works within 40 metres of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and implemented in accordance with the DPI Guidelines for Controlled Activities on Waterfront Land (2018) and (if necessary) Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI 2003), and Policy & Guidelines for Fish Habitat Conservation & Management (DPE, 2013).	the measures of Section 6.10.
Hazards	
• a preliminary risk screening completed in accordance with the State Environmental Planning Policy (Resilience and Hazards) and Applying SEPP 33 (DoP, 2011) • a Preliminary Hazard Analysis (PHA) prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). The PHA must consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation and compliance with Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011); and • an assessment of potential hazards and risks including but not limited to assessment of bushfire risk against the RFS Planning for Bushfire Protection 2019, electromagnetic fields or the proposed grid connection infrastructure against the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields	The PHA covers health and dangerous goods, and is summarised in Section 6.5 and attached as Appendix E.5 Bushfire impacts are summarised Section 6.4 with detailed assessment in Appendix E.4
Social and economic	
• including an assessment of the social and economic impacts in accordance with the Social Impact Assessment Guideline (DPE, Feb 2023), any benefits of the project for the region and the State as a whole, including consideration of any increase in demand for community infrastructure services, consideration of construction workforce accommodation and assessment of impact on agricultural resources and agricultural production on the site and region.	Summarised in Section 6.12 and Section 6.9. Detailed assessments in Appendix E.10 and Appendix E.11

Issue summary	Addressed in this EIS
Waste	
a waste management plan to identify, quantify and classify the likely waste stream to be generated during construction and operation, and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Section 7.1
Plans and Documents	
The EIS must include all relevant plans, diagrams and relevant documentation required under Part 3 of the EP&A Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include high-quality files of maps and figures of the subject site and proposal.	Section 3
Legislation, Policies and Guidelines	
The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. A list of some of the legislation, policies and guidelines that may be relevant to the assessment of the project can be found at: https://www.planning.nsw.gov.au/Policy-and-Legislation/Planning-reforms/Rapid-Assessment-Framework/Improving-assessment-guidance https://www.planningportal.nsw.gov.au/major-projects/assessment/policies-and-guidelines ; and http://www.environment.gov.au/epbc/publications#assessments	Applicable guidelines for each environmental parameter are stated in Sections 5 and 7
Consultation	
During the preparation of the EIS, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, affected landowners and any exploration licence and/or mineral title holders. In particular, you must undertake detailed consultation with affected landowners surrounding the development, relevant government agencies and Armidale Regional Council. The EIS must: - detail how engagement undertaken was consistent with the Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2021); and - describe the consultation process and the issues raised and identify where the design of the development has been amended in response	Section 5

Issue summary	Addressed in this EIS
to these issues. Where amendments have not been made to address an issue, an explanation should be provided.	
Expiry Date	
If you do not lodge a Development Application and EIS for the development within 2 years of the issue date of these SEARs, your SEARs will expire. If an extension to these SEARs will be required, please consult with the Planning Secretary 3 months prior to the expiry date.	N/A, SEARs expire on 22/06/2026

The following cross reference table is provided to demonstrate the EIS has addressed the Supplementary SEARs issued for the Project under the EPBC Act referral.

Table 9-2 Supplementary SEARs issued for the Project

Issue summary	Addressed in this EIS
- On 17 March 2025, a delegate of the Minister for the Environment and Water (Environment Minister), determined Armidale East Battery Energy Storage System (Armidale East BESS) was a controlled action under section 75 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EPBC Act controlling provisions for the proposed actions are: i. listed threatened species and communities (sections 18 and 18A). - The proposed action will be assessed in accordance with the bilateral assessment agreement Amending Agreement No. 1, and as such, is required to be assessed in the manner specified in Schedule 1 to that Agreement, including, addressing the matters outlined in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations). - The proponent must undertake an assessment of all protected matters that may be impacted by the development under the controlling provision identified in paragraph 1. The Commonwealth Federal Minister for the Environment and Water considers that the proposed action is likely to have a significant impact on threatened species and communities listed in Appendix A. - The proponent must consider each of the protected matters under the triggered controlling provisions that may be impacted by the action. Note that this may not be a complete list and it is the responsibility of the proponent to undertake an analysis of the relevant impacts and ensure all protected matters that are likely to be impacted are assessed for the Commonwealth Minister's consideration.	
General requirements	
Relevant Regulations The Environmental Impact Statement (EIS) must address all matters outlined in Schedule 4 of the EPBC Regulations and all matters outlined below in relation to the controlling provisions.	Section 4
Project Description The title of the action, background to the action and current status.	Section 3

Issue summary	Addressed in this EIS
7. The precise location and description of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on Matters of National Environmental Significance (MNES). 8. How the action relates to any other actions that have been, or are being taken in the region affected by the action. 9. How the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts on MNES.	
Impacts 10. The EIS must include an assessment of the relevant impacts of the action on the matters protected by the controlling provisions, including: i. a description and detailed assessment of the nature and extent of the likely direct, indirect and consequential impacts, including short term and long term relevant impacts; ii. a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible; iii. analysis of the significance of the relevant impacts; iv. any technical data and other information used or needed to make a detailed assessment of the relevant impacts.	Section 6.1
Avoidance, mitigation and offsetting 11. For each of the relevant matters protected that are likely to be significantly impacted by the action, the EIS must provide information on proposed avoidance and mitigation measures to manage the relevant impacts of the action including: i. a description, and an assessment of the expected or predicted effectiveness of the mitigation measures, ii. any statutory policy basis for the mitigation measures; iii. the cost of the mitigation measures; iv. an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing; v. the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program. 12. Where a significant residual adverse impact to a relevant protected matter is considered likely, the EIS must provide information on the proposed offset strategy, including discussion of the conservation benefit associated with the proposed offset strategy. 13. For each of the relevant matters likely to be impacted by the action the EIS must provide reference to, and consideration of, relevant Commonwealth guidelines and policy statements including any:	Section 1.5.2 Section 6.1

