Scoping Report

Armidale BESS

29 July 2021

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Issued to			
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Abbreviations

°C	degrees celsius
Accent	Accent Environmental Pty Ltd
ACHAR	Aboriginal cultural heritage assessment report
ACHCR	Aboriginal cultural heritage consultation requirements
AHIMS	Aboriginal heritage information management system
BAM	biodiversity assessment methodology
BC Act	*Biodiversity Conservation Act 2016*
BDAR	biodiversity development assessment report
BESS	battery energy storage system
BOM	Bureau of Meteorology
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DECCW	Department of Environment, Climate Change and Water – now DPIE
DoEE	Commonwealth Department of the Environment and Energy – now DAWE
DoI	Department of Industry – now DPIE
DoP	Department of Planning – now DPIE
DPE	Department of Planning and Environment – now DPIE
DPIE	Department of Planning, Industry and Environment
DUAP	Department of Urban Affairs and Planning – now DPIE
EIS	environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
GDA	Geocentric Datum of Australia
GWh	gigawatt hour
IBRA	Interim Biogeographic Regionalisation of Australia
ICNG	Interim Construction Noise Guidelines
ICNIRP	International Commission on Non-Ionizing Radiation Protection
km	kilometres
KMA	koala management area

kph	kilometres per hour
kV	kilovolt
LEP	local environmental plan
LGA	local government area
LRET	large-scale RET
LVIA	landscape and visual impact assessment
m	metres
Maoneng	Maoneng Group
mm	millimetres
MNES	Matter of National Environmental Significance
MW	megawatt
MWh	megawatt hour
NENWRP	New England North West Regional Plan 2036
NPI	Noise Policy for Industry
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
O&M	operation and maintenance
OEH	Office of Environment and Heritage
OSOM	oversize and/or overmass
PCT	plant community type
PHA	preliminary hazard analysis
PV	photovoltaic
RET	renewable energy target
REZ	renewable energy zone
SEAR	Secretary's Environmental Assessment Requirements
SEPP	State environmental planning policy
SRES	small-scale renewable energy scheme
SSD	State significant development
TfNSW	Transport for New South Wales

1 Introduction

1.1 Project overview

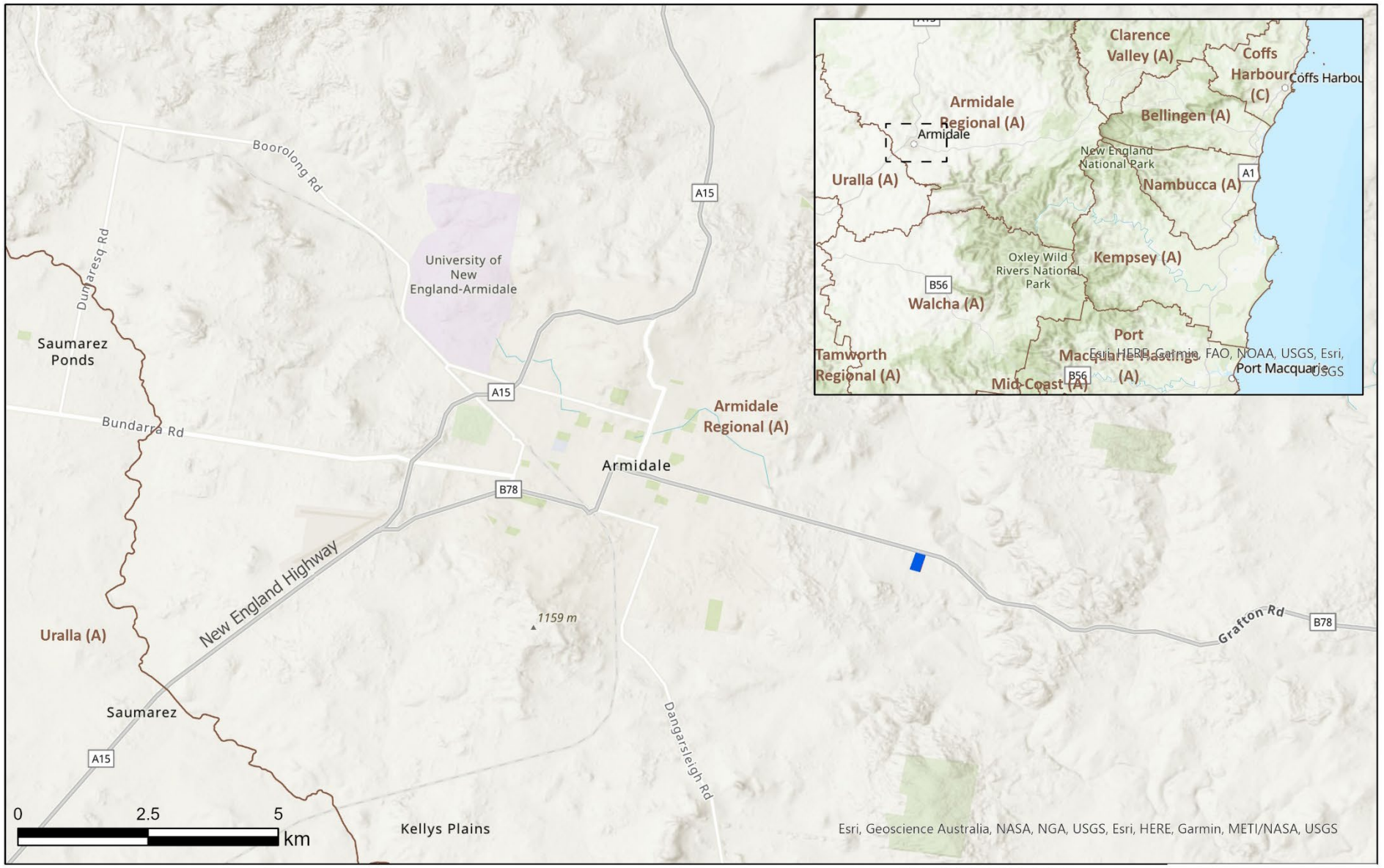
The proposed Armidale Battery Energy Storage System (BESS) is a 150 megawatt (MW)/300 megawatt hour (MWh) utility-scale battery storage project located southeast of the township of Armidale in New South Wales (NSW) (Figure 1.1) that is being developed to provide reliability and security to the network during peak periods.

The proposed project site has been selected due to its proximity to State-significant electrical infrastructure – including the adjacent Armidale Substation which has capacity to accept up to 150 MW of energy from the BESS – and its low environmental sensitivity and lack of locational constraints.

General information about the project is provided in Table 1.1. The proposed project area in relation to Armidale is shown in Figure 1.2.

Table 1.1 Project details

Name	Armidale BESS
Address	89 Eathorpe Road, Armidale, NSW
Applicant	Maoneng Group
Council	Armidale Regional Council
Titles	Lot 737 DP755808
Total indicative area	Secured land tenure: approximately 6.7 ha Area required for BESS: 2.4 ha
Land Use	Rural land used largely for grazing
Capacity	150 MW/300 MWh
Connection	Via a new underground or overhead transmission line from the on-site substation to the existing Armidale Substation, located immediately west of the site. Grid connection is expected to be via a TransGrid 132 kV line.



Project site lot boundary

LGA boundaries NSW

N

AE1184.1 Armidale BESS
Figure 1.1 Regional context
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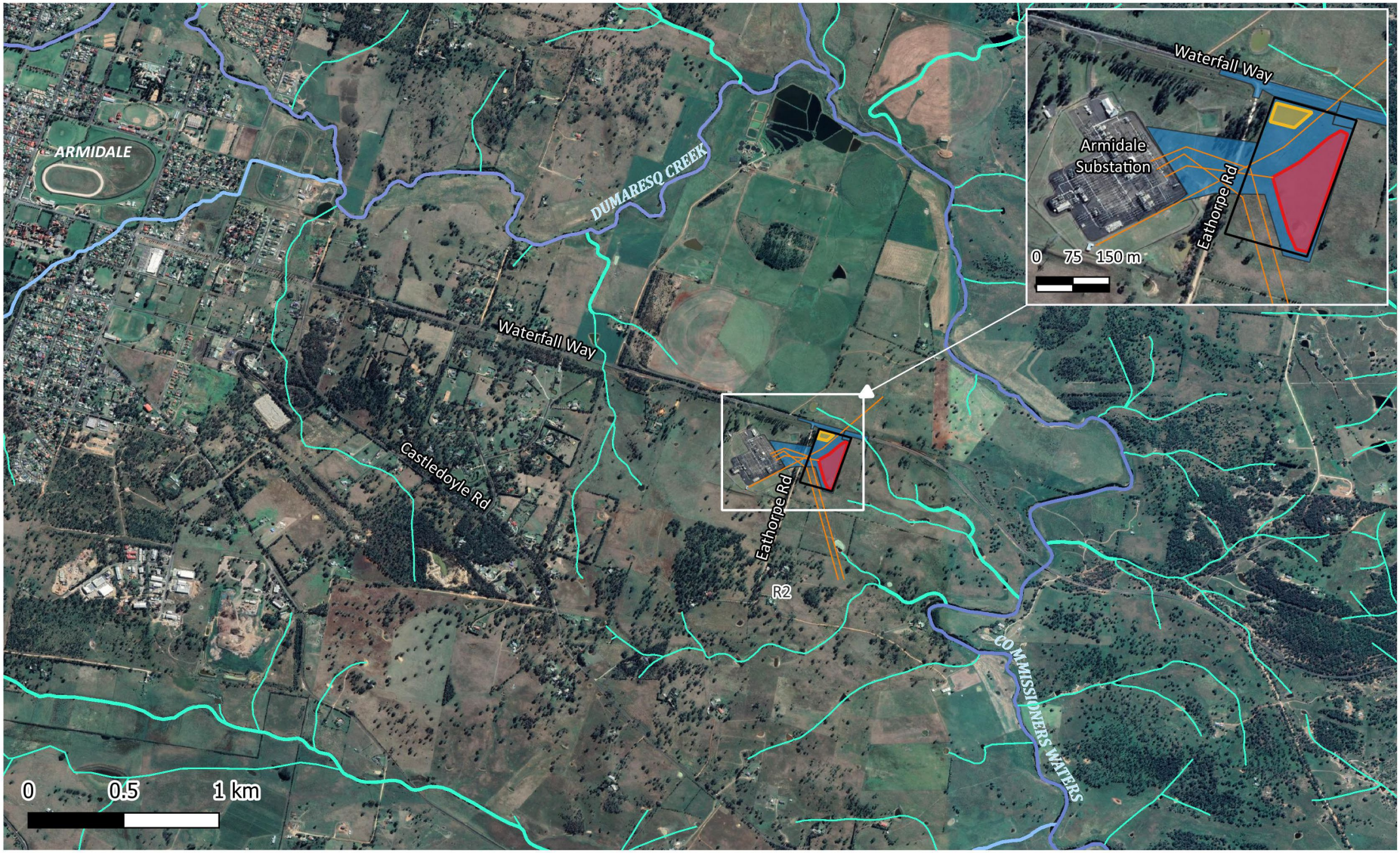

Project site lot boundary
Potential disturbance area
Proposed BESS footprint
Proposed substation
Existing transmission lines close to site
Main watercourses
Tributaries

Additional data and sources:
Hydrolines: NSW hydrography WMS
Basemap: Google Hybrid

AE1184.1 Armidale BESS
Figure 1.2 Site overview
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1.2 Site overview

The project site for the proposed Armidale BESS is located approximately 5 km east of Armidale and 141 km west of Coffs Harbour, within the Armidale Regional Local Government Area (LGA) (see Figure 1.1). The Armidale region is rural and consists predominantly of National Park, State Forest and nature reserves, with its primary income derived from the agriculture industry (.id undated).

The site is relatively flat and generally drains to the southeast towards Commissioners Waters (see Figure 1.2 and Figure 1.3). Due to a long history of agriculture and grazing, the site is highly modified. The land contains up to five large paddock trees, but no other significant mid-storey or over-storey vegetation.

The site is located entirely within the property of a single landholder, Lot737 DP755808. Six receivers (including the site landowner, R1) are located within 1 km of the project site (see Figure 1.3).

The project area is bounded to the west by a local road, Eathorpe Road, and to the north by a major road, Waterfall Way. The New England Highway, which passes through Armidale, is located approximately 8.4 km to the west (see Figure 1.1).

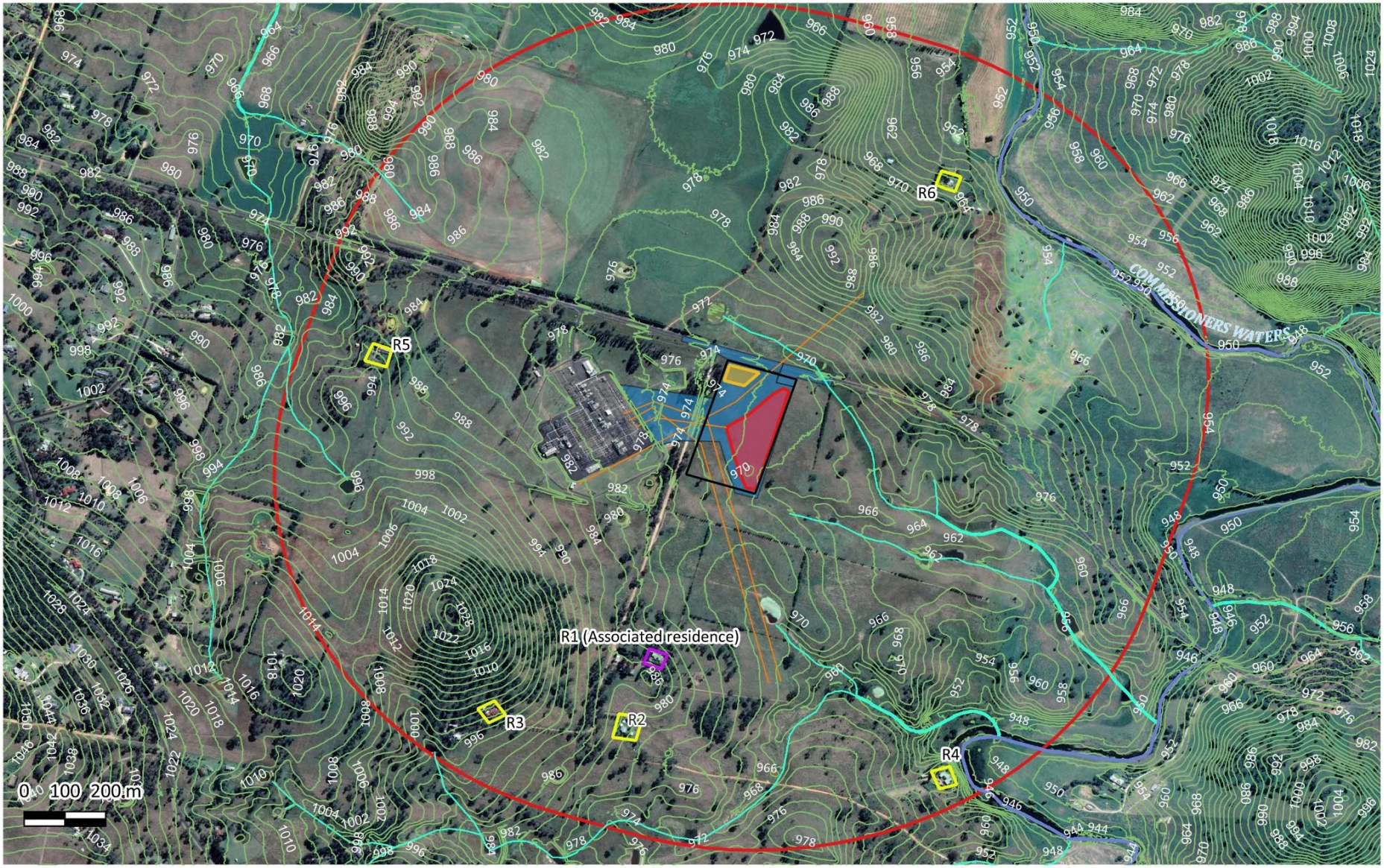
The Armidale Substation (operated by TransGrid) is located immediately west of the project site (see Figure 1.2). A TransGrid 132 kV transmission line connects into the existing substation and is expected to provide the BESS with its connection into the grid.

The Armidale Regional LGA is part of the NSW New England Tablelands Bioregion. This bioregion has a temperate to cool temperate climate, with warm summers and generally uniform summer rainfall (NSW National Parks and Wildlife Service 2003). The Bureau of Meteorology (BOM) (2021) climate records available from the nearest climate station, located 4.4 km from the site, (Station number 056037) consist of data recorded since 1997 as follows:

- Mean monthly maximum temperatures range from a high of 27.2°C (January) to a low of 13.2°C (July). Mean monthly minimum temperatures range from a high of 13°C (January) to a low of -0.4°C (July).
- Mean annual rainfall is 735.6 mm, with rainfall generally greatest over summer with a mean monthly maximum of 96.4 mm (February) and lowest in winter with a monthly minimum of 30.4 mm (May). The mean annual number of days of rain is 83.6.
- Wind speeds average between 6.1 and 10.5 kph at 9 am, and between 10.9 and 13.1 kph at 3 pm. The strongest winds occur during the spring months.

1.3 Applicant

Maoneng is an Australian-founded and owned company that is pioneering Australia's transition to 100% renewable energy through cutting-edge solar, battery and other utility-scale energy projects. The company was founded in 2010 to develop renewable energy assets under the 2009 Australian Renewable Energy Target (RET) scheme.



