Prepared for FRV Services Australia

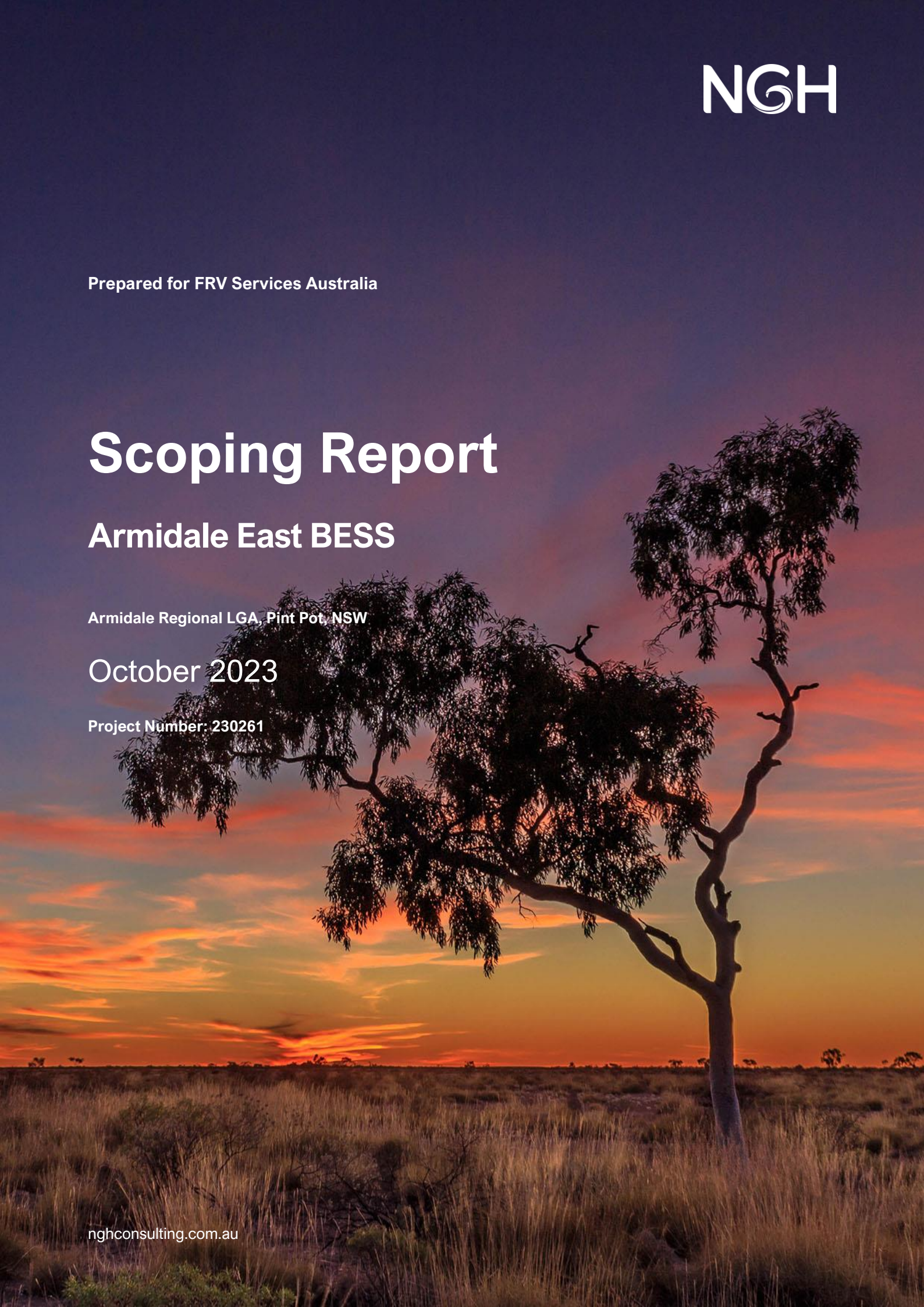
Scoping Report

Armidale East BESS

Armidale Regional LGA, Pint Pot, NSW

October 2023

Project Number: 230261



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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	*Armidale Regional Local Environmental Plan 2012*
BC Act	*Biodiversity Conservation Act 2016* (NSW)
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	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
FM Act	*Fisheries Management Act 1994* (NSW)
ha	hectares
Heritage Act	*Heritage Act 1977* (NSW)
KFH	Key Fish Habitat
km	kilometres
LEP	Local Environment Plan
m	metres
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
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	Armidale East Battery Energy Storage System
The Applicant	Fotowatio Renewable Ventures Services Australia (FRV)
Subject Land	All private lots affected by the Project, being Lot 101 DP 1237661 (approximately 242 ha)
Development site	22 ha of land which includes the proposed BESS site and connection to the overhead transmission line (approx. 10 ha), road corridor (approx. 12 ha) (upper limit estimate that will be reduced following detailed design). For the purpose of this Scoping report, the development site is the proposed Development Footprint (the area that would be impacted directly by the Project).
Associated receivers	Receivers which host infrastructure and/or with whom negotiated agreements have been reached. They are considered 'Project associated'.
Non-associated receivers	Nearby non-associated receivers are fully assessed for all environmental impacts, such as noise, vibration and visual impacts.

1. Introduction

1.1. Project outline

The proposed Armidale East Battery Energy Storage System (BESS) (the Project) would involve the construction, operation and decommissioning of a BESS with a nominal capacity of up to 500 MW / 1000 MWh. The Project would supply electricity to the national electricity market during peak periods and will have an operational life of 40 years.

Currently a maximum Development Footprint for site access has been utilised for the purpose of assessment, though the final option will utilise a small corridor of this maximum considered footprint (refer Figure 1-1).

The proposed Development Footprint for the purpose of this Scoping Report is approx. 22 ha of land which includes the BESS site and connection to the overhead transmission line (approx. 10 ha), and road corridor (approx. 12 ha).

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.
- Improve 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.
- Reduce energy wastage (curtailment).

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:

> *'… increase the value of renewable energy to individuals, network operators and investors. Storage allows renewable energy investors to increase revenue by selling power at times of peak market prices as opposed to when the electricity is generated. This in turn places downward pressure on electricity prices by encouraging more supply at times of peak demand and reducing the need for additional distribution and transmission infrastructure*.'

The Project would provide benefits to the local environment and community through the provision of direct and indirect employment opportunities and community benefits sharing. This aspect will be informed by local investigations and consultation with 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 biodiversity, heritage, noise and visual impacts while other factors such as traffic and hazards are considered manageable.

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. Location

The closest major town to the Project is Armidale (refer Figure 1-2), located approximately 18 km east from the Development site.

The Project will be located on a 242 ha privately owned lot identified as Lot 101 DP 1237661, immediately adjacent to the existing Metz solar farm. Works for the BESS associated ancillary infrastructure and its operation will be located within approx. 10 ha of this lot.

Access to the site will be via Waterfall Way (Grafton Road), turning into Bayley Park Road. The intersection with Waterfall Way (Grafton Road) and parts of Bayley Park Road have had significant upgrades in the past to facilitate the construction of the Metz Solar Farm. As such, the access meets the requirements for haulage and two-way movements of the largest vehicles not requiring an escort, which is expected to be a 26 metre B-Double truck. From the entrance to the Metz Solar Farm to the BESS site, road upgrades as well as the creation of new sections of road are required by the Project (refer Figure 1-1).

A TransGrid 330 kV overhead transmission line runs north, immediately adjacent to the proposed development site, which feeds into the Armidale substation. It is proposed to connect the Project directly into the overhead transmission line via overhead cabling.

1.4. The Applicant

The Applicant	Fotowatio Renewable Ventures Services Australia (FRV)
Legal Entity	Armidale East BESS Asset Trust
Main office address	Suite 1001, 1 York St. Sydney NSW 2000
ABN	ABN 151469662

Fotowatio Renewable Ventures (FRV) is one of the world's leading renewable energy solution companies. With over 15 years' experience in the industry, FRV has over 50 renewable energy plants across four continents producing over 5GW of energy. It possesses financial strength and stability for future international expansion opportunities, diversification, innovation, and investment within the renewables 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 eight operational photovoltaic (solar) plants, two under construction and 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.

1.5. Purpose of this document

This Scoping Report has been prepared to support a request to the NSW Department of Planning and Environment (DPE) for the Project-specific Secretary's Environmental Assessment Requirements (SEAR's). The SEAR's would guide the preparation of an Environmental Impact Statement (EIS) for the Project, pursuant to Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). An EIS is required as the Project has a capital investment value exceeding $30 million and is therefore classed as State Significant Development (SSD).

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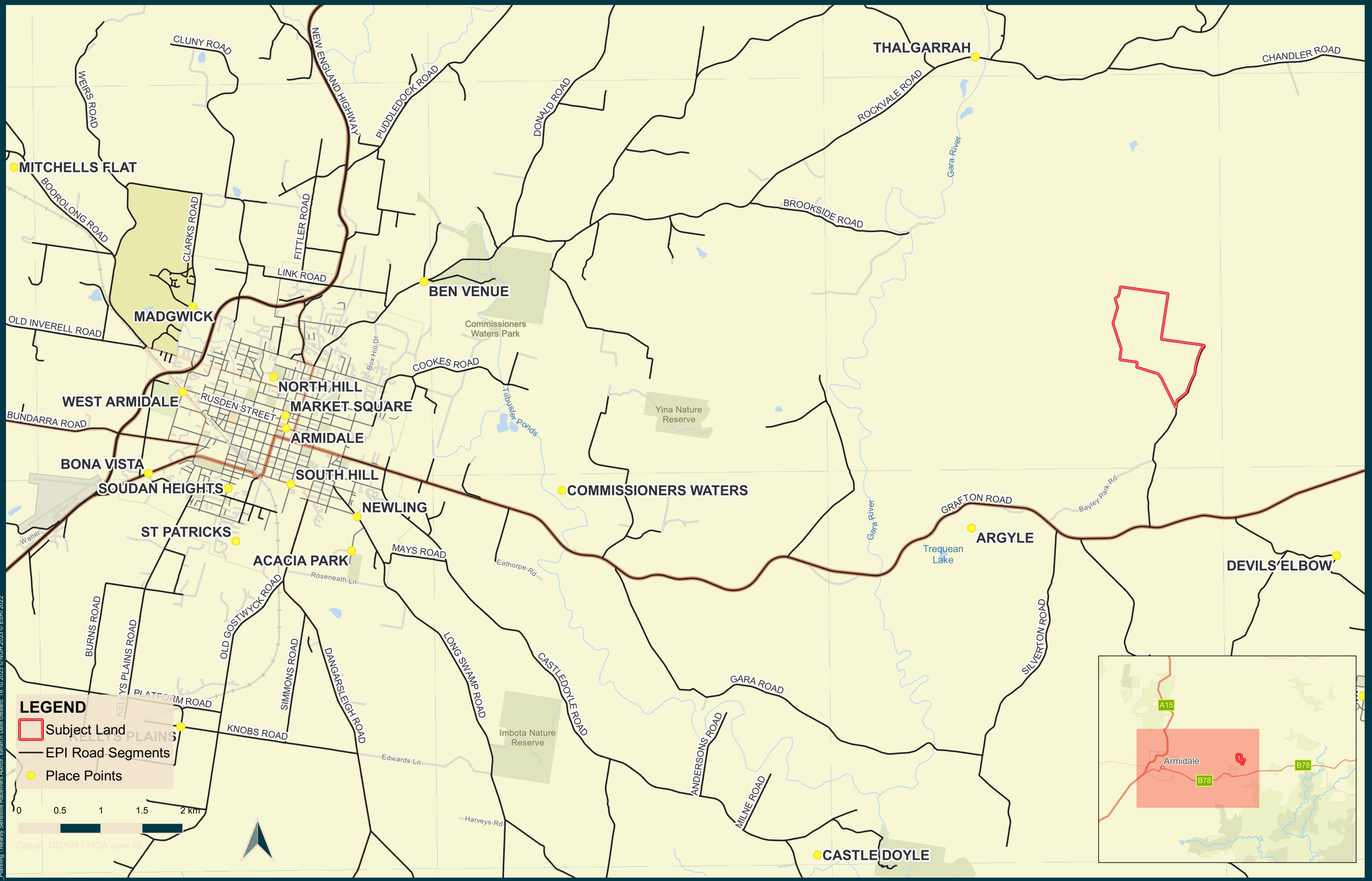
Armidale East BESS

Figure 1-1 Subject Site



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Armidale East BESS

Figure 1-2 Site Locality

2. Strategic context

The Project's regional and local setting as well as the strategic need for the Project are set out below. Together, these support the justification for the Project, as set out below in Section 2.4.

2.1. Regional setting

The Project is located within the New England Renewable Energy Zone (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. Location within the REZ will take advantage of strategy transmission infrastructure and avoid the need for third-party easements and long transmission lines.

2.2. Local setting

This Development site has been selected primarily due to its location immediately adjacent to nearby powerlines and proximity to an area already developed for renewable energy projects. Additionally, the site is remote from incidental viewing from public viewpoints or any potential noise impacts.

The Development site has been selected with the goal of balancing assessed social, environmental and economic aspects associated with the development of a BESS. A prime objective is the establishment of a project that would proceed at a scale that takes these factors into consideration.

The Development site is zoned Primary Production (RU1) under the *Armidale Regional Local Environmental Plan 2012* (Armidale Regional LEP) (refer Figure 2-1). The objectives of this Zone are:

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

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.

Development of a prescribed non-residential zone for energy production, storage and associated infrastructure is permissible with consent under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

RU1

BAYLEY PARK ROAD

LEGEND

- Subject Land
- Development Site - BESS
- Development Site - Road
- Existing Metz Solar Farm
- EPI Road Segments

EPI Land Zoning

- RU1

0 0.5 1 1.5 2 km

Datum: GDA94 / MGA zone 56

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Armidale East BESS

Figure 2-1 Land Zoning

The site is immediately adjacent to energy generation and transmission infrastructure including:

- The existing Metz Solar Farm
- 330kV transmission line.

The site is located approximately 18 km from Armidale in a low-density rural setting. 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) are relevant to the site.

The site is shielded from all non-associated receivers and motorists due to topography and existing structures. Six non-associated residential and two non-associated rental residences (rented from the associated receiver) are location within 5 km of the Development site (refer 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. The proposed upgrades to Bayley Park Road may require that the crossing be upgraded. However, this will be confirmed pending outcomes of the Traffic Impact Assessment (TIA).

The vegetation within and surrounding the development site is highly modified, but retains native vegetation. The Biodiversity Values map does not identify any land within the surrounding area to contain high biodiversity values, as confirmed by site survey. Refer to Section 6.2.2 for more details on biodiversity.

There are listed threatened species within the surrounding cleared workspace being Koala (*Phascolarctos cinereus*), and Narrow-leaved Black Peppermint (*Eucalyptus nicholii*). Additionally, four serious and irreversible impact (SAII) candidate species were identified.

As detailed above, access to the site will be via Waterfall Way (Grafton Road), turning into Bayley Park Road. The intersection with Waterfall Way (Grafton Road) and parts of Bayley Park Road have had significant upgrades in the past to facilitate the construction of the Metz Solar Farm. As such, the access currently meets the requirements for haulage and two-way movements of the largest design vehicles. Upgrades to the intersection between Bayley Park Road and Waterfall Way (Grafton Road) and the existing access road may however be required as part of the Project, pending outcomes of the TIA and consultation with the relevant authorities.

A mineral lease exploration license (EL9053) is relevant to the site.

