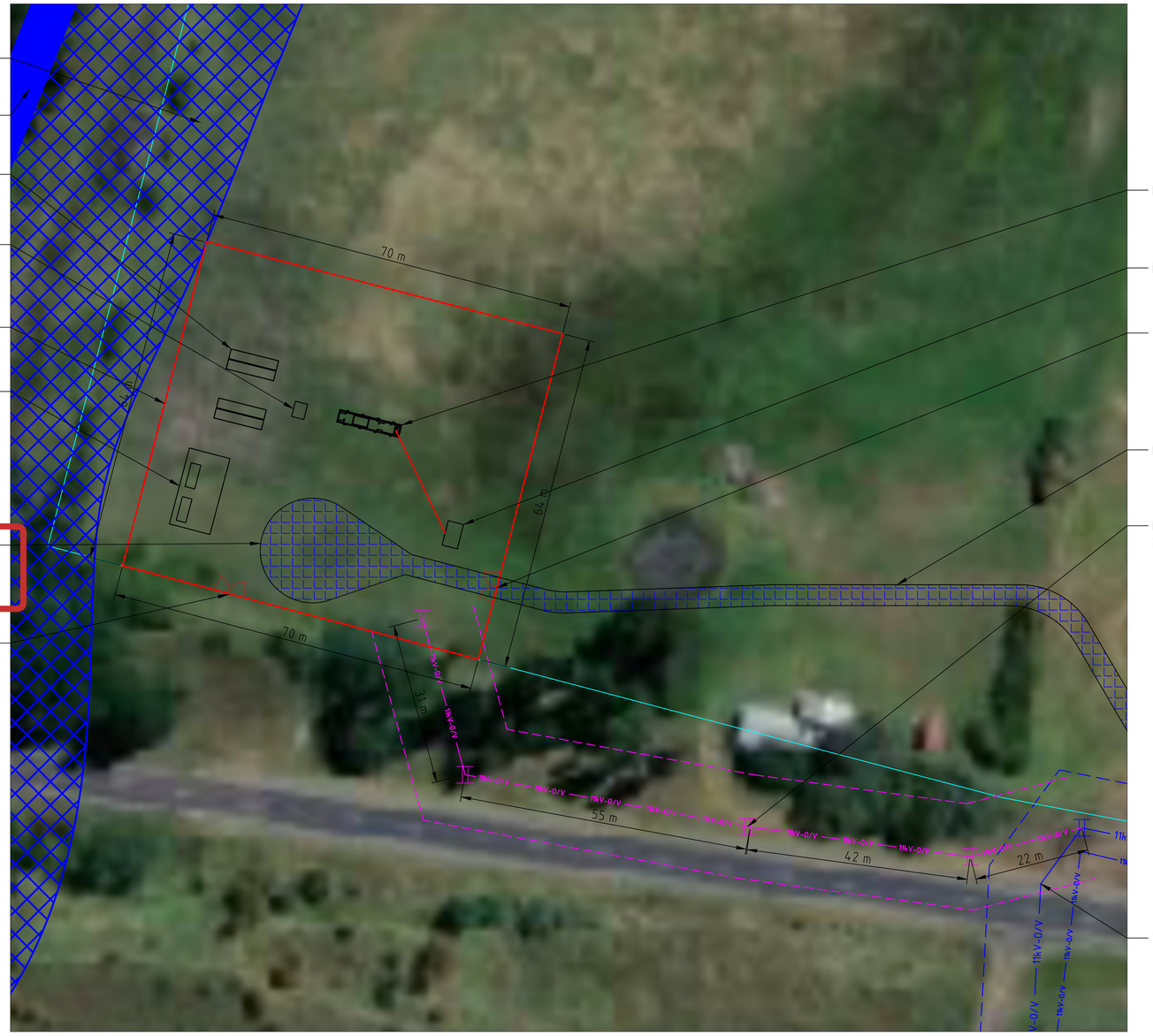
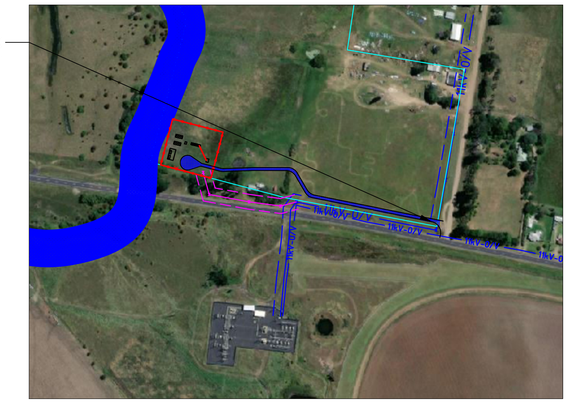


SITE PLAN (1:500)



NOTES

1. ACTUAL DIMENSIONS AND CLEARANCES MAY VARY SUBJECT TO SITE CONDITIONS.
2. DIMENSIONS OF ELECTRICAL EQUIPMENT ARE INDICATIVE ONLY. ACTUAL DIMENSIONS TO BE CONFIRMED.
3. EXISTING ESSENTIAL ENERGY 11kV POLE IS FOR ILLUSTRATION ONLY. ACTUAL POSITION IS SUBJECT TO THE ACTUAL MEASUREMENT ON SITE.
4. NEW 11 kV EXTENSION LINES WILL BE REQUIRED.
5. NEW POLES AND NEW RECLOSER WILL BE INSTALLED ON SITE CLOSED TO FENCE AND EASEMENT TO BE CREATED PER ESSENTIAL ENERGY REQUIREMENT.
6. SITE STORAGE AND AMENITY FACILITIES TO BE ON SITE ONLY DURING CONSTRUCTION PHASE. NO PERMANENT BUILDINGS TO BE KEPT ON SITE AFTER CONSTRUCTION COMPLETED.

LEGEND

- PROPOSED PV ARRAY
- SECURITY FENCE
- PROPERTY BOUNDARY
- 11kV-O/V — 11 kV POWER LINES

SYSTEM SPECIFICATIONS				
AC	5	MVA	NUMBER OF PCU	1
PCU MODEL	SC4980-UD-MV	-	NUMBER OF BATTERY	4
BATTERY CAPACITY	22	MWh	BATTERY MODEL	ST-2752UX

SITE SPECIFICATIONS		
FENCE	296	m
SITE AREA WITHIN FENCE	1.3	Acre
INTERNAL ROAD	400	m
SITE LAY DOWN	120	m^2
PARKING	TBD	3.5mx7.0m

FOR INFORMATION

No	DATE	DRN	CHK	ENG	Q.A.	PROJECT	DESCRIPTION
C	12/09/24	DS	ACE	DS	ACE		UPDATE BESS CAPACITY
B	30/07/24	MG	ACE	MG	ACE		UPDATE SITE ENTRY
A	24/07/24	MG	ACE	MG	ACE		ISSUED FOR INFORMATION

REVISION

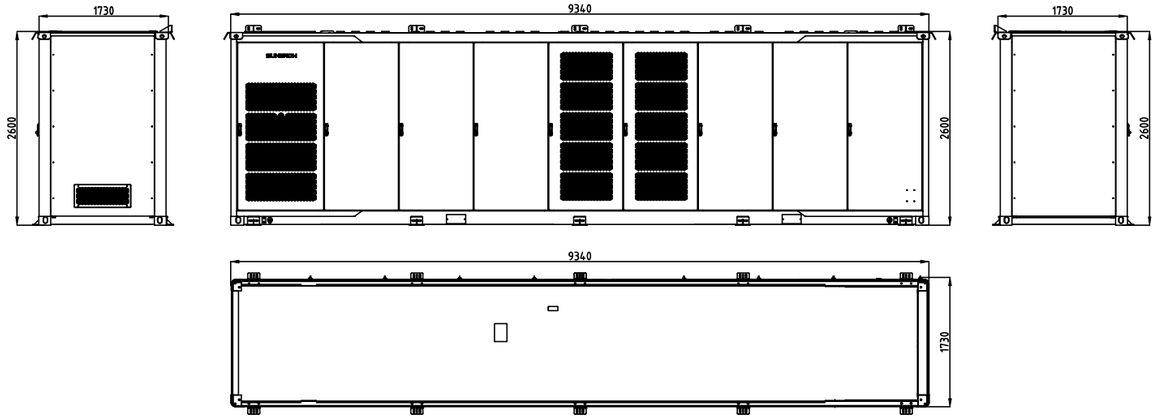
GREEN GOLD ENERGY

GLEN INNES BESS PROJECT
1 WELLINGROVE ST, GLEN INNES, NSW 2370
4.98 MVA BESS EXPORT SYSTEM
SITE PLAN B

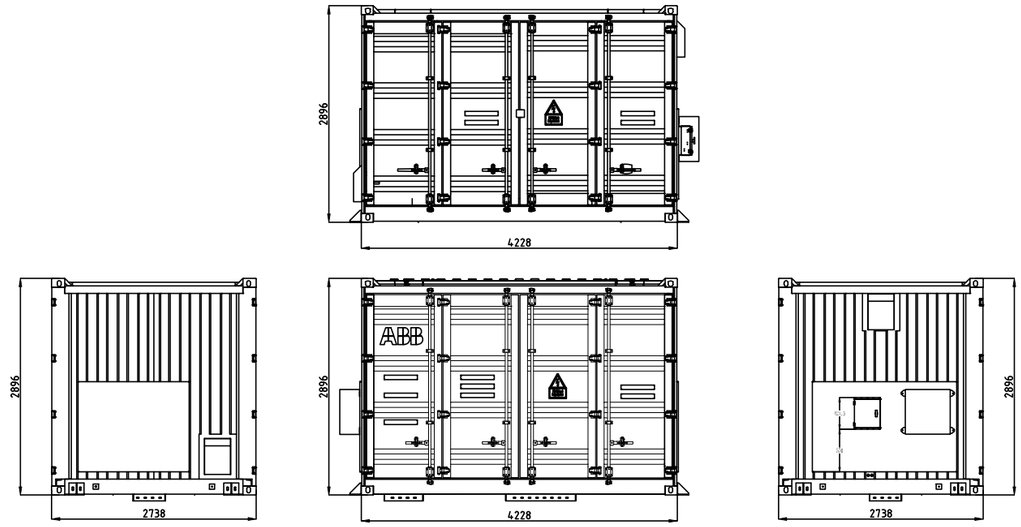
DESIGNED BY ALLIED CONSULTING ENGINEERS PTY LTD. | SCALE:

PROJ No | DRG No | REV C

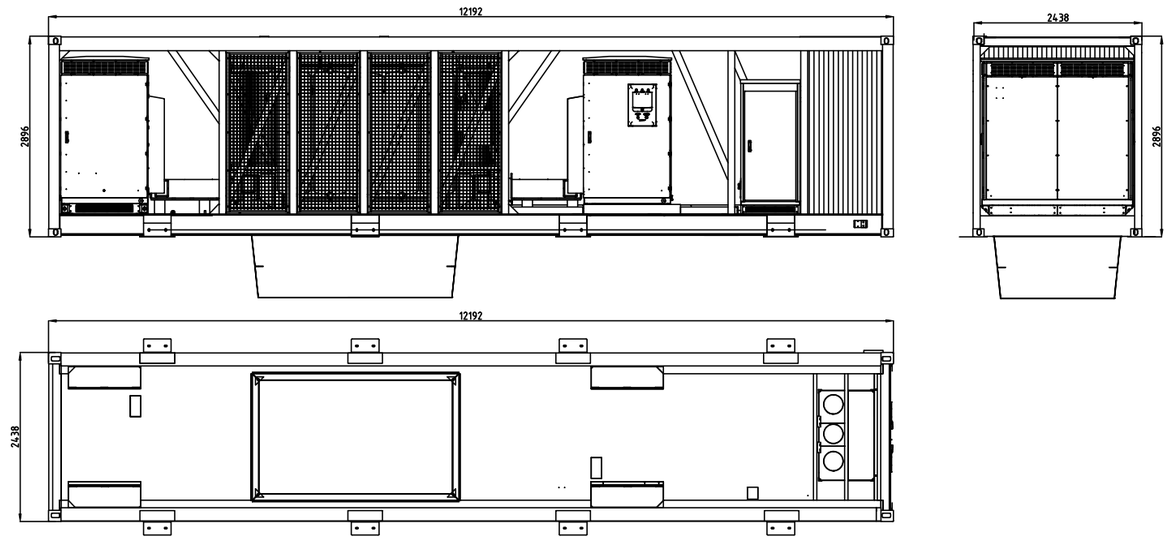
AUTOCAD | A1SHEET



ST-2752UX BESS



HV Switchboard



SG4950-HV-MV

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. ACTUAL DIMENSIONS OF THE EQUIPMENT MAY VARY BASED ON THE ACTUAL DIMENSIONS OF THE EQUIPMENT MAY VARY BASED ON THE SPECIFICATIONS OF EQUIPMENT MANUFACTURERS.
3. THE MAIN COLOUR OF ALL EQUIPMENT IS WHITE.

FOR INFORMATION

No	DATE	DRN	CHK	ENG	Q.A.	PROJECT	DESCRIPTION	NUMBER	TITLE
A	08/11/23	D.S.	ACE	D.S.	ACE		ISSUED FOR INFORMATION		

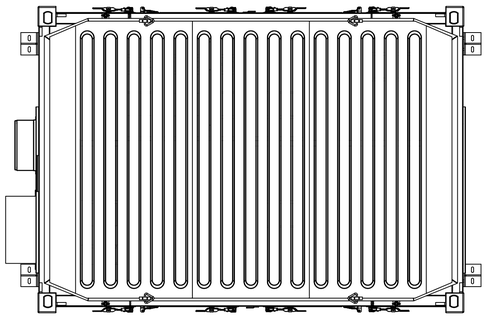
REVISION | REFERENCE DRAWINGS

GREEN GOLD ENERGY

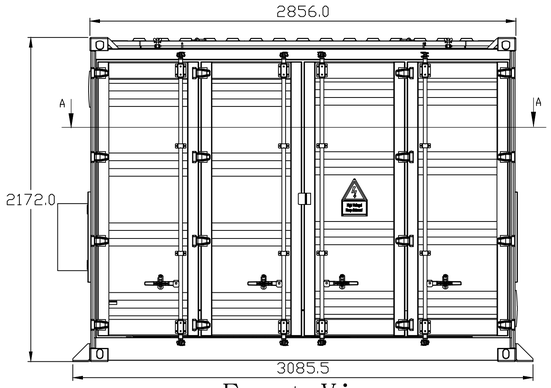
GENERAL SOLAR FARM
ELECTRICAL EQUIPMENT ELEVATIONS

DATE: 08/11/23	DRN: D.S.	CHK: ACE	ENG: D.S.	Q.A: ACE	SCALE: NTS
PROJ No	DRG No				REV A

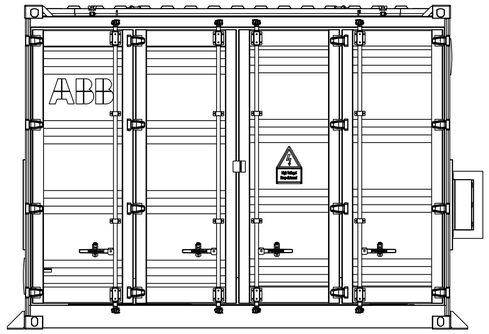
AUTOCAD | A1SHEET



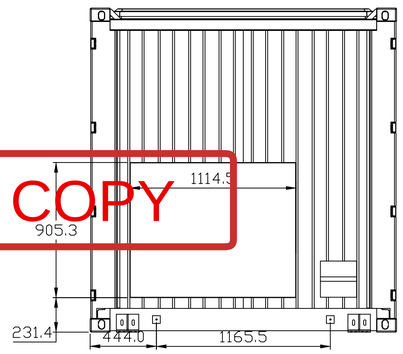
Top View



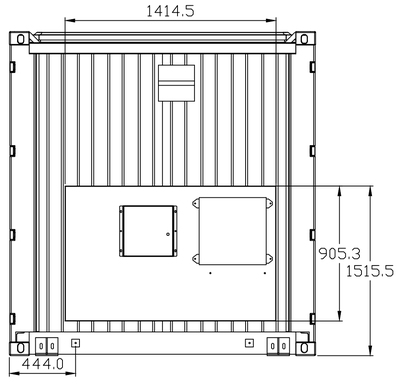
Front View



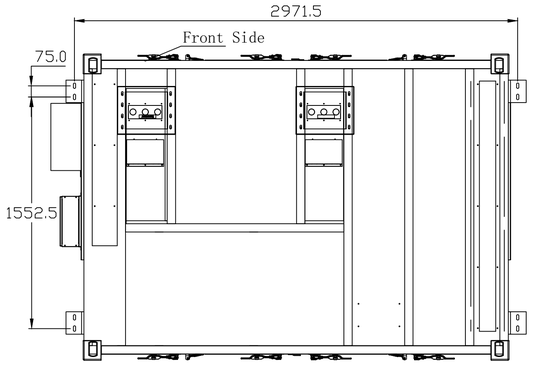
Back View



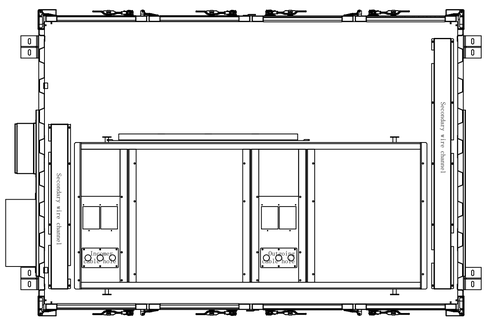
Right View



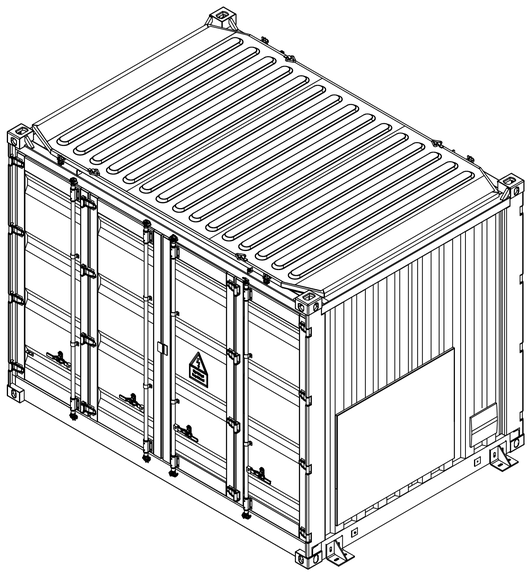
Left View

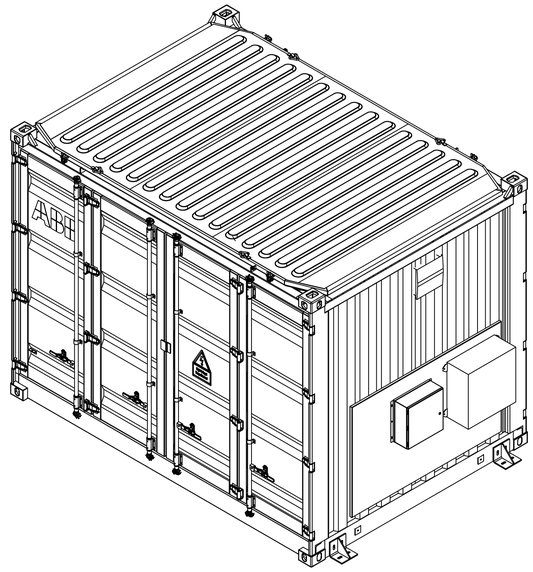


Bottom View



SECTION A-A





No	DATE	DRN	CHK	ENG	Q.A.	PROJECT	DESCRIPTION	NUMBER	TITLE
A	07/06/22	ACE	ACE	ACE	ACE		FOR IMFORMATION		

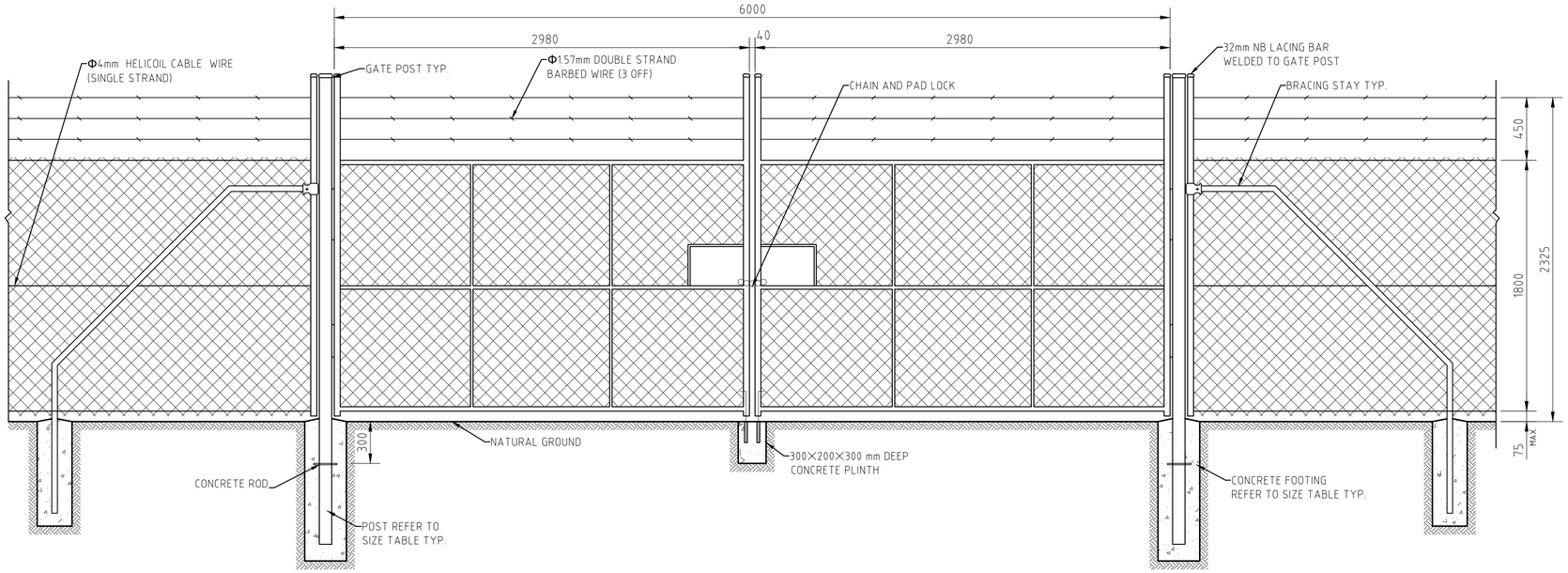
REVISION | REFERENCE DRAWINGS

GREEN GOLD ENERGY

GREEN GOLD ENERGY
PV EXPORT SYSTEM
ABB HV SWITCHBOARD

DATE:07/06/22	DRN: ACE	CHK: ACE	ENG: ACE	Q.A: ACE	SCALE: NTS
PROJ No	DRG No				REV A

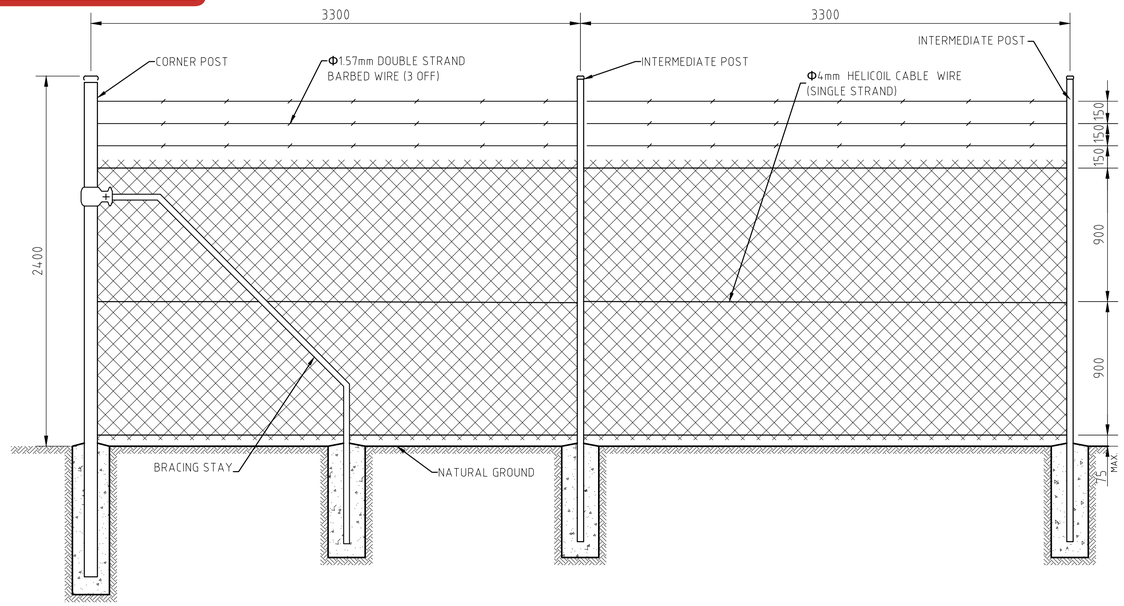
AUTOCAD A1SHEET



CHAIN LINK FABRIC FENCE AND OPENING DOUBLE GATE - 6000 GATE

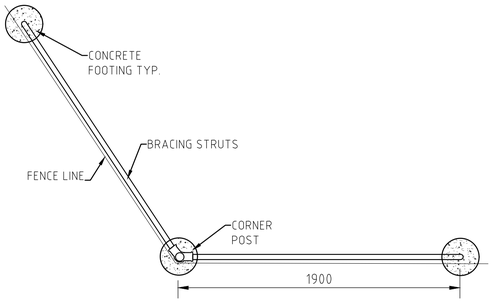
SCALE 1:20

COPY



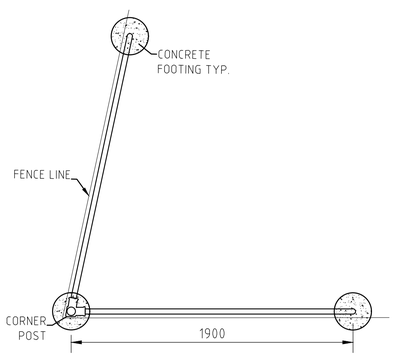
TYPICAL CHAIN MESH FENCE PANEL - 3300 DISTANCE

SCALE 1:20



CORNER POST FOOTING PLAN (>90)

SCALE 1:20



CORNER POST FOOTING PLAN (<90)

SCALE 1:20

NOTES

1. CHAIN LINK FABRIC TO BE CLASS 2 TYPE 1-R-L/B-T RAILED LESS 3 BARBED TOP SECURITY FENCING AS PER AS1725.1.
2. CHAIN LINK FABRIC TO BE ZINC/ALUM-ALLOY 2.50mm (LIGHT DUTY) WIRE WITH 50MM NOMINAL PITCH MESH (OR SIMILAR APPROVED)
3. SUPPORT CABLE TO BE 4mm SINGLE STRAND WITH ZINC/ALUM-ALLOY COATING (OR SIMILAR APPROVED)
4. LACING WIRE TO BE 2mm WITH ZINC/ALUM-ALLOY COATING (OR SIMILAR APPROVED)
5. CONCRETE FOOTING SHALL BE IN ACCORDANCE WITH AS3600, AND NOT LESS THAN THE MINIMUM SIZE SPECIFIED IN THIS DRAWING.
6. CONCRETE SHALL HAVE A CHARACTERISTIC COMPRESSIVE STRENGTH AT 28 DAYS OF 25MPA
7. GATES SHALL BE DESIGNED FOR BOTH INWARDS AND OUTWARDS OPENING
8. GATE DETAILS PROVIDED ON THIS DRAWING ARE TO BE USED AS ALTERNATIVE TO THE DRAWINGS PLC FENCING PROVIDE.
9. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AS1725.1 AND PLC FENCING DRAWING AND DESIGN
10. ALL DIMENSIONS MENTIONED IN THIS DRAWING ARE IN mm, OR OTHERWISE SPECIFIED.

POST				FOOTING SIZE	
TYPE	DN	O.D	WALL	DIA	DEPTH
CORNER	DN 50	60.3	3.6	250	750
INTERMEDIATE	DN 40	48.3	2.9	250	600
BRACING STAY	DN 32	42.4	2.6	250	600

DOUBLE ACCESS GATES					
WIDTH OF GATE OPENING	GATE POST			FOOTING	
	DN	O.D	WALL	DIA	DEPTH
6000	DN 80	88.9	4	300	1000

FOR CONSTRUCTION

No	DATE	DES	DRN	APP	PROJECT	DESCRIPTION	NUMBER	TITLE
B	16/09/22	ACE	M.G.	A.W.	GG21	ISSUED FOR CONSTRUCTION		
A	17/05/22	ACE	M.G.	A.W.	GG21	ISSUED FOR REVIEW		
REVISION							REFERENCE DRAWINGS	

ACE microgrid

4.95 MVA PV & BESS EXPORT SYSTEM
CHAIN WIRE MESH SECURITY FENCE & GATE

DATE: 18/05/22	DES ACE	DRN: M.G.	APP: A.W.	SCALE: NTS
PROJ No GG 21	DRG No GG21-10-003-1			REV B

AUTOCAD

A1SHEET

Chris Smith & ASSOCIATES PTY LTD

■ CIVIL ENGINEERS ■ LAND SURVEYORS
■ URBAN & REGIONAL PLANNERS ■ PROJECT MANAGERS

ISO 9001 Certified Quality Management Systems
ISO 14001 Certified Environmental Management Systems
ISO 45001 Certified Occupational Health and Safety Management Systems

Statement of Environmental Effects

Battery Energy Storage System

GREEN GOLD ENERGY

1 Wellingrove Street, Glen Innes
(Lot 73/Section 6/DP758447)

Ref: 24233

Ver. 1 | April 2025

Level 1, 135 Fryers Street, Shepparton, Vic, 3630
Telephone (03) 5820 7700 Facsimile (03) 5822 4878

■ Visiting Offices: ■ Shop 3, 11-13 Sydney Street, Kilmore, Vic. 3764 ■ Ph: (03) 5781 1939
■ Suite 7, 3 Nish Street, Echuca, Vic. 3564 ■ Ph: (03) 5482 9100

Contents

Battery Energy Storage System
1 Wellingrove Street, Glen Innes

Version Control

Version	Description	Author	Approver	Date
1	Final	AS	DL	04/04/2025
2				
3				

1 Introduction

1.1 Overview

This Statement of Environmental Effects (SEE) has been prepared by Chris Smith & Associates for Green Gold Energy – referred to herein as "GGE". The proposal is for a battery energy storage system (BESS), with a total development footprint of approximately 4,500 square metres on a property with a total area of approximately 15.31 hectares.

The property is known as 1 Wellingrove Street, Glen Innes, and is made up of seven (7) adjacent lots that form a contiguous property that collectively forms the "subject site".

The proposed facility is intended to supply the local distribution network with 4.95 megawatts (MW) of power. The proposal would occupy a small area of land to the west of the farmer's property to store electricity, retaining the rest of the farm for continued farming.

The subject site has been selected based on its suitable attributes, in accordance with the NSW Renewable Energy Action Plan 2018, and due to its proximity to an existing power station on the adjacent property and nearby transmission lines. Accordingly, this site represents an opportunity to co-locate infrastructure.

The Glen Innes Severn Shire Council is located within a region which presents an excellent opportunity for a regional municipality to capitalise upon and become a key player in the growth of the renewable energy industry due to its strategic geographical location and availability of grid connections.

This report is prepared in accordance with the various planning instruments and other planning controls that are relevant to the proposal. Consequently, this SEE provides an assessment and response under each of the respective sub-headings throughout the report.

Key reference documents used to guide the site selection and design process for this proposal are:

- NSW Renewable Energy Action Plan 2018
- Pre-Application Preliminary Assessment
- Glen Innes Severn Local Environmental Plan 2012
- New England North West Regional Plan 2041

The proposal is supported by the below-listed assessments, plans and documents:

- **Certificate of Title**
  Folio 6/73/758447
- **Proposed Development Plans**
  Revision C – 12/09/2024 – Green Gold Energy Pty Ltd
- **Noise Impact Assessment Report**
  by ADP Consulting, Proj. SYD3399, Rev. 1
- **Landscaping Plan**
  by CS&A, 24233, LS01, Rev. 1
- **Biodiversity Assessment**
  by Ozark, Job No. 4655, Ver. 3.0
- **Aboriginal Cultural Heritage Due Diligence Assessment**
  by Ozark, Job No. 4655, Ver. 3.0

1.2 Development Classification under EP&A Act

Private infrastructure, including electricity generating facilities that have a capital investment value of over $5 million, is declared regionally significant in *SEPP (Planning Systems) 2021* The proposed BESS has an estimated development cost of $3.72 million and is therefore identified as **Local Development**.

The proposal ***is not*** *classified as Designated Development* under Section 4.10 of the Act.

1.3 Scope of Statement of Environmental Effects

This Statement of Environmental Effects (SEE) accompanies a development application for the proposed development. On behalf of the applicant and includes the matters referred to in Section 4.15 of the *Environmental Planning and Assessment Act 1979,* and the matters required to be considered by the consent authority.

When considering the application, the consent authority will have regard to Section 4.2 of the Act which states:

"4.2 Development that needs consent

(1) General

If an environmental planning instrument provides that specified development may not be carried out except with development consent, a person must not carry the development out on land to which the provision applies unless:

(a) such a consent has been obtained and is in force, and
(b) *the development is carried out in accordance with the consent and the instrument."*

The purpose of this SEE is therefore to:

- Seek Development Consent from the consent authority;
- Describe the land to which the DA relates and the character of the surrounding area;
- Outline the scope and intention of the proposed development;
- Define the statutory planning framework against which the DA is to be assessed and determined; and,
- Assess the proposed development in the light of all relevant heads of consideration.

2 Green Gold Energy – Company Profile

Green Gold Energy is a South Australian-based company that takes a collaborative approach to renewable energy. GGE seek to partner with landowners to identify land that balances the farmer's needs with the requirements for any renewable energy project.

GGE's core business is centred around rural land that can support commercially viable small scale renewable energy facilities with the necessary investment and infrastructure; however, GGE has begun to pivot toward battery energy storage due to the demand to support the renewable energy transition.

These renewable energy projects are designed to export generated energy into the grid, enabling it to be sold on the National Electricity Market using the latest state-of-

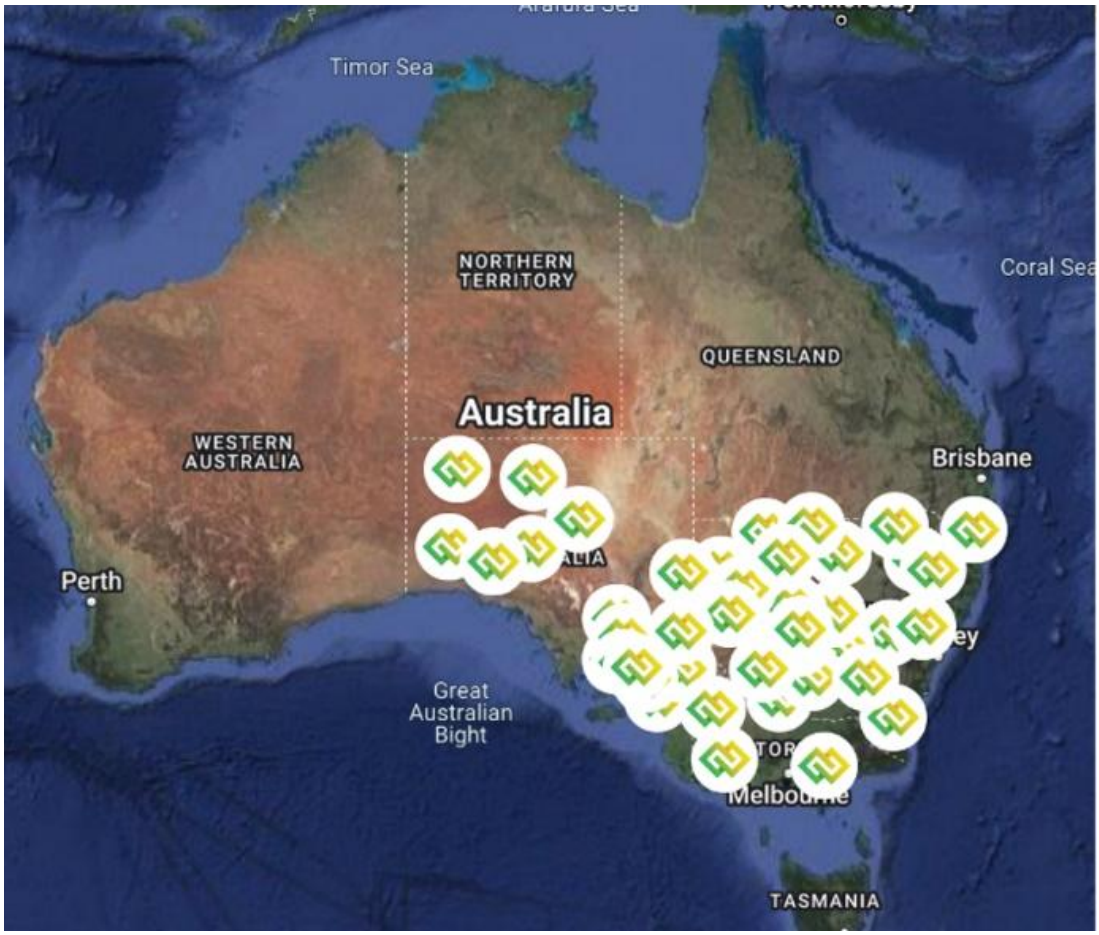
the-art PV technologies to ensure the most efficient, reliable power generation. Green Gold projects deliver:

- Long-term, secure supplementary income to landowners
- Access to the Australian renewable energy market to investors and shareholders
- Sustainable returns for investors

These projects also bring significant benefits to the regional communities they are located in, by creating jobs, providing local economies with the assets to improve energy infrastructure, and creating stronger, more sustainable communities.

The GGE executive team has commissioned a series of renewable energy facilities in South Australia. Green Gold states: “We are proud of the role we’re playing in powering our region’s green energy transition”.

GGE have successfully developed projects in South Australia, Victoria, New South Wales, and Queensland, as shown below. Many of these projects are currently in operation, whilst many more are under development. GGE has a current development pipeline of over 1.1 GW of solar and 1.2 GWh of battery energy storage systems.



Location of Green Gold Energy’s renewable projects
https://greengoldenergy.com.au/about/

3 Application Details

The decision by Green Gold to develop a battery energy storage facility included consideration of the region's trunk electricity network infrastructure and the region's desire for clean, efficient, and affordable electricity, as well as its proximity to a Renewable Energy Zone.

The subject land is largely flat and cleared with limited remnant vegetation, although there are none remaining on the development site itself.

The subject site was identified by Green Gold as it provides an opportunity to co-locate a battery energy storage system adjacent to the existing Glen Innes substation. Given that the subject site and surrounding area is within the RU1, the site is considered to be compatible with agriculture in the context of the development of a battery energy storage system.

The site is considered to have the required physical and electricity network attributes – a flat open site, adjacent powerlines with the capacity to support electricity stored by the adjacent facility and that can feed into the nearby electrical substation for use by the community. These factors ultimately led to an agreement to lease the site with the farmer.

Site visits and environmental assessments have confirmed the development site's suitability, including being largely cleared of any native vegetation and any areas of environmental sensitivity. Accordingly, it is submitted that a detailed and balanced approach to all relevant site and planning considerations has been undertaken to provide a sound planning proposal, as set out in this report and supporting documents.

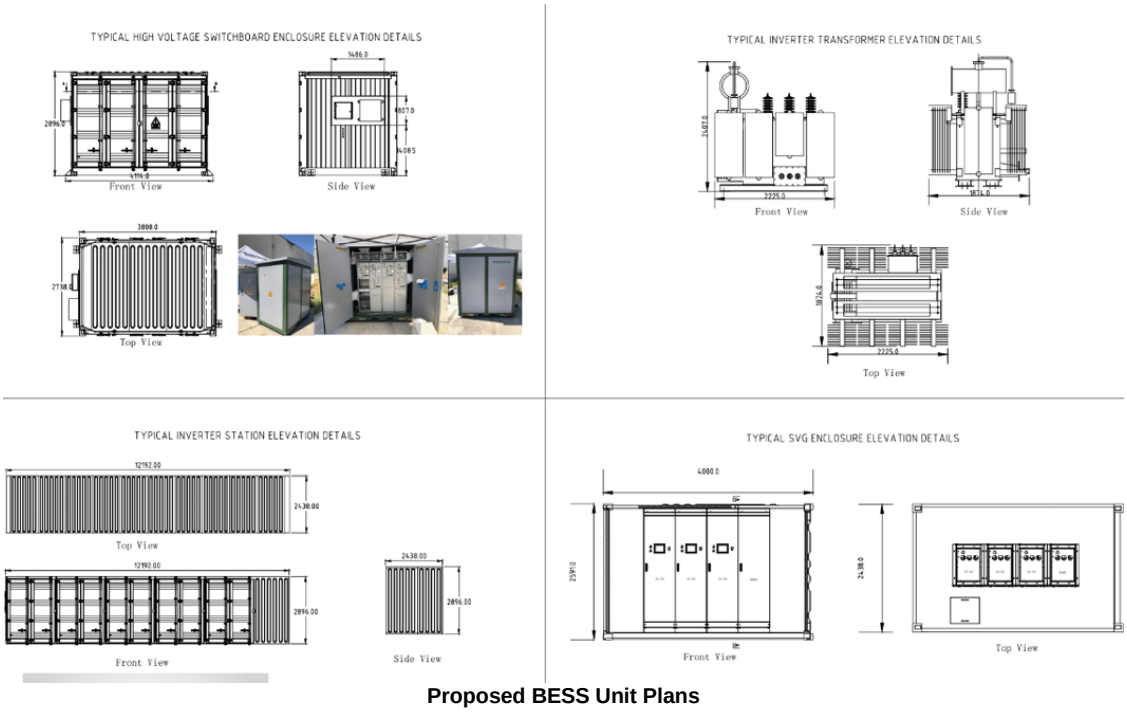
4 Proposal

4.1 Facility Equipment and Componentry

This application seeks consent to develop a footprint of approximately 4,500 sqm of land at 1 Wellingrove Street, Glenn Innes for a **battery energy storage system** – as shown on the attached plans and figures, below. The proposed BESS and associated works are to be as shown on the attached plans and supporting documents. Specifically, it will consist of:

- 1.8m high chain mesh perimeter fence around entire perimeter of facility, including a gate along the western boundary.
- Landscaping along the entire perimeter of the facility, as shown on Landscape Plan, directly outside the compound fence.
- One (1) new power pole with connection to the existing electricity distribution network.
- One (1) medium voltage power station, with a length of approximately 13m, width 2.5m and height of 3m
- Four (4) battery energy storage containers positioned centrally within the facility – each with a length of 10m, width of 2m, and height of 3m.
- 4-metre high noise attenuation wall around the north side of the centrally-located inverter, internal to the facility, in accordance with the acoustic recommendations of the Acoustic report.
- A noise wall around the inverter, internal to the facility.

Proposed Development Plans
BESS facility perimeter shown in red line



Proposed BESS Unit Plans

5 Design Considerations

5.1 Identifying Suitable Locations

GGE has embarked on the process of securing a suitable site in NSW for the development of a BESS. Factors such as land availability, proximity to the electricity network, accessibility, topography, and site constraints are all key considerations when first looking for potential sites.

Mapped Extents of the New England Renewable Energy Zone
Source: https://www.energyco.nsw.gov.au/ne-rez

The Glen Inness Severn region is forecast to see significant local renewable electricity investment that will be for the use and benefit of its local residents. This is reflected by the site's identification within the New England Renewable Energy Zone by the NSW Government, which outlines the advantages of the region:

> ***Why the region was chosen***
>
> *New England has some of the best natural energy resources in the country and some of the State's finest potential sites for pumped-hydro development.*
>
> *The indicative location of the New England REZ was chosen following a detailed statewide geospatial mapping exercise undertaken by the NSW Government in 2018. This initial analysis sought to identify optimal locations to host renewable energy generation around the State, including areas with strong renewable energy resource potential, proximity to the existing electricity network, and consideration of potential interactions with existing land uses, including agricultural lands and biodiversity conservation.*
>
> *Since then, EnergyCo has worked through a process to refine the geographical area of the REZ. Read more about the methodology for refining the geographical area here.*

The region has also attracted strong investor interest and is close to the existing transmission lines that connect to the NSW east coast, Upper Hunter and Queensland. This provides opportunities to increase NSW's energy resilience and to export excess energy to Queensland.

The NSW Government's Emerging Energy Program has also recently awarded pre-investment funding to several pumped-hydro projects in the New England region, including the Critical State Significant Infrastructure Oven Mountain Pumped Hydro project.

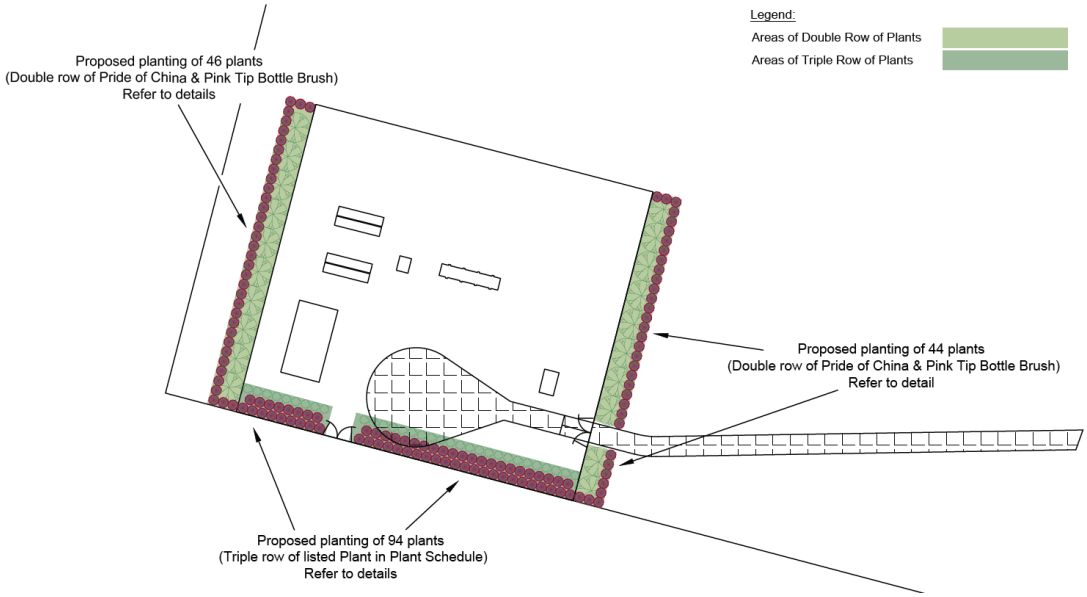
5.2 Visual Impacts and Site Context

The proposal is for a 4.95 MW battery and the ancillary equipment that will occupy approximately 0.55 hectares the 15.31-hectare property.

The nearest equipment is approximately 10 metres away from the nearest property boundary (in common ownership) – being the southern frontage to the Gwydir Highway.