Project site lot boundary
Potential disturbance area
Proposed BESS footprint
Proposed substation
Transmission lines
1 km distance from site
Associated sensitive receiver
Non-associated sensitive receivers
Contours (2 m)

AE1184.1 Armidale BESS
Figure 1.3 Sensitive receivers
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Headquartered in New South Wales, Maoneng Group has a portfolio that includes nearly 300 MW of constructed renewable power, enough to power over 50,000 homes across Australia, and is in the process of developing more than 600 MWh of utility-scale battery projects.

Maoneng and AGL Energy have an Energy Storage Development Agreement in place. Under this agreement, Maoneng will develop large-scale batteries to provide 200 MW/400 MWh of dispatchable capacity to AGL, spread across a number of sites, which will be operational by 2023.

Maoneng has developed, or is in the process of developing, a number of renewable energy assets in NSW, including:

- the 100 MW/200 MWh Lismore BESS project to meet the requirements of an Energy Storage Development Agreement with AGL
- the 13 MW Mugga Lane Solar Park project, developed and built under the ACT Government's Reverse Solar Auction – Maoneng's first major project in Australia
- the Sunraysia Emporium project, a 100 MW/200 MWh utility-scale BESS project located near Balranald, southern NSW. The project is scheduled for completion in early 2021
- Sunraysia BESS project, a utility-scale solar photovoltaic (PV) farm near Balranald in NSW.

1.4 Capital investment value

The proposed Armidale BESS is currently in the feasibility and design stage. Accordingly, the capital investment value of the project is not yet finally determined. However, the capital cost of the project will easily exceed the $30 million threshold for it to be classified as a State significant development (SSD), as defined under the State Environmental Planning Policy (State and Regional Development) 2011 (see Section 4.2.2).

1.5 This report

This Scoping Report has been prepared in accordance with the requirements of the Department of Planning, Industry and Environment (DPIE) for projects identified as SSDs and therefore requiring an Environmental Impact Statement (EIS) to be prepared under Schedule 2 of the Environmental Planning and Assessment Regulation 2000.

The report will support a request to DPIE from Maoneng Group for the Secretary's Environmental Assessment Requirements (SEARs) for the EIS.

The report:

- describes the proposed development, including project justification and alternatives considered
- outlines permissibility and strategic planning requirements for the project under the NSW and Commonwealth legislative frameworks
- describes the existing environmental and social context of the project
- provides a preliminary assessment of project impacts and management

- sets out previous, current and proposed stakeholder consultation
- includes a preliminary constraints analysis.

2 Development description

The proposed Armidale BESS project is a utility-scale battery energy project that will dispatch up to 150 MW of electricity to the grid.

Maoneng spent considerable time identifying land options for the proposed project in the local and regional area. The proposed site was selected due to its:

- location close to the arterial transmission line and infrastructure which connects the Queensland-New South Wales Interconnector to rural and coastal NSW
- location immediately adjacent to the Armidale Substation which has capacity to accept up to 150 MW of energy from the BESS
- close proximity to the electrical infrastructure associated with the Armidale Substation
- low environmental sensitivity and lack of locational constraints due to the site:
  - being largely cleared of dense woodland vegetation
  - not being subject to any planning overlays
  - having good access to the road network.

2.1 Design and configuration

The project will have a maximum capacity of 150 MW/300 MWh. Key elements of the development will include:

- up to 65 power conversion units, 1100 lithium-ion battery racks housed within outdoor enclosures that are in 40-foot shipping containers or individual modules
- medium voltage transformers, switchgear, and auxiliary equipment
- a 33 kV switch-room, a control room and an on-site 33/132kV substation
- internal access tracks, operations and maintenance building, temporary construction laydown area, vehicle parking, water tanks for firefighting purposes, security fencing and landscaping.

Access to the site during construction and operation is expected to be from Waterfall Way via Eathorpe Road or directly from Waterfall Way (see Figure 1.2).

Electricity will be delivered to/from the proposed on-site substation to the Armidale Substation via a new overhead or underground transmission line.

Figure 1.2 shows the potential project disturbance area, which includes possible access construction works on Waterfall Way, options for the site access road, and options for the transmission line between the BESS, the on-site substation and the existing Armidale Substation.

2.2 Construction

Project construction will last for approximately 9 months. Construction will involve the following activities:

- Stage 1: Site establishment, including demolition of existing farm shed, earthworks and any drainage requirements, construction of concrete hardstands, civil works – approximately 2 months
- Stage 2: Delivery of BESS infrastructure – approximately 3 months
- Stage 3: Installation of BESS infrastructure (containerised units, transformer, switchroom, control room and O&M) and electrical works – approximately 4 months (partially overlapping with stage 2)
- Stage 4: Commissioning and joint testing – approximately 3 months.

Up to 150 jobs are expected to be created during construction. The expected average workforce during the construction period is as follows:

- Stage 1 – 60 (2 months)
- Stage 2 – 80 (3 months)
- Stage 3 – 80 (4 months)
- Stage 4 – up to 10, on- and off-site

During the peak construction period (which will occur during the overlap of stages 2 and 3) up to 150 workers may be on site at the same time.

Construction activities will be undertaken during standard hours for construction works (i.e. 7 am to 6 pm Monday to Friday and from 8 am to 1 pm on Saturdays). Any construction or commissioning activities outside of these standard working hours would require approval from relevant authorities. Any affected local residences would be informed of the timing and duration of the proposed activities, prior to the commencement of any works.

2.3 Operation

The expected operational life of the battery infrastructure is 20 years. The operational hours will be 24 hours, 7 days a week. No permanent on-site staff are required during operations as the BESS will be operated remotely. Maintenance staff will access the site as required during operations (one full-time equivalent job).

2.4 Decommissioning

At the end of the operational life of the project, all above-ground infrastructure will be removed, and the land rehabilitated to a safe, stable and non-polluting state. It is anticipated that the pre-existing land use will be re-established at the time of decommissioning, unless otherwise agreed with the landowner and/or regulatory authorities.

3 Justification and alternatives considered

3.1 Project justification

Since 2001, the Commonwealth Government has mandated the use of energy from renewable resources in electricity generation. In 2009 the Renewable Energy Target (RET) scheme mandated that 20% of Australia's electricity supply was to come from renewable sources by 2020 (NSW Trade and Investment 2013).

In 2011, the RET was split into two parts comprising a large-scale RET (LRET) and a small-scale renewable energy scheme (SRES). The LRET created a financial incentive to establish and expand renewable power stations such as BESSs, wind farms and hydro-electric power stations and deliver the majority of the 2020 target. Reforms were made to the RET in 2015 with a target for large-scale energy generation of 33,000 Gigawatt hour (GWh) by 2020 i.e. 23.5% of Australia's electricity supply will come from renewable sources by 2020. The annual target will remain at 33,000 GWh until the scheme ends in 2030.The LRET scheme sits within the broader context of Australia's need to reduce greenhouse gas emissions to meet its commitments under the 1997 Kyoto Protocol and the Paris Agreement.

The SRES provides an incentive for communities, including households and small businesses, to install eligible small-scale renewable energy systems including solar water heaters, PV systems, and small-scale wind systems (DoEE 2018).

At a state level, the NSW government's Net Zero Plan Stage 1: 2020-2030 (DPIE 2020a) aims to enhance the prosperity and quality of life of the people of NSW, while helping the state to deliver a 35% cut in emissions by 2030 compared to 2005 levels. A component of the plan is to develop three Renewable Energy Zones (REZs) which are intended to play a critical role in replacing retiring generators in NSW over the next two decades and bringing up to 17,700 MW of cheaper, renewable power into the grid.

Subsequently, the NSW government's Electricity Infrastructure Roadmap, enabled by the *Electricity Infrastructure Investment Act 2020 (NSW)*, has declared five REZs in the Central West Orana, Illawarra, New England, South West and Hunter-Central Coast regions. These Zones are to deliver an intended network capacity of 12 GW. Armidale is located in the heart of the New England Renewable Energy Zone.

Due to the intermittent nature of renewable energy sources such as solar and wind, the development of energy storage systems is becoming an increasingly important component of the transition from fossil fuels to renewables. The construction of large-scale, standalone BESSs such as Maoneng is proposing at Armidale is a relatively recent development but has quickly become a key focus of the renewables industry. In early 2020, to facilitate such developments in NSW, the State government passed the State Environmental Planning Policy (Infrastructure) Amendment (Energy Storage Technology) 2020 under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The proposed development of the Armidale BESS is therefore consistent with current national and state-level goals and targets for renewable energy generation**.**

Other project benefits are expected to include (DoI 2016):

- employment opportunities during construction, including engagement of local contractors and materials and service providers
- contributions to local infrastructure improvements
- education and training of contractors and local residents
- rent received by landowners.

The proposed project also supports a number of the objectives of the EP&A Act, as set out in Section 4.2.1.

3.2 Alternatives

3.2.1 Site selection

Maoneng Group has undergone a process of constraints and opportunities analysis to identify potential development sites in NSW and other states. This process has included consideration of factors such as:

- regulatory settings for energy projects
- access to existing substations with capacity to accept energy from the BESS
- access to, and capacity of, existing energy grids
- potential for land acquisition
- land suitability (e.g. topography, existing land use, flood risk, zoning)
- need to minimise environmental and social impacts (e.g. avoiding sensitive environments or areas of cultural heritage value).

The proposed location for the Armidale BESS emerged as a highly prospective site for the development of a BESS and a decision was made by Maoneng to initiate pre-development investigations and activities.

3.2.2 Project design and configuration

The design and configuration of the project will take into account the findings of EIS studies and investigations. This will include consideration of environmental and social factors such as the need to:

- identify and operate within environmental constraints (such as avoiding areas within the project site that may be of conservation significance)
- minimise disruption to local landholders
- minimise amenity issues
- consider the expectations and concerns of the local community and Armidale Regional Council.

These considerations will be balanced against the need to achieve design, construction and operational efficiencies to reduce projects costs and maximise BESS efficiency.

4 Permissibility and strategic planning

4.1 Commonwealth legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), administered by the Commonwealth Department of Agriculture, Water and the Environment (DAWE), requires approval from the Minister for the Environment for actions likely to have a significant impact on a Matter of National Environmental Significance (MNES).

The EPBC Act identifies the following nine MNES:

- World Heritage properties
- national heritage places
- wetlands of international significance (Ramsar wetlands)
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- water resources (relating to coal seam gas development and large coal mining development).

Any proposed actions falling within the following categories must be referred to DAWE to determine whether the action is a 'controlled action':

- actions that have a significant impact on MNES
- actions that (indirectly or directly) have a significant environmental impact on Commonwealth land
- actions carried out by Commonwealth agencies.

The assessment of the significance of the impact is based on the criteria listed in the DAWE's *Significant Impact Guidelines 1.1* (DoE 2013). Should the Commonwealth Minister for the Environment decide the action is to be taken in a manner that is not likely to have a significant impact on the MNES, approval will be granted.

An independent statutory review of the EPBC Act was commenced in October 2019 and submitted to the Australian Government in October 2020. The Government has yet to respond to the recommendations of the review (Samuel 2020).

An 'EPBC Act Referral' to the Minister is not expected to be required for the Armidale BESS project (see Section 5.2). However, the potential for impacts on MNES will be considered further in the EIS.

4.1.2 Native Title Act 1993

The *Native Title Act 1993* provides a national framework for the recognition and protection of native title (i.e. the rights and interests, recognised by common law, possessed under traditional laws and customs of Aboriginal and Torres Strait Islander people).

The Act recognises the ownership (or set of rights and interest) of land or waters by Aboriginal and Torres Strait Island groups prior to European settlement; provides a mechanism for determining where native title exists and who holds it; and identifies compensation for actions affecting it. The Act establishes ways in which future dealings affecting native title may proceeds and sets standards for those dealings.

People who hold native title have a right to practice their traditional laws and customs, while respecting Australian laws, and have a right to a) be consulted with regarding any proposed action on their land, and b) receive compensation for that action.

Native title is not thought to be relevant to the proposed Armidale BESS project site. However, the potential for native title issues will be considered further during the EIS process.

4.2 New South Wales legislation

4.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act, together with the Environmental and Planning Assessment Regulation 2000 (EP&A Regulation) and other regulations and instruments, provides the framework for environmental planning and assessment in NSW.

The EP&A Act is the principal legislation regulating land use in NSW and is administered by DPIE. The EP&A Act sets a framework for approval of developments in NSW and requires relevant planning authorities to assess potential environment and social impacts of proposed development or land use change. The Act prescribes relevant planning bodies, environmental planning instruments, environmental assessment, and liability with regards to contaminated land.

The proposed project, including the proposed supporting studies and stakeholder consultation process, supports a number of objectives of the EP&A Act by promoting and encouraging social, economic and environmental wellbeing through the use of land for power generation using renewable sources. Specifically, the project supports the following objectives of the EP&A Act:

> *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
>
> *(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
>
> *(c) to promote the orderly and economic use and development of land,*

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The project is also consistent with the remaining objectives of the Act.

Consent for an SSD, including any connections to the grid (such as construction of a substation or additional feeder lines) within the BESS development site, is granted under Part 4, Division 4.7 of the EP&A Act.

Development of the Armidale BESS will be assessed under Part 4 'Development Assessment' of the EP&A Act.

4.2.2 State Environmental Planning Policy (State and Regional Development) 2011

The State Environmental Planning Policy (SEPP) (State and Regional Development) 2011 aims to identify development that is of State significance and confers functions on joint regional planning panels to determine development applications.

The following is considered an SSD under Clause 20 of Schedule 1 of the policy:

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, or

(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.

The Armidale BESS project is classified as an SSD under Part 4 of the EP&A Act, as it has a capital investment value of more than $30 million.

As an SSD, the project will be assessed by DPIE and require approval from the Minister for Environment. SSDs require the preparation of an EIS detailing potential environmental impacts as a result of the project and appropriate management measures.

The Armidale BESS is considered an SSD and will therefore require the preparation of an EIS and approval from the Minister for Environment.

4.2.3 State Environmental Planning Policy (Infrastructure) 2007

The SEPP (Infrastructure) 2007 (Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across the State by providing for the development of electricity generating works on any land in a prescribed rural, industrial or special use zone for which there is consent. Under the *Standard Instrument* the project falls under the definition of electricity

generating works, which includes "*a building or place used for the purpose of…electricity storage*".

Part 3 (Development controls), Division 4 (Electricity generation works or solar energy systems), Clause 34 of the Infrastructure SEPP states that:

(1) Development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone.

Part 1 (Relationship to other environmental planning instruments), Clause 8 of the Infrastructure SEPP, states that:

(1) …if there is an inconsistency between this Policy and any other environmental planning instrument, whether made before or after the commencement of this Policy, this Policy prevails to the extent of the inconsistency.

The Armidale BESS is therefore a permissible development with consent as an SSD under clauses 34(1) and 8(1) of the Infrastructure SEPP.

ISEPP will allow for the development of the Armidale BESS, with consent, even on land prescribed for rural use.

4.2.4 State Environmental Planning Policy No 33 (Hazardous and Offensive Development)

SEPP No. 33 – Hazardous and Offensive Development (SEPP 33) defines and regulates the assessment and approval of potentially hazardous or offensive development. SEPP 33 presents a systematic approach to planning and assessing proposals for potentially hazardous and offensive development for the purpose of industry or storage. Through the policy, the permissibility of a proposal to which the policy applies is linked to its safety and pollution control performance.

SEPP 33 requires the preparation of a preliminary hazard analysis (PHA) for potentially hazardous industry and sets out a risk screening process to determine whether a PHA is required. BESS projects typically do not trigger the requirement for a PHA based on the current screening criteria. However, regardless of SEPP 33 screening, SEARs typically now require that a PHA be undertaken for large-scale BESS projects.

It is anticipated that the SEARs for the Armidale BESS will require a PHA to be undertaken as part of the EIS (see Section 5.8).

4.2.5 State Environment Planning Policy (Koala Habitat Protection) 2021

SEPP (Koala Habitat Protection) 2021 encourages the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. Before a council may grant consent to a development application to carry out development on the land, the council must assess whether the development is likely to have any impact on koalas or koala habitat. The applicant must then ascertain whether the potential habitat is 'core koala habitat'. Such habitats are defined as having:

(a) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas are recorded as being present at the time of assessment of the land as highly suitable koala habitat, or

(b) an area of land which has been assessed by a suitably qualified and experienced person as being highly suitable koala habitat and where koalas have been recorded as being present in the previous 18 years.

If the site has core koala habitat then a koala plan of management must be prepared by the applicant. Should koalas, or potential koala habitat, be identified within the study area, a Koala Plan of Management may be required in consultation with the Chief Executive Officer of Local Land Services and a Public Service employee designated by the Minister for Energy and Environment.

This Scoping Report considers the presence of koala habitat within the project site (see Section 5.2), and the EIS will further assess the potential for habitat to be present.

4.2.6 Roads Act 1993

The *Roads Act 1993* (Roads Act) provides a framework for the management of roads in NSW. It provides for the classification of roads and the declaration of Transport for NSW (TfNSW) and other public authorities as roads authorities for both classified and unclassified roads.

The Roads Act sets out procedures for the opening and closing of public roads and regulates the carrying out of various activities on public roads.

Under Section 138 of the Roads Act, consent from the relevant roads authority (council or TfNSW) is required for any works or activities in a public reserve, public roadway or footpath (nature strip). Section 138 requires that all activities undertaken within council road reserves be approved by council prior to the activities being undertaken.

The EIS will consider requirements for project-related use of roads and the need for any road works, particularly during BESS construction. If required, approval from the TfNSW or local council will be sought under Section 138 of the Roads Act.