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Armidale East BESS

Figure 2-2 Neaby Sensitive Receivers and Site Values

Figure 2-3 Intersection of Waterfall Way and Bayley Park Road

Figure 2-4 Development site facing the existing Metz Solar Farm

2.3. Alignment with strategic setting

The project addresses key federal, state and local planning policies as set out below.

2.3.1. Federal

Federal Renewable Energy Target

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate with the aim of keeping global warming below 2 degrees Celsius, chiefly by reducing greenhouse gas emissions.

On August 4, 2022, the Albanese Government's *Climate Change Bill 2022* passed the House of Representatives.

The Bill will enshrine into law an emissions reduction target of 43 percent from 2005 levels by 2030, and net zero emissions by 2050. In addition, the Bill 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 Bill backs onto the Labour 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 this target. 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)
- Supporting the Government's Renewable Target (RET) of 20 percent renewable energy by 2020. While the LRET target was met in 2019/20, the scheme will continue to require high-energy users to meet their obligations under the policy until 2030.

2.3.2. State

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 the above priorities.

NSW Electrical Infrastructure Roadmap

In November 2020 DPE released NSW Electricity Infrastructure Roadmap which describes NSW's plan to transition the electricity sector and seize associated opportunities. The Roadmap focuses on delivery of electricity infrastructure, firming and transmission with the goal of redefining NSW as a modern global energy

superpower. An intent is to drive investment in regional NSW, as well as benefit from emerging technologies including batteries.

The Roadmap is intended to help NSW towards its net-zero emissions target by 2050 and will help reduce NSW electricity emissions by 90 million tonnes by 2030 (DPIE, 2020a). In addition, the Roadmap is expected to:

- Attract up to $32 billion in private investment for regional energy infrastructure by 2030.
- Support an estimated 9,000 jobs, mostly in regional NSW.
- Save around $130 a year on the average NSW household electricity bill and $430 a year on the average small business electricity bill between 2023 and 2040.

As part of the Roadmap, the Electricity Infrastructure Investment Safeguard is an investment signal to deliver the new electricity infrastructure required by NSW. The Safeguard provides a framework for technologies and energy services to deliver REZ generation, long-duration storage, and firming.

The proposed BESS would benefit the network by shifting electricity storage closer to local consumption, thereby contributing to regional grid capacity enhancement as per the Roadmap. Operation of the proposed BESS would also be in accordance with the Safeguard to initiate long-duration storage of electricity for the region, as well as being within the New England REZ along with numerous renewable energy projects (refer to Figure 2-5).

Figure 2-5 New England REZ (source EnergyCo)

2022 Integrated System Plan

The 2022 Integrated System Plan (ISP) is a comprehensive roadmap for the NEM. The 2022 ISP and its optimal development path support Australia's complex and rapid energy transformation towards net zero emissions, enabling low-cost firmed renewable energy and essential transmission to provide consumers in the NEM with reliable, secure and affordable power.

The ISP's optimal development path recognises and guides the significant investment needed in the physical infrastructure and intellectual capital of the NEM. That investment is needed to:

- Meet significantly increased demand as homes, vehicles and industrial applications switch to electricity from existing energy sources. Without coal, this will require a nine-fold increase in utility-scale variable renewable energy (VRE) capacity, and a near five-fold increase in distributed solar photovoltaics (PV),
- Treble the firming capacity from alternative sources to coal that can respond to a dispatch signal, including utility-scale batteries, hydro storage, gas-fired generation, and smart behind-the-meter "virtual power plants" (VPPs),
- Adapt complex networks and markets for two-way electricity flow, while leveraging The Australian Energy Market Operator's (AEMO) Engineering Framework to prepare the power system for 100% instantaneous penetration of renewables, and
- Efficiently install more than 10,000km of new transmission, to connect geographically and technologically diverse, low-cost generation and firming with the consumers who rely on it, on a pathway that is low cost and low regrets for consumers, with project work commencing on their earliest planned schedule.

Equally, the ISP recognises and calls for significant investment in the human and social capital needed to deliver the intended consumer benefits and secure the NEM's future:

- Manage the complex and growing supply chain risks that are inherent for investments of this scale that face prior competing claims on plant, skills and resources,
- Engage with landholders and regional communities to co-design solutions that will earn a lasting social licence, and
- Continue with the significant, concurrent and accelerated collaboration between the energy sector and its regulators, governments and communities. When successful, the transformation of the NEM will deliver low-cost renewable electricity with reliability and security, help meet regional and national climate targets, and contribute significantly to regional jobs and economic growth.

2.3.3. Local

Armidale Regional Local Environmental Plan

The Subject Land is zoned Primary Production (RU1) under the Armidale Regional LEP. As detailed in Section 2.2 above, the selection of the site to develop an energy storage facility supports the RU1 objectives. The development of a prescribed non-residential zone is permissible with consent under the TISEPP.

Armidale Regional Council Renewable Energy Action Plan

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

Armidale Plan 2040 (2020)

Armidale Plan 2040 (ARC, Armidale Plan 2040, 2020) will set in place a coherent vision and spatial framework for the Armidale region that will establish the basis for the community to consolidate behind common goals and to become robust in the face of the many challenges facing the region. The Plan will encourage considered growth, innovative business and employment opportunities, and frame the planning agenda for the next 20 years.

Section 2.1 of the Armidale Plan 2040 (Mega-trends and key challenges) states the planning of the Armidale region needs to mitigate the impacts of climate change and embrace new ideas, technologies and renewable energy to form a more resilient regional community and economy.

Section 7 of the Armidale Plan 2040 (Sustainability and smart cities strategy) states that the New England region has been identified as a Renewable Energy Zone. Specifically, Council have determined they would leverage the momentum of Renewable investment by *"Marketing Armidale LGA as a renewable energy development zone to attract additional investors and developers"*.

In Section 8 (Vision and Planning Principals) of the Plan, Council have committed to;

- Encourage renewable energy and innovation businesses in the Local Government Area (LGA)
- Identify and promote wind, solar and other renewable energy production opportunities
- Encourage increased renewable energy use and storage.

While in Section 9 (Structure Plan), Council have stated they will *"play a material role in leveraging Armidale's location in one of just three Renewable Energy Zones in NSW to unlock a significant pipeline of large-scale renewable energy projects, creating significant numbers of construction jobs each year".*

Council are supportive of renewable energy and development in the LGA, as evident in their Renewable Energy Plan and 2040 plan. The outcomes of the Project will align with Council's commitments for renewable energy, innovation, and storage opportunities within the LGA.

New England North West Regional Plan 2036

The New England North West Regional Plan 2036 (DPE, 2017) is one of nine Regional Plans prepared for NSW, and sets a 20 year vision for the region. The Regional Plan aims 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. Four Goals and 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 and there are five Strategic Centres (Moree, Narrabri, Gunnedah, Inverell, and Glen Innes) and several Centres nominated in the Regional Plan.

The following goals, directions and actions are relevant to the Project:

Table 2-1 Goals, direction and actions from the New England North West Regional Plan

Goal	Direction	Actions	Application
Goal 1: A strong and dynamic regional economy	Direction 5: Grow New England North West as the renewable energy hub of NSW	Diversify the energy sector by identifying renewable energy resource precincts and infrastructure corridors with access to the electricity network	The Project is located the REZ, within an existing infrastructure corridor with access to the electricity network.
	Direction 6: Deliver new industries of the future	Encourage green industries by reviewing local plans to ensure land use zonings reflect industry requirements	The site is located within land zoned RU1 (Primary Production) under the Armidale Regional LEP. Electricity generation is not permissible with consent in this land zone.

Goal	Direction	Actions	Application
			However, the provisions of the TISEPP prevail over the Armidale Regional LEP. Therefore, the Project is permissible with consent.
Goal 2: A healthy environment with pristine waterways	Direction 11: Protect areas of potential high environmental value	Focus development to areas of least biodiversity sensitivity and implement the 'avoid, minimise, offset' hierarchy to biodiversity and areas of high environmental value.	The Project avoids all sensitive biodiversity values, while implementing the 'avoid, minimise, offset' hierarchy.

2.4. Project justification

2.4.1. Supporting the clean energy transition

The project's key justification is in its contribution to electricity reliability including:

- Facilitating energy shifting and provide for peak demand periods.
- Easing energy wastage (curtailment)
- Easing the peak demand and defers the alternative costly network upgrades associated with providing energy in remote locations. Increasing population and economic development results in an increase on energy demands and pushes for costly network expansion.
- Improved voltage support and improved power quality
- Support the Australian transition to a renewable energy future through the implementation of a large-scale BESS.

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 27.7% of Australia's overall electricity in 2020 (Clean Energy Council, 2021). The Australian Energy Market Operator (AEMO) has projected that NSW will need nearly 2.3 gigawatts (GW) of energy storage to maintain system security and reliability in addition to Snowy 2.0 (DPIE, 2020a). As such the NSW government has indicated that investment into large-scale storage capacity projects would be required to support the states transition to renewable energy sources (DPIE, 2020a).

The Project would benefit the electricity grid by balancing the network through the addition of energy storage. This stored energy would be utilised during periods of low renewable output already in the grid 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 dispatchable 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

(Finkel, Moses, Munro, Effeney, & O'Kane, 2017). The market price effect of dispatchable energy resources such as battery storage is modelled below in Figure 2-6.

Figure 2-3 shows the prices for base contracts (settled price on 31 March 2023) for each quarter for the next four calendar years as well as the volume of each base contract traded in the most recent quarter.

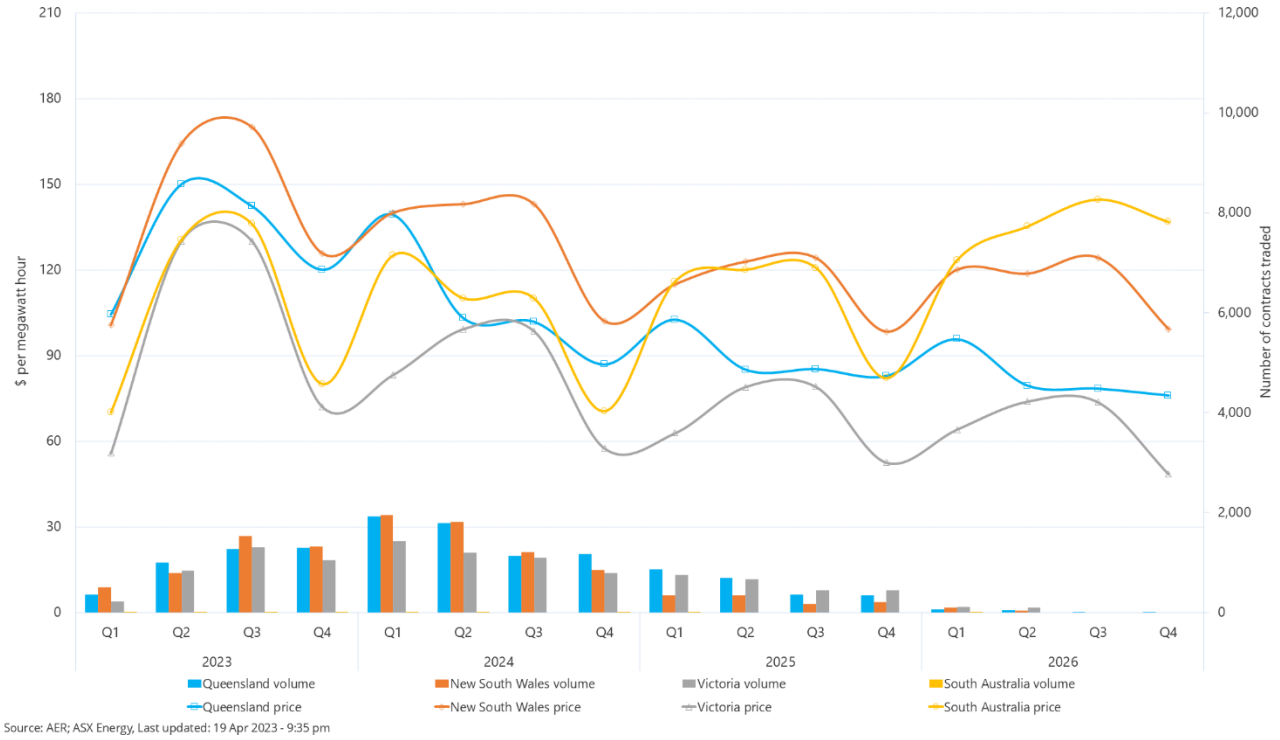


Figure 2-6 Quarterly base future prices and predicted volume trade

In 2020, almost 2GW of renewable energy made up of 32 projects were constructed and began generating electricity (Clean Energy Council, 2021). 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 will be important to maintain the functioning of the NSW energy system. They will ensure that the state's residents, business owners and service providers to have secure reliable and secure energy as energy supply sources change.

In August 2023, the AEMO released their 2023 Electricity Statement of Opportunities (AEMO, 2023). The report details the need to accelerate the transition into renewable energy in NSW, in line with the 2025 closure of the Origin Energy 2.88GW Eraring Plant.

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 two years' time.

The AEMO has forecasted potential reliability gaps in every state in the coming years (refer Figure 2-7). However, this forecast does not include many renewable projects that are yet to be built or those that are in the pipeline. Figure 2-7 shows increased reliability risk, but does not reflect the reliability potential for the 248 GW pipeline of proposed generation and storage projects.

The AEMO findings further justify the need for battery storage in NSW.

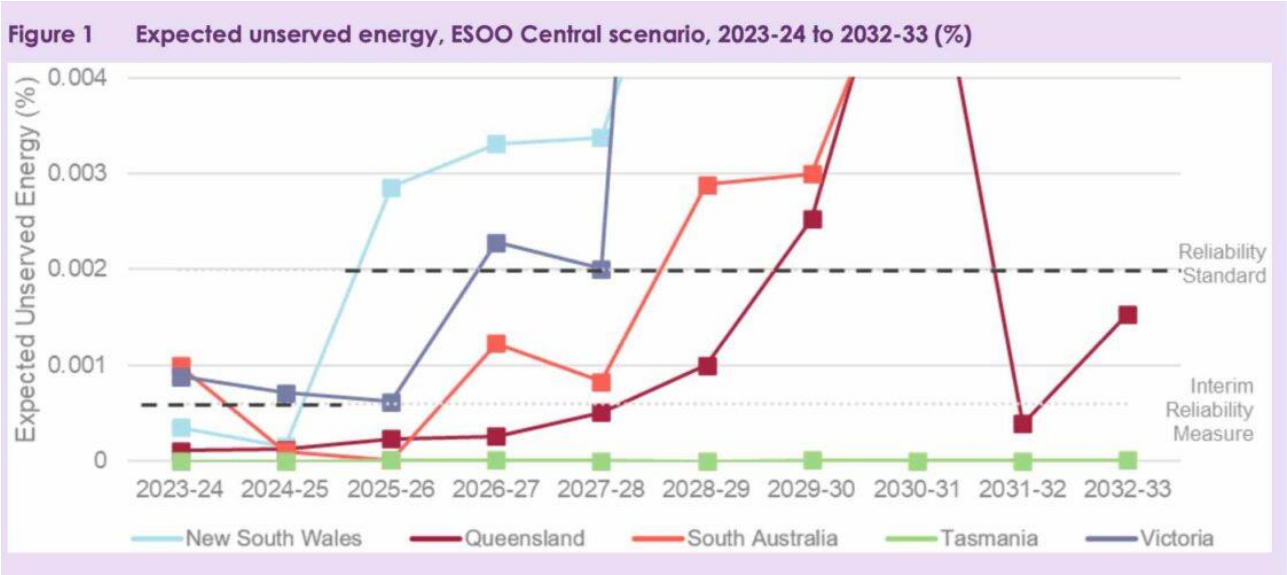


Figure 2-7 Expected unserved energy and reliability

2.4.2. Job creation

Job creation would be a socio-economic benefit of the Project, by providing employment and economic stimulus, primarily through the construction phase. The project is expected to create up to 70 jobs during construction, and up to 5 operational jobs.