Issue summary	Addressed in this EIS
i. conservation advice or recovery plan for the species or community; ii. relevant threat abatement plan for the species or community; iii. wildlife conservation plan for the species; iv. any strategic assessment. 14. In addition to the general requirements described above, specific information is required with respect to each of the determined controlling provisions.	
Biodiversity	
Assessment Requirements 15. The EIS must identify each EPBC Act listed threatened species and community and migratory species likely to be impacted by the action. For any species and communities that are likely to be impacted, the proponent must provide a description of the nature, quantum and consequences of the impacts. For species and communities potentially located in the project area or in the vicinity that are not likely to be impacted, provide evidence why they are not likely to be impacted. 16. For each of the EPBC Act listed threatened species and communities and migratory species likely to be impacted by the action the EIS must provide a separate: i. description of the habitat (including identification and mapping of suitable breeding habitat, suitable foraging habitat, important populations and habitat critical for survival), with consideration of, and reference to, any relevant Commonwealth guidelines and policy statements including listing advice, conservation advice and recovery plans; ii. details of the scope, timing and methodology for studies or surveys used and how they are consistent with (or justification for divergence from) published Australian Government guidelines and policy statements; iii. description of the relevant impacts of the action having regard to the full national extent of the species or community's range; iv. description of the specific proposed avoidance and mitigation measures to deal with relevant impacts of the action; v. identification of significant residual adverse impacts likely to occur after the proposed activities to avoid and mitigate all impacts are taken into account; vi. a description of any offsets proposed to address residual adverse significant impacts and how these offsets will be established; vii. details of how the current published NSW Biodiversity Assessment Method (BAM) has been applied in accordance with the objects of the EPBC Act to offset significant residual adverse impacts;	Section 6.1

Issue summary	Addressed in this EIS
viii. details of the offset package to compensate for significant residual impacts including details of the credit profiles required to offset the action in accordance with the BAM and/or mapping and descriptions of the extent and condition of the relevant habitat and/or threatened communities occurring on proposed offset sites. 17. Any significant residual impacts not addressed by the BAM may need to be addressed in accordance with the EPBC Act 1999 Environmental Offset Policy.	
Other approvals and conditions	
18. Information in relation to any other approvals or conditions required must include the information prescribed in Schedule 4 Clause 5 (a) (b) (c) and (d) of the EPBC Regulations.	Section 4 0
Environmental Record of person proposing to take the action	
19. Information in relation to the environmental record of a person proposing to take the action must include details as prescribed in Schedule 4 Clause 6 of the EPBC Regulations	Section 1.3
Information Sources	
20. For information given in an EIS, the EIS must state the source of the information, how recent the information is, how the reliability of the information was tested; and what uncertainties (if any) are in the information	Section 8.4 Section 9

Appendix B Statutory compliance table

B.1 Section 4.15 (1) of the EP&A Act

Matter	Section addressed
(a) the provisions of: (i) any environmental planning instrument, and (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),	(i) Section 4 (ii) Section 4 (iii) Not applicable to SSD's under the provisions of the Planning Systems SEPP (iiia) Section 2.4 (iv) Appendix B.2
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Section 6 and Section 7
(c) the suitability of the site for the development,	Section 2 and Section 8
(d) any submissions made in accordance with this Act or the regulations,	Facilitated by public exhibition on the DPHI planning portal.
(e) the public interest.	Section 5 and the NSW SSD process.

B.2 Division 5 Environmental Planning and Assessment Regulation 2021

Matter	Section addressed
Section 190 Form of an environmental impact statement	
(1) An environmental impact statement must contain the following information— (a) the name, address and professional qualifications of the person who prepared the statement, (b) the name and address of the responsible person, (c) the address of the land— (i) to which the development application relates, or (ii) on which the activity or infrastructure to which the statement relates will be carried out, (d) a description of the development, activity or infrastructure, (e) an assessment by the person who prepared the statement of the environmental impact of the development, activity or infrastructure, dealing with the matters referred to in this Division.	(a) REAP certification page (b) REAP certification page, Author Qualifications and Section 1.3 (c) Section 1.5.1 (d) Section 2.6 (e) Certification page
(2) The person preparing the statement must have regard to— (a) for State significant development—the State Significant Development Guidelines, or (b) for State significant infrastructure—the State Significant Infrastructure Guidelines.	REAP certification page
(3) An environmental impact statement must also contain a declaration by a relevant person that— (a) the statement has been prepared in accordance with this Regulation, and (b) the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure, and (c) the information contained in the statement is not false or misleading, and (d) for State significant development or State significant infrastructure—the statement contains the information required under the Registered Environmental Assessment Practitioner Guidelines.	REAP certification page
Section 191 Compliance with environmental assessment requirements	

Environmental Impact Statement

Armidale East Battery Energy Storage System



Matter	Section addressed
The environmental impact statement must comply with the environmental assessment requirements notified under section 176 or the Act, section 5.16(4).	Appendix A
Section 192 Content of environmental impact statement	
(1) An environmental impact statement must contain the following— (a) a summary of the environmental impact statement, (b) a statement of the objectives of the development, activity or infrastructure, (c) an analysis of feasible alternatives to the carrying out of the development, activity or infrastructure, considering its objectives, including the consequences of not carrying out the development, activity or infrastructure, (d) an analysis of the development, activity or infrastructure, including— (i) a full description of the development, activity or infrastructure, and (ii) a general description of the environment likely to be affected by the development, activity or infrastructure and a detailed description of the aspects of the environment that are likely to be significantly affected, and (iii) the likely impact on the environment of the development, activity or infrastructure, and (iv) a full description of the measures to mitigate adverse effects of the development, activity or infrastructure on the environment, and (v) a list of the approvals that must be obtained under another Act or law before the development, activity or infrastructure may lawfully be carried out, (e) a compilation, in a single section of the environmental impact statement, of the measures referred to in paragraph (d)(iv), (f) the reasons justifying the carrying out of the development, activity or infrastructure, considering biophysical, economic and social factors, including the principles of ecologically sustainable development set out in section 193.	(a) Executive summary (b) Section 1.2 (c) Section 2.3 (d) (i) Section 3 (ii) Section 3, Section 6 and Section 7. (iii) Section 6 and Section 7 (iv) Section 6 and Appendix E (v) Section 4. Section 8.4 and Appendix B (e) Appendix E (f) Section 2 and Section 8