4.2.7 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) provides a framework for maintaining a healthy, productive and resilient environment for the greatest wellbeing of the community, now and into the future, consistent with the principles of ecologically sustainable development (described in Section 6(2) of the *Protection of the Environment Administration Act 1991*).

Part 7 of the BC Act sets out the biodiversity assessment requirements for different activities. The assessment requirements for SSDs are set out in Part 7.9 which includes the requirement for an application is to be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

A preliminary assessment of biodiversity impacts has been undertaken for this Scoping Report (see Section 5.2). The EIS for the Armidale BESS will include a biodiversity assessment in accordance with the requirements of the BC Act.

4.2.8 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the key legislation governing the State's care, control and management of all national parks, historic sites, nature reserves and Aboriginal areas. State conservation areas, karst conservation reserves and regional parks are also administered under the Act.

Places or objects of Aboriginal cultural heritage on, or in the vicinity of, the site will need to be managed in accordance with this Act. Section 86 of this Act states: a person must not harm or desecrate an object that the person knows is an Aboriginal object.

Under Section 89J of the EP&A Act, an Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974* is not required for an SSD, unless the requirement of an environmental planning instrument for consultation or concurrence specifies that it applies to an SSD.

The potential for the Armidale BESS to have an impact upon Aboriginal cultural heritage has been considered in this Scoping Report (see Section 5.3) and will be addressed further during the EIS process.

4.2.9 Heritage Act 1977

The *Heritage Act 1977* provides a legal framework for the management of items and places of State heritage significance, providing for their protection. The Act encourages conservation of the State's heritage and provides for the identification and registration of items of State heritage significance.

Under Section 89J of the EP&A Act, an approval under Part 4, or an excavation permit under Section 139, of the *Heritage Act 1977* is not required for an SSD.

Any existing or unknown or other potential unknown State heritage items will be managed under the Act.

The potential for the Armidale BESS to have an impact upon historic cultural heritage has been considered in this Scoping Report (see Section 5.3) and will be addressed further during the EIS process.

4.2.10 Water Management Act 2000

The objectives of the *Water Management Act 2000* (Water Management Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations. As set out in Section 4.41 of the EP&A Act, approvals under the Water Management Act are not required for an SSD (other than an aquifer interference approval).

The intent of the Water Management Act to provide for sustainable and integrated water source management will be addressed in the EIS.

4.2.11 Crown Lands Management Act 2016

The *Crown Lands Management Act 2016* was enacted to improve the way Crown reserves are managed and facilitate better decision making about the future use of Crown land. The Act

mandates that a range of environmental, social, cultural heritage and economic factors are considered before decisions regarding Crown land are made and provides for community engagement. The Act acknowledges the spiritual, social, cultural and economic importance of Crown land to Aboriginal people and recognises and facilitates Aboriginal involvement in the management of Crown land.

Crown Land is not present within the Armidale BESS development site and no Crown Land permits will be required for the project.

4.3 Local and regional planning

4.3.1 Armidale Dumaresq LEP 2012

The proposed project site is located within the Armidale Regional Council (previously known as Armidale Dumaresq Council) boundaries and will therefore be subject to the relevant provisions of the 2012 Armidale Dumaresq Local Environmental Plan (LEP).

AIMS OF ARMIDALE DUMARESQ LEP

The Armidale Dumaresq LEP provides local environmental planning provisions for land in the Armidale region in accordance with the relevant standard environmental planning instrument under Division 3.2 of the EP&A Act.

The aims of the plan are to:

- protect and promote the use and development of land for arts and cultural activity, including music and other performance arts
- encourage the orderly management, development and conservation of resources by protecting, enhancing and conserving:
  - areas of significance for agricultural production
  - timber, minerals, soils, water and other natural resources
  - areas of high scenic or recreational value
  - native plants and animals, including threatened species, populations and ecological communities, and their habitats
  - places and buildings of heritage significance
- provide a choice of living opportunities and types of settlements
- facilitate development for a range of business enterprises and employment opportunities
- ensure that development is sensitive to both the economic and social needs of the community, including the provision of community facilities and land for public purposes
- ensure that development has regard to the principles of ecologically sustainable development and to areas subject to environmental hazards and development constraints
- provide for flexibility in applying certain development standards, where compliance with such standards may be unreasonable or unnecessary in the circumstances of a particular development, and there is sufficient justification for varying the standards on environmental planning grounds.

The proposed Armidale BESS project is consistent with the aims of the plan, particularly in relation to the economic and social needs of the community and ecologically sustainable development.

LAND ZONING

The proposed Armidale BESS is located on land zoned RU4 Primary Production Small Lots. The objectives of the RU4 zone are to:

- enable sustainable primary industry and other compatible land uses
- encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature
- minimise conflict between land uses within this zone and land uses within adjoining zones.

Although not a primary industry project and a project that requires consent, the Armidale BESS project is not otherwise inconsistent with these objectives. The project is not incompatible with primary industry use of adjacent land or land uses within adjoining zones and will help promote local diversity and employment opportunities. In addition, it is anticipated that the site will be able to be decommissioned and rehabilitated to return the land to its existing use at the end of its operational life. The use of the land for a BESS is also consistent with the existing use of adjacent land by the Armidale Substation and associated transmission infrastructure.

The Infrastructure SEPP allows for the development, with consent, of electricity generating works in a prescribed rural zone (see Section 4.2.3). Under Clause 33 of the SEPP, land zoned RU4 is classified as a prescribed rural zone.

The Armidale BESS will be subject to the relevant provisions of the Armidale Dumaresq LEP. Such provisions will be identified and discussed in the EIS.

4.3.2 New England North West Regional Plan 2036

The proposed Armidale BESS falls within the New England North West region of NSW. DPIE has prepared the New England North West Regional Plan 2036 (NENWRP) which provides a 20-year blueprint for the future of the region (DPE 2017).

The plan sets out the NSW Government's vision for the New England North West, which is to create a dynamic and prosperous region that capitalises on its past and is building for the future through diverse landscapes, rich natural resources and strong communities.

The Government has set four goals for the region to achieve this vision:

- a strong and dynamic regional economy
- a healthy environment with pristine waterways
- strong infrastructure and transport networks for a connected future
- attractive and thriving communities.

The development of the Armidale BESS is consistent with these objectives, in particular the development of a strong and dynamic regional economy and strong infrastructure networks for a connected future.

The compatibility of the Armidale BESS with the objectives of the NENWRP will be considered in the EIS.

5 Preliminary impact identification and assessment

5.1 Project issues and risks

The Armidale BESS project may result in a number of potential environmental and social impacts, both positive and negative. The nature and extent of these potential impacts will be assessed during the EIS process so that effective avoidance, management and mitigation measures can be incorporated into project design, construction, operation and eventual decommissioning.

The project as a whole is expected to be a relatively low impact development compared with many renewable energy SSDs due to the small footprint of the facility (e.g. in comparison to a solar farm), and the project's location in an area that has been heavily disturbed by agricultural and grazing activities, is adjacent to existing electrical infrastructure, and is distant from areas of high environmental sensitivity. The operation of the BESS will require very little handling of hazardous materials and will generate very little hazardous pollution or waste, other than the eventual removal of the lithium-ion batteries at the end of their operational life.

An initial assessment of environmental and social risks by Accent has identified seven higher priority areas that will require particular focus during the EIS process, as follows:

- potential impacts on ecological values such as local habitat for threatened and endangered species
- potential impacts on Aboriginal and historic cultural heritage
- potential impacts on hydrology and water quality if the project site is subject to flooding
- impacts on visual amenity for the nearest sensitive receivers
- noise and vibration impacts on the nearest sensitive receivers during project construction, operation and decommissioning
- project-related traffic impacts on local roads, particularly during construction, including the potential need for road upgrade works
- hazards associated with the presence and use of lithium-ion battery units.

These higher priority potential impacts are assessed in Sections 5.2 to 5.8. The cumulative impacts of the project and other developments in the region are assessed in Section 5.9.

The initial assessment of environmental and social risks also identified a number of lower priority potential environmental or social impacts, as follows:

- socio-economic impacts
- land use impacts
- air quality and dust
- airfield impacts
- electromagnetic fields

- bushfire hazard
- existing site contamination
- waste management.

These lower priority potential impacts are considered lower risk than the seven higher priority impacts, and/or are expected to be readily manageable by implementing standard environmental management and mitigation procedures, as will be outlined in the EIS. The lower priority impacts are assessed in Section 5.10.

5.2 Biodiversity

5.2.1 Existing conditions

A high-level assessment of the proposed project site was carried out by ABSolution Ecology on 27 May 2021 to determine the biodiversity values of the site.

FLORA

The proposed project site has had a long history of grazing and disturbance. It was cleared of the pre-European vegetation type after the settlement of Armidale in the 1800s and has since been used primarily for agriculture. The project footprint is dominated by pasture grasses (Photo 5.1) and is currently grazed by cattle. The site contains one dam which is accessed by the cattle at or on the edge of the development footprint (Photo 5.2). It is expected that the dam will be decommissioned as part of the construction activities for the BESS.

In addition, four Blakely's Red Gum *Eucalyptus blakelyi* are present at the site of the proposed development (Figure 5.1 and see Photo 5.2). These red gums are large and considered part of the original pre-clearance vegetation. The trees were likely a component of New England Grassy Woodland community. However, given such disturbance and pasture improvement, the red gums are no longer considered characteristic of that community. Details of the trees can be found in Table 5.1. Other dams and trees are located on the property outside the proposed development area.

The pasture is dominated by exotic species. Dominant species include Flaxleaf Fleabane *Conyza bonariensis*, Purpletop *Verbena bonariensis*, Paspalum *dilatatum*, Rush *Juncus* sp., Umbrella Sedge *Cyperus eragrostis*, Clover *Trifolium repens*, Ribwort *Plantago lanceolata* and Toowoomba Canary Grass *Phalaris aquatica*. Three woody weed species that were occasionally observed were Hawthorn *Crataegus monogyna*, Sweet Briar Rose *Rosa rubiginosa* and the non-woody Spear Thistle *Cirsium vulgare*.

As a result of pasture improvement and addition of superphosphate over time, the pasture grasses are almost all introduced. However, occasional observations of native understorey species were made, and these include Paddock Love Grass *Eragrostis leptostachya*, Shorthair Plumegrass *Dichelachne micrantha* and Glabrous Willow Herb *Epilobium billardierianum*. Native species cover less than 2% of the entire understorey over the areas of the proposed development and were insignificant in May, although this is a non-optimal time of the year for understorey species identification.

Photo 5.1 Typical pasture grasses on site

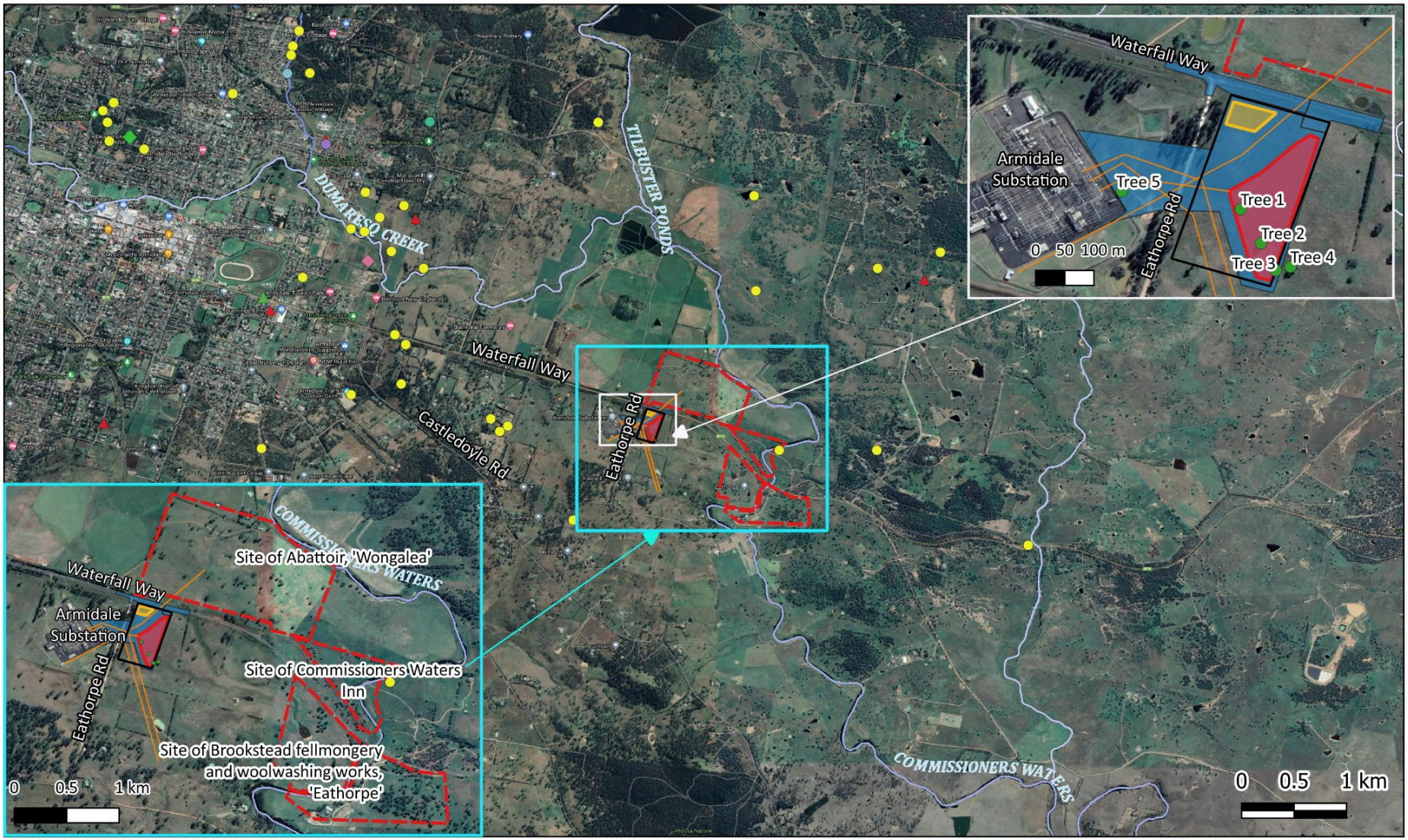
Roadside vegetation between the proposed site and road surface consisted of similar weeds to those listed above with occasional natives such as Wallaby Grass *Rytidosperma* sp. and Couch Grass *Cynodon dactylon*. Planted Pine trees Pinus radiata were also present along the roadside between the gate entry and Waterfall Way.

Photo 5.2 Two of the red gums and the dam on the project site

Table 5.1 Trees on proposed location (trees shaded are likely to be impacted)

Tree ID	Tree Type	DBH (cm)	Height (m)	Hollows	Nests	Nearest tree	Class	# Credits required if removed
1	*E. blakelyi*	74	12	Yes (small)	No	95 m	3	1.0
2	*E. blakelyi*	66	9	No	No	70 m	3	0.75
3	*E. blakelyi*	78	11	No	Yes	35 m	3	0.75
4	*E. blakelyi*	64	12	Yes (small)	No	35 m	3	1.0
5	*E. blakelyi**	60	9	No	No	>150 m	3	1.0

*estimate, as observed from a distance since the tree is located within power station grounds
DBH = diameter at breast height.



- Project site lot boundary
- BESS proposed footprint
- Proposed substation
- Potential disturbance area
- Transmission lines
- Onsite trees
- LEP Heritage site curtilage

AHIMS sites

- Artefact site
- Aboriginal resource and gathering
- Artefact site & modified tree (carved of scarred)
- Ceremonial ring (stone or earth)
- Potential archaeological deposit (PAD)
- Habitation structure & Aboriginal resource and Gathering
- Modifies tree (carved or scarred)
- Stone quarry & artefact site

AE1184.1 Armidale BESS
Figure 5.1 Archaeological and ecological features
Date created: 02/07/2021
CRS: GDA 94 MGA 55
Page size: A4
Basemap: Google Hybrid

ACCENT ENVIRONMENTAL

FAUNA

There was very little physical structure on the site to provide habitat for fauna. As the site is pasture grass with some scattered trees and a dam, the species located are correlated with those habitat types. The site is suited to large macropods such as the Eastern Grey Kangaroo *Macropus giganteus* of which scats were observed. There is the potential for species such as Common Brush-tail Possums *Trichosurus vulpecula* to utilise the trees and their hollows when moving from area to area. Various other macropods such as wallabies may utilise the site from time to time. Domestic Cows *Bos taurus* graze the pasture.

Both microbats and large bats could be expected to utilise the site as a source of food and/or between sites of preference. Common bats that have been previously recorded in the area include White-striped Freetail-bat *Austronomus australis*, Gould's Wattled Bat *Chalinolobus gouldii* and Chocolate Wattled Bat *Chalinolobus morio*. These species are among a few types of bats that could potentially fly over the site. As camps of the Grey-headed Flying Fox *Pteropus poliocephalus* have been observed around Armidale, it is likely this species flies the site and may opportunistically use the site for feeding when a nectar source is available.

There is an absence of available habitat structure to support small ground-dwelling mammals but pests such as European Rabbit *Oryctolagus cuniculus* and Red Fox *Vulpes* likely use the site opportunistically. There were no signs of koalas *Phascolarctos cinereus* using the trees located on the site. A thorough search of the canopy and tree trunks/branches along with a search beneath foliage for scats on the ground layer indicates no current koala use.