Largely due to the influx of workers, the Project would generate economic stimulus in Armidale and throughout the Armidale Regional LGA during this time. These areas would provide accommodation (noting and considering current pressures on accommodation in the region as described in Section 6.2.1), food fuel and trade equipment and services, mostly during the construction phase.

During the operation of the BESS, economic benefits would be less, focusing on monitoring and inspections, maintenance, repair and upgrade of infrastructure, much of which is likely to be provided by resident labour force.

Employment is a high priority for the Armidale Regional Council (ARC), and it is highlighted in the Armidale Plan 2040 Final Updated Report. Theme 9 of the Plan highlights the current shortage of accommodation for agricultural workers in the Armidale LGA.

2.4.3. Local benefits

The ARC expressed a strong focus on ensuring that the local community benefits from renewable energy developments and associated enabling infrastructure, including BESSs, in the region via mechanisms such as a Voluntary Planning Scheme (VPA) or Community Benefits Scheme (CBS) to deliver a long-term positive impact. Key industry stakeholders suggested exploring educational partnerships opportunities with local and regional education providers, such as the University of New England (UNE) and TAFE.

While no commitments have been made, the Applicant is in consultation with council and community members to establish the most appropriate framework and structure for a community benefit-sharing scheme.

2.5. Project agreements

No negotiated agreements or a VPA have been considered at this stage of the development process. However, the Applicant have met and will continue to work with ARC and reassess during the preparation of the Project EIS.

A subdivision will be required to separate assets to be owned by TransGrid.

3. The Project

3.1. Project description

The Project would involve the construction, operation and decommissioning of a BESS with a capacity of up to approximately 500MW and up to 1000 MWh. It would supply electricity to the national electricity market during peak periods.

A BESS is a device that stores energy by accumulating energy though reversible electrochemical reactions. The energy is stored/extracted in DC (Direct Current) and converted/inverted into AC (Alternating Current) by an accompanying bi-directional inverter sized to the storage capacity.

The BESS Development site as detailed in this Scoping Report is approx. 10 ha of land. An additional 12.18 ha of clearing is required for the new proposed access road and existing Bayley Park Road upgrade. It should be noted that this is modelled as a worst-case scenario allowing for uncertainty in design, and will be reduced following detailed design. The overall Development site is considered the impact area, allowing for the Development Footprint, construction laydown, compounds and stockpiling area.

Table 3-1 Impact areas

Description	Lot/description	Size
Subject Land	Lot 101 DP 1237661	242 ha
Development site - BESS	Part Lot 101 DP 1237661	approx. 10 ha
Development Site - Road upgrades	Bayley Park Road (existing)	800 m approx. 3 ha
	Internal access road (to be constructed)	2.3 km approx. 9 ha
Total	Development site	**22 ha**

The key elements of the Project include the following (refer to Figure 3-1):

- Up to 100 assembly containers, containing lithium-ion batteries. These will not exceed 5.5 m above the natural ground level. Up to 100 MV Transformers with one inverter each to convert Direct Current (DC) to Alternating Current (AC) and one transformer to combine and step up the voltage
- A switching room to convert low voltage current to medium voltage current
- An onsite substation to convert medium voltage current to high voltage current
- Intersection and road upgrades as required.
- Associated ancillary infrastructure including:
    - Electrical/power conversion systems
    - Switchgear

- Control building
- Cabling and collector units
- Storage and maintenance area
- Internal access tracks
- On-site parking
- Security fencing and lighting
- Temporary construction laydown area.

The grid connection for the BESS would be via the 330kV transmission line to the north of the Development site.

The capital investment value (CIV) of the Project would be greater than $30 million. A detailed CIV report would be prepared as part of the development application process, which would confirm the CIV.

3.2. Proposed Project delivery

3.2.1. Construction

The project would be constructed over a period of approximately 18 months (pending final design and capacity) and expected to operate for 40 years. Construction would involve:

- Construction of permanent infrastructure
  - Battery containers
  - Inverters
  - Transformers
  - Cooling systems
  - Fire suppression systems
  - Switch room
  - Operations and Maintenance (O&M) facilities and associated parking.
- Construction of temporary infrastructure
  - Site office and amenities
  - Tool and material storage shed
  - Construction
  - Component laydown areas
  - Truck parking and unloading areas.
- Construction of internal access tracks
- Delivery of infrastructure to the site
- Assembly of the BESS containerised units and associated infrastructure (substation, fencing).

The timeline represented below in Table 3-2 is indicative only and is dependent on approval processes and availability of materials and labour.

Table 3-2 Indicative timeline

Phase	Approximate commencement	Approximate duration
Project Approval	3Q 2024	N/A
Pre-construction works	4Q 2025	1 month if needed

Phase	Approximate commencement	Approximate duration
Construction	1Q 2026	18
Operation	3Q 2027	Approximately 40 years
Decommissioning	TBC	TBC

Construction hours will be limited to:

- 7am to 6pm Monday to Friday
- 8am to 3pm Saturday
- No work on Sunday or public holidays.

The delivery of materials requiring an escort and/or emergency works may occur outside of the above construction hours.

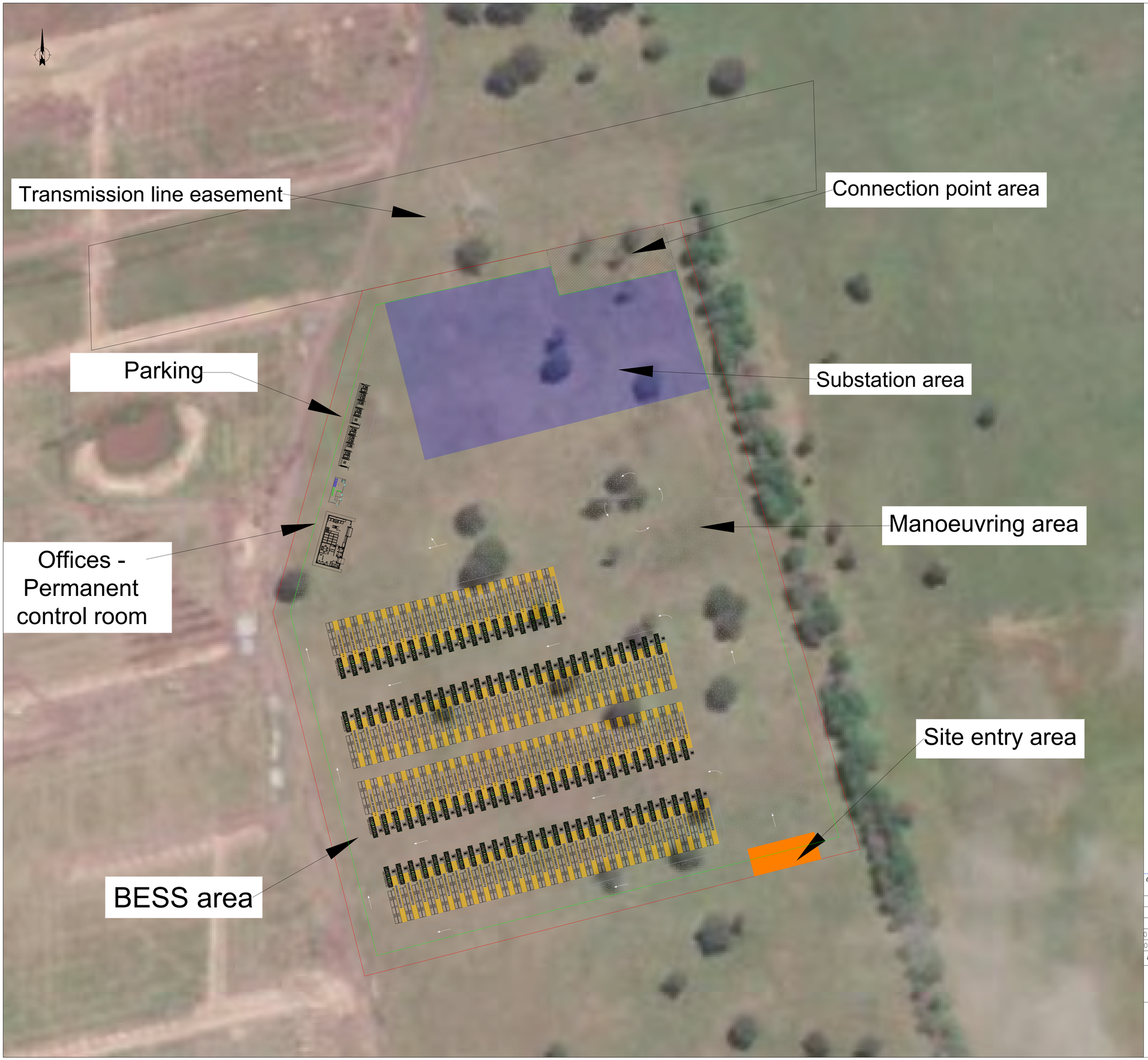
3.2.2. Staging of works

The construction period would last for approximately 18 months, with 2 to 3 months of peak construction and would occur across the following stages and duration:

Table 3-3 Indicative Staging

Stage and description	Approximate duration
Stage 1: Site establishment, site access and road upgrades	2 months
Stage 2: Delivery of BESS infrastructure	3 months
Stage 3: Installation of BESS infrastructure	10 months
Stage 4: Construction of onsite substation	2 months
Stage 4: Connection to onsite substation and TransGrid Transmission lines	2 months

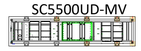
Commissioning and testing would occur following construction and over a period of approximately 1 month.



PLANT SUMMARY "PINT POT BESS"	
Total ESS Power/Capacity:	500 MW/1,000 MWh (AC BOL)
AC Power/Battery Duration Energy per BESS assembly	5 MW/2h 11,008 kWh (DC BOL)(4*2,752kWh)
Total Site Area 10.03 ha	Fence length 1,269.51 m

GEOGRAPHICAL COORDINATES	
Country	Australia
Coordenates (UTM 56S)	389879.78 m E, 6625634.48 m S
Altitude	1066 m

LEGEND



MV Transformer & MV Switchgear 5,500kVA @45ºC

BESS assembly 11,008kWh (DC BOL) (4*2,752kWh)

Fence

Internal road

Parcel limit

COMMENTS / APPROVED

A1

REV.	DATE	DRAWN	DESIGNED	CHECKED	APPROVED	DESCRIPTION	VERIFIED
01.02	23.11.02	APL	APL	AQ	AQ	Setback revision	
01.01	23.10.05	AC	AC	AQ	AQ	Preliminary design	

PROJECT

Armidale East BESS

FOTOWATIO RENEWABLE VENTURES

TITLE

GENERAL LAYOUT

REF. Nº:

SCALE

Nº 01.02 Rev.

SHEET 01 FOLLOWS –

3.2.3. Materials

The main construction materials would include:

- Aggregates, road base and concrete
- 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.

The material quantities would be estimated in more detail in the EIS when the Development Footprint is developed.

3.2.4. Operation

Operation of a BESS involves the storage of energy during periods of low demand, as described above.

The energy would be retained within the BESS to be later provided back to grid during high peak periods. This activity does not involve physical movement of structures that would generate noise, emission, or cause changes to the visual amenity of the area. Operations would involve minimal activity as all process for storing are contained within the BESS structure.

During operations, up to five staff vehicles may be present on site and up to five full time equivalent staff.

Ongoing maintenance and refurbishing assets as they reach their end of life will be undertaken as required during the operational phase. While the approval is not expected to be time limited, the Project is expected to operate for up to 40 years but this will depend on the prevailing energy markets at this time. Significant upgrades or changes to technology may require additional assessment and approval processes.

3.2.5. Decommissioning

The Project has a finite life span. When that lifespan is reached, an upgrade of the BESS could be undertaken and consequently either request an extension or lodge a new DA with a more current technology. Alternatively, the Project would be dismantled and repurposed where possible.

The battery containers would be removed, and the footings on which they are supported, would be removed. All buildings would be removed, including the PCSs together with the associated footings. All underground cabling would be removed.

Batteries can be refurbished (overseas by the manufacturer) or recycled domestically for reprocessing. 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.

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.

3.3. Project development and alternatives

3.3.1. Design considerations

A combination of conditions needs to be considered when selecting a site appropriate for a BESS. These key conditions help narrow the search to specific geographical areas. The choice of this location was driven by a combination of:

- Setbacks that minimise the impact on nearby properties
- Ideal connection point into the national energy grid through an existing transmission line traversing the site to the north of the development
- Excellent access to major roads network.

Most suitable sites present some degree of restrictions such as creek lines, vegetation to be retained, etc. FRV works to incorporate these restrictions so that they can co-exist alongside the project's footprint.

3.3.2. Alternatives

Alternative sites

No alternative sites have been considered as this site provides and optimal combination of

- Sufficient levels of available capacity on the grid distribution system
- Close proximity to a grid connection
- Close proximity to the Metz Solar Farm
- Suitable planning context
- Low potential impacts to biodiversity and heritage
- Low potential social impacts, such as noise and visual
- Community acceptance
- Good road access
- Low land use conflict.

The location of the BESS site within the Lot was driven by a combination of

- Proximity to the associated landholder
- Existing vegetative screening
- Views of the BESS screened by elevation.

Alternative access routes

Four options were considered for the access road into the site. 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.

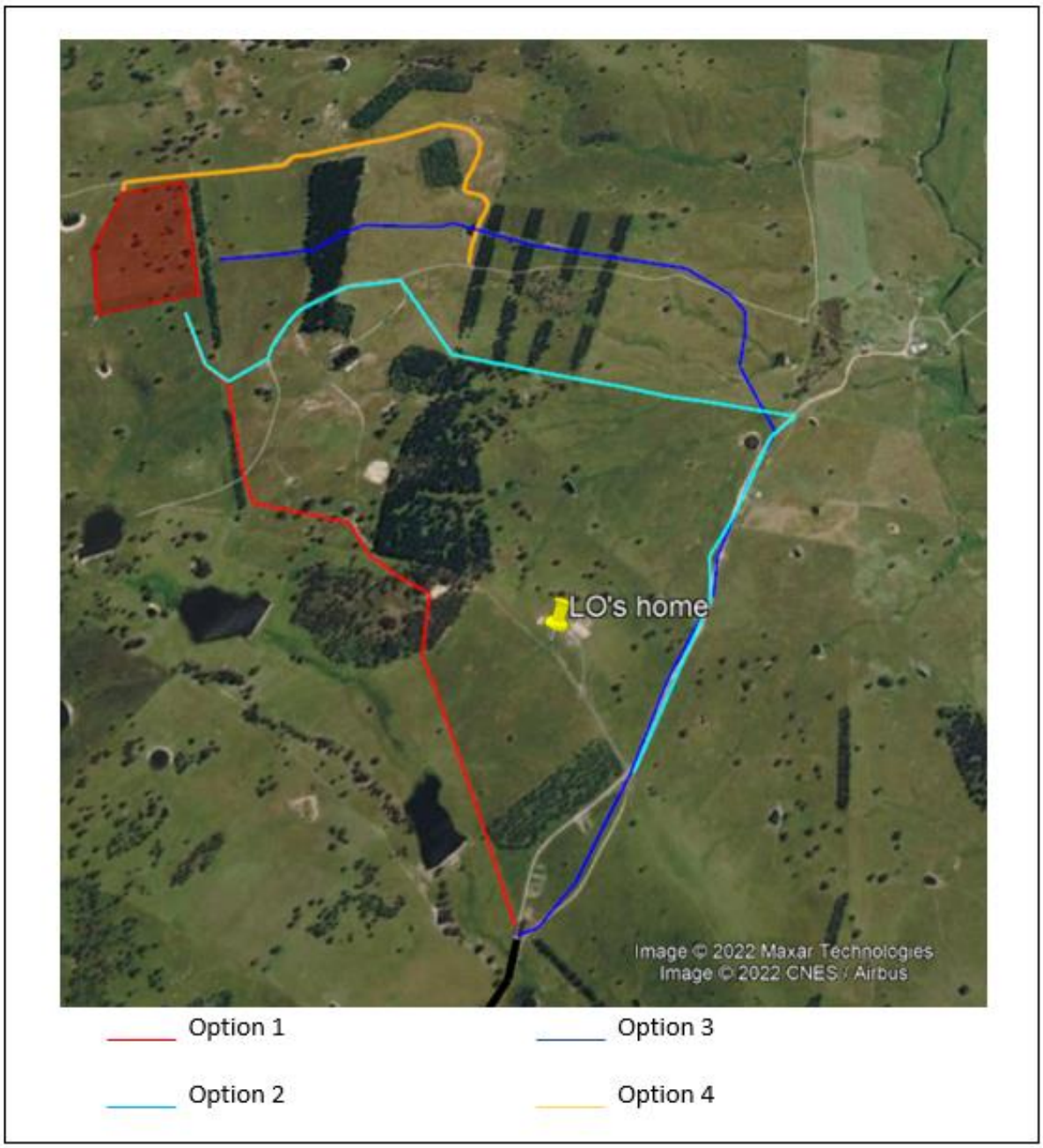


Figure 3-2 Options considered for site access

Option 1:

Option 1 is the preferred route by the associated receiver. This option 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 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 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 site.