B.3 Statutory compliance list

Statute	Section addressed
Commonwealth statutes	
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	Section 4, Section 6.1 and Appendix E.1
<i>Native Title Act 1993</i>	Section 4
NSW statutes	
<i>Environmental Planning and Assessment Act 1979 (EP&A Act)</i>	Section 3.1 and Section 4
<i>Environmental Planning and Assessment Regulation 2021</i>	Section 4
<i>Environment Protection and Biodiversity Conservation Regulations 2000</i>	Section 4 and Appendix E.1
<i>Roads Act 1993 (Roads Act)</i>	Section 4
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	Section 4
<i>Crown Lands Management Act 2016 (CLM Act)</i>	Section 4
<i>Conveyancing Act 1919</i>	Section 4
<i>Fisheries Management Act 1994 (FM Act)</i>	Section 4
<i>Heritage Act 1977</i>	Section 4
<i>National Parks and Wildlife Act 1974 (NPW Act)</i>	Section 4
<i>Rural Fires Act 1997</i>	Section 4

Environmental Impact Statement

Armidale East Battery Energy Storage System



Statute	Section addressed
<i>Water Management Act 2000 (WM Act)</i>	Section 4
<i>Biodiversity Conservation Act 2016</i>	Section 4 and Section 6.1
NSW planning policies and local provisions	
State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	Section 4
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP),	Section 4, Section 6.3 and Appendix E.3
State Environmental Planning Policy (Resilience and Hazards) 2021	Section 4, Section 6.7 and Appendix E.7
State Environmental Planning Policy (Biodiversity and Conservation) 2021; inclusive of Part 3.2 Development control of koala habitats	Section 4, Section 6.1 and Appendix E.1
State Environmental Planning Policy (Primary Production and Rural Development) 2021	Section 4, Section 6.6 and Appendix E.6
Armidale Regional Local Environmental Plan 2012: • The objectives for development in a zone under section 2.3 of the LEP. • The Lot Size Map under section 4.1 and 5.16 of the LEP, where subdivision is proposed • Miscellaneous and additional local provisions: - o Heritage conservation - o Bushfire hazard reduction - o Flood Planning - o Earthworks	Section 4

Appendix C Consultation evidence

C.1 Non-associated receivers engaged with (from Scoping onward)

Receiver	Address
R1	132 Chandler Road Thalgarrah
R2	390 Chandler Road Thalgarrah
R3	1821 Grafton Road Metz
R4	1805 Grafton Road Metz
R5	2196 Grafton Road Metz
R6	2040 Grafton Road Metz
R8	Non-associated rental located on the host landowner's lot
R9	Non-associated rental located on the host landowner's lot

C.2 Non-associated receiver letter March 2024

C.3 Non-associated receiver letter January 2025

C.4 Non-associated receiver letter February 2026

C.5 Non-associated receiver letter March 2026

C.6 Public notice

Armidale East Battery Energy Storage System Community Drop-In Session

FRV Services Australia Pty Ltd (FRV) is developing a planning application for a Battery Energy Storage System (BESS), to be located approximately 16km east of Armidale. The project has now moved to the Environmental Impact Statement (EIS) stage which allows FRV to fully assess the merits of the proposed BESS.

FRV invites residents and the wider community members to learn more about the project and provide their insight into their community and feedback for the project by attending one of our community drop-in sessions. The two five-hour sessions provide interested community members with the opportunity to come along and talk to our project team at a time that suits you.

The community drop-in session will be hosted at:

Community Drop-in Session 1

Tuesday 2nd April, 1.30 pm – 6.30 pm
Kent & Hughes House Community Centre
Kent House Garden Room
141 Faulkner Street Armidale NSW

Community Drop-in Session 2

Wednesday 3rd April, 8:00 am – 1:00 pm
Armidale Town Hall
Digital Learning Centre
127 Rusden Street Armidale NSW



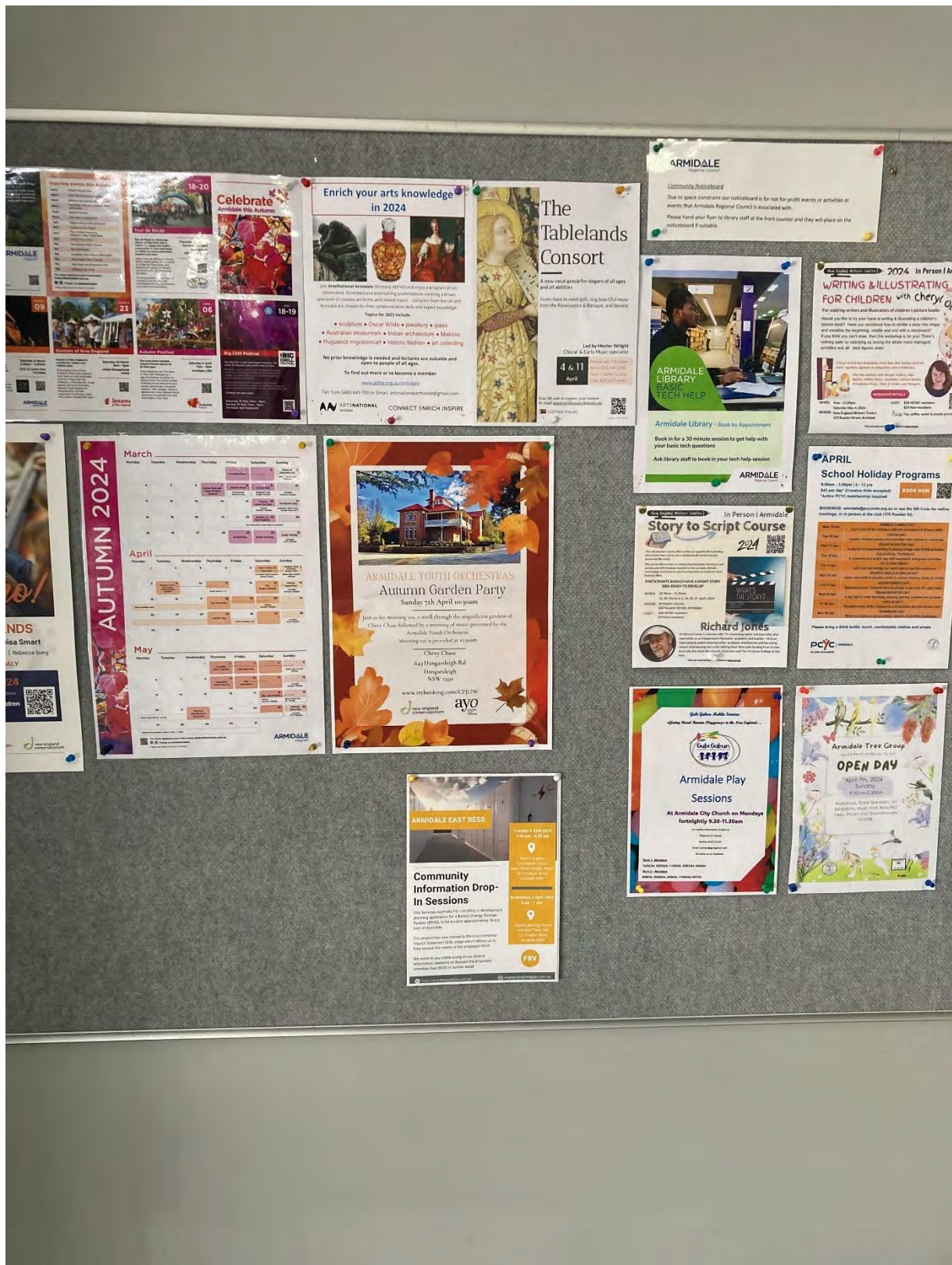
For more information, email
engage@nghengage.com.au