The habitat on the proposed project site and its immediate surrounds provides few opportunities for birds due to a lack of vegetation structure. The site suits birds that nest in trees and forage on the ground such as Australian Magpie *Gymnorhina tibicen*, Magpie Lark *Grallina cyanoleuca* and Galahs *Eolophus roseicapilla*, all of which were observed on site. Other observed species were Yellow-rumped Thornbill *Acanthiza chrysorrhoa* and Eastern Rosellas *Platycercus eximius,* using the canopy of the few trees present, and Australian Wood Ducks *Chenonetta jubata* on and around the farm dam.

There is very little habitat for reptiles and amphibians on site, due to the small farm dam lacking suitable emergent and fringing aquatic vegetation and any structures for shelter. Incidental occurrences of common reptile and amphibian species may be observed in assessments undertaken at appropriate seasonal times.

SUMMARY OF VEGETATION TYPE FROM BAM CALCULATOR

A preliminary ‘mock’ determination of vegetation within the project site was undertaken using the biodiversity assessment methodology (BAM) calculator, on the expectation that there may be more native understorey species present than observed during the May survey. The BAM data entered included a few representative species that had not been observed in May but were assumed to be present for the purposes of the calculation. The resultant species integrity score was well below the Boiodiversity Offset Scheme (BOS) threshold of 17. Due to the significant lack of native vegetation composition, structure and function, the vegetation integrity score is estimated to be 0.6.

In addition, small areas of vegetation that were observed adjacent to the roadsides of Waterfall Way and Eathorpe Road are not expected to score above the threshold of 17. Even if

this vegetation exceeds the threshold, the combined area to be disturbed that is considered native vegetation associated with these areas will likely cover less than 0.4 ha which is also under the threshold for area of loss and therefore does not trigger a BDAR.

However, to qualify as an assessment undertaken at the most suitable time for native grasses and herbs to occur, a spring survey is required. The spring survey is expected to confirm that the heavily modified vegetation on site is a poor representation of New England Grassy Woodland plant community type (PCT) and associated group of PCTs. The likely PCT is PCT 510 - Blakely's Red Gum—Yellow Box grassy woodland of the New England Tableland Bioregion. There is expected to be at least some native vegetation in the ground layer which would rule out a scattered tree assessment.

A targeted assessment of the project site for one species, Bluegrass *Dicanthium setosum*, is also required once the disturbance area has been finalised. Though not expected, this species should be searched for as it is a candidate species generated by the BAM calculator for which some habitat may be present.

The following classifications and PCT were provisionally identified in line with field observations:

- Interim Biogeographic Regionalisation of Australia (IBRA) region: New England Tablelands
- IBRA subregion: Armidale Plateau
- Mitchell Landscape: Dingo Spur Meta-sediments
- Likely PCT: heavily modified PCT 510 - Blakely's Red Gum—Yellow Box grassy woodland of the New England Tableland Bioregion.

As Blakely's Red Gum is the only tree species and the understorey is heavily modified this classification cannot be certain. However, it is most probable.

The site is expected to receive an integrity score well below the threshold for offsets and no ecosystem credits are likely to be associated with the use of the site based on:

- the low quality of the habitat
- very low cover and very low abundance of native understorey
- the cleared condition of the site as a result of historical agricultural activity.

THREATENED SPECIES AND ECOLOGICAL COMMUNITIES

Searches of databases of threatened species and ecological communities in the project area and the surrounding region were undertaken to identify any species or communities that may impose ecological constraints on project development. A consolidated list of threatened species known to, predicted to, or possibly occurring within the project area, along with their conservation status, a summary of their habitat preference and the likelihood of occurrence, is provided in Appendix A. The results of the database searches are discussed below.

EPBC Protected Matters Search

An EPBC Protected Matters Search of a 10 km radius from the site resulted in the following:

- Two Listed Threatened Ecological Communities

  - New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands (critically endangered) likely to occur within area
  - White Box—Yellow Box—Blakely's Red Gum Grassy Woodland and Derived Native Grassland (critically endangered) likely to occur within the area
- 33 listed threatened species
- 13 listed threatened migratory species

The results of the Protected Matters Search including a list of species is provided in Appendix B.

BioNET Search

A BioNET search identified 178 fauna and 433 flora species that have been recorded within a 10 km radius of the site over the past 30 years. Of these, one threatened flora species has been observed: Bluegrass *Dichanthium setosum*, a species listed on both State and Federal threatened species listings as vulnerable. Among the fauna species, three microchiropteran bats, one megachiropteran (Grey-headed Flying Fox *Pteropus poliocephalus*), 14 birds and three mammals have been recorded in the search area. Importantly, the 10 km search area includes the Imbota and Yina Nature Reserves which contain habitat for many of these species.

The complete list of species identified in the BioNET search is presented in Appendix A. In addition, based on the habitat on the proposed site, an indication of each species' likelihood of occurring on site has been made.

Other searches

A review was undertaken using the Biodiversity Values Threshold Tool Map. Commissioners Waters was identified as having sensitive areas but is located east of the project site.

Summary

In summary, the presence of species listed in the Bionet search, the EPBC Protected Matters Search (10 km radius) is low and BAM Candidate species are also low in number. Due to the heavily disturbed nature of the site, there is a lack of habitat features for threatened species. However, there is potential for some threatened fauna species to utilise the site during transit or when opportunistically foraging.

Generally, the isolated occurrences of the trees on-site and the fact they are not on the edge of the forest limits their use by most threatened species. Threatened species that could potentially use the trees from time to time include Speckled Warbler *Chthonicola sagittatae,* Dusky Woodswallows *Artamus cyanopterus* and Scarlet Robins *Petroica boodang.* Microbats that have been recorded in the area include Yellow-bellied Sheathtail-bat *Saccolaimus flaviventris* and Eastern False Pipistrelle *Falsistrellus tasmaniensis,* both of which both may opportunistically use the subject site but are unlikely to be breeding on site. These species are more likely to reside in suitable habitat such as forest reserves located within 10 km of the site.

Generally, there is insufficient habitat for threatened mammals on the site, as these require more habitat structure within the landscape and are unlikely to utilise large paddocks with isolated trees. However, although Koalas *Phascolarctos cinereus* (or their marks/scats) were not observed, they may occasionally traverse the site in search of trees or between sites. In addition, species such as Grey-headed Flying Fox may occasionally forage on flowering Blakely's Red Gums on site.

Given the highly disturbed and improved nature of the grazing paddocks, threatened flora are unlikely to occur. However, there is a chance threatened flora such as Bluegrass may be located on roadsides and within the Armidale Substation area. It is suggested that once the project disturbance area has been determined, a spring assessment for the presence of Bluegrass in the existing substation area be carried out.

A closer inspection of the groundcover in the substation area will determine whether the site is part of a derived native grassland of the EPBC Listed (critically endangered) White Box—Yellow Box—Blakely's Red Gum Grassy Woodland, albeit very small and with several features appearing to be absent.

5.2.2 Preliminary impact assessment and management

The construction and operation of the BESS will be managed to minimise disturbance to biodiversity values and, where practical, standing trees will be avoided. In the current location, removal of 3-4 Blakey's Red Gum trees will likely be required. The loss of the trees, if unavoidable, will not result in major impacts on any threatened species as such species are not thought to currently reside in the trees. However, the potential to minimise tree removal will be further assessed as part of the EIS. The lack of native understorey indicates that the impact on native vegetation will be negligible.

Localised loss of habitat for bird and bat species that utilise the site may occur. Several threatened species that appeared in database searches that may have foraged in areas on the site will only be marginally impacted by the loss, as the project footprint is small (approximately 2.4 ha), and similar biodiversity assets surround the site and the loss of up to four scattered trees is not significant. The ongoing operation of the BESS is not likely to cause a significantly greater disruption to fauna species than is already caused by the operation of the existing farm and neighbouring Armidale Substation. Factors such as the use of lights at night will need to be considered. Temporary artificial nest boxes are one alternative to replace hollows removed during tree removal. In addition, the planting of screening vegetation may be beneficial in providing habitat for birds. This could also include planting the same trees as those to be removed (Blakely's Red Gums) to ensure these trees are still present on the site.

The removal and decommissioning of the dam is unlikely to impact biodiversity as the dam does not provide any substantial habitat for aquatic flora or fauna. However, some common species, such as Australian Wood Ducks that are attracted to the dam, will be displaced.

Disturbance of fauna habitat will occur during the construction phase of the BESS due to the removal of trees and potentially due to the introduction of new weed species. During tree removal, a fauna spotter will carry out a pre-clearance inspection and will be present on site to retrieve/relocate fauna that use the small hollows or nests within the trees. Tree removal will occur where possible outside the breeding season for bird species (spring). It is expected that most fauna species will disperse from the area during construction and require an alternative source for habitat. Standard weed management practices will be adopted, as will be outlined in the EIS.

Close review of the trees on the proposed site showed no evidence of use by koalas. Blakely's Red Gum is considered a secondary food tree species for koalas and the site is not considered a core koala habitat (SEPP 2021). Koala records from Armidale Regional Council indicate no

sightings of koalas since 2010 (Appendix C). However, Blakely's Red Gum is Listed as a schedule 2 species in the northern tablelands koala management area (KMA) (SEPP 2021) and there has been documentation of both irregular use (Northern Tablelands KMA) and localised high use in the Northern Tablelands, and the species is Ranked 2 (High Use) across NSW (OEH, 2018).

Although koalas were not observed nor was the site core koala habitat, it is a requirement to consider the development assessment process for an area with no approved koala plan of management for land (Part 2 Development control of koala habitats in SEPP (Koala Habitat Protection) 2021). The project site is at least 1 ha in size and does not have an approved koala plan of management applying to the land. The council must assess whether the project is likely to have any impact on koalas or koala habitat. If the council is satisfied that the project is likely to have low or no impact on koalas or koala habitat, the council may grant consent to the development application. If the council is satisfied that the project is likely to have a higher level of impact on koalas or koala habitat, the council must, in deciding whether to grant consent to the development application, take into account a koala assessment report for the project.

5.2.3 Need for further assessment

The site is small in extent, already disturbed and of low biodiversity significance. However, four scattered trees provide some habitat for arboreal species, and nests observed indicate some use for breeding. As assessments were performed in winter, a non-optimal timing for determining the presence of native ground storey species and coverage, some further assessment will be required to confirm or otherwise the preliminary findings.

A threatened species survey of the site and the construction footprint is necessary to determine the presence of Bluegrass *Dichanthium setosum* in late Spring/early Summer, particularly along roadsides. In addition, once the location of the powerlines and power poles is known, the area of disturbance within the existing Armidale Substation should be assessed in detail to determine the presence of any significant native understorey vegetation before works. It is unlikely that this will trigger the need for a BAM assessment. The characteristic species will be assessed to determine the significance of this grassland and potential derived grassland of the EPBC Listed (critically endangered) White Box—Yellow Box—Blakely's Red Gum Grassy Woodland. However, it is not anticipated that an EPBC Act referral will be required.

As the likely biodiversity losses are minimal, it is expected that a BDAR waiver request will be submitted. However, spring assessments of proposed project disturbance areas will be required to meet DPIE's seasonal survey requirements. The spring flora and fauna assessment will also include a vegetation quality assessment within road reserves along any roads that will require upgrading.

No further koala assessment is required, although a koala assessment report to fulfil the requirements of the Council is needed. The koala assessment report, for development, means a report prepared by a suitably qualified and experienced person about the likely and potential impacts of the development on koalas or koala habitat and the proposed management of those impacts. It is not expected that koalas will be impacted by the development and suitable offsetting of trees can be achieved.

5.3 Cultural heritage

5.3.1 Existing conditions

ABORIGINAL CULTURAL HERITAGE

A search of the Heritage NSW administered Aboriginal Heritage Information Management System (AHIMS) database on 22 June 2021 returned 72 results for Aboriginal sites within a 5 km radius of the proposed project site (GDA Zone 56 Eastings: 371120 - 381120, Northings: 6615850 – 6626850 with no buffer) (Table 5.2). The sites closest to the project site are shown on Figure 5.1.

No AHIMS sites are within the project site.

The most frequently recorded site types are artefact sites of varying density, which comprise 74% of the sites in the search area. Modified trees account for 14% of the remaining sites. Sites nearest to the study area are all artefact sites, with the closest site being 700 m south of the project site (AHIMS site # 21-4-0058).

HISTORIC HERITAGE

A desktop search was conducted on the following databases to identify any heritage items previously recorded within the Armidale BESS project site. The results of this search are summarised in Table 5.3 and shown in Figure 5.1.

Table 5.2 AHIMS site types and frequencies

Site type	Number	% Frequency
Artefact site	53	74
Modified tree (carved or scarred)	10	14
Ceremonial ring	2	3
Site information restricted		1
Potential archaeological deposit (PAD)	1	1
Stone quarry	1	1
Habitation structure and resource	1	1
Artefact site and modified tree	1	1
Resource and gathering	1	1
Total	**72**	**100**

Table 5.3 Historic heritage desktop database search results

Name of database searched	Date of search	Type of search	Comment
Commonwealth Heritage Listings	22/6/21	Armidale LGA	No places listed on either the National or Commonwealth heritage lists are located within or close to the Armidale BESS project site.
National Native Title Claims Search	22/6/21	NSW	Gomeroi People claim NC2011/006 includes the entire Armidale LGA, including the Armidale BESS project site.
Local Environment Plan (LEP)	22/6/21	Armidale Dumaresq LEP of 2012	Three relevant results adjacent to the Armidale BESS project site: A038, A039 and AO40.

The desktop heritage database searches returned three relevant results for the area surrounding the Armidale BESS project site:

- A038 – located approximately 40 m north of the site – Site of Abattoir, “Wongalea”. The remnant building is sited on a hilltop, visible to the north from Grafton Road. The walls survive to roof level although the roof has gone.
- A039 – located approximately 600 m east of the site – Site of Commissioners Waters Inn. This building was a rectangular wide-fronted weatherboard house with a verandah along its length, facing north. The residence consisted of seven bedrooms, a dining room and a kitchen with a large double stove. Nothing remains of the building other than open pasture with exotic trees and possibly a depression where the pit toilet was.
- A040 – located approximately 80 m southeast of the site – Site of Brookstead fellmongery and woolwashing works, “Eathorpe”. This site was characterised by washpools, drains, a sweat house etc. It is now part of a grazing paddock edged by trees between the entry road to 'Eathorpe' and the creek of Commissioner's Waters to the west. Little can be discerned today apart from some sheets of corrugated iron and a distinct terrace above the lower level of the creek bank.

5.3.2 Preliminary impact assessment and management

Due to the historical disturbance of the site for agriculture and grazing, Aboriginal archaeological or cultural heritage sites are unlikely to be present. Historic heritage sites of significance are also unlikely to be present. However, if any potential impacts to heritage sites or items are identified during the field assessments as part of the EIS, they will be managed in accordance with the NPW Act. This could result in a change in the siting of the BESS within the lot to avoid heritage sites.

5.3.3 Need for further assessment

To fulfil the expected requirements of the Armidale BESS EIS, further assessment of the likely impacts to Aboriginal and historic heritage from the development of the BESS will be undertaken. This will include expanding on the desktop research carried out, Aboriginal community consultation and field investigations resulting in informed impact assessments. This will allow the development of tailored management and mitigation strategies in relation to any impacts as required. The following documents will guide the assessment:

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (ACHCRs, DECCW 2010a)
- *Code of Practice for Archaeological Investigations of Objects in NSW* (the Code, DECCW 2010b)
- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* ('The guide') (OEH 2011)
- *NSW Heritage Manual* (DUAP and Heritage NSW 1996).

It is proposed that the following specialist reports are produced to support the EIS:

- An Aboriginal Cultural Heritage Assessment Report (ACHAR) which will be based on Heritage NSW templates[1]. Management options and mitigation measures will be based on best practice heritage management with regard to practical outcomes for the project and input from Aboriginal community stakeholders.
- An Historic Heritage Impact Assessment (HHIA) which will document the findings of the survey and provide preliminary heritage assessments of items with potential heritage significance.

5.4 Hydrology and water resource management

5.4.1 Existing conditions

The project site is located within the Murray-Darling basin, approximately 63 km northwest of the Gwydir River. The site is relatively flat and generally drains to the southeast towards Commissioners Waters (see Figure 1.2 and Figure 1.3).

The project site is located within a flood planning area as designated under the Armidale Regional Council (.id undated). Local flooding risk is associated with minor local drainage through, and next to, the site. There is negligible risk of regional flooding as the site is 20 m above the bed of Commissioners Waters.

[1] Based on the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010b) and the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011).

5.4.2 Preliminary impact assessment and management

Construction and operation of the project is expected to result in only minor ground disturbance, primarily associated with the construction of the access road area, the concrete pads for the BESS units, the foundations of the on-site substation, and the underground transmission line between the on-site substation and the Armidale Substation. The risk of impacts to water quality or hydrology in channels, dams and waterways from erosion or disturbance of acid sulphate soils (if present) is considered low, temporary (during construction) and manageable. Standard erosion and sediment controls measures such as outlined in Landcom (2004) will be implemented, as will be outlined in the EIS.

The BESS and on-site substation will be sited away from natural drainage lines and are unlikely to have significant impact on surface flows, including in the event of localised flooding.

The risk of groundwater impacts during construction is expected to be low as site levelling for the BESS and substation foundations is expected to require excavation of no more than 400-600 mm, reflecting the flat terrain of the site, and trenches for underground cables are expected to be 1,000-1,200 mm deep.

Water use during project construction and operation will be minimal and water will be brought to site by tanker as required. No impacts are anticipated on the availability of current surface or groundwater resources used by local landholders.