Upon consideration of the nature of the proposed facility, the development would not lead to any undue cumulative visual impact on the surrounding area as a result of the proposed BESS.

This application is supported by a landscape plan, which proposes landscaping along the outside of the facility fencing on the east, south and west sides of the facility.



Proposed Landscape Plan
Prepared by Chris Smith & Associates (Rev. 1)

The visual impact of the facility has the potential to be further softened through the use of landscape screening, as well as existing vegetation along active/visible frontages. However, given this proposal is effectively for the installation of five (5) shipping containers, the visual impact will be limited.

Accordingly, it is submitted that when viewed in the context of their surrounds the cumulative impact of the approved renewable energy facilities, in terms of both land use and visual impact is minimal.

5.3 Traffic Management

The peak of construction activities will occur during the mechanical and electrical installation phases of construction. During these times, workers will access the site in the morning and leave at the end of the working day in either their private car or work vehicle (ute or small truck). It is anticipated that there will be some car-pooling, therefore it is expectant that there would only be a limited number of construction workers during the construction period.

The Construction Environmental Management Plan prepared by Green Gold Energy Pty. Ltd. The direct road connection to the site is via Wellingrove Street – an unsealed road managed by the Glen Innes Severn Council which leads through Lots 5 & 4 on DP758447 and then through to the subject site.

Deliveries of components will be scheduled as required. The BESS units and equipment are prefabricated units that are delivered in pre-packed containers that are lifted from the delivery truck onto the lay-down area.

Outside of the construction period, the facility will be un-manned, other than intermittent periodical maintenance. The site will be remotely monitored in real time and local contractors would be rapidly deployed to deal with any fault or other matter, which provides the added benefit of local jobs for the local community.

6 Site and Context Description

6.1 Surrounding Context

The surrounding area is predominantly use for primary industry production along with public recreation, residential and industrial purpose. The land surrounding is primarily used for conventional agriculture – with grazing and some cropping evidenced through historical imagery.

Glen Innes locality (Source: SIXMaps)
Showing aerial context of the subject site, subject site outlined in yellow.

The notable land features relative to the site are as follows:

South

Immediately south of the site is the Gwydir Highway, which provides road access to the Glenn Innes township. Beyond the immediate highway, the Glen Innes Racecourse occupies approximately 2.3 ha of land, while the Glen Inness substation directly south of the site, to the west of the racecourse.

Beyond the racecourse is the Glen Innes Severn Council Pound and Glenn Innes Regional Saleyards.

There are some lifestyle properties beyond Lang Street/Furracabad Road – the nearest of which is approximately 2 km south of the proposed development site.

North

To the north of the site, the rural properties evidence association with dryland agriculture; however, the prevailing agriculture use appears to be grazing, with some cropping properties.

West

The land in immediate surrounding, Furracabad Creek flows south to the east of the boundary. The creek further flows towards the north while fragmented parts of the creek are covered with vegetation marking tracing of the creek.

Beyond the creek, the prevailing land use is agricultural. There are some dwellings associated with existing farms dispersed throughout the area; however, the nearest dwelling is approximately 820m west of the proposed facility.

East

The Glenn Innes town centre is located approximately 2.5 km east of the subject land, (measured at the intersection of the Gwydir Highway and New England Highway). Though the nearest residentially zoned land is approximately 300m east of the development, on the eastern side of Wellingrove Street.

Between the site and town centre, there is a mix of agricultural uses, as well as urban commercial, industrial, and residential land uses.

The site is proximate to existing overhead powerlines station which is around 400m to the east of the proposed facility.

6.2 Subject Site

The proposed battery energy storage system is to be built within the existing paddocks of a farming property at Gwydir Highway, Glenn Innes. This whole property consists of seven (7) parcels in common ownership – with a total area of approximately 15.31 hectares.

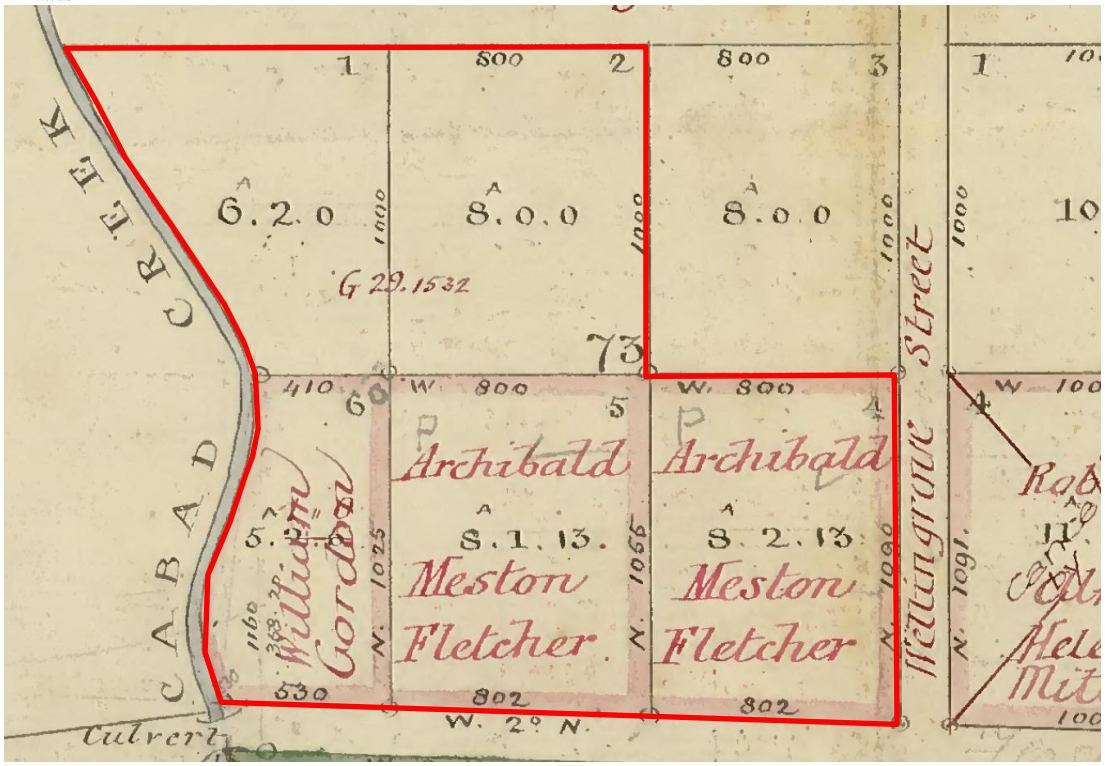
Green Gold Energy has agreed to terms with the current farmer to lease approximately 4,500 sqm to develop it for a BESS – for a period of approximately thirty (30) years.

The remaining allotments comprising the property are not considered to form part of this Development Application. These lots will continue to be managed seasonally in accordance with the ongoing agricultural use of the farm. The subject land is generally abutted by farming and rural land on most sides.

Development Site from the South (Google Streetview)
Approximate image of subject site's terrain

Subject Property – 1 Wellingrove Street, Glen Innes (Source: SIXMaps)
Landholder's property shaded yellow

The southern boundary of the property has a road frontage of approximately 400m with the Gwydir Highway. The proposed facility is accessible through an existing gate to the south-east of the property from Wellingrove Street The property is largely open, cleared land, with some remnant vegetation around waterways, tracks, and paddock fence lines.



Site Cadastre as shown on title (DP758447)
1 Wellingrove St current property boundaries indicated by red line

7 Development Details

7.1 Construction Stage

The construction program is anticipated to occur over an approximately four weeks period, as per the below table:

Period (Weeks)	Site Works
Week 1	• Drainage, road and fencing works • Installation of concrete footings
Week 2	• Cable installation • Delivery of battery shipping containers and inverter station • Installation of battery shipping containers and inverter station
Week 3	• Electrical installation and cable termination • Electrical testing
Week 4	• Commissioning / demobilisation

The proposed compound will be surrounded by a fully secured steel wire 1.8-metre-high fence, which can be covered with a shaded cloth to further mitigate any visual impacts (if required), as well as landscaping in accordance with the attached plans.

The ongoing security of the compound, and identification of any issues will be managed by a local security company – providing additional employment within the region.

3D Render of MVPS

The facility contains one (1) inverter/medium-voltage power station (MVPS), as illustrated above. This power station will comprise an inverter, a transformer and switchgears. The proposed power station will be located within the compound. There will be a HV kiosk as the primary conduit for electricity from the facility prior to being transferred via overhead lines into the nearby energy distribution network.

The proposed facility will have remote monitoring in real-time, allowing for constant surveillance and monitoring of the facility without the requirement for ongoing staffing.

The compound contains key infrastructure that requires a high degree of security. Therefore, the abovementioned control centre will remotely monitor in real-time to ensure that systems function as intended, and that security is not compromised. Upon identification of any potential issues, action can be taken indirectly from control centre or by deploying a local contractor to site.

7.2 Operational Phase

Beyond the four-week construction period, the facility will be largely unmanned, other than intermittent periodical maintenance. There is no intention to store any dangerous goods on site.

The site will be remotely monitored in real time and local contractors would be rapidly deployed to deal with any fault or other matter, which provides the added benefit of local jobs for the community.

Considering that the proposed facility will be unmanned, it is considered that it will have a very minimal impact on the landscape and surrounding road network.

7.2.1 Environmental, risk and emergency management

The proposed facility will be under constant surveillance by remote monitor in real-time. In the event of a fault or potentially dangerous situation an alarm will automatically report to 'on-call' staff. There will be no audible alarm at the facility. The procedures and protocols for these operational arrangements will be set out in an operational management plan, that will be an integral part of the operation of the facility.

The site is subject to planning controls pertaining to ground water vulnerability; however, it is considered that the proposed BESS development is unlikely to have negative impacts on the ground water resources.

7.2.2 Site access and traffic management

As set out above, during operation, the facility will be monitored remotely; there will be no permanent workers on site. The facility will remain largely unattended, other than periodical visits by maintenance contractors or the instance of a fault that requires site attendance.

These contractors will carry out seasonal site maintenance (slashing and ground fuel control, etc), and periodical visual checks of componentry and equipment. Accordingly, it could be weeks between site visits and most visits would be no more than one or two contractors in a single vehicle (likely a work ute), carrying out visual checks.

7.3 Waste Management

While there is no demolition to occur on the site, the construction waste generated will be limited to hole boring for pad footings, wire cut-offs and packaging waste.

7.3.1 Construction Phase

A project of this size is expected to have a construction period of four (4) weeks. It is anticipated that all components will be delivered by semi-trailer or B-double trucks scheduled across the project construction period.

Accordingly, GGE has advised that their sub-contractor agreements stipulate that each trade is to manage and remove their own waste. This agreement should also ensure that the waste is appropriately streamed, and materials recycled where possible to minimise waste going to landfill.

7.3.2 Operational Waste

Once the facility is up and running, it will be remotely monitored and will be unmanned, therefore the waste generated during operational phase will be relatively low.

There will be a need for mowing / weed removal as well as any general maintenance to ensure continue operation. It is anticipated that any operational waste will be limited to that generated by site contractors and any supplies required for maintenance or repair. All of which will be taken away with the contractor when they leave the site.

7.3.3 Site Decommissioning Waste

Most components of the proposal have a 30-year design life expectancy. If retrofit or upgrade is not proposed at the end of the proposal's useful life, the plant components would be decommissioned and removed from the site.

Operational waste would consist of that generated by site contractors and any supplies required for maintenance or repair. This waste would be disposed of appropriately by the contractors.

8 Strategic Context

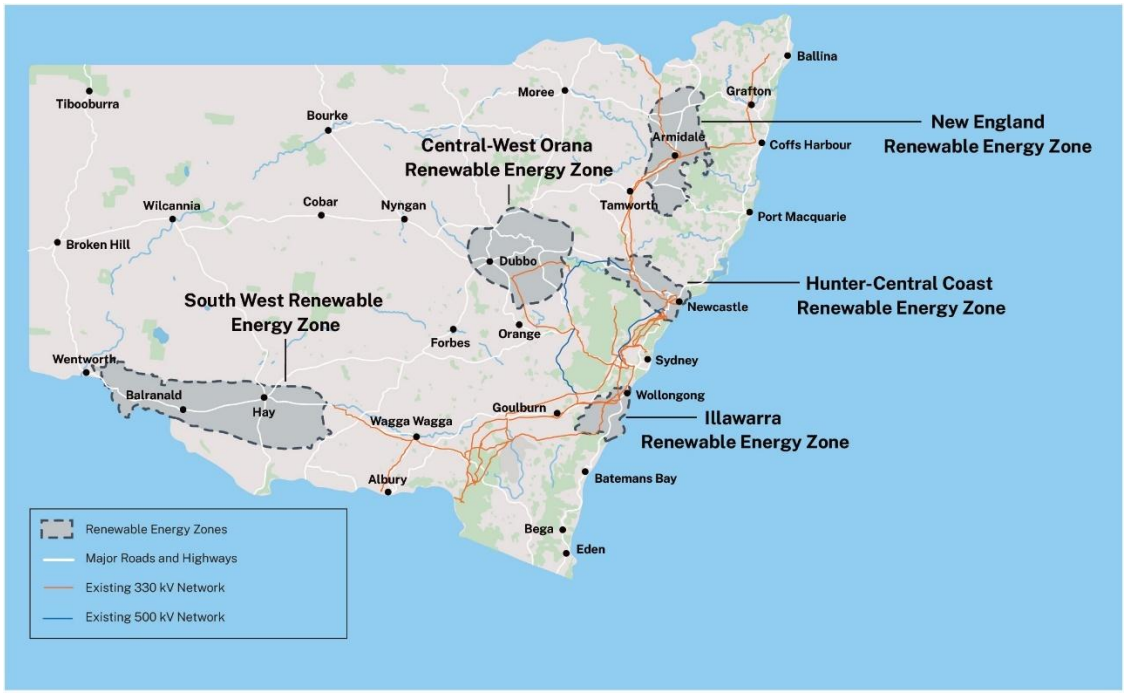
8.1 NSW Renewable Energy Action Plan 2018

The *NSW Renewable Energy Action Plan* outlines a comprehensive framework to achieve renewable energy targets by 2030 and details the opportunities and actions underway for renewable energy technologies in NSW.

The Plan also details three goals and 24 actions to facilitate the emergence of renewable energy generation most efficiently in NSW:

- Attract renewable energy investment and projects
- Build community support for renewable energy
- Attract and grow expertise in renewable energy technology

The *NSW Renewable Energy Action Plan 2018* identified Glen Innes **within the New England Renewable Energy Zone** (*see below figure*).



NSW Renewable Energy Projects and Potential Priority Zones
The Energy Corporation of NSW (EnergyCo)

The Renewable Energy Plan identifies that NSW has a range of competitive advantages as a location for solar power investment, including excellent solar resources and world-class solar research institutions.

The proposed development represents a step for NSW towards a renewable energy future, on land that is currently used for moderate agricultural use, contains limited identifiable biodiversity value and is adjacent to existing infrastructure.

The development would not require removal of established native trees or significant habitat and would provide a regional municipality with access to affordable renewable energy.

8.2 New England North West Regional Plan 2041

Glen Innes Severn is one of thirteen LGAs under the umbrella of the New England North West Regional Plan (NENWRP). The NENWRP sets out a regional framework that complements the state and local framework for the direction of planning and development across north-eastern NSW. Of direct relevance to this application, the forward to the NENWRP states:

> *"The future of energy is renewable, and the New England North West is already becoming a leader in sustainable and cost-effective electricity production with the building of Australia's largest hybrid solar farm in Uralla, but that's just the start. The NSW Government has set a clear objective of halving our emissions by 2030 and achieving net zero emissions by 2050. We are securing the economic prosperity of the region for the decades to come by putting it in a strong position to achieve net zero."*

8.2.1 Part 1 – Growth, Change and Opportunity

- *OBJECTIVE 1: Coordinate land use planning for future growth, community need and regional economic development*

The proposed development represents an opportunity to capitalise on the 4 key settlement principles of the Regional Plan, which seeks to:

1. Identify growth needs and opportunities
2. Identify and direct suitable land for planned growth
3. Determine the required structure for development, and
4. Encourage locally responsive, sustainable design.

The development of the site provides for investment within the local community as the energy transitions toward renewable energy. The nature of the development also avoids prejudicing future rural development of the site and would be unlikely to adversely impact surrounding rural land.

This BESS is one step further in establishing appropriate growth of renewable infrastructure in the local area.

8.2.2 Part 2 – Productive and Innovative

- *OBJECTIVE 2: Protect the viability and integrity of rural land*

The proposal is tied to a 30-year-lease of the farmer's property, at which point the property would be fully remediated to pre-development conditions. On the agricultural spectrum, the site is of moderate agricultural utility, capable of being grazed, though there is no formal irrigation infrastructure.

The level of ground disturbance will be limited to the installation of the central inverter, the four (4) battery units and the truck roundabout.

8.2.3 Part 3 – Sustainable and Resilient

- *OBJECTIVE 8: Adapt to climate change and natural hazards and increase climate resilience*
- *OBJECTIVE 9: Lead renewable energy technology and investment*
- *OBJECTIVE 10: Support a circular economy*

The inevitable transition toward renewable energy must be balanced by appropriate measures to ensure that the development of renewable energy alongside diversification on farming incomes.

The Glen Innes Severn LGA is within the New England Renewable Zone, and is envisioned to provide a substantial contribution to the renewable energy transition. The site is well served by existing infrastructure and would allow for the continuation of existing rural uses in the immediate vicinity.

8.2.4 Part 5 – Connected and Accessible

- *OBJECTIVE 22: Utilise emerging transport technology*

The need for electric vehicle charging stations is growing, this proposal will contribute to the necessary local infrastructure needed for region-wide implementation.

8.2.5 Local Government Narratives

Glen Innes

The relevant Council priorities is to "*identify and promote wind, solar, bioenergy and other renewable energy production opportunities as part of the REZ".*

This proposal is for the development of a BESS to support existing (and future) operational renewable energy facilities within the Renewable Energy Zone.

8.3 Glen Innes Severn Local Strategic Planning Statement

Our Local Advantages

Agriculture … and Emerging Renewable Energy

> *Growth has been seen from 2012 to 2018 in Tourism to 5.5% when reported as a separate sector. Output in Education and Training and Rental, Hiring & Real Estate Services has likely been driven by the construction phases of White Rock and Sapphire Wind and Solar Farms. In fact Renewable Energy is an emerging industry alongside established businesses…*

This proposal contributes to the orderly development of the Renewable Energy industry in the local area by constructing a BESS to support existing solar and wind farms in the locality, to allow the local community to "tap into" and make use of locally generated electricity.

Planning Priorities

Priority # 2 *Encourage diversification in agriculture, horticulture and agribusiness to grow these sectors and respond to domestic and international opportunities.*

Priority # 6 *Continue to develop service and logistics infrastructure demand and demonstrates how Council will align local infrastructure to planned growth.*

Priority # 9 *Adapt to natural hazard and climate change*

Priority # 10 *Promote and support renewable energy production opportunities.*

The development site is ancillary to a moderately productive agricultural site and will provide an appropriate rural use on one of the less productive paddocks. This

proposal responds to Priority #2 by responding to the local opportunities for the development of a BESS. As this BESS will service the nearby renewable energy facilities, it directly contributes to the diversification of the renewable energies industries while minimising hinderance upon existing agricultural business.

As demand for renewable infrastructure in the local area will increase, this BESS provides appropriate planned growth. Especially in the context of Priority #6 which provides renewable infrastructure as Council works towards a net zero target. Similarly, the development of renewable energy infrastructure demonstrates adaptation to climate change by shifting away from carbon dependent infrastructure.

9 Statutory Framework and Assessment

9.1 Environmental Planning & Assessment Act 1979

The proposal is subject to the provisions of the *Environmental Planning & Assessment Act 1979* No. 203 (*"the Act"* herein).

Under the Act, the consent authority is required to consider the full range of matters listed under Division 4.3, Section 4.15 of the Act in its assessment of a development application. Each of the relevant matters are addressed below:

Matters for Consideration – General

The consent authority must take into consideration:

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

Accordingly, the proposal and potential impacts are now considered – in accordance with the above provisions of Section 4.15, under the following headings:

Impacts on the Natural Environment

The proposed development is to be undertaken on a property zoned RU1 for Primary Production, which consequently, is largely cleared for historical agricultural use. The proposal will therefore not require the removal of any significant vegetation.

The current DA is accompanied by conceptual plans and relevant assessments to demonstrate that there will not be any undue detrimental impacts as a result of the proposal – either on-site or off-site.

The site is approximately 20 metres away from the nearest bank of the Furracabad Creek. In considering the size and magnitude of the facility, as well as the flat topography of the site and the proposed built form, any adverse landscape impacts are considered to be unlikely.

The site is largely cleared of any trees; however, there are tracts of native vegetation that has regenerated across the site due to only intermittent cropping and grazing of the development site.

At the direction of Ozark, as ecological consultants, the development site has been located entirely outside of the Furracabad Creek biodiversity corridor. Consequently, the proposal would not adversely affect this ecologically significant area or depreciate its value.

There are no mapped flooding constraints that affect the land. In considering the nature of the proposed facility – comprising largely permeable fencing and ground-mounted installations – it would significantly impede natural flow paths and increase flood risk.

Impacts on the Built Environment

In considering the existing built environment of the immediate locality, the prevailing land use is that of agriculture, which is undertaken at a range of scales and intensities.

The nearest dwelling (not in common ownership) is located approximately 400 metres east of the development site. It is also noted that all of the nearest dwellings are in the RU1 Zone and are not considered to be sensitive uses for the purposes of planning, as they are used in conjunction with their respective farming uses.

The distance of the BESS from the Gwydir Highway, along with the proposed landscaping, is also considered to further soften any visual impacts to passersby from the road.

The proposal also includes one (1) centrally located inverter station, four (4) BESS units, and a switchboard within the compound at the electricity network connection point. None of these components are particularly large or visually intrusive and are considered comparable to a farm shed/shipping container.

It is submitted that the proposed development will have a negligible visual and noise impact on the locality, largely due to the significant distance from surrounding roads and buildings/dwellings. The site has been selected through a careful site selection and design process to ensure this. Additionally, the height and scale of the facility are such so as to further reduce any potential impacts.

There remains a possibility in the future to undertake perimeter landscaping; however, given the negligible impacts, it is considered that this will not be necessary.

Social and Economic Impacts

The proposed development will support th economic growth of Glenn Innes and the broader municipality.

The proposed BESS has been designed and located to maximise the electricity generation efficiency while limiting the use of rural land – retaining much of the

broader farming property for continued agricultural use and ensuring that the farm continues to be economically liable for the landholder.

It is estimated that during construction, a large portion of the work will be undertaken by local contractors. Where additional skilled workers from outside the region would need to be accommodated, this will create an influx of spending within the area. The proposal will also have a positive effect on NSW's electricity prices and lead to affordable energy.

Further, the proposed development will remain under lease from the current farmer, providing for a supplemental income for the farmer and allowing for further investment in agricultural operations on the property, while also supporting the emergence of renewable energy.

The Suitability of the Site

The subject site is a largely cleared farming property that contains limited topographical or environmental constraints. The proposed development site is to be in a location that minimises impacts on surrounding farming uses, the natural environment, and the built environment alike.

The site is located on a portion of the property that would prevent the fragmentation of farming land. With the creek to the west, the site is located at the interface between farming and environmental uses, without adversely affecting either.

There are limited land use conflicts that would arise as a result of the proposal, and due to the location of the proposed site, the BESS would be located a sufficient distance from all of the nearest surrounding dwellings and roads. Nevertheless, the relative proximity to the Glen Innes township will ensure that a ready supply of workers/contractors is provided, as well as easy access to a range of services.

The site has also been deemed a suitable candidate because of the existing electricity network and its close proximity to the Glen Innes Zone Substation.

The proposal is for a land use that will be fully contained within the subject land and has been designed in a site-responsive manner mindful of the context of the site (i.e. site constraints and existing servicing and public infrastructure assets in the vicinity).

Any submissions made in accordance with this Act or the Regulations

Any relevant representations will need to be considered by the Council in determination of the development application.

The public interest

The public interest is best served by the orderly and economic use of land for purposes permissible under the relevant context of the site within the Glen Innes Severn LGA and in accordance with the prevailing planning instruments.

9.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

Part 2 – Division 4 – Electricity generating works or solar energy systems

2.36 Development permitted with consent

(1) Development for the purpose of electricity generating works may be carried out by any person with consent on the following land

(b) any land in a prescribed non-residential zone.

In response to the above provision of the SEPP, the RU1 zone is a prescribed non-residential zone under the 2.35 definitions.

The proposed use of the land for an energy storage facility is considered to be compatible with adjoining agricultural land uses and respectful of the nearby terrestrial biodiversity and wetlands.

The use and development of land would generate negligible impact on the surrounding area – the primary concern for solar energy facilities is the perceived visual impact that solar panels may have on surrounding amenity and the potential loss of agricultural utility. Given the proposed facility is for a BESS which does not involve solar panels, the design minimises any negative amenity or utility impact.

The proposal has been located to limit any impacts on existing agriculture within the surrounding area. The use of land for a BESS will be a low-impact use and has been carefully sited to avoid any adverse impact upon rural infrastructure, particularly the Gwydir Highway.

The proposal is intended to facilitate the transition toward the State government's renewable energy target by 2020. To this end, the proposed facility will contribute approximately 5MW of renewable energy into the NSW electricity grid.

Division 5 – Subdivision 2 – Development likely to affect an electricity transmission or distribution network

2.48 Determination of development applications—other development

The proposed development site has been selected due to its proximity to existing electrical infrastructure – which includes a substation and distribution network in close proximity to the site.

(1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following—

(a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,

(b) development carried out—

(i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or

(ii) immediately adjacent to an electricity substation, or

(iii) within 5m of an exposed overhead electricity power line,

(d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.

(2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must—

(a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and

(b) take into consideration any response to the notice that is received within 21 days after the notice is given.

The financial viability of a BESS facility is dependent on the facility being within proximity to the distribution network infrastructure, as beyond this, network augmentation costs become prohibitive. The subject site was initially selected for its proximity to the Glen Innes zone substation, which feeds electricity for local consumption.

The facility design has considered all existing site conditions and features. It has been sited immediately adjacent to an easement for electricity purposes, to allow for effective transmission to the network. The facility location has also been chosen to limit the need for connection infrastructure. In this sense, the location is considered to be highly appropriate, in that it will increase the productivity of the facility.

Therefore, the siting of the facility in proximity to the existing transmission infrastructure will allow for the efficient transmission of the energy generated into the grid; and for a financially viable connection to be achieved.

9.3 State Environmental Planning Policy (Primary Production) 2021

Chapter 2 Primary production and rural development

Part 2.1 Preliminary

The aims of this Chapter are as follows—

(i) to facilitate the orderly economic use and development of lands for primary production,
(ii) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,
(iii) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
(iv) to simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts,
(v) to encourage sustainable agriculture, including sustainable aquaculture,
(vi) to require consideration of the effects of all proposed development in the State on oyster aquaculture,
(vii) to identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.

In response to these aims, the *proposal is not designated development*, nor is it development that is considered to unduly impact the ongoing use of the surrounding land for primary production. The proposed development footprint is approximately 4,500 square metres only, while the majority of the property will be retained for agriculture.

The land is partly mapped under the draft State Significant Agricultural Land mapping (SSAL). The site has some inherent agricultural utility; however, the footprint of the proposed battery energy storage system is considered unlikely to significantly impact agricultural use of the land.

Draft State Significant Agriculture Land Mapping
Source: NSW Department of Primary Industries & Regional Development (formerly Department of Primary Industries)

9.4 State Environmental Planning Policy (Planning Systems) 2021

Schedule 6 – Regionally Significant Development

5 Private infrastructure and community facilities over $5 million

Development that has a capital investment value of more than $5 million for any of the following purposes—

(a) air transport facilities, electricity generating works, port facilities, rail infrastructure facilities, road infrastructure facilities, sewerage systems, telecommunications facilities, waste or resource management facilities, water supply systems, or wharf or boating facilities,
(b) affordable housing, child care centres, community facilities, correctional centres, educational establishments, group homes, health services facilities or places of public worship.

Development that is state and regionally significant is identified in *State Environmental Planning Policy (Planning Systems) 2021*.

Private infrastructure, including electricity generating stations, that have a capital investment value of over $5 million are declared regionally significant. The proposed BESS development has an EDC of **$3.72 million** and is therefore identified as a **Local Development**.

9.5 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 3 – Hazardous and Offensive Development

Section 7.1 of the NSW Department of Planning's 'Hazardous and Offensive Development Application Guidelines – Applying SEPP 33' details how to identify a potentially hazardous industry.

The proposal does not involve any of the hazardous materials listed in Table 1, Table 2 or Table 3 of the guidelines. Therefore, *the proposal is not considered to be a potentially hazardous industry*, and chapter 3 of the SEPP does not apply.

Chapter 4 – Remediation of Land

4 Objective of this Chapter

(1) The object of this Chapter is to provide for a Statewide planning approach to the remediation of contaminated land.

(2) In particular, this Chapter aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment—

(c) by specifying when consent is required, and when it is not required, for a remediation work, and

(d) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and

(e) by requiring that a remediation work meet certain standards and notification requirements.

4.6 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless—

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The proposed development is proposed on a site which has historically been used for dryland agricultural activities for an extended period of time; this may include cropping or grazing. There is no evidence to suggest that the site is or might be contaminated to a level that would impact on the proposed use.

Therefore, it is considered that the proposed development is compliant with the SEPP.

9.6 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 3 – Koala habitat protection 2020

~~3.3 Land to which Chapter applies~~

*"(1) This Chapter applies to land in the following land use zones, or an equivalent land use zone, in a local government area specified in Schedule 1 of State Environmental Planning Policy (Koala Habitat Protection) 2021, but not if the local government area is marked with an * in that Schedule—*

(a) Zone RU1 Primary Production"

The proposal does not seek removal of any trees, native or otherwise, as the site has been previously cleared for agriculture. Further, there is extensive cleared land on all sides of the development site, which renders the site unlikely to be conducive to koala habitat.

Chapter 4 – Koala habitat protection 2021

Pursuant 4.4(d)(i), *"this Chapter does not apply to land in the Zone RU1 Primary Production".*

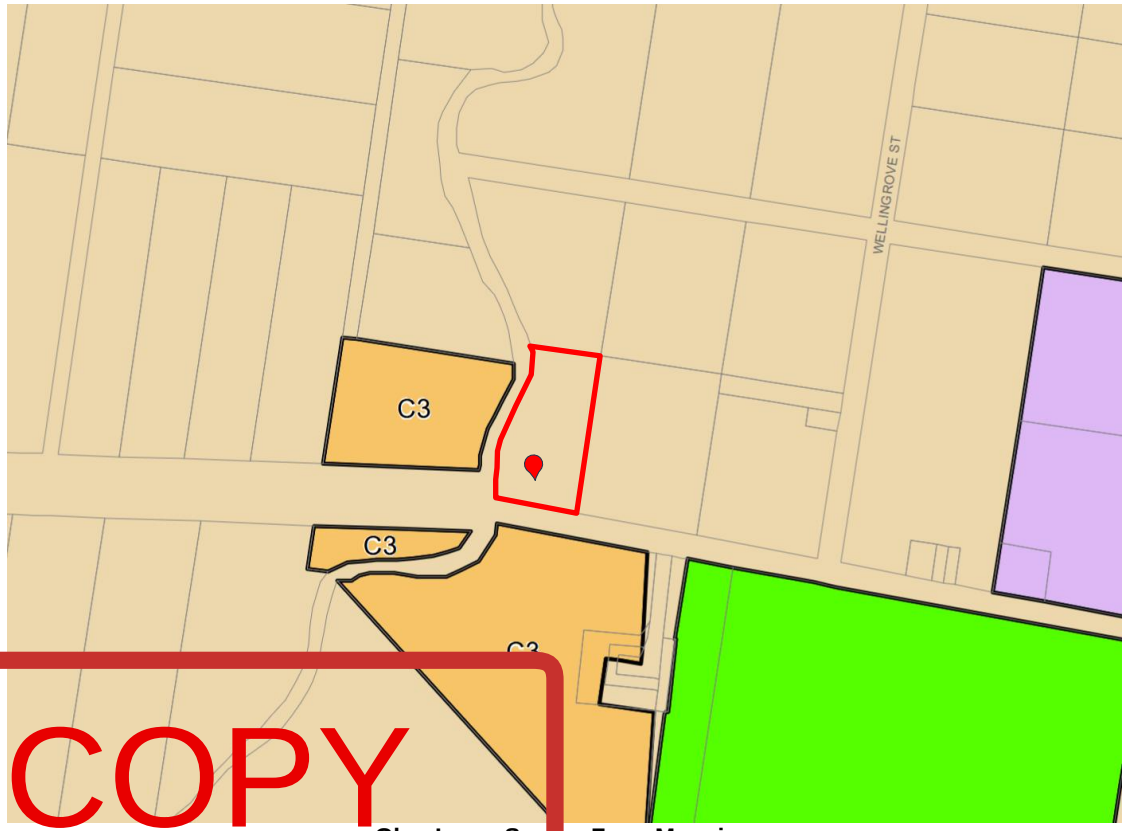
10 Glen Innes Severn Local Environmental Plan 2012

2.3 Zone Objectives and Land Use Table – RU1 – Primary Production

1 Objectives of zone

- To encourage *sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

The proposed development is an unmanned use that will see limited traffic beyond the initial construction period. In consideration of the agricultural context of the site and the surrounding area, although agriculture is possible, the relatively small development footprint is unlikely to otherwise support any meaningful agricultural use.



Glen Innes Severn Zone Mapping
Subject site (marked with red pin) shown within RU1 Zone

The site is already adjacent to a mix of non-agricultural uses, including the Glen Innes substation, which presents as a compatible land use with the proposed development.

There is no subdivision or fragmentation of the land proposed, as the land will be operated under lease of the existing farmer.

7.7 Riparian land and watercourses

The western boundary of the subject site (reflecting the environs of Furracabad Creek) is mapped as riparian land and watercourses under the Glen Innes Severn LEP.

Riparian Lands Mapping
Source: eSpatial Viewer

(1) The objective of this clause is to protect and maintain the following—
- *(a) water quality within watercourses,*
- *(b) the stability of the bed and banks of watercourses,*
- *(c) aquatic and riparian habitats,*
- *(d) ecological processes within watercourses and riparian areas.*

(2) This clause applies to the land shown as "Riparian Land" on the Riparian ands and Watercourses Map.

(3) In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must consider—
- *(a) whether the development is likely to have an adverse impact on the following—*
  - *(i) the water quality and flows within the watercourse,*
  - *(ii) aquatic and riparian species, habitats and ecosystems of the watercourse,*
  - *(iii) the stability of the bed and banks of the watercourse,*
  - *(iv) the free passage of fish and other aquatic organisms within or along the watercourse,*
  - *(v) the future rehabilitation of the watercourse and riparian areas, and*
- *(b) whether the development is likely to increase water extraction from the watercourse, and*

(c) appropriate measures to avoid, minimise or mitigate the impacts of the development.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—

(a) the development is designed, sited and will be managed to avoid a significant adverse environmental impact, or

(b) if a significant adverse environmental impact cannot be avoided—the development is designed, sited and will be managed to minimise the impact, or

(c) if a significant adverse environmental impact cannot be minimised—the development will be managed to mitigate the impact.

The proposed development is setback from the Furracabad Creek and will have no undue impact on the watercourse – this supported by the ecological assessment undertaken by Ozark.

11 Glen Innes Severn Development Control Plan 2014

11.1 Rural Development – Chapter 4

This section refers to all development permitted in the Rural and Environmental Zones contained within Glen Innes Severn Local Environmental Plan 2012 and applies to all Rural, Rural Residential and Environmental zoned land (RU1, RU2, R5 and E3) subject to a development proposal. The stated aims of this chapter are:

- *To enhance the character of the rural areas.*
- *To encourage the use of existing or potentially productive land for agricultural purposes.*
- *To reduce potential for rural land use conflict.*
- *To protect old-growth, significant hollow-bearing trees and conservation significant vegetation through recognition of their ecological value and scarcity in the landscape.*
- *To improve the ecological function of riparian areas within the landscape.*
- *To improve the stability of the bed and banks of waterways through the management of riparian vegetation.*

In accordance with abovementioned aims, the proposed development is sited in a location that would require no removal of high value vegetation and would be co-located with existing electrical infrastructure (refer to attached plans). The development will result in a permeable development ground footprint, and would largely retain the pre-development levels of runoff. Nevertheless, there would be some increase to runoff, which would be readily addressed through the detailed design process as a condition of consent of the sought DA.

4.5 Vehicular Access Requirements Where access from a public road to a private property is required:	
Access to a development shall be located having regard to its potential impact on the landscape and native vegetation and shall be unobtrusive and sympathetic to the existing landform and neighbouring development.	As discussed previously, the vehicle access point will be via the existing crossover at Wellingrove Street and will be built through lot 4, 5 and 6 on DP758447). This access will have minimal impact on the surrounding properties as this is internal to the site

	and the existing street is capable of accommodating the additional influx of traffic during the construction phase.
All development is required to have coincidental legal and physical access from a public road to the development site. In this regard, Council may require evidence from a registered surveyor that this is the case.	Existing legal access to Wellingrove Street is available, please see attached Title.
Where a part of any access is via an unformed Crown road, the road may first require dedication as a Council public road, and then construction to an appropriate standard once Council approval has been gained for the work. For a single residential dwelling, the minimum standard of construction where the owner will be responsible for ongoing track maintenance is in accordance with the former Department of Land and Water Conservation publication "Guidelines for the Planning, Construction and Maintenance of Tracks".	N/A – no unformed Crown land forms part of this application.
Road and drainage designs may need to be submitted to Council at the applicant's expense prior to approval of any roadworks within a Council public road reserve.	Road and drainage design will be submitted to the standard of the relevant authority.
The developer will be responsible for construction or upgrading of any vehicle access in accordance with Council standards, including: ○ *A suitable width all-weather pavement from the road to the entrance gate or stock grid.* ○ *Where the access crosses a table drain, a minimum 375mm diameter pipe with headwalls, or concrete dish drain on the alignment of the table drain.* ○ *Any entrance gate or stock grid should be set back a minimum distance of 15 metres from the edge of the traffic lane for single unit truck access, or 12 metres for semi-trailer access.* ○ *The access is to be located at where safe intersection sight*	The vehicle access will be upgraded to the standard of the relevant authority.

distances can be achieved, including a minimum gap sight distance of 5 seconds. ○ *A Council Road Opening Permit is required prior to performing any work within a public road reservation.*	
4.6 Environmental Considerations – Requirements	
Development shall not be carried out on slopes greater than 20%. If development on slopes greater than 20% is unavoidable, Council may require a geotechnical assessment.	The site has a relatively flat topography and therefore, will not require a geo-technical assessment
Clearing of native vegetation – applications are to identify the area and number of trees to be cleared as part of the application. Clearing which does not form part of a Development Application to Council must be approved by the relevant Local Land Services (LLS) (refer to Note below).	N/A – No native vegetation will be removed.
Where development is likely to have a significant impact on threatened species, populations or ecological communities, or their habitats within the meaning of the Threatened Species Conservation Act 1995, Environment Protection and Biodiversity Conservation Act (EPBC) Act 1999 and Fisheries Management Act 1994., Council will require the submission of the following: ○ *An ecological assessment prepared by a suitably qualified, experienced and independent person or persons; and/or* ○ *A preliminary Vegetation Management Plan (VMP) prepared by a suitably-qualified and experienced person such as an Ecologist, Bush Regenerator, Horticulturist or Landscape Architect with practical, demonstrated experience in bush regeneration., and/or* ○ *Compensatory planting prepared in accordance with Table 4.1.*	N/A – No significant vegetation will be removed/ impacted by this proposal.
Riparian lands within a subdivision are to be stabilised and revegetated according	

to stream order and buffer category. Water courses classified as stream order 3 or greater (Strahler method) require a riparian buffer of at least 40 m	
Roads are to be located outside riparian buffer areas where possible. Where roads traverse the riparian buffer area, the road design is to minimise the area of disturbance and demonstrate minimal impact on the riparian function and integrity.	N/A – This application will use the existing vehicle access point.
Driveway/roadway crossings/other infrastructure located over waterways are to have regard to the requirements for fish passage in accordance with relevant NSW State Government requirements under the Fisheries Management Act 1994.	N/A – This application does not have any infrastructure over waterways.
4.7 Flooding	
In low-lying areas a flood study may be required to determine appropriate floor levels for habitable structures. Waterway crossings on any access roadways should be designed to permit two-wheel drive access from a public road to the residence during a critical one (1) in 100 year storm event.	N/A – No habitable structures are proposed.
4.8 Land Use Buffers	
Buffers from development to rural land uses are to be established in accordance with the NSW DPI Land Use Conflict Risk Assessment Guide.	N/A – There are no nearby development areas in this application.
Where a proposed development for a dwelling or tourist accommodation will adjoin an agricultural enterprise on an adjoining property, a minimum 100m separation shall be provided. Where the 100m buffer cannot be achieved, Council will consider the use of vegetative buffers on the proposed development site	N/A – No habitable structures are proposed.
Any new residence should be located a minimum distance of 2km from any active or proposed wind turbine, unless suitable measures are taken in the design and construction of the dwelling to ameliorate any noise or other impacts	N/A – No habitable structures are proposed.

11.2 Access and Parking – Chapter 7

To ensure that new development:

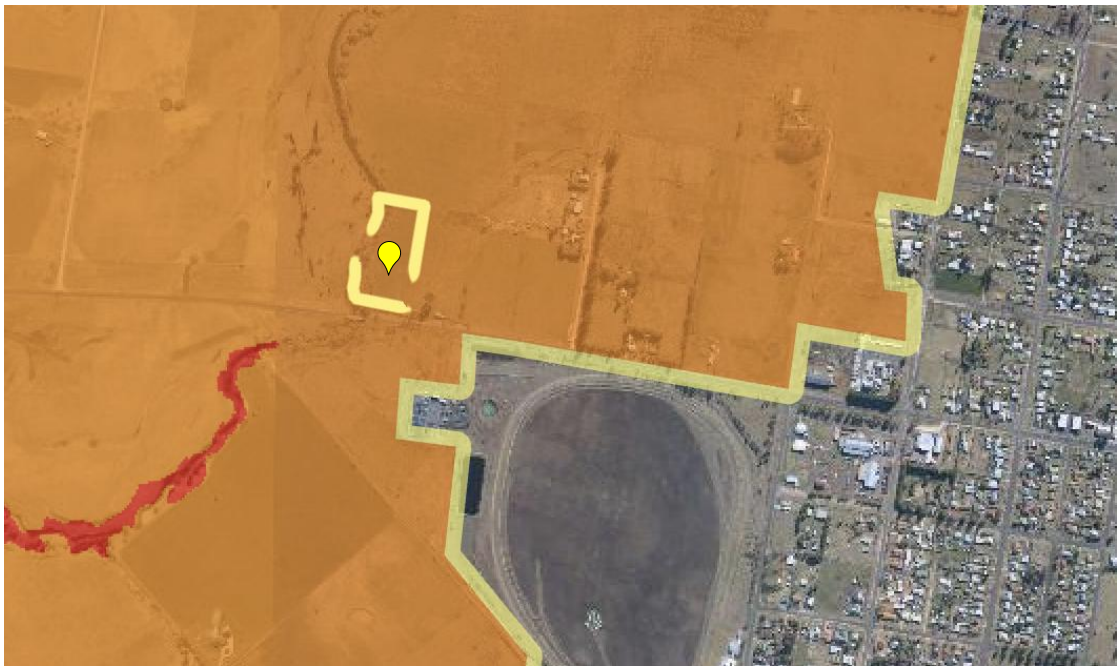
- *maintains or improves traffic safety and management;*
- *provides adequate provision for access and parking for people with disabilities;*
- *minimises the visual impact of on-site parking. and*
- *provides for the ongoing maintenance of on-site car parking and manoeuvring areas.*

There are no prescribed car parking rates that are relevant to electricity generating systems under the DCP.

The development includes a significant cleared area which will provide for a mix of informal car parking, as well as a dedicated car parking area post-construction, which is anticipated to be no more than 1-2 standard vehicles at any given time.

12 Planning for Bushfire Protection 2019

Planning for Bush Fire Protection 2019 (PBP) provides development standards for designing and building on bush fire prone land in New South Wales.



Bushfire Prone Land Mapping
Subject site outlined with yellow and marked with pin

The proposed development is within a mapped Bushfire prone area; accordingly, it considers Bushfire protections measures listed in the document, such as:

- Asset protection Zone (APZs)
- Access
- Construction, siting and design
- Services; and
- Emergency and evacuation planning

The facility has incorporated these principles into the design and layout, with the facility having one point of access to Wellingrove Street to the east, as well as a 10-metre perimeter fire break between the facility fence and the BESS.

In considering the immediate landscape within the vicinity of the proposed facility (being managed grassland). The Furracabad Creek corridor is considered the primary bushfire risk for the site.

To mitigate any potential risks caused by grasslands from neighbouring paddocks following measures are undertaken:

- Appropriate location of access roads for the proposed development to enable safe egress for any individual attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.
- The existing road infrastructure shall provide sufficient width and other dimensions to ensure safe unobstructed access and allow firefighting crews to operate equipment around the vehicle.
- The design of internal tracks maintaining a 10-metre setback from the facility fence, ensuring a fire break surrounding the proposed electrical infrastructure.
- The facility will be located a suitable distance from the Furracabad Creek – therefore maintaining a significant distance from any potential bushfire risk.
- The subject site has access to all weather road and provision for continuous water supply, thereby ensuring protection of human life and property.

13 Conclusion

The proposal is for a new BESS facility within the Glen Innes Severn LGA that will provide affordable clean energy for the local community, including Glen Innes and beyond, effectively contributing to the implementation of New South Wales's transition to renewable energy.

The proposal is supported by the ***NSW Regional Energy Action Plan 2018*** to Net Zero Emissions that sets out a broader framework for achieving the region's aspirations and expectations for renewable energy by providing regional opportunities for the benefit of the regional community.

The 4.95 MW output will supply local businesses, industry and houses and will produce enough energy for use during peak consumer demand to support the Glen Innes Severn Council during the renewable energy transition.

The proposal will generate local employment opportunities for electrical and construction workers to build and install the facility; operations, maintenance and security jobs will be required ongoing.

The holistic considerations of the proposed BESS and the primary considerations of the proposal, including the merits of both preserving agricultural land against promoting renewable energy, have been addressed at length in the various sub-sections of this report and the appended documentation.

It is submitted that the information provided within this report and the various supporting documents demonstrate that the proposal warrants development approval.

View east across the study area.

ABORIGINAL DUE DILIGENCE ASSESSMENT REPORT

GLEN INNES BATTERY ENERGY STORAGE SYSTEM

GLEN INNES, NSW

DECEMBER 2024

Report prepared by

OzArk Environment & Heritage

for Chris Smith & Associates on behalf of Green Gol Energy

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Acknowledgement

OzArk acknowledge the traditional custodians of the area on which this assessment took place and pay respect to their beliefs, cultural heritage, and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the Elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates, on behalf of Green Gold Energy (the proponent) to complete an Aboriginal due diligence heritage assessment for the proposed Glen Innes Battery Energy Storage System (BESS; the proposal). The proposal is in the Glen Innes Severn Shire Local Government Area.