We also welcome feedback
from interested community
members via our online survey
at www.surveymonkey.com/r/armidaleeastbess

C.7 Project poster public notice – centre of town



C.8 Project poster public notice – Armidale Library



C.9 Project FAQ document

C.10 Project Fact Sheet

C.11 Project newsletter January 2025

C.12 Project newsletter February 2026

C.13 Project online community feedback survey

C.14 Post-event EDM

C.15 Project update EDM February 2025

C.16 Project update EDM February 2026

Appendix D Consolidated mitigation measures table

Mitigation number	Mitigation measure	Project Stage
Biodiversity		
BIO1	A Biodiversity Management Plan will be prepared prior to construction to include all recommendations of the BDAR. It will include, but not be limited to: • Clearing limits and auditing mechanism to ensure limits are not exceeded • Requirement for pre-clearance surveys by suitably trained person/s during construction phase (including for tree trimming) • Requirement for presence of fauna spotter catchers (FSC) during removal of important habitat elements (e.g. hollow bearing trees) during construction phase to relocate or arrange for care of injured individuals. • Method to record details of above actions • Location for nest box installation, details of nest box type required and method for recording installation details including location. • Demarcation (flagging) of no-go zones, vegetation for retention, habitat trees and habitat features. Physical demarcation required; not to rely on operators' GPS. • Maps of threatened flora habitat outside of Development Footprint (using species polygons) and requirement for inclusion in toolbox talks (i.e. contractor briefings). • Buffer zones • Designated parking areas • Standard basic vehicle hygiene protocol (wash-down facilities) in line with NSW <i>Hygiene Guidelines</i> (DPIE 2020) and best practice weed management consistent with guidelines provided by DPI NSW, focusing on priority weeds. • Proformas for construction company to fill out to evidence adherence. • Details of hollow bearing trees/hollows to be cleared. • Details of nest boxes sizes required, and number if applicable.	Prior to construction

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Mitigation number	Mitigation measure	Project Stage
	- Survey to identify areas outside Development Footprint (in adjacent habitat) where removed habitat features can be re-located and locations for nest boxes. This may be done in stages. - Nest-boxes to be installed prior to clearing hollow bearing trees. This may be done in stages. - Maps of above to be provided to construction contractor following survey and in later audit report. - Auditing mechanisms to check effective relocation of features, including proformas to record nest box installation and FSC activity	
BIO2	Adaptive management strategy to prevent the trampling of threatened flora species	Construction Operation Decommissioning
BIO3	The Project's offset obligation will be met in accordance with the NSW Biodiversity Offset Scheme, and will be achieved by either/or a combination of: - Retiring credits under the Biodiversity Offset Scheme based on the like-for-like rules, or - Making payments into the Biodiversity Conservation Fund using the offset payments calculator, or - Funding a biodiversity action that benefits the threatened entities impacted by the development	Prior to construction
Aboriginal heritage		
AH1	All works must be within the area assessed for the Development Site.	All stages
AH2	Aboriginal heritage will be included within the Environmental Management System (EMS) or equivalent for the Project. This will include an unexpected finds protocol and an onsite induction and be developed in consultation with the RAPs for the Project.	Prior to construction

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Mitigation number	Mitigation measure	Project Stage
AH3	The works must avoid Armidale East IF2 which is outside the Development Site with a minimum 10m buffer.	All stages
AH4	If complete avoidance to any of the valid isolated finds and the artefact scatter sites recorded within the Development Site is not possible a reasonable and feasible attempt, through the visual inspection of the sites by an archaeologist with an Aboriginal community representative (as selected by the Proponent), must occur in an attempt to collect the surface stone artefacts within the approved development footprint at each of these recorded locations. This must occur following the development consent which is issued for State Significance Developments.	Prior to construction
AH5	Until surface collection salvage has occurred, a minimum 10m buffer must be maintained around Armidale East IF1. No physical marking or fencing of this buffer is proposed.	Construction Operation Decommissioning
AH6	The Applicant will inform the local council and the owners of the adjacent Metz Solar Farm about the location of Armidale East IF3 and Armidale East AS1 (which are adjacent to Bayley Park Road) to ensure no inadvertent harm occurs for works which are not related to this Project.	All stages
AH7	No works for the Project can occur within the road shoulder or road reserve in proximity to Armidale East IF3 and Armidale East AS1 until surface collection salvage has occurred.	Prior to construction Construction
AH8	As the previously recorded site AHIMS # 21-1-0156/ Bayley Park Isolated Artefact 25 which is adjacent to the Project Area is listed on the AHIMS database as totally destroyed no approval for harm (including inadvertent harm) to this site is required for this Project. However, taking into consideration RAP requests, if any ground disturbance is proposed in close proximity to this destroyed site should be inspected during the surface collection salvage program.	Prior to construction
AH9	The collection and relocation of the surface stone artefacts within the approved development footprint which is issued for State Significance Developments should be undertaken by an archaeologist with representatives of the RAPs, as	Prior to construction