5.4.3 Need for further assessment

Impacts to waterways and hydrology during construction and operation, including flood risk, will be assessed as part of the EIS process, including an assessment of the potential impacts on:

- water movement during localised flood events
- surface water and groundwater resources, including (if identified) watercourses, wetlands, riparian land, and groundwater dependent ecosystems (including impacts from acid sulphate soil disturbance), and the associated environmental values
- adjacent licensed water users and basic landholder rights
- measures proposed to monitor, reduce and mitigate impacts as required.

5.5 Visual amenity

5.5.1 Existing conditions

The proposed project area is located approximately 6.5 km southeast of the township of Armidale and will have potential to visually impact on road users and nearby rural residents.

Six residences (one associated and five non-associated) are located within 1 km of the site as shown in Figure 1.3: R1 500 m south (residence of the landholder), R2 700 m south, R3 870 m southwest, R4 900 m southeast, R5 800 m west and R6 650 m northeast of the site.

5.5.2 Preliminary impact assessment and management

The existing Armidale Substation and associated electrical transmission infrastructure are already part of the viewshed of the area and the BESS will be consistent with these elements of the location's visual character.

The terrain of the site and its immediate surrounds is relatively flat and paddocks are largely cleared of vegetation. However, it is likely that visual impacts on the five non-associated residences, each 650 m or more from the site, will be largely or completely obscured by a combination of vegetation (patches of established vegetation and scattered trees) and topography. In the case of R5, the site will be obscured by the Armidale Substation. In addition, the non-associated sensitive receiver most likely to have a view of the site (R3) is located 870 m away – sufficient distance to significantly reduce the magnitude of impact.

Visual impacts may be greatest for road users of Waterfall Way and possibly local road users along Eathorpe Road. However, impacts on road users are expected to be moderate or minor, particularly given the fleeting nature of views from passing traffic and the presence of the Armidale Substation.

Although visual impacts are not expected to be a major issue, the planting of additional vegetation screening (strategically placed with respect to sensitive receivers), or other measures, may be required to ensure visual impacts are minor.

5.5.3 Need for further assessment

A landscape and visual impact assessment (LVIA) will be undertaken as part of the EIS process including an assessment of the likely visual impacts of the development (including glare, reflectivity and night lighting) on surrounding residences, scenic or significant vistas, air traffic and road corridors in the public domain. The LVIA will include a draft landscaping plan for any proposed on-site perimeter planting or other visual screening. The draft landscaping plan will be developed in consultation with potentially affected landowners.

5.6 Noise and vibration

5.6.1 Existing conditions

Background noise levels are expected to reflect the site's location just outside Armidale in a rural setting. The existing Armidale Substation is a likely source of local noise, and other background noise sources would include traffic, farm equipment (e.g. harvesters, boom sprayers and tractors), wind through trees, and insects.

The six residences within 1 km of the project site (see Figure 1.3) will potentially be subject to noise and vibration associated with the proposed development.

5.6.2 Preliminary impact assessment and management

Impacts from noise during the 9-month construction period will occur mostly from construction vehicles and equipment. Best practice mitigation measures would be implemented to reduce potential noise disturbance (e.g. working within standard hours or fitting vehicles with silencing devices, where appropriate).

Operational noise sources associated with the BESS will include the battery cubicles, transformers and inverters. Other noises during operation, such as from maintenance works, will be minimal, short in duration, and unlikely to disturb surrounding residences.

It is expected that noise will be effectively managed and minimised through the adoption of standard management practices, as will be outlined in the EIS. If necessary, there may be potential to reduce noise impacts by the careful location of noise generating components within the site to increase the distance to sensitive receivers. However, the two closest non-associated sensitive receivers (R6 and R2) are 650 m and 700 m away, respectively, and both are likely to be shielded from noise by topography (see Figure 1.3).

Vibration issues are not expected to be significant during either construction or operation due to the distance between the site and the nearest sensitive receivers.

5.6.3 Need for further assessment

An assessment of construction noise impacts will be undertaken in accordance with the Interim Construction Noise Guideline (ICNG) (DECC 2009), and operational noise impacts in accordance with the Noise Policy for Industry (NPI) (EPA 2017).

Should noise levels be likely to exceed relevant criteria, a noise management plan would be developed and included in the EIS.

5.7 Traffic and transport

5.7.1 Existing conditions

The site is well serviced by roads, being located next to Eathorpe Road and Waterfall Way (see Figure 1.2) and about 8.4 km east of the New England Highway (see Figure 1.1).

Waterfall Way runs east from Armidale to the Pacific Highway and at the project site is classified as a class 2 rural road (2R) (NSW Government 2017). The New England Highway is an 878 km long highway that connects the Hunter region at its southern end to the Queensland border at its northern end (NSW Government 2021).

5.7.2 Preliminary impact assessment and management

Access to the site during construction and operation is expected to be either from Eathorpe Road via Waterfall Way, accessing the site from the west, or directly from Waterfall Way accessing the site from the north.

The turn-off from Waterfall Way to Eathorpe Road will need to be assessed for B-double accessibility if the western access option was adopted, and road works will likely be necessary. Road works are also expected to be required if the northern access option is adopted.

During construction, traffic is expected to peak at approximately 45 vehicles per day (return vehicle trips) during Stage 2 (delivery of BESS infrastructure) and Stage 3 (installation of BESS infrastructure) (Table 5.4). Traffic during these two stages is estimated to comprise approximately 40 light vehicles and 5 heavy vehicles per day. In addition, an estimated total of 8 oversize and/or overmass (OSOM) vehicle return trips to site are expected to be required during Stage 1 of construction, and another 8 return trips during Stage 2.

Operational traffic will be negligible – a maximum of 1 return vehicle trip per day, with an average of 1 to 2 return vehicle trips per week.

Transport impacts as a result of the proposed project will be largely limited to the construction phase and may result from factors including: haulage of materials and components, and movements of workers to and from the site; and movement of trucks, vehicles and construction machinery within the site.

Construction will result in an increase in traffic on the local road network. However, this increase will occur during the standard hours of construction and be managed in consultation with Roads and Maritime Services, local councils and landholders, where relevant, so that impacts on other road users or local residents are minimised and generally minor.

Table 5.4 Estimated vehicle trips during construction

Construction stage	Estimated return vehicle trips		
	Light vehicles (per day)	Heavy vehicles (per day)	OSOM vehicles (total trips per stage)
Stage 1: Site establishment (3 months)	30	6	8
Stage 2: Delivery of BESS infrastructure (4 months)	40	5	8
Stage 3: Installation of BESS infrastructure (5 months)	40	5	-

Standard traffic management measures will be implemented, such as ensuring vehicle road-worthiness, enforcing speed limits, erecting signage, proper design of site access points, and ensuring access roads within the site are properly engineered.

5.7.3 Need for further assessment

A transport assessment will be undertaken as part of the EIS process including an assessment of the site access route, site access point (including required road works) and likely transport impacts of the development on the capacity and condition of roads.

5.8 Preliminary Hazard Assessment

5.8.1 Existing conditions

The site and immediate surrounds is a rural landscape with the exception of the adjacent Armidale Substation and associated electrical transmission infrastructure. The management of hazards associated with the substation are subject to the requirements of SafeWork NSW and applicable legislation. The main hazards associated with the rural use of the area are expected to be the presence of farm-scale storages of fuels, hydrocarbons and chemicals such as pesticides and herbicides.

5.8.2 Preliminary impact assessment and management

Hazards associated with the BESS units include the presence of potentially flammable lithium-ion batteries. The design of the BESS units includes operational controls such as ventilation and cooling systems to limit associated risks and to quickly detect and respond to any issues such as over-heating. The individual, containerised BESS units are also physically separated and configured to minimise risk. Detailed operational, maintenance and emergency response procedures would be implemented to further minimise risk.

Hazards associated with the proposed substation will be managed in accordance with the standard requirements of SafeWork NSW and applicable legislation.

5.8.3 Need for further assessment

Although the Armidale BESS is not expected to trigger the need for a PHA under the current wording of SEPP 33 (see Section 4.2.4), it is anticipated that such an assessment will be required by the SEARs. It is therefore proposed that a PHA will be undertaken, prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (DoP 2011a) and *Multi-Level Risk Assessment* (DoP 2011b).

The PHA will be a detailed hazard assessment. It is not preliminary in the sense that it is high-level, but in the sense that it is based on preliminary project design information. A detailed hazard assessment will also be undertaken during the later detailed design phase of the project.

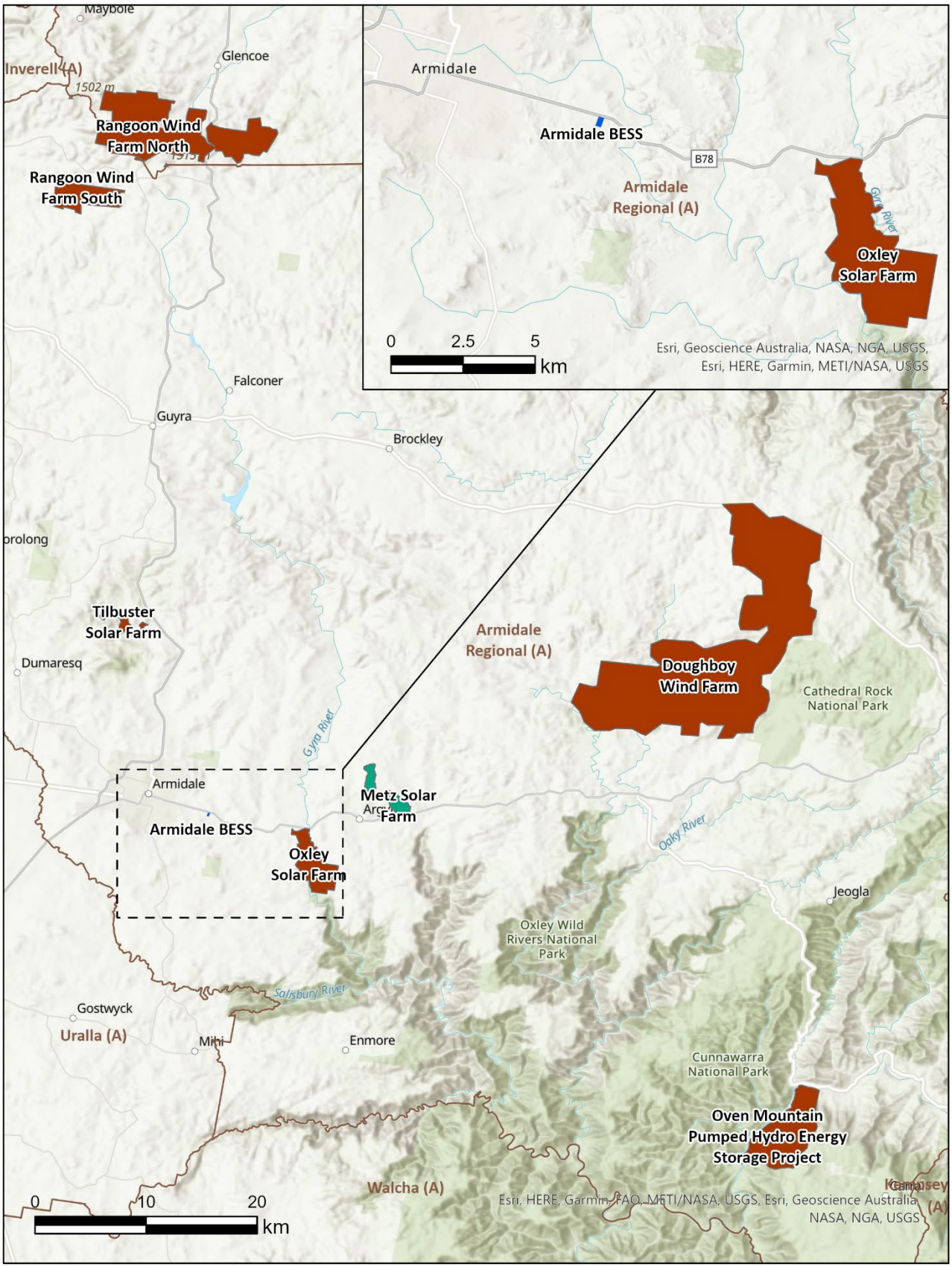
The findings of the PHA and proposed management measures will be outlined in the EIS and the PHA will be appended. The findings of the PHA will be a key focus of Maoneng's community and stakeholder engagement program (see Section 6).

5.9 Cumulative impacts

The EIS will need to assess the cumulative impacts of the proposed Armidale BESS project and existing, approved or proposed developments in the region.

There are currently six approved or proposed energy-related SSDs in the Armidale Regional LGA listed on the DPIE Major Projects website in addition to the Armidale BESS. These are shown in Figure 5.2 and listed in Table 5.5.

The cumulative impact assessment will consider cumulative impacts on aspects such as land use, noise and traffic. The assessment will include a screening process to determine which aspects require more detailed consideration.



Armidale BESS
LGA boundaries
Other energy-related SSDs
Approved
Proposed

N

AE1184.1 Armidale BESS
Figure 5.2 Energy-related SSDs within Armidale Regional LGA

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Table 5.5 Other energy-related SSDs in the Armidale Regional LGA

Name	Number	Status	Distance from Armidale BESS
Metz Solar Farm	SSD-7931	Approved	14 km east
Oxley Solar Farm	SSD-10346	Response to submissions	8 km southeast
Tilbuster Solar Farm	SSD-9619	Response to submissions	18 km northwest
Oven Mountain Pumped Hydro Energy Storage Project	SSI-12422997	Prepare EIS	56 km southeast
Doughboy Wind Farm	SSD-9161599	Amend SEARs	35 km northeast
Rangoon Wind Farm	SSD-10476	Prepare EIS	57 km north

5.10 Other impacts

Other potential environmental or social impacts that are lower risk than those in Sections 5.2 to 5.8 and/or are readily manageable by implementing standard environmental management and mitigation procedures (as will be outlined in the EIS) are assessed in Table 5.6.

Table 5.6 Assessment of lower priority project impacts and need for further assessment

Existing conditions	Preliminary impact assessment and management	Need for further assessment
Socio-economic impacts		
The project area is in the Armidale Regional Council LGA. The Armidale region had a population of approximately 38,272 in 2020 and covers an area of 16,396 km² (ABS 2020). Rural land in the region is used largely for sheep and cattle grazing, with some fruit growing, viticulture and tourism (.id undated). The main town centres within the LGA are Armidale, Guyra, Ben Lomond, and Ebor (.id undated).	Construction of the project will provide immediate social and economic benefits to the local community. The project will increase local employment opportunities and help drive growth in the area, while helping NSW to sustainably meet its energy needs. Pressure on local services including accommodation, health services and schools has the potential to increase due to the relocation of construction workers into the area. Communities that host BESSs are likely to benefit from increases in business during construction and, to a lesser extent, operation.	The EIS will assess the generally positive potential impacts of the project on the local community and include consideration of accommodation and other services for construction workers.

Existing conditions	Preliminary impact assessment and management	Need for further assessment
Land use impacts		
The project area is located within a rural use zone and is currently used for agricultural purposes.	There will be temporary loss of agricultural land and production as a result of the project. However, the site is just 6.7 ha and the loss of this land for an expected period of two decades will have negligible impact on the region's output from primary industry. Construction and operation of the project is expected to result in only minor ground disturbance (an estimate 2.4 ha), primarily associated with access road construction within the site and the establishment of concrete foundations for the BESS units and substation. However, where soils are disturbed, soil erosion and sedimentation issues can result. All above-ground and underground infrastructure would be removed during project decommissioning. Rehabilitation is expected to return the land to its former land use and agricultural capability.	An assessment of the impact of the project on land use (during construction, operation and after decommissioning) will be undertaken as part of the EIS process. This will include an assessment of the impact of the development on agricultural land, and a soil assessment to consider the potential for erosion to occur. Particular attention will be paid to the compatibility of the development with adjacent land uses during operation and after decommissioning, with reference to the zoning provisions applying to the land.
Air quality and dust		
Existing sources of air pollution in Armidale are likely to result from vehicle emissions and dust from agriculture and may increase during the colder months from solid fuel heating and during summer periods if bushfires or dust storms occur in the region.	Construction has the potential to increase dust through movement of traffic on unsealed roads on dry days, vegetation removal and construction activities (such as access road construction). However, dust impacts are unlikely to be significant and standard dust suppression measures can be readily implemented.	Measures to manage potential air quality impacts during construction will be outlined in the EIS. No specific investigation is required as part of the EIS.