The study area consists of an approximately 1.1 hectare portion of agricultural land directly north of the Gwydir Highway and west of Wellingrove Street on the outskirts of Glen Innes. The study area includes the BESS location, as well as proposed overhead transmission infrastructure and vegetation screening.

A 10 x 10 km search of the Aboriginal Heritage Information Management System (AHIMS) returned eight results for previously recorded Aboriginal sites within the search area (**Appendix** 1). No Aboriginal sites are located within the study area.

The visual inspection of the study area was undertaken by OzArk Archaeologist, Imogen Crome, on 7 November 2024. Shawn Faiers representing Glen Innes Local Aboriginal Land Council was present for the visual inspection.

At the conclusion of the visual inspection, the entire study area was determined to have low surface and subsurface archaeological potential. This is due to the nature of the landform and clay soils present, as well as the long history of intensive agriculture. No Aboriginal objects or potential archaeological deposits were identified during the visual inspection.

The undertaking of the due diligence process resulted in the conclusion that the proposed works will have an impact on the ground surface, however, no Aboriginal objects or intact archaeological deposits will be harmed by the proposal. This moves the proposal to the following outcome:

> *Aboriginal Heritage Impact Permit application not necessary. Proceed with caution. If any Aboriginal objects are found, stop work, and notify Heritage NSW (02) 9873 8500 (heritagemailbox@environment.nsw.gov.au). If human remains are found, stop work, secure the site, and notify NSW Police and Heritage NSW.*

To ensure the greatest possible protection to the area's Aboriginal cultural heritage values, the following recommendations are made:

1. The proposed work may proceed at the study area without further archaeological investigation.
2. All land and ground disturbance activities must be confined to within the study area, as this will eliminate the risk of harm to Aboriginal objects that may be in adjacent landforms. Should the parameters of the proposal extend beyond the assessed areas, then further archaeological assessment may be required.

3. This assessment has concluded that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage items or sites. If during works, however, Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.
4. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal artefacts (**Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the *National Parks & Wildlife Act 1974* and the contents of the *Unanticipated Finds Protocol.*
5. The information presented here meets the requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

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1 INTRODUCTION

1.1 BRIEF DESCRIPTION OF THE PROPOSAL

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates, on behalf of Green Gold Energy (the proponent) to complete an Aboriginal due diligence heritage assessment for the proposed Glen Innes Battery Energy Storage System (BESS; the proposal). The proposal is in the Glen Innes Severn Shire Local Government Area (LGA) (**Figure 1-1**).

Figure 1-1. Map showing the location of the proposal.

1.2 STUDY AREA

The study area consists of an approximately 1.1 hectare (ha) portion of agricultural land directly north of the Gwydir Highway and west of Wellingrove Street on the outskirts of Glen Innes. The study area includes the BESS location as well as proposed overhead transmission infrastructure and vegetation screening. The study area is shown on **Figure 1-2**.

1.3 ASSESSMENT APPROACH

The desktop and visual inspection component for the study area follows the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (due diligence; DECCW 2010). The field inspection followed the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (DEH 2011).

Figure 1-2: Aerial showing the study area.

2 ABORIGINAL DUE DILIGENCE ASSESSMENT

2.1 INTRODUCTION

Section 57 of the National Parks and Wildlife Regulation 2019 (NPW Regulation) made under the *National Parks and Wildlife Act 1974* (NPW Act) advocates a due diligence process to determining likely impacts on Aboriginal objects. Carrying out due diligence provides a defence to the offence of harming Aboriginal objects and is an important step in satisfying Aboriginal heritage obligations in NSW.

2.2 DEFENCES UNDER THE NPW REGULATION

2.2.1 Low impact activities

The first step before application of the due diligence process itself is to determine whether the proposed activity is a "low impact activity" for which there is a defence in the NPW Regulation. The exemptions are listed in Section 58 of the NPW Regulation (DECCW 2010: 6).

The activities of the proponent are not considered a 'low impact activity' within the Code of Practice. Therefore, the due diligence process must be applied.

2.2.2 Disturbed lands

Relevant to this process is the assessed levels of previous land-use disturbance.

The NPW Regulation Section 58 (DECCW 2010: 18) define disturbed land as follows:

> *Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable.*
>
> *Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks.*

As sections of the proposed work are in previously cleared landforms which have been ploughed and contain established agricultural infrastructure such as property fences, it could be considered that the proposed work is occurring in 'disturbed land.' However, apart from these disturbances, sections of the proposed work are not in an area where the land's surface has been changed in a clear and observable manner and the due diligence process must be applied.

In summary, it is determined that the proposal must be assessed under the Due Diligence Code of Practice. The reasoning for this determination is set out in **Table 2-1**.

Table 2-1: Determination of whether Due Diligence Code of Practice applies.

Item	Reasoning	Answer
Is the activity to be assessed under Division 4.7 (state significant development) or Division 5.2 (state significant infrastructure) of the EP&A Act?	The proposal will be assessed under Part 5 of the EP&A Act.	No
Is the activity exempt from the NPW Act or NPW Regulation?	The proposal is not exempt under this Act or Regulation.	No
Do either or both apply: Is the activity in an Aboriginal place? Have previous investigations that meet the requirements of this Code identified Aboriginal objects?	The activity will not occur in an Aboriginal place. No previous investigations have been undertaken for this proposal.	No
Is the activity a low impact one for which there is a defence in the NPW Regulation?	The proposal is not a low impact activity for which there is a defence in the NPW Regulation.	No
Is the activity occurring entirely within areas that are assessed as 'disturbed lands?'	The proposal is not entirely within areas of high modification.	No
Due Diligence Code of Practice assessment is required		

2.3 APPLICATION OF THE DUE DILIGENCE CODE OF PRACTICE TO THE PROPOSAL

To follow the generic due diligence process, a series of steps in a question/answer flowchart format (DECCW 2010: 10) are applied to the proposed impacts and the study area, and the responses documented.

2.3.1 Step 1

Will the activity disturb the ground surface or any culturally modified trees?

Yes, the proposal will impact the ground surface but will not impact culturally modified trees.

Earthworks associated with the construction of the BESS and the overhead transmission infrastructure will impact the ground surface.

The proposal has been designed to avoid mature native vegetation and will therefore not impact culturally modified trees.

2.3.2 Step 2a

Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?

No, there are no previously recorded sites within the study area.

A 10 x 10 km search of the Aboriginal Heritage Information Management System (AHIMS) returned eight results for previously recorded Aboriginal sites within the search area (GDA Zone 56, Eastings: 364868–384725, Northings: 6700584–6720055) (**Appendix** 1). No Aboriginal sites

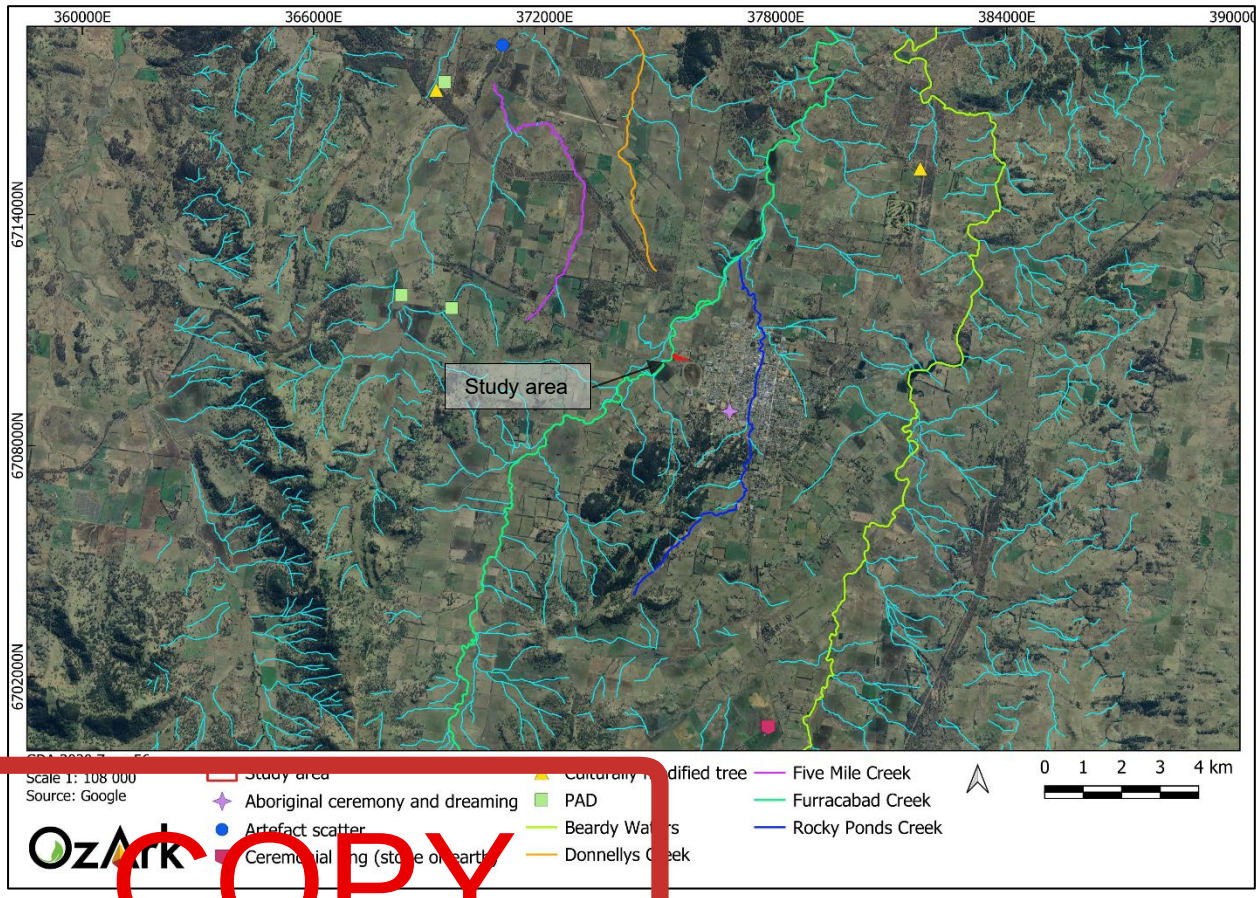
are located within the study area. The closest Aboriginal site to the study area is an Aboriginal ceremony and dreaming site (Glen Innes Rock Wells) located 1.7 km to the southeast.

The small number of AHIMS recordings within the search area limits the conclusions that can be drawn from the AHIMS data. The more common site types in the area are potential archaeological deposits (PADs) and culturally modified trees (carved or scarred). Based on the AHIMS data, the most likely site type that could be recorded at the study area would be a PAD, as the second most common site type (culturally modified trees) cannot be present due to the clearing of all mature native vegetation. **Figure 2-1** shows all previously recorded sites in relation to the study area and **Table 2-2** shows the types of sites that are close to the study area.

Table 2-2: Site types and frequencies of AHIMS sites near the study area.

Site Type	Number	% Frequency
PAD	3	37.5
Culturally modified tree (carved or scarred)	2	25
Artefact scatter	1	12.5
Ceremonial ring (stone or earth)	1	12.5
Aboriginal ceremony and dreaming	1	12.5
Total	**8**	**100**

Figure 2-1: Previously recorded sites in relation to the study area.



2.3.3 Step 2b

Are there any other sources of information of which a person is already aware?

No, there are no other sources of information that would indicate the presence of Aboriginal objects in the study area.

2.3.3.1 Ethnohistoric background

The Glen Innes area is within a region identified as part of the Nganyaywana language group. This is an assemblage of many small clans and bands speaking a number of similar dialects (Tindale 1974, Horton 1994, Howitt 1996). The borders were, however, not static, they were most likely fluid, expanding and contracting over time to the movements of smaller family or clan groups. Boundaries ebbed and flowed through contact with neighbours, the seasons and periods of drought and abundance.

Prior to British settlement, the tablelands and adjacent slopes between Glen Innes and Inverell supported dense woodlands, which provided habitat for a broad range of plant and animal species that formed the core of Aboriginal dietary items prior to contact with early European explorers and settlers. Groups are documented as having utilised a broad range of plant species as both food and material resources, including bracken fern, orchids, tubers and lilies, kurrajong trees and the daisy yam, to mention just a few.

2.3.3.2 Regional archaeological context

McBryde 1974

McBryde noted in her 1974 publication that suitable rock for grinding grooves is rare across the Tablelands, and therefore grinding groove sites often comprise small portable sandstone blocks (McBryde 1974: 159). She noted that the closest grooves were near Walcha at the time, and since then, several grinding groove sites have been identified in the local area. A number of these sites are noted to be on outcropping granite bedrock, but there is some ambiguity in the geological terminology.

In the later Holocene, Aboriginal occupation in upland areas became more visible in the archaeological record, including several ceremonial sites in conjunction with lagoons.

Stone arrangements in various groupings such as cairns, circles, lines, and corridors have also been identified although little is known about them. McBryde identified stone cairn sites at a number of locations across north-eastern NSW, which were often grouped along crests, ridges, and knolls (McBryde 1974: 31–33). The study noted that stone arrangements on the Tablelands did not reveal any significant landscape patterning "*apart perhaps from the preference for elevated sites with a good outlook*".

One site at Black Mountain was known as part of a Bora ground and featured 17 large heaps of stones on a "*slight hollow on the top of a peak, one of the highest points in the area*" (McBryde 1974: 41). Bora rings in the Tablelands have been identified as circular cleared areas (typically 10–15 m in diameter) edged with a low bank of earth up to 1 m high and nearly 2 m wide (McBryde 1974: 52).

Literary accounts suggest that Bora grounds often comprised two circles joined by a pathway, often flanked by ground drawings of human and animal figures, and carvings of geometric designs in nearby trees. McBryde listed 26 Bora sites known at the time in the Tablelands (McBryde 1974: 59–62). Archaeological evidence of burials has been identified in rock shelters, but also as open sites marked by earth mounds, piles of stones, and nearby carved trees (McBryde 1974).

Beck et al. 2015

The article published in *Archaeology in Oceania* outlines the scarcity of persistent occupation sites in the Tablelands due to the lack of rock shelters recorded throughout the region. The cold, harsh environmental conditions of the Tablelands were seen as a major obstacle to year-round occupation, resulting in a sparse distribution of sites (Binns & McBryde 1972). However, others including Godwin (1990) argued that the Tablelands was not abandoned during winter but was occupied by small mobile groups all year. Beck et al. continues Godwin's investigations into the resource zones of the Tablelands, specifically the focus on upland wetland landscapes or 'lagoons.'

The New England lagoons are shallow upland ponds located along the highest parts of the major drainage divides within the Tablelands. Lagoons were chosen for study, not only because water sources are an essential focus for human occupation but also because of their cultural values (Beck et al. 2015: 47). Not only did Aboriginal people interact physically with water sources, such as fish trapping, ditches, and mounds, but they are also the central locations of many myths and dreaming stories (Smith & Wobst 2005). The New England lagoons can occur in five general forms (**Table 2-3**).

Lagoons are ecologically diverse sources of food and fibre resources for Aboriginal people arriving on the Northern Tableland and provide a clustering of resources that are not available elsewhere in the region. Lagoons are most productive when they are shallow or fluctuating in depth, possibly due to increased plant growth and invertebrate breeding which supports waterbird species. Lizards, snakes, turtles, and frogs also occur in and around lagoon areas.

Beck et al. concludes that the overall productivity of New England lagoons is high when numbers of plant and animal species in wetland environments are stimulated by alternate wetting and drying, suggesting that these landforms could have acted as transit stations for not only migratory wildlife moving from the coast to the inland and back, but Aboriginal people who were also able to take full advantage of these isolated islands of resource abundance (Beck et al. 2015: 54).

Table 2-3: Types of New England lagoons by drying patterns (Brock 2011).

Drying pattern	Predictability and duration of filling
Semi-permanent or near permanent	Usually holds some water; annual inflows are greater than minimum loss in 90% of years. May dry during extreme drought events.
Seasonal	Alternately wet and dry every year according to season. Fills during wet season and dries annually. Surface water persists for months.
Intermittent	Alternately wet and dry, but less frequently and regularly than seasonal wetlands. Surface water may persist for months to years.
Episodic	Annual inflow is less than minimum loss in 90% of years. Dry for most of the time. Only rarely and irregularly flooded when water may persist for months.
Ephemeral	Only fills for a few days after unpredictable rainfall and run-off.

2.3.3.3 Local archaeological context

McCardle 2007

The assessment was intended to identify areas of Aboriginal cultural heritage values and to develop management recommendations for the proposed Glen Innes Wind Farm. The study area was located approximately 12 km to the west of Glen Innes, covering 8.5 km of the Waterloo Range. The area was identified as having undergone both human (predominately agricultural) and natural disturbances. Ground surface visibility was limited by rocks, grass, and trees and did not exceed 55%. Of 27 wind turbine sites surveyed, only one archaeologically significant site was identified, consisting of a basalt axe head. Whilst basalt is local to the area, the artefact was not found in-situ and was likely to have been washed downhill. No PADs were identified during the survey. As such, the area was not considered to be of high significance.

RPS 2008

The assessment was undertaken for the proposed Ben Lomond Wind Farm. The assessment included a pedestrian and vehicle survey of the 9,683 ha study area, which is located 1 km north of Ben Lomond village, 30 km south of the current study area. The area had previously been used extensively for grazing. Visibility was limited due to dense pasture grasses. Exposures were limited to patches of track, gate openings, dam walls, cattle pads, and cuttings. No Aboriginal sites were recorded. A number of historic heritage item/sites were observed, including a number of old farm buildings, structures, and movable items which were assessed as having low heritage significance.

NSW Archaeology 2011

In 2009, NSW Archaeology conducted an assessment for the proposed Sapphire Wind Farm which was published in 2011. A total of three Aboriginal object locales SU14/L1, SU19/L1 and SU21/L1 were recorded within the assessed survey units.

The locales were reported to have a very low-density stone artefact distribution, resulting in low archaeological potential/sensitivity, and therefore low archaeological significance.

In addition to the Aboriginal object locales, five trees were considered by the Aboriginal field assistants to be possible scarred trees. All survey units were assessed to hold high potential for archaeological sites to be present, but that the sites would be of low density and would be of low archaeological significance. As a result, no constraints were placed on the project.

An addendum to the original 2011 assessment was completed in 2016 for a modification to the project. It was proposed that the overall number of wind turbines be reduced from 159 to 109 and access tracks underwent minor route changes. The addendum report concluded that due to the insignificant nature of the proposed changes, no further investigation was required and no changes to the current conditions of consent were required (NSW Archaeology 2016).

RPS 2011

RPS was commissioned by Ark Energy to prepare a Cultural Heritage Impact Assessment for the proposed White Rock Wind Farm located approximately 14 km southwest of the study area. The survey component was completed over five days and was broken into eight individual survey units. The survey was able to record five previously unrecorded Aboriginal sites including three scarred trees (RPS White Rock 01A, RPS White Rock 01B, and PRS White Rock 04) and two artefact scatters associated with PADs (RPS White Rock 02 and RPS White Rock 03). Both artefact scatters consisted of three artefacts manufactured from quartz, silcrete, and basalt.

The survey results demonstrate that Aboriginal campsite occupation occurred on flat creek terrace areas adjacent to second order creeks. The preferred occupation areas were at lower elevations within the Tablelands and located at some distance from steep sided ridges.

Ridgetop landforms were more likely used as a resource gathering zone where flora and fauna were utilised by Aboriginal people.

OzArk 2021

In 2020, OzArk conducted an archaeological investigation for the proposed Rangoon Wind Farm, located at Ben Lomond. The impact area at the Rangoon Wind Farm of approximately 1,089 ha was surveyed over five days. No Aboriginal cultural heritage values were identified within the 2021 study area during field survey or through consultation with the Aboriginal community, and no previously unidentified significant historic items were identified in the study area. Most of the study area was situated in gentle to steeply sloping landforms.

The Rangoon survey confirmed the paradigm established by other studies in the area that sloping landforms are poor preservers of archaeological evidence. It also agreed with other studies in the area in that ridge and crest landforms were either infrequently used for camping or have been subjected to greater impacts from soil loss and the subsequent dispersal of sites.

2.3.4 Step 2c

Are there any landscape features that are likely to indicate presence of Aboriginal objects?

Yes, portions of the study area contain landforms with identified archaeological sensitivity.

The Due Diligence Code of Practice refers to several landscape features which have higher potential to contain Aboriginal objects. These include:

- Within 200 m of 'waters'
- Located within a sand dune system
- Located on a ridge top, ridge line or headland
- Located within 200 m below or above a cliff face
- Within 20 m of or in a cave, rock shelter, or a cave mouth

on land that is not disturbed land.

The western portion of the study area is situated within 200 m of Furracabad Creek which constitutes 'waters' within the Code of Practice. The study area is also located on land that has not been entirely disturbed in a clear and observable manner and therefore the study area contains landforms with identified archaeological sensitivity.

Ground disturbances associated with proposed works are largely situated within the Inverell Plateau Granites landscape unit (Mitchell 2002). This landscape unit is generally categorised by undulating plateaus with domed peaks at an elevation of 900–1500 m above sea level with a local relief of 200 m. Domed rock outcrop is common with tors. The study area is situated at 1000 m above sea level on a flat landform.

In dry areas open forests of silvertop stringybark, broad-leaved stringybark, Blakely's red gum, narrow-leaved peppermint and yellow box are typically present. Whereas in cold areas, snow gum and black sallee woodlands are more common. However, the study area has been historically cleared of mature native vegetation.

Within the Inverell Plateau Granites landscape unit, soils are a shallow, gritty loam that thickens downslope to sands and texture-contrast soils on lower slopes and valley floors. Wide valleys, have deep, dark clay deposits in swampy streamlines.

2.3.5 Step 3

Can harm to Aboriginal objects or disturbance of archaeologically sensitive landscape features be avoided?

Known Aboriginal objects will not be harmed by the proposal, however, landforms with identified archaeological sensitivity will be subject to ground disturbance.

The proposed works will involve impacts to landforms with identified archaeological sensitivity, namely those located within 200 m of 'waters.'

2.3.6 Step 4

Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?

There are no Aboriginal objects within the study area.

The visual inspection of the study area was undertaken by OzArk Archaeologist, Imogen Crome, on 7 November 2024. Shawn Faiers representing Glen Innes Local Aboriginal Land Council was present for the visual inspection.

The study area was confirmed as a highly disturbed agricultural field situated on a flat floodplain landform. As observed at desktop level, all mature native vegetation has been cleared from the study area, however, dense ground cover and grasses greatly reduced both ground surface exposure (GSE) and ground surface visibility (GSV) (which averaged at 5%).

Soils consist of black alluvial clays which are generally unsuitable for the preservation of archaeological material due to their cracking nature. The study area has been heavily disturbed by intensive cropping practices as well as the construction of property fence lines (**Plate 1** and **Plate 2**).

Plate 1: View north across the floodplain landform at the study area.

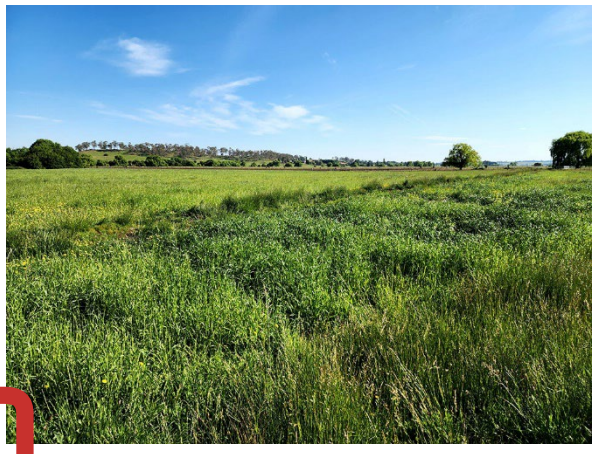
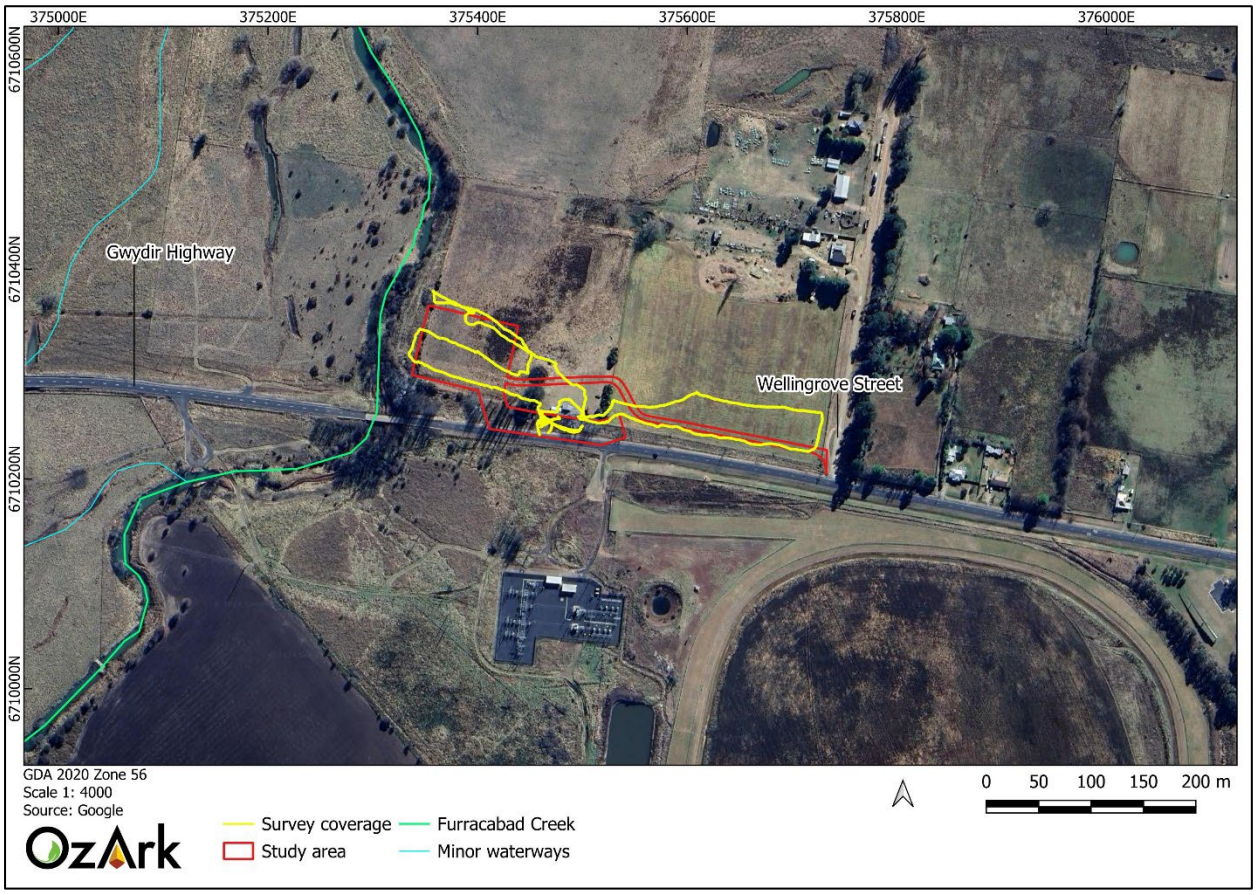


Plate 2: View east across the thick ground cover within study area.

At the conclusion of the visual inspection, the entire study area was determined to have low surface and subsurface archaeological potential. This is due to the nature of the landform and clay soils present, as well as the long history of intensive agriculture. No Aboriginal objects or PADs were identified during the visual inspection. The pedestrian coverage of the study area is shown on **Figure 2-2**.

Figure 2-2: Survey coverage within the study area.



2.4 CONCLUSION

The due diligence process has resulted in the outcome that an Aboriginal Heritage Impact Permit (AHIP) is not required. The reasoning behind this determination is set out in **Table 2-4**.

Table 2-4: Due Diligence Code of Practice application.

Step	Reasoning	Answer
Step 1 Will the activity disturb the ground surface or any culturally modified trees?	The proposed works will disturb the ground surface through earthworks required for the construction of the BESS and associated transmission infrastructure. The proposal will not impact mature, native vegetation and therefore will not harm culturally modified trees.	Yes
If the answer to Step 1 is 'yes', proceed to Step 2		
Step 2a Are there any relevant records of Aboriginal heritage on AHIMS to indicate presence of Aboriginal objects?	AHIMS indicated that there are no Aboriginal sites within the study area.	No

Step 2b Are there other sources of information to indicate presence of Aboriginal objects?	There are no other sources of information to indicate that Aboriginal objects are likely in the study area.	No
Step 2c Will the activity impact landforms with archaeological sensitivity as defined by the Due Diligence Code?	Landforms with identified archaeological sensitivity are present as the study area is within 200 m of 'waters.'	Yes
If the answer to any stage of Step 2 is 'yes', proceed to Step 3		
Step 3 Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?	The proposal will impact landforms with archaeological sensitivity as identified in the Due Diligence Code of Practice: landforms within 200 m of 'waters.'	No
If the answer to Step 3 is 'no', a visual inspection is required. Proceed to Step 4.		
Step 4 Does the visual inspection confirm that there are Aboriginal objects or that they are likely?	The visual inspection recorded no Aboriginal objects in the study area. Landforms with identified archaeological sensitivity that were identified at a desk-top level were found during the inspection to have low archaeological potential.	No
Conclusion		
AHIP not necessary. Proceed with caution.		

3 MANAGEMENT RECOMMENDATIONS

The undertaking of the due diligence process resulted in the conclusion that the proposed works will have an impact on the ground surface, however, no Aboriginal objects or intact archaeological deposits will be harmed by the proposal. This moves the proposal to the following outcome:

> *Aboriginal Heritage Impact Permit application not necessary. Proceed with caution. If any Aboriginal objects are found, stop work, and notify Heritage NSW (02) 9873 8500 (heritagemailbox@environment.nsw.gov.au). If human remains are found, stop work, secure the site, and notify NSW Police and Heritage NSW.*

To ensure the greatest possible protection to the area's Aboriginal cultural heritage values, the following recommendations are made:

1. The proposed work may proceed at the study area without further archaeological investigation.
2. All land and ground disturbance activities must be confined to within the study area, as this will eliminate the risk of harm to Aboriginal objects that may be in adjacent landforms. Should the parameters of the proposal extend beyond the assessed areas, then further archaeological assessment may be required.
3. This assessment has concluded that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage items or sites. If during works, however, Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.
4. Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal artefacts (**Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the *Unanticipated Finds Protocol.*
5. The information presented here meets the requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

REFERENCES

Beck et al. 2015 — Beck, W. Howarth, R. and Appleton, J. 2015. Aboriginal resource change through time in New England upland wetlands, south-east Australia. *Archaeology in Oceania*, Vol 50, No 1: 46-56.

Binns & McBryde 1972 — Binns, R.A. and McBryde, I. 1972. *A Petrological Analysis of Ground0edge Artefacts from Northern New South Wales*. Australian Institute of Aboriginal Studies, Canberra.

Brock 2011 — Brock, M.A. 2011. Persistence of seed banks in Australian temporary wetlands. *Freshwater Biology* 56: 13.

Burra Charter 2013 — International Council on Monuments and Sites 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*.

DECCW 2010 — DECCW. 2010. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*. Department of Environment, Climate Change and Water, Sydney.

Godwin 1990 — Godwin, L. 1990. *Inside Information: Settlement and Alliance in the Late Holocene of North-eastern NSW*. Unpublished PhD thesis, University of New England, Armidale.

Horton 1994 — Horton, D. (ed) 1994. *The Encyclopedia of Aboriginal Australia: Aboriginal and Torres Strait Islander History, society and culture*. Aboriginal Studies Press, Canberra.

Howitt 1996 — Howitt, A W. 1996. *The Native Tribes of South-East Australia*. Aboriginal Studies Press, Canberra.

McBryde 1974 — McBryde, I. 1974. *Aboriginal prehistory in New England*. Sydney University Press, Sydney.

McCardle 2007 — McCardle Cultural Heritage Pty Ltd. 2007. *Proposed Wind Farm at Glen Innes: Indigenous Archaeological Assessment*. Report prepared for Connell Wagner Pty Ltd.

Mitchell 2002 — Mitchell, Dr. Peter. 2002. *Description for NSW (Mitchell) Landscapes* Version 2. Department of Environment and Climate Change NSW.

NSW Archaeology 2011 — New South Wales Archaeology Pty Ltd. 2011. *Sapphire Wind Farm Archaeological and Cultural Heritage Assessment*. Report to: Wind Prospect CWP Pty Ltd.

NSW Archaeology 2016 — New South Wales Archaeology Pty Ltd. 2016. *Addendum Sapphire Wind Farm – Modification to Road Alignment Aboriginal Cultural Heritage Assessment Report*. Report to: CWP Pty Ltd.

OEH 2011 — Office of Environment and Heritage. 2011. *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales*.

OzArk 2021 — OzArk Environment & Heritage. 2021. *Aboriginal Cultural Heritage & Historic Heritage Assessment Report Rangoon Windfarm*. Report to: Meridian Energy Australia Pty Ltd.

RPS 2008 — RPS. 2008. *Archaeological Assessment for Ben Lomond Wind Farm*. Report prepared for Ben Lemond Wind Farm Pty Limited.

RPS 2011 — RPS. 2011. *Aboriginal Heritage Impact Assessment for White Rock Wind Farm*. Report prepared for Ark Energy (formerly Epuron Pty Ltd).

Smith & Wobst 2005 — Smith, C. and Wobst, M. (eds) 2005. *Indigenous Archaeologies: Decolonising Theory and Practice*. Routledge, London.

Tindale 1974 — Tindale, N. 1974. *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits and Proper Names*. ANU Press, Canberra

APPENDIX 1: AHIMS SEARCH RESULTS

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : 4372
Client Service ID : 886224

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
12-4-0004	Reddestone Creek;	AGD	56	370800	6718200	Open site	Valid	Artefact : -	Open Camp Site	219,220
	Contact	Recorders	Graham Connah					Permits		
21-4-0048	Northern Site	AGD	56	381650	6715000	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	J Johnson					Permits		
12-4-0001	Glen Innis;Glen Innis Rock Wells;	AGD	56	376700	6708700	Open site	Valid	Aboriginal Ceremony and Dreaming : -	Natural Mythological (Ritual)	
	Contact	Recorders	Harry Creamer,Mr.Richard Kelly					Permits		
12-4-0002	Stonehenge;	AGD	56	377700	6700500	Open site	Valid	Ceremonial Ring (Stone or Earth) : -	Bora/Ceremonial	
	Contact	Recorders	Isabel McBryde					Permits		
12-4-0021	PAD1 and PAD 2 (GLEN INNES)	GDA	56	369590	6711574	Open site	Valid	Potential Archaeological Deposit (PAD) : -		101915
	Contact	Recorders	Jim Wheeler					Permits		
12-4-0037	Reddestone ST1	GDA	56	369184	6717233	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Mr.John Appleton					Permits		
12-4-0022	PAD3 and PAD 4 (GLEN INNES)	GDA	56	368283	6711911	Open site	Valid	Potential Archaeological Deposit (PAD) : -		101915
	Contact	Recorders	Jim Wheeler					Permits		
12-4-0034	Reddestone L&H P1	GDA	56	369404	6717438	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.John Appleton					Permits	3893,4108	

** Site Status
Valid - The site has been recorded and accepted onto the system as valid
Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.
Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground
Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 23/04/2024 for Jordan Henshaw for the following area at Datum :GDA, Zone : 56, Eastings : 364868.0 - 384725.0, Northings : 6700058.0 - 6720055.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 8
This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

APPENDIX 2: ABORIGINAL HERITAGE UNANTICIPATED FINDS PROTOCOL

An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

Cultural heritage significance is assessed by the Aboriginal community and is typically based on traditional and contemporary lore, spiritual values, and oral history, and may also consider scientific and educational value.

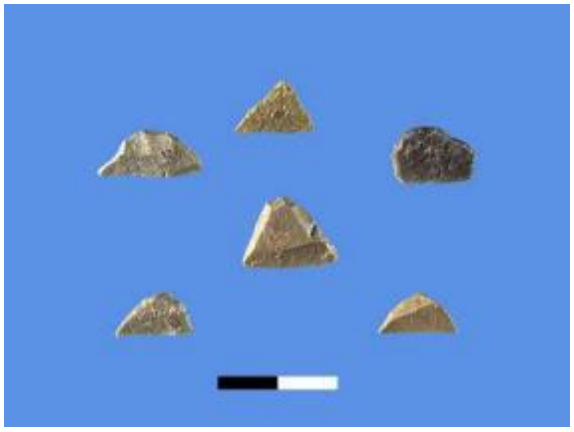
Protocol to be followed if previously unrecorded or unanticipated Aboriginal object(s) are encountered:

1. If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must:
    a. Not further harm the object
    b. Immediately cease all work at the particular location
    c. Secure the area to avoid further harm to the Aboriginal object
    d. Notify Heritage NSW as soon as practical on (02) 9873 8500 (heritagemailbox@environment.nsw.gov.au), providing any details of the Aboriginal object and its location; and
    e. Not recommence any work at the particular location unless authorised in writing by Heritage NSW.
2. If Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and Heritage NSW contacted.
3. Cooperate with the appropriate authorities and relevant Aboriginal community representatives to facilitate:
    a. The recording and assessment of the find(s)
    b. The fulfilment of any legal constraints arising from the find(s), including complying with Heritage NSW directions
    c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s).
4. Where the find(s) are determined to be Aboriginal object(s), recommencement of work in the area of the find(s) can only occur in accordance with any consequential legal requirements and after gaining written approval from Heritage NSW (normally an Aboriginal Heritage Impact Permit).

APPENDIX 3: ABORIGINAL HERITAGE ARTEFACT IDENTIFICATION

A retouched silcrete flake

A quartz flake



Microliths (scale = 1 cm)

Volcanic flakes

Flake characteristics (scale = 1 cm)

A mudstone/tuff core from which flakes have been removed

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Battery Energy Storage System

Noise Impact Assessment Report

Prepared for: Chris Smith & Associates

Project No: SYD3399
Date: 11 March 2025
Revision: 01

Project:	Battery Energy Storage System
Location:	1 Wellingrove Street Glen Innes NSW 2370
Prepared by:	ADP Consulting Pty Ltd Level 6, 33 Erskine Street Sydney NSW 2000
Project No:	SYD3399
Revision:	01
Date:	11 March 2025

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation & QA	Signature
00	29/01/2024	Issue	MJ	MJ	WG	WG	WG	WG
01	11/03/2024	Issue	WG	WG	MJ	MJ	WG	WG

Project Team

Client / Principal	Chad Smith & Associates C/ Duncan Lowis

ADP
Consulting : Engineering

Contents

Appendices

Figures

Tables

1. Context

Green Gold Energy propose to develop the land at 1 Wellingrove Street, Glenn Innes (the Subject Site) to include a battery energy storage.

The proposed development includes:

- 4 Battery Energy Storage System (BESS) containers
- 1 Inverter

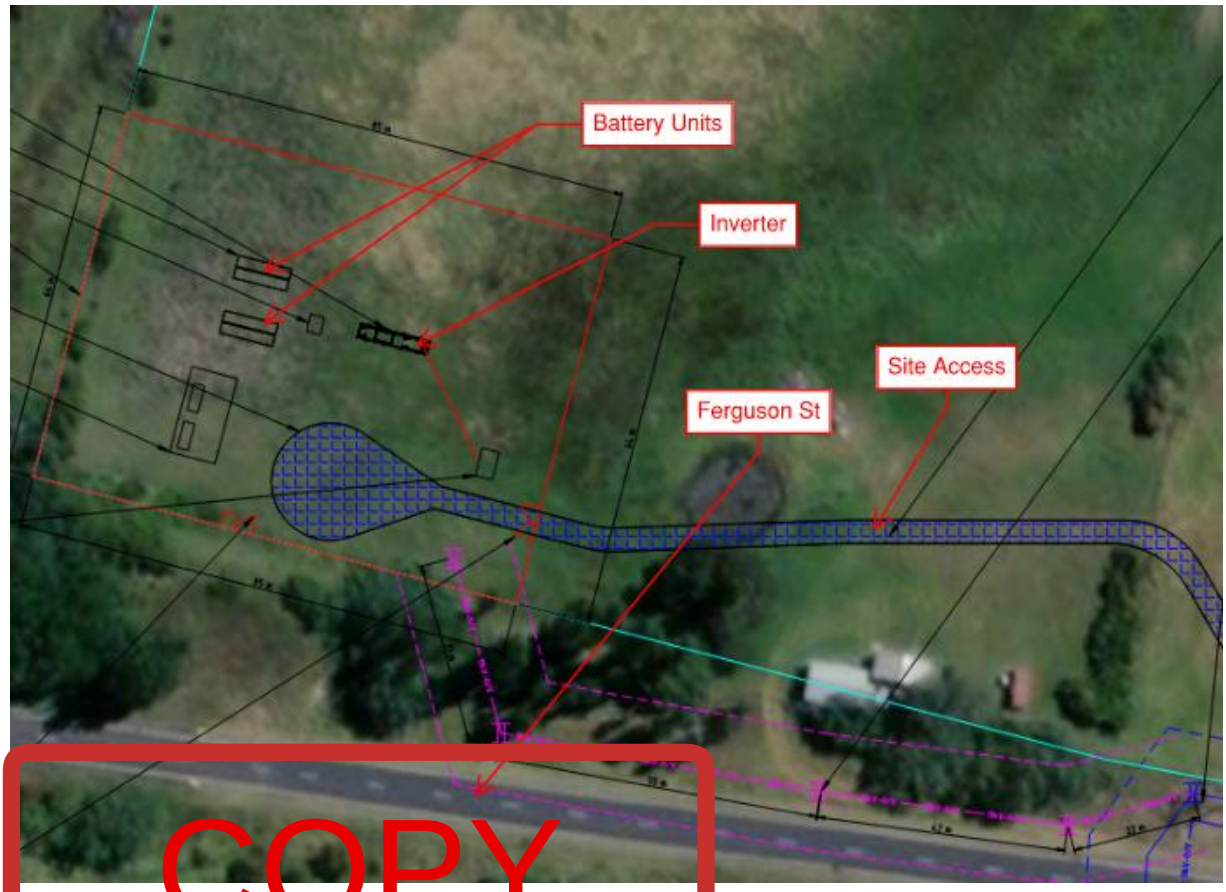
The equipment may run all together during at any time over 24 hours. This report provides a noise impact assessment of the Subject Site to inform the development application and includes:

- Site description relevant to noise
- Noise guidelines, standards and criteria
- Assessment of noise and noise mitigation requirements

Acoustic recommendations that may form part of any permit conditions are provided in Section 6 of this document.

The site layout is provided in Figure 1 below and full drawing is provided in Appendix A.

Figure 1 Site layout



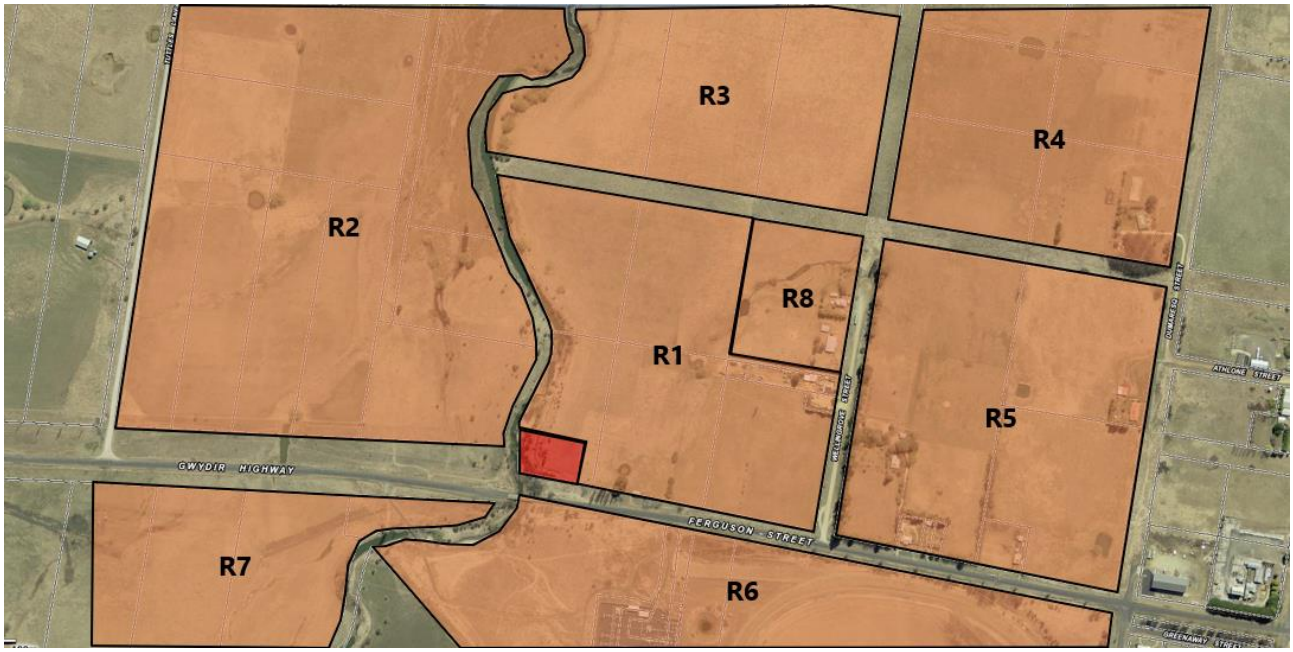
2. Site Description

The Subject Site is in a rural *Primary Production* (RU1) zone[1] and the nearest noise sensitive receivers are residential properties in *Primary Production* (RU1) or *Environmental Management* (C3).

The Subject Site and surrounding receivers are provided in Figure 1 below.

The nearest receiver is the property in R1 located approximately 350m from the Subject Site.

Figure 2 The subject site and surrounding area



= Subject site

= Surrounding noise-sensitive receivers

[1] NSW Government, *Glen Innes Severn Local Environmental Plan*, 2012

3. Criteria

The NPfI requires compliance with specific *project noise trigger levels* which provide a benchmark or objective for assessing a proposal or site. The project noise trigger level is not a mandatory requirement but rather indicates a potential noise impact on the community, and so 'triggers' a management response, for example, further investigation of mitigation measures.

The *project trigger levels* are determined from the lower (that is, the more stringent) value of the project *intrusiveness noise level* and *project amenity noise level*. The NPfI also includes the application of modifying factors for undesirable noise characteristics such as tonality or impulsiveness, up to a maximum of 10dB.

Noise intrusiveness

The NPfI states that the intrusiveness of an industrial noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the L_{Aeq} descriptor), measured over a 15-minute period, does not exceed the background noise level (L_{A90}) measured in the absence of the source by more than 5 dB.

Amenity noise levels

The NPfI describes a methodology to limit gradual increases in noise levels from the introduction of new noise sources in an area, sometimes referred to as 'background noise creep'.