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Mitigation number	Mitigation measure	Project Stage
	selected by the Proponent, and be consistent with Requirement 26 of <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW</i> and/or the wishes of the RAPs. The relocation area must not be subject to any future ground disturbance. The surface collection salvage of Aboriginal objects can only occur following development consent that is issued for SSD projects and must occur prior to any construction works commencing.	
AH10	To avoid potential for delays to the Bayley Park Road proposed upgrade works, we propose to undertake the surface collection of stone artefacts at Armidale East IF3 and Armidale East AS1, along Bayley Park Road, as soon as possible following approval of the development consent for the Project. We request that as part of any approvals issued that the surface collection of Armidale East IF3 and Armidale East AS1 is permitted to take place prior to the approval of a Cultural Heritage Management Plan (CHMP) for the Project	Prior to construction
AH11	All objects salvaged must have their long-term relocation details submitted to the AHIMS database. An Aboriginal Site Impact Recording Form (ASIRF) must be completed and submitted to AHIMS following harm for each site collected or destroyed from salvage and/or construction works as approved in the development consent for this SSD Project.	Prior to construction
AH12	Further archaeological assessment would be required if the proposed activity extends beyond the area assessed in this report. This would include consultation with the registered Aboriginal parties and may involve further field survey.	All stages
AH13	The Applicant will prepare a CHMP to manage the salvage and relocation of artefacts, and to address the potential for finding additional Aboriginal artefacts and objects during the construction of the Project. The Plan will include the unexpected finds procedure to manage any objects suspected to be Aboriginal in origin during the construction, maintenance, operation, upgrading and decommissioning works and include requirements for heritage to be included as part of the site inductions. Preparation of the CHMP should be undertaken in consultation with the RAPs.	Prior to construction
AH14	In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity and follow the unexpected finds protocol. The NSW police must be notified. Further assessment will be undertaken to determine if the remains were ancestral Aboriginal or not. If the remains are deemed to be ancestral Aboriginal in origin Heritage NSW would be sought to advise the Proponent on the appropriate actions required. An	All stages

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Mitigation number	Mitigation measure	Project Stage
	unexpected find protocol for suspected human remains must be included in the CHMP for the Project.	
Access and traffic		
T1	A Construction Traffic Management Plan (CTMP) will be prepared and implemented. The CTMP will be prepared in consultation with TfNSW and relevant councils and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The CTMP will provide additional information regarding the traffic volumes, distribution and vehicle types broken down into: • Hours and days of construction. • Schedule for phasing/staging of the Project. • The origin, destination and routes for: - o Employee and contractor light vehicles. - o Heavy vehicles. - o OSOM vehicles The CTMP will include but not be limited to the following key safety initiatives: • Designated transport routes, access and delivery schedules, • Emergency protocols for accessing and exiting the Development Site • Driver Code of Conduct, • Implementation of the shuttle bus program, • OSOM vehicle haulage and operating protocols, • Heavy vehicle scheduling to avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users • Key information relating to road safety to be provided to all staff, • Consultation with neighbours and local authorities regarding heavy vehicle and OSOM deliveries, • Regular dilapidation reports to be provided to ensure the road network is kept in a safe condition, • Suitable signage on Waterfall Way and surrounding roads to advise road users of changed conditions, and	Prior to construction Construction

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Mitigation number	Mitigation measure	Project Stage
	- On-site requirements including: - Parking - Loading, unloading and storage - Speed restrictions - Appropriate dust suppression measures - Maintenance program for access tracks to ensure safe access	
T2	A Decommissioning Traffic Management Plan (DTMP) will be prepared and implemented. The DTMP will be prepared in consultation with TfNSW and relevant councils and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The DTMP will include the same information regarding the traffic volumes, distribution and vehicle types and key safety initiatives as detailed in the CTMP.	Prior to decommissioning
T3	Where a coordinated worker transport program is adopted, measures to detail how the shuttle bus program will be implemented and monitored will be included within the EMS and/or CTMP.	Prior to construction Construction
T4	A Driver Code of Conduct will be implemented as a measure to maintain safety within and around the site.	Prior to construction Construction
T5	Prior to construction, a pre-condition survey of the relevant sections of Bayley Park Road will also be undertaken in consultation with Armidale Regional Council. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.	Prior to construction

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Mitigation number	Mitigation measure	Project Stage
T6	A program of consultation will be initiated to ensure local residents are aware of construction traffic accessing the Project.	All stages
T7	Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.	All stages
T8	Heavy vehicles will avoid travel during peak school bus operating times on local roads to limit the interaction of larger vehicles and vulnerable road users.	Construction Decommissioning
T9	To manage the risk of conflict of light and heavy vehicle access to site on Bayley Park Road there are to be clear passing areas with signage, traffic controllers / traffic signals to suitably control traffic in consultation with ARC.	Construction Decommissioning
T10	OSOM vehicle trips will be timed where feasible so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.	Construction Decommissioning
T11	Specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These will warn existing road users of changed traffic conditions.	Construction Decommissioning
Hazards – Bushfire		
BF1	Dangerous or hazardous materials will be stored and handled in accordance with AS1940-2004: <i>The storage and handling of flammable and combustible liquids</i>.	Construction Operation Decommissioning

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Mitigation number	Mitigation measure	Project Stage
BF2	Develop a Bushfire Emergency Management and Operations Plan in consultation with NSWRFs and FRNSW to include but not be limited to: - Detailed measures to prevent or mitigate fires igniting - Construction work that should not be carried out during total fire bans - Availability of fire-suppression equipment, access and water - Storage and maintenance of fuels and other flammable materials - Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate - Appropriate bush fire emergency management planning. - Provide a defendable space - An APZ of minimum 11m will be maintained between remnant or planted woody vegetation and the BESS and ancillary infrastructure. - Maintain grass within the APZ at a low and manageable height throughout the fire season (October to April). - Keep grass outside the APZ at a moderate, well-controlled height throughout the fire season 5x non-combustible 115kL water storage tank/s will be installed adjoining the main internal access road, or nearby the BESS, for fire-fighting and other non-potable water uses. The final location/s of water tanks will be to the satisfaction of the relevant authority. - Provided a contact point for the BESS to the NSW RFS and Fire and Rescue NSW during construction and operation. - Protocols to manage activities in bushfire danger weather, including Total Fire Ban days, will be developed. Preparation of a specific Battery Fire Response Plan, under the general BFEMOP, in consultation with fire authorities, fire suppression experts and in reference to relevant standards and guidelines.	Construction Operation Decommissioning
BF3	Prior to commencing construction of the battery storage, the Applicant must prepare a Fire Safety Study for the development, to the satisfaction of FRNSW and the Planning Secretary in writing. The study must: Be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 2 'Fire Safety Study' guideline	Prior to construction