This option will impact views from the associated receiver's home, as is not the preferred option.

Option 3:

Option 3 has the most vegetation/mature tree clearing, and has one of the largest ground disturbance of all four options. It is the second longest route from Grafton Way to the site.

This option will impact views from the associated receiver's home, as is not the preferred option.

Option 4:

Like Option 3, Option 4 has the most vegetation/mature tree clearing, and has one of the largest ground disturbance of all four options. It is the longest route from Grafton Way to the site.

This option requires passing under the existing 330kV line twice and provides difficulty for construction of the BESS units as the first component of the project to be placed is the substation, which will connect immediately into the 330kV line. This means that once the substation is place, manoeuvring for BESS location becomes extremely challenging as there will be limited space for trucks to enter.

This option will impact views from the associated receiver's home, as is not the preferred option.

This option poses the most risk to the project.

Chosen option:

Option 1 was determined to be the preferred option, with the least social, financial and environmental risk to the proposal. The final proposed route was driven by a combination of

- Shortest length
- Least ground disturbance
- Landholder access and reducing the use of associated and non-associated (rental) private driveway access
- Proximity to associated and non-associated (rental) dwellings – located as far away as possible
- Following the natural contours and elevation of the land
- Full 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.

While vegetation clearing will be required, the final design will avoid as much mature standing vegetation as possible. Tree loping and pruning will be unavoidable. The below figures provide a visual guide on the proposed route, showing minimal disturbance requirements.

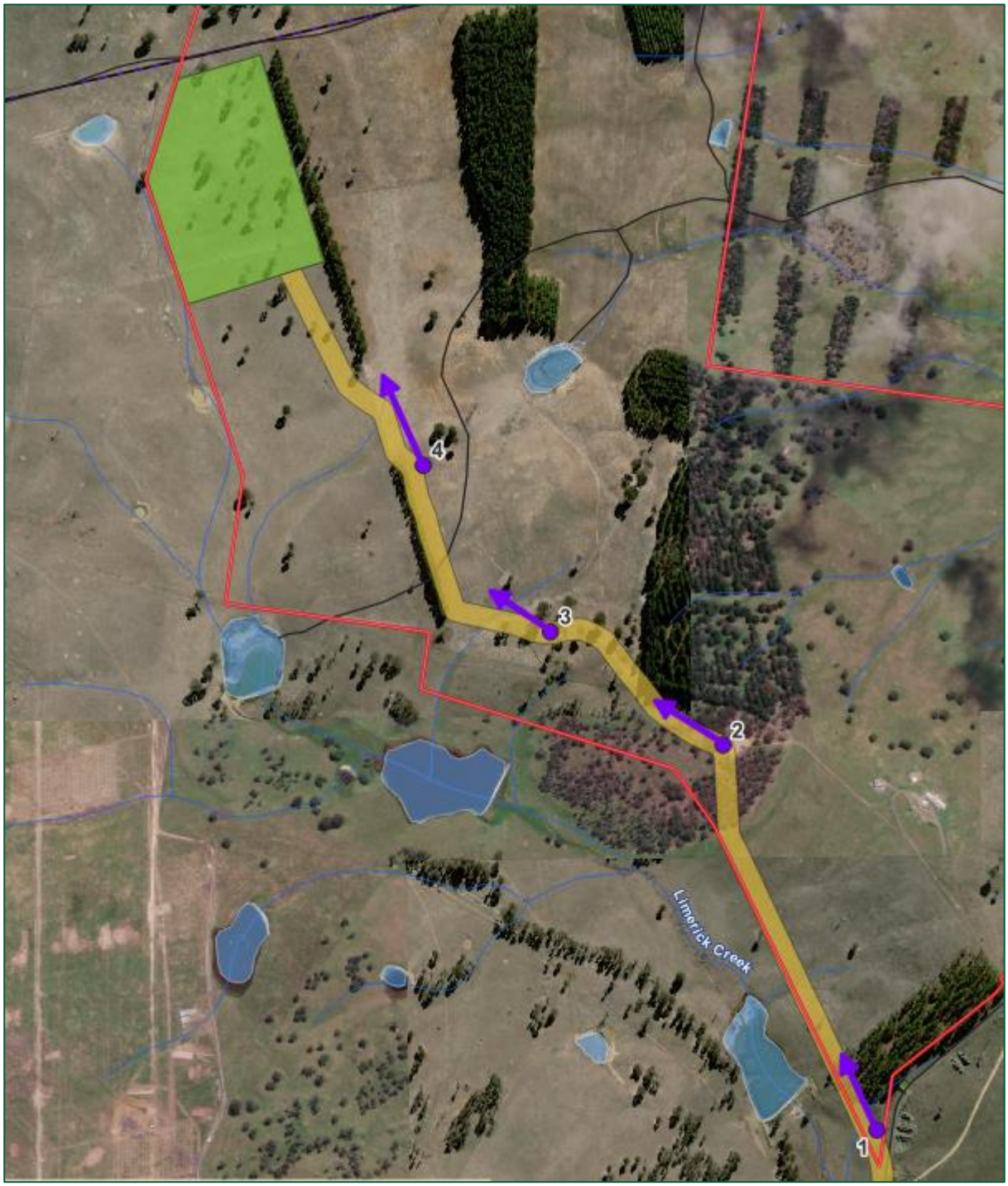


Figure 3-3 Photo points for access road

Photo Point 1

Photo Point 2

Photo Point 3

Photo Point 4

3.3.3. Proposed technologies

Lithium-ion BESS technology is established in the marketplace and is already required to comply with a range of Australian and international standards. The hazards associated with each type of battery chemistry technologies available are similar as they are all Lithium Iron Phosphate (LFP) based technology.

LFP battery technology features:

- 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.

4. Statutory context

Relevant statutory considerations for the Project are presented in Table 4-1.

Table 4-1 Statutory Context

Category	Statutory requirements	Relevance to Project
Power to grant consent	*State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) *Environmental Planning and Assessment Act 1979* (EP&A Act).	Section 20 of Schedule 1 of the Planning Systems SEPP states that the following is considered a 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 a capital investment value of more than $30 million…* 'Electricity generating works' as defined by the *Principal Local Environment Plan 2006* includes electricity storage. The Project would have a capital investment cost estimate of more than $30 million. Therefore, the Project is classified as "State Significant Development" under division 4.7 of the EP&A Act. The Minister for Planning and Public Spaces is the consent authority for SSD, and SSD applications are assessed by DPE (unless specific conditions occur e.g., where 50 or more people have objected to the application, the local council has objected to the application; and/or the applicant has disclosed a reportable political donation, whereby the Independent Planning Commission (IPC) would be the consent authority.
Permissibility	*State Environmental Panning Policy (Transport and Infrastructure) 2021* (TISEPP) Armidale Regional Local Environmental Plan 2012 (Armidale Regional LEP).	The site is located within land zoned RU1 (Primary Production) under the Armidale Regional LEP. Electricity generation is not permissible with consent in this land zone. However, Section 2.36(1)(b) of the 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. The provisions of the TISEPP prevail over the Armidale Regional LEP. Therefore, the Project is permissible

Category	Statutory requirements	Relevance to Project
		with consent.
Other approvals	*Roads Act 1993* (Roads Act), *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) *Environmental Planning and Assessment Act 1979* (EP&A Act), *Environmental Planning and Assessment Regulation 2021* (EP&A Reg), *Crown Lands Management Act 2016* (CLM Act), State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP), *Heritage Act 1977* *Water Management Act 2000* (WM Act), *National Parks and Wildlife Act 1974* (NPW Act) *Fisheries Management Act 1994* (FM Act)	**Consistent approvals** Section 4.42 of the EP&A Act states "*An authorisation of the following kind cannot be refused if it is necessary for carrying out State significant development that is authorised by a development consent under this Division and is to be substantially consistent with the consent*": • Consent under section 138 of the Roads Act for road upgrades to the public road network. **EPBC Act approval** Where Matters of National Environmental Significance have potential to be significantly affected, a Commonwealth approval is required. Desktop searches indicate three (3) nationally listed threatened ecological communities (TECs) may occur; none have been verified to occur onsite. 45 threatened species have potential to occur. Further surveys to determine the presence and likelihood of impact to these entities would be undertaken during the preparation of the EIS. At this stage , an EPBC referral is not considered likely to be required.

Category	Statutory requirements	Relevance to Project
Pre-condition to exercising the power to grant consent	N/A	No pre-conditions to exercising the power to grant approval have been identified for the Project.
Mandatory matters for consideration		The following key Commonwealth, State and Local legislative and policy instruments are applicable to the project: <u>Commonwealth</u> • EPBC Act • *Native Title Act 1993* <u>NSW</u> • *Environmental Planning and Assessment Act 1979* (EP&A Act) • *Roads Act 1993* • *Contaminated Land Management Act 1997* • *National Parks and Wildlife Act 1974* • *Water Management Act 2000* • *Heritage Act 1977* • *Biodiversity Conservation Act 2016* (BC Act). • State Environmental Planning Policy (Planning Systems) 2021 • State Environmental Planning Policy (Transport and Infrastructure) 2021 • State Environmental Planning Policy Hazards and Resilience 2021 • State Environmental Planning Policy (Primary Production) 2021 • State Environmental Planning Policy (Resources and Energy) 2021 <u>Local instruments</u>

Category	Statutory requirements	Relevance to Project
		• Armidale Regional LEP • Armidale Dumaresq Development Control Plan 2012

5. Engagement

5.1. Community and stakeholder engagement strategy

FRV intends to proactively engage with local stakeholders to ensure mutually beneficial and lasting legacies through all stages of the Project. On FRV's behalf, NGH Pty Ltd (NGH) have so far carried out a targeted consultation approach to identify queries, concerns and opportunities in relation not the project. This will be implemented with the Project's Community Stakeholder and Engagement Strategy (CSES) (Appendix C). The CSES is summarised below and the results collected to date are presented in Table 5-1.

5.1.1. Purpose

The CSES outlines the overarching stakeholder engagement principles and strategy for the development of the Armidale East BESS concerning the community while the project is in the Development Phase. The plan is designed to outline each key stakeholder group and what strategies should be undertaken to address their concerns about the Armidale East BESS.

The CSEP covers engagement with external stakeholders such as key government agencies in volved in the assessment process, local indigenous groups, the local and broader community and FRV and its suppliers/services internally.

Engaging with stakeholders is a key strategic objective for the project, and this objective is achieved by using an accountable and transparent process for engagement.

The CSES will be revised once the project reaches Financial Investment Decision to support execution phase of the project, recognising the different issues and impacts which may arise during construction and operations.

The CSES is designed to provide a foundation for how FRV intends to consult, engage and communicate with the community and stakeholders about the Armidale East BESS project through all stages of the battery lifecycle from site selection through to commissioning, operation and eventual decommissioning.

1. Produce clear information on the Project, potential impacts (positive and negative) and benefits for the environment, community, and region by delivering high- quality communication channels across all targeted channels.
2. Endeavour to contribute towards positive impact in the region with shared local and broader regional social, economic and environmental benefits considered.
3. Develop a sense of local ownership in the Project by identifying local advocates.
4. Work together with the community in a collaborative way by identifying issues and likely mitigations throughout Project phases.
5. Support an uplift in the regional economy and level of local prosperity via a regional economic assessment.
6. Demonstrate sharing of Project benefits.
7. Support and engage local capabilities, engaging several local suppliers, including Aboriginal owned suppliers.
8. Maintain a positive corporate image for FRV and the renewable energy industry with the development of social licence and management of social and reputational risks.
9. To inform the Social Impact Assessment (SIA) and potential benefit sharing schemes.

5.1.2. Engagement principles

The CSES adopts the following five foundational principles:

- Respectful
- Objective
- Specific
- Smart
- Functional and Fun.

5.1.3. Communication materials

The information gathered via phone, electronic direct mail (EDM), an online survey and a Community Information drop-in Session has provided an informed understanding of a range of community perspectives about the Project and general sentiment towards renewable energy projects within the region.

A register of stakeholders was developed by NGH, and this enabled phone calls, emails, posted letters to be distributed to everyone on that list.

5.2. Engagement carried out to date (scoping engagement)

NGH on behalf of FRV has already undertaken preliminary engagement activities to support this Scoping report. These are detailed in the Community Engagement Report (Appendix C) and summarised below and in Table 5-1:.

- A face-to-face meeting with FRV and Armidale Regional Council's Chief Officer Assets and Services and Armidale Regional Council's Chief Officer Sustainable Development.
- A face-to-face discussion with Regional Development Australia's Executive Director and Senior Skilled Migration Officer, who attended the Community Information Session for an SIA interview.
- Six (6) posted letters to residents (R1 to R6) within 5km of the site introducing the Proposal, providing Community Information drop-in Session updates, and directing them to the project website to complete the online survey (Appendix C).
- Two (2) emailed letters to non-associated rental residents (R8 and R9) located on the development site introducing the Proposal, providing Community Information drop-in Session updates, and directing them to the project website to complete the online survey (Appendix C).
- Two (2) phone calls to non-associated rental residents (R8 and R9) located on the development site, to further discuss the Proposal.
- 13 items of email correspondence sent out to community members, government agencies and professional consultees introducing the Proposal, providing Community Information drop-in Session updates and directing them to the project website to complete the online survey.
  Recipients include: Armidale Regional Council, Member for Armidale, Member for New England, Newara Aboriginal Corporation, Armidale LALC, Armidale-New England Probus Club, Rotary Club of Armidale, CWA Armidale, TAFE NSW Armidale, University of New England, New England North West NSW Business Chamber, Hillgrove Progress Association and Community Power Agency (CPA).
- Two (2) attempted calls to the Armidale LALC with no response.
- One (1) attempted visit to the Armidale LALC.
- One (1) response to the online survey.
- A public notice in the Armidale Express.
- Five (5) public notices physically posted around multiple the Armidale community boards.