The *recommended amenity noise levels* represent the objective for total noise at a receiver location, whereas the *project amenity noise level* represents the objective for noise from this project. The *project amenity noise level* for developments = *recommended amenity noise level* (Table 2.2) minus 5 dB(A). 3 dB is then added to convert from an L_{Aeq}, period to $L_{Aeq,\ 15min}$.

The *project amenity noise level* for developments in areas of high traffic (such as the subject site) = $L_{Aeq,\ period\ (traffic)}$ minus 15 dB(A). A site is a 'high traffic project' if traffic noise is identified as the dominant noise source, existing traffic noise levels are 10 dB or more above the recommended amenity noise levels and it is highly unlikely traffic noise levels will decrease in future.

NPfI Table 2.2 specifies amenity noise levels for different types of receivers.

Modifying Factors

Undesirable characteristics such as tonality, low frequency, impulsiveness and intermittency, adjustments (as per Fact Sheet C of the NPfI) shall be assessed. These modifying factors include a 5dB penalty for each undesirable characteristic. A maximum penalty of 10dB for 2 or more undesirable characteristics applies.

Summary of NPfI environmental noise criteria

A summary of noise emission criteria that apply at residential receivers from the use of the proposed development is presented in the following table.

The 'project trigger levels' are the most stringent noise criteria of the intrusive and amenity noise levels that apply in each instance.

As unattended noise monitoring at the subject site and/or nearest noise-affected receiver has not been undertaken, the minimum assumed rating background noise level has been adopted for this assessment.

Table 1 EPA NPfI Planning Levels – $L_{Aeq,\ 15\text{-}minutes}$ [dBA]

Period	Intrusive		Amenity					Project Noise Trigger Level
	RBL	RBL + 5 dB	Area Classification	Recommended Amenity Noise Level	High Traffic Area	Project Amenity Noise Level	+3 dB Correction	
Day	35	40	Rural	50	No	45	48	**40**
Evening	30	35	Rural	45	No	40	43	**35**
Night	30	35	Rural	40	No	35	38	**35**

4. Assessment

Spreadsheet based noise prediction has been used to calculate noise emission for this project. The calculation implements the ISO 9613[2] noise prediction methodology with the following major noise sources:

- 4 BESS containers
- 1 Inverter

The following assumptions are made as part of the commercial noise assessment:

- All sources operating simultaneously at full capacity for the full period of assessment.
- Ground conditions between the Subject Site and receivers is soft (absorption factor is 1)
- The receiver location is assessed at the most noise-affected point within 30 m of the closest residence due to the size of the lots.
- Assessment is made with respect to the night-time noise criteria (most onerous) because the Subject Site may operate during this time period.
- The predicted noise level is tonal in nature and a 5dB correction is added in accordance with policy.

Noise level data is based on manufacturer data for selected equipment where available and supplemented by typical equipment noise levels if required. A summary of noise levels used for acoustic modelling is provided in Table 2 below and detail is provided in Appendix B.

Table 2: Modelled sound power levels

Equipment	Model	Sound Power Level
Inverter	Sungrow – SC4980UD-MV	90 dB(A)
BESS	Sungrow – ST2752UX	83 dB(A)

The predicted noise level at receivers is provided in Table 3 below.

The predicted noise level at receiver locations is tonal in character and an adjustment in accordance with the EPA NPfI is applied. .

Table 3: Predicted and Assessment Noise Levels

Location	Predicted Noise Level	Adjusted Noise Level	Criteria
R1	35 dB(A)	39 dB(A)	35 dB(A)
R2	< 30 dB(A)	< 35 dB(A)	35 dB(A)
R3	< 30 dB(A)	< 35 dB(A)	35 dB(A)
R4	< 30 dB(A)	< 35 dB(A)	35 dB(A)
R5	33 dB(A)	38 dB(A)	35 dB(A)

[2] ISO 9613.1:199 Acoustic – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere, 1 June 1993 (ISO 9613-

R6	< 30 dB(A)	< 35 dB(A)	35 dB(A)
R7	< 30 dB(A)	< 35 dB(A)	35 dB(A)
R8	34 dB(A)	39 dB(A)	35 dB(A)

The predicted noise level, including adjustment for tonality exceed the noise criteria at R1, R5 & R8 and meet at all other receiver locations.

Consideration of noise mitigation is required.

5. Noise Mitigation

The predicted noise level, including adjustment for tonality exceed the noise criteria by up to 4dB at some receivers and noise mitigation is required to meet the EPA NPfI noise criteria.

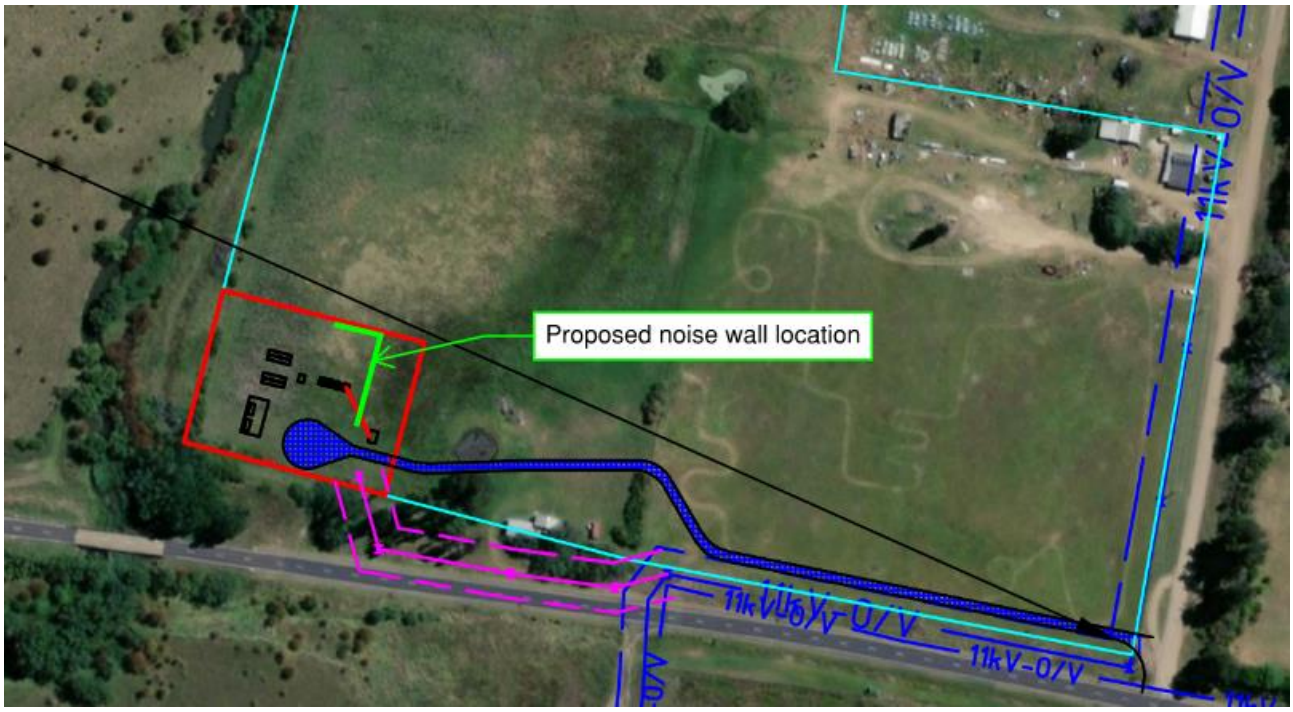
A reduction of 4dB may be achieved with:

> Manufacturer modifications including consideration internal insulation lining, additional damping to the cabinet panels and including attenuation to airflow paths; this would need to be managed by the manufacturer with reduction in noise confirmed through measurement.

> A noise wall that blocks line of sight between the Subject Site equipment and receivers R1, R5 & R8 to the east and north east and has a height 1m above the highest equipment height.

A noise wall is required to be constructed with no holes or gaps and of materials that achieve a minimum airborne sound insulation rating of R_w 28 or a minimum surface density of at least 12.5kg/m^2 and the location is provided in the Figure below.

Figure 3 Noise Wall Location



6. Recommendation

The following is recommended to confirm noise emission compliance for the proposed development:

> Noise mitigation as described in Section 5 is to be implemented.

> BESS and inverter should face noise equipment elements south east.

> Finalised equipment selections, mitigation kits and associated noise levels are to be reviewed by the acoustic engineer.

> Post-construction noise monitoring may be required to confirm compliance with noise criteria.

These recommendations are to be implemented following project approval.

7. Summary

The proposed Glen Innes BESS is predicted to meet the EPA noise criteria, provided the recommendations as outlined in Section 6 of this report are followed.

The assessment is considered conservative, as it is unlikely that all equipment will run simultaneously at maximum capacity during the night-time period.

A review of the finalised equipment selection, mitigation approach and post-construction noise monitoring are recommended to confirm noise emission compliance for the proposed development.

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Appendix A
Site Drawings

A.1 Delete

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Appendix B
Noise Data

B.1 Battery Energy Storage System (BESS)

The BESS is a Liquid Cooling Energy Storage System at 2.75MW each. The proposed product is the Sungrow ST2752UX-US with noise levels tested by Sungrow[3] and provided below including a noise reduction kit.

The measured noise level was measured at 1m around the unit and converted to a sound power level in accordance with ISO 3744 (2010)..

		Sound Power Level, dB Octave Band Centre Frequency, Hz							
Description	**dB(A)**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
BESS	85	62	76	80	77	82	76	72	63

[3] Sungrow, *Noise test report of liquid cooled CATL energy storage container*, October 2021

B.2 Inverter

The proposed inverter is a Sungrow SC5000-UD-MV power conversion unit (PCU) with dimensions approximately 3 x 2 x 2.2(h) and 5000kVA output.

Noise associated with the unit is fan noise running the cooling system. For this assessment, the fan is assumed to operate at 100% capacity.

There is no noise data for the exact unit and therefore noise data is based on a similarly sized previously measured inverter type with the following sound power level.

		Sound Power Level, dB Octave Band Centre Frequency, Hz							
Description	**dB(A)**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Typical 5000kVA Inverter	**90**	**86**	**90**	**94**	**88**	**84**	**80**	**72**	**72**

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—

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Landscape Maintenance Plan

Task	Time Period
Planting of local drought tolerant plants (refer Plant Schedule)	Upon construction of perimeter fence
Water at planting & then fortnightly	1st & 2nd month after planting
Maintenance (watered by rainfall or as required)	
Visual inspection once a month ensuring plants are alive	3rd to 5th month after planting
Visual inspection once every 3 months ensuring plants are alive	6th to 8th month after planting
Visual inspection once every 6 months ensuring plants are alive	9th month to 30 years after planting

Note:

(1) Any dead, diseased or damaged plants will be replaced as soon as possible by maintenance services team.

(2) The Landscape Maintenance Plan has been prepared in accordance with advice from Green Gold Energy P/L.

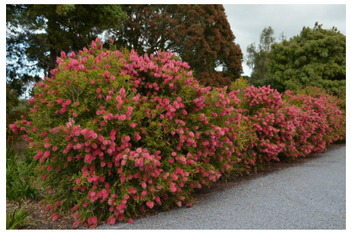
Disclaimer:

Chris Smith & Associates P/L. take no responsibility for the implementation of the Landscape Maintenance Plan.

Landscape Plan to be read in conjunction with F&L Survey, Title Reestablishment Survey & Site Plan

Plant Schedule

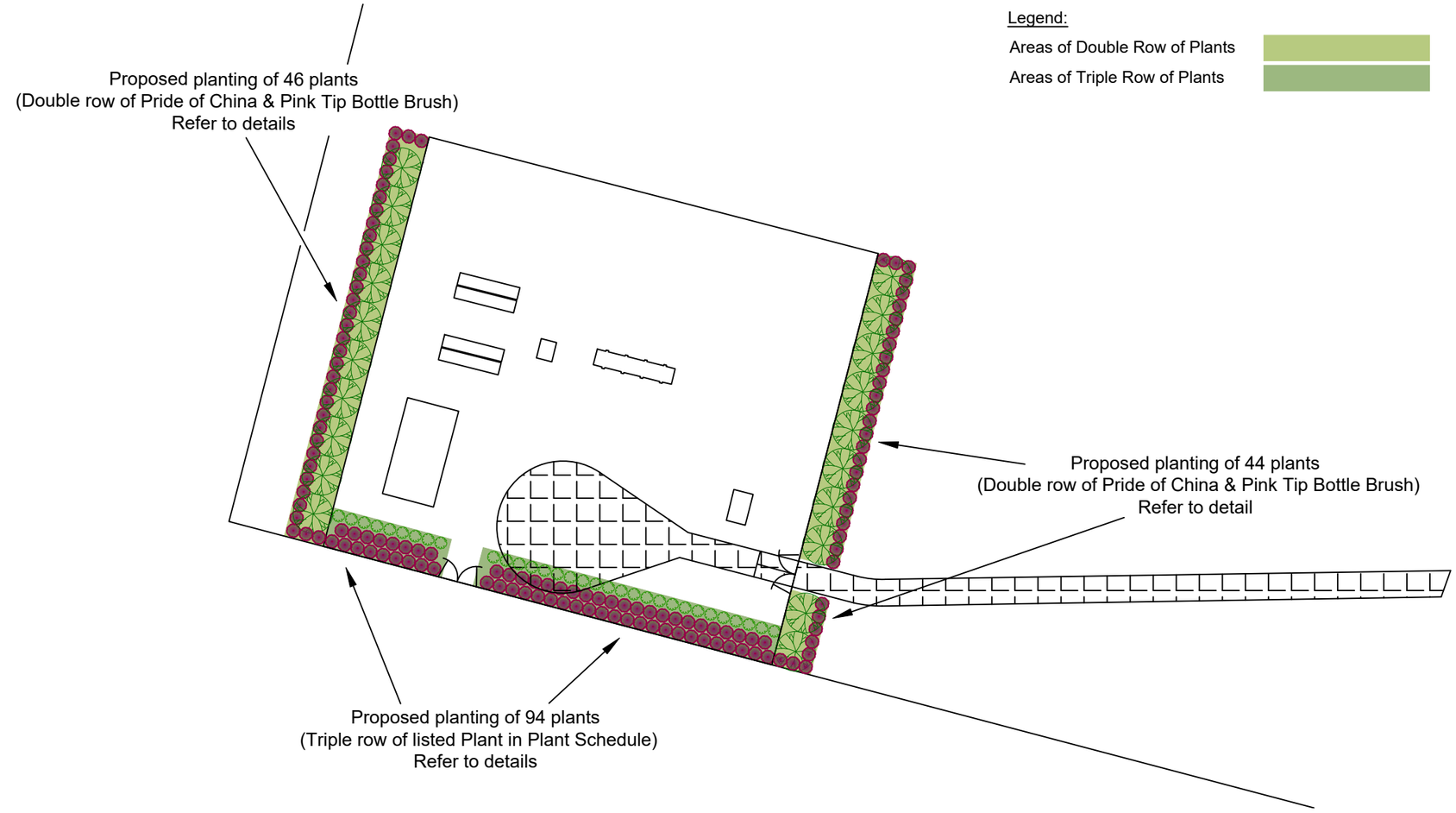
Botanical Name	Common Name	Planting Size	Mature Size	Symbol	Total (approx)
Callistemon Citrinus	Kings Park Special	50mm Tube with Bio-Guard	3-4m H x 2m W		32 No.
Koelreuteria Bipinnata	Pride of China	50mm Tube with Bio-Guard	6-8m H x 6m W		20 No.
Callistemon Salignus	Pink Tip Bottle Brush	50mm Tube with Bio-Guard	2-2.5m H x 2m W		132 No.
					184 No.



B: Callistemon Salignus
C: Pink Tip Bottle Brush

B: Koelreuteria Bipinnata
C: Pride of China

B: Callistemon Citrinus
C: Kings Park Special



Legend:

Areas of Double Row of Plants

Areas of Triple Row of Plants

Landscape Construction Notes:

1. Landscape Construction.
   - Contractor to ensure all measurements on site are correct, accurate & relevant to site.
   - All planted areas are required to have a minimum of 150mm cultivated topsoil.
   - Finished level of topsoil to be 100 - 150mm above existing surface level to ensure planted areas are free from water-logging during wet periods.

2. Locate all existing services.
   - Contractor to ensure a Dial Before You Dig is undertaken and are to be aware of all underground services and are located as relevant.

3. Plant Supply.
   - All supplied plants are to be healthy & free of any pests, diseases and of an attractive natural.
   - Root systems are not to be root bound & to have a well formed root system commensurate in size with the foliage mass.

* Please be aware that vegetation planted in Powerline Buffer must not exceed 4m in ma[illegible]

** [illegible] Weeping Myall are to be maintained to a maximum of 6m in height & 6m in width.

REVISION		DATE	ZONE
1	New site plan update	10/02/25	

NOTE !
BEWARE OF EXISTING OVERHEAD POWER CABLES.

WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown.

APPROX NORTH

0 8 16 32m

Scale 1 : 800 @ A3

Chris Smith & ASSOCIATES PTY LTD
· CIVIL ENGINEERS · LAND SURVEYORS
· URBAN & REGIONAL PLANNERS · PROJECT MANAGERS
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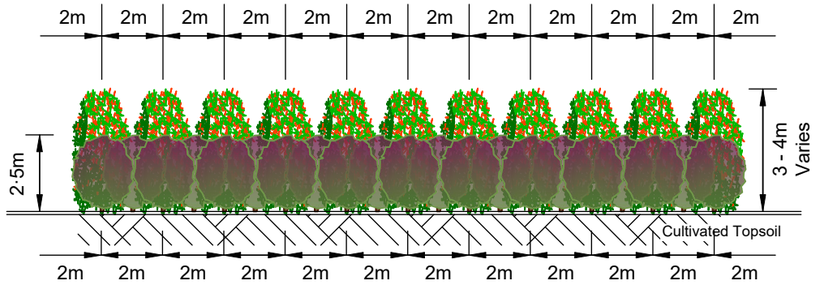
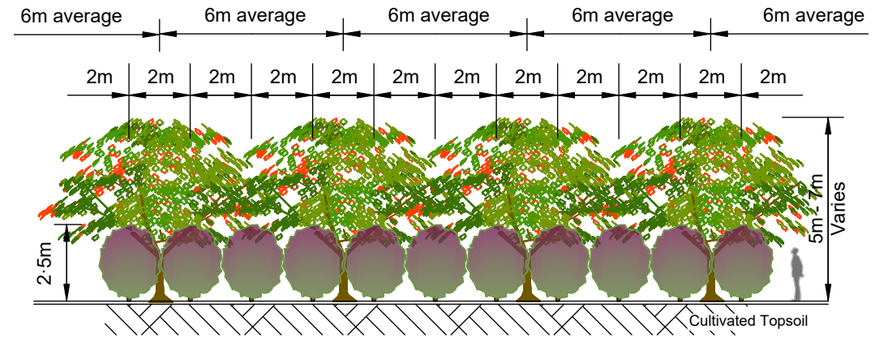
Designed	Dylan Stevens	January 2025
Drawn	Dylan Stevens	January 2025
Checked	Duncan Lowis	January 2025
Approved		

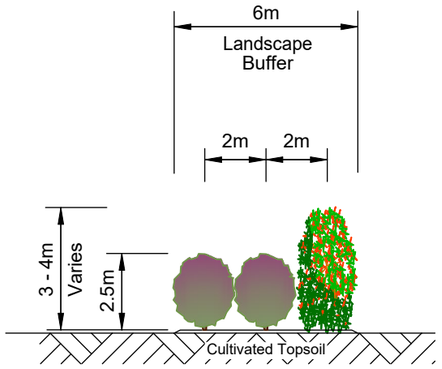
Green Gold Energy Pty Ltd
4.95MW B.E.S.S
3 Wellingrove Street
Glen Innes, NSW, 2370
Landscape Plan
Site Plan, Plant Schedule & Maintenance Plan
Drawing No. 24233/LS01 Rev. 1
Sheet No. 1 of 2 24233-LS01r1.dwg



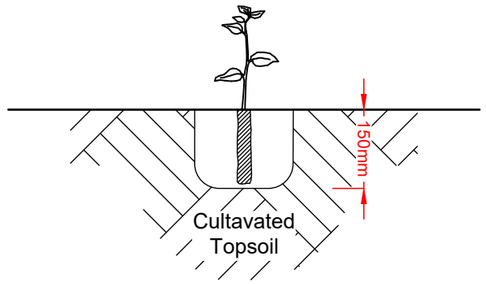
Elevation & Spacing: Triple Row Perimeter Screening



Elevation & Spacing: Double Row Perimeter Screening

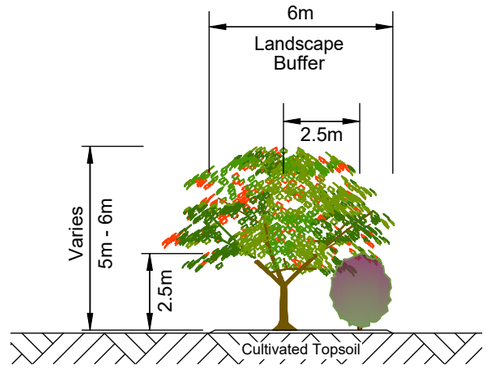


Triple Row Cross Section

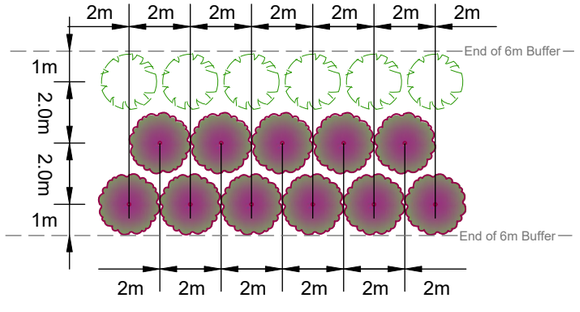


Planting Detail - 50mm Tube Stock

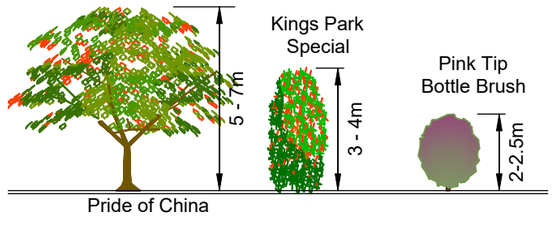
N.T.S



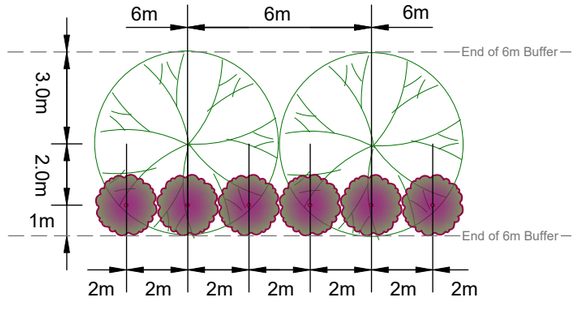
Triple Row Cross Section



Spacing: Triple Row Perimeter Screening



Tree Profiles/Elevations



Spacing: Double Row Perimeter Screening

REVISION		DATE	ZONE
1	New site plan update	10/02/25	

NOTE !
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WARNING

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0

Scale NTS

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Approved		

Green Gold Energy Pty Ltd
5MW B.E.S.S
3 Wellingrove Street
Glen Innes, NSW, 2370
Landscape Plan
Typical Elevations, Details & Spacings
Drawing No. 24233/LS01 **Rev. 1**
Sheet No. 2 of 2 24233-LS01r1.dwg

BIODIVERSITY ASSESSMENT REPORT

GLEN INNES BESS PROJECT

1 WELLINGROVE ST, GLEN INNES, NSW

GLEN INNES SEVERN SHIRE LOCAL GOVERNMENT AREA

MARCH 2025

Report prepared by
OzArk Environment & Heritage
for Chris Smith and Associates

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DOCUMENT CONTROLS

Proponent	Green Gold Energy		
Client	Chris Smith & Associates		
Purchase order number			
Document description	Biodiversity Assessment Report		
Client's representative managing this document	**OzArk representatives managing this document**		
Duncan Lowis	Lauriane Citerne (LC), Dr Crystal Graham (CG), Gianlucca Brozler (LB)		
Location	**OzArk job number**		
S:\OzArk EHM Data\Clients\Chris Smith & Associates\Wellingrove St_Glen Innes BESS_BAR AbHDD_September 2024\Ecology\Reporting	4655		
Document status: FINAL	**Version**	**Date**	**Action**
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First Draft for Client Review	V2.0	05/03/2025	CG to client
Final Report for Client	V3.0	05/03/2025	CG to client
Prepared for	**Prepared by**		
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Acknowledgement

OzArk acknowledge the traditional custodians of the area on which this assessment took place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the Elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates, who are acting on behalf of Green Gold Energy (the proponent), to complete a Biodiversity Assessment Report (BAR) concerning the development of a Battery Energy Storage System (BESS) at 1 Wellingrove St, Glen Innes (the project). The project is within the Glen Innes Severn Shire Local Government Area (LGA).

A field survey was conducted by Senior Ecologist Dr David Orchard on the 7th of November 2024. The subject site, 0.968 hectares (ha) in size, is dominated by exotic pasture. The only exception is an area of native wetland in the central section of the subject site (Plant Community Type [PCT] 3981), totalling 0.006 ha of native vegetation.

PCT 3981 is associated with the following Threatened Ecological Communities (TECs):

- *Biodiversity Conservation Act* 2016 (BC Act)-listed, Endangered Ecological Community (EEC) *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion.*
- *Environment Protection & Biodiversity Conservation Act* 1999 (EPBC Act)-listed, EEC *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion).*

The BC Act listing applies to communities located on high altitude (above about 900 m) in the New England Tableland Bioregion of NSW, mainly on basalt soils but sometimes on other substrates. The subject site is located at around 1000 m altitude; however, none of the characteristic species for the EEC were observed on site. Therefore, the PCT present on site is not considered to belong to the BC Act EEC and no Test of Significance was completed for this EEC under the BC act.

The main characteristics of the Upland Wetlands EEC under the EPBC Act are as follows:

- They occur in deep depressions in the landscape between 700 to 1400 m above sea level
- Most of the wetlands occur in basalt-derived soils, the remained occur in soils derives from other rock types such as granites or silcrete
- They support a range of vegetation such as water plants, sedges, forbs and grasses
- There are no shrubs or tree species that occur naturally within the wetlands, though shrubs and trees in areas surrounding the wetlands can play an important role in controlling run off and buffering impacts.

The subject site is located at around 1000 m above sea level; however, the listed ecological community does not include man-made farm or domestic water storage dams. The dam located within the subject site is a man-made storage dam; therefore, the vegetation within the site does

not qualify as a TEC under the EPBC Act. Therefore, no Test of Significance was completed for this community under the EPBC act.

No watercourse occurs within the subject site. The following watercourses occur within the wider 1.5 km study area:

- Eight Strahler 1st order unnamed watercourses
- Two Strahler 2nd order unnamed watercourses
- One Strahler 4th order stream named Furracabad Creek. This watercourse, non-perennial and minor, occurs very close to the western end of the subject site (approximately 40 m). The creek was dry at the time of survey.

The closest major perennial watercourse is Beardy Waters, located within the broader search area and 5.5 km away to the east of the subject site.

No areas of Key Fish Habitat (KFH), as recognised by the Department of Primary Industries (DPI) – Fisheries, or Protected Riparian Land (PRL), as recognised by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW), are located within the subject site. However, Furracabad Creek, located within the study area, contains both KFH and PRL. At its closest point, the creek is located approximately 40 m from the subject site.

Watercourses within the study area do not form part of a threatened aquatic ecological community and do not contain the mapped distribution of any threatened aquatic species. The closest mapped threatened aquatic species is the Eel Tailed catfish, and its distribution is mapped as occurring 7.1 km west of the subject site. As such, no tests of significance were carried out under the *Fisheries Management Act* 1994 (FM Act).

No threatened flora or fauna species or populations listed under the BC or EPBC Acts were recorded within or close to the study area. As the surveys were brief and took place only in a single season, failure to detect a given threatened species should not be taken as confirmation that that species is absent from the subject site.

Thirty threatened or migratory fauna species or populations and five threatened flora species, listed under the BC Act and/or the EPBC Act, were considered to have a moderate or greater probability of occurrence at the subject site. However, no listed species or populations were encountered during the field survey. Subject to implementation of the mitigation measures proposed, it has been concluded that no significant biodiversity impacts are likely, including to any threatened or migratory species, population or ecological community, or their habitats. As such, the proposal does not require referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water in respect of these matters or trigger the need for a Species Impact Statement or a Biodiversity Development Assessment Report.

As the proposal is to be approved under Part 4 of the EP&A Act and there will be no significant impact on threatened species or communities, it will not trigger entry into the NSW Biodiversity Offset Scheme (BOS). This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the BOS is triggered by a changed scope, additional field work completed according to the Biodiversity Assessment Method 2020 may be required.

CONTENTS

FIGURES

TABLES

ABBREVIATIONS

Term	Description
^{0}C	Degrees Celsius
AOBV	Areas of Outstanding Biodiversity Value
ASL	Above Sea Level
BAM	Biodiversity Assessment Method 2020
BAR	Biodiversity Assessment Report
BDAR	Biodiversity Development Assessment Report
BC Act	NSW *Biodiversity Conservation Act 2016*
BOS	NSW Biodiversity Offsets Scheme
CAMBA	China-Australia Migratory Bird Agreement
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DCCEEW Cth.	Commonwealth Department of Climate Change, Energy the Environment and Water
DoE	Department of Environment
DPI	NSW Department of Primary Industries
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ESCP	Erosion and Sediment Control Plan
FM Act	NSW *Fisheries Management Act 1994*
GDEs	Groundwater dependent ecosystems
GPS	Global Positioning System
ha	Hectare
HTE	High Threat Exotic
IBRA	Interim Biogeographic Regionalisation of Australia.
JAMBA	Japan-Australia Migratory Bird Agreement
KFH	Key Fish Habitat
KTP	Key Threatening Process
LEP	Local Environmental Plan
LGA	Local Government Area
mm/cm/m/m^2/km	Millimetre/centimetre/metre/square metre/kilometre
MNES	Matters of National Environmental Significance
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy the Environment and Water
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
PMST	Protected Matters Search Tool
PW	Priority Weed
RAMSAR	Convention on Wetlands of International Importance

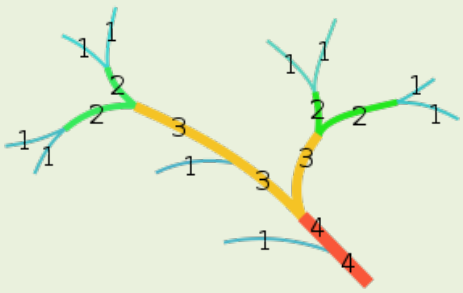
Term	Description
REF	Review of Environmental Factors
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
TECs	Threatened Ecological Communities
TSPD	Threatened Species Profile Database
VEC	Vulnerable Ecological Community
VIS	Vegetation Information System
WoNS	Weed of National Significance

GLOSSARY OF TERMS

Term	Description

Areas of outstanding biodiversity	An area of outstanding biodiversity value is:
	• an area important at a State, national or global scale, and
	• an area that makes a significant contribution to the persistence of at least one of the following:
	  ○ multiple species or at least one threatened species or ecological community
	  ○ irreplaceable biological distinctiveness
	  ○ ecological processes or ecological integrity
	  ○ outstanding ecological value for education or scientific research.
	The declaration of an area may relate, but is not limited, to protecting threatened species or ecological communities, connectivity, climate refuges and migratory species (BC Act).

Cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Refer to Clause 228(2) of the *EP&A Regulation* 2000 for cumulative impact assessment requirements.
Direct impacts	Are those that directly affect the habitat of species and ecological communities and of individuals using the study area. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat (OEH 2018).
Habitat	The area occupied or used, including areas periodically or occasionally occupied or used, by any threatened species or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycle (OEH 2018).
Important population	Is a population that is necessary for a species' long-term survival and recovery; this may include populations identified as such in recovery plans, and/or that are: • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity, and/or • populations that are near the limit of the species range (DE 2013).
Indirect impact	Occur when project-related activities affect species or ecological communities in a manner other than direct loss within the subject site. Indirect impacts may sterilise or reduce the habitability of adjacent or connected habitats. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, reduction in viability of adjacent habitat due to edge effects, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, noise, light spill, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas (OEH 2018).
Invasive species	Is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources, or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.
Local occurrence (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
Local population (in regard to a threatened or migratory species)	A local population of a threatened plant species comprises those individuals occurring in a defined area or a cluster of individuals extends into habitat adjoining and contiguous with the study area where the individuals could reasonably be expected to cross-pollinate.

Term	Description
	A local population of fauna species comprises those individuals known or likely to occur in a defined area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area. The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time (DECC 2007).
Low condition (vegetation)	Either: a) woody native vegetation with native over-storey percent foliage cover less than 50% of the lower value of the over-story percent foliage cover benchmark for that vegetation type, and where either: • less than 50% of ground cover vegetation is indigenous species, or • greater than 90% of ground cover vegetation is cleared or b) native grassland, wetland or herb field where either: • less than 50% of ground cover vegetation is indigenous species, or • more than 90% of ground cover vegetation is cleared. Note: The percentages for the ground cover calculations must be made in a season when the proportion of native ground cover vegetated compared to non-native ground cover vegetation is likely to be at its maximum.
Moderate to good condition (vegetation)	If native vegetation is not in low condition (above), it is in moderate to good condition.
Mitigation	Action to reduce the severity of an impact.
Mitigation measure	Any measure that prevents, reduce or controls adverse environmental effects of a project.
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000 (OEH 2018).
Proposal	Is considered to include 'all activities likely to be undertaken within the subject site to achieve the objective of the proposed development' (DECC 2007).
Risk of extinction	The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
Search area	Is considered to 'include the lands that surround the subject site for a distance of 10 km' (DECC 2007). The search area has been used to search information sources to establish the landscape context of the subject site.
Significant impact	A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
Strahler stream order	Strahler stream orders are used to define stream size based on a hierarchy of tributaries, based on the diagram below. 
Study area	Means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account (OEH 2018). In this instance, the study area extends 1,500 m from the site.
Subject site	Means the area directly affected by the proposal. The subject site includes the footprint of the proposal and any ancillary works, facilities, accesses or hazard reduction zones that support the construction or operation of the development or activity (OEH 2018).
Target species	A species that is the focus of a study or intended beneficiary of a conservation action or connectivity measure.

1 INTRODUCTION

1.1 DESCRIPTION OF THE PROPOSAL

OzArk Environment & Heritage (OzArk) has been engaged by Chris Smith & Associates (the client), who are acting on behalf of Green Gold Energy (the proponent), to complete a Biodiversity Assessment Report (BAR), concerning the development of the Glen Innes Battery Farm (1 Wellingrove Street, Glen Innes), within the Glen Innes Severn Shire Council Local Government Area (LGA), New South Wales (**Figure 1-1**).

This biodiversity assessment has been undertaken in accordance with Part 4 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). For this proposal, Green Gold Energy is the proponent and Glen Innes Severn Shire Council is the determining authority (EP&A Act s.5.1).

In the case of this development, a BAR is appropriate, rather than a Biodiversity Development Assessment Report (BDAR), as entry into the NSW Biodiversity Offsets Scheme (BOS) is not triggered. For reference, entry into the BOS is triggered when one or more of the following conditions is met:

- The proposal exceeds the clearing threshold for the relevant lot.
- The proposal will impact a mapped area of biodiversity value on the state-wide Biodiversity Values Map.
- The proposal will result in a significant impact to one or more listed threatened entities.

The minimum lot size of the subject site is 40 hectares (ha; **Appendix A**). Under the Biodiversity Assessment Method (DPIE, 2020b), the clearing threshold for entry into the BOS for a property with a minimum lot size of 40 ha to less than 1000 ha is 1 ha (**Table 1-1**). As this proposal would clear up to 0.006 ha of native vegetation, it will not exceed the clearing threshold (**Section 5.1**). The proposal does not impact an area mapped on the Biodiversity Values Map (**Appendix A**) and will not result in a significant impact to one or more listed threatened entities (**Section 6.4**). Therefore, this proposal will not trigger a requirement to offset or to prepare a BDAR.

Table 1-1. Minimum lot size and allowable clearing threshold under the BAM 2020.

Minimum Lot Size	Clearing Threshold
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.50 ha or more
40 ha to less than 1000 ha	**1 ha or more**
1000 ha or more	2 ha or more

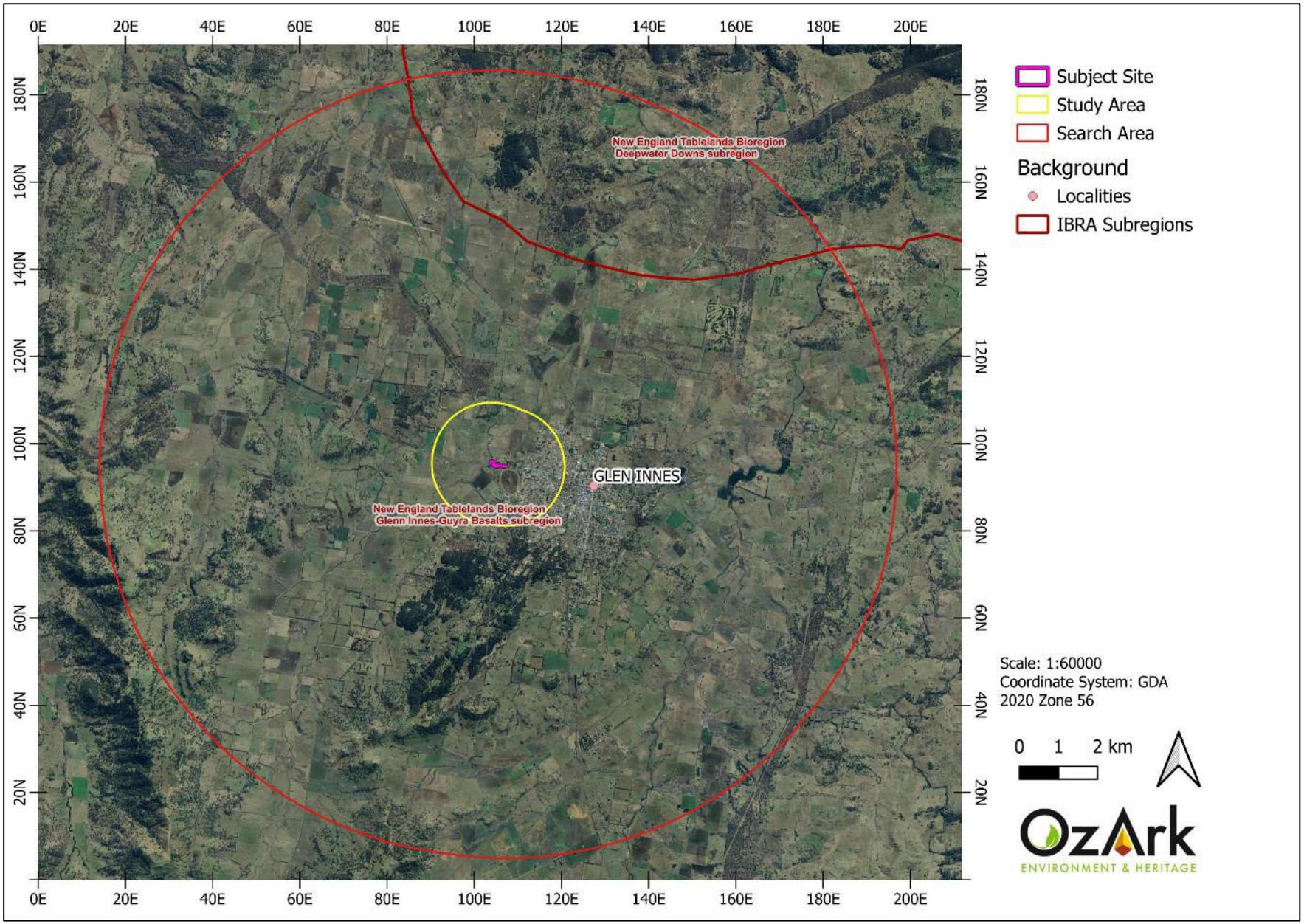


Figure 1-1. Map showing the regional location of the proposal.

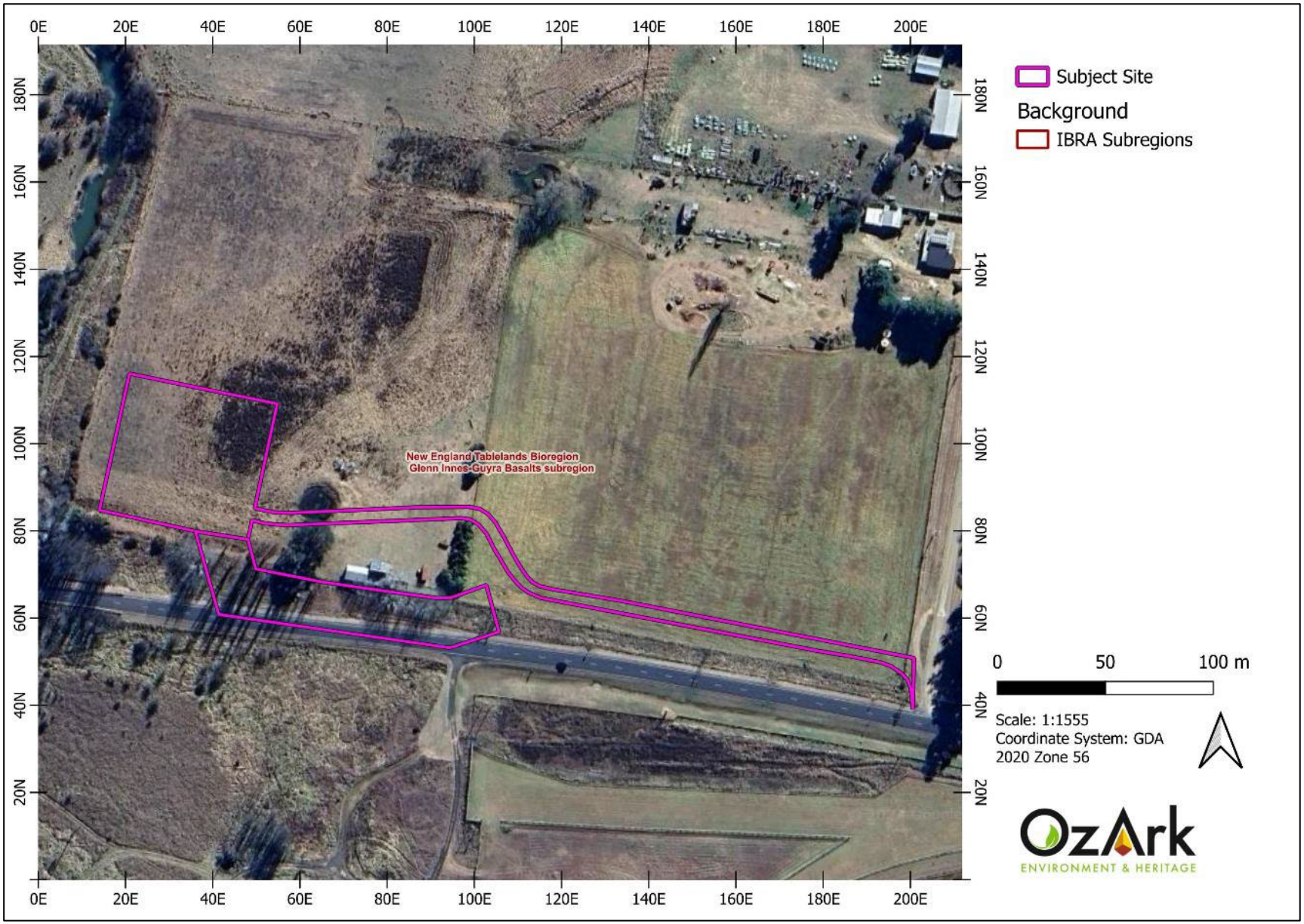


Figure 1-2. Aerial showing the subject site.

1.2 PROJECT LOCATION AND CONTEXT

1.2.1 Regional context

The study site is located at the corner of Wellingrove Street and Gwydir Highway, in Glen Innes, NSW (**Figure 1-1**). The closest locality is Glen Innes. The regional context for the proposal is depicted in **Figure 1-1** and explored further in **Table 1-2**.

Table 1-2. Regional context for the project.

Criteria	Value
Interim Biogeographic Regionalisation for Australia (IBRA Region)	• New England Tableland
Interim Biogeographic Regionalisation for Australia Sub-region (IBRA Sub-Region)	• Glen Innes-Guyra Basalts (search area) • Deepwater Downs (search area, study area, subject site)
State	• NSW
Local Government Area	• Glen Innes Severn
Nearest town	• Glen Innes
Nearest park, state forest or reserve	• Fladbury State Conservation Area (Approximately 20 km north of subject site)
Mitchell Landscapes	• Glen Innes – Guyra Basalts (subject site, study area, search area) • Inverell Plateau Granites (subject site, study area, search area)
Nearest waterway (Name, Type)	• Furracabad Creek, non-perennial watercourse of Strahler 3rd order, approximately 30 m west of subject site.
Surrounding land use	• 2.1.0 Grazing native vegetation (subject site, study area, search area) • 3.2.0 Grazing Modified Pastures (subject site, study area, search area) • 3.3.0 Cropping (search area) • 5.2.0 Intensive animal production (search area) • 5.3.0 Manufacturing and Industrial • 5.4.0 Residential and Farm Infrastructures (study area, search area) • 5.5.0 Services (study area) • 5.6.0 Utilities (search area) • 5.7.0 Transport and Communication (subject site, study area, search area) • 6.3.0 Rivers (study area, search area)
Surrounding land zone	• B2 Local Centre (search area) • B4 Mixed Use (study area, search area) • B6 Enterprise Corridor (search area) • C3 Environmental Management (study area, search area) • E3 Environmental Management • IN1 General Industrial (study area, search area) • R1 General Residential (study area, search area) • R2 Low density Residential (search area) • R5 Large Lot Residential (search area) • RE1 Public Recreation (study area, search area) • RE2 Private Recreation (search area) • RU1 Primary Production (subject site, study area, search area)

Criteria	Value
	• SP1 Special Activities (study area) • SP2 Infrastructure (study area, search area)

1.2.2 Landuse and ownership

The road corridor where part of the subject site is located is managed by Glen Innes Severn Council. The surrounding land uses and land zones are detailed in **Table 1-2**. Work undertaken in the subject site will not impinge on a National Park or any land owned by NPWS.

1.3 Search Area, study area and subject Site

This report uses the following terms to describe and contextualise the development location:

10 km search area the area within a 10 km radius of the subject site. This 10 km buffer has been used to search information sources to establish the landscape context of the subject site (**Figure 1-1, Figure 1-2**)

Study area the area within a 1,500 m radius of the subject site. Native vegetation has been mapped within this 1,500 m buffer to provide some context regarding the connectivity and cover of native vegetation in the area affected by the proposal, and to inform the impact assessment of the proposal (**Figure 1-1, Figure 1-2**)

Subject site the footprint of the proposal and the area directly affected by the development activities (**Figure 1-1, Figure 1-2**).