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Mitigation number	Mitigation measure	Project Stage
	- Describe the final design of the battery storage - Include reasonable worst-case bush fire scenario to and from the battery storage and the associated bush fire management - Identify measures to eliminate the expansion of any fire incident including: - Adequate fire safety systems and appropriate water supply; - Separation and / or compartmentalisation of battery units; - Strategies and incident control measures specific to the battery storage design. Following approval by the Planning Secretary, the Applicant must implement the measures described in the Fire Safety Study.	
BF4	Following commissioning of the BESS, the local NSW RFS and Fire and Rescue brigades will be invited to an information and orientation day covering access, infrastructure, firefighting resources on-site, fire control strategies and risks/hazards at the site	Operation
BF5	The access track will comply with the requirements of property access roads in accordance with Table 5.3b of the PBP. All access and egress tracks on the site would be maintained and kept free of parked vehicles to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies.	Construction Operation Decommissioning
BF6	A Hot Works Permit system shall be applied to ensure that adequate safety measures are in place. Fire extinguishers would be present during all hot works. Where practicable hot works would be carried out in specific safe areas (such as the Construction Compound temporary workshop areas).	Construction Operation Decommissioning
BF7	Prior to operation of the BESS, an Emergency Response Plan (ERP) will be prepared in consultation with the RFS and FRNSW. This plan must include but not be limited to: - Specifically addresses foreseeable onsite and off-site fire events and other emergency incidents. - Risk control measures would include the level of personal protective clothing required to be worn, the	All stages

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Mitigation number	Mitigation measure	Project Stage
	minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the system (either in its entirety or partially, as determined by risk assessment). - Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. - Two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point. Once constructed and prior to operation, the operator of the facility will contact the relevant local emergency management committee.	
Hazards – Hazardous material and electromagnetic fields		
H1	The results of the PHA will be used as inputs into other safety studies, such as: - Fire safety study - Emergency response plan - Bush Fire Emergency Management and Operations Plan in accordance with the <i>Bushfire Assessment Report</i>.	All stages
H2	Prior to construction, the Applicant will procure a BESS where the original equipment manufacturer has conducted and documented full-scale fire testing in accordance with UL 9540A protocols or similar, which demonstrates non-propagation of thermal runaway between adjacent BESS units.	Design
H3	The detailed design of the BESS will be undertaken to comply with the requirements of section 3.2 of the PHA, including separation distances, UL9540A test reports and OEM recommendations.	Design
H4	The Applicant will consult with Fire and Rescue NSW (FRNSW) to ensure that relevant aspects of fire protection measures have been included in the design. This may include:	Design Construction

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Mitigation number	Mitigation measure	Project Stage
	- Type of firefighting or control medium. - Demand, storage, and containment measures for the medium. - The above aspects will form an input to the Fire Safety Study, which may be required as part of the development consent conditions, for review and approval by FRNSW.	Operation
H5	If the Applicant chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented	All stages
Visual amenity		
V1	The design of the Project's ancillary infrastructure will consider the use of materials that integrate with the surrounding landscape. Where possible, suitable colours and finishes will be chosen for project infrastructure to minimise visual impacts including ancillary infrastructure such as the O&M buildings/facilities. These buildings and materials will be designed to blend in with the local rural landscape. In case a noise wall is required, the Applicant will consult with adjacent neighbours and Council on the proposed colour and/or materials used to construct the noise wall.	Design Construction
V2	Cut off and shielded light fittings (or similar technologies) would be used where appropriate to minimise glare and light spill onto private property and prevent light shining above the horizontal.	Design
V3	External lighting shall be installed to comply with Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version.	Design
V4	Construction of the access road will minimise cut and fill so far as practicable and prioritise the use of local materials where possible	Construction
V5	Use of neutral colours and a low reflectivity surface treatment on power poles as practical to ensure that glint is	Design

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Mitigation number	Mitigation measure	Project Stage
	minimised.	
V6	To the extent feasible, the project will reduce light spill/pollution and reduce the impact of light pollution on wildlife.	Design
Noise and vibration		
NV1	The Applicant will: - Establish a complaints procedure, including signage and other means to advertise the contact number regarding complaints. - Publish relevant details of the complaints procedure on its website. - Respond to complaints in a timely manner and keep relevant parties informed of progress. - Take all complaints seriously and will make all reasonable attempts to resolve them expeditiously and without delay.	All stages
NV2	During Construction, the Applicant will appoint a “Neighbour Liaison Officer” with the aim of: - Providing information about the construction schedule and upcoming planned noisy or disruptive activities - Maintaining good relations with people living and working in the vicinity of a construction site. - The Neighbour Liaison Officer will be adequately trained and experienced.	Construction Upgrades Decommissioning
NV3	A Noise Management Plan will be developed and implemented to ensure the following actions minimise noise: - All engine covers will be kept closed while equipment is operating. - Where possible use less noisy plant and equipment. - Where possible, only light works will be conducted outside of standard operating hours. - Provide special attention to the use and maintenance of ‘noise control’ or silencing kits fitted to machines to ensure they perform as intended.	Construction

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Mitigation number	Mitigation measure	Project Stage
	- Plant and equipment will be properly maintained - Machines found to produce excessive noise compared to industry best practice would be removed from the site or stood down until repairs or modifications can be made - Avoid any unnecessary noise when carrying out manual operations and when operating plant. - Any equipment not in use for extended periods during construction work will be switched off.	
NV4	For construction works conducted within close proximity to the dwelling/building of Receiver R7, the Applicant will consult directly with this receiver regarding potential noise impacts. Any potential noise exceedances will be managed through agreed measures such as time restrictions and/or providing periods of repose for residents, where feasible and reasonable.	Construction
Hydrology and flooding		
W1	Buildings and structures - Buildings and structures will be located outside high Hazard areas (H5 and above). - Finished floor level of all buildings would be a minimum 500mm above the 1% AEP flood level. - Drainage works will be established at and around the proposed substation site to manage and divert upslope flows around the area to ensure it remains free of flooding up to the PMF event. Electrical infrastructure - All electrical infrastructure, including power conversion stations and substation, will be located above the 1% AEP flood level plus minimum 500mm freeboard. Works in waterways - Flood warning signs and flood level indicators will be placed on each vulnerable points as identified in Flood study. - At commencement of operations, a Business Floodsafe Plan will be prepared for the Project to ensure the safety of employees during flood events in general accordance with the NSW SES "Business Floodsafe Toolkit	Design