- Eight (8) attendees to a face-to-face Community Information drop-in Session at the Armidale Rydges on Tuesday 1st August 2023.
- An email sent to 15 stakeholders who indicated interest in being kept up to date with the Proposal.
- A fact sheet circulated with attendees of the face-to-face engagement session, members of Armidale Regional Council, and wider community members.
- A FAQ document circulated with attendees of the face-to-face engagement session, members of the Armidale Regional Council, and wider community members.

Table 5-1 Stakeholder and community engagement feedback summary to date

Stakeholder	Meeting type	Concerns/comments	Mitigations / Actions by NGH
Armidale Regional Council **Chief Officer Sustainable Development** **Chief Officer Assets and Services**	Face-to-face	• Presented a positive perspective and demonstrated that they could work constructively with the Project if it proceeds through to construction. • Showed general support for the project. • Indicated their main consideration and concern would be in relation to Community Benefit Schemes. • Discussed other solar, wind and BESS developments located near the proposed site and their current community benefit scheme. • Raised concerns around housing and accommodation shortages in Armidale and the Armidale LGA. • Indicated they would like to see community benefits beyond road upgrades addressed in the planning application. • Indicated expectations for CBS to be formalised in coming months. • Interest in long-term benefits for the local community.	• Workforce accommodation strategy. • Workforce procurement strategy. • Community benefit options. • Ongoing engagement.
Regional Development Australia **Executive Director** **Senior Skilled Migration Officer**	Face-to-face engagement and communications discussion at Community Information Session	• Had questions regarding the proposed development and FRV. • Discussed other renewable developments and mines located near the proposed site and their current community benefit scheme. • Discussed tomato farm near the proposed site and their accommodation strategy. Also mentioned bus service to transport workers from Armidale to the site daily. • Raised concerns around housing and accommodation shortages in the Armidale LGA. • Raised concerns surrounding skilled workforce procurement. Indicated a preference for workforce to be localised where possible, or for skilled migrants to be ideally resettle in the area. • Indicated that workforces could move from project to project in the REZ, rather than come for the one development and then leave.	• Introduced the Project. • Provided informational materials. • Confirmed name change will occur. • Discussed workforce procurement strategy. • Discussed workforce accommodation strategy. • Discussed educational partnership opportunities.

Stakeholder	Meeting type	Concerns/comments	Mitigations / Actions by NGH
		• Indicated interest surrounding workforce industry transition for those working in mining in the area. Indicated that cross-industry workers could be ideal. • Discussed related educational courses in the area. Indicated that TAFE Tamworth is now the hub for renewable energy-related vocational training, and this has meant opportunities outside of tertiary education at UNE are limited in Armidale.	
Local resident living within 3-5km of the site	Community Information Session attendee	• Raised concerns surrounding the name of the development as it is the same name as their property. • Showed interest in learning more about the Project. • Showed support for the development and indicated strong support towards the clean energy transition overall.	• Introduced the Project. • Provided informational materials. • Confirmed name change will occur. • Ongoing engagement.
Resident/community member	Community Information Session attendee	• Dropped by to pick up flyers. • No concerns. • Wanted to know more about the project.	• Explained the NSW SSD process. • Provided informational materials. • Ongoing engagement.
Local resident living within 3-5km of the site	Community Information Session attendee	• No concerns • Wanted to know more about the project and asked questions about FRV. • Asked questions surrounding land selection for the BESS, as they were interested in facilitating renewables on their property. • Was supportive of the project and expressed happiness with the early discussions by FRV with the community.	• Explained the NSW SSD process. • Explained the Project and introduced FRV. • Supplied informational materials. • Ongoing engagement
Local resident living within 3-5km of the site	Community Information Session attendee	• No concerns and showed support for the Project. • Wanted to know more about the project and asked questions about FRV. • Asked questions surrounding land selection for the BESS and	• Explained the NSW SSD process. • Explained the Project and introduced FRV.

Stakeholder	Meeting type	Concerns/comments	Mitigations / Actions by NGH
		indicated positive interest toward the locality hosting renewable projects.	• Supplied informational materials. • Provided Project details. • Ongoing engagement.
Local resident living within 3-5km of the site. **Hillgrove Progress Association Secretary.**	Community Information Session attendee	• No concerns • Wanted to know more about the project and asked questions about FRV. • Asked questions surrounding land selection for the BESS. • Was supportive of the project.	• Explained the NSW SSD process. • Explained the Project and introduced FRV. • Supplied informational materials. • Provided Project details. • Ongoing engagement.

5.3. Engagement to be carried out during further planning stages

Stakeholder and community engagement during the preparation of the EIS will continue to build on the consultations to date.

FRV intends to engage with all 'concurrence agencies' who contribute to the SEARs at an early stage of the EIS process, to clarify their requirements and to ensure their concerns and issues are fully assessed.

Future consultation will adopt various approaches tailored to the requirements of each stakeholder, including but not limited to:

- Face-to-face meetings at key milestones/decision points
- Regular email and phone correspondence
- Additional community drop-in events advertised locally with due notice
- Updates to websites and other project materials
- In conjunction with statutory requirements, the project will advertise for Registered Aboriginal Parties (RAPs) to be involved in field survey and provide input into the Aboriginal heritage assessment, in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010a).

5.4. Agency consultation

5.4.1. Biodiversity Conservation Division

Initial email correspondence was sent to the Biodiversity Conservation Division (BCD) mid-November 2023, with a response via telephone received 21 November 2023.

The BCD have indicated due to the potential presence of a Threatened Ecological Community (TEC) and a Serious and Irreversible Impacts (SAII), they would be requesting a site inspection early in the EIS process to confirm Plant Community Types (PCT) and vegetation integrity scores.

6. Matters requiring further environmental assessment in the EIS

6.1. Methodology

A preliminary constraints assessment has been completed to assist in the identification of key environmental matters that would require further assessment within the EIS (internal document, not included in this submission). The preliminary constraints assessment informed the early planning phase and the indicative Development site presented in this Scoping Report. It included:

1. Investigation of the planning pathway and relevant legislation
2. Desktop review, including database searches relating to:
    - Threatened flora and fauna species and ecological communities
    - EPBC Act Protected Matters Reporting Tool
    - Aboriginal heritage
    - Land use / nearby receivers
    - Key fish habitat
    - Historic heritage
    - Soil and landscape capability mapping
    - Soil landscapes
3. Field inspection by NGH ecologists.

In addition, adhering to the *State Significant Development Guidelines – Preparing a Scoping Report 2022*, the scale of impact, nature of impact and sensitivity of the receiving environment for environmental issues was assessed in the scoping summary table in Appendix A. The scoping summary table includes the level of assessment required for each matter for the EIS phase, if a cumulative impact assessment (CIA) is required, the type of engagement required, relevant government plans, policies and guidelines and a reference to where the matter is addressed in the scoping report. While site investigations are preliminary at this stage, early results indicate the following key environmental features (Table 6-1) will be the subject of further detailed investigations as the project description is refined. This will ensure the Project is responsive to its site context.

Table 6-1 Matters requiring assessment

Matters requiring detailed assessment	
• Social and economic impacts	• Health and wellbeing
• Aboriginal heritage	• Terrestrial flora and fauna.
• Traffic	• Landscape and visual
• Hazardous materials	• Noise and vibration

Matters requiring standard assessment	
• Historic heritage	• Hydrology, water quantity
• EMF	• Land stability
• Bushfire	• Land use compatibility

6.2. Key environmental issues

6.2.1. Social and economic impacts

Approach

A Phase 1 Social Impact Assessment (SIA) was undertaken (Appendix F) which includes identification of the Project's social locality, a high-level overview of social conditions, and social impact scoping. It is intended to provide initial insight into the Project's social context and its likely social impacts. Further in-depth assessment will be undertaken as part of the SIA within the EIS phase.

Social impact scoping involved an initial identification and preliminary assessment of the likely social impacts using the Social Impact Scoping Worksheet (Appendix E). These potential impacts were informed by Project information, field work that included several semi-structured SIA interviews, a site visit and attendance at the community information session, broader project engagement findings to date.

This analysis has been undertaken in line with DPE's *Social Impact Assessment Guidelines* (DPE, 2021a) and accompanying *Technical Supplement* (DPIE, 2021a). As such, potential impacts and opportunities have been evaluated across the following eight categories: way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.

This has been a desk-top analysis, and it has been informed by project information provided by the Proponent, engagement findings to date, internet searches of available information relating to the Project and the broader socio-economic context, comparative studies, and data obtained from publicly available government websites, e.g., the Australian Bureau of Statistics (ABS).

In this assessment, direct, indirect, and cumulative impacts have been considered. Through this process, judgements have been made regarding the type and level of further assessment that will be undertaken within the SIA (as part of the EIS) for each potential impact and opportunity. Key factors that have informed this judgement include the extent of cumulative impact and the degree of material social impact.

Existing environment

The Project site is situated in the New England North West Region of NSW, on Nganyaywana (Anaiwan) country. The region is known for its diverse geology, productive agricultural regions, and natural environment that includes the World-Heritage listed Gondwana rainforests.

The Armidale Regional LGA is centrally located in the New England region, covering an area of 8,621km2. The LGA contains significant natural assets including the World Heritage-listed rainforest within the Oxley Wild Rivers and New England national parks, scenic waterfalls and gorges, and rich pastoral lands. The region is known for its agricultural industries, including livestock farming and cool climate vineyards (DPE, 2022).

Renewable energy generation is an emerging sector within the broader region, and the Project site is located within the New England Renewable Energy Zone (NE REZ). A large proportion of the Armidale Regional LGA lies within the REZ and there several utility-scale solar and wind farm projects in development or approved within the LGA and surrounding LGAs, including Uralla and Walcha.

Located approximately 15km east of Armidale, the small rural locality of Metz had a population of 177 people with a median age of 43 years, consisting of 44 private dwellings and 36 households. To the east of Metz, approximately 25km east of Armidale and 5km north of the Waterfall Way (Grafton Road), the historic goldmining village of Hillgrove and surrounding locality had a resident population of 174 people with a comparatively higher median age of 51 years, consisting of 76 private dwellings and 67 households. All private dwellings in both localities were separate houses. Key industries of employment in both localities included beef cattle and sheep farming.

The region is experiencing negative housing affordability and availability impacts attributed to the Covid-19 pandemic and exacerbated by an influx of workers on renewable energy and other major infrastructure projects, including the New England Solar Farm. The median weekly rent in Armidale (postcode 2350) ss slightly higher than the median for the LGA. This is due in part to low numbers of dwellings available for rent.

Issues for consideration

Key potential benefits of the Project include local employment, training, and skills development as well as local procurement and associated economic benefits.

Construction workforce impacts with the potential to exacerbate existing pressures on housing and short-term accommodation emerged as a concern during SIA consultation with key stakeholders.

Key concerns from the Preliminary research include:

- Likely pressure on availability and affordability for both short term and rental accommodation,
- Increased traffic and negative impacts on road condition, commute time and safety
- Health and wellbeing concerns and risk of BESS/increased bushfire risk
- Project demand for labour, goods and services
- Sustainability impacts on decommissioning.

Key Potential benefits form the Project include local employment, training and skills development as well as local procurement and associated economic benefits. Other Key benefits include:

- Benefits resulting from electricity grid stabilisation
- Community benefits scheme.

These key social impacts and benefits that will be assessed in more detail within the SIA in the EIS phase.

The SIA will also examine any other social issues perceived by the community to be of concern that are raised during further project engagement. Project community and stakeholder engagement to be undertaken during the EIS phase is outlined in Section 5.

6.2.2. Biodiversity

Approach

A Biodiversity Technical Report (Appendix D) was undertaken to identify potential biodiversity values which may be impacted by the Project. This included the following data base searches:

- The NSW BioNet Database for records of threatened species within 10km of the Subject Land
- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for nationally threatened species and ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- The Bureau of Meteorology Groundwater Dependent Ecosystems Atlas
- Review of Areas of Outstanding Biodiversity Value declared under the Biodiversity Conservation Act 2016 (BC Act)
- Biodiversity Values mapping.

A site visit of the Subject Land was conducted by an Ecologist and a Senior Ecologist (BAM Accredited) over the span of four (4) survey days between 17th April 2023 and 20th April 2023.

Existing environment

The site contains small areas of exotic (non-native) vegetation but is dominated by native vegetation. Two native Plant Community Types (PCT) were confirmed present during the site visit. Both are grassy woodlands.

- PCT 3352 Armidale Quartz Stringybark Forest is not considered conservation significant. It is generally present in the proposed road access and contains the following indicator species:
    - *Eucalyptus youmanii*
    - *Eucalyptus andrewsii*
    - *Hibbertia linearis*
    - *Poa sieberiana*
    - *Dichelachne micrantha*
- PCT 3359 New England Hills Stringybark-Box Woodland is present in the proposed BESS area and road access and is associated with White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Threatened Ecological Community (TEC). PCT 3359 contains the following indicator species:
    - *Eucalyptus mollucana*
    - *Eucalyptus blakelyi*
    - *Eucalyptus caliginosa*
    - *Eucalyptus melliodora*

Figure 6-1 Example of PCT 3352 within the development site

Figure 6-2 Example of PCT 3359 within the development site

Figure 6-3 Additional example of PCT 3359 within the development site

Threatened Ecological Communities (TECs)

PCT 3359 is associated with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC. This TEC is listed as;

- 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 (listed as Critically Endangered Ecological Community (CEEC) under the BC Act), and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Forest (listed as Critically Endangered under the Commonwealth EPBC Act)

The extent of each TEC will be defined more accurately in follow up surveys based on condition and local extent. It is currently separated into three zones based on vegetation structure and diversity:

- VZ1 – Scattered Trees: Includes extant native vegetation surrounded by grazed agricultural land.
- VZ3 – Moderate: Includes previously disturbed vegetation with some tree canopy present.
- VZ2 – Poor: Includes derived native grassland or where upper/midstorey are largely absent.

Exotic vegetation extent

Exotic vegetation is prevalent along Bayley Park Road, in particular within proximity to Limerick Creek. These areas consisted of less than 5% native vegetation cover. Many exotic species were found within native vegetated areas as well.

Eight (8) High Threat Exotic species (as defined under the NSW Biodiversity Assessment Method 2020) were found on site:

- *Acetosella vulgaris* (Sheep Sorrel)
- *Axonopus fissifolius* (Narrow-leafed Carpet Grass)
- *Bidens pilosa* (Cobbler's Pegs)
- *Cenchrus clandestinus* (Kikuyu Grass)
- *Cyperus eragrostis* (Umbrella Sedge)
- *Eragrostis curvula* (African Lovegrass)
- *Paspalum dilatatum* (Paspalum)
- *Pinus radiata* (Radiata Pine)

Threatened Species

While there is potential for several threatened species to occur within the Subject Land (refer to Appendix B and Appendix D), four have so far been confirmed present. These include three birds and one tree:

- Dusky Woodswallow *(Artamus cyanopterus)*
- Scarlet Robin *(Petroica boodang)*
- Black Falcon *(Falco subniger)*
- Narrow-leaved Black Peppermint *(Eucalyptus nicholii)*

Fifteen mature *Eucalyptus nicholii* individuals were detected within the road reserve along Bayley Park Road. This species is listed at the NSW and Commonwealth level.