2 STATUTORY AND PLANNING CONTEXT

2.1 COMMONWEALTH LEGISLATION

2.1.1 *Environment Protection & Biodiversity Conservation Act* 1999 (EPBC Act)

Objects of the EPBC Act relevant to this proposal include:

- *to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and*
- *to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and*
- *to promote the conservation of biodiversity.*

There are nine Matters of National Environmental Significance (MNES) to which the EPBC Act applies, three of which would potentially be relevant to this proposal:

- wetlands of international importance (also called 'Ramsar' wetlands)
- nationally threatened species and ecological communities
- migratory species, comprising those listed under the:
    - Bonn Convention
    - Japan-Australia Migratory Bird Agreement (JAMBA)
    - China-Australia Migratory Bird Agreement (CAMBA)
    - Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)

The Significant Impact Guidelines (DoE 2013) prepared under the EPBC Act are used to determine whether a proposed development or activity will have, or is likely to have, a significant impact on MNES, and therefore requires referral to the Australian Government Minister for the Environment (Minister).

Matters which fall under this legislation are addressed in **Section 5.2, 5.3, 5.6** and **Appendix E**.

2.2 STATE LEGISLATION

2.2.1 *Environmental Planning and Assessment Act* 1979 (EP&A Act)

The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of proposals. Part 4 of the EP&A Act requires the

proponent to examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. Where found, the assessment criteria under Part 7 Section 7.3 of the BC Act (the 'Assessment of Significance') will be drawn upon to determine whether there would be a significant effect on these species and hence whether a Species Impact Statement ([SIS] or BDAR should the proponent elect that option) is required.

2.2.2 *Biodiversity Conservation Act* 2016 (BC Act)

The BC Act relates to the terrestrial environment and includes threatened species, ecological communities, key threatening processes and other protected animals and plants.

Section 7.3 of the BC Act contains a five-part test of significance for determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

Where a significant impact is likely to occur, the proponent must either opt into the BOS and prepare a BDAR or prepare a SIS for each significantly impacted BC listed entity. BC Act listed species and communities are addressed in **Sections 5.2** and **5.3** and **Appendices C** and **D**.

2.2.3 *Biodiversity Conservation Regulation* 2017 (BCR)

The BCR defines the triggers and entry thresholds for the BOS. It also provides the rules for meeting offset obligations, triggers for authorities to refuse development applications and compliance provisions.

2.2.4 *Biosecurity Act* 2015

The Biosecurity Act aims to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants in NSW. The Biosecurity Act imposes a general biosecurity duty to ensure that, so far as is reasonably practicable, any biosecurity risk is prevented, eliminated or minimised. The proponent is required to manage the presence of weeds in the subject site (**Section 6.2.3** and **7.2** and **Appendix F**).

2.2.5 *Local Land Services Act* 2013 (LLS Act)

The objects of the Act include 'to ensure the proper management of natural resources in the social, economic and environmental interests of the State, consistently with the principles of ecologically sustainable development. The LLS Act regulates the clearing of native vegetation on rural land.

2.2.6 *Fisheries Management Act* 1994 (FM Act)

Part 7A of the FM Act along with schedules within the act, list threatened aquatic and marine species, populations and ecological communities and key threatening processes which must be considered as part of obligations under Section 5.5 of the EP&A Act.

Section 201 of the FM Act states that a person (other than a public or local government authority) must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister. Dredging work means any work that involves excavating water land. Reclamation work means any work that involves depositing any material on water land.

Under section 198A of the FM Act:

"water land" means land submerged by water:

> *(a) whether permanently or intermittently, or*
>
> *(b) whether forming an artificial or natural body of water,*
>
> *and includes wetlands and any other land prescribed by the regulations as water land to which this Division applies.*

Refer to **Section 4.4** for consideration of issues relating to watercourses and the FM Act.

2.2.7 *Water Management Act* 2000 (WM Act)

The WM Act aims to provide for the 'sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.'
The WM Act provides for the granting of various licenses and approvals, including for the use of water and water supply work. Additionally, the WM Act identifies provisions relating to 'controlled activities' carried out on 'waterfront land' (within 40 m of a riverbank, lake shore, or estuary's high-water mark). Controlled activities include:

- erecting a building,
- carrying out works,
- removing material (e.g., plants and rocks),
- depositing material (e.g., gravel and fill),
- any activity which affects the quantity or flow of water in a water source.

Examples of controlled activities include:

- construction of watercourse crossings (e.g., bridges, bed level crossings),

- laying pipes and cables,
- sand and gravel extraction.

For private developments, approval (via a 'controlled activity' approval) is required from DPE under the WM Act if it is on 'waterfront land'. The proposal does not fall within this category; therefore, no such approval is required.

2.2.8 Glen Innes Severn Local Environmental Plan (2012)

A Local Environmental Plan (LEP) is a legal document prepared by Council and approved by the State Government to regulate land use and development. LEPs guide planning decisions for local governments. The plan allows Council to regulate the ways in which all land both private and public may be used and protected through zoning and development controls.

The particular aims of this Plan are as follows—

(aa) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,

(a) to encourage the proper management, development and conservation of natural and human resources in Glen Innes Severn by protecting, enhancing and conserving the following—

(i) land of significance to agricultural production,

(ii) timber, minerals, soil, water and other natural resources,

(iii) areas of significance for nature conservation,

(iv) areas of high scenic or recreational value,

(v) landscapes, places and buildings of archaeological or heritage significance, including aboriginal relics and places,

(vi) communities and settlements,

(b) to facilitate growth and development that—

(i) minimises the cost to the community of fragmented and isolated development of rural land, and

(ii) facilitates the efficient and effective delivery of amenities and services, and

(iii) facilitates stimulation of demand for a range of residential, enterprise and employment opportunities and promotes agricultural diversity, and

(iv) maximises the efficient use of existing infrastructure.

The Glen Innes Severn LEP does not contain mapping of terrestrial biodiversity values (**Appendix A**).

2.2.9 *State Environmental Planning Policy (Biodiversity and Conservation)* 2021

The *State Environmental Planning Policy (Biodiversity and Conservation)* 2021 (SEPPBC 2021) consolidates, transfers and repeals provisions of 11 SEPPs, the following of which are relevant to the current assessment:

- Former SEPP (Koala Habitat Protection) 2020
- Former SEPP (Koala Habitat Protection) 2021

These individual SEPPs are no longer current; however, their provisions are incorporated into the SEPPBC 2021. Through the principles contained in these amalgamated SEPPs, the SEPPBC 2021 aims to encourage the 'proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline'.

Land within the subject site is zoned RU1 (**Table 1-2**), consequently, Chapter 3 of the SEPPBC 2021 applies. None of the trees listed in Schedule 1 of the SEPPBC 2021 occur at the subject site, therefore the subject site cannot be considered potential (or core) koala habitat.

The proposal's potential impacts to threatened species, including the Koala, have been considered in **Section 5.3** and **Appendices D** and **E**.

3 METHODS

The ecological assessment was carried out in three stages:

1. Desktop searches and review of ecological databases and information to identify threatened species, populations or ecological communities listed in the BC, FM, and/or EPBC Acts that have the potential to occur in the study area.
2. Field survey of the subject site for the purposes of:
    - Determining the extent of the proposed impact.
    - Collating lists of those plants present these being used to assist with the identification of the site's vegetation communities.
    - Determining habitat availability for fauna species recorded or expected to occur.
    - Documenting the nature and extent of any protected matter, such as a threatened species or community or a significant habitat feature.
3. Preparation of a written BAR that describes the impacts of the proposed activity on native vegetation and threatened species, populations, and ecological communities, and provides recommendations to avoid, minimise and mitigate these impacts.

3.1 PERSONNEL

OzArk operates under NSW Department of Planning, Industry and Environment (DPIE) Scientific License 101908, NSW Department of Primary Industries (DPI) Accreditation as an Animal Research Establishment (accreditation number 53103), and the Secretary's Animal Care and Ethics Committee Animal Research Authority RVF21/954.

The field survey was completed by Senior Ecologist Dr David Orchard on the 7th of November 2024 between the hours of 1:00 pm and 2:30 pm. Reporting components were completed by Ecologist Lauriane Citerne with quality control provided by Ecologist Gianlucca Brozler. Additional quality control of **Section 1-8** provided by Senior Ecologist Dr Crystal Graham. Key details of personnel are provided in **Table 3-1**.

Table 3-1. Summary of OzArk personnel qualifications.

Name	Position	CV Details
Dr David Orchard	Senior Ecologist	• BAM-accredited Assessor #BAAS21028 • Doctor of Philosophy (Agriculture) – Charles Sturt University • Graduate Diploma in Science (Botany) – University of New England • Bachelor of Arts (Honours)– Australia National University • First Aid Training • WH&S Induction Training for Construction Work • Rail Industry Worker Card
Dr Crystal Graham	Senior Ecologist	• BAM-accredited Assessor #BAAS22024 • Postdoctoral Fellow – Smithsonian Tropical Research Institute • Doctor of Philosophy (Biology) – University of Sydney • Honours in Biology – University of Sydney • Bachelor of Advanced Science – University of Sydney • 4WD Training • First Aid Training • WH&S Induction Training for Construction Work • Worker at Heights Training
Gianlucca Brozler	Ecologist	• Masters in Conservation Biology • First Aid Training • WH&S Induction Training for Construction Work • 4WD Training
Lauriane Citerne	Ecologist	• Masters in Conservation Biology – Macquarie University • Bachelor of Biodiversity and Conservation – Macquarie University • First Aid Training • WH&S Induction Training for Construction Work

3.2 BACKGROUND RESEARCH

Database search results were used to assist in identifying distributions, suitability of habitats, and known records of threatened species to increase the effectiveness of field investigations. Information sources reviewed included:

- NSW Government Web Map Service (WMS) layers for NSW Imagery (compiled imagery, NSW Property, NSW Base Map and NSW Topographic Map) (https://www.spatial.nsw.gov.au/).
- EPBC Protected Matters Search Tool (https://www.environment.gov.au/epbc/protected-matters-search-tool)
- NSW State Vegetation Type Map C2.0M2.0 (https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map)
- NSW DPI threatened fish indicative distribution maps (www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps)
- NSW BioNet Wildlife Atlas Vegetation classification (https://www.environment.nsw.gov.au/research/Visclassification.htm)

- NSW BioNet Threatened Biodiversity Data Collection (www.bionet.nsw.gov.au/)
- NSW BioNet Atlas (www.bionet.nsw.gov.au/)
- Register of Declared Areas of Outstanding Biodiversity Value (www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/critical-habitats)
- PlantNET, NSW Flora Online (www.plantnet.rbgsyd.nsw.gov.au/)
- NSW Department of Planning and Environment *Biodiversity Values Map* (https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap)
- Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category land Mapping (https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e)
- Acid Sulfate Soils Risk mapping (https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c)
- Directory of Important Wetlands of Australia (DIWA) (https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands)
- NSW wetlands mapping (https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7)

These searches indicated key species for field survey efforts and targeted searches. The results of the database searches are provided in **Appendix A**. A series of other background searches were performed to comply with legislative requirements (**Table 3-2**).

Table 3-2. Presence and/or proximity of environmental considerations.

Environmental Considerations	In the subject site?
Land identified on the Biodiversity Values Map under the NSW *BC Act 2016*	**Yes** (Furracabad Creek, adjacent to the subject site)
Area of Outstanding Biodiversity Value (AOBV) under the NSW *BC Act 2016*	No
Critical habitat nationally?	No
Land identified as wilderness under the *Wilderness Act 1987* or declared as wilderness under the *National Parks and Wildlife Act 1974?*	No
An area reserved or dedicated under the *National Parks and Wildlife Act 1974*?	No
Land subject to a conservation agreement under the *National Parks and Wildlife Act 1974*?	No
Land identified as State Forest under the *Forestry Act 1916*?	No
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation of other environmental protection purposes?	No
A World Heritage Area?	No
Environmental Protection Zones in environmental planning instruments?	No
Lands protected under *SEPP (Biodiversity and Conservation) 2021*?	**Yes** (see **Section 2.2.8**)
Acid sulfate soils?	No
Aquatic reserves dedicated under the *Fisheries Management Act 1994*?	No
Aquatic Threatened Ecological Community?	No
Wetland areas dedicated under the Ramsar Wetlands Convention?	No
Protected Riparian Land?	**Yes** (Furracabad Creek, adjacent to the subject site)
Mapped Key Fish Habitat?	**Yes** (Furracabad Creek, adjacent to the subject site)

3.3 HABITAT ASSESSMENT

The results of the desktop review and the field assessment were collated and reviewed in the context of local ecological knowledge to determine the likelihood of occurrence of threatened species and ecological communities, and potential impacts of the proposal (**Appendix C**). For instance, some threatened species may be predicted to occur locally but, on assessment of the site, key habitat elements or conditions are not present, in which case the species is assessed as not being present or impacted.

The likelihood of occurrence of threatened species, populations or ecological communities was categorised as follows:

- 'Known' – the species was observed or has been previously recorded on the site.
- 'High' – a medium to high probability that a species uses the site, based on nearby records and suitable habitat being present.
- 'Moderate' – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site.
- 'Low' – a very low likelihood that the species uses the site, based on lack of the preferred type and size of habitat.

The species considered to have a moderate-high likelihood of occurring at the site (**Appendix C**), were then considered as to whether the extent and type of development would be likely to impact on them. Tests of significance were then completed for these species and ecological communities in accordance with the BC Act (**Appendix D**) and/or the assessment of significance under the EPBC Act (**Appendix E**), and the relevant guidelines for these assessments.

3.4 FIELD SURVEY

The objectives of the field survey were to:

- Identify native species and vegetation communities present.
- Describe the quality and value of the vegetation and the flora and fauna habitat at the development site.
- Determine if species, populations or ecological communities listed as threatened under the BC Act or EPBC Act are/may be present.
- Determine the significance of impact to any threatened entities present or likely to be present.

3.4.1 Vegetation surveys

Botanical surveys were conducted within, and up to 10 m beyond, the subject site. When surveying this area, the 'Random Meander Method' (Cropper 1993) was employed. This method involves conducting foot traverses through those sites that require investigation, during which time notes are made on the structure and floristic composition of the native vegetation present. The 'Random Meander Method' is employed until no new species have been recorded for at least 30 minutes. Plant identification followed nomenclature in the Royal Botanic Gardens PlantNet online database (Royal Botanic Gardens and Domain Trust, 2025).

Vegetation communities were compared to the online NSW Master Plant Community Type Classification (DPE, 2025d), which is the current state-wide vegetation classification system for Plant Community Types (PCT). This classification system is used for vegetation mapping, development assessment and site planning purposes. It describes over 1,500 PCTs across the state, and groups the vegetation communities into vegetation Class and Formation / Sub-formation as per Keith (2004).

In this study PCTs were identified based on the following inputs:

- NSW State Vegetation Map C2.0M2.0 (DPE, 2023), which provides predictive mapping of PCTs in and around the subject site. This mapping is indicative only. It is not necessarily accurate at a fine scale for the purposes of the current study.

- Professional ecological knowledge about locally occurring vegetation types and landscape, soil and topographic patterns, including transitions from one community to another and potential for intergrades between plant communities.
- Field survey results confirming the flora species present, vegetation structure, landscape position and soil type at the subject site and the extent and condition of native vegetation.
- The BioNet Vegetation Classification database was used to identify the candidate vegetation communities likely to be present based on the site conditions (flora species present, vegetation structure, bioregion, and landscape position and soil type) and the relevant published PCT descriptions.

If any of the PCTs were identified as having potential to be part of a TEC, the relevant identification guidelines (NSW Scientific Committee listing criteria and Commonwealth identification guides) were consulted to determine the status of the vegetation community present on the subject site. These guidelines provide the identification criteria used to positively identify the community as being part of the TEC. The criteria include location, species present, overstorey species, weed cover, number and type of native species including whether certain 'important' native species are present.

3.4.2 Targeted fauna survey

The subject site was incidentally searched for fauna using a meander method while undertaking floristic and habitat surveys. All habitat trees (i.e., hollow-bearing trees or trees containing nests) were GPS-tagged (where present) and the size, number of hollows and/or type of nest were also recorded for each tree. Potential habitat such as rocks, logs, loose bark, and coarse woody debris was examined for cryptic species. Areas of suitable substrate were searched for animal tracks. Other evidence of fauna presence on the subject site, such as scats, feathers and sloughed skins were also recorded. Herpetological searches were conducted by overturning logs and rocks while traversing the site. Any culverts, crevices and structures were examined for nocturnal roosting fauna such as microbats.

Considering the scope of works proposed, combined with the condition of the fauna habitats observed during the site inspection, no targeted surveys such as live trapping, nocturnal searches, deployment of bat echolocation detectors and so forth, were carried out.

3.4.3 Aquatic survey

No formal aquatic surveys were undertaken.

3.5 LIMITATIONS

This study is based upon the species data available at the time of the study, and the environmental conditions, season, and time constraints imposed by the project for the field survey. Specific limitations on this study include the following:

- The field survey was completed over one day in November 2024. Surveys occurred between approximately 1:00 pm to 2:30 pm, which is not suitable for identification of nocturnal or crepuscular fauna. Therefore, the fauna list included (**Appendix B**) is not considered comprehensive as a greater diversity of species is likely to use the site.
- Fauna trapping, microbat ultrasonic call capture and analysis, frog surveys and nocturnal spotlighting were not undertaken for the current assessment.
- Seasonal conditions were not appropriate for detection of certain threatened flora species that may occur locally, such as summer-flowering grasses.
- The field survey was undertaken in or very near to the subject site and plant community type extents outside of the subject site were not confirmed.

To overcome some of these limitations, a 'precautionary approach' for species presence has been adopted where required. If suitable habitat for a particular threatened species is present on the site or known to occur in the study area, then the species is assumed to also be present, and the impact assessment is completed on that basis (**Appendix D** and **Appendix E**).

The above-mentioned constraints were also considered when preparing the recommendations of avoiding, minimising and mitigating potential impacts.

4 EXISTING ENVIRONMENT

4.1 BIOREGION

The subject site and study area fall within the Glenn Innes-Guyra Basalts subregion of the New England Tablelands Bioregion. The search area also crosses into the Deepwater Downs subregion of the New England Tablelands Bioregion, as per the Interim Biogeographic Regionalisation of Australia's categorisation (IBRA) (Thackway & Cresswell, 1995). These subregions geology, landforms, soil types and vegetation are described below (see **Table 4-1** and **Table 4-2**).

Table 4-1. Description of the Glenn Innes-Guyra Basalts subregion (NSW NPWS 2003).

Bioregion	New England Tablelands
Geology	Extensive Tertiary basalt flows. Small enclosed areas of granite and fine grained Permian sedimentary rocks. Quaternary sediments in swamps and lagoons.
Landforms	Stepped plateau from 700-1500m. Undulating to low hilly. Swamps and lagoons with evidence of past higher water levels and lunettes. Wide valleys in an evolving drainage system.
Soils	Deep red brown and brown to black, fertile and well structured loams on basalts. Thinner and stony on steep slopes, waterlogged in valley floors. Harsh, yellow texture contrast soils on granites and minor sedimentary rocks.
Vegetation	High areas have woodland of snow gum, black sallee and ribbon gum. Silver-top stringybark, New England peppermint at lower levels on basalt. White box woodland with rough-barked apple, ribbon gum and yellow box in lowest western areas. Narrow-leaved ironbark on sedimentary rocks.

Table 4-2. Description of the Deepwater Downs subregion (NSW NPWS 2003).

Bioregion	New England Tablelands
Geology	Permian diorite, acid volcanics and small areas of shales.
Landforms	Hilly to undulating with broad valleys, elevation 950 m.
Soils	Harsh red and yellow texture contrast soils with thin gritty topsoils.
Vegetation	Woodland of Blakely's red gum, apple box, New England stringybark, narrow-leaved peppermint, New England peppermint, rough-barked apple and bull oak.

4.2 NSW (MITCHELL) LANDSCAPES

NSW (Mitchell) landscapes were mapped in 2002 to provide a framework for reporting reserve establishment and for determining over-cleared landscapes (Mitchell, 2002). These landscapes broadly describe areas of similar topography, geology, soils, and vegetation. The subject site occurs within the **Inverell Plateau Granites** and the **Glenn Innes – Guyra Basalts** (see **Figure 4-1**).

Inverell Plateau Granites

Widely distributed and defined undulating plateau with domed peaks on Permian New England granites and granodiorites. Several intrusions have distinctive contact ridges of metamorphosed sedimentary rocks. The area includes Permian acid volcanics and pyroclastics and some undifferentiated Permo-Carboniferous mudstone and lithic sandstone. General elevation 900 to 1500m, local relief 200m. The highest elevations are along the eastern edge above the Great

escarpment, most of the plateau lies ate 900 to 1200m. As mapped, this is a large landscape, and it might require subdivision on the basis of vegetation. Domed rock outcrop is common with tors. Shallow gritty loam thickens downs lope to red or yellow earthy sand and red, red-yellow and yellow texture-contrast soil on lower slopes and valley floors. Wide valleys may have deep dark clay deposits in swampy streamlines. The vegetation varies with topography, soil, drainage and temperature. In dry areas open forest of; silvertop stringybark (*Eucalyptus laevopinea*), broad-leaved stringybark (*Eucalyptus caliginosa*), Blakely's red gum (*Eucalyptus blakelyii*), narrow-leaved peppermint (*Eucalyptus radiata*), yellow box (*Eucalyptus melliodora*), apple box (*Eucalyptus bridgesiana*), red ironbark (*Eucalyptus sideroxylon*), Caley's ironbark (*Eucalyptus caleyi*), rough-barked apple (*Angophora floribunda*) and black cypress pine (*Callitris endlicheri*). In moist areas open forest of; New England peppermint (*Eucalyptus cinerea*), manna gum (*Eucalyptus viminalis*), mountain gum (*Eucalyptus dalrympleana*), New England blackbutt (*Eucalyptus andrewsii* ssp. *campanulata*), diehard stringybark (*Eucalyptus cameronii*), Deane's gum (*Eucalyptus deanei*), messmate (*Eucalyptus obliqua*), privet-leaved stringybark (*Eucalyptus ligustrina*), Youman's stringybark (*Eucalyptus youmanii*), swamp gum (*Eucalyptus camphora*), Gibraltar rock blackbutt (*Eucalyptus pyrocarpa*), tumbledown red gum (*Eucalyptus dealbata*) and orange gum (*Eucalyptus prava*) sometimes with closed forest species in the understorey especially in the eastern parts of the landscape.

In cold areas snow gum (*Eucalyptus pauciflora*), black sallee (*Eucalyptus stellulata*) woodlands are the norm with manna gum and mountain gum along some streams.

Most granite peaks have specialised joint crevice heath communities typically with about 100 plant genera and almost always containing local endemic species. In this landscape the following communities are recognised; *Gonocarpus teucriodes - Isotoma axillaris* herbfield with black cypress pine, orange gum, tumbledown red gum, Caley's ironbark, and western New England blackbutt. *Babingtonia densifolia - Homoranthus prolixus* shrubland with black cypress pine, orange gum, tumbledown red gum, and *Acacia neriifolia*. New England tea tree - *Brachyloma saxicola* heath on the escarpment of the Gibraltar Range with New England mallee ash (*Eucalyptus approximans*), diehard stringybark, apple box, forest oak (*Allocasuarina torulosa*), black cypress pine and orange gum.

Glenn Innes – Guyra Basalts

Undulating to stepped hilly plateau with broad ridges, wide shallow valleys and high rounded peaks on Tertiary basalt, general elevation 700 to 1510m, local relief 300m, average level of the landscape 1300m. Brown structured stony loam and clay loam, on slopes, occasional red structured loam with gradational profiles and deep dark self-mulching sticky clay on the valley floors. Open woodland with snow gum (*Eucalyptus pauciflora*), black sallee (*Eucalyptus stellulata*),

manna gum (*Eucalyptus viminalis*), silvertop stringybark (*Eucalyptus laevopinea*), and New England peppermint (*Eucalyptus cinerea*) in higher areas grading to woodland of white box (*Eucalyptus albens*), yellow box (*Eucalyptus melliodora*), roughbarked apple (*Angophora floribunda*) with manna gum (*Eucalyptus viminalis*) along streams in lower areas. Extensive grassy understorey.

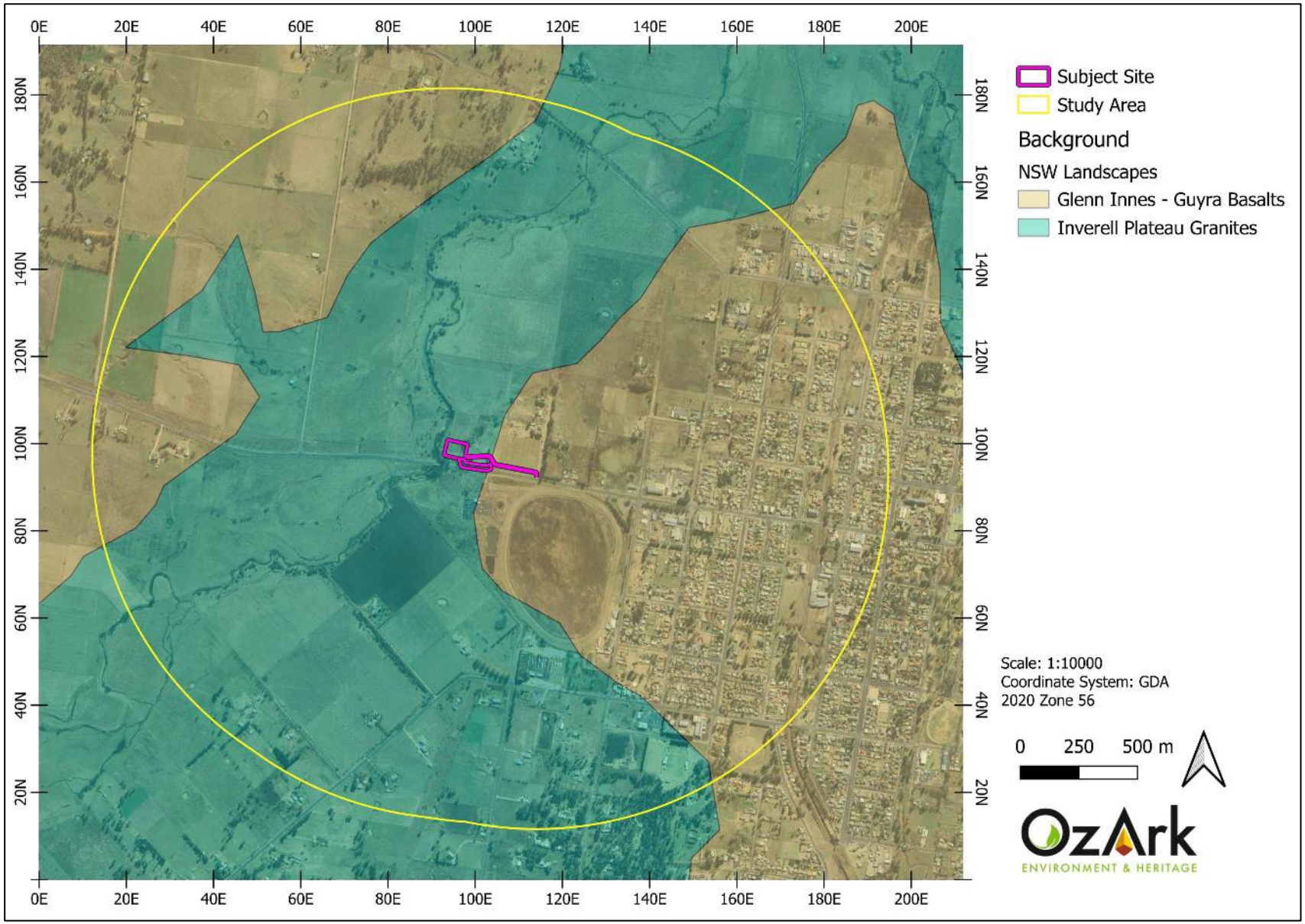


Figure 4-1. NSW Landscapes of the study area (Mitchell, 2002)

4.3 CLIMATE

The nearest weather station is located at the Glen Innes Ag Research Station (ID 056013), approximately 6.7 km from the subject site. Rainfall records commenced at this station in 1910, and temperature records commenced in 1970. Climate statistics for this station are graphed in **Figure 4-2** (Bureau of Meteorology, 2025).

The area experiences warm to hot summers, with a highest average maximum temperature across the recording period (1970-2025) of 30.6°C experienced in January. Winters are cold, with temperatures in the coolest month (July) ranging from a minimum of 9.9°C to a mean maximum of 15.4°C (Bureau of Meteorology, 2024).

Mean annual rainfall at this station is 841.1 mm (1910-2025). BOM statistics show that the study area experiences generally wetter summer months and drier winter months (Bureau of Meteorology, 2025). Average rainfall is greatest in summer, with the highest mean totals recorded in December (108.5 mm), followed by January (105.4 mm). The lowest mean totals are recorded in April (41.2 mm) and August (48.2 mm).

Temperatures on the day of the survey were mild for the season. The weather was slightly overcast. The area experienced below average rainfall prior to the field survey.

Figure 4-2. Climate data for Glen Innes, showing minimum and maximum temperatures and mean rainfall across the recording period (1910-2025) (Bureau of Meteorology, 2025).

4.4 WATERCOURSES

No watercourse occurs within the subject site (**Figure 4-3**). The only water feature within the subject site is a man-made dam, located on the eastern site of the site.

The following watercourses occur within the study area:

- Eight Strahler 1st order unnamed watercourses
- Two Strahler 2nd order unnamed watercourses
- One Strahler 4th order stream named Furracabad Creek. This watercourse, non-perennial and minor, occurs very close to the western end of the subject site (approximately 40 m, **Figure 4-3**). The creek was dry at the time of survey.

The closest major perennial watercourse is Beardy Waters, located within the broader search area and 5.5 km away to the east of the subject site.

As no natural watercourses occur within the subject site, no areas of Key Fish Habitat (KFH), as recognised by the Department of Primary Industries (DPI) – Fisheries, or Protected Riparian Land (PRL), as recognised by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW), are located within the subject site (see **Figure 4-3**).

However, Furracabad Creek, located within the study area, contains both KFH and PRL (see **Figure 4-3**). At its closest point, creek is located approximately 40 m from the subject site.

Watercourses within the study area do not form part of a threatened aquatic ecological community and do not contain the mapped distribution of any threatened aquatic species. The closest mapped threatened aquatic species is the Eel Tailed catfish, and its distribution is mapped as occurring 7.1 km west of the subject site. Considering the large distance from the subject site, no tests of significance were considered necessary under the FM Act.

As the proposal does not involve dredging and/or reclamation on water land, a permit will not be required under Section 201 under Part 7 of the FM Act.

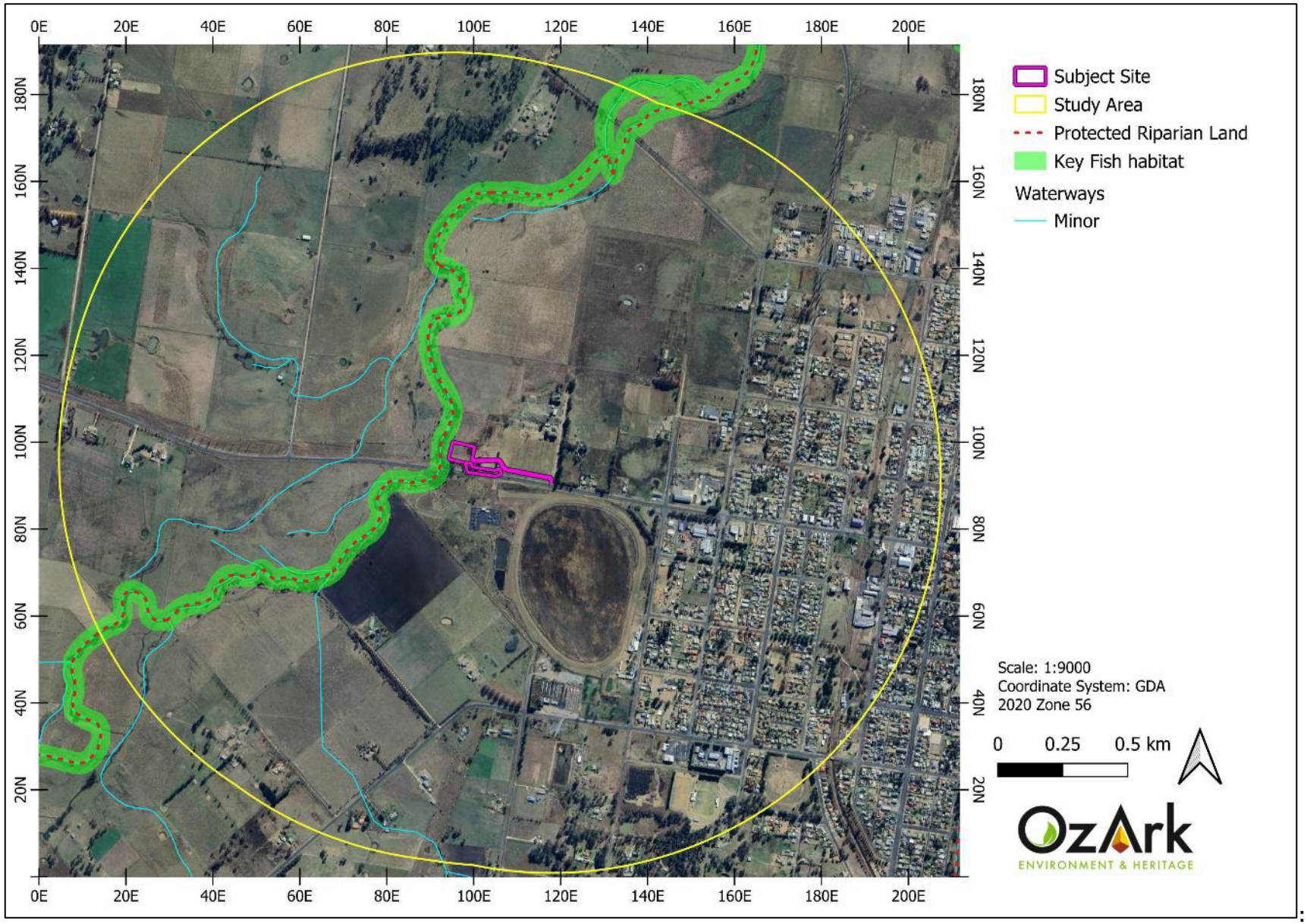


Figure 4-3. Watercourses, Protected Riparian Land and Key Fish Habitat within the study area.

4.5 GROUNDWATER DEPENDENT ECOSYSTEMS

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands, and both the estuarine and marine environment. Aquifer ecosystems are inherently groundwater dependent (QLD Department of Environment and Heritage Protection, 2017).

The probable vegetation Groundwater Dependant Ecosystems (GDE) mapping for the Border Rivers/Gwydir region (NSW DCCEEW 2022) did not identify any potential GDEs within the subject site (**Figure 4-4**). However, high and low potential terrestrial GDEs were identified within the 1.5 km study area. Provided that the mitigation measures specified in **Section 7** are adhered to, no significant impacts to GDEs are anticipated.

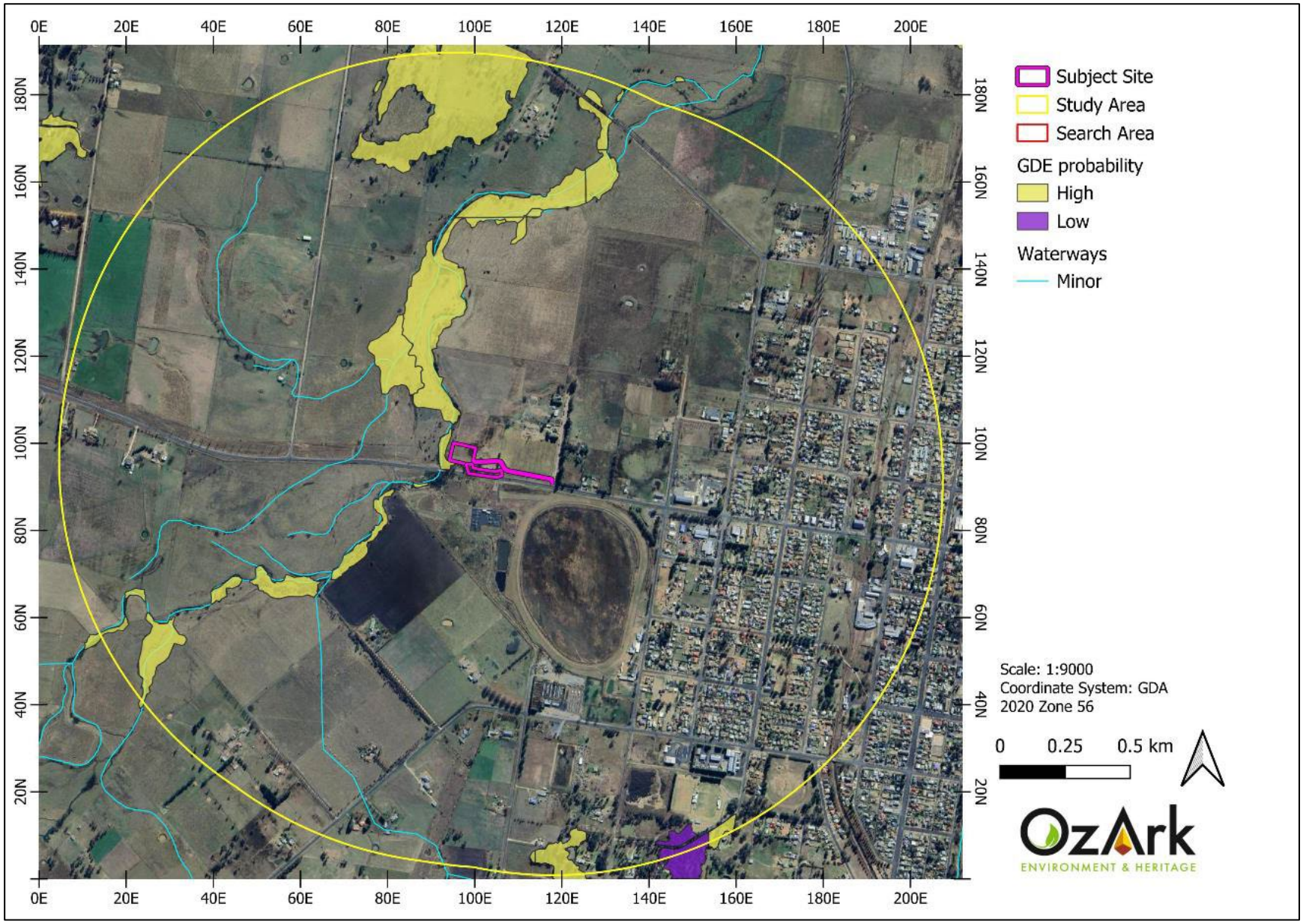


Figure 4-4. Groundwater-dependent ecosystems within the study area.

5 RESULTS

5.1 PLANT COMMUNITY TYPES

The NSW State Vegetation Map C2.0M2.0 (DPE, 2023) models three potential PCT within the study area:

- PCT 3344 – New England Ribbon Gum Grassy Forest
- PCT 3351 – Armidale Creekflat Snow Gum Woodland-Scrub
- PCT 3339 – Guyra Basalt Snow Gum Woodland

The field survey confirmed that none of the predicted PCTs are present within the subject site. The vegetation within the subject site was confirmed to belong to PCT 3981 and its extent within the subject site is given in **Table 5-1** and mapped in **Figure 5-1.**

Table 5-1. Confirmed extent of each Plant Community Type (PCT) within the subject site.

PCT ID	PCT Name	Extent within Subject Site (ha)
3981	Tableland Semi-permanent Shallow Wetlands	0.006
Non-native vegetation, cropping, bare ground, pond, and road surface		0.894
	Total	**0.968**

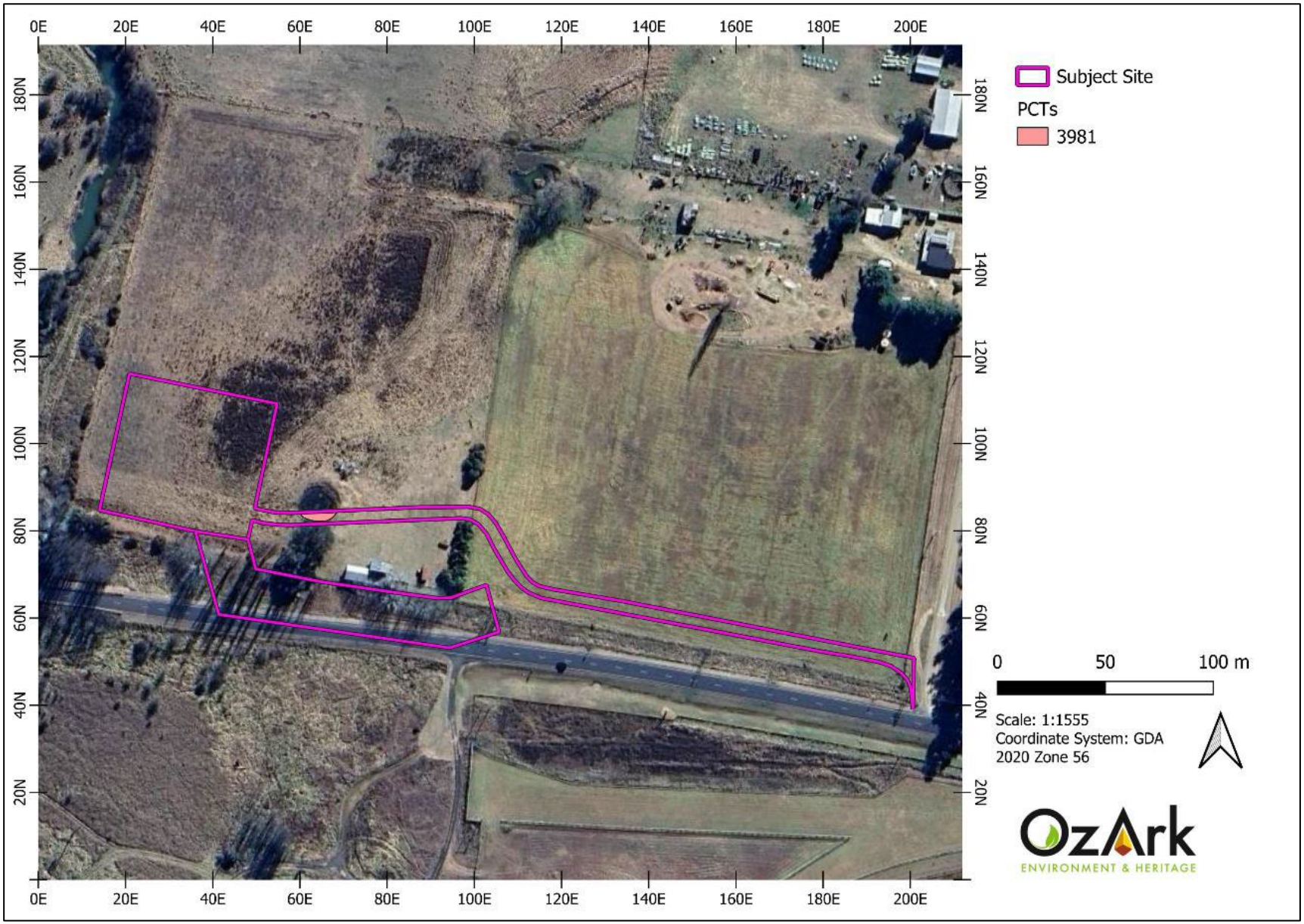


Figure 5-1. Plant Community Types confirmed within the subject site.

5.2 THREATENED ECOLOGICAL COMMUNITIES

Vegetation within the assessment boundary was assessed against the conditional criteria for each BC Act- or EPBC Act-listed TEC known, or predicted, to occur within the Glen Innes-Guyra Basalts and Deepwater Downs IBRA Subregions of the NSW New England Tablelands Bioregion. TEC criteria are provided in **Appendix G**.

PCT 3981 is associated with the following TECs:

- BC Act-listed, Endangered Ecological Community (EEC): *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion,* and
- EPBC Act-listed, EEC: *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion).*

The BC Act listing applies to communities located in the New England Tableland Bioregion of NSW and located on high altitude (above about 900 m) plateaus, mainly on basalt soils but sometimes on other substrates. The subject site is located at around 1000 m altitude; however, none of the characteristic species for the EEC were observed on site (see **Appendix G** for TEC criteria and **Appendix B** for a full flora species list). Therefore, the PCT present on site is not considered to belong to the BC Act EEC and no Test of Significance was completed for this EEC under the BC act.

The main characteristics of the Upland Wetlands under the EPBC Act are as followed:

- They occur in deep depressions in the landscape between 700 to 1400 m above sea level
- Most of the wetlands occur in basalt-derived soils, the remained occur in soils derives from other rock types such as granites or silcrete
- They support a range of vegetation such as water plants, sedges, forbs and grasses
- There are no shrubs or tree species that occur naturally within the wetlands, though shrubs and trees in areas surrounding the wetlands can play an important role in controlling run off and buffering impacts.

The subject site is located approximately 1000 m above sea level; however, the listed TEC does not include created farm or domestic water storage dams (see **Appendix G** for TEC criteria). The dam located within the subject site is a man-made storage dam; therefore, the vegetation within the site does not qualify as a TEC under the EPBC Act. No Test of Significance was completed for his EEC under the EPBC Act.

5.3 THREATENED AND MIGRATORY SPECIES AND POPULATIONS

Review of the Threatened Species Profiles database found 90 threatened species, threatened populations, or migratory species listed under the BC and/or EPBC Acts, that are known or predicted to occur within the Glen Innes-Guyra Basalts and Deepwater Downs IBRA Subregions of the NSW New England Tablelands Bioregion and could potentially be impacted by the proposal; these are listed in **Appendix C**. Based on proximity of past records, habitat requirements, and the results of the field survey, 35 species listed under the BC and/or EPBC Acts were assessed as having a moderate-high likelihood of occurring within the subject site (**Table 5-2**).

In total, four fauna species and 44 flora species were observed during the field survey (**Appendix B**). No threatened species were observed. Due to the short duration of the surveys, and the lack of detailed targeted surveys for threatened species, non-detection of a species cannot be considered as confirmation of absence of that species from the subject site.

Table 5-2. BC and EPBC Act-listed threatened species with potential to be impacted by the proposal.