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Mitigation number	Mitigation measure	Project Stage
	and Plan”. Access roads Roads will be kept as close to natural ground levels as possible.	
W2	All staff will be appropriately trained through toolbox talks for the minimisation and management of accidental chemical (e.g., fuel) spills.	Prior to construction
W3	A Flood Emergency Response Plan will be developed for construction and operation of the project and to facilitate safe evacuation prior to inundation of the access road	Prior to construction
W4	All fuels, chemicals, and liquids will be stored at least 50m away from any drainage lines and will be stored in an impervious bunded area.	Pre-construction Construction
W5	All chemicals and fuels used on-site will be stored and handled in accordance with: - The requirements of all relevant Australian Standards. - The NSW EPA’s <i>Storing and Handling of Liquids: Environmental Protection – Participants Handbook</i> if the chemicals are liquids. In the event of an inconsistency, the most stringent requirement will prevail to the extent of the inconsistency.	All stages
W6	Adequate incident management procedures will be incorporated into the Construction and Operation Environmental Management Plans, including requirement to notify EPA for incidents that cause material harm to the environment (refer s147-153 POEO Act).	Construction Operation Decommissioning
W7	The refuelling of plant and maintenance of machinery will be undertaken in impervious bunded areas and at least 50 m away from any drainage lines.	Pre-construction Construction

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Mitigation number	Mitigation measure	Project Stage
W8	Machinery will be checked daily to ensure there is no oil, fuel or other liquids leaking from the machinery.	Pre-construction
W9	Ensure appropriate operational drainage controls are incorporated into the detailed design.	Design
W10	Erosion and sediment control measures will be implemented to mitigate any impacts in accordance with Managing Urban Stormwater: Soils & Construction (Landcom 2004), including for water access at any location.	Prior to construction Construction
W11	Protection shall be provided as required for the works in the vicinity of waterways to minimise runoff from construction into these waterways and waterbodies	Construction
W12	Work would not occur during high rainfall events and flooding	Construction
W13	Waterway crossings will be designed to facilitate fish passage and in accordance with DPIRD Fisheries Policy & Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013) and Why do fish need to cross the road? Fish passage requirements for waterway crossings (2003).	Design Prior to construction
W14	If works on Limerick Creek are required, they will occur when conditions are dry and outside of key fish breeding season.	Construction
Land use compatibility		
LU1	A Revegetation and Rehabilitation Plan is to be prepared in consultation with NSW Department of Primary Industries prior to decommissioning to return the land to safe stable non-polluting productive state. The Plan will include measures for stabilisation and topsoil amelioration (e.g., incorporation of organic matter to improve soil structure or gypsum to improve structure, reduce hard-setting surfaces and reduce soil dispersion).	Decommissioning

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Mitigation number	Mitigation measure	Project Stage
LU2	A Weed and Biosecurity Management Plan is to be prepared in consultation with NSW Department of Primary Industries prior to construction commencing to manage weed and biosecurity risks arising from the Project	Prior to construction
Geology and soils		
SO1	A construction Erosion and Sediment Control Plan (ESCP) will be prepared for the Project in accordance with Landcom Soils and Construction: Managing Urban Stormwater (Landcom, 2004).	Construction Operation Decommissioning
SO2	A Soil and Water Management Plan (SWMP) including site specific Erosion and Sediment Controls would be prepared, implemented and monitored during the construction of the Project, to minimise soil and water impacts. The SWMP will be prepared in accordance with the 'Blue Book' Volume 1 Managing Urban Stormwater: Soils and Construction (Landcom 2004) and include: • At the commencement of the works, and progressively during construction, install the required erosion control and sediment capture measures. • Regularly inspect erosion and sediment controls, particularly following rainfall. • Maintain a register of inspection and maintenance of erosion control and sediment capture measures. • Ensure that machinery leaves the site in a clean condition to avoid tracking sediment onto public roads. • In all excavation activities, separate subsoils and topsoils and ensure that they are replaced in their natural configuration to assist revegetation. • Stockpile topsoil appropriately to minimise weed infestation, maintain soil organic matter, and maintain soil structure and microbial activity. • Manage works in consideration of heavy rainfall events. • Areas of disturbed soil would be rehabilitated promptly and progressively during construction. • Spill procedure. Unexpected, contaminated finds procedure.	Construction Decommissioning

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Mitigation number	Mitigation measure	Project Stage
SO3	The design, construction and decommissioning of the Project will minimise the extent and duration of ground disturbance and avoid disturbing steep slopes where practicable.	Prior to construction
SO4	The Applicant will progressively rehabilitate where practicable any area of the Development Footprint not under hardstand, road or infrastructure to reduce erosion impacts to disturbed soil, including but not limited to table drains, vegetated asset protection zones.	Construction Decommissioning
SO5	Topsoil will be stripped and stockpiled separately. Avoid stockpiling soil greater than 2m in height to prevent soil structural decline. Stockpiles will be stabilised with a groundcover (i.e. geotextile or similar) if stockpiling is required for more than six weeks, progressively rehabilitate any area of the development footprint not under hardstand, road or infrastructure to reduce erosion impacts to disturbed soil.	Construction Decommissioning
SO6	The Applicant will avoid altering the groundwater and surface water regime to prevent mobilisation of any salt stores, however low, in the soil.	Construction
SO7	At least 70% groundcover will be maintained on the areas not under infrastructure or required for hardstands throughout the Development Footprint during operation to reduce the risk of erosion.	Operation
SO8	The soil survey results (this document), Australian Soil and Land Survey Handbook (CSIRO, 2009), Guidelines for Surveying Soil and Land Resources (CSIRO, 2008) and the Land and Soil Capability Assessment Scheme: second approximation (NSW OEH, 2012) will be used when returning the site to the pre-development farmland capability.	Decommissioning
Non-Aboriginal heritage		
NAH1	Should an item of historic heritage be identified, the Heritage NSW will be contacted prior to further work being carried out in the vicinity in accordance with the non-Aboriginal heritage unexpected finds procedure in the EIS.	Construction Operation