Habitat values

Habitat features within, and adjacent to, the Subject Land which may be important for threatened and other native species include:

- Several koala feed tree species within and around the Subject Land including:
    - Blakely's Red Gum *(Eucalyptus blakelyi)*
    - Snow Gum *(Eucalyptus pauciflora)*
- A low number of hollow-bearing trees containing small to medium size hollows
- Fallen timber, logs, solid and hollow providing habitat for invertebrates and terrestrial fauna.
- Waterways:
    - Seven first order streams; these are the smallest category of stream and would only carry water in periods of heavy rainfall.
    - A third order stream crosses Bayley Park Road (Limerick Creek) from the north-west to the south-east. During field surveys this area did contain pools of water and a steady surface water flow.
    - KFH has been identified and mapped in the adjacent Limerick Creek.

LEGEND

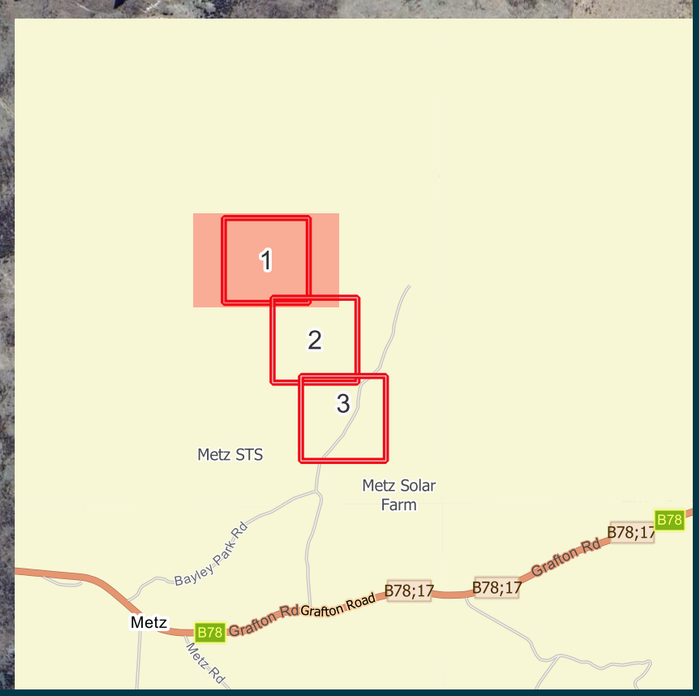
Subject Land

Plant Community Types

- Exotic Vegetation
- PCT 3359/Zone 1 - Scattered Trees
- PCT 3359/Zone 2 - Poor

0 200 400 m

Datum: GDA94 / MGA zone 56



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Armidale East BESS

Figure 6-4 Plant Community Types (1 of 3)

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Armidale East BESS

Figure 6-5 Plant Community Types (2 of 3)

Bayley Park Road

LEGEND

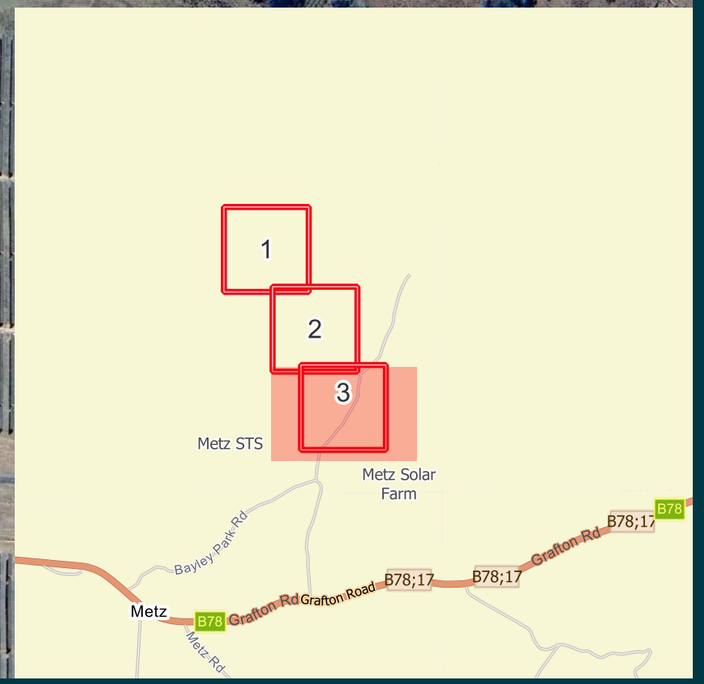
Subject Land

Plant Community Types

- Exotic Vegetation
- PCT 3359/Zone 2 - Poor
- PCT 3359/Zone 3 - Moderate
- PCT 3352/Zone 4 - High
- PCT 3352/Zone 5 - Poor

0 200 400 m

Datum: GDA94 / MGA zone 56



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Armidale East BESS

Figure 6-6 Plant Community Types (3 of 3)

Avoid and minimise

Initial efforts for avoidance and minimisation of impacts have been implemented where possible. The Subject Land predominantly lies within pasture-improved areas that have been grazed for decades. The moderate native cover within the "Poor" condition vegetation zones is due to the presence of Juncus sp. that have established due to the consistent disturbance and low palatability to livestock. The footprint area required for the BESS has been placed in an area that allows an easy connection to the immediately adjacent transmission line along with the Metz Solar Farm to the immediate west.

It has been established that avoiding all the *Eucalyptus nicholii* within the road corridor along Bayley Park Road would be difficult due to the narrow existing width of the road and the need to widen the road to allow the haulage of large infrastructure for this proposal. It has been recommended that this species be offset accordingly with the BOS as well as local plantings to retain local genetics.

The proposed access road from Bayley Park Road to the BESS site also allows full avoidance of vegetation within Limerick Creek to the South. The vegetation within the Creek has been potentially flagged as EEC under the BC Act, being Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions. The Creek has also been mapped as KFH.

Issues for consideration

Under the NSW Biodiversity Offsets Scheme (BOS) the Project requires assessment using the Biodiversity Assessment Methodology (BAM) 2020. It must demonstrate how the Project has first avoided biodiversity impacts where possible and only then developed mitigation and offsets for impacts that cannot be avoided.

A Biodiversity Development Assessment Report (BDAR) is required for the project, pursuant to the BC Act and BAM. Initial consultation with the Biodiversity Conservation Division (BCD) (21/11/2023) has commenced. However; further consultation regarding biodiversity impacts will include early meetings and a site inspection with DPE and the BCD together to discuss options and approvability.

As the Project progresses to detailed assessment, it will seek to reduce credit obligations by avoidance of better-quality native vegetation and threatened species habitat. Offset obligations will be generated where biodiversity values cannot be avoided; poorer condition areas may not generate offsets and should be considered the least constrained and most appropriate for development, from a biodiversity perspective.

The vegetation mapping shows the Project impacts small areas of high and good condition vegetation, most vegetation being poor / degraded. The surveys and assessment will be documented in the BDAR.

Biodiversity credits generated through removal of native vegetation and impacts to threatened species can be retired through various options under the BOS, including paying credits into the Biodiversity Conservation Fund (BCF), purchase and retirement of credits from the credit market or establishment of Biodiversity stewardship sites (or a combination of these options).

Environment Protection & Biodiversity Conservation (EPBC) Act 1999 Referral

All relevant EPBC listed entities would be included in the BDAR assessment.

At this stage it is considered unlikely an EPBC Referral will be required due to the small area of impact and potential to avoid most if not all listed threatened species so far detected.

6.2.3. Aboriginal Heritage

Approach

In NSW, Aboriginal heritage is principally protected by two legislative acts:

- *National Parks and Wildlife Act* 1974 (NSW) (NPW Act) and its subordinate legislation, the National Parks and Wildlife Regulation 2019; and
- *Environmental Planning and Assessment Act* 1979 (NSW) (EP&A Act)

All Aboriginal objects have blanket protection under the NPW Act.

An extensive search of the AHIMS database was conducted centred over the Project Site on 16 June 2023. Parameters and results were as follows:

Register Searches

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. The State Heritage Inventory database includes declared Aboriginal Places in NSW. A search of the SHI data base was conducted on 18 September 2023 which indicated that there are no known Aboriginal Places within or nearby the Project Site.

The Aboriginal Heritage Information Management System (AHIMS) is a database of previously recorded Aboriginal heritage sites in NSW. A search provides basic information about any Aboriginal sites previously identified within a search area. However, a register search is not conclusive evidence of the presence or absence of Aboriginal heritage sites, as it requires that an area has been inspected and details of any sites located have been provided to add to the register. As a starting point, the search will indicate whether any sites are known within or adjacent to the Subject Land.

- **Client Service ID:** 791912
- **MGA Zone:** 56
- **Latitude from** -30.5427 to -30.4687
- **Longitude** from 151.7979 to 151.9217

The results of the AHIMS search are summarised in the table below (Table 6-2) and shown in

Figure 6-7. A range of site types have been previously recorded within the search area including artefacts, stone arrangements, and modified tree (carved or scarred). Stone artefact sites with one or more artefacts were the most common site type followed by modified trees and stone arrangements.

There are a number of recorded sites within 1km of the Project Site, with one previously recorded artefact site within the Project Site. This artefact site was salvaged as part of a community collection for the adjacent Metz Solar Farm and was subsequently updated to destroyed.

Table 6-2 Extensive AHIMS search results by site type

Site Type	Number	%
Artefact (1 or more)	55	83.3
Modified Tree (carved or scarred)	8	12.1

Site Type	Number	%
Stone arrangement	2	3.0
Artefact, Modified Tree	1	1.5

Landscape features of the Project site were also considered. No site survey or consultation has yet been completed.

In addition to the above searches there is a range of landscape features within NSW which are generally accepted to have higher potential to contain Aboriginal objects. It is therefore necessary to consider whether there are landscape features of undisturbed land that may contain Aboriginal objects within the Project Site. Landforms with increased Aboriginal heritage potential include:

- Areas within 200m of water
- Areas located within a sand dune system
- Areas located on a ridge top, ridge line or headland
- Areas located within 200m below or above a cliff face or
- Areas within 20m of a cave, rock shelter or cave mouth.

Existing environment

The Project Site is located approximately 18 km east of Armidale NSW. The Project Site has been largely cleared of vegetation and been used for grazing. Soil landscape mapping does not encompass the entire Project Site, however, the southern portion below the proposed development footprint is mapped as a combination of Middle Earth, Argyle and Limerick Creek soil landscapes:

- The Middle Earth landscape is described as undulating plains, rises and foot slopes on Sandon Beds. Extensively cleared open woodland to partially cleared (SEED database, 2023).
- Argyle landscapes are described as rolling low hills and occasional hills on greywacke/chert and related sediments. Local relief 30–80 m, slopes mostly 10–30%, elevation 910–1 170 m. Minor rock outcrop (<10%). Partially cleared *Eucalyptus caliginosa* (broad-leaved stringybark) open woodland (SEED database, 2023).
- The Limerick Creek landscape is described as narrow, flat, open drainage depressions. Slope gradients 0–1%. Local relief is 0–9 m. Elevation ranges from 950–1 120 m. with uncleared sedgeland to extensively to completely cleared open-woodland on swamp margins (SEED database, 2023).

There is one first order tributary of Limerick Creek that runs across the southwestern portion of the Project Site and other tributaries are crossed by the access tracks and roads. Some of the landforms with increased potential for Aboriginal heritage, such as areas within 200m of waterways are relevant to the Project Site. Furthermore, a number of sites with stone artefacts have been recorded in the wider Armidale region, including lands adjacent to and within the Project Site and any remnant old growth native trees may also have potential to have been modified.

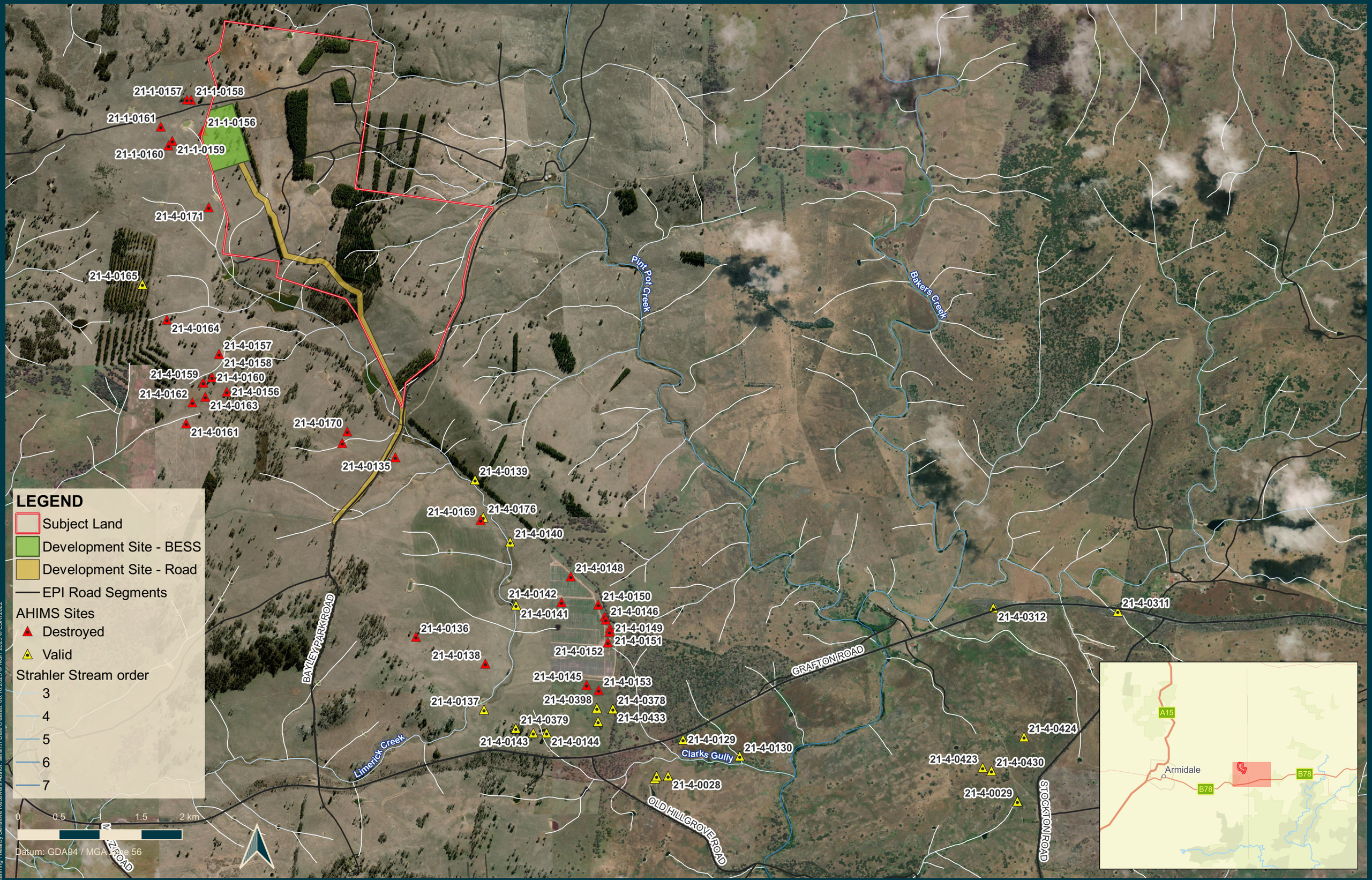
Issues for consideration

Given the presence of a landform with increased Aboriginal heritage potential within the Project site, and the presence of a previously recorded Aboriginal site (since salvaged and destroyed), a detailed further field

inspection of the proposed development area will need to be undertaken to accurately characterise the Aboriginal heritage potential within the Project Site.