Existing conditions	Preliminary impact assessment and management	Need for further assessment
	Impacts to air quality during operation will be negligible.	
Airfields		
Airfields are located at Armidale, approximately 10 km to the west, and Walcha Airport Aerodrome, approximately 73 km south.	It is unlikely that air traffic will be affected from the glint or glare of the BESS's infrastructure.	Any potential affects to air traffic will be discussed in the LVIA, prepared as part of the EIS process.
Electromagnetic fields		
Electricity will be delivered from the on-site substation to the Armidale Substation, located to the immediate west of the site, via a new underground transmission line. Its location will be confirmed in consultation with Council and Transgrid. Grid connection is expected to be via a TransGrid 132 kV transmission line.	Cables to connect the batteries, power conversion units, transformers, switchroom and on-site substation will be located underground. The BESS units, cabling, power conversion units, transformers and substation will produce some electromagnetic emissions. However, these emissions are expected to be below the guideline for public exposure.	The EIS process will include an assessment of potential hazards and risks associated with transmission infrastructure and the substation against the International Commission on Non-Ionizing Radiation Protection (ICNIRP) *Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields* (ICNIRP 1998).
Bushfire hazard		
The project area is largely cleared of vegetation for agricultural purposes and is not considered to be bushfire-prone land, according to the Rural Fire Service Online Tool (search undertaken 15 June 2021).	The proposed project is unlikely to be at high or moderate risk of being affected by bushfire or pose a significant bushfire risk.	Bushfire response will be part of emergency management planning for the project. No specific investigation is required as part of the EIS. However, consultation will be undertaken with the NSW Rural Fire Authority during the EIS process to determine fire risk and response requirements.
Existing site contamination		
A search of the NSW EPA Contaminated Land Record of Notices identified 6 contaminated sites within the Armidale Regional Council (search undertaken 15 June 2021). All sites are	Existing contamination of the project area could be present as a result of past fertiliser, herbicide, pesticide, and other chemical use on the land, and may be uncovered during excavation works at the site.	Risks associated with existing or project-related contamination are low. Therefore, an assessment of contamination risks will not be required as part of the EIS process, provided that any use of hydrocarbons

Existing conditions	Preliminary impact assessment and management	Need for further assessment
in the Armidale city area approximately 5 km west of the proposed development and thus not expected to impact the site. A search of EPA potentially contaminated sites identified 16 sites (search undertaken 18 June 2021). All are either in Armidale city or to the west thereof and are not expected to impact the proposed project site.	Field visits to date have not identified any visible land contamination. Only very minor quantities of potentially polluting hazardous materials or dangerous goods will be used or stored on site during project construction or operation. Hydrocarbons and hazardous materials on site will be managed in accordance with relevant EPA and SafeWork NSW guidelines.	and hazardous materials is subject to standard management practice as will be outlined in the EIS.

6 Community and stakeholder consultation

6.1 Consultation activities undertaken

Maoneng has identified a range of stakeholders in the development of the Armidale BESS. These include regulators who have a decision-making role in project approvals, and groups or individuals who may be directly or indirectly affected by the project. Initial consultation has included formal and informal engagement with the following:

- Armidale Regional Council – a meeting was held with Mayor Ian Tiley and General Manager James Roncon, who provided no negative feedback and requested that they be kept informed.
- TransGrid – initial discussions have been held including a preliminary grid enquiry.
- Local Member of State Parliament – high level information on the project has been sent to Adam Marshall MP's office, with no negative feedback received.
- Landholders – a register of landholders within a 1 km distance of the project site (see Figure 1.3) has been compiled. Letters have been sent to each of the four identified non-associated landholders, providing an outline of the proposed project and approvals process, and advising them of the upcoming process of community engagement (see Table 6.1). Maoneng has also called landholders, where phone numbers were available, to discuss the project. The non-associated landholder spoken to expressed interest in the development and a desire to be kept informed.

Table 6.1 Initial landholder consultation

Category	Number
Landholders sent letters	4
Landholders called	3*
Non-responses to either letter or phone call	3
Phone conversations	1
Negative responses	0

*One phone number not identified.

The consultation to date has provided stakeholders with opportunities to contribute to the project development process and raise any concerns including the identification of potential impacts. Maoneng continues to expand its stakeholder database as consultation proceeds.

The council has certain obligations under the *Local Government Act 1993* and the EP&A Act to notify owners of land whose enjoyment of that land may be affected by the proposed development. Maoneng will support the council in this.

6.2 Community and Stakeholder Consultation Plan

The EIS process requires project proponents to undertake detailed consultation with affected landowners surrounding the development, the local community and local council.

A formal process of consultation will be implemented in support of the EIS process and in accordance with requirements set out in the SEARs.

In addition to those listed in Section 6.1 (above), stakeholders will include:

- local community groups
- registered aboriginal parties (RAPs)
- Department of Planning, Industry and Environment (DPIE)
- Transport for NSW
- NSW Rural Fire Service.

Maoneng has prepared a high-level community and stakeholder consultation plan to guide consultation during the EIS process and the approvals phase of the project. The plan includes various methods of information dissemination (such as letter box drops and face-to-face meetings with local landholders) and opportunities for stakeholder engagement at key milestones.

Maoneng recognises that large-scale BESS developments are new to NSW and that a strong emphasis needs to be placed on engagement to inform stakeholders as to the nature of such projects, to fully describe potential project impacts, to explain proposed measures for impact management and mitigation, and to provide opportunities for stakeholder input into the development process.

7 Constraints assessment

An initial, qualitative assessment of site constraints has been undertaken based on the preliminary site information to determine whether environmental or cultural sensitivities will constrain or influence the design of the proposed Armidale BESS project, or affect the location and/or configuration of the project within the project site. Maoneng recognises the importance of understanding site constraints so that project impacts are avoided and/or minimised where possible.

The initial constraints assessment considered the extent to which the seven higher priority areas of potential impact identified in Section 5.1 are expected to influence project design, location or configuration. The outcomes of the assessment are presented in Table 7.1.

Table 7.1 Outcomes of initial constraints assessment

Area of potential project impact	Associated constraints	Current implications for project design, location or configuration	Additional EIS investigation required
Ecological values	No major constraints identified during preliminary assessment	Potential siting of footprint to minimise clearance of paddock trees	Further assessment of extent and quality of native grassland and fauna habitat
Aboriginal cultural heritage and historic heritage	No constraints identified during preliminary assessment	No current implications	Additional desktop review. Archaeological field survey, and RAP consultation Historic heritage field survey
Hydrology and water resources (including flood risk)	No constraints identified during preliminary assessment	No current implications	Flood modelling to quantify flood risk
Visual amenity	No major constraints identified during preliminary assessment	Potential need for screening vegetation	LVIA including draft landscape management plan (and landholder consultation)
Noise and vibration	No major constraints identified during preliminary assessment	Potential need to locate noise-generating components (e.g. the new substation) a minimum distance from sensitive receivers	Noise assessment to determine compliance of project with applicable noise criteria and any constraints on siting of noise-generating components

Area of potential project impact	Associated constraints	Current implications for project design, location or configuration	Additional EIS investigation required
Traffic and transport	No major constraints identified during preliminary assessment	Potential need for road works to enable safe and compliant site access	Assessment of site access options, associated road works and associated implications (such as vegetation clearance)
Hazards associated with BESS and proposed substation	No constraints identified during preliminary assessment	No current implications	PHA to identify any implications for component siting or need for other controls

Potential constraints such as those listed in Table 7.1 or identified during the proposed EIS investigation program will be a key consideration in project planning and development and will be a focus of the avoidance, minimisation and mitigation measures incorporated into the project's environmental management.

8 Conclusion

This Scoping Report has been prepared in accordance with the requirements of DPIE for projects identified as SSDs and therefore requiring an EIS to be prepared under Part 4 of the EP&A Act. The report will support a request to DPIE from Maoneng for the Secretary's Environmental Assessment Requirements (SEARs) for the EIS.

Potential environmental and social issues associated with the project have been identified and prioritised as either higher priority or lower priority issues. Based on a preliminary assessment of these potential issues, Maoneng has proposed environmental assessment requirements for consideration by DPIE.

The project site is disturbed and of low biodiversity significance. A very small number of scattered trees provide some habitat for arboreal species and nests observed indicate some use for breeding. However, it is considered likely that a BDAR waiver will apply. As assessments were performed in winter, a non-optimal timing for determining the presence of native ground storey species and coverage, some further assessment will be required to confirm or modify the findings of the preliminary assessment.

The site is likely to be of low cultural heritage significance and, additionally, is unlikely to pose a flood risk. Issues associated with visual amenity, noise (and vibration) and traffic are expected to be relatively minor. Some road works are likely to be required and will need appropriate approvals and management.

Impact avoidance and minimisation has been achieved through the initial site selection and will be further considered during project design, and in the location of the BESS and associated infrastructure within the site. A detailed preliminary hazard assessment will be undertaken to demonstrate that risks associated with the facility have been acceptably minimised through appropriate design and the integration of engineering controls.

Large-scale BESS developments are new to NSW and a strong emphasis will be placed on engagement to fully inform stakeholders as to the potential impacts of the project and proposed management measures, and to provide opportunities for stakeholder input into the development process.

The project is expected to be a relatively low risk development compared with many SSDs due to the small footprint of the facility (e.g. in comparison to a solar farm) and the location of the project in an area that has a long history of disturbance from primary production, is adjacent to existing electrical infrastructure, and is distant from areas of high environmental sensitivity. In addition, the project is expected to result in significant benefits to the local community and State of NSW by generating economic activity and contributing to the transition to cleaner electricity generation and increased energy security.

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Appendix A:
Bionet Species Lists

Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info	Likeihood of threatened species	Presence during survey
Crinia parinsignifera		Eastern Sign-bearing Froglet	P		2			
Crinia signifera		Common Eastern Froglet	P		10			
Uperoleia laevigata		Smooth Toadlet	P		2			
Litoria fallax		Eastern Dwarf Tree Frog	P		7			
Litoria latopalmata		Broad-palmed Frog	P		1			
Litoria peronii		Peron's Tree Frog	P		6			
Litoria verreauxii		Verreaux's Frog	P		10			
Limnodynastes dumerilii		Eastern Banjo Frog	P		15			
Limnodynastes tasmaniensis		Spotted Grass Frog	P		9			
Chelodina longicollis		Eastern Snake-necked Turtle	P		3			
Hemiergis decresiensis		Three-toed Earless Skink	P		1			
Lampropholis delicata		Dark-flecked Garden Sunskink	P		2			
Lampropholis guichenoti		Pale-flecked Garden Sunskink	P		1			
Saiphos equalis		Three-toed Skink	P		1			
Tiliqua scincoides		Eastern Blue-tongue	P		11			
Pogona barbata		Bearded Dragon	P		1			
Hemiaspis signata		Black-bellied Swamp Snake	P		1			
Pseudechis porphyriacus		Red-bellied Black Snake	P		5			
Pseudonaja textilis		Eastern Brown Snake	P		2			
Coturnix pectoralis		Stubble Quail	P		1			
Anas gracilis		Grey Teal	P		15			Y
Anas superciliosa		Pacific Black Duck	P		22			
Aythya australis		Hardhead	P		1			
Chenonetta jubata		Australian Wood Duck	P		8			
Cygnus atratus		Black Swan	P		9			
Tachybaptus novaehollandiae		Australasian Grebe	P		1			
Ocyphaps lophotes		Crested Pigeon	P		18			
Podargus strigoides		Tawny Frogmouth	P		9			
Aegotheles cristatus		Australian Owlet-nightjar	P		1			

Anhinga novaehollandiae	Australasian Darter	P		1			
Phalacrocorax carbo	Great Cormorant	P		2			
Phalacrocorax sulcirostris	Little Black Cormorant	P		1			
Pelecanus conspicillatus	Australian Pelican	P		1			
Casmerodius modesta	Eastern Great Egret	P		2			
Platalea flavipes	Yellow-billed Spoonbill	P		1			
Threskiornis moluccus	Australian White Ibis	P		1			
Threskiornis spinicollis	Straw-necked Ibis	P		2			
Accipiter cirrocephalus	Collared Sparrowhawk	P		1			
Accipiter sp.	Unidentified goshawk	P		1			
Haliastur sphenurus	Whistling Kite	P		1			
Hieraaetus morphnoides	Little Eagle	V,P		7		Low, F	
^^*Lophoictinia isura*	Square-tailed Kite	V,P,3		3		Low, F	
Falco cenchroides cenchroides	Nankeen Kestrel	P		1			
Falco longipennis	Australian Hobby	P		1			
Fulica atra	Eurasian Coot	P		6			
Himantopus himantopus	Black-winged Stilt	P		2			
Vanellus miles	Masked Lapwing	P		8			
Cacatua galerita	Sulphur-crested Cockatoo	P		2			
Cacatua sanguinea	Little Corella	P		4			
Cacatua sp.		P		1			
Eolophus roseicapilla	Galah	P		18			Y
Zanda funereus	Yellow-tailed Black-Cockatoo	P		2			
Glossopsitta concinna	Musk Lorikeet	P		3			
Glossopsitta pusilla	Little Lorikeet	V,P		1		Mod H	
^^*Lathamus discolor*	Swift Parrot	E1,P,3	CE	2		Low U	
Platycercus elegans	Crimson Rosella	P		8			
Platycercus eximius	Eastern Rosella	P		13			Y

Psephotus haematonotus	Red-rumped Parrot	P		35			Y
Trichoglossus haematodus	Rainbow Lorikeet	P		8			
Cacomantis variolosus	Brush Cuckoo	P		1			
Eudynamys orientalis	Eastern Koel	P		2			
Ninox novaeseelandiae	Southern Boobook	P		2			
Dacelo novaeguineae	Laughing Kookaburra	P		16			
Todiramphus macleayii	Forest Kingfisher	P		1			
Todiramphus sanctus	Sacred Kingfisher	P		32			
Eurystomus orientalis	Dollarbird	P		1			
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V,P		97		Low-O	
Cormobates leucophaea	White-throated Treecreeper	P		93			
Malurus cyaneus	Superb Fairy-wren	P		96			
Malurus melanocephalus	Red-backed Fairy-wren	P		1			
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	P		12			Y
Acanthiza lineata	Striated Thornbill	P		26			
Acanthiza nana	Yellow Thornbill	P		4			
Acanthiza pusilla	Brown Thornbill	P		9			
Acanthiza reguloides	Buff-rumped Thornbill	P		42			
Chthonicola sagittata	Speckled Warbler	V,P		79		Mod-O	
Gerygone fusca	Western Gerygone	P		1			
Gerygone olivacea	White-throated Gerygone	P		4			
Smicrornis brevirostris	Weebill	P		2			
Pardalotus punctatus	Spotted Pardalote	P		10			
Pardalotus striatus	Striated Pardalote	P		3			
Acanthorhynchus tenuirostris	Eastern Spinebill	P		13			
Anthochaera carunculata	Red Wattlebird	P		21			
Anthochaera phrygia	Regent Honeyeater	E4A,P	CE	2		Low-U	

Caligavis chrysops	Yellow-faced Honeyeater	P		9		
Entomyzon cyanotis	Blue-faced Honeyeater	P		1		
Grantiella picta	Painted Honeyeater	V,P	V	1		Low-U
Manorina melanocephala	Noisy Miner	P		37		
Melithreptus brevirostris	Brown-headed Honeyeater	P		22		
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V,P		1		Mod-F
Melithreptus lunatus	White-naped Honeyeater	P		173		
Nesoptilotis leucotis	White-eared Honeyeater	P		2		
Philemon corniculatus	Noisy Friarbird	P		139		
Ptilotula fusca	Fuscous Honeyeater	P		664		
Ptilotula penicillata	White-plumed Honeyeater	P		1		
Falcunculus frontatus frontatus	Eastern Shrike-tit	P		14		
Daphoenositta chrysoptera	Varied Sittella	V,P		1		Low-F
Coracina maxima	Ground Cuckoo-shrike	P		1		
Coracina novaehollandiae	Black-faced Cuckoo-shrike	P		8		
Edolisoma tenuirostris	Cicadabird	P		1		
Colluricincla harmonica	Grey Shrike-thrush	P		29		
Pachycephala pectoralis	Golden Whistler	P		13		
Pachycephala rufiventris	Rufous Whistler	P		31		
Oriolus sagittatus	Olive-backed Oriole	P		11		
Artamus cinereus	Black-faced Woodswallow	P		1		
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V,P		58		Mod-F
Cracticus nigrogularis	Pied Butcherbird	P		3		
Cracticus torquatus	Grey Butcherbird	P		4		
Gymnorhina tibicen	Australian Magpie	P		75		Y
Strepera graculina	Pied Currawong	P		11		

Rhipidura albiscapa		Grey Fantail	P		21		
Rhipidura leucophrys		Willie Wagtail	P		28		
Rhipidura rufifrons		Rufous Fantail	P		1		
Corvus coronoides		Australian Raven	P		6		
Corvus orru		Torresian Crow	P		3		
Corvus tasmanicus		Forest Raven	P		1		
Grallina cyanoleuca		Magpie-lark	P		7		Y
Monarcha melanopsis		Black-faced Monarch	P		1		
Myiagra cyanoleuca		Satin Flycatcher	P		1		
Myiagra inquieta		Restless Flycatcher	P		6		
Myiagra rubecula		Leaden Flycatcher	P		102		
Corcorax melanorhamphos		White-winged Chough	P		407		
Eopsaltria australis		Eastern Yellow Robin	P		101		
Melanodryas cucullata cucullata		Hooded Robin (south-eastern form)	V,P		4		Low-F
Microeca fascinans		Jacky Winter	P		3		
Petroica boodang		Scarlet Robin	V,P		37		Mod-O
Petroica rosea		Rose Robin	P		2		
Acrocephalus australis		Australian Reed-Warbler	P		5		
Cincloramphus mathewsi		Rufous Songlark	P		9		
Hirundo neoxena		Welcome Swallow	P		2		
Petrochelidon ariel		Fairy Martin	P		1		
Petrochelidon nigricans		Tree Martin	P		2		
Acridotheres tristis	*	Common Myna			2		
Sturnus vulgaris	*	Common Starling			1		
Zosterops lateralis		Silvereye	P		4		
Dicaeum hirundinaceum		Mistletoebird	P		4		
Neochmia temporalis		Red-browed Finch	P		5		
Stagonopleura guttata		Diamond Firetail	V,P		17		Low-O
Stizoptera bichenovii		Double-barred Finch	P		1		
Ornithorhynchus anatinus		Platypus	P		1		
Tachyglossus aculeatus		Short-beaked Echidna	P		45		
Dasyurus maculatus		Spotted-tailed Quoll	V,P	E	1		Low-U