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-
Amphibia	*Adelotus brevis*	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P	-	-
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	-
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	E4A,P	CE	-
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P	-	3
Aves	*Calidris melanotos*	Pectoral Sandpiper	P	J,K,M	1
Aves	*Circus assimilis*	Spotted Harrier	V,P	-	-
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P	-	-
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P	-	1
Aves	*Gallinago hardwickii*	Latham's Snipe	V,P	V,J,K,M	4
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P	-	1
Aves	*Grus rubicunda*	Brolga	V,P	-	-
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P	M	4
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P	-	2
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K,M	-
Aves	*Irediparra gallinacea*	Comb-crested Jacana	V,P	-	-
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P	-	1
Aves	*Oxyura australis*	Blue-billed Duck	V,P	-	2
Aves	*Petroica boodang*	Scarlet Robin	V,P	-	-
[illegible]	[illegible]	[illegible]	V,P	M	-
Aves	*Rostratula australis*	Australian Painted Snip	E1	E	-
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	3
Aves	*Stictonetta naevosa*	Freckled Duck	V,P	-	-
Aves	*Tringa stagnatilis*	Marsh Sandpiper	P	C,J,K,M	1
Flora	*Aldrovanda vesiculosa*	Waterwheel Plant	E1	-	-
Flora	*Dichanthium setosum*	Bluegrass	V	V	5

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-
Flora	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	4
Flora	*Eucalyptus rubida subsp. barbigerorum*	Blackbutt Candlebark	V	V	215
Flora	*Thesium australe*	Austral Toadflax	V	V	10
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	5
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P	-	1
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P	-	1
Mammalia	*Myotis macropus*	Southern Myotis	V,P	-	-
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	6
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	7
Reptilia	*Myuchelys bellii*	Western sawshelled turtle	E1	E	11

***NSW Status**: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4=Extinct, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.
+Commonwealth Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable, M=Marine

5.4 HABITAT TREES AND FEATURES

No habitat trees (containing hollows or nests) were recorded during the field survey. A small area of fallen timber was recorded on the southern end of the subject site, along the Gwydir Highway. Furthermore, one bush rock was recorded within the subject site. No other habitat features were observed.

5.5 WILDLIFE CONNECTIVITY CORRIDORS

The subject site is located on a roadside and surrounded by fenced paddocks. Given the derived condition of much of the vegetation, the subject site offers extremely limited connectivity for native fauna species. Some wooded vegetation is present within the boundaries of the subject site; however, this vegetation does not provide uninterrupted connectivity to larger habitat patches. As such, the subject site does not provide opportunities for fauna to traverse the landscape without exposure and the proposal would not significantly exacerbate existing fragmentation or produce new fragments.

5.6 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Under the environmental assessment provisions of the EPBC Act, Matters of National Environmental Significance (MNES) and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government DCCEEW.

The EPBC Act protected matters search has identified three wetlands of international importance, four TECs, 51 threatened species, eight migratory species and 19 marine species that could

possibly occur in the study area (**Appendix A**). A summary of these matters and whether the proposal is likely to impact them is provided in **Table 5-3**.

Table 5-3. Impacts to Matters of National Environmental Significance and Commonwealth land.

Consideration	Potential impact?
Any impact on a listed threatened species or communities?	Yes (non-significant, **Appendix E**)
Any impacts on listed migratory species?	Yes (non-significant, **Appendix E**)
Any impacts on a Ramsar wetland of international importance?	No
Any impacts on a Commonwealth marine environment?	No
Any impacts on a World Heritage property?	No
Any impacts on a National Heritage place?	No
Any impacts on the Great Barrier Reef Marine Park?	No
Does the proposal involve a nuclear action (including uranium mining)?	No
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	No
Additionally, any impact (direct or indirect) on Commonwealth land?	No

5.6.1 EPBC Listed Critically Endangered and Endangered Species

A list of critically endangered or endangered species which have the potential to be impacted by the proposal is provided below. See **Appendix D** and **Appendix E** for more details.

Table 5-4. EPBC listed CE and E species with the potential to be impacted by the proposal.

Class	Scientific Name	Common Name	Comm. status+
Aves	*Rostratula australis*	Australian Painted Snipe	E
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	CE
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	E
Mammalia	*Phascolarctos cinereus*	Koala	E

+Commonwealth Status: CE=Critically endangered, E=Endangered

6 IMPACT ASSESSMENT

The subject site is 0.968 ha in area and mostly comprises of non-native vegetation; 0.006 ha of the subject site belongs to PCT 3981. While it is expected that certain trees will be trimmed rather than removed, and therefore that part of this 0.006 ha area will be retained, in the absence of detailed information concerning the extent of trimming required, it is precautionarily assumed that all 0.006 ha will be removed. This does not trigger entry into the BOS or the requirement to prepare a BDAR.

6.1 DIRECT IMPACTS

6.1.1 Impacts on native vegetation and threatened ecological communities

In total, up to 0.006 ha of native vegetation belonging to PCT 3981 will be impacted by the proposal (**Table 6-1**). No area where PCT 3981 is present meet the condition thresholds for the BC Act listed EEC: *Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion* or for the EPBC Act listed EEC: *Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)*. As such, no Tests of Significance for TECs under the BC or EPBC Acts were conducted.

Clearing of native vegetation is a Key Threatening Process under the BC Act. However, due to the relatively low magnitude of clearing required for this proposal, the impact is not considered to be significant (see **Appendix F**). Nonetheless, efforts should be made to reduce the amount of native vegetation cleared, where possible.

Table 6-1. Impacts on vegetation.

Plant community type (PCT)	Status		Proposal area[1] (ha)
	BC Act	EPBC Act	
PCT 3981	No	No	0.006
Non-native	No	No	0.894
Total	**-**	**-**	**0.968**

[1]Area to be cleared based on ground-truthed vegetation mapping within the subject site.

6.1.2 Impacts on threatened fauna and associated habitat

Thirty threatened or migratory fauna species or populations listed under the BC and/or EPBC Act were considered to have a moderate or greater likelihood of occurring within the subject site (**Appendix C**). No threatened fauna species were detected during the field survey, though no targeted fauna surveys (e.g., trapping, spotlighting) were conducted.

No habitat trees (hollow-bearing or nest-bearing) were recorded within the subject site.

Given the limited native vegetation (0.006 ha) that the proponent intends to remove/modify, the lack of observed species dependent on the critical habitat features on site, and the implementation of the mitigation measures outlined in **Section 7**, it is unlikely that the proposed work will significantly impact any threatened, migratory or marine fauna species or population (see **Appendix D** and **Appendix E**).

6.1.3 Impacts on threatened flora

Five threatened flora species listed under the BC and/or EPBC Act were considered to have a moderate, or greater, likelihood of occurring within the subject site (**Appendix C**). No threatened flora species were recorded during the field survey, which was conducted at the appropriate time of year to detect all five threatened flora species. Considering this, the small impact footprint and the absence of nearby records, it is not expected that any significant impacts to threatened flora will occur (**Appendix D** and **Appendix E**).

6.1.4 Injury and mortality of protected fauna species

During the construction phase of the proposal, the felling of trees is likely to disturb fauna. In addition, fauna may become trapped in or may choose to shelter in machinery that is stored in the study area overnight. If these animals were to remain inside the machinery, or under the wheels or tracks, they may be injured or die once the machinery is in use. Mitigation measures designed to reduce an injury and mortality of fauna are provided in **Section 7.**

6.2 INDIRECT IMPACTS

6.2.1 Wildlife connectivity and habitat fragmentation

The subject site is a small roadside parcel of land with very few native trees. The site is surrounded by agricultural land, including fences. Due to the small size of the site and its isolation from other native vegetation, it does not constitute a wildlife connectivity corridor and as such the proposal would not be expected to exacerbate existing fragmentation to an extent where it would impact the connectivity between habitats. Mitigation measures designed to reduce the impact of the proposal on wildlife connectivity and habitat fragmentation are provided in **Section 7**.

6.2.2 Edge effects on adjacent native vegetation and habitat

The subject site occurs within an area exposed to a high level of edge effects due to extensive fragmentation from historical land clearing, agriculture, development, and road infrastructure. Numerous weed species already occur within the subject site. As such, although the proposal would not generate additional edge effect, it would extend existing edges and encourage the spread of weeds into the remnant vegetation outside of the footprint. The trimming and/or

clearance of native vegetation will exacerbate the impacts of existing edge effects. This may result in changes in abiotic factors (e.g., microclimate) or in biotic factors associated with the colonisation of introduced flora species. Weed encroachment, which is a significant edge effect, is considered below.

6.2.3 Invasion and spread of weeds

Proliferation of weed species is an indirect impact (i.e. not a direct result) of proposal activities. The most likely causes of weed dispersal and importation associated with the proposal include earthworks, movement of soil, and attachment of seed (and other propagules) to vehicles and machinery. Mitigation measures designed to limit the spread of weeds are provided in **Section 7**. If these mitigation measures are followed, the likelihood of invasion and spread of weeds is low.

'Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata'*, and 'Invasion of native plant communities by exotic perennial grasses' are Key Threatening Processes under the BC Act (see **Appendix F** – Key Threatening Processes). Of the 38 exotic plant species recorded during the field survey, 11 are listed as High-threat Exotic species (HTE). One species - Serrated Tussock (*Nassella trichotoma*) – is also listed as a Weed of National Significance (WoNS) and as a Priority Weed (PW) for the Glen Innes Severn LGA. The Blackberry complex (*Rubus fruticosus* sp. agg.) is also listed as a WoNS (**Table 6-2**).

Table 6-2. Significant weeds recorded during the site survey.

Scientific Name	Common Name	Status	HTE	WoNS	PW
Acetosella vulgaris	Sheep Sorrel	I	Yes	No	No
Bryophyllum delagoense	Mother of millions	I	Yes	No	No
Crataegus monogyna	Hawthorn	I	Yes	No	No
Hypericum perforatum	St. Johns Wort	I	Yes	No	No
Ligustrum sinense	Small-leaved Privet	I	Yes	No	No
Nassella trichotoma	Serrated Tussock	I	Yes	Yes	Yes
Paspalum dilatatum	Paspalum	I	Yes	No	No
Pinus radiata	Radiata Pine	I	Yes	No	No
Rosa rubiginosa	Sweet Briar	I	Yes	No	No
Rubus fruticosus sp. agg.	Blackberry complex	I	Yes	Yes	No
Sorghum halepense	Johnson grass	I	Yes	No	No

6.2.4 Invasion and spread of pests

Although no pest species were sighted during the field work, the study area is likely already habitat for a range of pest species, such as European rabbits (*Oryctolagus cuniculus*), foxes (*Vulpes vulpes*), cats (*Felis catus*), and dogs (*Canis lupus familiaris*). Mitigation measures designed to limit the spread of pests are provided in **Section 7**. Provided these mitigation measures are followed,

ease of access for feral pests, such as Feral Dogs, Cats, Pigs, Goats etc. is not expected to be increased by the proposal.

6.2.5 Invasion and spread of pathogens and disease

Several pathogens known from NSW have the potential to impact on biodiversity as a result of their movement and infection during construction. Of these, three are listed as a key threatening process under either the EPBC Act and/or BC Act including:

- Dieback caused by *Phytophthora* (Root Rot; EPBC Act and BC Act)
- Infection of frogs by amphibian chytrid fungus causing the disease chytridiomycosis (EPBC Act and BC Act)
- Introduction and establishment of exotic Rust Fungi of the order *Pucciniales* on plants of the family *Myrtaceae* (BC Act).

These pathogens were not observed or tested for in the study area. The most likely causes of pathogen dispersal and importation associated with the proposal include earthworks, movement of soil, and attachment of plant matter to vehicles and machinery. Mitigation measures designed to limit the invasion and spread of pathogens and disease are provided in **Section 7**.

6.2.6 Noise, light and vibration

Some noise and vibration impacts will occur during the construction phase of this proposal, however given the proposal's proximity to the Gwydir Highway, any additional sources of noise and vibration resulting from construction will likely not impact local biodiversity. Similarly, considering the low noise impacts, compared to Gwydir Highway, no significant biodiversity impacts are expected during the operational phase of the proposal. Mitigation measures are provided in **Section 7**.

6.3 CUMULATIVE IMPACTS

It should be recognised that the potential ecological losses that this proposal will incur are not arising in isolation; rather, they will be contributing to the wider loss of biodiversity values in NSW. This BAR provides an opportunity to reflect on the incremental effects of historic and present disturbance, referred to hereafter as 'cumulative impacts'.

Historic vegetation clearance in the area has been substantial, with State Forests primarily providing a representation of the original landscape. Although past clearance was largely driven by agricultural practises, current pressures concern urban expansion and the maintenance of infrastructure. The proposal, by itself, would not significantly impact regional biodiversity, given that it only intends to impact up to 0.006 ha of native vegetation within a residential area.

6.4 IMPACT SUMMARY

An Assessment of Significance has been conducted for each BC and EPBC Act-listed threatened species that are considered to have a moderate-high likelihood of occurring within the subject site due to the presence of suitable habitat (**Appendices C-E**). Based on these assessments, the proposal is unlikely to have a significant impact on biodiversity, including on predicted or known populations of threatened species and threatened ecological communities.

7 AVOID, MINIMISE AND MITIGATE IMPACTS

A key part of the proponent's management of biodiversity for this proposal is the application of the 'avoid, minimise, mitigate and offset' hierarchy as follows:

1. Avoid and minimise impacts as the highest priority
2. Mitigate impacts where avoidance is not feasible or practicable in the circumstance
3. Offset where residual, significant unavoidable impacts would occur

7.1 AVOIDANCE AND MINIMISATION

The following impact avoidance and minimisation methods were implemented by Green Gold Energy during the design phase of the proposal:

- The impact footprint was moved to avoid impacts to the riparian corridor of Furracabad Creek, which is mapped on the Biodiversity Values Map.

The following impact avoidance methods are recommended to be implemented:

- Removal and trimming of trees should be kept to a minimum. Where trees or understorey vegetation can be retained, they must be retained.
- To avoid impacts associated with weed introduction and spread, inspect all machinery before entering and exiting the subject site. Machinery must be clean of all mud, soil and vegetation material.

In addition, the following minimisation measures are proposed:

- The construction works and vehicle access to the construction site is to be constrained to the minimum area practical. The proposed access should provide the sole access to the construction site.
- Material stockpiles, equipment and machinery storage and laydown areas will be consolidated within a defined impact area to minimise the overall impact footprint. This area must be within the area already assessed or must be subject to a separate assessment.

7.2 MITIGATION MEASURES

Mitigation measures are to be undertaken during the construction and operational phases, including managing the vegetation clearing process, weed management, and installation of erosion and sediment controls as appropriate.

The following mitigation measures are recommended for implementation (**Table 7-1**).

Table 7-1. Mitigation measures and environmental safeguards.

Aspect	Environmental safeguards	Responsibility	Timing
General	• Any change in design outside the assessed impact footprint (subject site) will require further ecological survey and assessment. • All personnel working on site will be made aware of the environmental sensitivities of the site and safeguards/mitigations to be implemented, e.g., site induction and 'toolbox' style briefings. This includes all native vegetation, potential threatened flora and fauna, and any Key Fish Habitat or Protected Riparian Land. Evidence of all personnel receiving an induction will be kept on file (e.g., signed induction sheets).	Proponent	Pre-construction, construction, operation

Clearing of native vegetation	• All construction personnel should be inducted to be aware that any deliberate or accidental damage of a stand of native vegetation outside the subject site has legislative consequences under Part 4 or 5 of the EP&A Act. Evidence of all personnel receiving this induction would be kept on file (signed induction sheets etc.).
	• All construction personnel should be inducted to be aware of the potential presence of those threatened flora species listed in **Table 5-2**. If any threatened flora species are encountered, construction must stop in the immediate area and an ecologist should be consulted for advice and guidance before proceeding with works.
	• Before starting work, a physical vegetation clearing boundary at the approved clearing limit is to be demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, parawebbing or similar.
	• Vegetation would be removed in such a way as to avoid damage to surrounding vegetation.
	• Groundcover disturbance would be kept to a minimum.
	• Any stockpile and compound sites should be located using the following criteria:
	  ○ At least 40 m away from the nearest waterway
	  ○ In areas of low ecological conservation significance (i.e. previously disturbed land)
	  ○ On relatively level ground
	  ○ Outside the one in 10-year Average Recurrence Interval (ARI) floodplain
	• Stockpiling materials and equipment and parking vehicles would be avoided within the dripline (extent of foliage cover) of any tree.
	• Where possible, vegetation to be removed would be mulched on-site and re-used to stabilise disturbed areas.
		Proponent / contractor	Pre-construction, construction

Accidental death of fauna	• Where fauna is encountered, the fauna spotter catcher will remove the animal(s) and relocate them nearby, or if necessary, deliver them to a veterinarian or wildlife carer for rehabilitation.	Contractor	Construction
Threatened Species	• Provide identification resources for personnel to enable identification of threatened species that might occur on the work site, i.e. those species listed in **Table 5-2.** • Construction work to occur only during daylight hours to avoid indirect impacts on threatened fauna such as vehicle strikes. • If threatened fauna or flora species are discovered, stop works immediately and contact a suitably qualified ecologist for advice.	Contractor	Pre-construction and construction
Light	• Any artificial lighting to be used during construction or operation should follow the Best Practice Lighting Design within the National Light Pollution Guidelines (DoEE 2020). In particular, all lighting should be kept close to the ground, directed, and shielded to avoid light spill.	Proponent, contractor	Construction

Aspect	Environmental safeguards	Responsibility	Timing
Noise/Vibration	• Consideration should be given to minimising noise and vibration during the spring when birds are nesting, and at dawn/dusk when birds are leaving/returning to their roosts.	Proponent, contractor	Construction
Soil Management	• Install erosion and sediment controls in line with Landcom's Managing Urban Stormwater, Soils & Construction Guidelines (The Blue Book. Landcom 2004). • Where practicable, spread mulch made from vegetation cleared on site on areas of bare soil to stabilise, preventing dust and erosion. • Erosion and sedimentation controls are to be checked and maintained on a regular basis. This includes clearing of sediment from behind barriers and after heavy rainfall events. • Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. • Stockpile topsoil removed to be redistributed across site at completion of construction. • Implement dust suppression activities.	Proponent, contractor	Construction
Introduction and spread of priority weeds and pathogens	• Construction crew should be briefed on the identification of priority weeds that occur on site during inductions (see **Table 6-2**). • If declared priority weeds are identified during construction, they will be managed according to the requirements of the *Biosecurity Act 2015.* • Construction machinery (bulldozers, excavators, trucks, loaders and graders) will be cleaned using a high-pressure washer or other suitable device before entering and exiting work sites. • Machinery will be inspected by designated personnel following washdown to ensure no soil, mud, or vegetative material remains. Records of inspections to be maintained. • All pesticides will be used in accordance with the requirements on the label. Any person carrying out pesticide (including herbicide) application will be trained to do so and have the proper certificate of completion/competency or statement of attainment issued by a registered training organisation. • Keep records of any weed control activities that take place.	Proponent, contractor	Pre-construction and construction
Disturbance to fallen timber, dead wood, and bush rock	• Any fallen timber, dead wood, and bush rock encountered on site would be left *in situ* (where possible) or relocated to a suitable place nearby. • Rock would be removed with suitable machinery so as not to damage the underlying rock or result in excessive soil disturbance.	Contractor	Construction
Rehabilitating cleared areas	• Revegetation of any bare soil or cleared areas with locally occurring native flora species typical of the original habitat types is usually recommended. • Stockpiled topsoil to be re-spread over cleared areas.	Contractor	Construction
Exacerbating invasive fauna	• All food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent providing forage habitats for foxes, rats, dogs, and cats.	Proponent, contractor	Construction and post-construction
Increased risk of fire	• If any "hot works" are to be undertaken, these activities will not take place on days of extreme fire danger (where possible).	Contractor	Construction

8 CONCLUSION

An onsite field survey was conducted by an OzArk Senior Ecologist David Orchard on the 7th of November 2024. The subject site consisted mainly of non-native vegetation, as well as a small area of native vegetation, bare ground and the existing infrastructures. The 0.006 ha of native vegetation was found to belong to one PCT: PCT 3981 - Tableland Semi-permanent Shallow Wetlands.

No TECs occur within the impact footprint. The primary potential terrestrial habitat within the subject site is a single bushrock and a small area of fallen timber. No habitat trees, stags or nests were recorded within the footprint. Where possible we recommend that the proposed impact footprint is designed to conserve trees.

No watercourse occurs within the subject site. The following watercourses occur within the study area:

- Eight Strahler 1st order unnamed watercourses
- Two Strahler 2nd order unnamed watercourses
- One Strahler 4th order stream named Furracabad Creek. This watercourse, non-perennial and minor, occurs very close to the western end of the subject site (approximately 40 m). The creek was dry at the time of survey.

The closest major perennial watercourse is Beardy Waters, located within the broader search area and 5.5 km away to the east of the subject site.

No areas of KFH, as recognised by the DPI – Fisheries, or PRL, as recognised by the NSW DCCEEW, are located within the subject site. However, Furracabad Creek, located within the study area, contains both KFH and PRL. At its closest point, the creek is located approximately 40 m from the subject site.

Watercourses within the study area do not form part of a threatened aquatic ecological community and do not contain the mapped distribution of any threatened aquatic species. The closest mapped threatened aquatic species is the Eel Tailed catfish, and its distribution is mapped as occurring 7.1 km west of the subject site. As such, no tests of significance were carried out under the FM Act.

Thirty threatened or migratory fauna species or populations, listed under the BC and/or the EPBC Act, and five flora species, listed under the BC and/or EPBC Act were considered to have a moderate, or greater, probability of occurrence at the subject site. However, no listed species, or population, was encountered during the field survey. Subject to the implementation of the mitigation measures proposed, it has been concluded that no significant biodiversity impacts are

likely, including to any threatened or migratory species, population or ecological community, or their habitats.

As the proposal is to be approved under Part 4 of the EP&A Act and there will be no significant impact on threatened species or communities, it will not trigger entry into the BOS or require Referral to the Federal Minister under the EPBC Act. This assessment covers the current form of the proposal. Any change to the scope of work may require re-assessment. If entry into the BOS is triggered by a changed scope, additional field work completed according to the BAM may be required.

9 REFERENCES

Australian Government Bureau of Meteorology. (2025). Atlas of Groundwater Dependent Ecosystems. <http://www.bom.gov.au/water/groundwater/gde/map.shtml>

Australian Government Bureau of Meteorology (2025). Climate Data Online. <http://www.bom.gov.au/climate/data/>

Australian Government Department of Climate Change, Energy, the Environment and Water (2021). Directory of Important Wetlands. https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands

Australian Government Department of Climate Change, Energy, the Environment and Water (2025a). National Flying-fox monitoring viewer https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf

Australian Government Department of Climate Change, Energy, the Environment and Water (2025b). Protected Matters Search Tool. https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool

Australian Government Department of Sustainability, Environment, Water, Population and Communities (2012). Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Subregions). Canberra.

Australian Government Department of the Environment (2013). Matters of National Environmental Significance - Significant impact guidelines 1.1 - *Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia. http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf

Australian Virtual Herbarium (2025). https://avh.chah.org.au/

Briggs, J and Leigh, J 1996, *Rare or Threatened Australian Plants*, CSIRO Publishing, Collingwood, Victoria

Churchill, S 2008, *Australian bats - 2nd Edition*, Allen and Unwin, Crows Nest, NSW

Cogger, H 2014, *Reptiles and Amphibians of Australia,* CSIRO Publishing, Collingwood, Victoria

Cropper, S. (1993) Management of endangered plants, CSIRO Publications, Melbourne

Cunningham, GM., Mulham, WE., Milthorpe, Pl. and Leigh, JH 1992, *Plants of Western New South Wales.* CSIRO Publishing, Collingwood, Victoria

Department of the Environment and Energy 2022b, *Species profile and threats database*, viewed December 2025, <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Fairfull, S. (2013). Policy and Guidelines for Fish Habitat Conservation and Management. Sydney: NSW Department of Primary Industries.

Keith, D. (2004). Ocean Shores to Desert Dunes: the Vegetation of New South Wales and the ACT. Department of Environment and Conservation NSW.

Mitchell, P. (2002). Descriptions for NSW (Mitchell) Landscapes. NSW Department of Planning and Environment.

Morgan, G., & Terrey, J. (1992). Nature conservation in western New South Wales. Sydney: National Parks Association.

NSW Department of Climate Change, Energy, the Environment and Water (2022). Probable Vegetation Groundwater Dependent Ecosystems - Border Rivers / Gwydir. <datasets.seed.nsw.gov.au/dataset/probable-vegetation-gde-border-rivers-gwydir>

NSW Department of Planning and Environment (2011a). NSW Wetlands. <https://datasets.seed.nsw.gov.au/dataset/nsw-wetlands047c7>

NSW Department of Planning and Environment (2011b). Vulnerable Lands – Steep or Highly Erodible, Protected Riparian and Special Category. <https://datasets.seed.nsw.gov.au/dataset/vulnerable-land-protected-riparian73a9e>

NSW Department of Planning and Environment (2016). NSW (Mitchell) Landscapes – version 3.1. <https://datasets.seed.nsw.gov.au/dataset/nsw-mitchell-landscapes-version-3-1>

NSW Department of Planning and Environment (2017). NSW Landuse mapping. <https://datasets.seed.nsw.gov.au/dataset/nsw-landuse-2017>

NSW Department of Planning and Environment (2022a). Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/koala-phascolarctos-cinereus-biodiversity-assessment-method-survey-guide-220249.pdf>

NSW Department of Planning and Environment (2022b). Threatened Reptiles Biodiversity Assessment Method Survey Guide. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-reptiles-biodiversity-assessment-method-survey-guide>

NSW Department of Planning and Environment (2022c). Areas of Outstanding Biodiversity Value. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value>

NSW Department of Planning and Environment (2023d). State Vegetation Type Map C2.0M2.0 <https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map>

NSW Department of Planning and Environment (2022e). Acid Sulfate Soils Risk. <https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c>

NSW Department of Planning and Environment (2025a). BioNet Atlas. Threatened Biodiversity Profiles <https://www.environment.nsw.gov.au/AtlasApp/Default.aspx>

NSW Department of Planning and Environment (2025b). Wetlands. <https://www.environment.nsw.gov.au/topics/water/wetlands>

NSW Department of Planning and Environment (2025d). NSW Plant Community Type Classification. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/nsw-plant-community-type-classification>

NSW Department of Planning and Environment (2025e). BioNet. <https://www.bionet.nsw.gov.au/>

NSW Department of Planning and Environment (2025f). Threatened Biodiversity Data Collection. <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/about-bionet-atlas/threatened-biodiversity-profiles>

NSW Department of Planning and Environment (2025g). Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme. <https://www.environment.nsw.gov.au/research-and-publications/publications-search/determining-native-vegetation-land-categorisation-for-application-in-the-biodiversity-offsets-scheme>

NSW Department of Planning and Environment (2025h). BioNet Vegetation Classification. <http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx>

NSW Department of Planning and Environment (2025). NSW Biodiversity Values Map. <https://datasets.seed.nsw.gov.au/dataset/biodiversity-values-map>

NSW Department of Planning, Industry and Environment (2019). Guidance to assist a decision-maker to determine a serious and irreversible impact. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/guidance-decision-makers-determine-serious-irreversible-impact-190511.pdf>

NSW Department of Planning, Industry and Environment (2020a). Surveying threatened plants and their habitats. NSW survey guide for the Biodiversity Assessment Method.

NSW Department of Planning, Industry and Environment (2020b). Biodiversity Assessment Method. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf>

NSW Department of Primary Industries (2025). Freshwater threatened species distribution maps. https://www.dpi.nsw.gov.au/fishing/threatened-species/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps

NSW Department of Primary Industries (2025). NSW WeedWise: Priority weeds for the northern tablelands < https://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=60>

NSW National Parks and Wildlife Service (2003). The Bioregions of New South Wales their biodiversity, conservation and history.

Royal Botanic Gardens and Domain Trust. (2025). PlantNET. <http://plantnet.rbgsyd.nsw.gov.au>

Serov, P, Kuginis, L, Williams, JP. (2012). Risk assessment guidelines for groundwater dependent ecosystems, Volume 1 – The conceptual framework, NSW Department of Primary Industries, Office of Water, Sydney.

Thackway, R., & Cresswell, I. (1995). An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program.

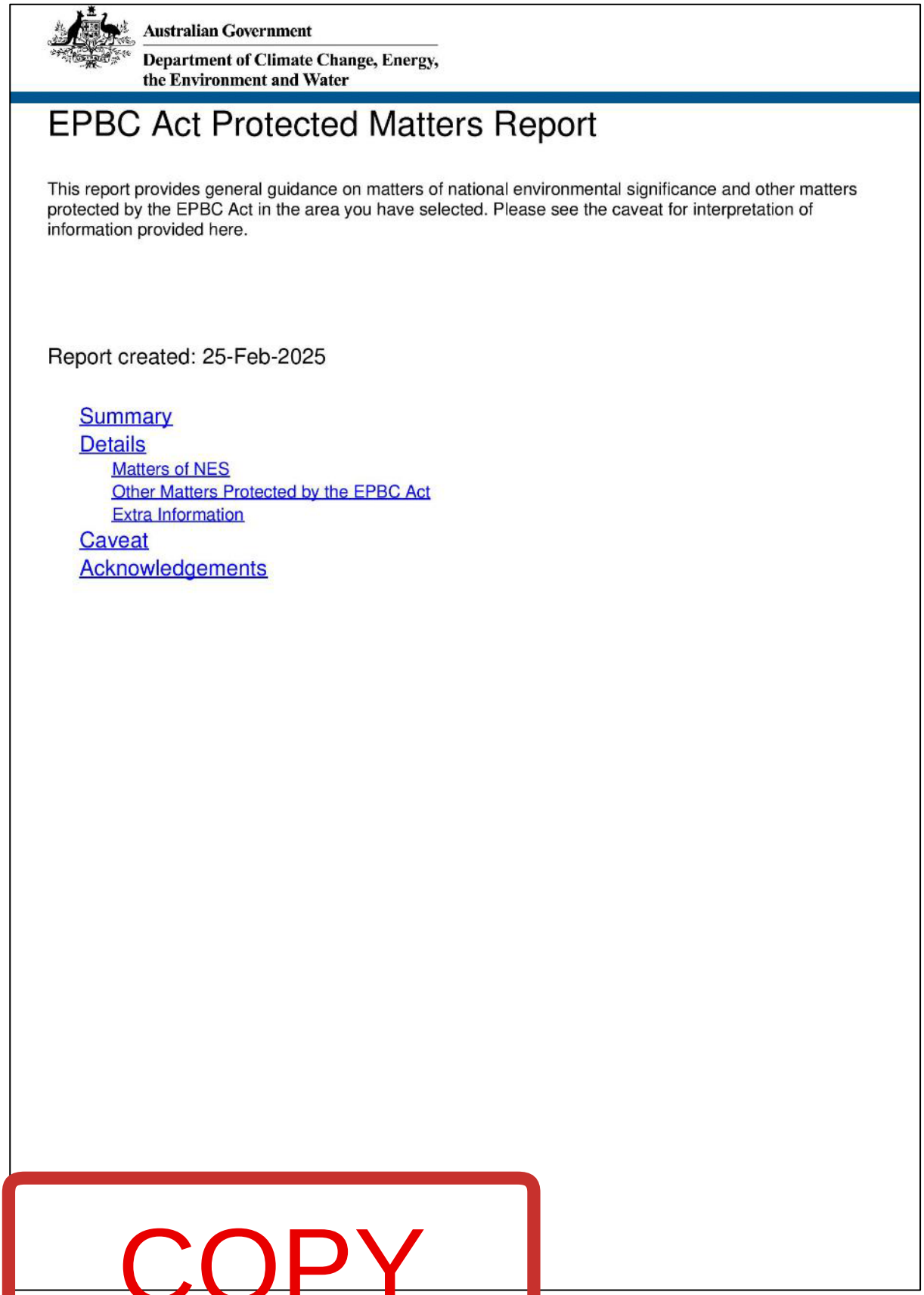
Triggs, B 1996, *Tracks, scats and other traces: a field guide to Australian mammals*, Oxford University Press, Melbourne, Victoria

Van Dyck, S and Strahan, R (Eds) 2008, *The mammals of Australia (3rd edition)*. Reed New Holland, Sydney, NSW

Van Dyck et al. (2012). Field Companion to The Mammals of Australia. New Holland Books.

APPENDIX A – DATABASE SEARCH RESULTS

EPBC ACT PROTECTED MATTERS REPORT



Australian Government
Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 25-Feb-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

COPY

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	51
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	6
Commonwealth Heritage Places:	1
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	1100 - 1200km upstream from Ramsar site	In feature area
Riverland	1100 - 1200km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1300 - 1400km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area	In feature area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community may occur within area	In feature area
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	Endangered	Community likely to occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
FROG			
Litoria castanea Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Litoria subglandulosa New England Tree Frog, Glandular Frog [1807]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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	In feature area
Nyctophilus corbeni			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Acacia pubifolia			
Velvet Wattle [19799]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arthraxon hispidus			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bertya sp. Clouds Creek (M.Fatemi 4) [84675]	Endangered	Species or species habitat may occur within area	In buffer area only
Boronia granitica Granite Boronia [18598]	Endangered	Species or species habitat may occur within area	In buffer area only
Callistemon pungens [55581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus mckieana McKie's Stringybark [20199]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus nicholii Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus rubida subsp. barbigerorum Blackbutt Candlebark [64618]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area	In buffer area only
Picris evae Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
Vincetoxicum woollsii listed as Tylophora woollsii			
[40080]	Endangered	Species or species habitat may occur within area	In buffer area only
REPTILE			
Anomalopus mackayi			
Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Myuchelys belli			
Western Sawshelled Turtle [86075]	Endangered	Species or species habitat known to occur within area	In feature area
Saltuarius wyberba			
Granite Leaf-tailed Gecko [64743]	Endangered	Species or species habitat may occur within area	In buffer area only
Uvidicolus sphyrurus			
Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [11408]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11407]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11411]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11410]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11413]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11409]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			

Name	State	Status	Buffer Status
Glen Innes Post Office	NSW	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Development of the White Rocks Wind Farm	2011/5834	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

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

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BioNET Atlas Searches

BioNET Atlas search – threatened and migratory species and populations predicted to occur within the New England Tablelands - Glenn Innes-Guyra Basalts and New England Tablelands – Deepwater Downs IBRA Subregions

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records-
Amphibia	*Adelotus brevis*	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P	-	P
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	P
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	E4A,P	CE	23
Amphibia	*Litoria piperata*	Peppered Tree Frog	E4A,P	V	P
Amphibia	*Litoria subglandulosa*	Glandular Frog	V,P	V	P
Aves	*Anthochaera phrygia*	Regent Honeyeater	E4A,P,2	CE	1
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	5
Aves	*Anseranas semipalmata*	Magpie Goose	V,P	-	1
Aves	*Aphelocephala leucopsis*	Southern Whiteface	V,P	V	1
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P	-	54
Aves	*Burhinus grallarius*	Bush Stone-curlew	E1,P	-	P
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C,J,K	10
Aves	*Calidris ferruginea*	Curlew Sandpiper	E4A,P	CE,C,J,K	1
Aves	*Calidris melanotos*	Pectoral Sandpiper	P	J,K	1
Aves	*Chlidonias leucopterus*	White-winged Black Tern	P	C,J,K	1
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P	-	35
Aves	*Circus assimilis*	Spotted Harrier	V,P	-	2
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	25
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P	-	8
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P	-	1
Aves	*Falco subniger*	Black Falcon	V,P	-	1
Aves	*Gallinago hardwickii*	Latham's Snipe	V,P	V,J,K	24
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P	-	24
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	P
Aves	*Grus rubicunda*	Brolga	V,P	-	2
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P	-	36
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P	-	19
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K	3
Aves	*Irediparra gallinacea*	Comb-crested Jacana	V,P	-	1
Aves	*Lathamus discolor*	Swift Parrot	E1,P	CE	3
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3	-	5
Aves	*Melanodryas cucullata*	South-eastern Hooded	E1,P	E	4
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P	-	2
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3	-	5
Aves	*Ninox connivens*	Barking Owl	V,P,3	-	6
Aves	*Ninox strenua*	Powerful Owl	V,P,3	-	2

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records-
Aves	*Oxyura australis*	Blue-billed Duck	V,P	-	29
Aves	*Petroica boodang*	Scarlet Robin	V,P	-	23
Aves	*Petroica phoenicea*	Flame Robin	V,P	-	13
Aves	*Phaethon lepturus*	White-tailed Tropicbird	P	C,J	1
Aves	*Phalaropus lobatus*	Red-necked Phalarope	P	C,J,K	1
Aves	*Pluvialis fulva*	Pacific Golden Plover	P	C,J,K	1
Aves	*Poephila cincta cincta*	Black-throated Finch (southern subspecies)	E4,P	E	1
Aves	*Rostratula australis*	Australian Painted Snipe	E1,P	E	4
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	22
Aves	*Stictonetta naevosa*	Freckled Duck	V,P	-	4
Aves	*Tringa stagnatilis*	Marsh Sandpiper	P	C,J,K	4
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3	-	P
Flora	*Diuris pedunculata*	Small Snake Orchid	E1,P,2	E	37
Flora	*Prostanthera staurophylla*	Moombahlene Mint-bush	E1,2	CE	P
Flora	*Acacia macnuttiana*	MacNutt's Wattle	V	V	3
Flora	*Acacia pycnostachya*	Bolivia Wattle	V	V	2
Flora	*Aldrovanda vesiculosa*	Waterwheel Plant	E1	-	2
Flora	*Almaleea cambagei*	Torrington Pea	E1	E	P
Flora	*Arthraxon hispidus*	Hairy Jointgrass	V	V	P
Flora	*Boronia boliviensis*	Bolivia Hill Boronia	E4A,P,3	CE	P
Flora	*Boronia granitica*	Granite Boronia	V,P	E	5
Flora	*Boronia inflexa subsp. torringtonensis*	-	E4A,P	CE	1
Flora	*Callistemon pungens*	-		V	2
Flora	*Dichanthium setosum*	Bluegrass	V	V	92
Flora	*Eucalyptus boliviana*	Bolivia Stringybark	E4A	-	P
Flora	*Eucalyptus camphora subsp. relicta*	Warra Broad-leaved Sally	E1	-	1
Flora	*Eucalyptus magnificata*	Northern Blue Box	E1	-	P
Flora	*Eucalyptus mckieana*	McKie's Stringybark	V	V	10
Flora	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	26
Flora	*Eucalyptus rubida subsp. barbigerorum*	Blackbutt Candlebark	V	V	596
Flora	*Euphrasia ciliolata*	Polblue Eyebright	V	-	2
Flora	*Homoranthus croftianus*	Bolivia Homoranthus	E4A	-	P
Flora	*Micromyrtus grandis*	Severn River Heath-myrtle	E1,3	E	P
Flora	*Muehlenbeckia sp. Mt Norman*	Scrambling Lignum	V	-	P
Flora	*Picris evae*	Hawkweed	V	V	3
Flora	*Pimelea venosa*	Bolivia Hill Rice-flower	E1,3	E	1
Flora	*Polygala linariifolia*	Native Milkwort	E1	-	2
Flora	*Prasophyllum sp. Wybong*	-	P	CE	P
Flora	*Rutidosis heterogama*	Heath Wrinklewort	V	V	P
Flora	*Swainsona sericea*	Silky Swainson-pea	V	-	4
Flora	*Thesium australe*	Austral Toadflax	V	V	89
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V,P	-	P
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	27

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records-
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P	-	4
Mammalia	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P	-	11
Mammalia	*Myotis macropus*	Southern Myotis	V,P	-	2
Mammalia	*Petauroides volans*	Southern Greater Glider	E1,P	E	1
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	1
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	62
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	12
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P	-	3
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P	-	5
Reptilia	*Hoplocephalus bitorquatus*	Pale-headed Snake	V,P	-	P
Reptilia	*Myuchelys bellii*	Western Sawshelled Turtle, Bell's Turtle	E1,P	E	162

***NSW Status**: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.
+Comm. Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable, M=Marine
- Number of Records: P=Predicted to occur.

BioNET Atlas search – threatened ecological communities predicted to occur within the New England Tablelands - Glenn Innes-Guyra Basalts and New England Tablelands – Deepwater Downs IBRA Subregions

Community Name	NSW status*	Comm. status+	Records-
Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	E3	-	P
Lowland Rainforest of Subtropical Australia		CE	K
McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions	E3	-	P
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	-	P
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	-	CE	K
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	-	CE	K
New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion	E4B	-	K
Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion	E3	-	K
Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion	E3	-	K
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	-	E	K
Weeping Myall Woodlands	-	E	K
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B	-	K
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	-	CE	K

***NSW Status**: E4B=Critically endangered, E3=Endangered.
+Comm. Status: CE=Critically endangered, E=Endangered.
-Records: K=Known to occur, P=Predicted to occur.

BioNET Atlas search – Key Threatening Processes predicted to occur within the New England Tablelands - Glenn Innes-Guyra Basalts and Deepwater Downs IBRA Subregions

Threats	NSW status	Comm. status	Records
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala*	KTP	KTP	P
Alteration of habitat following subsidence due to longwall mining	KTP	-	P
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP	-	P
Anthropogenic Climate Change	KTP	KTP	P
Bushrock removal	KTP	-	P
Clearing of native vegetation	KTP	KTP	P
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*	KTP	KTP	P
Competition and habitat degradation by Feral Goats, *Capra hircus*	KTP	KTP	P
Competition from feral honey bees, *Apis mellifera*	KTP	-	P
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP	-	P
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus*	KTP	-	P
Herbivory and environmental degradation caused by feral deer	KTP	-	P
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP	-	P
Importation of Red Imported Fire Ants *Solenopsis invicta*	KTP	KTP	P
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	P
Introduction of the Large Earth Bumblebee *Bombus terrestris*	KTP	-	P
Invasion and establishment of exotic vines and scramblers	KTP	-	P
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP	-	P
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	P
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata*	KTP	-	P
Invasion of native plant communities by *Chrysanthemoides monilifera*	KTP	-	P
Invasion of native plant communities by exotic perennial grasses	KTP	-	P
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* into NSW	KTP	-	P
Invasion, establishment and spread of Lantana (*Lantana camara*)	KTP	-	P
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P
Loss of Hollow-bearing Trees	KTP	-	P
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP	-	P
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP	-	P
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)	KTP	-	P
Predation by the European Red Fox *Vulpes Vulpes*	KTP	KTP	P
Predation by the Feral Cat *Felis catus*	KTP	KTP	P
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa*	KTP	KTP	P
Removal of dead wood and dead trees	KTP	-	P

P=Predicted to occur

BIODIVERSITY VALUES MAP AND THRESHOLD TOOL

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		25/02/2025 12:52 PM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	**Does the development Footprint intersect with BV mapping?**	no
1.2	**Was ALL BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
1.3	**Date of expiry of dark purple 90 day mapping**	N/A
1.4	**Is the Biodiversity Values Map threshold exceeded?**	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	**Size of the development or clearing footprint**	9,681.6 sqm
2.2	**Native Vegetation Area Clearing Estimate (NVACE)** (within development/clearing footprint)	1,768.3 sqm
2.3	**Method for determining Minimum Lot Size**	LEP
2.4	**Minimum Lot Size** (10,000sqm = 1ha)	400,000 sqm
2.5	**Area Clearing Threshold** (10,000sqm = 1ha)	10,000 sqm
2.6	**Does the estimate exceed the Area Clearing Threshold?** (NVACE results are an estimate and can be reviewed using the Guidance)	no
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		**no**

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NSW GOVERNMENT Department of Planning and Environment

What do I do with this report?

- If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor.

- If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is "'likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.

- If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.

- If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide .

Review Options:

- If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

- If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the Guide for reviewing area clearing threshold results from the BMAT Tool.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: _____ Date: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

25/02/2025 12:52 PM

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Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

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Biodiversity Values Map

227.3 0 113.63 227.3 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

25/02/2025 12:52 PM

Imagery © Airbus DS/Spot Image 2016

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The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the Biodiversity Values Map viewer for mapping updates is recommended.

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GLEN INNES SEVERN LOCAL ENVIRONMENTAL PLAN 2012 – LOT SIZE MAP

The location of the subject site is indicated by the blue circle. No biodiversity value mapping is available for Glen Innes Severn LGA.

APPENDIX B – FIELD SURVEY RESULTS

FLORA SPECIES LIST

In total, 44 plant species were detected during the field survey. Of these, six (13.64%) were native and 38 (86.36%) were introduced. 11 of the introduced species are listed as High-threat Exotic species (HTE) under the BAM. Serrated Tussock (*Nassella trichotoma*) and Blackberry (*Rubus fruticosus sp. agg.*) are considered Weed of National Significance (WoNS). Serrated Tussock is also listed as Priority Weed (PW) for the Glen Innes Severn LGA.

Growth Form[1]	Family	Scientific Name	Common Name	Status[2]	HTE	WoNS[4]	PW[5]
OG	Amaryllidaceae	*Agapanthus praecox subsp. ori entalis*	African Lily	I	No	No	No
FG	Asteraceae	*Arctotheca calendula*	Capeweed	I	No	No	No
FG	Asteraceae	*Cirsium vulgare*	Spear Thistle	I	No	No	No
FG	Asteraceae	*Cymbonotus lawsonianus*	Bear's Ear	N	No	No	No
FG	Asteraceae	*Hypochaeris radicata*	Catsear	I	No	No	No
FG	Boraginaceae	*Echium plantagineum*	Patterson's Curse	I	No	No	No
FG	Campanulaceae	*Wahlenbergia spp.*	Bluebell	N	No	No	No
FG	Clusiaceae	*Hypericum perforatum*	St. Johns Wort	I	**Yes**	No	No
FG	Crassulaceae	*Bryophyllum delagoense*	Mother of millions	I	**Yes**	No	No
FG	Fabaceae (Faboideae)	*Trifolium spp.*		I	No	No	No
SG	Fabaceae (Mimosoideae)	*Acacia baileyana*	Cootamundra wattle	I	No	No	No
FG	Iridaceae	*Romulea rosea var. australis*	Onion Grass	I	No	No	No
SG	Malaceae	*Crataegus monogyna*	Hawthorn	I	**Yes**	No	No
SG	Myrtaceae	*Callistemon sp.*	Bottlebrush	I	No	No	No
TG	Myrtaceae	*Eucalyptus sp.*		I	No	No	No
TG	Myrtaceae	*Eucalyptus mannifera*	Brittle Gum	N	No	No	No
SG	Oleaceae	*Ligustrum sinense*	Small-leaved Privet	I	**Yes**	No	No
FG	Oxalidaceae	*Oxalis articulata*	Pink Sorrell	I	No	No	No
TG	Pinaceae	*Pinus radiata*	Radiata Pine	I	**Yes**	No	No
FG	Plantaginaceae	*Plantago lanceolata*	Lamb's Tongues	I	No	No	No
GG	Poaceae	*Avena barbata*	Bearded Oats	I	No	No	No
GG	Poaceae	*Avena fatua*	Wild Oats	I	No	No	No
GG	Poaceae	*Bromus catharticus*	Praire Grass	I	No	No	No
GG	Poaceae	*Cenchrus clandestinus*	Kikuyu Grass	I	No	No	No
GG	Poaceae	*Dactylis glomerata*	Cocksfoot	I	No	No	No
GG	Poaceae	*Holcus lanatus*	Yorkshire Fog	I	No	No	No
GG	Poaceae	*Hordeum marinum*	Sea Barley Grass	I	No	No	No
GG	Poaceae	*Nassella trichotoma*	Serrated Tussock	I	**Yes**	**Yes**	**Yes**
GG	Poaceae	*Paspalum dilatatum*	Paspalum	I	**Yes**	No	No
GG	Poaceae	*Phalaris aquatica*	Phalaris	I	No	No	No
GG	Poaceae	*Poa sieberiana*	Snowgrass	N	No	No	No
GG	Poaceae	*Rytidosperma sp.*	Wallaby Grass	I	No	No	No
GG	Poaceae	*Sorghum halepense*	Johnson grass	I	**Yes**	No	No
[illegible]	[illegible]	[illegible]		N	No	No	No
FG	Polygonaceae	*Acetosella vulgaris*	Sheep Sorrel	I	**Yes**	No	No
FG	Polygonaceae	*Rumex crispus*	Curled Dock	I	No	No	No
SG	Rosaceae	*Cotoneaster glaucophyllus*		I	No	No	No
SG	Rosaceae	*Prunus spp.*	Plum	I	No	No	No
SG	Rosaceae	*Rosa rubiginosa*	Sweet Briar	I	**Yes**	No	No
SG	Rosaceae	*Rosa sp.*	Rose	I	No	No	No

Growth Form[1]	Family	Scientific Name	Common Name	Status[2]	HTE	WoNS[4]	PW[5]
SG	Rosaceae	*Rubus fruticosus sp. agg.*	Blackberry complex	I	**Yes**	**Yes**	No
FG	Rubiaceae	*Galium aparine*	Goosegrass	N	No	No	No
TG	Ulmaceae	*Ulmus minor*		I	No	No	No
TG	Ulmaceae	*Ulmus parvifolia*	Chinese Elm	I	No	No	No

[1]**Growth form:** FG = Forb, GG = Grass and Grass-like, SG = Shrub, TG = Tree, EG = Fern, OG = Other.
[2]**Status:** N = Native, I = Introduced.
[3]**High-Threat Exotic** (Yes/No).
[4]**Weed of National Significance** (Yes/No).
[5]**Priority Weed** for the Northern Tablelands region (Yes/No).