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Mitigation number	Mitigation measure	Project Stage
		Decommissioning
NAH2	In the event of an item of heritage significance being uncovered, works will cease in the vicinity of the find and the site manager contacted immediately. Works should not recommence until an investigation has been completed by suitably qualified person in accordance with NSW Heritage Branch guidelines.	Construction Operation Decommissioning
Social and economic		
SIA1	The Community and Stakeholder Engagement Strategy (CSES) will be updated through all stages as required, and will include methods to: • Provide open, transparent, timely, and accessible communication of Project information to minimise uncertainty and address concerns. • Address concerns about potential amenity and safety impacts (e.g., traffic, noise, and visual), as well as real and perceived impacts on the environment. • Continue regular engagement with Councils, particularly during construction, to discuss and adaptively respond to any emerging community and business concerns. • Develop accessible, adequate and responsive grievance and remedy mechanisms in the event of complaints. • Communicate intentions about the accommodation of both the construction and operational workforces. • Engage with the community to allay concerns about the real and perceived. • Establish a Community Consultative Committee and Community Benefit Sharing Program (CBSP). Provide ongoing opportunities for the local community to be involved in decision-making processes relating to the Project, the Community Consultative Committee, and the Community Benefit Sharing Program. • Ensure representation of Traditional Owners and other key local Aboriginal stakeholders.	Prior to construction Construction Operation

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Mitigation number	Mitigation measure	Project Stage
	- Collaborate with local councils and other key regional economic or social development stakeholders to support regional economic and social development initiatives. - Work with economic development stakeholders to showcase the Project and the industry within the region. Tell the positive story of the Project's success. - Integrate engagement needs for developing the Industry and Aboriginal Participation Plan (IAPP) and Community Benefit Sharing Program (CSBP). - Develop Industry and Aboriginal Participation Plan in collaboration with Aboriginal stakeholders	
SIA2	The Applicant will develop a Community Benefits Sharing Program (CBSP) against the agreed VPA in consultation with Council, which will inform the development of the Project's CSES. As part of the CBSP, the Applicant will explore the possibility of sponsoring community programs, as well as: - Continue to consult the community to understand needs and priorities to tailor the CBSP initiatives throughout the life of the Project. - Collaborate with other industry and renewable energy developers to ensure coordination in the administration of funds across the communities most impacted by development within the region to avoid overlap and duplication	Prior to construction
SIA3	When appointed, the EPC Contractor will support implementation of relevant AES measures during construction, with the Project Manager responsible for monitoring progress and ensuring agreed targets are achieved as set out in the AES. The AES will be routinely monitored and updates as required should changes to the Project occur.	All stages
Resource use and waste generation		
R1	A Waste Management Plan (WMP) will be developed to minimise waste, including:	Construction

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Mitigation number	Mitigation measure	Project Stage
	• Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy. • Quantification and classification of all waste streams. • Confirmation and evidence of waste management agreements with waste facilities prior to the disposal of any waste product. ◦ Defining appropriate lines of communication for each waste stream so any restrictions can be identified. • Provision for recycling management on-site. • Provision of toilet facilities for on-site workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant). • Tracking of all waste leaving the site. • Disposal of waste at licenced facilities permitted to accept the waste. Requirements for hauling waste (such as covered loads).	Operation
R2	A septic system would be installed and operated according to the Armidale Regional Council regulations.	Construction Operation
R3	Where possible, waste would be removed on a daily basis, or as soon as reasonably practical, to maintain the Development Footprint being litter free.	Construction
R4	Batteries would be kept, stored, managed and transported according to manufacturer's instructions and the ADG Code. Any spent batteries would be recycled at a B-Cycle accredited, EPA permitted and licensed recycler of LFP batteries.	Construction Operation Decommissioning
R5	Develop a Decommissioning Waste Management Plan, when the project is planned for decommissioning.	Decommissioning
Air quality		

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Mitigation number	Mitigation measure	Project Stage
A1	Management protocols will include measures to minimise impacts on air quality including: • Identification of high-risk construction activities with potential to generate dust, and control measures for the activities • A process for monitoring dust on-site and weather conditions, as well as procedures for altering management measures where required • A map identifying locations of sensitive receivers • Notification of relevant stakeholders to hours of work and duration of work An accessible complaints process with a timely response protocol.	All stages
A2	Dust generation by vehicles accessing the site and earthworks at the site will be suppressed using water applications or other means as required, using visual cues. • Covering dirt, sand, soil, or any loose material while in transport • Clean-up of any material spillage on the roads • Limiting construction vehicle speeds on unsealed roads Checking of weather conditions (such as wind strength and direction) prior to major potential dust emitting activities	Construction Decommissioning
A3	Stockpiles will be covered or stored in areas not subject to high winds, and vehicle loads of material which may create dust would be covered while using the public road system.	Construction Decommissioning
A4	All vehicles and machinery used at the site will be in good condition, fitted with appropriate emission controls and comply with the requirements of the POEO Act, relevant Australian standards and manufacturer's operating recommendations. Plant will be operated efficiently and turned off when not in use.	All stages
A5	Fires and material burning will be prohibited on site unless directed by RFS for hazard control.	All stages

Environmental Impact Statement

Armidale East Battery Energy Storage System



Mitigation number	Mitigation measure	Project Stage
A6	Works that disturb vegetation, soil or stockpiles will not be carried out during strong winds (over 40 km/h).	Construction
A8	Materials will be delivered as full loads, and local suppliers utilised where possible, to minimise haulage emissions.	Construction

Appendix E Specialist reports

E.1 Biodiversity Development Assessment Report

E.2 Aboriginal Cultural Heritage Assessment

E.3 Traffic Impact Assessment

E.4 Bushfire Assessment Report

E.5 Preliminary Hazards Analysis

E.6 Landscape and Visual Impact Assessment

E.7 Noise and Vibration Impact Assessment

E.8 Detailed water assessments

E8.1 Hydrology assessment

E8.2 Site-water balance calculation

E.9 Soil Survey Report

E.10 Social Impact Assessment

E.11 Accommodation and Employment Strategy (AES)

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