Phascolarctos cinereus		Koala	V,P	V	180		Mod-F	
Petaurus breviceps		Sugar Glider	P		6			
Petaurus norfolcensis		Squirrel Glider	V,P		1		Low-U	
Pseudocheirus peregrinus		Common Ringtail Possum	P		2			
Trichosurus sp.		brushtail possum	P		4			
Trichosurus vulpecula		Common Brushtail Possum	P		1766			
Macropod sp.		unidentified macropod	P		35			
Macropus giganteus		Eastern Grey Kangaroo	P		2438			Y
Macropus sp.		kangaroo / wallaby	P		4			
Notamacropus rufogriseus		Red-necked Wallaby	P		249			
Osphranter robustus		Common Wallaroo	P		311			
Wallabia bicolor		Swamp Wallaby	P		1801			
Pteropus poliocephalus		Grey-headed Flying-fox	V,P	V	361		Mod-F	
Pteropus scapulatus		Little Red Flying-fox	P		4			
Saccolaimus flaviventris		Yellow-bellied Sheathtail-bat	V,P		1		Low-O	
Austronomus australis		White-striped Freetail-bat	P		2			
Chalinolobus gouldii		Gould's Wattled Bat	P		2			
Chalinolobus morio		Chocolate Wattled Bat	P		2			
Falsistrellus tasmaniensis		Eastern False Pipistrelle	V,P		2		Low-O	
Nyctophilus geoffroyi		Lesser Long-eared Bat	P		2			
Nyctophilus gouldi		Gould's Long-eared Bat	P		1			
Scotorepens orion		Eastern Broad-nosed Bat	P		2			
Vespadelus darlingtoni		Large Forest Bat	P		2			
Vespadelus regulus		Southern Forest Bat	P		1			
Vespadelus vulturnus		Little Forest Bat	P		3			
Miniopterus orianae oceanensis		Large Bent-winged Bat	V,P		2		Low-O	
Canis lupus	*	Dingo, domestic dog			2			
Vulpes vulpes	*	Fox			66			
Felis catus	*	Cat			1			
Lepus capensis	*	Brown Hare			2			

Oryctolagus cuniculus	*	Rabbit	85	Y
Sus scrofa	*	Pig	1	
Cervus sp.	*	Unidentified Deer	1	
Heteronympha merope		Common Brown	1	
Bird sp.		Unidentified Bird	1	
Fauna sp.		Unidentified Fauna	11	
Mammal sp.		Unidentified Mammal	29	
Arthropodium milleflorum		Pale Vanilla-lily	7	
Tricoryne elatior		Yellow Autumn-lily	13	
Centella asiatica		Indian Pennywort	1	
Conium maculatum	*	Hemlock	1	
Daucus carota	*	Wild Carrot	1	
Daucus glochidiatus		Native Carrot	1	
Hydrocotyle geraniifolia		Forest Pennywort	1	
Hydrocotyle laxiflora		Stinking Pennywort	27	
Hydrocotyle spp.			1	
Oreomyrrhis eriopoda		Australian Carraway	4	
Hedera helix	*	English Ivy	1	
Bulbine bulbosa		Bulbine Lily	1	
Asplenium flabellifolium		Necklace Fern	3	
Ammobium alatum			2	
Artemisia verlotiorum	*	Chinese Wormwood	1	
Brachyscome angustifolia var. heterophylla			1	
Brachyscome chrysoglossa			2	
Brachyscome dentata			16	
Brachyscome melanocarpa		Black-seeded Daisy	1	
Brachyscome radicans			2	
Brachyscome tenuiscapa var. pubescens			2	
Calotis cuneata		Mountain Burr-Daisy	1	
Calotis cuneifolia		Purple Burr-Daisy	25	
Calotis lappulacea		Yellow Burr-daisy	1	
Calotis scapigera		Tufted Burr-daisy	1	

Carduus nutans subsp. nutans	*	Nodding Thistle	1	
Carthamus lanatus	*	Saffron Thistle	1	
Cassinia laevis		Cough Bush	4	
Cassinia quinquefaria			35	
Centipeda minima subsp. minima		spreading sneezeweed	1	
Chondrilla juncea	*	Skeleton Weed	2	
Chrysocephalum apiculatum		Common Everlasting	31	
Chrysocephalum semipapposum		Clustered Everlasting	7	
Cichorium intybus	*	Chicory	1	
Cirsium vulgare	*	Spear Thistle	19	Y
Conyza bonariensis	*	Flaxleaf Fleabane	7	Y
Conyza canadensis var. canadensis	*	Canadian Fleabane	1	
Conyza spp.	*		1	
Conyza sumatrensis	*	Tall fleabane	6	Y
Coronidium scorpioides		Button Everlasting	2	
Cotula australis		Common Cotula	1	
Crepis capillaris	*	Smooth Hawksbeard	3	
Cymbonotus lawsonianus		Bear's Ear	23	
Euchiton involucratus		Star Cudweed	2	
Euchiton japonicus			7	
Euchiton sphaericus		Star Cudweed	6	
Gamochaeta coarctata	*		1	
Hypochaeris glabra	*	Smooth Catsear	6	
Hypochaeris radicata	*	Catsear	40	Y
Lactuca saligna	*	Willow-leaved Lettuce	1	
Lactuca serriola	*	Prickly Lettuce	2	
Lagenifera stipitata		Blue Bottle-daisy	32	
Lagenophora gracilis		Slender Lagenophora	2	
Leontodon taraxacoides subsp. taraxacoides	*	Lesser Hawkbit	1	
Leptorhynchos squamatus		Scaly Buttons	1	

Leucanthemum vulgare	*	Oxeye Daisy	1	
Olearia elliptica		Sticky Daisy-bush	6	
Olearia viscidula		Wallaby Weed	14	
Onopordum acanthium subsp. acanthium	*	Scotch Thistle	1	
Ozothamnus adnatus		Winged Everlasting	2	
Ozothamnus diosmifolius		White Dogwood	2	
Picris angustifolia subsp. angustifolia			1	
Podolepis jaceoides		Showy Copper-wire Daisy	2	
Schkuhria pinnata var. abrotanoides	*	Dwarf Marigold	2	
Senecio bipinnatisectus			2	
Senecio diaschides			26	
Senecio madagascariensis	*	Fireweed	2	
Senecio prenanthoides			5	
Senecio quadridentatus		Cotton Fireweed	1	
Sigesbeckia orientalis subsp. orientalis		Indian Weed	2	
Solenogyne bellioides		Solengyne	2	
Sonchus asper	*	Prickly Sowthistle	1	
Sonchus oleraceus	*	Common Sowthistle	3	Y
Tagetes minuta	*	Stinking Roger	1	
Taraxacum officinale	*	Dandelion	15	Y
Tolpis barbata	*	Yellow Hawkweed	1	
Vernonia cinerea var. lanata			12	
Vittadinia cuneata			6	
Vittadinia cuneata var. cuneata			2	
Vittadinia muelleri			17	
Vittadinia sulcata			2	
Xerochrysum bracteatum		Golden Everlasting	5	
Anchusa arvensis	*	Wild Bugloss	1	
Cynoglossum australe			6	

Cynoglossum spp.			1	
Echium vulgare	*	Viper's Bugloss	1	
Brassica spp.	*	Brassica	1	
Capsella bursa-pastoris	*	Shepherd's Purse	1	
Hirschfeldia incana	*	Buchan Weed	1	
Rorippa laciniata			2	
Lobelia pedunculata		Matted Pratia, Trailing Pratia	2	
Wahlenbergia communis		Tufted Bluebell	22	
Wahlenbergia gracilis		Sprawling Bluebell	1	
Wahlenbergia luteola		Bluebell	15	
Wahlenbergia planiflora subsp. longipila			14	
Wahlenbergia planiflora subsp. planiflora		Flat Bluebell	1	
Wahlenbergia queenslandica			2	
Wahlenbergia spp.		Bluebell	4	
Wahlenbergia stricta		Tall Bluebell	1	
Cerastium vulgare	*	Mouse-ear Chickweed	1	Y
Dianthus armeria	*	Deptford Pink	2	
Paronychia brasiliana	*	Chilean Whitlow Wort, Brazilian Whitlow	3	
Petrorhagia dubia	*		1	
Petrorhagia nanteuilii	*	Proliferous Pink	4	
Polycarpon tetraphyllum	*	Four-leaved Allseed	3	
Scleranthus biflorus		Two-flowered Knawel	31	
Stellaria flaccida			2	
Allocasuarina littoralis		Black She-Oak	1	
Dysphania pumilio		Small Crumbweed	3	
Einadia hastata		Berry Saltbush	24	
Einadia nutans		Climbing Saltbush	2	
Einadia nutans subsp. nutans		Climbing Saltbush	1	
Einadia spp.			1	
Einadia trigonos		Fishweed	1	
Einadia trigonos subsp. leiocarpa			2	

Hypericum gramineum		Small St John's Wort	32	
Hypericum japonicum			1	
Hypericum perforatum	*	St. Johns Wort	1	
Convolvulus erubescens		Pink Bindweed	2	
Dichondra repens		Kidney Weed	55	
Dichondra sp. Inglewood			2	
Crassula sieberiana		Australian Stonecrop	5	
Callitris glaucophylla		White Cypress Pine	1	
Cupressus sempervirens	*	Italian Cypress	1	
Carex appressa		Tall Sedge	1	
Carex inversa		Knob Sedge	22	
Cyperus eragrostis	*	Umbrella Sedge	10	Y
Cyperus gracilis		Slender Flat-sedge	4	
Cyperus lhotskyanus			2	
Cyperus sanguinolentus			1	
Cyperus sphaeroideus			3	
Eleocharis acuta			1	
Eleocharis pallens		Pale Spike Sedge	4	
Fimbristylis dichotoma		Common Fringe-sedge	34	
Gahnia spp.			1	
Isolepis gaudichaudiana		Benambra Club-sedge	2	
Lepidosperma laterale		Variable Sword-sedge	3	
Schoenus apogon		Fluke Bogrush	4	
Scirpus polystachyus		Large-headed Club-rush	2	
Pteridium esculentum		Bracken	2	
Hibbertia linearis			1	
Hibbertia obtusifolia		Hoary Guinea Flower	35	
Brachyloma daphnoides		Daphne Heath	2	
Brachyloma daphnoides subsp. glabrum			17	

Leucopogon lanceolatus			1	
Leucopogon spp.			1	
Lissanthe strigosa		Peach Heath	12	
Lissanthe strigosa subsp. subulata		Peach Heath	48	
Melichrus urceolatus		Urn Heath	22	
Monotoca scoparia			4	
Chamaesyce drummondii		Caustic Weed	7	
Bossiaea buxifolia			3	
Cullen tenax		Emu-foot	1	
Daviesia genistifolia		Broom Bitter Pea	3	
Daviesia latifolia		Bitter-pea	2	
Desmodium gunnii		Slender Tick-trefoil	1	
Desmodium rhytidophyllum			1	
Desmodium spp.		Tick-trefoil	1	
Desmodium varians		Slender Tick-trefoil	62	
Glycine clandestina		Twining glycine	24	
Glycine tabacina		Variable Glycine	36	
Hardenbergia violacea		False Sarsaparilla	14	
Indigofera australis		Australian Indigo	9	
Jacksonia scoparia		Dogwood	5	
Lespedeza juncea subsp. sericea			16	
Lotus australis		Australian Trefoil	1	
Lotus cruentus		Red-flowered Lotus	6	
Oxytes brachypoda		Large Tick-trefoil	19	
Pultenaea dentata			2	
Pultenaea microphylla			24	
Swainsona spp.			1	
Trifolium arvense	*	Haresfoot Clover	4	
Trifolium campestre	*	Hop Clover	4	
Trifolium repens	*	White Clover	11	Y
Trifolium spp.	*		1	
Zornia dyctiocarpa var. dyctiocarpa		Zornia	4	
Acacia baileyana		Cootamundra Wattle	1	
Acacia brownii		Heath Wattle	1	
Acacia filicifolia		Fern-leaved Wattle	39	
Acacia gunnii		Ploughshare Wattle	2	

Acacia implexa		Hickory Wattle	5	
Acacia ingramii			1	
Acacia sertiformis			1	
Acacia ulicifolia		Prickly Moses	6	
Acacia uncinata		Gold-dust Wattle	2	
Acacia viscidula		Sticky Wattle	2	
Centaurium erythraea	*	Common Centaury	8	
Centaurium tenuiflorum	*	Branched Centaury, Slender centaury	1	
Geranium molle subsp. molle	*	Cranesbill Geranium	2	
Geranium solanderi		Native Geranium	3	
Geranium solanderi var. solanderi			41	
Geranium spp.			1	
Goodenia bellidifolia			4	
Goodenia bellidifolia subsp. bellidifolia			8	
Goodenia hederacea		Ivy Goodenia	6	
Goodenia hederacea subsp. hederacea			24	
Goodenia pinnatifida		Scrambles Eggs	2	
Goodenia rotundifolia			1	
Goodenia spp.			1	
Velleia paradoxa			1	
Gonocarpus tetragynus		Poverty Raspwort	1	
Gonocarpus teucrioides		Germander Raspwort	7	
Haloragis heterophylla		Variable Raspwort	19	
Myriophyllum aquaticum	*	Parrots Feather	4	
Phacelia tanacetifolia	*	Tansy	1	
Hypoxis hygrometrica		Golden Weather-grass	16	
Juncus articulatus	*		1	
Juncus australis		Rush	2	
Juncus bufonius	*	Toad Rush	3	Y

Juncus filicaulis			6
Juncus fockei			1
Juncus homalocaulis			3
Juncus remotiflorus			2
Juncus spp.			2
Juncus subglaucus		Rush	4
Juncus subsecundus		Finger Rush	5
Juncus usitatus			1
Luzula densiflora		Woodrush	1
Luzula flaccida		Woodrush	3
Ajuga australis		Austral Bugle	19
Marrubium vulgare	*	White Horehound	1
Mentha diemenica		Slender Mint	31
Mentha satureioides		Native Pennyroyal	1
Mentha spp.			1
Plectranthus graveolens			2
Scutellaria humilis		Dwarf Skullcap	1
Lomandra filiformis		Wattle Matt-rush	7
Lomandra filiformis subsp. coriacea		Wattle Matt-rush	6
Lomandra longifolia		Spiny-headed Mat-rush	11
Lomandra multiflora subsp. multiflora		Many-flowered Mat-rush	19
Amyema miquelii		Box Mistletoe	10
Amyema pendula			3
Amyema pendula subsp. pendula			3
Amyema spp.		Mistletoe	1
Cotoneaster spp.	*		2
Crataegus monogyna	*	Hawthorn	2
Malus domestica	*	Apple	1
Pyracantha angustifolia	*	Orange Firethorn	3
Pyracantha crenatoserrata	*		1
Hibiscus trionum var. trionum			1
Malva parviflora	*	Small-flowered Mallow	1
Modiola caroliniana	*	Red-flowered Mallow	4
Pavonia hastata	*		4

Y

Angophora floribunda		Rough-barked Apple		6	
Angophora subvelutina		Broad-leaved Apple		1	
Callistemon sieberi		River Bottlebrush		2	
Eucalyptus albens		White Box		1	
Eucalyptus blakelyi		Blakely's Red Gum		62	Y
Eucalyptus bridgesiana		Apple Box		21	
Eucalyptus caliginosa		Broad-leaved Stringybark		57	
Eucalyptus cameronii		Diehard Stringybark		1	
Eucalyptus camphora		Broad-leaved Sally		1	
Eucalyptus dalrympleana		Mountain Gum		1	
Eucalyptus dalrympleana subsp. heptantha				1	
Eucalyptus laevopinea		Silver-top Stringybark		1	
Eucalyptus melliodora		Yellow Box		42	
Eucalyptus nova-anglica		New England Peppermint		10	
Eucalyptus pauciflora		White Sally		1	
Eucalyptus radiata		Narrow-leaved Peppermint		1	
Eucalyptus radiata subsp. sejuncta				1	
Eucalyptus viminalis		Ribbon Gum		23	
Ochna serrulata	*	Mickey Mouse Plant		1	
Ligustrum sinense	*	Small-leaved Privet		1	
Ligustrum vulgare	*	European Privet		1	
Epilobium billardierianum				3	
Epilobium billardierianum subsp. hydrophilum				14	
Diuris punctata		Purple Donkey Orchid	P	1	
Diuris sulphurea		Tiger Orchid	P	1	
Pterostylis decurva		Summer Grasshood	P	2	
Pterostylis parviflora		Tiny Greenhood	P	2	
Oxalis chnoodes				40	

Oxalis corniculata	*	Creeping Oxalis	12	
Oxalis exilis			3	
Oxalis perennans			4	
Oxalis radicosa			2	
Dianella caerulea		Blue Flax-lily	7	
Dianella longifolia		Blueberry Lily	1	
Dianella revoluta		Blueberry Lily	8	
Dianella revoluta var. revoluta			1	
Dianella spp.			1	
Phyllanthus virgatus		Wiry Spurge	27	
Poranthera microphylla		Small Poranthera	4	
Pinus radiata	*	Radiata Pine	1	Y
Pinus spp.	*		1	
Billardiera scandens		Hairy Apple Berry	2	
Bursaria spinosa		Native Blackthorn	4	
Bursaria spinosa subsp. spinosa		Native Blackthorn	9	
Plantago debilis		Shade Plantain	11	
Plantago gaudichaudii		Narrow Plantain	2	
Plantago hispida			1	
Plantago lanceolata	*	Lamb's Tongues	32	Y
Plantago varia			14	
Veronica calycina		Hairy Speedwell	16	
Veronica plebeia		Trailing Speedwell	5	
Aira cupaniana	*	Silvery Hairgrass	11	
Aira elegantissima	*	Delicate Hairgrass	2	
Andropogon virginicus	*	Whisky Grass	1	
Anthosachne scabra		Wheatgrass, Common Wheatgrass	4	
Anthoxanthum odoratum	*	Sweet Vernal Grass	1	
Aristida jerichoensis var. jerichoensis		Jericho Wiregrass	1	
Aristida jerichoensis var. subspinulifera		Jericho Wiregrass	2	
Aristida personata			48	
Aristida ramosa		Purple Wiregrass	4	
Aristida spp.			4	
Aristida vagans		Threeawn Speargrass	5	