FAUNA SPECIES LIST

In total, four fauna species were detected during the November 2024 field surveys. All species recorded are introduced. No threatened species were observed.

Class	Scientific Name	Common Name	Status[1]
Aves	*Sturnus vulgaris*	Common Starling	I
Aves	*Passer domesticus*	House Sparrow	I
Aves	*Turdus merula*	Eurasian Blackbird	I
Mammalia	*Oryctolagus cuniculus*	Rabbit	I

[1]**Status:** N = Native, I = Introduced.

APPENDIX C – BC & EPBC ACT HABITAT ASSESSMENT FOR THREATENED SPECIES AND COMMUNITIES PREDICTED TO OCCUR

List generated by conducting a BioNet threatened species search for the New England Tablelands - Glenn Innes-Guyra Basalts and New England Tablelands – Deepwater Downs IBRA Subregions. Threatened species identified as being potentially impacted by the proposal during an EPBC Protected Matters search are also included here. To determine whether any threatened species were known to occur within 10 km of the subject site, BioNet Atlas records of threatened species within these subregions were downloaded and the records clipped to within 10 km of the subject site in QGIS.

Likelihood of occurrence description is sourced from https://www.environment.nsw.gov.au/threatenedSpeciesApp

The likelihood of occurrence of threatened species, populations or ecological communities was categorised as follows:

- 'Present' – the species was observed or has been previously recorded on the site.
- 'High' – high probability that a species uses the site, based on nearby records and suitable habitat being present.
- 'Moderate' – suitable habitat for a species occurs on the site, but the species has not been observed or previously recorded at the site ***or*** habitat not ideal, but there are nearby records.
- 'Low' – a very low likelihood that the species uses the site, based on lack of the preferred type of habitat.

Likelihood of occurrence table for BC and EPBC Act-listed threatened and migratory species and populations

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
Amphibia	*Adelotus brevis*	Tusked Frog population in the Nandewar and New England Tableland Bioregions	E2,P		No	The Tusked Frog is distributed along the eastern coast and adjacent ranges from central Queensland to southern NSW, extending inland to the New England Tableland (New England Bioregion) and North West Slopes (Nandewar Bioregion). Tusked Frogs have experienced large declines in in the New England and Nandewar Bioregions and are now very rare there, and the population in these regions has been listed as an Endangered Population under the Biodiversity and Conservation Act. The species remains more common in lower elevation coastal areas. They are found in rainforests, wet forests and flooded grassland and pasture. They are usually found near creeks, ditches and ponds, and call while hidden amongst vegetation or debris. The species breeds from spring through to summer, with a peak during late spring. Eggs are deposited in nests under leaf litter or other cryptic sites such as old yabbie burrows near or in water. **Moderate - The species is associated with PCT 3981, and the subject site is within the species distribution but there are no records within the 10 km search area.**	**Yes**
Amphibia	*Litoria booroolongensis*	Booroolong Frog	E1,P	E	No	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands, however several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. Adults occur on or near cobble banks and other rock structures within stream margins. Shelter under rocks or amongst vegetation near the ground on the stream edge. **Moderate - The species is associated with PCT 3981, and the subject site is within the species distribution but there are no records within the 10 km search area.**	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	E4A,P	CE	No	Historically, this species occurred in two separate highland ranges: on the New England Tableland, and on the southern and central tablelands from Bathurst to Bombala. Following the chytrid virus pandemic in the 1970s, this species went unrecorded for 30 years and was believed to be extinct, until it was rediscovered in 2009 on the Southern Tablelands. This population - near Yass - remains the only known extant site of the species. Require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. **Moderate - The species is associated with PCT 3981, and the subject site is within the species distribution but there are no records within the 10 km search area.**	**Yes**
Amphibia	*Litoria piperata*	Peppered Tree Frog	E4A,P	V	No	The species has not been definitively recorded in the wild since the 1990s. It was previously found on the New England Tablelands from south of Armidale to the Gibraltar Range, at an altitude of 800 to 1000 m. Found in streamside vegetation and under rocks and fallen timber along rocky streams flowing eastward from the Tablelands. **Low - The subject site is within the species' predicted distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Amphibia	*Litoria subglandulosa*	Glandular Frog	V,P	V	No	Known only from stream habitats on the eastern escarpment of the Great Dividing Range from the “The Flags” near Walcha in the south to Girraween National Park in the north, a distance of about 250 km. Glandular Frogs may be found along streams in rainforest, moist and dry eucalypt forest or in subalpine swamps. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Aves	*Anseranas semipalmata*	Magpie Goose	V,P	M	No	The Magpie Goose is still relatively common in the Australian northern tropics but had disappeared from south-east Australia by 1920 due to drainage and overgrazing of reed swamps used for breeding. Since the 1980s there have been an increasing number of records in central and northern NSW. Vagrants can follow food sources to south-eastern NSW.	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Aves	*Anthochaera phrygia*	Regent Honeyeater	E4A,P,2	CE	No	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests. The Regent Honeyeater is a flagship threatened woodland bird whose conservation will benefit a large suite of other threatened and declining woodland fauna. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Aphelocephala leucopsis*	Southern Whiteface	V,P	V	No	Prefers the drier habitats of southern Australia. Commonly found in dry open forests and woodland, mallee, mulga and saltbush. Prefers sites with fallen timber or dead trees and stumps. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		3	Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. **High - The subject site is within the species known distribution, the species is associated with PCT 3981 and there are records within 10 km.**	**Yes**
Aves	*Burhinus grallarius*	Bush Stone-curlew	E1,P		No	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	P	C,J,K,M	No	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass,	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Calidris ferruginea*	Curlew Sandpiper	E4A,P	CE,C,J,K,M	No	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Calidris melanotos*	Pectoral Sandpiper	P	J,K,M	1	The Pectoral Sandpiper breeds in northern Russia and North America. Within Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. In New South Wales (NSW), the Pectoral Sandpiper is widespread but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. The species has also been recorded in swamp overgrown with lignum. They forage in shallow water or soft mud at the edge of wetlands. **Moderate - The subject site is within the species' predicted distribution and there is one record within 10 km, but the species is not associated with PCT 3981.**	
Aves	*Calyptorhynchus lathami lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	V	1	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (A. *torulosa*) are important foods. Inland *populations* feed on a wide range of sheoaks, including Drooping Sheoak, Allocasuarina *diminuta*, and A. *gymnathera*. Belah is also utilised and may be a critical food source for some populations. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981. There is one record within 10 km but the lack of feed tree species and tree hollows within the subject site indicates the species is highly unlikely to occupy the site.**	**No**
Aves	*Chlidonias leucopterus*	White-winged Black Tern	P	C,J,K,M	No	The species is a non-breeding migrant to Australia, where it is widespread and common along south-western, northern and central-eastern coasts, with only scattered records of small numbers along the coasts elsewhere in southern Australia. In Australia, and elsewhere in their non-breeding range, the species mostly inhabits fresh, brackish or saline, and coastal or subcoastal wetlands. White-winged Black Terns frequent tidal wetlands, such as harbours, bays, estuaries and lagoons, and their associated tidal sandflats and mudflats. Terrestrial wetlands,	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						including swamps, lakes, billabongs, rivers, floodplains, reservoirs, saltworks, sewage ponds and outfalls are also inhabited. In NSW, the species is widespread east of the Great Divide, mainly south to about Wollongong, but with scattered records further south along the coast and on inland wetlands west of the Great Divide, for example Lake Cowal, Narran Lake and as far west as the Menindee Lakes. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Chthonicola sagittata*	Speckled Warbler	V,P		No	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. There has been a decline in population density throughout its range, with the decline exceeding 40% where no vegetation remnants larger than 100ha survive. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. Pairs are sedentary and occupy a breeding territory of about ten hectares, with a slightly larger home-range when not breeding. The rounded, domed, roughly built nest of dry grass and strips of bark is located in a slight hollow in the ground or the base of a low dense plant, often among fallen branches and other litter. A side entrance allows the bird to walk directly inside. A clutch of 3-4 eggs is laid, between August and January, and both parents feed the nestlings. The eggs are a glossy red-brown, giving rise to the unusual folk names ‘Blood Tit’ and ‘Chocolatebird’. Some cooperative breeding occurs. The species may act as host to the Black-eared Cuckoo. Speckled Warblers often join mixed species feeding flocks in winter, with other species such as Yellow-	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						rumped, Buff-rumped, Brown and Striated Thornbills. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Circus assimilis*	Spotted Harrier	V,P		No	The Spotted Harrier occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. **Moderate - The species is associated with PCT 3981, and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	V	No	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of *Climacteris picumnus victoriae* runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell and along this line the subspecies intergrades with the arid zone subspecies of Brown Treecreeper (*Climacteris picumnus picumnus*) which then occupies the remaining parts of the state. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. The population density of this subspecies has been greatly reduced over much of its range, with major declines recorded in central NSW and the northern and southern tablelands. Declines have occurred in remnant vegetation fragments smaller than 300 hectares, that have been isolated or fragmented for more than 50 years. **Low - The subject site is within the species' known distribution, but**	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						the species is not associated with PCT 3981 and there are no records within 10 km.	
Aves	*Daphoenositta chrysoptera*	Varied Sittella	V,P		No	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. **Moderate - The species is associated with PCT 3981, and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1,P		1	In Australia, Black-necked Storks are widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW (although vagrants may occur further south or inland, well away from breeding areas). In NSW, the species becomes increasingly uncommon south of the Clarence Valley, and rarely occurs south of Sydney. Since 1995, breeding has been recorded as far south as Buladelah. Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. Black-necked Storks build large nests high in tall trees close to water. Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). **High - The subject site is within the species known distribution; the species is associated with PCT 3981 and there is a record within 10 km.**	**Yes**
Aves	*Falco subniger*	Black Falcon	V,P		No	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Some reports of 'Black Falcons' on the tablelands and coast of New South Wales are likely to be referable to the Brown Falcon. In New South Wales there is assumed to be a single population that is continuous with a broader continental	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. The Black Falcon occurs as solitary individuals, in pairs, or in family groups of parents and offspring. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Gallinago hardwickii*	Latham's Snipe	V,P	V,J,K,M	4	Latham's Snipe is a non-breeding visitor to south-eastern Australia and is a passage migrant through northern Australia (i.e. it travels through northern Australia to reach non-breeding areas located further south). The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia (including the Adelaide plains and Mount Lofty Ranges, and the Eyre Peninsula). The range extends inland over the eastern tablelands in south-eastern Queensland (and occasionally from Rockhampton in the north), and to west of the Great Dividing Range in New South. The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west. Most birds spend the non-breeding period at sites located south of the Richmond River in New South Wales. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. **Moderate - The subject site is within the species' predicted distribution and there are records within 10 km, but the species is not associated with PCT 3981**	**Yes**
Aves	*Glossopsitta pusilla*	Little Lorikeet	V,P		1	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic'	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						movements are suspected of breeding pairs. Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981**	
Aves	*Grantiella picta*	Painted Honeyeater	V,P	V	No	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Grus rubicunda*	Brolga	V,P		No	The Brolga was formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. It is still abundant in the northern tropics, but very sparse across the southern part of its range. Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. They feed using their heavy straight bill as a 'crowbar' to probe the ground or turn it over, primarily on sedge roots and tubers. They will also take large insects, crustaceans, molluscs and frogs. **Moderate - The species is associated with PCT 3981, and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P	M	4	The White-bellied Sea-eagle is distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						of the Murray Darling Basin. In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Hunts its prey from a perch or whilst in flight (by circling slowly, or by sailing along 10–20 m above the shore). Prey is usually carried to a feeding platform or (if small) consumed in flight, but some items are eaten on the ground. May be solitary or live in pairs or small family groups consisting of a pair of adults and dependent young. Typically lays two eggs between June and September with young birds remaining in the nest for 65-70 days. **High - The subject site is within the species known distribution; the species is associated with PCT 3981 and there are records within 10 km.**	
Aves	*Hieraaetus morphnoides*	Little Eagle	V,P		2	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. **High - The subject site is within the species known distribution; the species is associated with PCT 3981 and there are records within 10 km.**	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
Aves	*Hirundapus caudacutus*	White-throated Needletail	V,P	V,C,J,K,M	No	The White-throated Needletail is widespread in eastern and south-eastern. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. **Moderate - The species is associated with PCT 3981 and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Irediparra gallinacea*	Comb-crested Jacana	V,P		No	The Comb-crested Jacana occurs on freshwater wetlands in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW, with stragglers recorded in south-eastern NSW (possibly in response to unfavourable conditions further north). Beyond Australia, the Comb-crested Jacana occurs from Borneo and the Philippines, south and east through Sulawesi, the Moluccas and Lesser Sunda Islands, to the Aru Islands, New Guinea and New Britain. Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. Forage on floating vegetation, walking with a characteristic bob and flick. They feed primarily on insects and other invertebrates, as well as some seeds and other vegetation. Comb-crested Jacanas are dispersive, moving about in response to the condition of wetlands, and occasionally turn up well beyond normal range. **Moderate - The species is associated with PCT 3981, and the**	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						subject site is within the species known distribution but there are no records within the 10 km search area.	
Aves	*Lathamus discolor*	Swift Parrot	E1,P	CE,M	No	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany (Eucalyptus robusta), Spotted Gum (*Corymbia maculata*), Red Bloodwood (*C. gummifera*), Forest Red Gum (*E. tereticornis*), Mugga Ironbark (*E. sideroxylon*), and White Box *(E. albens*). **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3		No	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW, and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September, and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Melanodryas cucullata cucullata*	South-eastern Hooded Robin	E1,P	E	No	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies cucullata) is found from Brisbane to Adelaide and	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						throughout much of inland NSW, except for the extreme north-west, where it is replaced by subspecies *picata*. Two other subspecies occur outside NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs, and a ground layer of moderately tall native grasses. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		1	The Black-chinned Honeyeater has two subspecies, with only the nominate (*gularis*) occurring in NSW. he eastern subspecies extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. A gregarious species usually seen in pairs and small groups of up to 12 birds. Feeding territories are large making the species locally nomadic. Recent studies have found that the Black-chinned Honeyeater tends to occur in the largest woodland patches in the landscape as birds forage over large home ranges of at least 5 hectares. Moves quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects. Nectar is taken from flowers, and honeydew is gleaned from foliage. Breeds solitarily or co-operatively, with up to five or six adults, from June to December. The nest is placed high in the crown of a tree, in the uppermost lateral branches, hidden by foliage. It is a compact,	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						suspended, cup-shaped nest. **Moderate - The subject site is within the species' known distribution and there is a record within 10 km, but the species is not associated with PCT 3981.**	
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3		No	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Ninox connivens*	Barking Owl	V,P,3		No	The Barking Owl is found throughout continental Australia except for the central arid regions. Although common in parts of northern Australia, the species has declined greatly in southern Australia and now occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests. Many populations crashed as woodland on fertile soils was cleared over the past century, leaving linear riparian strips of remnant trees as the last inhabitable areas. Surveys in 2001 demonstrated that the Pilliga Forest supported the largest population in southern Australia. The owls sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g., western NSW) due to the higher density of prey on these fertile riparian soils. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Aves	*Ninox strenua*	Powerful Owl	V,P,3		No	The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the coastal side of the Great Dividing Range from Mackay to	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						south-western Victoria. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains suggesting occupancy prior to land clearing. Now at low densities throughout most of its eastern range, rare along the Murray River and former inland populations may never recover. Recent increases in population density across Sydney and some other semi-urban areas do not seem to be solely due to increased awareness of this flagship species. The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Aves	*Oxyura australis*	Blue-billed Duck	V,P		2	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. **High - The subject site is within the species known distribution; the species is associated with PCT 3981 and there are records within 10 km.**	**Yes**
Aves	*Petroica boodang*	Scarlet Robin	V,P		No	The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude. The Scarlet Robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees. The Scarlet Robin is a quiet and unobtrusive species which is often quite tame and easily approached. Birds forage from low perches, fenceposts or on the ground, from where they pounce on small insects and other invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer. **Moderate - The species is associated with PCT 3981 and the subject site is within the species known distribution but there are no records within the 10 km search area.**	
Aves	*Petroica phoenicea*	Flame Robin	V,P	M	No	The Flame Robin is endemic to south-eastern Australia, and ranges from near the Queensland border to southeast South Australia and in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. In winter, birds migrate to drier more open habitats in the lowlands (i.e., valleys below the ranges, and to the western slopes and plains), in dry forests,	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						open woodlands and in pastures and native grasslands, with or without scattered trees. **Moderate - The species is associated with PCT 3981 and the subject site is within the species known distribution but there are no records within the 10 km search area.**	
Aves	*Phaethon lepturus*	White-tailed Tropicbird	P	C,J,M	No	Found in tropical ocean islands while nesting on islands but otherwise spends most of its time far out at sea, over warm waters. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Aves	*Phalaropus lobatus*	Red-necked Phalarope	P	C,J,K,M	No	The Red-necked Phalarope breeds in the Arctic and subarctic North America, Europe and Russia. During non-breeding period the Red-necked Phalarope occurs mainly at sea. In Australia it is recorded at both inland and coastal lakes/swamps, including highly saline waters and artificial wetlands notably salt fields. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Aves	*Pluvialis fulva*	Pacific Golden Plover	P	C,J,K,M	No	The Pacific golden plover is migratory, and breeds during May, June, and July in Alaska and Siberia. It migrates south to Asia, Australasia, and Pacific islands in August and September, and stays until April or May. A rare vagrant to western Europe. Although a shorebird, the Pacific golden plover feeds mostly inland, preferring open spaces with short vegetation. During the breeding season, the Arctic tundra provides insects and berries for food, and effective camouflage for predator avoidance. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Aves	*Poephila cincta cincta*	Black-throated Finch (southern subspecies)	E4,P	E	No	The southern subspecies was once found from the Atherton Tableland in Queensland to the Inverell district in northern NSW. It has suffered a massive range contraction and is now rarely recorded south of Clermont in Queensland. In NSW it was once widespread in the northern tablelands and northwest slopes but was last recorded in 1994 and may	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						now be extirpated in the State. Black-throated Finches inhabit dry, open, grassy woodlands, often along watercourses. They have been recorded in riparian Ti-tree and Melaleuca thickets surrounded by open grassy areas in the Inverell district. Mainly granivorous, consuming primarily native grass seed, although insects will also be taken. Typically forage in small flocks on the ground. Considered to be sedentary but may move in response to drought. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Aves	*Rostratula australis*	Australian Painted Snipe	E1,P	E	No	The Australian Painted Snipe is restricted to Australia. Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. Forages nocturnally on mud-flats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter. **Moderate - The species is associated with PCT 3981, and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Stagonopleura guttata*	Diamond Firetail	V,P	V	3	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						scattered distribution over the rest of NSW, though is very rare west of the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. **High - The subject site is within the species known distribution, the species is associated with PCT 3981 and there are records within 10 km.**	
Aves	*Stictonetta naevosa*	Freckled Duck	V,P		No	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally, rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting usually occurs between October and December but can take place at other times when conditions are favourable. Nests are usually located in dense vegetation at or near water level. **Moderate - The species is associated with PCT 3981, and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Aves	*Tringa stagnatilis*	Marsh Sandpiper	P	C,J,K,M	1	The marsh sandpiper breeds in the Palearctic. It is a migratory species, with most birds wintering in Africa and India, and some migrating to Southeast Asia and Australia. They prefer to winter on freshwater wetlands such as swamps and lakes and are usually seen singly or in small groups.	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						Moderate - The subject site is within the species' predicted distribution and there is a record within 10 km, but the species is not associated with PCT 3981.	
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3		No	Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Acacia macnuttiana*	MacNutt's Wattle	V	V	No	MacNutt's Wattle occurs only on the New England Tablelands and just extending onto the North West Slopes. Found in widely scattered locations in the Tenterfield area and west to around Torrington. MacNutt's Wattle grows in dry forest or woodland and heath vegetation, usually on granite or metasediments and often near streams. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Acacia pycnostachya*	Bolivia Wattle	V	V	No	Restricted to NSW. Three extensive populations exist in the vicinity of Bolivia Hills and Bluff River Nature Reserves south of Tenterfield, and on nearby Crown Land. Smaller populations have been found on private land in other areas and the species may be more widespread than is currently documented. The plant tends to occur in patches although sparsely distributed individuals are common across the Bolivia Hill ranges. *Acacia pycnostachya* typically grows in dry sclerophyll forest amongst granite outcrops, on hillsides at altitudes of 700 to 900 m, but is flexible in its habitat. Soil types range from acid volcanics to sandy and skeletal on exposed outcrops, to shallow sandy loams in less exposed sites. It often grows in stands in areas sheltered from fire. **Absent - The subject site is not within the species distribution, there**	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						are no records in the 10 km search area and the species is not associated with PCT 3981.	
Flora	*Aldrovanda vesiculosa*	Waterwheel Plant	E1		No	The species is more commonly found in northern Australia and tropical regions of Asia and Africa. Known in NSW only from lagoons in the Moruya area on the south coast, from the Evans Head area on the north coast and from north of Guyra on the New England Tablelands. Found free-floating in near-coastal shallow freshwater lagoons that are rich in organic matter. **Moderate - The species is associated with PCT 3981 and the subject site is within the species known distribution but there are no records within the 10 km search area.**	**Yes**
Flora	*Almaleea cambagei*	Torrington Pea	E1	E	No	The majority of *Almaleea cambagei* populations occur within Torrington State Conservation Area on the New England Tablelands, with a few populations potentially occurring in the adjacent agricultural lands. There are records from the Mt Slow area near Henry River. The species is also reported from Girraween National Park in Queensland. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Arthraxon hispidus*	Hairy Jointgrass	V	V	No	Occurs over a wide area in south-east Queensland, and on the northern tablelands and north coast of NSW but is never common. Also found from Japan to central Eurasia. Moisture and shade-loving grass, found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Boronia boliviensis*	Bolivia Hill Boronia	E4A,P,3	C	No	Bolivia Hill Boronia occurs primarily in Bolivia Hill Nature Reserve south of Tenterfield. The population was estimated at 1000 mature plants in 1999, reportedly decreasing during the subsequent decade. However, new sub-populations were discovered with more extensive field work, including one very large patch. The drought of 2018-2019 led to severe grazing by macropods and a major reduction in mature plants.	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						Subsequent rains have stimulated seedlings but competition with *Boronia anethifolia*, which was not as greatly reduced by grazing, may hinder a return to prior abundance in some patches. A previous record near Demon Nature Reserve has been subsequently identified as *Boronia granitica*. Grows in dry sclerophyll forest amongst granite boulders. The species also grows in heathland on shallow soil in the cracks of granite outcrops. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Flora	*Boronia granitica*	Granite Boronia	V,P	E	No	Granite Boronia occurs in scattered localities on the New England Tablelands and North West Slopes north from the Armidale area to the Stanthorpe district in southern Queensland. It can be locally common in appropriate habitat (e.g. Torrington). Grows on granitic soils amongst rock outcrops, often in rock crevices, and in forests and woodlands on granite scree and shallow soils. Important site characteristics include low precipitation and high levels of solar radiation. This semi-arid soil environment will have selected the more xerophytic species from the available regional assemblage of rainforest species. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Boronia inflexa subsp. torringtonensis*		E4A,P	CE	No	Restricted to Torrington SCA and near Bolivia Hill. Rock outcrops on granite. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Callistemon pungens*			V	No	In NSW, the species occurs from near Inverell to the eastern escarpment in New England National Park. It also occurs in the northern tablelands of south-eastern Queensland, mainly in the Stanthorpe area. Recorded in a number of national parks and nature reserves in NSW and Queensland including Warrabah, Kings Plains, Oxley Wild Rivers and Single National Parks and Severn River, Ironbark and Mann Rivers Nature Reserves. It	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						is also known form Torrington State Recreation Area. Habitats range from riparian areas dominated by *Casuarina cunninghamiana* subsp. *cunninghamiana* to woodland and rocky shrubland. Often in rocky watercourses, usually with sandy granite (occasionally basalt) creek beds. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Flora	*Dichanthium setosum*	Bluegrass	V	V	5	Bluegrass occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, extending to northern Queensland. It occurs widely on private property, including in the Inverell, Guyra, Armidale and Glen Innes areas. Associated species include *Eucalyptus albens*, *Eucalyptus melanophloia*, *Eucalyptus melliodora*, *Eucalyptus viminalis*, *Myoporum debile*, *Aristida ramosa*, *Themeda triandra*, *Poa sieberiana, Bothriochloa ambigua*, *Medicago minima*, *Leptorhynchos squamatus*, *Lomandra* aff. l*ongifolia*, *Ajuga australis*, *Calotis hispidula* and *Austrodanthonia, Dichopogon*, *Brachyscome*, *Vittadinia*, *Wahlenbergia* and *Psoralea* species. **Moderate - The subject site is within the species' predicted distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Flora	*Diuris pedunculata*	Small Snake Orchid	E1,P2	E	No	Confined to northeast NSW. It was originally found scattered from Tenterfield south to the Hawkesbury River but is now mainly found on the New England Tablelands, around Armidale, Uralla, Guyra and Ebor. Grows in grassy tall eucalypt forest with Kangaroo Grass and Bladey Grass on brown clay soil. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Eucalyptus boliviana*	Bolivia Stringybark	E4A		No	*Eucalyptus boliviana* is very rare and restricted to the Bolivia Hill Ranges area between Glen Innes and Tenterfield. A few small patches that were previously recorded in this region have disappeared over the past two decades. Typically flowering in Spring yet also observed to flower at low	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						density in other months. Endemic to NSW and restricted to dry sclerophyll woodland habitat, on granite outcrops and acid volcanics above 900 m altitude. Occupied soils are typically gritty and sandy. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Flora	*Eucalyptus camphora subsp. relicta*	Warra Broad-leaved Sally	E1		No	Confined to Warra National Park near Backwater east of Guyra, where it is known from two stands (the largest of these two stands is just 20 m by 150 m in area) and Capoompeta National Park east of Bolivia. Two closely related subspecies occur on the central and southern tablelands. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Eucalyptus magnificata*	Northern Blue Box	E1		No	Known in NSW from only a few widely separate populations on the New England Tablelands, around Hillgrove east of Armidale and in the Glen Innes and Tenterfield region, where they occur individually or in small populations. Most populations occur on travelling stock routes or private property. Only a single population occurs in a conservation reserve, in Oxley Wild Rivers National Park. The species also occurs in two Queensland locations. Grassy open forest or woodland on shallow, sandy or loamy soils. Occurs on moderately hilly sites and at the edge of gorges, usually at altitudes from 900 - 1050 m. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Eucalyptus mckieana*	McKie's Stringybark	V	V	No	Confined to the drier western side of the New England Tablelands of NSW, from Torrington to Bendemeer. *Eucalyptus mckieana* is found in grassy open forest or woodland on poor sandy loams, most commonly on gently sloping or flat sites. Most populations occur on private property, but it does occur in Kings Plain National Park, Torrington State Conservation Area and Severn River Nature Reserve. Associated species at Northern Tablelands sites include *Angophora floribunda*, *Eucalyptus amplifolia*, *Eucalyptus andrewsii*, *Eucalyptus bridgesiana*,	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						Eucalyptus youmanii, *Eucalyptus blakelyi* and *Eucalyptus conica*, and at North Western Slopes sites *Eucalyptus andrewsii*, *Eucalyptus stannicola*, *Eucalyptus prava* and *Angophora floribunda*. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Flora	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	4	This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Found largely on private property and roadsides, and occasionally in conservation reserves. Typically grows in dry grassy woodland, on shallow soils of slopes and ridges. Tends to grow on lower slopes in the landscape. Found primarily on infertile soils derived from granite or metasedimentary rock. Seedling recruitment is common, even in disturbed soils, if protected from grazing and fire. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Flora	*Eucalyptus rubida subsp. barbigerorum*	Blackbutt Candlebark	V	V	215	Known from scattered populations on the New England Tablelands from Guyra to the Tenterfield area. Most populations occur on private property however the species is recorded in Barayamal and Guy Fawkes National Parks. Often found on cold flats, in grassy woodland on medium or high fertility soils. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Flora	*Euphrasia ciliolata*	Polblue Eyebright	V		No	Polblue Eyebright is restricted to the northern tablelands of NSW. Major occurrences are on the Barrington Tops and Gloucester Tops in Barrington Tops NP, but the species also occurs in Werrikimbe NP, near Yarrowitch and in Nowendoc SF. An old collection from near Deepwater has not been relocated. Occurs on the edge of montane and sub-alpine swamps and on open grassy slopes bordering swamps, Snow Grass meadows, Snow Gum woodland, open boggy meadows amidst Black Sallee woodland, and in seasonally inundated upland grassland.	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.	
Flora	*Homoranthus croftianus*	Bolivia Homoranthus	E4A		No	Restricted to Bolivia Hill Ranges, north of Deepwater on the New England Tablelands of NSW. Individual plants flower sporadically throughout the year, with September to January most common. Feral honeybees, native bees such Leafcutters and native flies are all very commonly visit flowers, and filled seeds have been observed to form inside protective cages that would deter larger pollinators. *Homoranthus croftianus* is associated with isolated granitic outcrops at about 1000 m altitude, growing within crevices of bare rocky slopes and in shallow acidic soil above and below sheet rock. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Micromyrtus grandis*	Severn River Heath-myrtle	E1,3	E	No	Restricted to Severn River Nature Reserve and an adjacent property, about 60km north-west of Glen Innes on the New England Tablelands. Severn River Heath-myrtle grows in heath and low woodland in crevices of acid volcanic rocky outcrops and in the shallow soil of surrounding areas, at altitudes of 600 to 750 m. It occurs in open and exposed sites. **Low - The subject site is within the species' predicted distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Muehlenbeckia sp. Mt Norman*	Scrambling Lignum	V		No	Scattered distribution from Queensland to the Blue Mountains in NSW. Records on the New England Tablelands and North West Slopes include Bald Rock north of Tenterfield, Warra and Butterleaf National Parks near Glen Innes and Mt Kaputar. Grows in coarse sandy soils and peat in heath, mallee and open eucalypt woodland on granite or acid volcanic outcrops at higher altitudes. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
Flora	*Picris evae*	Hawkweed	V	V	No	Known in NSW north from the Inverell area, in the north-western slopes and plains regions. It has been collected from Elsmore and Myall Creek (both near Inverell) as well as in Inverell, Oxley Park (Tamworth) and from Dangar Falls in the Oxley Wild Rivers National Park in the northern tablelands of NSW. The species also occurs in the Darling Downs and Moreton regions of south-eastern Queensland. Its main habitat is open Eucalypt Forest including a canopy of *Eucalyptus melliodora*, *E. crebra*, *E. populnea*, *E. albens*, *Angophora subvelutina*, *Allocasuarina torulosa*, and/or *Casuarina cunninghamiana* with a *Dichanthium* grassy understory. Soils are black, dark grey or red brown (specified as shallow, stony soil over basalt for one collection) and reddish clay-loam or medium clay soils. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Pimelea venosa*	Bolivia Hill Rice-flower	E1,3	E	No	This rice-flower species occurred primarily in the Bolivia Hill and Bluff Rock Ranges south of Tenterfield. Observations over the past decade suggest that this highly palatable species might have been widespread prior to the introduction of domestic stock. Surveys at previously occupied sites and in potential habitat conducted in 1999 found no plants. Sites that were burned by wildfire were re-surveyed in 2012 in hopes of post-fire sprouting but no plants were seen. One new population of the species was discovered in 2012, the first seen in over 15 years. It too gradually declined, and all plants died by 2017. However, a subsequent low intensity wildfire in the area during late 2019, followed by consistent rainfall, stimulated sprouting of 800 seedlings including in nearby areas that were not occupied by mature plants in 2012. Three smaller populations ranging from 4 - 250 individuals have subsequently been found within a kilometre of this regenerated population. In 2021 a second large population of approximately 1000 plants was found in the region, occupying more fertile black loams. In 2024 a third population was discovered which had numbered about 300 mature plants (>5 years) until most of them died due to a prolonged dry the year before. About 80	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						plants remain and improved rains may see them recover. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Flora	*Polygala linariifolia*	Native Milkwort	E1		No	North from Copeton Dam and the Warialda area to southern Queensland; also found on the NSW north coast near Casino and Kyogle, and there is an isolated population in far western NSW near Weebah Gate, west of Hungerford. This species also occurs in Western Australia. In the Pilliga area, this species has been recorded in Fuzzy Box woodland, White Cypress Pine-Bulloak - Ironbark woodland, Rough-barked Apple riparian forb-grass open forest, and Ironbark - Brown Bloodwood shrubby woodland. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Prasophyllum sp. Wybong*		P	CE	No	Endemic to NSW, it is known from near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell, Tenterfield, Currabubula and the Pilliga area. Most populations are small, although the Wybong population contains by far the largest number of individuals. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Prostanthera staurophylla*	Moombahlene Mint-bush	E1,2	CE	No	Currently known from a single granite outcrop in the Tenterfield area of the New England Tablelands. The total population of this species occurs at a single site and is currently estimated to contain fewer approximately 324 individuals. Approximately 15% are juvenile. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	**No**
Flora	*Rutidosis heterogama*	Heath Wrinklewort	V	V	No	Recorded from near Cessnock to Kurri Kurri with an outlying occurrence at Howes Valley. On the Central Coast it is located north from Wyong to Newcastle. There are north coast populations between Wooli and Evans Head in Yuraygir and Bundjalung National Parks. It also occurs on the	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						New England Tablelands from Torrington and Ashford south to Wandsworth south-west of Glen Innes. Grows in heath on sandy soils and moist areas in open forest and has been recorded along disturbed roadsides. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Flora	*Swainsona sericea*	Silky Swainson-pea	V		No	Silky Swainson-pea has been recorded from the Northern Tablelands to the Southern Tablelands and further inland on the slopes and plains. There is one isolated record from the far north-west of NSW. Its stronghold is on the Monaro. Also found in South Australia, Victoria and Queensland. Found in Natural Temperate Grassland and Snow Gum Eucalyptus pauciflora Woodland on the Monaro. **Low - The subject site is within the species' known distribution, but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Flora	*Thesium australe*	Austral Toadflax	V	V	10	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Although originally described from material collected in the SW Sydney area, populations have not been seen in a long time. It may persist in some areas in the broader region. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Mammalia	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		No	The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	5	The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Mammalia	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		1	The Eastern False Pipistrelle is found on the south-east coast and ranges of Australia, from southern Queensland to Victoria and Tasmania. Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. **High - The subject site is within the species known distribution, the species is associated with PCT 3981 and there is a record within 10 km.**	**Yes**
Mammalia	*Miniopterus orianae oceanensis*	Large bent-winged Bat	V,P		1	Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. **High - The subject site is within the species known distribution, the species is associated with PCT 3981 and there is a record within 10 km.**	**Yes**
Mammalia	*Myotis macropus*	Southern Myotis	V,P		No	The Southern Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface. **Moderate - The species is associated with PCT 3981 and the subject site is within the species known distribution but there are no records within the 10 km search area.**	
Mammalia	*Petauroides volans*	Southern Greater Glider	E1,P	E	No	The Southern Greater Glider occurs in eastern Australia, in eucalypt forests and woodlands, where it has a broad distribution from around Proserpine in Queensland, south through NSW and the Australian Capital Territory into Victoria. Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range. Recorded using hollows with a minimum diameter of 8 cm. Occupy a relatively small home range with an average size of 1 to 3 ha. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Mammalia	*Petrogale penicillata*	Brush-tailed Rock-wallaby	E1,P	V	No	The range of the Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However, the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. Shelter or bask during the day in rock crevices, caves and overhangs and are most active at night when foraging. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees. Highly territorial and have strong site fidelity with an average home range size of about 15 ha. Males tend to have larger home ranges than females. The home range consists of a refuge area	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						and a foraging range linked by habitually used commuting routes. Females settle in or near their mother's range, while males mainly disperse between female groups within colonies, and less commonly between colonies. **Absent - The subject site is not within the species distribution, there are no records in the 10 km search area and the species is not associated with PCT 3981.**	
Mammalia	*Phascolarctos cinereus*	Koala	E1,P	E	6	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. Inhabit eucalypt woodlands and forests. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	**Yes**
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	7	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and	**Yes**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						vines. Also forage in cultivated gardens and fruit crops. **Moderate - The subject site is within the species' known distribution and there are records within 10 km, but the species is not associated with PCT 3981.**	
Mammalia	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		No	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and Northwest Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn. **Low - The subject site is within the species' known distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		No	The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range, from north-eastern Victoria to the Atherton Tableland. It extends to the coast over much of its range. In NSW it is widespread on the New England Tablelands, however, does not occur at altitudes above 500 m. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. **Low - The subject site is within the species' known distribution but**	**No**

Class	Scientific Name	Common Name	NSW status*	Comm. status+	Records within 10 km-	Likelihood of Occurrence	Test of Significance Required (Yes/No)
						the species is not associated with PCT 3981 and there are no records within 10 km.	
Reptilia	*Hoplocephalus bitorquatus*	Pale-headed Snake	V,P		No	A patchy distribution from north-east Queensland to the north-eastern quarter of NSW. In NSW it has historically been recorded from as far west as Mungindi and Quambone on the Darling Riverine Plains, across the northwest slopes, and from the north coast from Queensland to Sydney. A small number of historical records are known for the New England Tablelands from Glen Innes and Tenterfield; however, most records appear to be from sites of relatively lower elevation. Although the Pale-headed snake distribution is very cryptic, it now appears to have contracted to a patchy and fragmented distribution. The Pale-headed Snake is a highly cryptic species that can spend weeks at a time hidden in tree hollows. Found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest. In drier environments, it appears to favour habitats close to riparian areas. **Low - The subject site is within the species' predicted distribution but the species is not associated with PCT 3981 and there are no records within 10 km.**	**No**
Reptilia	*Myuchelys bellii*	Western Sawshelled Turtle, Bell's Turtle	E1,P	E	14	In NSW, currently found in four disjunct populations in the upper reaches of the Namoi, Gwydir and Border Rivers systems, on the escarpment of the North West Slopes. A separate small population exists in Queensland and though disjunct, recent studies indicate all populations are the same subspecies. Recent surveys have demonstrated that the species is more widely distributed than formerly thought, locally abundant in some areas yet also sparse in habitat that appears suitable. Occupy shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Occupied pools are most commonly less than 3 m deep with rocky or sandy bottoms and patches of vegetation. Most typically uses narrow stretches of rivers 30 - 40 m wide. Most surrounding habitat has been converted to grazing land. **High - The subject site is within the species known distribution; the species is associated with PCT 3981 and there are records within 10 km.**	**Yes**

***NSW Status**: P=Protected, V=Vulnerable, E1=Endangered, E2=Endangered population, E4A=Critically endangered, 2=Category 2 sensitive species, 3=Category 3 sensitive species.
+Commonwealth Status: C=CAMBA, J=JAMBA, K=ROKAMBA, CE=Critically endangered, E=Endangered, V=Vulnerable, M=Marine

Likelihood of occurrence table for BC Act-listed Threatened Ecological Communities

Community Name	NSW status*	Likelihood of Occurrence	5-part test required (Yes/No)
Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	E3	Carex Sedgelands are mostly found at higher altitude on tablelands but extend onto the slopes. The community has been recorded from the local government areas of Armidale Dumaresq, Warrumbungle, Glen Innes Severn, Guyra, Gwydir, Inverell, Liverpool Plains, Tamworth Regional, Uralla and Walcha. The community occupies an estimated extent of 5000 hectares, which is estimated to be a 50% decline in extent since European settlement. Less than 100 hectares is currently represented in conservation reserves in NSW. Carex Sedgelands mainly occur in drainage depressions in valley floors, frost hollows, and undulating terrain between 440 and 1360 m in altitude. Occur on a variety of lithologies including granite, basalt, metasediments, acid volcanics, sandstone and Aeolian sands. Occur as a part of a mosaic of native vegetation communities including swamps, bogs, wetlands, grasslands, and sclerophyll forests. **Absent – Community does not occur within the subject site.**	**No**
McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions	E3	McKies Stringybark/Blackbutt Open Forest has a restricted distribution occurring between Kings Plains in the north to Bundarra in the south and out to the west of Uralla. It is known from the Inverell local government area, but may occur in Guyra and Uralla and possibly may occur in other adjoining local government areas. Examples of McKies Stringybark/Blackbutt Open Forest occur in Clive State Forest west of Tingha, along the Old Armidale Road east of Tingha and in Single and Kings Plain National Parks. **Absent – Community does not occur within the subject site.**	**No**
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	The Montane Peatlands and Swamps EEC is currently known from parts of the Local Government Areas of Armidale Dumaresq, Bega Valley, Bellingen, Blue Mountains, Bombala, Cooma-Monaro, Eurobodalla, Gloucester, Greater Argyle, Guyra, Hawkesbury, Lithgow, Oberon, Palerang, Severn, Shoalhaven, Snowy River, Tenterfield, Tumbarumba, Tumut, Upper Lachlan and Wingecarribee but may occur elsewhere in these bioregions. The community is currently known from conservation reserves including Werrikimbee, Barrington, Kanangra-Boyd, Monga, Wadbilliga, South East Forests and Kosciuszko National Parks. However, these examples are generally small, unrepresentative of the range of variation in the community, affected by past disturbances and continue to be threatened by some of the processes listed below. Analogous communities occur in Victoria, where the community is listed as threatened under the Flora and Fauna Guarantee Act, and in the Australian Capital Territory. **Absent – Community does not occur within the subject site.**	**No**
New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion	E4B	New England Peppermint Woodland is found on the New England Tablelands. It is known from the Dumaresq, Guyra, Inverell, Severn and Tenterfield Local Government Areas, but may occur elsewhere on the New England Tablelands. For instance, it is now known to occur south of these areas in the Namoi Catchment Management Area. **Absent – Community does not occur within the subject site.**	**No**

Community Name	NSW status*	Likelihood of Occurrence	5-part test required (Yes/No)
Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion	E3	Ribbon Gum—Mountain Gum—Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion is currently known from parts of the Local Government Areas of Armidale, Dumaresq, Bellingen, Clarence Valley, Glen Innes Severn, Guyra, Inverell, Tenterfield, Uralla and Walcha, but may occur elsewhere in this bioregion. Ribbon Gum—Mountain Gum—Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion may co-occur with White Box Yellow Box Blakely's Red Gum Woodland, also listed under the Threatened Species Conservation Act. The two endangered ecological communities may intergrade where they adjoin and in intermediate habitats, such as occur in the vicinity of Armidale. All intermediate assemblages are collectively included within the two communities. **Absent – Community does not occur within the subject site.**	**No**
Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion	E3	Known to occur between the Tenterfield and Uralla Local Government Areas but may occur elsewhere within the New England Tablelands. Generally above 900m altitude and associated with basalt soils. Not connected to river systems by floodplains. Absent – Community does not occur within the subject site. **Absent – Community does not occur within the subject site.**	**No**
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B	Box-Gum Woodland is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions. **Absent – Community does not occur within the subject site.**	**No**

***NSW Status**: E4B=Critically endangered, E3=Endangered.

APPENDIX D – BC ACT TESTS OF SIGNIFICANCE

Biodiversity Conservation Act 2016 Test of significance

The threatened species 'test of significance' (or '5-part test') is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. The test of significance is set out in s.7.3 of the *Biodiversity Conservation Act 2016*, and is completed in accordance with the questions set out below:

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

   i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

   ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

c) in relation to the habitat of a threatened species or ecological community:

   i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

   ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

   iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

BC Act Tests of Significance

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Adelotus brevis	Tusked Frog population in the Nandewar and New England Tableland Bioregions	Occurs in rainforests, wet forests and flooded grassland and pasture. They are usually found near creeks, ditches and ponds, and call while hidden amongst vegetation or debris. The species breeds from spring through to summer, with a peak during late spring. Eggs are deposited in nests under leaf litter or other cryptic sites such as old yabbie burrows near or in water. With no records within the search area and only a small area of suitable habitat available, it is unlikely that the proposed development will have an adverse effect on the lifecycle of this species.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the absence of records within the 10 km search area and the small area of suitable habitat, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Litoria booroolongensis	Booroolong Frog	Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. Adults occur on or near cobble banks and other rock structures within stream margins. Breeding occurs in spring and early summer and tadpoles metamorphose in late summer to early autumn. Eggs are laid in submerged rock crevices and tadpoles grow in slow-flowing connected or isolated pools. With no records within the search area and no suitable habitat available, it is unlikely that the proposed development	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		will have an adverse effect on the lifecycle of this species.		become isolated. iii. Considering the absence of records within the 10 km search area and the no suitable habitat, the subject site is unlikely to be of importance to the long-term survival of this species.			
Litoria castanea	Yellow-spotted Tree Frog	Following the chytrid virus pandemic in the 1970s, this species went unrecorded for 30 years and was believed to be extinct, until it was rediscovered in 2009 on the Southern Tablelands. This population - near Yass - remains the only known extant site of the species. Requires large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. Adults are active during spring and summer and bask on sunny days. The habitat within the subject site does not fit the species requirement. Furthermore, no records occur within the 10 km search area. As such, the proposal is unlikely to place a viable local population of the species at risk of extinction.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the absence of chain of ponds and aquatic vegetation, and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	The Dusky Woodswallow inhabits dry, open eucalypt forests and woodlands. Nests are an open cup-shape and are constructed in the dense foliage of eucalypts. The subject site has lost its primary forest cover which would have provided breeding opportunities, and no evidence of this species was detected during the field survey. Though broadly suitable	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		habitat is present within the subject site and there are three records within the study area but 10 km search area, the small extent of the site suggests that it would be of limited importance to such a mobile species. As such, it is unlikely that the subject site is of value to the lifecycle of the species.		and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Given the low number of records and given the subject site is relatively small and lacks suitable dense eucalypt foliage, it is unlikely to be of importance to the long-term survival of this species.			
Circus assimilis	Spotted Harrier	The Spotted Harrier constructs their twig nests within woodlands. The field survey failed to detect any nests that this species could have made use of. There is no record of this species within the 10 km search area, and with such a mobile species the small footprint of the subject site is highly unlikely to constitute critical habitat vital to the lifecycle of the species. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the inability to detect the species during the field survey, the absence of nests, and the small area of potentially suitable habitat, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Daphoenositta chrysoptera	Varied Sittella	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland. It constructs cup-shaped nests	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of	No, AOBV not present within or	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		in forks high in the canopy. The subject site has lost its primary forest cover which would have provided breeding opportunities for this species. Furthermore, no evidence of this species was detected during the field survey and no records occur within the search area. As such, it is unlikely that the subject site is of value to the lifecycle of the species.		this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of records within the 10 km search area and the poor quality of the vegetation, the subject site is unlikely to be of importance to the long-term survival of this species.	close to the subject site.		habitat due to the undertaking of the proposal.
Ephippiorhynchus asiaticus	Black-necked Stork	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. Black-necked Storks build large nests high in tall trees close to water. Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). The subject site has lost its primary forest cover which would have provided nesting opportunities, and no evidence of this species or its nests were detected during the field survey. Further, the only record within the search area is >7 km from the subject site. As such, it is unlikely that the subject site is of value to the lifecycle of the species.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of nests and the one record within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Gallinago hardwickii	Latham's Snipe	In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. There are four records within the broader search area, all outside the study area and >5 years old. Furthermore, suitable habitat (open, freshwater wetlands with low, dense vegetation) is lacking within the subject site. As such, it is unlikely that the proposed development will have an adverse effect on the lifecycle of the species.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of preferred habitat within the subject site, and the low number of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Glossopsitta pusilla	Little Lorikeet	This species forages primarily in the canopy of open eucalypt forest and woodland favouring those in riparian habitats. They are gregarious and travel in flocks of >10 but can number up the hundreds. They nest in hollows of smooth eucalypts and typically use the nest sites for decades. No Little Lorikeet's, smooth-barked Eucalyptus, or hollow bearing trees were recorded during the field survey. Furthermore, only one record of the species occurs within the search area. As such, it is unlikely that the proposed development will have an adverse effect on the lifecycle of this species.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of preferred habitat within the subject site, and the low number of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
Grus rubicunda	Brolga	Although the Brolga may feed in dry grassland or ploughed paddocks, they are dependent on wetlands for reproduction. A Brolgas nest consists of a platform of grasses and sticks, augmented with mud, that is constructed in the water. The field survey failed to detect any such nesting structure. Furthermore, no records of this species occur within the search area. Therefore, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of nests and the absence of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Haliaeetus leucogaster	White-bellied Sea-Eagle	Breeding habitat for the White-bellied Sea-Eagle consists of large, mature eucalypts adjacent to water. The subject site lacked the necessary mature trees suitable for nest construction. Further, no nests were encountered within the subject site. Although there are four record of White-bellied Sea-Eagle within the 10 km search area, none are located within the study area. As such, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of nests and	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
				the absence of records within the study area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Hieraaetus morphnoides	Little Eagle	The Little Eagle constructs its twig nests in the forks of large old trees in open woodland and riparian vegetation. There are only two records of the species in the search area, both occurring outside the study area before 2019. The subject site lacked the necessary trees suitable for nest construction and no nests were detected during the field survey. Given the small extend of the footprint, it is unlikely that the subject site is critical to the lifecycle of this species. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of nests and the absence of records within the study area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Hirundapus caudacutus	White-throated Needletail	The White-throated Needletail is migratory and usually visits in eastern Australia from October to April. This species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan. No records of the species occur within the 10 km search area. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
				not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records within the search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Irediparra gallinacea	Comb-crested Jacana	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. The nest is a platform or shallow cup of vegetable material, though eggs sometimes laid directly onto a large leaf with no nest built. The species or its nest were not detected during the field survey. There is also a lack of suitable permanent freshwater wetlands with floating vegetation within the subject site. As such and considering the lack of records within the 10km search area, it is unlikely for the subject site to be critical to the life cycle of the species.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records within the search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	This species occupies open forests and woodlands dominated by box and ironbark eucalypts. The site may offer habitat for this species, though the lack of wooded vegetation and small extent suggest that significant use is unlikely. There is only one record from 2000 within the search area. However, this record occurs outside	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		the study area. In light of the above, and considering the nomadic behaviour of the species, it is unlikely that the proposed development will have an adverse effect on the lifecycle of the species.		not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of preferred habitat within the subject site, and the low number of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.			
Oxyura australis	Blue-billed Duck	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. the subject site does not meet these requirements. Furthermore, there are only two records >12 years old within the search area. Therefore, it is unlikely that the proposed development will have an adverse effect on the lifecycle of the species.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the age of the records, and the absence of suitable deep-water habitat within the subject site, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Petroica boodang	Scarlet Robin	The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a	No, AOBV not present within or close to the	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		logs and fallen timber: these are important components of its habitat. The subject site did not meet these requirements as only a small area of fallen timber was recorded on site. In addition, the species was not observed during the field survey and there are no records within the search area. Therefore, it is unlikely that the proposed development will have an adverse effect on the lifecycle of the species.		heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of records, and the small area of suitable habitat within the subject site, it is unlikely the subject site is of importance to the long-term survival of this species.	subject site.		undertaking of the proposal.
Petroica phoenicea	Flame Robin	The Flame Robin constructs its small, open, cup-shaped nests in the forks of trees. The field survey failed to detect the species and there are no records of this species within the search area. Therefore, it is unlikely that the proposed development will have an adverse effect on the lifecycle of the species.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Given the lack of records in the search area and given the subject site is relatively small and heavily disturbed, it is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Stagonopleura guttata	Diamond Firetail	The Diamond Firetail inhabits eucalypt woodlands with a native grass-dominated understorey. Given that the subject site	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of	No, AOBV not	Yes. See **Appendix F**.	No significant impact will arise to the local

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		has lost its primary forest cover, it is doubtful whether it would be conducive to inhabitation by this species. Diamond Firetail nests are built high up, beneath the abandoned nests of raptors and ravens. There are only three records within the 10 km search area, all from 2008 and outside the study area. As the field survey failed to encounter any individuals or suitable raptor/raven nests, it is unlikely that the subject site is critical to the lifecycle of the species.		associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the species was not detected during the field survey, the small extend of the subject site and the age and location of the records, it is unlikely the subject site is of importance to the long-term survival of this species.	present within or close to the subject site.		viability of this species or its habitat due to the undertaking of the proposal.
Stictonetta naevosa	Freckled Duck	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally, rest in dense cover during the day, usually in deep water. There are no records within the search area and the field survey failed to detect the species. The subject site also lacks preferred habitat for the species. Therefore, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records, it is unlikely the subject site	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
				is of importance to the long-term survival of this species.			
Rostratula australis	Australian Painted Snipe	The Australian Painted Snipe is restricted to Australia. Most records are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. Forages nocturnally on mud-flats and in shallow water. There are no records within the search area and the field survey failed to detect the species. Therefore, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Aldrovanda vesiculosa	Waterwheel Plant	This species is found free-floating in near-coastal shallow freshwater lagoons that are rich in organic matter. There are no records within the search area and the field survey failed to detect the species. There is also a lack of required habitat within the subject site. Therefore, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
				native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records, it is unlikely the subject site is of importance to the long-term survival of this species.			
Dichanthium setosum	Bluegrass	Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture. Associated species include *Eucalyptus albens*, *Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus viminalis, Myoporum debile, Aristida ramosa, Themeda triandra, Poa sieberiana, Bothriochloa ambigua, Medicago minima, Leptorhynchos squamatus, Lomandra* aff. *longifolia, Ajuga australis, Calotis hispidula* and *Austrodanthonia, Dichopogon, Brachyscome, Vittadinia, Wahlenbergia* and *Psoralea* species. Of these species, *Themeda triandra*, *Poa sieberiana* and *Wahlenbergia* spp. were present at the site. There are four Bluegrass records within the search area, with the most recent from 1938. The species was not observed during the field survey. Considering the above, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of recent records, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Eucalyptus nicholii	Narrow-leaved Black Peppermint	This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a	No, AOBV not	Yes. See **Appendix F**.	No significant impact will arise to the local

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		Tenterfield, being most common in central portions of its range. Found largely on private property and roadsides, and occasionally in conservation reserves. Planted as urban trees, windbreaks and corridors. There are four records within the search area, with the most recent from 1885. The species was not observed during the field survey. Considering the above, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.		heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of recent records, it is unlikely the subject site is of importance to the long-term survival of this species.	present within or close to the subject site.		viability of this species or its habitat due to the undertaking of the proposal.
Eucalyptus rubida subsp. barbigerorum	Blackbutt Candlebark	Known from scattered populations on the New England Tablelands from Guyra to the Tenterfield area. Most populations occur on private property however the species is recorded in Barayamal and Guy Fawkes National Parks. There are 215 records of the species within the search area, all from 2018 and from 3 clusters located approximately 9.3 km northwest of the subject site. As such, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of records within the study area, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Thesium australe	Austral Toadflax	Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment	No, AOBV not present within or close to the	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		(*Themeda triandra*). There are 10 records within the 10 km search area, all from 2018 or earlier. However, the species was not observed during the field survey and the closest record is located 1 km from the site. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.		the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, and the age of the records, it is unlikely the subject site is of importance to the long-term survival of this species.	subject site.		
Dasyurus maculatus	Spotted-tailed Quoll	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. There are 5 records within the 10km search area, with the most recent from 2020. However, the species was not observed during the field survey and the site lack necessary den features. As such, it is unlikely that a viable local population of the species is likely to be placed at risk of extinction due to this proposal.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site and the absence of suitable den features within the subject site, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Prefers moist habitats, with trees taller than 20 m. Generally, roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. There is only one record from 2005 located within the 10 km search area but outside the study area. Furthermore, no roosting features are available within the subject site. As such, it is unlikely that a viable local population of the species	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		would be placed at risk of extinction due to this proposal.		native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the low number of records and the absence of suitable roosting habitat, it is unlikely the subject site is of importance to the long-term survival of this species.			
Miniopterus orianae oceanensis	Large Bent-winged Bat	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the treetops. There is only one record from 2016 within the 10 km search area but outside the study area. Furthermore, no roosting features are available within the subject site. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the low number of records and the absence of suitable roosting habitat, it is unlikely the subject site is of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Myotis macropus	Southern Myotis	Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, wharves, bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a	No, AOBV not present within or close to the	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		There are no records within the 10 km search area and the site does not have suitable roosting features. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.		heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the small extend of the subject site, the absence of records and the absence of suitable roosting habitat, it is unlikely the subject site is of importance to the long-term survival of this species.	subject site.		undertaking of the proposal.
Phascolarctos cinereus	Koala	The koala is a highly selective browser, feeding on the foliage of 70 eucalypt and 30 non-eucalypt species. The Koala is highly dependent on the presence of these food tree species, with their distribution strongly associated with that of their food. The subject site corresponds to the Northern Tablelands koala management area and does not contain 'high preferred use' or 'significant use' tree species, offering little support for a substantial Koala population. As such, the subject site represents poor habitat for the Koala. Furthermore, only six records occur within the 10 km search area, all of which occur outside the study area. As such, it is unlikely that a viable local population of the species would be placed at risk of extinction due to this proposal.	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the subject site represents poor habitat for the Koala, the inability to detect the species during the field survey, and the low number of records within the 10 km search area, the subject site is unlikely to be of importance to the long-term survival of this species.	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.
Pteropus poliocephalus	Grey-headed Flying-fox	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit	N/A	i. This species is not associated with any PCT within the subject site. ii. The subject site occurs within a heavily cleared landscape with limited	No, AOBV not present	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. There is no PCT associated with the species and the site does not offer suitable roosting habitat. Furthermore, its small extent suggest that significant use is unlikely. There are seven records within the study area from 2020 and older, and the closest known flying fox roosting camp is located in Inverell, 60 km west of Glen Innes. As of 2015, this camp consisted of >50000 individuals (as per the National Flying-fox Monitor). Considering the above, the proposal is unlikely to place a viable local population of the species at risk of extinction.		available habitat mostly restricted to Furracabad Creek, roadside corridors and agricultural land. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Given the large distance from known roosting camps, and the lack of suitable breeding and roosting habitat within the subject site, it is unlikely to be of importance to the long-term survival of this species.	within or close to the subject site.		species or its habitat due to the undertaking of the proposal.
Myuchelys bellii	Western Sawshelled Turtle, Bell's Turtle	Currently found in four disjunct populations in the upper reaches of the Namoi, Gwydir and Border Rivers systems, on the escarpment of the North West Slopes. Uses shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Occupied pools are most commonly less than 3 m deep with rocky or sandy bottoms and patches of vegetation. Most typically uses narrow stretches of rivers 30 - 40 m wide. There are 14 records within the search area. Although the records are recent (2021 and 2023), all are located >6.6 km from the subject site. Considering the above and the lack of preferred habitat	N/A	i. This species is associated with PCT 3981 within the subject site. Consequently, up to 0.006 ha of associated PCT for this species will be removed or modified because of this proposal. ii. The subject site occurs within a heavily cleared landscape with limited available habitat mostly restricted to Furracabad Creek. The removal of native vegetation will further fragment the available habitat; however, it will not cause patches of habitat to become isolated. iii. Considering the absence of water pools and the distance between the	No, AOBV not present within or close to the subject site.	Yes. See **Appendix F**.	No significant impact will arise to the local viability of this species or its habitat due to the undertaking of the proposal.

Scientific Name	Common Name	a.	b.	c.	d.	e.	Impact Significance
		within the subject site the proposal is unlikely to place a viable local population of the species at risk of extinction		records and the subject site, it is unlikely the subject site is of importance to the long-term survival of this species.			

APPENDIX E – MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities, and heritage places, which are defined in the EPBC Act as matters of national environmental significance. The EPBC Act policy Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE, 2013) forms the basis of determining if impact to protected matters is significant.

The EPBC Act protected matters search has identified three wetlands of international importance, four TECs, 51 threatened species, and 8 migratory species that could possibly occur in the study area. Assessment of the subject site determined that no EECs occur within the impact footprint.

The following tables give an overview of the assessments of those threatened entities that could occur within the subject site and shows that the proposed activity:

1. Is not likely to have a significant impact on a matter of national environmental significance. The matters of national environmental significance are:
    i. World heritage properties.
    ii. National heritage places.
    iii. Wetlands of international importance.
    iv. Threatened species and ecological communities.
    v. Migratory species.
    vi. Commonwealth marine areas.
    vii. The Great Barrier Reef Marine Park. And;
    viii. Nuclear actions (including uranium mines).
    ix. A water resource, in relation to coal seam gas development and large coal mining development.
2. Is not likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land).

Notes: Important Population as determined by the Environment Protection and Biodiversity Conservation Act 1999, is one that for a vulnerable species:

a) is likely to be key source populations either for breeding or dispersal
b) is likely to be necessary for maintaining genetic diversity
c) is at or near the limit of the species range

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity (DoE, 2013).

Wetlands of International Importance

Name	Proximity	Assessment of significance required (Yes / No)
Banrock station wetland complex	1100 –1200 km upstream from Ramsar site.	No, the proposal does not occur close to the wetland.
Riverland	1100 –1200 km upstream from Ramsar site.	No, the proposal does not occur close to the wetland.
The Coorong, and Lakes Alexandrina and Albert Wetland	1300 – 1400 km upstream from Ramsar site.	No, the proposal does not occur close to the wetland.

Listed Threatened Ecological Communities

Name	Status	Assessment of significance required (Yes / No)
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	No, this community does not occur within the subject site.
New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands	Critically Endangered	No, this community does not occur within the subject site.
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	Endangered	No, this community does not occur within the subject site.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	No, this community does not occur within the subject site.

EPBC Act Tests of Significance

EPBC Act-listed Endangered and Critically Endangered Species

Booroloong Frog - *Litoria booroolongensis*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species. There are no records within the 10 km search area. This species lives along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. The subject site does not meet these requirements. Given the above, and the small area of potential habitat, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The proposal will impact up to 0.006 ha of potential habitat for this species. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Booroolong Frog includes any rocky sections of permanent streams occupied by the species. Considering no permanent streams occur within the subject site, it is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established breeding population exists at the site.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Modification of steam channels and loss of cobble banks, loss of native streamside vegetation, predation of eggs and tadpoles by introduced fish, weed invasion of streamside habitats and chytrid fungus are major threats to this species. Although this proposal will exacerbate the impacts of habitat clearing, due to the clearing/modifying of up to 0.006 ha of associated PCT, this small-scale clearing should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Yellow-spotted Tree Frog - *Litoria castanea*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species. There are no records within the 10 km search area. This species requires large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. The subject site does not meet these requirements. Given the above, and the small extend of the subject site, it is unlikely that an established population exists at the site. Therefore, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering no records of this species occur within the 10 km search area and the absence of ideal habitat within the subject site, it is unlikely that the proposal would adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss or modification of wetlands, swamps and slow-flowing creeks and the adjacent vegetation, changes to natural water flows and water quality, removal of fallen timber, rocks or other debris used as shelter and chytrid fungus are major threats to this species. Although this proposal will exacerbate the impacts of habitat clearing, due to the clearing/modifying of up to 0.006 ha of associated PCT, this small-scale clearing should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Australian painted-snipe (*Rostratula australis*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species. There are no records within the 10 km search area. This species prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. The subject site does not meet these requirements. Given the above, and the small extend of the subject site, it is unlikely that an established population exists at the site. Therefore, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	The proposal will impact up to 0.006 ha of potential habitat for this species. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering no records of this species occur within the 10 km search area and the absence of ideal habitat within the subject site, it is unlikely that the proposal would adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	As indicated above it is unlikely that an established population exists at the site.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss or modification of wetlands and the adjacent vegetation, grazing and the associated trampling of wetland vegetation/nests, nutrient enrichment and disturbance to substrate by livestock removal of fallen timber, reduced rainfall and runoff in the Murray-Darling Basin associated with climate change are major threats to this species. Although this proposal will exacerbate the impacts of habitat clearing, due to the clearing/modifying of up to 0.006 ha of associated PCT, this small-scale clearing should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Koala - *Phascolarctos cinereus*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will not impact any PCT associated with this species. However, the subject site is within a priority management area for the species, the Northern Tablelands koala management area. As such, it contains one secondary food tree species (*Eucalyptus mannifera*). Despite the presence of food trees, the subject site represents poor habitat for the Koala. Only a small number of food trees are present, offering little support for a substantial Koala population. Furthermore, only six records (all outside the study area) occur within the 10 km search area. Given the above, and the small extend of the subject site, it is unlikely that an established population exists at the site. Therefore, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the Koala includes any habitat used by Koalas for feeding, resting, dispersing, and refuge during extreme events (e.g., heatwaves, drought, fires, and floods). Considering the species was not recorded during the field survey, no records occur within the study area, and the subject site is poor quality habitat for koalas, it is unlikely that the subject site contains habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	Since no known population is believed to occur within the area, this proposal will not disrupt the breeding cycle for any population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss, modification and fragmentation of habitat; vehicle strikes; predation by roaming or domestic dogs; intense prescribed burns or wildfires that scorch or burn the tree canopy; and disease are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.006 ha of native vegetation, it is not associated PCT, and this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Spotted-tailed Quoll - *Dasyurus maculatus*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will not impact any PCT associated with this species. The subject site is not within a priority management area for the species. Given the small size of the subject site, the habitat is unlikely to be conducive to quoll habitation. Furthermore, no suitable den sites occur within the subject site and there are only 5 records within the 10 km search area, with the most recent from 2020. Given the above, it is unlikely that an established population exists at the site. Therefore, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	Habitat that is critical to the survival of the Spotted-tailed Quoll includes large patches of forest with adequate denning resources and relatively high densities of medium-sized mammalian prey. Considering the small patch size of potential habitat within the subject site and the absence of denning resources, the subject site is unlikely to contain critical habitat for this species.
Disrupt the breeding cycle of a population	Since no known population is believed to occur within the area and no suitable den sites were detected, the proposal will not disrupt the breeding cycle for any population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss, fragmentation and degradation of habitat; competition with introduced predators such as cats and foxes; deliberate poisoning, shooting and trapping, primarily in response to chicken predation; roadkill; and poisoning from eating cane toads are the main threats for this species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.006 ha of native vegetation, it is not associated PCT, and this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Western Sawshelled Turtle, Bell's Turtle - *Myuchelys bellii*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of a population	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species. There are 14 records within the 10 km search area, all further than 6.6 km from the subject site. This species lives in shallow to deep pools in upper reaches or small tributaries of major rivers in granite country. Occupied pools are most commonly less than 3 m deep with rocky or sandy bottoms and patches of vegetation. The subject site does not meet these requirements. Given the above, it is unlikely that an established population exists at the site. Therefore, this proposal is unlikely to lead to the long-term decrease of any population of this species.
Reduce the area of occupancy of the species	As indicated above it is unlikely that an established population exists at the site. Therefore, the current area of occupancy will not likely be significantly reduced.
Fragment an existing population into two or more populations	As indicated above it is unlikely that an established population exists at the site. This proposal is not expected to result in any additional fragmentation for this species.
Adversely affect habitat critical to the survival of a species	The habitat critical to the survival of the western saw-shelled turtle in New South Wales is the upper Namoi River and tributaries, upper Gwydir River and tributaries, upper Severn River and tributaries, the Deepwater River and Copes Creek, and Bald Rock Creek in Queensland with these characteristics: • Deep (~ 2 m deep) pools separated by riffles or dry beds on a range of rock geologies and stream morphologies. Overhanging banks are common throughout the species range. Connectivity between such waterholes must also be maintained to allow turtles to move along and between each waterway in the catchment. • Sand, soil in rock benches, loamy substrates and shingle substrates adjacent to rivers and streams, and access to them, to provide the major nesting requirements for the species. • Riparian vegetation that acts as a buffer against high water temperatures by providing instream shade, contributes to the influx of energy, nutrients and other resources (e.g., invertebrate cases) in the form of organic matter (i.e., leaves, bark and twigs), and provides river snags for basking and refugia, and nesting sites. Aquatic and riparian vegetation also provides shelter for hatchlings and small juveniles. The subject site does not meet these requirements. Therefore, it is unlikely the proposal will adversely affect habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	Since no known population is believed to occur within the area, this proposal will not disrupt the breeding cycle for any population of this species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Pollution and sedimentation of river habitat, loss of habitat due to trampling and damage to riverbanks and riverside vegetation by grazing stock, changes to natural stream flows through removal of water for irrigation, predation on eggs by foxes, goannas and feral pigs, predation on hatchlings by exotic fish species, are the main threats to this species. Although this proposal will exacerbate the impacts of habitat loss, due to the clearing/modifying of up to 0.006 ha of associated PCT, this small-scale

	clearing should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

EPBC Act-listed Vulnerable Species

Diamond Firetail - *Stagonopleura guttata*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. There are only 3 records within the 10 km search area and all are outside the study area, with the most recent from 2008. Considering the species was not detected during the field survey, and the age of the records, the subject site is unlikely to support a population of this species. Further, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the diamond firetail includes areas of eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats; low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting and breeding; and Drooping She-oak (*Allocasuarina verticillata*). Although PCT 3981 is associated with the species, it is not considered habitat critical to the survival of a species as the Diamond Firetail was not detected during the field survey and it has not been recorded within the 10 km search area since 2008.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of associated PCT for the species. The proposal will not isolate any habitat for this species. This removal/modification of available habitat is unlikely to cause the species to decline at a regional scale.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Modification and destruction of ground- and shrub layers within habitat, invasion of weeds, clearing and fragmentation of a variety of habitats and poor regeneration of open forest and woodland habitats are the key threats to the species. Although this proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.006 ha of associated PCT, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

White-throated Needletail - *Hirundapus caudacutus*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. The White-throated Needletail is a migratory species seen along eastern Australia, commonly in coastal areas and less often inland. The species was not detected during the field survey and there are no records within the 10 km search area. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	No, the White-throated Needletail does not breed in Australia. The species lays eggs from late May to early June in their breeding grounds in the Northern Hemisphere.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of potential habitat for the species. This removal/modification of available habitat is unlikely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Aerial collision with wires, windows and lighthouses are the biggest threats for this species while it resides in Australia, though the reduction in invertebrate prey due to the loss of woodland habitat is also a threat. It Is unlikely that the proposal will interfere with the recovery of this species.
Conclusion	**Non-significant impact**

Bluegrass - *Dichanthium setosum*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCT within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. There are 5 records within the search area, with the most recent from 1938. Given the above and the limited extent and disturbed condition of the site, it is highly unlikely that the subject site contains a population of the species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of this species has not been formally defined. The subject site occurs within a heavily cleared landscape, lacking associated PCTs. Furthermore, there are only four records within the search area, with the most recent from 1938. Therefore, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Heavy grazing by domestic stock and feral herbivores; loss of habitat to cultivation; invasion by exotic weeds; inappropriate fire regimes; and urban development are the main threats to this species. Although there is no associated PCT with this species, the proposal will exacerbate the loss of habitat, due to the clearing/modifying of up to 0.006 ha of native vegetation, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Grey-headed Flying-fox - *Pteropus poliocephalus*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCT within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. The nearest roost camp is located ~ 60 km of the subject site, in Inverell. Given the distance between the site and the nearest camp, the seven records within the study area suggest the subject site may be used for transient foraging purposes only. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Adversely affect habitat critical to the survival of a species	Important winter and spring vegetation communities are those that contain *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora citriodora, C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia* or *Syncarpia glomulifera*. Habitat critical to the survival of the Grey-headed Flying-fox may also be vegetation communities not containing the above tree species but which: • contain native species that are known to be productive as foraging habitat during the final weeks of gestation, and during the weeks of birth, lactation and conception (August to May) • contain native species used for foraging and occur within 20 km of a nationally important camp as identified on the Department's interactive flying-fox web viewer, or • contain native and or exotic species used for roosting at the site of a nationally important Grey-Headed Flying-Fox camp as identified on the Department's interactive flying-fox web viewer. Considering the nearest roost camp (not a nationally important camp) is approximately 60 km of the subject site, no important winter and spring vegetation is present, and only seven records of the Grey-headed Flying-fox occur within the 10 km search area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Loss of roosting and foraging sites; electrocution on powerlines; entanglement in netting and on barbed wire; heat stress; and conflict with humans are the main threats for this species. The proposal is unlikely to significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Latham's snipe (*Gallinago hardwickii*)	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	The proposal will impact up to 0.006 ha of potential habitat for this species. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. Latham's snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies. However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. The species was not detected during the field survey and there are only four records within the 10 km search area, all >5 years and older. The habitat within the subject site does not offer freshwater wetlands preferred by the species. Given the above, it is highly unlikely that the subject site contains an important population of the species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the low number of records within the 10 km search area and the lack of freshwater wetlands with low, dense vegetation, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	Latham's snipes breed in Hokkaido and highland areas of Honshu in Japan, and in Sakhalin and the nearby Kuril Islands of far eastern Russia. The proposal will not disrupt the breeding cycle of the species.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will remove/modify up to 0.006 ha of potential habitat for the species. This removal/modification of available habitat is unlikely to cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Threats in Australia include the drainage and diversion of water from wetlands, as well as urban development within potential Latham's snipe habitat. It Is unlikely that the proposal will interfere with the recovery of this species.
Conclusion	**Non-significant impact**

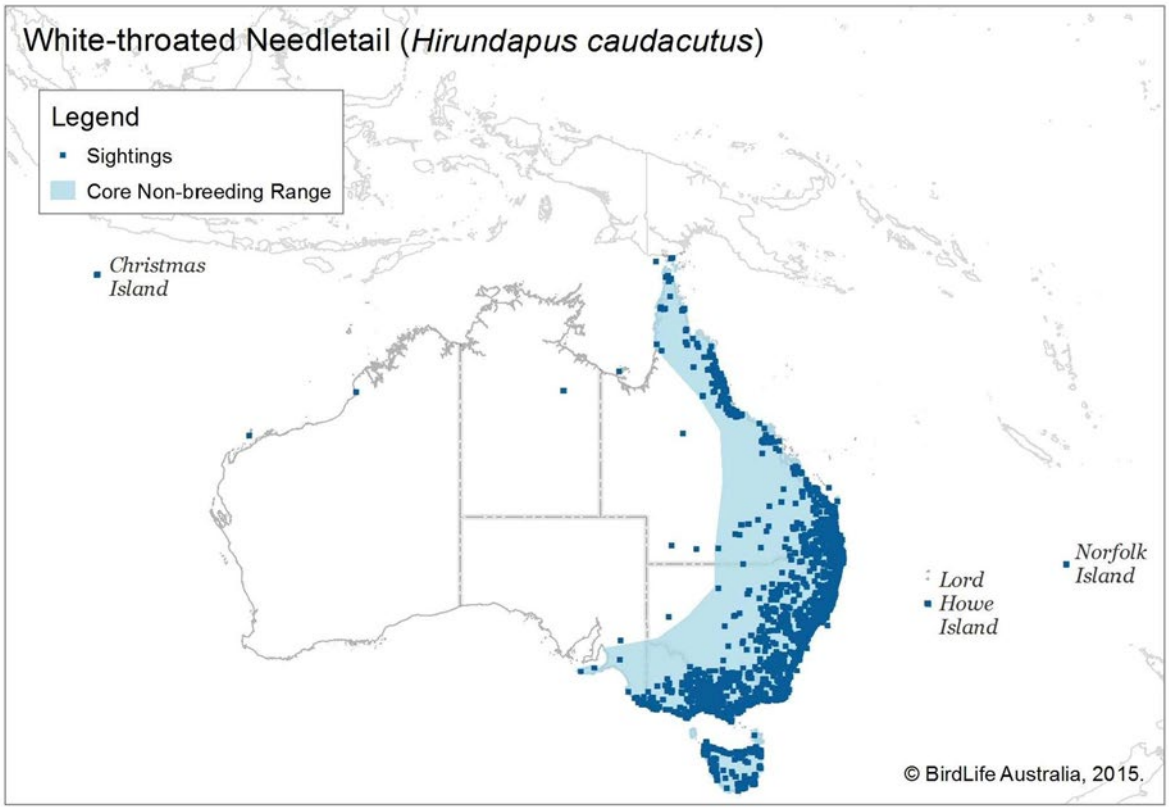
Narrow-leaved black peppermint - *Eucalyptus nicholii*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCT within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. This species is sparsely distributed but widespread on the New England Tablelands from Nundle to north of Tenterfield, being most common in central portions of its range. Found largely on private property and roadsides, and occasionally in conservation reserves. The species was not detected during the field survey and there are only four records within the 10 km search area, all from 1885 and older. Given the above, it is highly unlikely that the subject site contains a population of this species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the 10 km search area since 1885 and the inability to detect the species during the field survey, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	The main identified threats to Narrow-leaved Peppermint are inappropriate fire regimes, grazing by domestic stock, collection of firewood and seed collection for horticulture. The proposal is unlikely to interfere with the recovery of this species.
Conclusion	**Non-significant impact**

Blackbutt candlebark - *Eucalyptus rubida*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCT within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. Known from scattered populations on the New England Tablelands from Guyra to the Tenterfield area. Most populations occur on private property however the species is recorded in Barayamal and Guy Fawkes National Parks. The species was not detected during the field survey but there are 215 records within the 10 km search area, all from 2018 and from 3 clusters located approximately 9.3 km northwest of the subject site. Given the above, it is highly unlikely that the subject site contains an important population of the species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the lack of records within the study area, the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Clearing and fragmentation of woodland habitat for agriculture and development, timber collection and destruction and disturbance of habitat due to road-work are the biggest threats for this species. Although this proposal will exacerbate the impacts of habitat loss, due to the clearing/modifying of up to 0.006 ha of native vegetation, this should not significantly interfere with the recovery of the species within the region.
Conclusion	**Non-significant impact**

Austral Toadflax - *Thesium australe*	
Significant Impact Guideline	**Assessment**
Lead to a long-term decrease in the size of an important population of a species	This species is not associated with any PCT within the subject site. The subject site is not within a priority management area for the species, nor is it at the edge of the species' distribution. Austral Toad-flax is found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (*Themeda triandra*). The species was not detected during the field survey and there are only 10 records within the 10 km search area, all from 2017 and older. Given the above, it is unlikely that the subject site contains a population of the species. Furthermore, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Reduce the area of occupancy of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Fragment an existing important population into two or more populations	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act
Adversely affect habitat critical to the survival of a species	Critical habitat for this species has not been formally identified. However, considering the inability to detect the species during the field survey (conducted during the appropriate survey window for this species), the subject site is unlikely to contain habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	As indicated above, if a population were to occur within the impact area, it would not fit the definition of an important population under the EPBC Act.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposal will not remove/modify any area of associated PCTs for the species. The proposal will not isolate any habitat for this species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	There is the potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Introduce disease that may cause the species to decline	Machinery used on site can potentially act as a transport for biosecurity risks. Environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Interfere with the recovery of the species.	Lack of fire/disturbance, existing and intensified grazing by livestock, native herbivores and feral herbivores, residential, infrastructure and agricultural development, weed invasion and infrastructure (road and rail) maintenance, particularly road widening and re-routing are the biggest threats for this species. The proposal is unlikely to interfere with the recovery of this species.
Conclusion	**Non-significant impact**

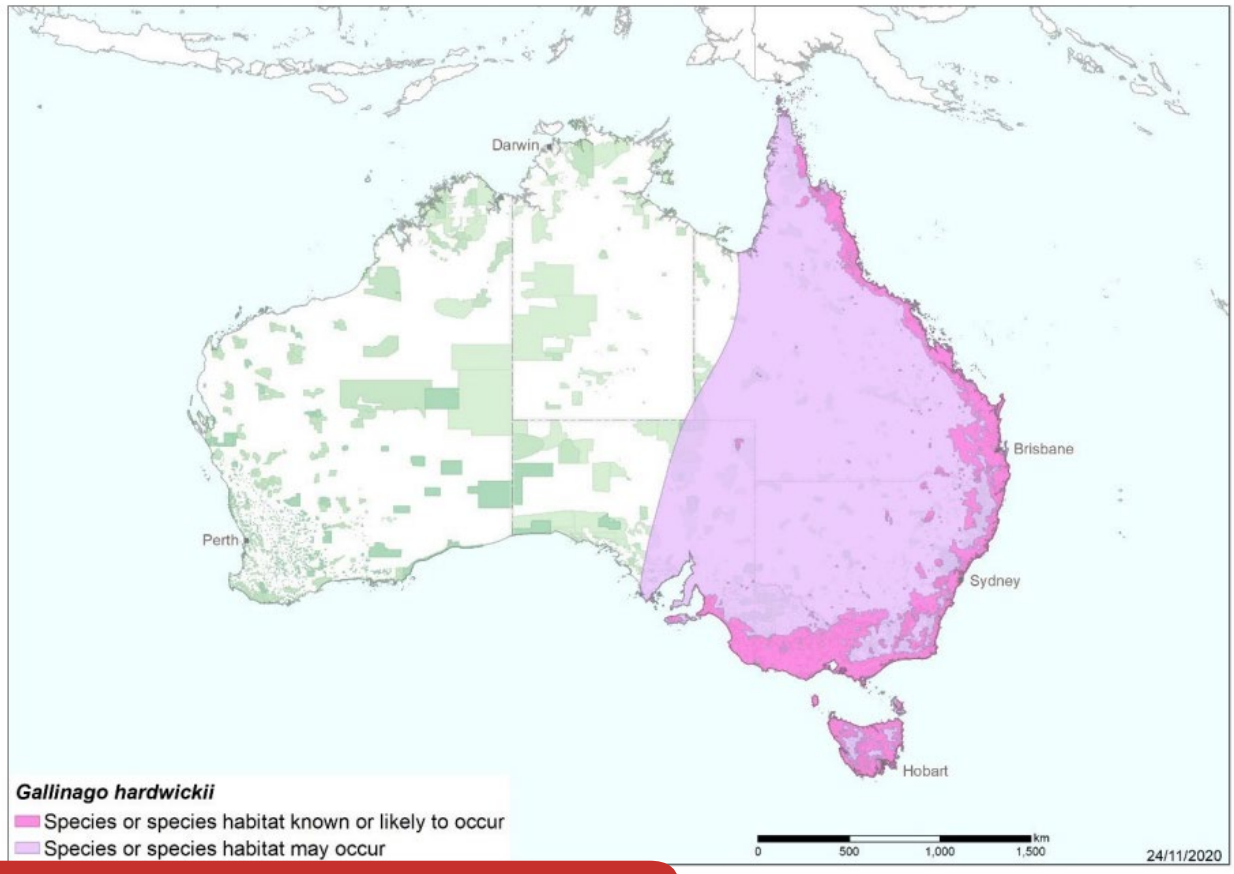
EPBC Act-Listed Migratory Species

White-throated Needletail – *Hirundapus caudacutus*	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The subject site occurs within the core non-breeding range of the White-throated Needletail (see figure below). As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat, it is unlikely to constitute important habitat for this species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is highly unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan from June-August. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**Non-significant impact**



White-throated Needletail Core Non-breeding Range (DP 2015).

Latham's snipe – *Gallinago hardwickii*	
Significant Impact Guideline	**Assessment**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles, or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The species is a non-breeding visitor to Australia and the subject site occurs within the core non-breeding range of the species (see figure below). As the species is very widely distributed, and as the subject site contains only a small area of potential foraging habitat, it is unlikely to constitute important habitat for this species.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	It is highly unlikely that the proposal site constitutes important habitat for this species. While there is potential for works to introduce invasive species to the proposal site or exacerbate existing infestations of significant invasive species, environmental safeguards for the management of biosecurity risks will be implemented (see **Section 7**).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	It is highly unlikely that an ecologically significant proportion of the population occurs within or is dependent on the proposal site. Furthermore, this species breeds in Hokkaido and highland areas of Honshu in Japan, and in Sakhalin and the nearby Kuril Islands of far eastern Russia. As such, the proposal is unlikely to seriously disrupt the lifecycle for this species.
Conclusion	**Non-significant impact**



Latham's Snipe Non-breeding Range (DP 2024).

APPENDIX F – KEY THREATENING PROCESSES

Key Threatening Processes (KTP) predicted as acting on the study area that may be exacerbated by the proposal.

Threats	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala*	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Alteration of habitat following subsidence due to longwall mining	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Anthropogenic Climate Change	KTP	KTP	**Very likely**	**Yes** Some unavoidable emissions will occur from construction machinery and operation.
Bushrock removal	KTP	-	**Likely**	**Yes** One bushrock is present on site and would likely be removed for the proposal.
Clearing of native vegetation	KTP	KTP	**Very likely**	**Yes** Up to 0.006 ha of native vegetation would be cleared by the current proposal.
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Competition and habitat degradation by Feral Goats, *Capra hircus*	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Competition from feral honey bees, *Apis mellifera*	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus*	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Herbivory and environmental degradation caused by feral deer	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
High frequ[illegible] cycle proc[illegible]sses in plants and animals and loss of vegetation structure and composition	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Importatio[illegible] of Red Impor[illegible]ed Fire A[illegible]nts *Solen[illegible]psis invicta*	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Infection b[illegible] Psittacine Ci[illegible]ovirus (b[illegible]ak a[illegible]d f[illegible]ather) Disease a[illegible]ecting endangered psittacine species and populations	KTP	KTP	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.

Threats	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Infection of native plants by *Phytophthora cinnamomi*	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Introduction of the Large Earth Bumblebee *Bombus terrestris*	KTP	-	**Unlikely**	**No** This species only occurs in Tasmania.
Invasion and establishment of exotic vines and scramblers	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion and establishment of the Cane Toad (*Bufo marinus*)	KTP	KTP	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata*	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion of native plant communities by *Chrysanthemoides* monilifera	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion of native plant communities by exotic perennial grasses	KTP	-	**Likely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* into NSW	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Invasion, establishment and spread of Lantana (*Lantana camara*)	KTP	-	**Unlikely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	**Likely**	**Potentially** Machinery used on site can potentially act as a transport for biosecurity risks.
Loss of Hollow-bearing Trees	KTP	-	**Unlikely**	**No** No hollow bearing trees were recorded on site.
Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP	-	**Unlikely**	**No** No sites known or suspected to be present.
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*	KTP	-	**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)	KTP		**Unlikely**	**No** The proposal does not include any activities that would exacerbate this threat.
Predation by the European Red Fox *Vulpes Vulpes*	KTP	KTP	**Unlikely**	**No** Ease of access for feral foxes will not be increased by the proposal
Predation by the Feral Cat *Felis catus*	KTP	KTP	**Unlikely**	**No** Ease of access for feral cats will not be increased by the proposal
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa*	KTP	KTP	**Unlikely**	**No** Ease of access for feral pigs will not be increased by the proposal

Threats	NSW status	Comm. status	Likelihood of Occurrence	Exacerbated by Proposal?
Removal of dead wood and dead trees	KTP	-	**Likely**	**Yes** Fallen timber has been recorded on the eastern side of the subject site.

APPENDIX G –TEC CRITERIA

CRITERIA FOR THE EPBC ACT-LISTED EEC

UPLAND WETLANDS OF THE NEW ENGLAND TABLELANDS AND THE MONARO PLATEAU

What are Upland Wetlands?

The Upland Wetlands of the New England Tablelands and the Monaro Plateau are wetlands that are not connected to rivers or streams. Instead, they occur in depressions in the landscape. The persistence of the wetlands throughout the year depends on the depth of the depression in which they occur, the depth of water in the wetland, the catchment area supplying the wetland with water, rainfall patterns, and past and current disturbances. For this reason, the Upland Wetlands can occur as near permanent (rarely dry), intermittent (often seasonally dry) or ephemeral (only occasionally full) wetlands.

The vegetation of the Upland Wetlands ranges from dense sedgeland to grassland. Around deep lagoons or lakes the vegetation occurs on the shores and in the shallower reaches, while shallow or dry-wetlands may have sedges and grasses extending all the way across.

The main characteristics of the Upland Wetlands are:

- they occur in deep depressions in the landscape between 700 to 1400m above sea level
- most of the wetlands occur on basalt-derived soils, the remainder occur on soils derived from other rock types such as granite or silcrete
- they support a range of vegetation such as water plants, sedges, forbs and grasses and
- there are no shrub or tree species that occur naturally within these wetlands, though shrubs and trees in areas surrounding the wetlands can play an important role in controlling run-off and buffering impacts.

The listed ecological community does not include created farm or domestic water storage dams.

In general, ephemeral wetlands have been more heavily degraded than the intermittent or near permanent wetlands, and some are now so degraded that they are no longer part of the listed ecological community. These excluded wetlands are those ephemeral wetlands that have low native species richness (fewer than seven species in total, including both wet and dry conditions) and/or that have introduced species making up more than 50% of plant cover present on average.

A variety of plants and animals make their homes in the Upland Wetlands, including migratory birds such as Latham's Snipe, frogs such as the Brown Toadlet and Peron's Tree Frog, and reptiles like the Eastern Long-necked Turtle. The wetlands also play important ecological and hydrological roles in the environment.

CRITERIA FOR THE BC ACT-LISTED EEC

Identifying Upland Wetlands EEC

The following are key characteristics to help identify an area of Upland Wetlands.

1. Is the site in the New England Tableland Bioregion of NSW?
2. Is the site on high altitude (above about 900 m) plateaus, mainly on basalt soils but sometimes on other substrates?
3. Is the vegetation a sedgeland, herbland or grassland on the shores of open water or extending across shallow or dry wetland beds?
4. Does the ground layer, if present, contain plant species included in Table 1? (See photos in this guideline, check with a local botanist, or consult reference books or NSW Flora Online: http://plantnet.rbgsyd.nsw.gov.au/).

If you answered yes to the above questions, your site is likely to consist of Upland Wetlands. Where difficulties arise when faced with decisions on whether particular sites are Upland Wetlands, expert advice may be needed.

Characteristic species list

A list of plants that characterise a patch of Upland Wetlands when the wetland contains water is provided in Table 1. At times when wetlands are dry, species may be represented only in the seed bank. Not all the species listed need to occur at any one site for it to be considered Upland Wetlands EEC, and there may also be additional species that are not included in the table. The species present at any site will be influenced by the size of the site, recent rainfall or drought conditions, and by the site's disturbance history.

Table 1. Characteristic species recorded in the Upland Wetlands EEC

Aldrovanda vesiculosa	*Glyceria australis*	*Nitella sonderi*
Amphibromus nervosus	*Glyceria latispicea*	*Nitella tasmanica*
Amphibromus sinuatus	*Gonocarpus micranthus*	*Nymphoides geminata*
Azolla filiculoides var. *rubra*	*Haloragis heterophylla*	*Nymphoides montana*
Brachyscome radicans	*Hemarthria uncinata*	*Oplismenus aemulus*
Carex gaudichaudiana	*Hydrocotyle peduncularis*	*Panicum obseptum*
Carex inversa	*Hydrocotyle tripartita*	*Paspalum distichum*
Carex tereticaulis	*Hypericum japonicum*	*Persicaria hydropiper*
Centipeda minima var. *minima*	*Isoetes drummondii*	*Persicaria lapathifolia*
Chara australis	*Isolepis cernua*	*Persicaria prostrata*
Chara fibrosa	*Isolepis fluitans*	*Phragmites australis*
Chara muelleri	*Isotoma fluviatilis* subsp. *borealis*	*Potamogeton crispus*
Coronidium scorpioides (=Helichrysum scorpioides)	*Juncus australis*	*Potamogeton tricarinatus*
	Juncus filicaulis	*Pseudognaphalium luteoalbum*
Crassula helmsii	*Juncus holoschoenus*	*Ranunculus inundatus*
Cyperus sanguinolentus	*Juncus vaginatus*	*Ranunculus lappaceus*
Cyperus sphaeroideus	*Lachnagrostis filiformis (=Agrostis avenacea* subsp. *avenacea)*	*Ricciocarpus natans*
Elatine gratioloides		*Schoenus apogon*
Eleocharis acuta	*Lemna trisulca*	*Spiranthes sinensis* subsp. *australis*
Eleocharis dietrichiana	*Lilaeopsis polyantha*	
Eleocharis gracilis	*Limosella australis*	*Spirodela punctata*
Eleocharis pusilla	*Lipocarpha microcephala*	*Stellaria angustifolia*
Eleocharis sphacelata	*Microtis unifolia*	*Typha domingensis*
Epilobium billardierianum subsp. *hydrophilum*	*Myriophyllum lophatum*	*Utricularia australis*
	Myriophyllum variifolium	*Utricularia dichotoma*
Eragrostis benthamii	*Najas tenuifolia*	*Viola betonicifolia*
Eriocaulon scariosum	*Neopaxa australasica*	
Euchiton involucratus	*Nitella cristata*	