It is our experience that an Aboriginal Cultural Heritage Assessment (ACHA), which includes Aboriginal community consultation with registered stakeholders would be required as part of the Secretary's Environmental and Approval Requirements (SEARs). The ACHA must be completed in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a) and the *Guide to Investigating Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) to appropriately assess any proposed impacts on Aboriginal objects within the Project Site.

An ACHA and its associated Aboriginal community consultation will be required to be completed as part of the EIS. An ACHA and associated Aboriginal community consultation is underway for this Project to form part of the EIS for the Project.



NGH

Armidale East BESS

Figure 6-7 AHIMS Database Search Results

6.2.4. Amenity impacts (visual and noise)

Approach

Visual amenity impacts are assessed in terms of the change in visual character they produce (contrast) and the likely sensitivity of the landscape and receivers to the change. Important factors that elevate the impacts include the potential to:

- Create a dominant or surrounding view
- Create an elevated view or one that is otherwise difficult to screen
- Impact on important views, such as the entrance to a town, recreational areas, residential views.
- Contribute to cumulative impacts.

A desktop consideration of the likely amenity impacts was undertaken.

Existing environment

The surrounding landscape is characterised by adjacent solar farm within a broader rural landscape with low population density of rural housing and farm structures. Transmission lines are located directly to the north of the project.

Aerial imagery and desktop analysis indicate that there are six non-associated residences located within 5 km of the development site. The closest non-associated residences are located approximately 4.4 km from the development site, with the closest rented residence (rented from the associated receiver) located approximately 1.9 km from the Development site (refer Figure 2-2).

Given the setting, the existing noise sources from activities on and adjacent to the development site would generally consist of:

- Noise from solar farm operations – inverters, trackers, switching station components.
- Livestock grazing and management.
- Spraying, cultivation, planting and harvesting of crops.
- Transporting rural supplies and commodities.
- Hay making and transport.
- Quarrying and transport of materials.
- Road traffic noise.

Issues for consideration

Given its regional setting and surrounding landscape character (including proximity to nearby Metz solar farm) the overall visual contrast is expected to be low. An assessment of the level of visual impact will be analysed in more detail as part of the EIS process and would include consideration of the effectiveness of mitigation options. This may include view shed or wire frame modelling.

Given the distance from non-associated receivers, construction and operational noise exceedances are considered unlikely but will be modelled. A construction and operational Noise and Vibration Assessment (NVA) will be undertaken as part of the EIS to assess potential noise impacts for affected residents and ensure overall compliance with relevant guidelines.

The NVA would include an assessment of road traffic noise as a qualitative assessment of offsite traffic movements inclusive of a review of existing and future traffic movements for the Project. The assessment would be undertaken in accordance with the Interim Construction Noise Guideline, NSW Noise Policy for Industry, Assessing Vibration: A Technical Guideline and NSW ‘Road Noise Policy’.

Although, no amenity concerns have been raised to date, additional consultation will be undertaken to understand the local values of the area including views and characteristics valued by the community. Additional engagement with specific affected residences identified as likely to have a view of BESS infrastructure would be undertaken to identify the nature and significance of impacts and the need for mitigation measures.

Figure 6-8 Proximity and view of the Metz Solar Farm to the development site

6.2.5. Hazards

Approach

An environmental hazard is a thing or situation which can threaten the environment or human health. Hazards may be natural or artificial or result from the interaction between human activity and the natural environment. Hazards relevant to the Project include risks associated with hazardous materials, electromagnetic fields, and fire.
The key hazards for the Project have been identified as:

- Hazardous material
- Electromagnetic fields
- Bushfire

Issues for consideration

A BESS which can deliver or supply more than 30MW of electrical power is classed as being potentially hazardous under the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). A Preliminary Hazard Analysis (PHA) would be prepared by a specialist as part of the EIS in accordance with *Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 (Risk Criteria for Land Use Safety Planning)* (DoP 2011), *HIPAP Paper No. 6 'Hazard Analysis'* (DoP 2011) and *Multi-level Risk Assessment* (DoP 2011).

The PHA would detail the potential hazards and controls to mitigate hazards to ensure the fire prevention and protection systems are adequate to protect the BESS. The mitigation and control measures afforded by the proponent and the proposed construction contractor will reduce the likelihood of these events to manageable risk levels and contain the effects on-site.

Electric and magnetic fields are produced within the vicinity of existing powerlines and the nearby Metz solar farm (refer to Figure 1-1). Electric and magnetic fields would be assessed as part of the EIS. Standard design provisions are expected to ensure impacts comply with relevant guidelines together with communication of potential issues as required.

The BESS is proposed to connect directly to overhead 330kv transmission line and may produce additional Electric and magnetic fields within the vicinity.

The BESS Site is not mapped as Bush Fire Prone Land (BFPL; NSW Rural Fire Service (RFS)) (refer to

Figure 6-9). The nearest mapped BFPL is located on the internal access track to be constructed:

- Land mapped as Category 0 Vegetation is considered to be fringing vegetation, with potential for bushfire risk. It is made up of a 100m buffer for all Category 1 Vegetation.
- Land mapped as Category 1 Vegetation is considered to be the highest risk for bush fire. This category has the highest combustibility and likelihood of forming fully developed fires.
- Land mapped as Category 2 Vegetation is considered to be a lower bushfire risk.

The EIS assessment will consider requirements of the NSW RFS Planning for Bush Fire Protection 2019 (PBP) guide (NSW RFS, 2019) and the results of the PHA, in terms of fire management. The emergency protocols set out in the EIS would reflect advice from relevant agencies.

LEGEND
Subject Land
Development Site - BESS
Development Site - Road
EPI Road Segments
Bushfire Prone Land
Category 0
Category 1
Category 2
0 0.5 1 1.5 2 km
Datum: GDA94 / MGA zone 56
BAYLEY PARK ROAD
Bayley Park Road
A15
Armidale
B78
B78
Ref: 22-014_Pint_Pot_BESS_Planning \ Nearby Sensitive Receivers Author: sarah.h Date created: 06.10.2023 © NGH 2023 © ESRI 2022
NGH
Armidale East BESS
Figure 6-9 Bushfire Prone Land

6.3. Other environmental issues

6.3.1. Historic Heritage

Approach

This chapter is intended to provide high level summary of the Project's possible impacts on Historic Heritage objects and identify appropriate assessment pathways based on legislation requirements when assessing Historic Heritage in NSW. As part of this approach appropriate database searches were undertaken for this desktop preliminary assessment.

Existing environment

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 Project 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.

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

- The nearest State Heritage Register listed items are in Armidale approximately 17km west of the Project Area; and
- The nearest LEP listed items are sharing sheds on Hillgrove station approximately 6km southeast of the Project 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 Project 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 Site.

There are no recorded non-Aboriginal heritage sites within or in close proximity to the Project Site.

Issues for consideration

While it is unlikely that there would be any direct impacts on known historic heritage features, further assessment for historic archaeological material or other unrecorded places may be required as part of the EIS to confirm non-Aboriginal historic heritage values are not impacted. Given the lack of records of non-Aboriginal Heritage sites and the surrounding landscape character (including proximity to nearby METZ solar farm) the overall impact from predicted works is expected to be low but will be investigated more fully in the EIS in consultation with stakeholders.

6.3.2. Access and Traffic

Approach

Key access and transport requirements were considered at a high level in consideration of the existing network.

Existing environment

The main haulage route to the Project would be via Waterfall Way (Grafton Road) turning onto Bayley Park Road from Armidale.

Waterfall Way is an approved road for NSW Oversize Over-mass Load Carrying Vehicles Network Approved Roads.

Bayley Park Road is a combination of sealed (first 800m) and unsealed road approximately 2.3 km long, and directly connects with the Waterfall Way.

Issues for consideration

The proposed BESS would result in increased traffic on the road network during the construction phase. Activities that would increase the number of vehicles on the road include:

- Construction of the hardstands for the BESS container units
- Delivery of the key infrastructure components, including BESS containers, HVAC units, switch gear rooms, control room, cabling, fencing, sand and fill
- Delivery of site personnel.

Over mass and over size vehicles (36m A-double) would be required for transportation of BESS infrastructure (such as the transformer) during construction, in addition to heavy and light vehicles.

During operation, low numbers of light vehicle movements are anticipated to deliver operational staff and maintenance crews to site. The occasional heavy vehicle may be utilised to deliver replacement infrastructure components to the site.

As detailed above, the intersection with Waterfall Way (Grafton Road) and parts of Bayley Park Road have had significant upgrades in the past to facilitate the construction of the Metz Solar Farm. As such, the access currently meets the requirements for haulage and two-way movements of 26m B-doubles. Upgrades to the intersection between Bayley Park Road and Waterfall Way (Grafton Road) and the existing access road may however be required as part of the Project, pending outcomes of the TIA and consultation with the relevant authorities.

Intersection upgrades, surface upgrades/sealing and other improvements to existing roads may be required to safely access the site. Investigation of impacts to road assets and road safety would require detailed assessment.

A Traffic Impact Assessment (TIA) will be undertaken by a specialist in consultation with the road's authorities as part of the EIS to determine cumulative impacts with other large-scale developments in the region, and if intersection or road upgrades are necessary to meet the best practice guidelines for road and intersection design which are:

- Austroads Guide to Traffic Management Part 12 and TfNSW supplement
- Austroads Guide to Road Design and TfNSW supplements
- TfNSW Guide to Traffic Generating Developments
- Unsealed Roads Manual: Guidelines to Good Practice (2009).

NGH

Armidale East BESS

Figure 6-10 Haulage Route

6.3.3. Land use compatibility, including soils, agriculture and flooding

Approach

Desktop assessment was used to identify key land use compatibility issues for the Project, including potential conflicts with agriculture and adjacent solar operations.

Existing environment

The Development site is comprised of Kurosols. Kurosols are soils with a strong increase in clay content between topsoil and subsoil, and with strongly acidic subsoils. This inherent acidity can also result in other chemical issues, such as high magnesium, sodium and aluminium concentrations, that can inhibit plant growth. Kurosols generally have very low agricultural potential with high acidity (pH less than 5.5) and low chemical fertility. Kurosols commonly have low water-holding capacity and are often sodic.

The Soil Landscapes mapping does not cover the Subject Land itself (refer

Figure 6-11). However, surrounding soil landscapes are Middle Earth which carries a moderate to high erosion risk. The access roads traverse sections of the Cubbah Cubbah, Middle Earth Limerick Creek, Devils Elbow and Argyle, all of which carry a moderate to high erosion risk (both sheet and gully).

No acid sulphate soils are in the vicinity of the region.

The soils are mapped as Class 5 within the OEH Land and Soil Capability Scheme (LSC) (NSW OEH, 2012) mapping (refer

Figure 6-12). This category is described as moderate to 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".* (NSW OEH, 2012)

A desktop search of contaminated land sites conducted on 27 June 2023 in the ARC LGA identified 6 sites and 22 notices. None of which are located on or within close proximity to the Subject Land. A search of the contaminated lands list (current as of 5 June 2023) identified 19 recorded sites, none of which are located within or in close proximity to the Subject Land.

The site is not mapped as or identified as flood prone land. An existing creek crossing on Bayley Park Road over Limerick Creek is mapped as KFH (Figure 6-13).

There is an existing Mineral Exploration Licence, EL9053, over the Development site.

Issues for consideration

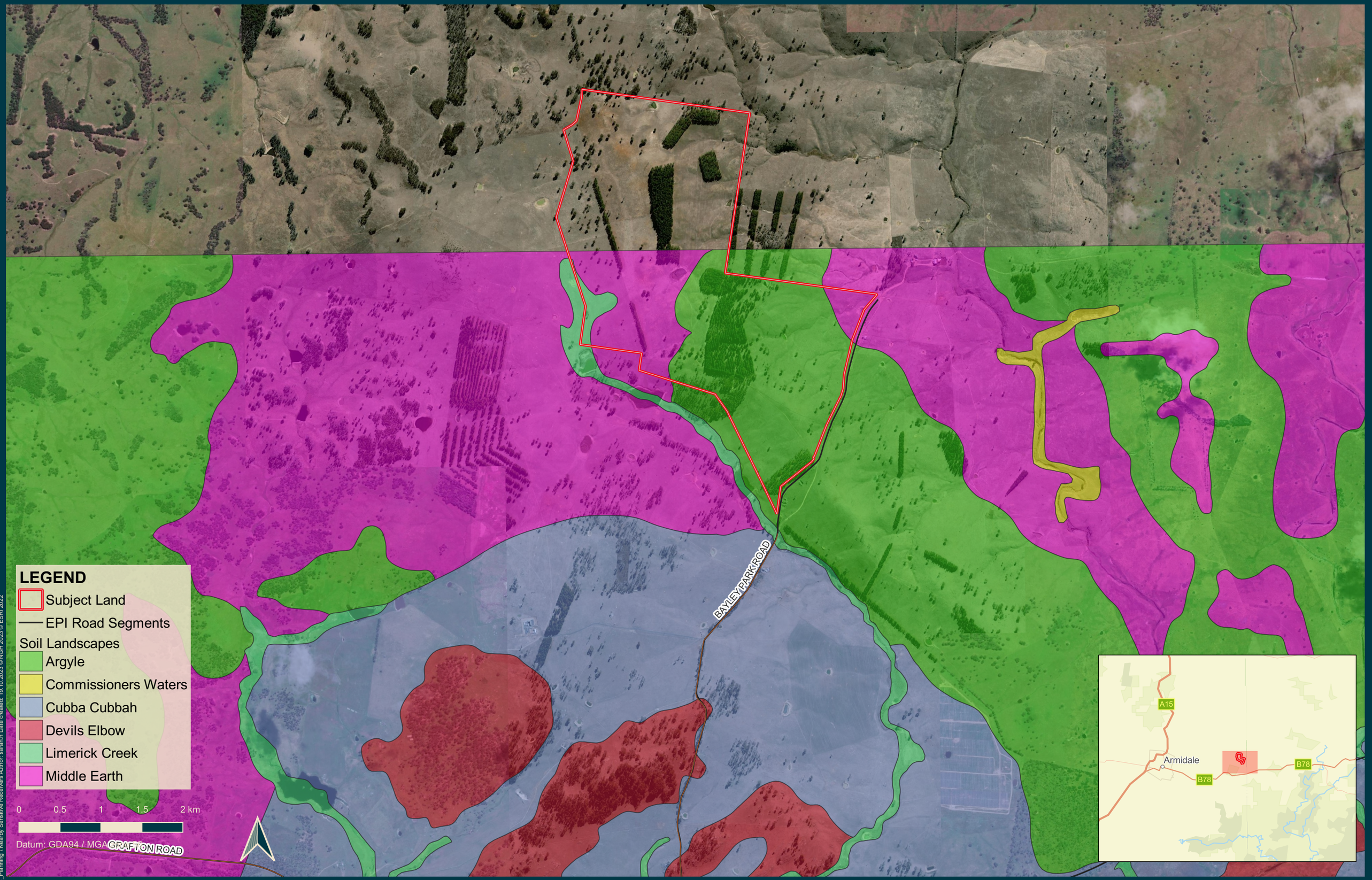
Soils surveys will be undertaken to inform best practice soil and erosion impact mitigation and rehabilitation. The results would be included within the EIS. This will include commitments to ensure the site is rehabilitated for a suitable alternative land use at the end of the project's life.

Agricultural and industrial properties can contain buried contaminants and farming chemicals may have been applied on the land in the past. More detailed soil investigations would also address this issue. As the Development site is small, the loss of agricultural land is unlikely to be significant.