Austrostipa scabra subsp. falcata		Rough Speargrass			9			
Austrostipa spp.					1			
Avena fatua	*	Wild Oats			1			
Bothriochloa bladhii subsp. bladhii		Forest Bluegrass			8			
Bothriochloa decipiens var. decipiens		Pitted Bluegrass			14			
Bothriochloa macra		Red Grass			5			
Briza minor	*	Shivery Grass			1			
Bromus catharticus	*	Praire Grass			3			
Bromus diandrus	*	Great Brome			1			
Cenchrus clandestinus	*	Kikuyu Grass			2			
Cenchrus purpurascens					11			
Chloris truncata		Windmill Grass			4			
Cymbopogon refractus		Barbed Wire Grass			20			
Cynodon dactylon		Common Couch			1			Y
Dactylis glomerata	*	Cocksfoot			5			Y
Deyeuxia spp.					1			
Dichanthium sericeum		Queensland Bluegrass			1			
Dichanthium sericeum subsp. sericeum		Queensland Bluegrass			7			
Dichanthium setosum		Bluegrass	V	V	1		Low-U, Mod_rd	
Dichelachne micrantha		Shorthair Plumegrass			40			Y
Digitaria sanguinalis	*	Crab Grass			1			
Echinochloa esculenta	*	Japanese Millet			1			
Echinopogon caespitosus var. caespitosus		Tufted Hedgehog Grass			33			
Echinopogon mckiei					1			
Echinopogon nutans var. nutans		Nodding Hedgehog Grass			3			
Echinopogon ovatus		Forest Hedgehog Grass			2			
Eleusine indica	*	Crowsfoot Grass			1			

Eragrostis alveiformis			20	
Eragrostis curvula	*	African Lovegrass	7	
Eragrostis elongata		Clustered Lovegrass	1	
Eragrostis leptostachya		Paddock Lovegrass	1	Y
Eragrostis lugens			1	
Eragrostis spp.			1	
Eragrostis trachycarpa			1	
Festuca pratensis	*	Meadow Fescue	1	
Festuca rubra subsp. rubra	*	Red Fescue	2	
Holcus lanatus	*	Yorkshire Fog	2	Y
Lachnagrostis filiformis			1	
Lolium perenne	*	Perennial Ryegrass	1	
Microlaena stipoides		Weeping Grass	5	
Microlaena stipoides var. stipoides		Weeping Grass	37	Y (Aut)
Panicum effusum		Hairy Panic	6	
Panicum miliaceum	*	French Millet	4	
Panicum simile		Two-colour Panic	1	
Panicum spp.		Panicum	2	
Paspalum dilatatum	*	Paspalum	24	Y
Paspalum distichum		Water Couch	4	
Phalaris aquatica	*	Phalaris	5	Y
Poa sieberiana		Snowgrass	13	
Poa sieberiana var. hirtella			53	
Rytidosperma bipartitum		Wallaby Grass	1	
Rytidosperma indutum			1	
Rytidosperma laeve		Wallaby Grass	15	
Rytidosperma pallidum		Redanther Wallaby Grass; Silvertop Wallaby Grass	9	
Rytidosperma penicillatum		Slender Wallaby Grass	2	
Rytidosperma pilosum		Smooth-flowered Wallaby Grass	6	

Rytidosperma racemosum var. obtusatum		Wallaby Grass		1	
Rytidosperma racemosum var. racemosum		Wallaby Grass		12	Y
Rytidosperma tenuius				2	
Setaria parviflora	*			4	
Setaria pumila	*	Pale Pigeon Grass		2	Y
Sorghum halepense	*	Johnson Grass		1	
Sorghum leiocladum		Wild Sorghum		19	
Sporobolus africanus	*	Parramatta Grass		1	
Sporobolus creber		Slender Rat's Tail Grass		24	Y
Sporobolus elongatus		Slender Rat's Tail Grass		9	
Themeda triandra				32	Y P. stat.
Vulpia bromoides	*	Squirrel Tail Fesque		2	
Vulpia myuros	*	Rat's Tail Fescue		1	
Vulpia spp.	*	Rat's-tail Fescue		1	
Polygala japonica		Dwarf Milkwort		2	
Acetosella vulgaris	*	Sheep Sorrel		1	
Persicaria hydropiper		Water Pepper		5	
Polygonum arenastrum	*	Wireweed		1	Y
Rumex brownii		Swamp Dock		40	Y
Rumex conglomeratus	*	Clustered Dock		1	
Rumex crispus	*	Curled Dock		3	
Rumex dumosus		Wiry Dock		1	
Lysimachia arvensis	*	Scarlet Pimpernel		4	
Grevillea spp.				1	
Adiantum aethiopicum		Common Maidenhair	P	2	
Cheilanthes sieberi		Rock Fern		2	
Cheilanthes sieberi subsp. sieberi		Rock Fern		32	
Pellaea falcata		Sickle Fern		2	
Pellaea nana		Dwarf Sickle Fern		3	
Clematis glycinoides var. glycinoides				1	

Ranunculus inundatus		River Buttercup	1	
Leptocarpus tenax			2	
Cryptandra amara		Bitter Cryptandra	1	
Cryptandra amara var. amara			1	
Acaena agnipila		Hairy Sheep's Burr	1	
Acaena novae-zelandiae		Bidgee-widgee	30	
Acaena ovina		Acaena	18	
Acaena spp.		Sheep's Burr	1	
Rosa rubiginosa	*	Sweet Briar	19	Y
Rubus anglocandicans	*	Blackberry	17	
Rubus fruticosus sp. agg.	*	Blackberry complex	3	
Rubus parvifolius		Native Raspberry	8	
Rubus spp.			1	
Rubus ulmifolius	*	Blackberry	1	
Sanguisorba minor subsp. muricata	*	Sheep's Burnet	2	
Asperula conferta		Common Woodruff	24	
Galium binifolium			1	
Galium gaudichaudii		Rough Bedstraw	5	
Galium propinquum		Maori Bedstraw	1	
Nertera granadensis		Matted Nertera	1	
Opercularia aspera		Coarse Stinkweed	2	
Opercularia diphylla		Stinkweed	23	
Opercularia hispida		Hairy Stinkweed	1	
Pomax umbellata		Pomax	4	
Populus alba	*	White Poplar	1	
Salix babylonica	*	Weeping Willow	3	
Exocarpos cupressiformis		Cherry Ballart	3	
Kickxia spuria subsp. integrifolia	*	Round-leaved Toadflax	1	
Verbascum thapsus subsp. thapsus	*	Great Mullein	2	
Lycium ferocissimum	*	African Boxthorn	2	
Solanum nigrum	*	Black-berry Nightshade	6	
Stackhousia monogyna		Creamy Candles	4	

Stackhousia spp.			3	
Stackhousia viminea		Slender Stackhousia	6	
Pimelea curviflora var. divergens			7	
Typha orientalis		Broad-leaved Cumbungi	3	
Urtica incisa		Stinging Nettle	4	
Verbena bonariensis	*	Purpletop	4	Y
Verbena rigida var. rigida	*	Veined Verbena	24	Y
Hybanthus monopetalus		Slender Violet-bush	3	
Viola betonicifolia		Native Violet	23	
Viola hederacea		Ivy-leaved Violet	6	
Tribulus terrestris	*	Cat-head	1	

Likelihood	F-may forage opportunistically
	H-Hollows present
	U-Unsuitable habitat
	O-Opportunstic use

ACCENT ENVIRONMENTAL

Appendix B: EPBC Protected Matters Search Results

Australian Government

Department of Agriculture, Water and the Environment

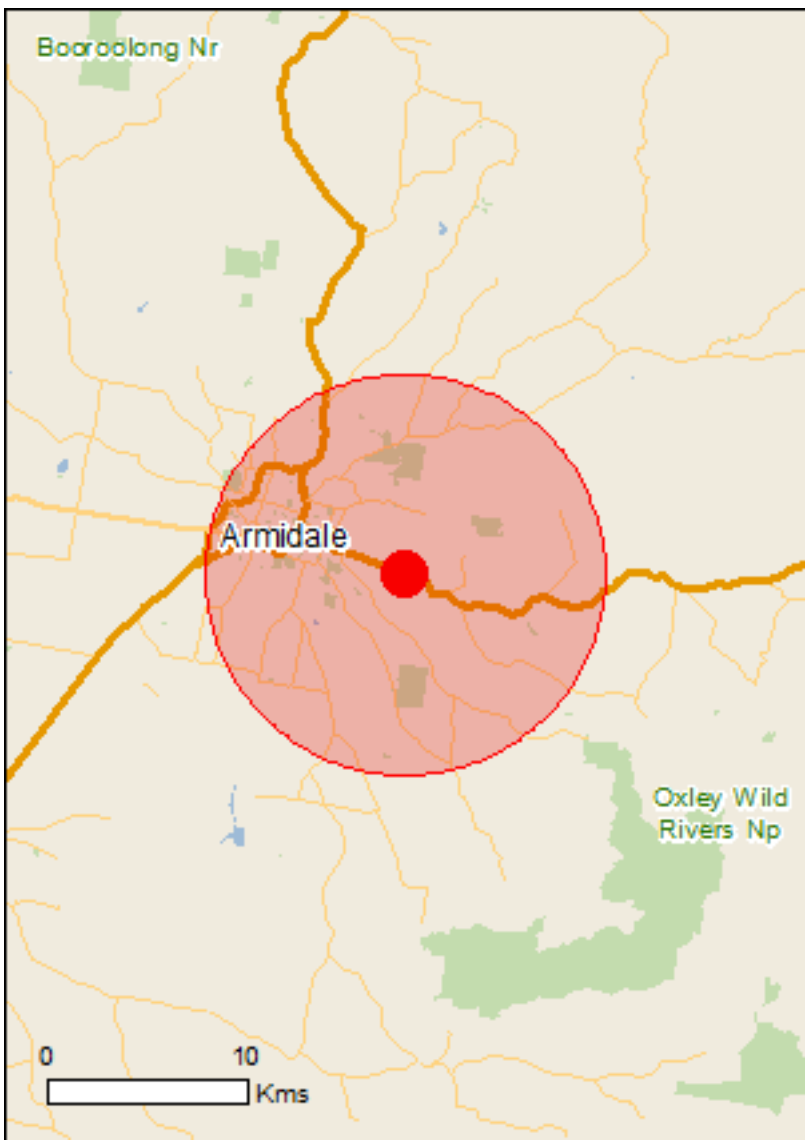
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

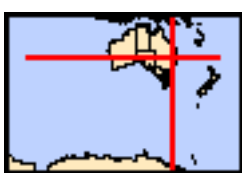
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 28/04/21 17:12:22



Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	33
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	6
Commonwealth Heritage Places:	2
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	1
Invasive Species:	31
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities		[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.		
Name	Status	Type of Presence
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Frogs		
Litoria castanea Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Litoria piperata		
Peppered Tree Frog [1827]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata		
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Arthraxon hispidus		
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Callistemon pungens		
[55581]	Vulnerable	Species or species habitat likely to occur within area
Cynanchum elegans		
White-flowered Wax Plant [12533]	Endangered	Species or species habitat may occur within area
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Diuris eborensis		
[88275]	Endangered	Species or species habitat may occur within area
Diuris pedunculata		
Small Snake Orchid, Two-leaved Golden Moths, Golden Moths, Cowslip Orchid, Snake Orchid [18325]	Endangered	Species or species habitat likely to occur within area
Eucalyptus mckieana		
McKie's Stringybark [20199]	Vulnerable	Species or species habitat may occur within area
Eucalyptus nicholii		
Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus rubida subsp. barbigerorum		
Blackbutt Candlebark [64618]	Vulnerable	Species or species habitat may occur within area
Euphrasia arguta		
[4325]	Critically Endangered	Species or species habitat may occur within area
Haloragis exalata subsp. velutina		
Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
[Picris evae](#) Hawkweed [10839]	Vulnerable	Species or species habitat likely to occur within area
[Thesium australe](#) Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
[Tylophora woollsii](#) [20503]	Endangered	Species or species habitat may occur within area
Reptiles		
[Uvidicolus sphyrurus](#) Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat may occur within area
[Wollumbinia belli](#) Bell's Turtle, Western Sawshelled Turtle, Namoi River Turtle, Bell's Saw-shelled Turtle [86071]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat likely to occur within area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur

Name	Threatened	Type of Presence
		within area
Pandion haliaetus		
Osprey [952]		Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Postal Corporation
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Defence Housing Authority
Commonwealth Land - Telstra Corporation Limited

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Historic		
Armidale Post Office	NSW	Listed place
Hunter River Lancers Training Depot	NSW	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Imbota	NSW
Yina	NSW

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat may occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-30.53192 151.71701

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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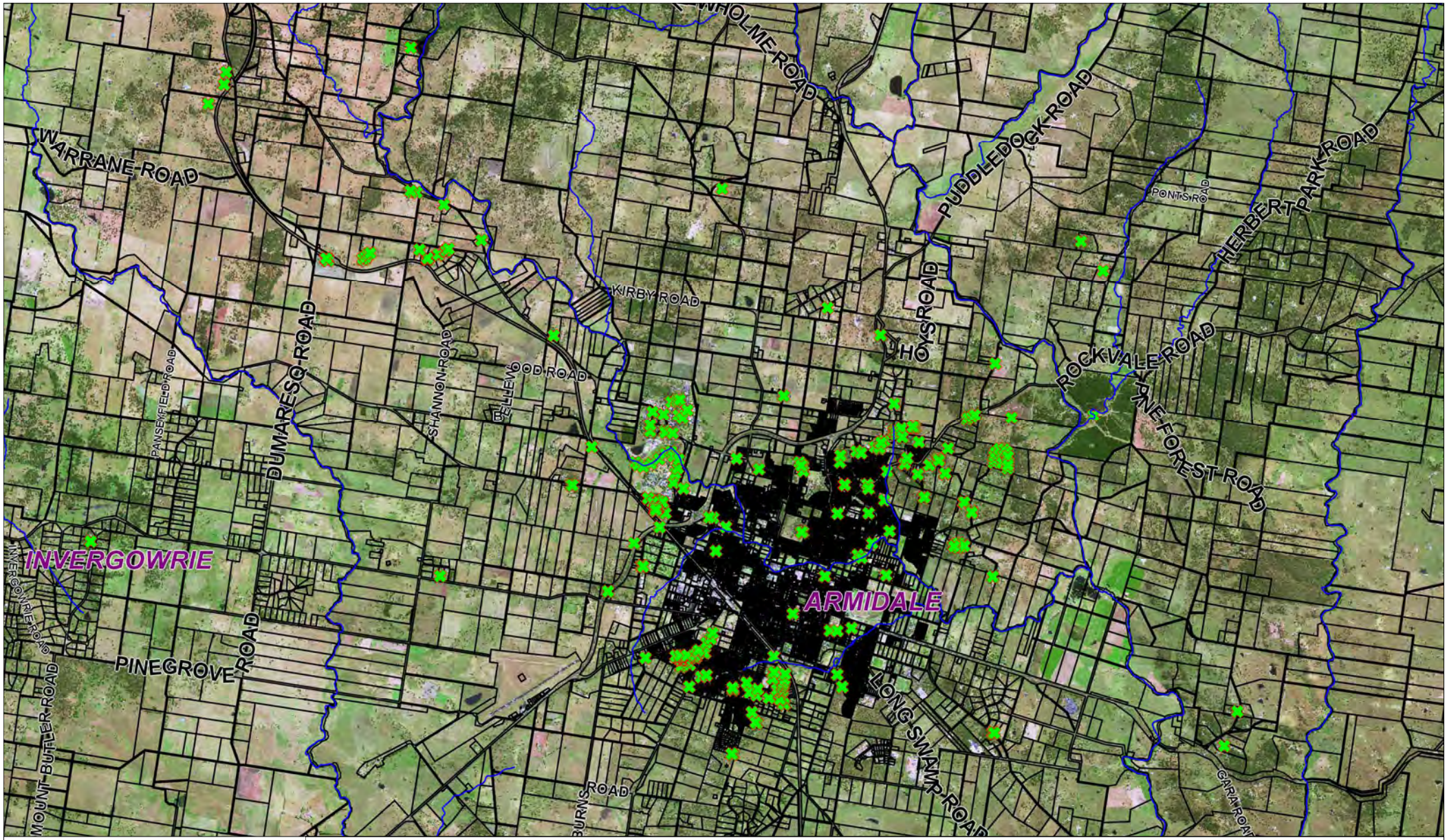
Appendix C:
Koala records in Armidale since 2010



Koala sightings in Armidale area from 2010-Nov 2018. Green crosses record a koala sighting.

Date : 12/11/2018 **Scale :** 1:89369

ARMIDALE Regional Council

N

DISCLAIMER :	Information is a pictorial representation & Ground truthing is required. Contours are a general indication of ground shape. Map provided for intended purpose only and should not be used for any other purpose.
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COORDINATE SYSTEM :	Map Grid of Australia (Zone 56), DATUM : Geodetic Datum of Australia (GDA94)