Hydrological assessment may be required to ensure that best practice design and mitigation measures will be used to manage impacts on waterways and local hydrology. Waterway buffers will be included to protect waterways where required and adherence to Guidelines for Controlled Activities on Waterfront Land (DPI, 2012) would guide the management and rehabilitation of impacts which cannot be avoided.

Any road crossing of existing watercourses associated with the proposed development will be of the type defined in Table 2 of the Guidelines for Riparian Corridors on Waterfront Land (DPI, 2012), and the Fish Passage Requirements for Waterway Crossings guidelines (Fisheries, 2003).

Impacts on the Metz Solar Farm and mineral licences would be investigated in consultation with the licence holder.



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Armidale East BESS

Figure 6-11 Soil Landscapes

BAYLEY PARK ROAD

LEGEND

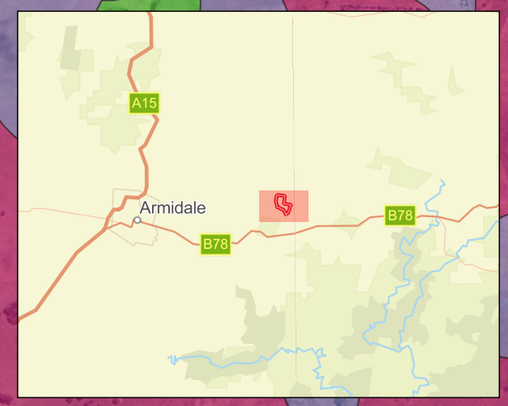
- Subject Land
- Development Site - BESS
- EPI Road Segments

Land and Soil Capability

- Class 4 - Moderate Capability Land
- Class 5 - Moderate-Low Capability Land
- Class 6 - Low Capability Land

0 0.5 1 1.5 2 km

Datum: GDA94 / MGA zone 56



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Armidale East BESS

Figure 6-12 Land and Soil Capability

LEGEND

- Subject Land
- Development Site - BESS
- Development Site - Road
- Water Bodies
- Key Fish Habitat
- EPI Road Segments

Strahler Stream Order

- 1
- 2
- 3
- 4
- 5
- 6
- 7

0 0.5 1 1.5 2 km

Datum: GDA94 / MGA zone 56

Limerick Creek

Pint Pot Creek

BAYLEY PARK ROAD

Armidale

A15

B78

B78

Ref: 22-014_Pint_Pot_BESS_Planning \ Nearby Sensitive Receivers Author: sarah.h Date created: 06.10.2023 © NGH 2023 © ESRI 2022

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Armidale East BESS

Figure 6-13 Hydrology

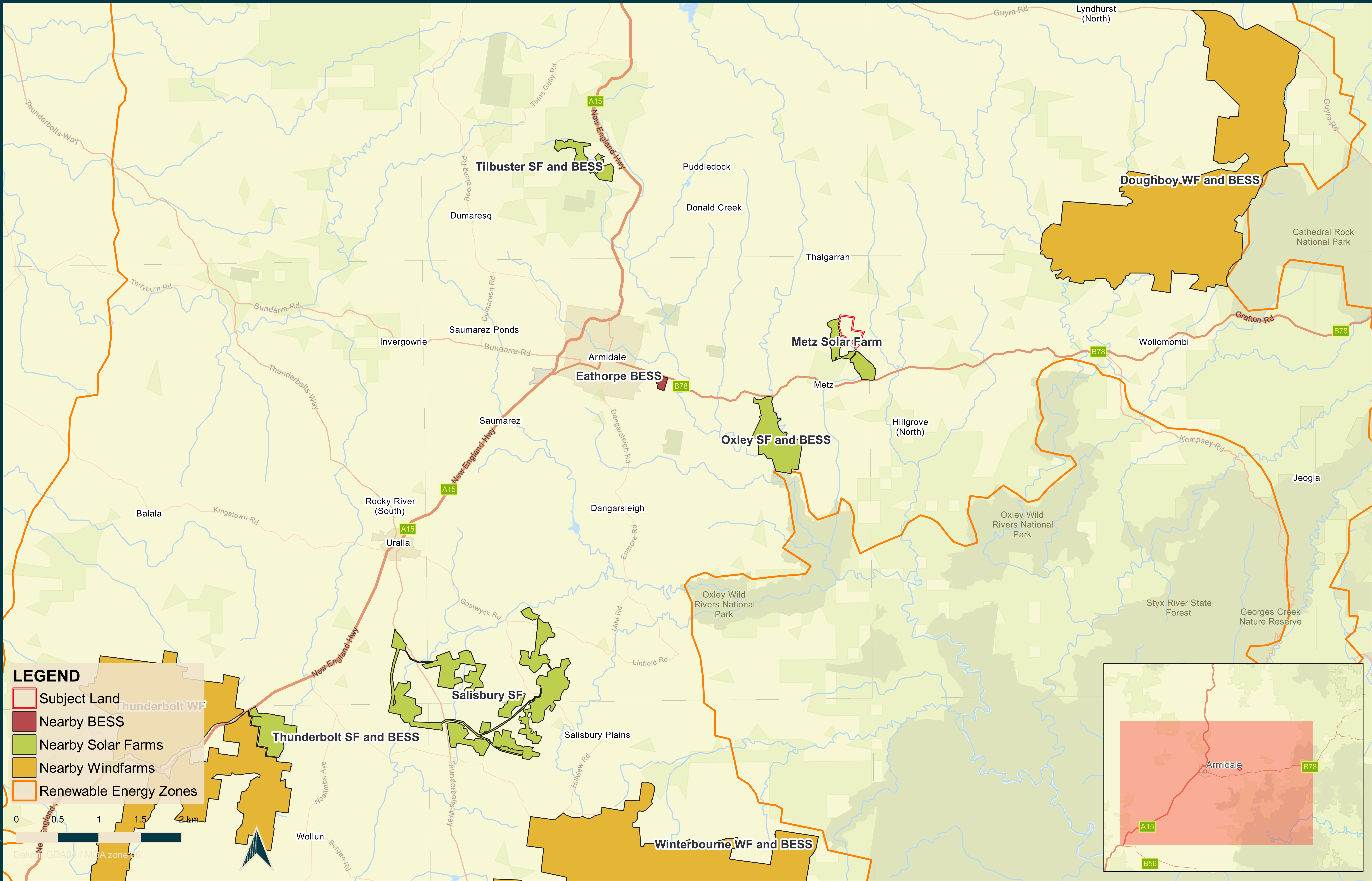
6.3.4. Cumulative impacts

Cumulative impacts are the additional impacts arising from further planned or foreseeable future developments, combined with the impacts of the project on the existing environment. NSW Government's *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE 2022) sets out the approach for addressing cumulative impacts.

Major Projects undergoing assessment or determined since

Table 6-1 Nearby Major Projects

Project	Status	Distance to Development Site (km)
Metz Solar Farm	Constructed	0
Eathorpe BESS	Prepare EIS	13.5
Armidale BESS	Prepare EIS	12
Oxley Solar Farm	Assessment	7.2
New England Solar Farm Mod 2	Assessment	51
Tilbuster Solar Farm	Determination	20.3
Doughboy Wind Farm	Prepare EIS	16
Rangoon Wind Farm	Prepare EIS	55
Thunderbolt Wind Farm	Response to Submissions	52
Oven Mountain Pumped Hydro	Prepare EIS	70
Sundown Solar Farm	Prepare EIS	84
Bendemeer Solar Farm	Prepare EIS	74.5
Salisbury Solar Farm	Prepare EIS	31.4



LEGEND
Subject Land
Nearby BESS
Nearby Solar Farms
Nearby Windfarms
Renewable Energy Zones
0
0.5
1
1.5
2 km
Tilbuster SF and BESS
Doughboy WF and BESS
Metz Solar Farm
Eathorpe BESS
Oxley SF and BESS
Salisbury SF
Thunderbolt SF and BESS
Thunderbolt WF
Winterbourne WF and BESS
Lyndhurst (North)
Puddledock
Donald Creek
Dumaresq
Thalgarrah
Cathedral Rock National Park
Saumarez Ponds
Invergowrie
Armidale
Wollomombi
Metz
Hillgrove (North)
Saumarez
Jeogla
Oxley Wild Rivers National Park
Rocky River (South)
Balala
Dangarsleigh
Uralla
Styx River State Forest
Georges Creek Nature Reserve
Salisbury Plains
Wollun
New England Hwy
Thunderbolts Way
Bundarra Rd
Torryburn Rd
Kingstown Rd
Gostwyck Rd
Dangarsleigh Rd
Dumaresq Rd
Booroolong Rd
Toms Gully Rd
Guyra Rd
Grafton Rd
Kempsey Rd
Enmore Rd
Mihi Rd
Linfield Rd
Hillview Rd
Noalimba Ave
Bergen Rd
A15
B78
B56

Armidale East BESS

Figure 6-14 Cumulative impacts

7. Conclusion

This Scoping Report has outlined and established the planning and general environmental context of the Project. The Project would be assessed under Part 4 of the *Environmental Planning and Assessment* Act (1979) and classed as State Significant Development under the State Environmental Planning Policy.

The Objectives of the proposed Armidale East BESS are as follows:

- Facilitate energy shifting or level out the imbalances between supply and demand, especially during peak demand periods.
- Improve voltage support and improved power quality.
- Provide embedded electricity generation, to supply the Australian grid closer to main consumption areas.
- Better integrate the contribution of renewables.
- Reduce energy wastage (curtailment).

The Project is located within the New England REZ. This area has been identified as having significant national and state-wide potential to produce renewable energy. It is well placed to support renewable energy projects.

The Development site is zoned RU1 (Primary Production) under the Armidale Regional LEP and located adjacent to accessible to Essential Energy Transmission lines. The location is considered highly appropriate for the BESS in this context. The location also avoids the need for third-party and easements and long transmission lines.

The project is expected to create 70 FTE jobs during construction and 5 FTE jobs during operation as well as provide benefits to the local environment and community through the provision of direct and indirect employment opportunities and community benefits sharing.

The Scoping Report has categorised the environmental impacts requiring further assessment in the EIS as:

Matters requiring detailed assessment	
• Social and economic impacts	• Health and wellbeing
• Aboriginal heritage	• Terrestrial flora and fauna.
• Traffic	• Landscape and visual
• Hazardous materials	• Noise and vibration

Matters requiring standard assessment	
• Historic heritage	• Hydrology, water quantity
• EMF	• Land stability
• Bushfire	• Land use compatibility

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Appendix A Scoping summary table

Group	Matter	Level of assessment	CIA[1]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Biodiversity	Terrestrial flora and fauna	Detailed	Yes	General	Section 6.2.2	• NSW Biosecurity Strategy 2013-2021 • Biodiversity Assessment Method (BAM) (DPIE, 2020b)
Amenity	Visual	Detailed	Yes	Specific	Section 6.2.4	• Refer to scoping report. • Transport for NSW'S *Guideline for landscape character and visual impact assessment* (TfNSW, 2020)
Amenity	Noise and vibration	Detailed	Yes	Specific	Section 6.2.4	• Interim Construction Noise Guideline (DECC, 2009) • NSW Noise Policy for Industry (EPA, 2017) • Assessing Vibration: A Technical Guideline (DEC, 2006) • NSW 'Road Noise Policy' (DECCW, 2011).

[1] Cumulative Impact Assessment: CIA

Group	Matter	Level of assessment	CIA[1]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Land	Land use compatibility	None	No	General	Section 6.3.3	• Agricultural Land Use Mapping Resources in NSW • LEP land zoning
Access	Traffic	Detailed	Yes	Specific	Section 6.3.2	• Austroads Guidelines for Road Design (Austroads, 2022a) • Austroads Guidelines for Traffic Management (Austroads, 2022b) • Guide to Traffic Management – Part 3 Traffic Studies and Analysis (Austroads, 2020)
Social	Health and wellbeing	Detailed	Yes	Specific	Section 6.2.1	• Social Impact Assessment Guidelines for State Significant Projects (DPE, 2021a) • Undertaking Engagement Guideline for State Significant Projects (DPE, 2021b)
Heritage	Aboriginal	Detailed	No	Specific	Section 6.2.3	• Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW 2011 • Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010a) • Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW 2010 (DECCW, 2010b).

Group	Matter	Level of assessment	CIA[1]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Heritage	Historic	Standard	No	General	Section 6.3	• Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (DCCEEW, 2013a) • Commonwealth EPBC 1.2 Significant Impact Guidelines – Actions on, or impacting upon, Commonwealth Land and Actions by Commonwealth Agencies (DCCEEW, 2013b)
Hazards and risks	Hazardous materials	Detailed	Yes	General	Section 6.2.5	• Hazardous Industry Planning Advisory Paper No. 6 'Hazard Analysis' (DoP, 2011) • Multi-level Risk Assessment Assessment Guideline (DP&I, 2011).
Hazards and risks	EMF	Standard	No	General	Section 6.2.5	• NSW Revised Large-scale solar energy guideline for State Significant Development (DPE, 2022c)
Hazards and risks	Bushfire	Standard	No	General	Section 6.2.5	• Planning for Bushfire Protection (NSW Rural Fire Service, 2019)
Water	Hydrology, water quantity	Standard	No	General	Section 6.3.3	• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) • NSW Water and River Flow Objectives (NSW Government, 2006) • Floodplain Risk Management Guidelines (Department of Environment and Climate Change,

Group	Matter	Level of assessment	CIA[1]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
						2016) • Floodplain Development Manual: The management of flood liable land (NSW Government, 2005) • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004)) • Managing Urban Stormwater: Soils and Construction Volume 2 (DECC, 2008) • Floodplain Development Manual (NSW Government, 2020).
Land	Stability	Standard	No	General	Section 6.3.3	• The Land and Soil Capability Scheme (OEH, 2012) • Soil and Land Survey Handbooks (CSIRO, 2009) • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) • Managing Urban Stormwater: Soils and Construction Volume 2 (DECC, 2008)

Appendix B Database searches

Appendix C Community Engagement Report

Appendix D Biodiversity Technical Report

Appendix E Social Impact Assessment Scoping

NGH Pty Ltd

NSW • ACT • QLD • VIC

ABN 31 124 444 622 ACN 124 444 622

E: ngh@nghconsulting.com.au

GOLD COAST

2B 34 Tallebudgera Creek Road
Burleigh Heads QLD 4220
(PO Box 424 West Burleigh QLD 4219)

T. (07) 3129 7633

SYDNEY REGION

Unit 17, 21 Mary Street
Surry Hills NSW 2010

T. (02) 8202 8333

BEGA

Suite 11, 89-91 Auckland Street
(PO Box 470)
Bega NSW 2550

T. (02) 6492 8333

MELBOURNE

Level 14, 10-16 Queen Street
Melbourne VIC 3000

T: (03) 7031 9123

TOWNSVILLE

Level 4, 67-75 Denham Street
Townsville QLD 4810

T. (07) 4410 9000

BRISBANE

T3, Level 7, 348 Edward Street
Brisbane QLD 4000

T. (07) 3129 7633

NEWCASTLE - HUNTER & NORTH COAST

Level 1, 31-33 Beaumont Street
Hamilton NSW 2303

T. (02) 4929 2301

WAGGA WAGGA - RIVERINA & WESTERN NSW

35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650

T. (02) 6971 9696

CANBERRA

Unit 8, 27 Yallourn Street
(PO Box 62)
Fyshwick ACT 2609

T. (02) 6280 5053

SUNSHINE COAST

Suite 101, Level 2/30 Main Drive
Birtinya QLD 4575

(07) 4410 9000

WODONGA

Unit 2, 83 Hume Street
(PO Box 506)
Wodonga VIC 3690

T. (02) 6067 2533